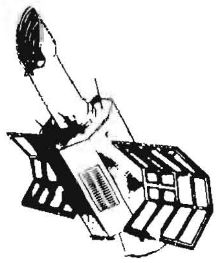

IUE esa

NEWSLETTER

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NO.18 DECEMBER 1983

IUE ESA NEWSLETTER

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OBSERVATORY CONTROLLER'S MESSAGE

Recent Users will already have noticed a major difference in the IUE operations: the LWP is now the actual prime camera for the Long Wavelength Spectrograph. Although more details of this change are to be found on page 23, we should stress that the LWR, apart from the small area affected by the "flare", is still working correctly and in case of justified scientific reasons it can be used. The change from LWR to LWP, which was decided at the last 3-Agency meeting, was taken as a precautionary measure in order to optimize the lifetime of the scientific instrument.

A second important change in the IUE operations is a more restrictive power constraint (see page 9) which was enforced after the last September eclipse period. Proper scheduling should in principle neutralize it, however adding new targets to your targets list or changing the priority within the latter might be impossible at the time of observations. In order to avoid unpleasant surprises, we strongly suggest that you check your observing plan with our scheduler, A. Talavera, well in advance, especially if your observations involve other space or ground-based observatories.

For the 7th round of IUE operations (April 84-March 85) we have received 261 new proposals, roughly the same number as in past years. The proposals will now be assessed by the European IUE Allocation Committee which will meet in early January. The list of the members of this year's Committee is published on page 5.

On page 94 we publish the usual update of the IUE log of observations, covering the period April 1st-July 31st, 1983. Please note that, as from the present issue, we have included both NASA and European images.

The 'New personnel' section is here again: with the arrival of Barbara Hassall and Roberto Gilmozzi the staffing of the observatory is back to its normal level. Note that in the redistribution of responsibilities among the new Resident Astronomers, the Editorship of the IUE Newsletter will be transferred to Barbara.

PIERO BENVENUTI

NEW PERSONNEL AT VILSPA

Barbara Hassall (27 years and British) joined the IUE observatory as Resident Astronomer on September 1st. Her astrophysical education was shared between the Cavendish Laboratory and the Institute of Astronomy in Cambridge where she obtained her Ph.D. on an observational study of Dwarf Novae Outbursts. In the past she has also worked with the Tokomac Confinement Group at Culham. She is a lively outdoor person, but Guest Observers should not be alarmed to hear of her past fencing experience, since her current interests are more peaceful, including clarinet playing.

Roberto Gilmozzi, 29 years old and Italian, has also taken up residence in Spain with his wife. He also joined the VILSPA observatory staff on September 1st. His doctorate was obtained at the University of Rome with an extensive study of AM Her. His previous experience includes a 2 year ESA fellowship at the Royal Greenwich Observatory, after which he worked at the Intitute of Space Astrophysics in Frascati. He is a new to Space Observing. His astronomical interest covers the full extend of the observable Universe (and beyond). Whenever some time is left over he tries to divide it between playing the piano and sailing.

Carlos Yuste Leciñena has joined the staff at Vilspa and is working as Image Processing Specialist. He is married and 33 years old. His training included a degree in Astrophysics at Complutense University Madrid and has since worked with various computer firms. In his spare time, he plays football and tennis.

Agustin Nuñez Castain (25 years old and married) has also joined the Image Processing group at VILSPA, after having completed his Astrophysics degree at Complutense University, Madrid. His extra curricular activities are diverse, including volley ball and amateur telescope making.

Francisco Marcelo Castells is yet another recent arrival within the Image Processing group. He is a native of Madrid, 25 years old and has a Masters Degree in Physics. Since then he has gained experience in a variety of fields such as nuclear engineering, Dutch aluminium production and computers, before joining the VILSPA staff.

NEW EUROPEAN SELECTION COMMITTEE FOR IUE

The proposals requesting Observing time for IUE are each year evaluated by a Selection Committee. Below we give for your information the complete list of members of this year's Committee.

A.J. Willis/Chairman	U.C.L., London
N. Panagia/Vice-Chairman	Istituto di Radioastronomia, Bologna
M.J. Barlow	U.C.L., London
G. Bath	University of Oxford
R. Canal	University of Chicago
R.F. Carswell	University of Cambridge
V. Castellani	Universita "La Sapienza", Roma
D.H. Clark	R.A.L., London
J. Danziger	E.S.O., Munich
P. Gondhalekar	R.A.L., London
K.J. Fricke	Universitäts-Sternwarte, Göttingen
D.W. Hughes	University of Sheffield
C. Jordan	University of Oxford
R.P. Kudritzki	Universitäts-Sternwarte, Munich
H.J. Lamers	Space Research Laboratory, Utrecht
J. Lequeux	Observatoire de Marseille
H. Nussbaumer	Atomic Physics and Astrophysics Group, Zurich
F. Praderie	Observatoire de Meudon, Paris
J. Rahe	Astronomisches Institüt, Bamberg
E. Tanzi	C.N.R., Milano
J. van Paradijs	Astronomical Institute, Amsterdam
A. Vidal-Madjar	Institut d'Astrophysique, Paris

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland
20771

NASA

Reply to Attn of: 683

#17672
September 27, 1983

Dear Colleague:

We wish to announce plans for a symposium, entitled "Future of Ultraviolet Astronomy Based on Six Years of IUE Research", in commemoration of the beginning of the seventh year of guest observations with the International Ultraviolet Explorer (IUE). The symposium, which will be held at the Goddard Space Flight Center on April 3, 4 and 5, 1984, is being co-sponsored by the American Astronomical Society. According to our tentative plans, the symposium will contain both invited review papers and contributed papers (5 to 10 minutes).

Those interested in attending the symposium are requested to return the enclosed participation form to us by November 18, 1983, to facilitate our planning. The significant dates for the meeting include:

November 18, 1983:	Participation forms are due
February 10, 1984:	Abstracts are due; abstracts arriving after this date may be considered for inclusion as late papers at the discretion of the Organizing Committee
April 3, 4, and 5:	Symposium will be held; camera-ready copies of manuscripts for publication in the symposium proceedings are due on April 3.

Further details for the meeting, including a packet for manuscripts, local arrangements and social events, will be transmitted to those returning participation forms. There are no registration fees for the meeting. We regret that no travel funds are available from the Organizing Committee.

Sincerely,

Yoji Kondo	Robert D. Chapman	Jaylee M. Mead
Chairman, Scientific Organizing Committee	Co-Chairman, Scientific Organizing Committee	Chairman, Local Organizing Committee

PLEASE RETURN THIS FORM BY NOVEMBER 18, 1983 USING
THE ENCLOSED FRANKED ENVELOPE ADDRESSED TO:

Dr. Jaylee M. Mead
Goddard Space Flight Center
Code 680
Greenbelt, MD 20771

_____ I plan to attend the Symposium "Future of Ultraviolet Astronomy Based on Six Years of IUE Research" on April 3, 4, and 5, 1984.

_____ I am not sure if I will be attending the Symposium but would like to receive future mailings.

_____ I expect to submit the abstract of a paper by the February 10, 1984 deadline. My talk will be in the category of:

NAME: ______________________________

INSTITUTION: ______________________________

ADDRESS: ______________________________

____

TELEPHONE: ______________________________

....

Scientific Organizing Committee

T. R. Ayres/U. of Colorado
R. D. Chapman (Co-chairman)/GSFC
A. P. Cowley/Arizona State U.
R. Giacconi/ST Science Institute
Y. Kondo (Chairman)/GSFC
B. Margon/U. of Washington
R. M. Nelson/JPL
J. B. Oke/CIT
J. C. Raymond/Center for Astrophysics
B. D. Savage/U. of Wisconsin
G. A.Wegner/Dartmouth
E. J. Weiler/(Ex-officio)NASA HQ

Local Organizing Committee

S. R. Head/GSFC
J. N. Heckathorn/CSC
A. V. Holm/CSC
J. K. Kalinowski/GSFC
J. M. Mead (Chairman)/GSFC

MISCELLANEOUS

Implementation of New Dispersion Constants

In IUE Newsletter No.17 p14 it was announced that IUE Data Reduction Memo XXI (NASA IUE Newsletter No.15) which describes the updated dispersion constants and their time/temperature dependence, was forthcoming in ESA IUE Newsletter No.18. This paper will not be reproduced here since it has already been published as:-

Thompson, Turnrose & Bohlin, 1982, Astron. Astrophys. 107, 11.

Excerpts from the IUE Merged Log

Requests for microfiche copies of the merged log ordered by class rather than R.A. can be obtained from the SERC, as announced in ESA IUE Newsletter No.17 p10. However, the address to contact is:-

UK Resident Scientist,
Dr D. Giaretta,
Rutherford Appleton Laboratory (R25),
Chilton, Didcot,
Oxon. OX11 0QX, UK.

Seasonal Greetings

The Vilspa staff would like to take this opportunity of wishing all IUE Users and Newsletter Readers

A MERRY CHRISTMAS AND A HAPPY NEW YEAR

IUE SPACECRAFT STATUS

I The IUE Spacecraft continues to support science operations normally and effectively at the end of its 6th year of very successful in-orbit operations.

The satellite emerged from the autumn eclipse season (Nr.12 Sep 03-25) with no major problems being noted. However, battery-1 indicated a higher discharge current than battery-2 at the beginning of the eclipse season. This could be the first sign of aging as a result of the high use rate of the batteries during the past months of science operations. By the mid-point of the eclipse season, battery-1 had returned to nominal performance after having undergone 12 cycles of discharge/charge operations, which obviously reconditioned the battery.

As a result of this and with a view to maintaining the two on-board batteries in good condition during the coming years, the battery management rules have been changed as follows:

1. Up to the end of the 6th Episode (31st March 1984) a total of 36 power-negative or power-neutral operations, where 22.50 Volts is reached on either battery, will be permitted.
   The 36 operations will be shared between GSFC (24) and VILSPA (12) respectively.

2. 12 operations (GSFC=8, VILSPA=4) of these 36 operations in the period indicated above shall be permitted to reach the RED-Line limit of 20.90 Volts. During peak loads (<10 mins) ie reads, ranging and wheel unloads, the voltage level may drop down to 20.50 Volts.

3. The same rules as indicated above will be applicable during the entire 7th Episode of IUE (1st April 1984 - 31st March 1985), ie stretched over a period of 12 months.

4. The consequences for the remainder of the 6th Episode are that only targets between

   $$\text{BETA} \geq 27^\circ \text{ and BETA} \leq 115^\circ \pm 4^\circ$$

   are not power constrained.
   Users having targets in the ± 4 Beta-band are requested

to indicate the type of observations required at these extreme angles, since heavy S/C-load may not permit observations unless prior approval is granted to the observer to use one of the power-negative operations.

5. The predictions for the 7th Episode of IUE for targets providing a power-positive attitude are:

$$BETA \geq 30^\circ \quad \text{and} \quad BETA \leq 112^\circ \pm 4^\circ$$

II A change in the configuration of the Scientific Instrument became effective on the 16th October 1983. The Long Wavelength Prime Camera is now the operational camera in the LW-spectrograph, whilst the LWR Camera is switched off. The reason for the change is a bright patch (Flare) appearing on the lower rim of the imaging section since approximately April 1983. The LWR can still be used if justified by high scientific merit. More details about this and future engineering work with the LWR are given elsewhere in this Newsletter.

III In ESA IUE Newsletters No.15 and No.16 information about the gyroscopes and the backup control system (2 Gyro/Fine Sun Sensor) were presented. The following notes will provide you with an update on this subject.

The design and operational readiness review meeting of the "IUE 2-Gyro/FSS back-up control system" was held in July 1983 at the Goddard Space Flight Center. At this meeting the decision was taken that no spacecraft tests of the back-up system will be performed unless the system is needed, should another gyroscope fail in the future. Simulations with the ground spacecraft simulator have been run successfully. The new S/C control software, presently under development, will provide an option to select between the 3-Gyro prime system and the 2-Gyro/FSS back-up control system. This new software is expected to be released for IUE Operations within the next two months.

################

Below is a complete and detailed IUE Status Report. This is an updated version of the Report presented in ESA IUE Newsletter No.15, p5. The report has been updated where new figures are available or the status has changed since the previous publication date.

J.FAELKER.

I. SCIENTIFIC INSTRUMENT HARDWARE STATUS

A. CAMERAS (4)

i) Long Wavelength Prime (LWP) - standard camera, from 16 Oct. 1983.
read scan control logic fails frequently, but reset by bad scan detection logic.

ii) Short Wavelength Prime (SWP) - standard camera.
no operational problems

iii) Long Wavelength Redundant(LWR) - available on G/O request.
Usage to be approved by project scientist.
Camera suffers from discharge in the UVC -since April 1983-, producing a bright patch (Flare) on the image (Benvenuti, 1983).
max. 45 minutes extra overhead time for turn on/off.

iv) Short Wavelength Redundant (SWR) - Not available
read section grid voltages usually fail

B. SPECTROGRAPHS (2)

i) Short Wavelength

Entrance Apertures

Large Aperture (SWLA) - oval shape
Length for trailed spectra :
21.4 ± 0.4 arcsec.
Area for extended sources:
200 ± 5 sq.arcsec.
(Panek 1982a)

Small Aperture (SWSA) - probably non-circular effective shape
area ~ 6.8 sq. arcsec (Panek 1982a)
point source throughput 0.53 ± 0.13

Orientation - variable (Schiffer 1980a)
(Patriarchi 1981)

Echelle Mode - functional

Low Dispersion Mode - functional

ii) Long Wavelength

Entrance Apertures

Large Aperture (LWLA) - oval shape
Length for trailed spectra :
20.5 ± 1.0 arcsec.

area for extended sources :
203 ± 6 sq. arcsec.
(Panek 1982a)

Small Aperture (LWSA) - probably non-circular effective shape
area ~ 6.9 sq. arcsec (Panek 1982a)
point source throughput :
0.49 ± 0.15

Orientation - variable (Schiffer 1980a)
(Patriarchi 1981)
Echelle Mode - functional
Low dispersion mode - functional

C. <u>FINE ERROR SENSORS</u>(2)

i) FES 1 - back-up system last used 1978 Feb 18
2 magnitudes less sensitive than FES 2

ii) FES 2 - standard
positional accuracy 0.27 arcsec near center of field.
3 arcsec elsewhere
8 arcsec for m < -0.6 or 14.2 < m < 16

field size 8 arcmin radius
eff. wavelength ~ 5200 A
visual calibration (Holm and Rice 1981)
experiences electronic confusion from operation aperture closure mechanism and the Sun shutter mechanism

II. <u>SPACECRAFT (S/C) HARDWARE STATUS</u>

A. <u>GYROS</u> (6)

No. required for three-axis stabilized attitude control - 3
No. healthy - 3
Gyro-1 (failed at 1981 March 2, 19:50 GMT)
Gyro-2 (failed at 1982 July 27, 07:00 GMT)
Gyro-6 (stuck since turned off for 1979 shadow season)
No. failed - 3
S/C drift rates - 3 to 20 arcsec/hour (in pitch & yaw)
usually largest shortly after slewing
Maneuver accuracy since 1981 Nov 21
error/length ≅ 4 x 10^{-4} (Panek and Baroffio 1982)

B. REACTION WHEELS(4)

No. required for slewing - 3
No. in use - 3 (pitch, yaw, and roll)
Backup (skewed wheel) never used in orbit

C. HYDRAZINE SYSTEM

Required for reaction wheel maintenance, orbit change maneuvers, and emergency sun acquisitions
~ 21.6 kg available
usage rate ~ 0.5 kg/year

D. SOLAR ARRAYS AS OF SEPT. 1983.

Power positive zone - depends upon activity level
Beta angles 115° to 27°±4° with 1 camera reading and 1 camera exposing

E. BATTERIES(2)

Max. depth of discharge during September 1983 shadow season
Battery #1 64%
Battery #2 62.4%

F. ON-BOARD COMPUTER(2)

i) OBC 1
Temperature limit 55.8 C
Last crash 1982 Dec 24
Software systems
8K - standard
4K - new crash resistant system capable of supporting science operations
- bug in attitude control logic

ii) OBC 2
backup system
never used in orbit

III. IMAGE PROCESSING SYSTEM STATUS

(Alderman, Turnrose, and Northover 1981)
The current system has evolved through a series of modifications. The following list indicates the most significant modifications and their implementation dates.

	GSFC	VILSPA
Averaged Intensity Transfer Function	1978 May 22-	78 June 14
Improved calibration Line Library		
Low dispersion	1978 Sep 21-	79 Feb 01
High dispersion	1979 Nov 23-	81 Mar 10
Correct SWP ITF error	1979 Jul 07-	79 Aug 07
Mean dispersion constants:		
Low dispersion	1979 Oct 30-	81 Mar 10
High dispersion	1980 Jul 18-	81 Mar 10
Improved calibration Line Library		
"New" Low dispersion software		
Parameterized low dispersion constants	1980 Nov 4-	81 Mar 10
Parameterized high dispersion constants	1981 May 19-	82 Mar 11
"New" High dispersion software	1981 Nov 10-	82 Mar 11

IV. INSTRUMENTAL PERFORMANCE

A. NOISE

i) Readout noise ~10 DN/pixel

ii) Periodic noise (microphonics)

SWP -
- covers entire image
- amplitude generally 1-3 DN
- amplitude may be increased to 10-40 DN by mechanical activity in S/C, incl. roll slews
- frequency ~200 Hz (Northover 1979)

LWR -
- affects a few lines in ~85% of images
- amplitude up to 110 DN
- amplitude decays ~25% image line (Panek 1981)
- frequency ~300 HZ (Panek 1981)
- occurrence associated with heating of read section of camera
- occurrence modified by delaying read (Holm and Panek 1982)

LWP -
- occurrence associated with Roll slews
- amplitude up to 7 DN.
- affects only the lines when a roll slew is in progress (Faelker 1982)

iii) Bright spots

radioactive disintegrations in phosphor ~30 spots/hr (Coleman et al. 1977)

permanent blemishes
most pronounced pseudo-emission feature
~2190 A low dispersion, large aperture
others (Ponz 1980)

iv) Typical signal/noise ratio

for well exposed point source spectra
SWP - 10-30 old software (Cassatella et al. 1980)
7-27 new software
LWR - 12-21 old software (Settle et al. 1981)
8-15 new software (Barylak 1982)
LWP - 9-25 old software (Settle et al. 1981)
6-18 new software (Barylak, 1982)

v) S/N properties of averaged spectra

(Clarke 1981a)
(West and Shuttleworth 1981)

B. BACKGROUND

i) Phosphorescence fogging

During low-radiation shifts
LWR & SWP 6-10 DN/hour/pixel
LWP 4-7 DN/hour/pixel (Ake 1982)
Fogging rate depends on no. and type of PREPS
before exposure
Overexposures cause "ghost" spectrum fogging
(Snijders 1983).
phosporescence decay rate
$\sim t^{-0.8}$ up to several hours (Coleman 1978)
unknown after long time intervals

ii) Radiation fogging

caused by Cerenkov radiation from electrons
in the van Allen belts (Coleman et al. 1977)
may be severe near perigee (US shift 2)
recent experience 22% low fogging shifts
15% high fogging shifts

C. PHOTOMETRIC PROPERTIES

i) Upper limits to ITFs (Turnrose 1980)

ii) Linearity errors in processed spectra

SWP -10 to -20 percent for Net DN<20
+10 to +15 percent for ave. DN>220 @ 1300 A

(Holm 1981b)
LWR +10 to +20 percent for Net DN≤40
(Settle et al. 1981)
LWP mean error +2% for Net DN>100
mean error of-2.5% for Net DN<100
overall RMS error 3%. (Harris 1983a)

D. <u>ABSOLUTE CALIBRATION</u>

i) Low dispersion SWP and LWR (Holm et al. 1982)

ii) High dispersion SWP and LWR (Cassatella et al. 1981)
For new software (Cassatella et al. 1982)

iib) Low dispersion LWP (Blades & Cassatella 1982)
(Cassatella & Harris 1983)

iii) High dispersion software
LWP - as for LWR (Cassatella et al, 1983).

iv) Accuracy of standards
+10% 1300A - 3400 A

v) Echelle ripple correction (Ake 1981)

E. <u>SENSITIVITY VARIATION</u>

i) Temperature dependence (Schiffer 1982a)
SWP ~ -0.5%/ C of head amplifier temperature (THDA)
LWR ~ -1.1%/ C of THDA
LWP ~ -0.2%/ C of THDA (Harris 1983b; Sonneborn, 1983)

ii) Repeatability (1σ after temperature correction)
(Schiffer 1982a)
SWP 2% in 150 A bins
LWR 2.5% in 300 A bins
LWP 2.5% in 200 A bins, negligible temp correction
(Harris & Cassatella, 1983)

iii) Temporal dependence (Schiffer 1982a)

SWP -6.3%/year @ 1850 A before 1979.3
≤0.3%/year since 1979.3

LWR wavelength dependent between -2.6% and ~ 0% per year.
(Cacciari and Wamsteker 1982)
(Sonneborn 1983).

LWP Wavelength dependent between -1.4% and ~ 0% per year.
(Sonneborn 1983).

F. RESOLUTION

i) Short wavelength echelle mode

small aperture FWHM 0.085 A @ 1150 A
(Boggess et al. 1978; Imhoff 1983)
0.19 A @ 2100 A
(Boggess et al. 1978)
large/small 1.01 (Penston 1979)

ii) Short wavelength low dispersion mode

a) spectral resolution
large aperture FWHM ~<5A (1400-1600A)
FWHM ~ 7.5A @ 1900A
(Cassatella et al, 1983)
gain in resolution using SAP: about 8% mean over λ
(Cassatella et al, 1983)

b) spatial resolution in LAP from cross-profiles:
FWHM 4.6 to 5.9 arcsec at optimum focus
(Cassatella et al, 1983)

iii) Long wavelength echelle mode

small aperture FWHM 0.20 A
(Boggess et al, 1978; Imhoff 1983)
large/small 1.09
(Penston 1979)

iv) Long wavelength low dispersion mode

a) spectral resolution
LWR large aperture: FWHM ~ 5.8A (2400-2900A);
FWHM ~ 7.7A @ 1900A
gain in resolution using SAP: <3%
(Cassatella et al, 1983)

LWP large aperture: <10% - better than LWR
(Cassatella et al, 1983)

b) spatial resolution in LAP from cross-profiles.
LWR 4 to 5.6 arcsec at optimum focus
LWP 3.7 to 4.9 arcsec at optimum focus
(Cassatella et al,1983)

G. WAVELENGTH ACCURACY

i) Internal consistency of wavelength calibration determinations (Thompson et al. 1981)

SWP 2.0 km/sec

LWR 2.7 km/sec
LWP unknown

ii) Possible systematic errors

SWP unknown now
early data (Leckrone 1980)
LWR ~10 km/sec
LWP unknown

H. MISCELLANEOUS

i) Grating scattered light
(Clarke 1981b; Stickland 1980)

ii) Halation: Backscattering of Electrons from the phosphor decay length ~32+3 pixels (Coleman 1978)

iii) Scattered Light in the Telescope

$F_{scat} \sim d^{-2.5} F_*$ (Schiffer 1982b)
where d is in arcsec (5<d<40)

iv) Plate scale
1.51±0.04 pixel/arcsec (Panek, 1982a)

v) Residual geometric errors in geometrically corrected image
±0.4 arcsec = ±0.2 pixels (Panek, 1982b)

vi) Exposure timing (Schiffer 1980b, Heck 1981)

command units 0.4096 seconds
effective response delay 0.12 seconds LWR , SWP & LWP
(LWP : Imhoff, 1983).

vii) Longest Uninterrupted Exposure to Date

SWP 15293 1273 minutes

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A Note from the Scheduler

UPDATE OF THE IUE OBSERVING CONSTRAINTS

IUE is going to enter its 7th healthy year of successful operations. However we have to keep it in good shape for a few years more, and to do this, the scheduling is going to be more restricted.

The magic word you have heard and will often hear during your observations is 'BETA'. As you probably know, this refers to the angle between the anti-sun and the target to be observed, and most of the constraints that you will encounter can be defined in terms of BETA.

Let us summarise and update these constraints.

1. SUN and ANTI-SUN constraints.

They are defined respectively as $\beta \geqslant 135^\circ$ and $\beta \leqslant 13^\circ$ and observing in these regions is absolutely forbidden.

2. POWER constraint.

There are two regions located around the sun and anti-sun defined by $119^\circ \geqslant \beta \geqslant 115^\circ$ and $23^\circ \leqslant \beta \leqslant 27^\circ$. A target falling in either of these two regions might not be observable depending on the level of charge in the batteries and on what you intend to do at that attitude. (See IUE Spacecraft Status paragraph I in this Newsletter, page 9.) Targets at $\beta > 119^\circ$ or $\beta < 23^\circ$ will NOT, in practice, be observable. Note that during the shadow seasons (around March and September) this power constraint is more severe.

3. HOT OBC constraint.

The region defined by $55^\circ < \beta < 95^\circ$ can be constrained if the 'On Board Computer' (OBC) Temperature is high. This situation is easily reached during the winter months (October to March). Therefore if you want to observe during that period your targets should be located outside this region or spread sufficiently over the sky to allow you to cool down the OBC without losing any observing time.

Note that the best attitudes to cool the OBC are at $\beta < 40^\circ$.

4. Other constraints such as the MOON (10° radius avoidance region) and the EARTH (15°-20° radius avoidance region) can prevent very long exposures. You can find more information about these constraints in IUE ESA Newsletter No.9 p11,13 and No.12 p14 and in the SKYMAP description. (Note that the formula for β in IUE ESA Newsletter No.9 contains an error.)

5. The formula to compute BETA is:-

$$\cos\beta = -\sin\delta\sin\delta_{o} - \cos\delta\cos\delta_{o}\cos(\alpha-\alpha_{o})$$

where α, δ are the target coordinates (1950.0) and
α_{o}, δ_{o} are the sun coordinates (1950).
(IUE ESA Newsletter No.13, p95)

Please do not hesitate to consult us in case of any doubt or problem you might have.

A. Talavera
IUE Scheduler.

CHANGE IN LONG WAVELENGTH SPECTROSCOPE CONFIGURATION

It was decided in the last 3-Agency meeting for the IUE project, that starting 16 October 1983, the prime operational long wave camera will be changed. The reason for this change is that in the past six months, the LWR camera developed a so-called flare. This flare has up to now not yet affected low resolution spectra, but some high resolution spectra are beginning to be affected in the long wavelength range of the camera for long exposures.

Starting with the ESA shift of 16 October 1983, the prime operational long wavelength camera will be the LWP camera. Only on solid scientific justification can the use of the LWR camera still be authorized by the Observatory Controller. This decision is motivated by the concern of the project that the present intensive use of the LWR-camera could cause permanent damage. A minimal-use time has been decided upon to evaluate the exact nature of the problem and possibly allow the LWR camera to recover. However this last appears only a remote possibility.

For further information see IUE ESA Newsletters No.15 pages 31 and 38 and No.17 page 12, which describe the characteristics of the LWP camera as compared with the LWR camera. We hope that this information is sufficient to allow you to modify your exposure times etc. to the changed observing conditions. In <u>estimating the exposure times</u> it is a good guideline to assume the <u>LWP</u> camera to be = ~<u>1.2</u> x as sensitive as the LWR at 2800 A. Towards shorter wavelengths the LWP sensitivity decreases faster than the LWR.

<u>PROCESSING</u>

<u>Low Resolution Spectra</u> will be normally processed and calibrated.

N.B.: In comparing the flux levels found with the LWP camera, one should be aware of the variation in the sensitivity of the LWR camera. More detailed information will be supplied by the project in the near future.

High Resolution Spectra. These will be normally processed. However a good ripple correction is not yet available.

We will inform you as soon as it is available. If you have taken High Resolution Spectra between now and the installation date of the ripple correction, the project will reprocess your data upon request.

W. WAMSTEKER

IUE 3-AGENCY MEETING, GSFC, OCTOBER 1983

LINEARITY OF THE LWP

SUMMARY

A comparison is made of the accuracies of LWP ITFØ and the later ITF1 which is currently used in IUESIPS. In addition, the results of a study of the ITF1 performance at different FN levels are presented. In general ITF1 shows some improvement over ITFØ but appears to give relatively low FN values at exposure levels in the range 15-60%. On the basis of these results the linearity of ITF1 can be summarized as follows:

	Mean error	RMS error
overall	-1.5%	3%
above net DN∿100	+2	2
below net DN∿100	-2.5	3.5

(cf. mean repeatability of LWP: 2.5% - Harris & Cassatella, 1983).

Over the full range of exposure levels covered (∿ factor 20) only 2 out of 20 data points deviate by more than 5% from perfect linearity; these have errors of 7 and 9%.

The results of this study show that with the present ITF, the linearity of the LWP is considerably better than that of the LWR or SWP.

1. COMPARISON OF LWP ITFI WITH ITFØ

The accuracy of ITFØ has been tested by Settle et al. (1981). They took a set of 4 spectra (low dispersion, large aperture) of BD + 28 4211 processed with ITFØ and having different exposure times. Each spectrum was ratioed to every other and a set of 6 observed flux ratios derived for the wavelength range 2000-3000 Å. These were then compared with the corresponding expected flux ratios determined from the ratios of the exposure times (corrected for quantisation by the OBC and camera dead-time of 0.12 secs.).

In the present study essentially the same procedure was followed for ITF1, also using spectra of BD + 28 4211. A set of 6 spectra was used, with 5 different exposure levels (2 spectra with the standard 100% exposure level of 50s were averaged). The FN were summed over the wavelength range 2050-2650 Å. The results are given in Table 1 (see Table 2 for exposure times and image numbers) and plotted alongside Settle et als' results in Figure 1. There is significant improvement in linearity with ITF1. The tendency for shorter exposure times (t) to result in relatively low FN/t values remains, but is less pronounced (the reverse trend is evident in the LWR).

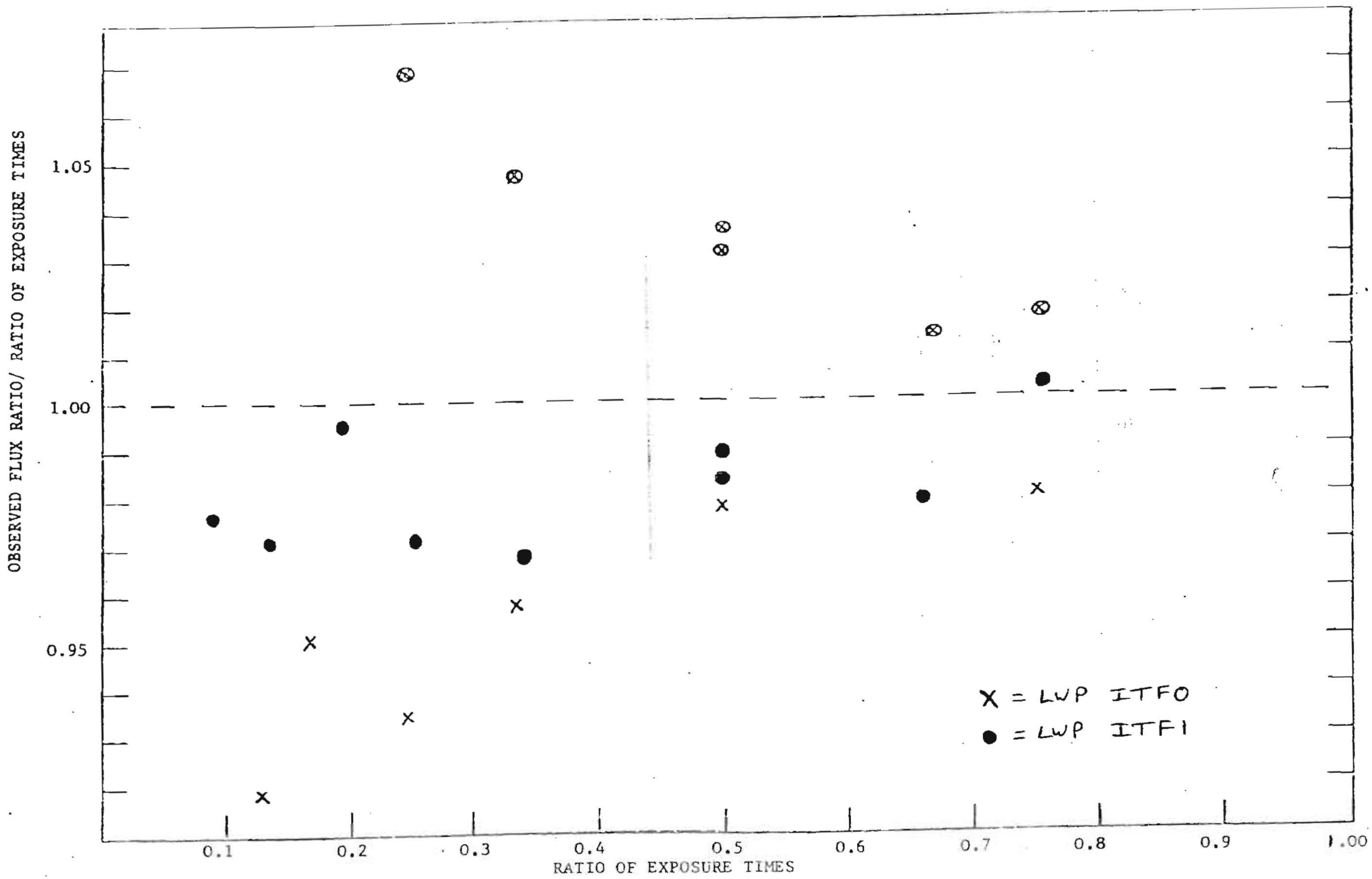
The overall RMS deviations from linearity for the LWR and LWP ITFs, based on the data in Figure 1, are LWR: 3.9%, LWP ITFØ: 5.1% and LWP ITF1: 2.1% (for exposure time ratios in the range 0.1-0.8).

- TABLE 1 -

Ratio of Exposure Times	Observed Flux Ratio	Error %
0.097	0.095	-2.1
0.130	0.126	-2.8
0.195	0.194	-0.6
0.249	0.242	-2.8
0.332	0.322	-3.1
0.499	0.491	-1.7
0.499	0.493	-1.1
0.666	0.652	-2.1
0.750	0.752	+0.3

RMS error: 2.1%

Figure 1. Figure showing the extent of non-linear photometry in the LWR (⊗) and LWP ITFs. A value of 1.0 represents linear photometry.



2. DEPENDENCE OF ITF1 LINEARITY ERRORS ON FN LEVEL

For each spectrum of BD + 28 4211 the net FN values were averaged over 2 wavelength intervals of 300 Å (Table 2). In each wavelength interval the resulting mean values were then ratioed to a value in the range 20 - 30 × 10^3 chosen as a reference (underlined values in Table 2). There ratios were divided by the corresponding exposure time ratios to give values of "FN ratio observed/FN ratio expected", assuming perfect ITF accuracy over the small range covered by the reference values. The 8 resulting values are plotted as a function of mean FN in Figure 2. As a check on these results the procedure was repeated using spectra of BD + 75 325 and 4 wavelength bands of 300 Å (Table 3, Figure 3). The different symbols in the plots identify the points according to the reference value on which they are based.

- TABLE 2 -

Exposure Time(s)	Image Nos. LWP	Mean FN ($\times 10^{-3}$) 2200 Å	2500 Å
9.710	1444	3.48	5.30
24.866	1445	8.95	13.43
49.851*	1568,1443	17.53	<u>27.83</u>
74.837	1448	<u>26.50</u>	43.05
99.822	1447	36.06	56.42

NOTES: Exposure times have been corrected for quantisation and camera dead-time.

* This is the standard 100% exposure time for BD + 28 4211. In this case the FN values given are averages from 2 spectra.

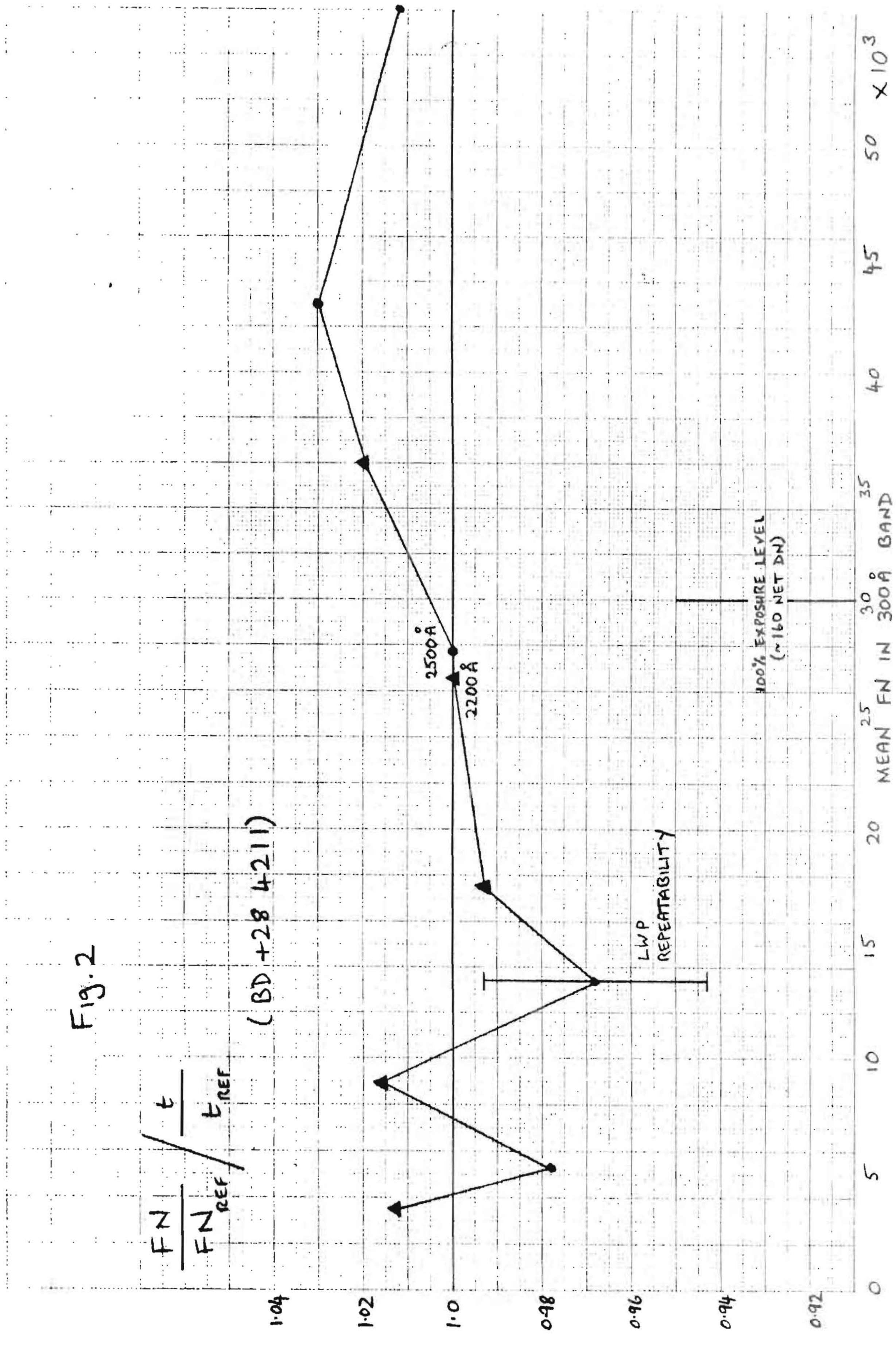


Fig. 2
FN/FN_REF / t/t_REF
(BD +28 4211)
LWP REPEATABILITY
2500Å
2200Å
400% EXPOSURE LEVEL
(~160 NET DN)
MEAN FN IN 300Å BAND
x 10^3
0 5 10 15 20 25 30 35 40 45 50
1·04 1·02 1·0 0·98 0·96 0·94 0·92

The plots demonstrate that ITF1 is accurate through the entire range of exposure levels represented. There is a general tendency for FN values in the range $FN < 20 \times 10^3$ (net $DN < \sim 100$) to be relatively low, although the significance of the sharp dip at $FN \simeq 7 \times 10^3$ in Figure 3 is questionable since it is not reproduced in Figure 2. The quantitative assessment of the accuracy of ITF1 given in the summary was derived by combining the results for both stars. The results of this study are consistent with those reported by T. Ake (1983) which give an approximate overall linearity error of 5%.

- TABLE 3 -

Exposure Time(s)	Image Nos. LWP	Mean FN ($\times 10^{-3}$) 2100 Å	2400 Å	2700 Å	3000 Å
4.795	1335	4.01	5.38	6.75	3.11
9.710	1334	7.40	10.80	14.22	6.36
19.541	1331,1336,1339	15.89	<u>22.51</u>	<u>29.60</u>	13.05
29.781	1332	<u>24.87</u>	35.02	44.82	<u>20.28</u>

REFERENCES:

Ake, T., 1983, Report to the IUE 3-Agency Meeting, London, March, 1983

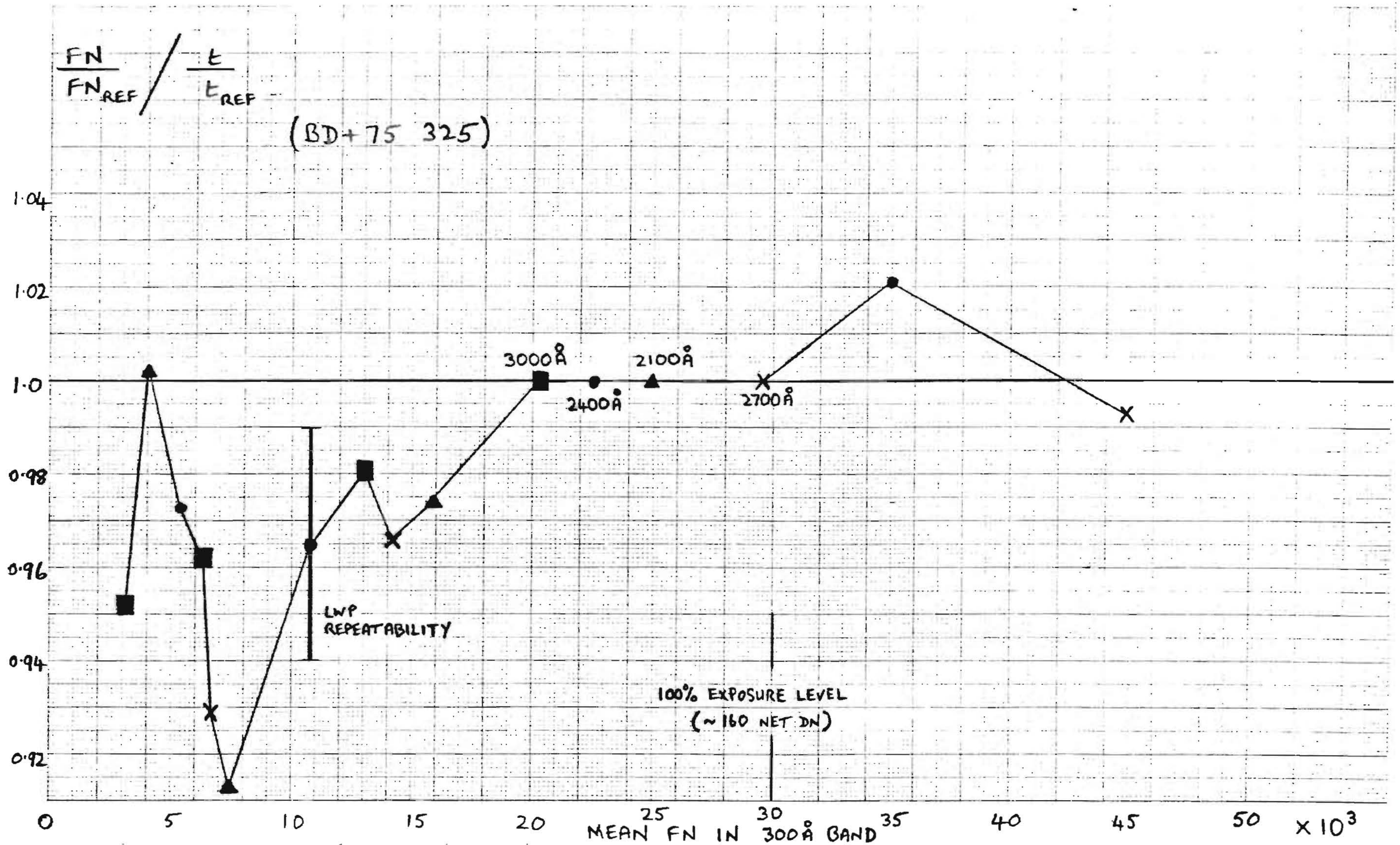
Harris, A.W., and Cassatella, A., 1983, ditto.

Settle, J., Shuttleworth, T., and Sandford, M.C.W., 1981, IUE NASA Newsletter, No. 15, P 97.

A.W. Harris

VILSPA, September 1983

Fig. 3


FN / FN_REF / t / t_REF
(BD+75 325)
1·04
1·02
1·0
0·98
0·96
0·94
0·92
3000Å
2400Å
2100Å
2700Å
LWP
REPEATABILITY
100% EXPOSURE LEVEL
(~160 NET DN)
0
5
10
15
20
25
30
35
40
45
50
× 10³
MEAN FN IN 300Å BAND

REPORT ON THE CONFERENCE

"IUE OBSERVING AT THE LIMIT"

Held at the University of Colorado, Boulder

August 15-17, 1983

INTRODUCTION

The conference was attended by 100 people, of which only 5 were from the European astronomical community. A total of 7 sessions was held (in series) covering the 6 major IUE subject areas, with the final one devoted to reviews of proposed future UV missions. The meeting as a whole served to advertise the existence of the new Regional Data Center which hosted the meeting. The intended emphasis of the conference was on special observing or data analysis techniques which use the satellite near the limit of its capabilities.

Here I offer an inevitably subjective summary of the, for me, most interesting and relevant points arising in the different sessions.

1. SOLAR SYSTEM

In his invited review P. Feldman (Johns Hopkins) demonstrated that solar system research is deriving great benefit from IUE. He suggested that an IUE-type facility should be made available for use exclusively in the field. Tricky observations of planets, asteroids and fast moving comets stretched IUE's pointing and tracking capabilities to the limit. Observations of the Jupiter aurora at the planet's north pole and of the Io Torus (a sulphur/oxygen plasma in the orbit of Io originating from Volcano activity on the satellite) were made possible with the special procedure FINDBRITE. This enables the "centre-of-light" of the extended and saturated FES image of Jupiter (or any other similar source) to be found, from which accurate offsetting can be performed. Other topics included observations of specific areas of Jupiter's surface by means of offsetting from the Galilean satellites (M. Allen, Caltech) and the detection of S_2 in Comet IRAS-Araki-Alcok (Feldman).

2. COOL STARS

Stars in this category (type F and later) have relatively weak UV fluxes; hence the ability of IUE to observe a particular target for very long periods is of crucial importance to obtain useful spectra of such stars. According to T. Ayres (Colorado) the longest exposure made with IUE to date was 1290 mins. (21.5 hrs) on 21 May 1983 of Arcturus (a 0th mag. star). However, this was contested by A. Brown (JILA) who pointed out that this exposure was not continuous having been interrupted by an Earth occultation and an unload of the reaction wheels. He claimed that the record for the longest continuous exposure was still held by the Oxford Group (1273 mins). Ayres mentioned that judging from the rate of background build-up in the SWP camera, the longest useful exposure time was probably about 30 hrs.

B.M. Haisch (Lockheed, Palo Alto) discussed the problem of scattered light contamination of low dispersion SWP spectra which arises in the spherical cross-disperser. The problem is especially acute in studies of cool stars because the continuum rises steeply with increasing wavelength in the IUE spectral range. Using a number of different exposures of a well-determined source, an improved scattering profile has been generated which can be used to apply corrections, thus enabling accurate stellar continua to be determined from IUE spectra.

M. de la Pena (Colorado) addressed the question of accurate wavelength measurements with IUE. The dispersion characteristics of the spectrographs tend to vary with time, hence for accurate wavelength determination WAVCAL spectra taken at about the same time as the astronomical exposure are required. Since the camera read beam can be deflected by accumulations of charge resulting from heavy exposure, it is also important to take WAVCAL exposures at roughly the same exposure level as the astronomical exposure.

3. HOT STARS

The invited reviewer was H. Lamers (Colorado and Utrecht) who said that investigations with IUE in this field were often at the limit, and sometimes beyond it. He discussed the phenomenon of stellar winds with reference to the ejection of shells or "puffs" which are now thought to be common phenomena in these stars. The evidence for such inhomogeneities in stellar winds derives from observations with IUE of changes in line profiles which are just above the noise. He also pointed out that temperature estimates of the hottest stars require very good E(B-V) and spectral slope determinations. In the discussion it was mentioned by G. Basri (Berkeley) that there may be a problem with the low dispersion calibration of the LWR camera at around 2200 A since it is often difficult to derive consistent E(B-V) values from the 2200 A absorption feature. This would increase the uncertainty in the T(eff) estimates of WR and early O-type stars. G. Sonneborn (GSFC) added that it is in this range that the sensitivity of the LWR camera is decreasing most rapidly.

4. INTERSTELLAR MEDIUM

Both K. Davidson (Minnesota) and D. York (Chicago) presented reviews. In his talk Davidson said that observations of emission nebulae with IUE were relatively scant. This was partly due to the high extinction associated with many of these sources. He claimed that "analysis of UV nebular emission lines is always at the limit". The lines are very temperature dependent and hence temperature gradients in even the small portion of a nebula in the IUE field of view confuse the analysis. He mentioned some problems associated with IUE observations of nebulae.

1. There is no overlap of the IUE spectral range with the optical; hence there can be no optical check on lines measured with IUE.

2. It is difficult to tell from the merged log on exactly which part of a nebula observations were made.

3. IUE and ground-based spectrograph slits have different shapes and sizes and therefore cover different areas of a nebula.

4. Permanent bright spots on the camera target present a problem which could be eliminated if it were possible to "wiggle the grating", thereby shifting the position of the spectral image slightly. A similar point was addressed in a contributed paper by C.G. Seab (NASA/Ames), who concluded that fixed pattern noise can be greatly reduced by co-adding spectra with different aperture offsets.

York discussed the problems associated with accurate measurements of interstellar absorption lines, primarily fixed pattern noise. He claimed that by dividing the astronomical image by a flat standard star image taken on the same shift, and averaging a number of spectra thus derived, it should be possible to determine equivalent widths to an accuracy of ± 1mA with IUE. The accuracy obtainable with an ordinary single spectrum is about ± 30mA. In the discussion it was mentioned that since fixed pattern noise changes with time, it might be possible to overcome the problem to some extent, by averaging spectra taken at different times. The techniques described by York have been published (York and Jura, 1982, Ap. J. 254, p88).

A. Harris reported for P. Benvenuti on a proposed modification to the low dispersion extraction procedure which would retain the extra spatial resolution in the line-by-line spectrum afforded, but as yet not exploited, by the new low dispersion IUESIPS software (which uses a smaller extraction slit than the old software). The proposed modification would involve losing some lines of background from the line-by-line spectrum which are not used by IUESIPS in the derivation of the net spectrum. R. Green (Kitt Peak) commented that workers involved in analysis of very weak spectra might regret the partial loss of background information.

5. EXTRAGALACTIC

R. Green began his invited review with a very pertinent IUE proverb: "One man's errors are another man's data" (does this imply that astrophysical models in this field are based on observations of fixed pattern noise and residual images?!). He discussed a recent paper by Ellis, Gondhalekar and Efstathiou who have used an IUE-shaped slit on a ground-based telescope in order to obtain optical data of galaxies that can be compared directly with their IUE data. The patchy nature of spiral galaxies makes meaningful comparisons of data taken with differently shaped apertures virtually impossible, hence their method is essential. Green also discussed the question of the extent of galactic haloes and the complex nature of QSO absorption line systems which are presumably produced in them.

6. INTERACTING SYSTEMS

M.J. Plavec's (UCLA) invited review highlighted the dramatic increase in knowledge of interacting binary systems brought about by IUE. It was IUE observations of absorption by NV, CIV, Si IV etc. in these systems which first provided evidence for circumstellar shells or accretion disks. Plavec also discussed the difficulties in classifying the stars in such binary pairs and demonstrated the importance of simultaneous optical and UV observations for this purpose.

J.L. Weiland (UCLA) presented evidence for wind outflow from the accreting component of the V356 Sgr system. Absorption features observed in high resolution have extended wings on the short wavelength side, presumably due to an accretion-powered expanding wind.

7. FUTURE UV MISSIONS

A. Davidson (John Hopkins) reviewed the Hopkins UV Telescope (90cm) project which is designed for spectrophotometry in the 900-1200 A region with 3 A resolution. This will be mounted alongside a UV imaging experiment and WUPPE (Winsconsin UV Photo-Polarimeter Experiment) on the Spacelab instrument pointing system and flown on 3 Shuttle missions in 1986/87. The combination is intended for use by guest observers and it is hoped to observe Comet Halley on the first flight. Other projects reviewed include the Extreme UV Explorer (EUVE), an all sky survey satellite for the 100-912A band, incorporating a grazing incidence spectrophotometer (S. Bowyer, Berkeley) and STARLAB, an Australia-Canada-US 1m orbiting telescope intended for spectroscopy in the range 80-~2000A with with grazing incidence optics (A. Boggess, GSFC). Boggess gave an estimate of 150 M$ for the cost of COLUMBUS and said that NASA is looking towards ESA as a possible 50% partner in the project.

POSTER PRESENTATION

Examples of high dispersion spectra extracted by means of the Trieste Observatory procedure were presented. This procedure involves 2-D fourier transforming, high frequency filtering and, using the IUE instrumental profile, deconvolving the image. Background subtraction is then carried out after an inverse fourier transform. The authors claim to have reached the practical limit of IUE high dispersion extraction efficiency.

In his closing summary, T. Snow (Colorado) stressed the importance of good documentation of the special techniques and procedures presented, in order to maximise their usefulness to the IUE community.

A. W. Harris 25 Aug 1983

ON THE IUE POINT SPREAD FUNCTION AT LOW RESOLUTION

A. Cassatella, J. Barbero, P. Benvenuti

1. INTRODUCTION

In this paper we intend to review the spectral and spatial resolution performances obtainable with IUE low resolution spectra complementing the sparse information already available with new data to clarify aspects not sufficiently studied before.

Previous work shows that the instrumental resolution (both spatial and spectral) of IUE low dispersion spectra is primarily dependent on the focussing conditions in the telescope and on the wavelength (de Boer, Koornneef and Meade, 1980; Ponz and Cassatella 1981; Barbero and Cassatella 1982 and 1983; Panek, 1982).

The focussing conditions in the telescope are assumed to be well represented by the focus STEP, which is a linear function of three temperatures at different heights of the telescope so providing a measure of its thermal dilatations. The STEP values are recorded in the Log scripts accompanying each image obtained.

The first problem we studied is the repeatability of the resolution performances (here parameterized through the FWHM of the spectra both perpendicular and parallel to the dispersion direction) at a given STEP and wavelength. This will allow the detection of any dependence of the resolution properties on other observing parameters. Such a study, done in Section 2, indicates that, at a given wavelength, the low resolution point spread function (PSF) depends only on focus STEP, although second order dependence on other parameters cannot be excluded.

The next aspect we studied is the dependence of the full width at half maximum (FWHM) perpendicular to the dispersion on the telescope focus at given wavelengths in order to determine the range of STEP in which the focussing conditions are optimum (Section 3).

A number of images of continuous sources obtained at optimum focus were then selected for each operational camera (LWR, LWP and SWP) in order to determine the dependence of the FWHM perpendicular to the orders on wavelength for both large and small aperture spectra (Section 4).

In section 5 we examined the behaviour of the spectral resolution as a function of wavelength using a large number of low resolution spectra of emission line objects. The analysis was restricted to the LWR and SWP camera because not enough data were available for the LWP. The results in Section 4 and 5 were then compared to deduce information on the two-dimensional shape of the low resolution PSF (Section 6).

The asymmetries of the PSF perpendicular to the dispersion are studied in Section 7 and a comparison is made with analytical profiles.

Finally, to help in the analysis of spectra of extended sources, a study is provided in Section 8 of the PSF perpendicular to the dispersion based on several spectra of point sources trailed at constant rate in a direction approximately parallel to the major axis of the large apertures.

It is important to note that the data analysed in this paper, except those presented in Section 7, were obtained through the IUE low resolution standard processing (IUESIPS) installed at VILSPA on 10 March 1981 and at GSFC on 4 November 1980.

In particular, the line by line spectra were used to study spatial resolution, while the extracted spectra were used to study the spectral resolution. This ensures that IUE users can easily reproduce our results and make comparisons.

As far as the units are concerned, we generally used the pixel as unit for the widths of the profiles perpendicular to the dispersion (1 pix corresponds to 1.51 ± 0.04 arcsec on the sky; Panek, 1982), although the quantity directly measured from the line by line spectra is the diagonal pixel ($\sqrt{2}$ pix). The spectral resolution was measured in A, but was also reported in pixels in the figures of Section 5. The conversion between wavelength units along the dispersion and pixels can be easily done using the dispersion constants (Panek, 1983). Indicating with ΔZ the distance in pixels along the dispersion direction we have:

$\Delta\lambda/\Delta Z$ =	1.669 A/pix	for the SWP
	2.646 A/pix	for the LWP
	2.652 A/pix	for the LWR

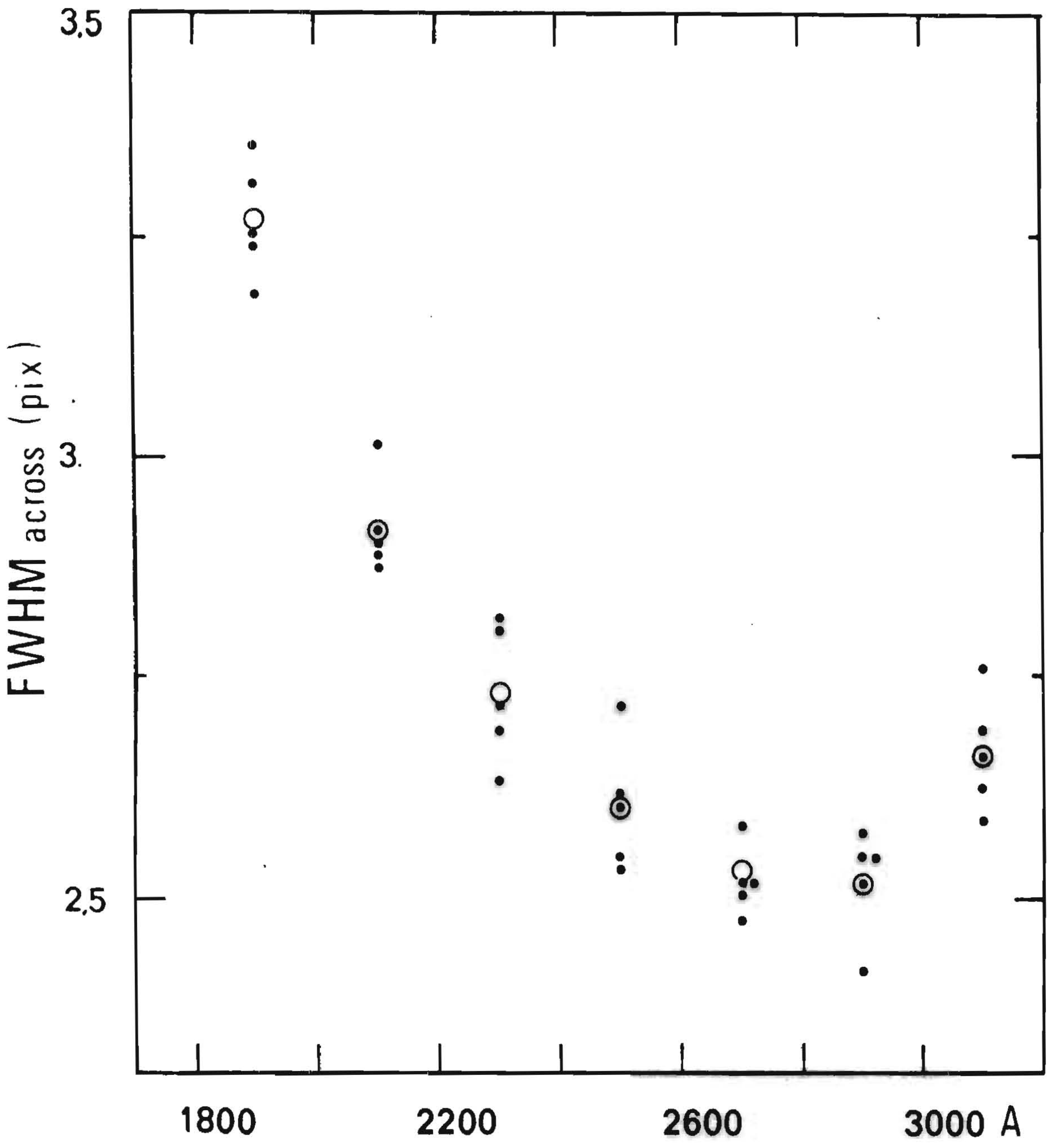
2. REPEATABILITY OF RESOLUTION PERFORMANCES

Previous studies concord in that the resolution (spectral and spatial) depends on the focussing conditions in the telescope and on wavelength. However, while on the one hand these dependences were not definitively determined before, on the other some suspicious discrepancies with respect to the expectations were occasionally reported. Therefore we want first to clarify to what degree of accuracy the two-parameter dependence is adequate. For this purpose, we selected 5 LWP images of point sources obtained with focus step exactly equal to -1.4, and measured the FWHM perpendicular to the dispersion in 7 wavelength bands 200 A wide centered at λ = 1900, 2100, 2300, 2500, 2700, 2900 and 3100 A. Measurements derived from spectral regions found to be over-exposed were rejected. The relevant information on images used is contained in Table 1.

In each of the wavelength bands the r.m.s. deviation of the FWHM about the mean is 0.06 to 0.07 pixels, corresponding to a relative error of 2 to 3% on the FWHM. The individual measurements for all the images and the mean values are reported in Figure 1 as a function of wavelength. Note that the images used for this test were obtained with values of the camera head amplifier temperature (THDA) over a rather wide range. However, no correlation is apparent, at the same wavelength, between the FWHM and the THDA. The same result is reported by de Boer et al. (1980) for the SWP and LWR cameras.

The above repeatability test was also extended to the SWP and LWR cameras. Although only few images were available for these cameras with exactly the same focus STEP, the results show that the repeatability is the same as for the LWP. A further confirmation of the degree of repeatability is given in Section 3.

We conclude therefore that the spatial resolution properties are adequately parametrized through the focus STEP and the wavelength. Occasional deviations are probably due to incorrect recording of the STEP values in the observation scripts.



<u>FIGURE 1</u>

Repeatability test of the telescope focussing conditions at the same focus STEP using cross profiles of LWP spectra. The FWHM of the cross profiles appears to be repeatable to within 2 or 3%. Open dots represent the mean of the individual measurements.

-TABLE 1-

IMAGE	TARGET	THDA (K)	EXP. TIME (sec)
LWP 1326	BD + 75° 325	7.8	10
LWP 1801	HD 60753	10.5	6
LWP 1447	BD + 28° 4211	12.5	100
LWP 1448	BD + 28° 4211	12.8	75
LWP 1529	BD + 28° 4211	8.5	52

3. OPTIMUM FOCUSSING CONDITIONS

The focussing conditions in the IUE telescope are currently assumed to be optimum for STEP values close to -1. In order to verify this point we used several SWP, LWR and LWP images of point sources (generally IUE calibration standards) obtained through the large apertures and with a wide range of focus STEP. These data were used to study how the FWHM across the dispersion varies as a function of STEP in given wavelength bands (1350±50 A and 1850±50 A for the SWP; 2100±75 A and 2700±75 A for the LWP; 2700±75 A for the LWR). Note that, as shown in Section 5 and 6, the PSF along the dispersion is less sensitive to variation of STEP than is the PSF across the dispersion. Our measurements span the range in STEP from about -3.7 to 3.5 for the SWP, -3.3 to 0.5 for the LWR and -2.0 to 1.5 for the LWP.

The results are shown in Figure 2a,b,c for the SWP, LWP and LWR, respectively.

The figures allow us to distinguish between two separate ranges of focus STEP:

- a plateau extending from STEP ≃ -1 to more negative values, in which the FWHM takes the minimum values. The mean values of the FWHM in the plateaux and the corresponding r.m.s. deviations are reported in Table 2.

- a linear region in which the FWHM increases with STEP. This region extends from STEP ~ 0 in the SWP and STEP ~ -1 in the LWP and LWR, to more positive values. A linear regression analysis of

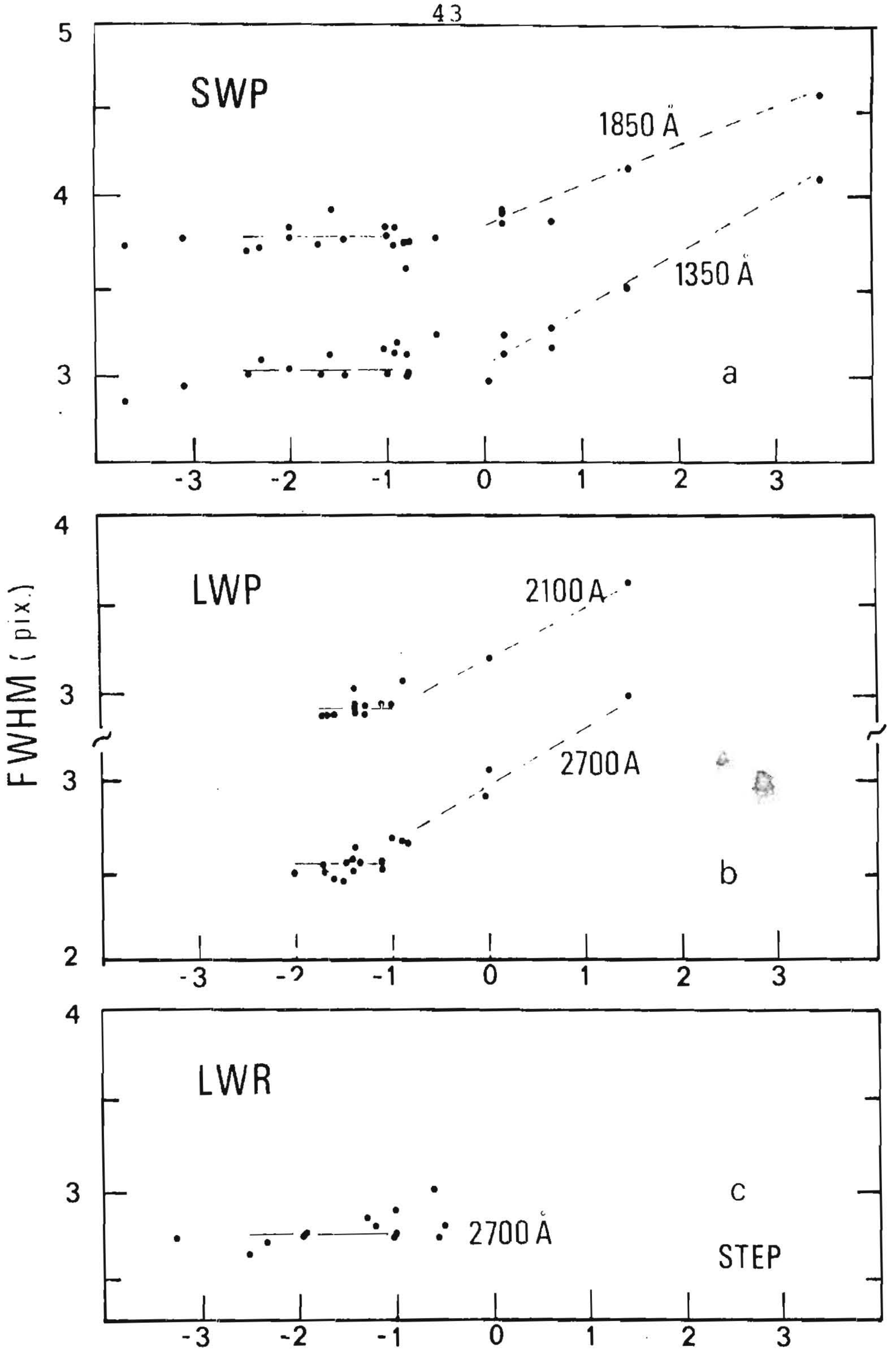


FIGURE 2

Test of the optimum focussing conditions in the IUE telescope. The figure shows the behaviour of the FWHM perpendicular to the dispersion as a function of focus STEP for the SWP, LWP and LWR cameras (curves a, b and c respectively). The measurements refer to the indicated wavelength bands. The plateau region (FWHM const) defines the optimum range of focus STEP.

the data in this region indicates that the slope ΔFWHM/ΔSTEP is nearly the same for both SWP and LWP as indicated in Table 2. Similar information is not available for the LWR since no data with well documented, positive STEP values, were found in the archive.

-TABLE 2-

a) Plateau:

CAMERA	STEP RANGE	AVERAGE FWHM (pix)
SWP	-2.5 To -1.0	3.06 ± 0.06 (1350 A)
		3.80 0.07 (1850 A)
LWP	-2.0 To -1.0	2.90 0.04 (2100 A)
		2.52 0.09 (2700 A)
LWR	-2.5 To -1.0	2.74 0.09 (2700 A)

B) Linear region:

CAMERA	STEP RANGE	ΔFWHM/ ΔSTEP
SWP	0.0 To 3.5	0.23 (1350 A)
		0.33 (1850 A)
LWP	-1.0 To +1.5	0.28 (2100 A)
		0.35 (2700 A)

Some important conclusions can be drawn from this analysis:

- at any wavelength it is possible to define a range of STEP values at which optimum focussing conditions are produced. This range can be safely limited as $-2 \leq$ STEP ≤ -1 (plateau region), irrespective of camera used.

- the repeatability of FWHM across the orders is very good in the plateau regions (2-3%) confirming the results of Section 2.

We finally note that a statistical analysis on all images taken at VILSPA during the months of November 82 and May 83 indicates that the average STEP value was −1.3 ± 0.6. Therefore, since IUE observations are, on average, done at optimum focussing conditions, it makes sense to construct average curves (FWHM across and parallel to the dispersion v.s. wavelength) at optimum focussing conditions as they are representative of many practical cases. Such curves will be presented in Section 4.

4. SPATIAL RESOLUTION AS A FUNCTION OF WAVELENGTH

Information on the spatial resolution attainable from low dispersion spectra in the direction perpendicular to the dispersion can be obtained from the width of the cross profiles as a function of wavelength.

Previous work by de Boer et al. (1980), Ponz and Cassatella (1980), Panek (1982) and Barbero and Cassatella (1982 and 1983) indicates that the width of the cross profiles is wavelength dependent and shows a minimum around 1400 A in the SWP spectra, while it is a decreasing function of lambda in the LWR and LWP spectra, at least for $\lambda \lesssim 2900$ A.

The published curves FWHM v.s. wavelength, although similar in shape, show however, a non-negligeable scatter one with respect to the other. In order to construct new average curves representative of optimum focussing conditions (see Section 3), we then made a very accurate selection of images of well exposed low resolution spectra observed through both large and small apertures. We stress that only images with well documented and appropriate focus STEP were included. The STEP values considered, in order to ensure the representativity of optimum focussing conditions, all lie within or close to the plateau regions defined in Section 3.

Note that the exposure times were very short for the images used in this analysis: this guarantees that no appreciable changes of focus STEP have occurred during the exposures.

The cross profiles were extracted from the line by line spectra in bands 150 A wide in the SWP and 200 A wide in the LWP and LWR. Special bands 40 A wide centered at 1240 A, 1350 A and 1550 A were also considered for the SWP camera in order to exclude the Lyα region, (first band), to include the region where the FWHM is minimum (second band) and to exclude a reseau mark at 1585 A in the small aperture spectra (third band). Reseau marks present in the long wavelength cameras were avoided as well.

The average curves FWHM across the orders v.s. wavelength are presented in Figures 3 a, b and c for the SWP, LWP and LWR cameras respectively. Error bars (r.m.s.) are also indicated. The curves are the result of averaging 7 images for the SWP, 10 images for the LWP and 5 images for the LWR. The images used are listed in Table 3. The data in Figure 3 are also reported in Table 4 for convenience.

It is important to note that spectral regions found to be underexposed or overexposed in some of the images were not used. The overall shape of the curves in Figure 3 agree very well with the latest average curves reported (Barbero and Cassatella, 1983).

Because of the better selection of the images used, the larger amount of data, and the careful verification of the STEP values, the above curves are believed to represent suitably the optimum focussing conditions (close, as shown in Section 3, to the average observing conditions).

It is interesting to note that the curves FWHM v.s. wavelength show a pronounced minimum in the SWP camera around 1350 A, while the minimum FWHM is reached toward the end of the spectral range (~2900 A) for both LWP and LWR.

A first glance to Figure 3 shows that the width of the spectra is about the same, on average, for small and large aperture SWP spectra. This is not true for the long wavelength cameras where the small aperture spectra appear to be systematically broader than large aperture spectra. By averaging the individual measurements, it is actually possible to see that the ratio between the FWHM perpendicular to the dispersion in the large relative to small aperture spectra is 1.0 ± 0.02 for the SWP, and 0.96± 0.02 for both the long wavelength cameras.

Figure 3 shows also that both long wavelength cameras provide, on average, a better spatial resolution than the SWP camera. This is particularly true for the LWP camera which is also better than the LWR by about 9% (averaged over wavelength in the large aperture).

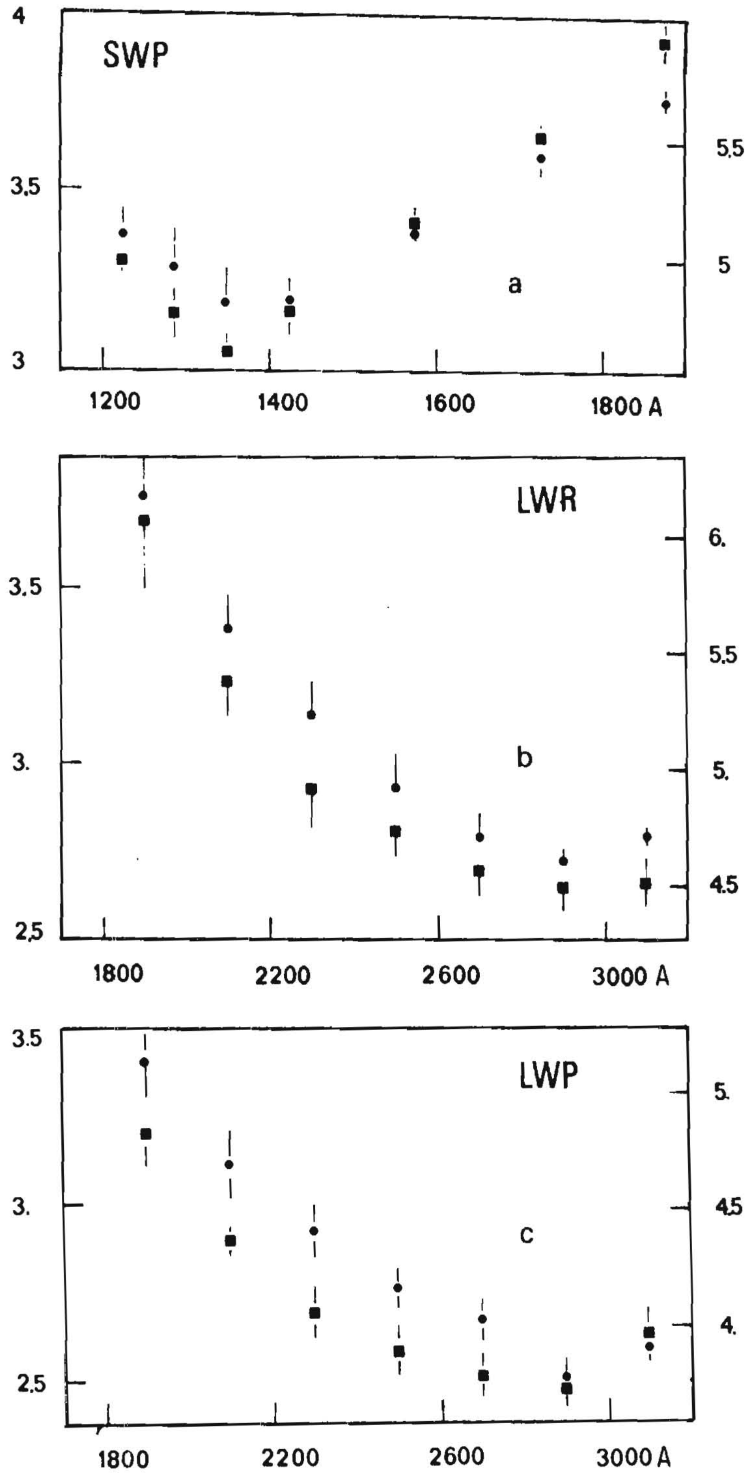


FIGURE 3

FWHM perpendicular to the dispersion as a function of wavelength for the SWP, LWR and LWP cameras (curves a, b and c, respectively). The FWHM values are reported both in pixels and in arcsec. Squares and dots represent large and small aperture data, respectively. Error bars (r.m.s.) are indicated.

-TABLE 3-

Images used for the study of the FWHM
across the orders v.s. wavelength

IMAGE	STEP	EXP.TIME (sec) SAP	LAP	TARGET
SWP 13475	-1.0	28	14	BD+75°325
SWP 16388	-0.91	6	3	HD 93521
SWP 18065	-0.93	28	14	BD+28°4211
SWP 18067	-1.70	52	26	BD+28°4211
SWP 18881	-1.44	78	26	BD+28°4211
SWP 19124	-2.45	300	85	HD 111786
SWP 19594	-0.79	9	3	HD 93521
LWP 1676	-1.70	40	20	BD+75°325
LWP 1326	-1.40		10	BD+75°325
LWP 1254	-1.10	40	20	BD+75°325
LWP 1788	-1.73	9	3	HD 93521
LWP 1501	-1.60	4	2	HD 93521
LWP 1251	-1.1	60	50	BD+28°4211
LWP 1529	-1.4	180	52	BD+28°4211
LWP 1447	-1.4		100	BD+28°4211
LWP 1448	-1.4		75	BD+28°4211
LWP 1801	-1.38	18	6	HD 60753
LWR 8553	-2.5	120	60	BD+28°4211
LWR 14233	-1.9	48	24	BD+75°325
LWR 15625	-1.3	570	190	BD+33°2642
LWR 10129	-1.0	48	24	BD+75°325
LWR 12061	-1.2	6	3	HD 93521

-TABLE 4-

FWHM perpendicular to the dispersion (in pixels)
as a function of wavelength

λ(A)	LARGE APERTURE FWHM	r.m.s.	SMALL APERTURE FWHM	r.m.s.
SWP				
1125	3.65 ±	0.21	3.58 ±	0.20
1240	3.30	0.04	3.32	0.11
1275	3.15	0.08	3.28	0.13
1350	3.05	0.06	3.18	0.11
1425	3.15	0.07	3.20	0.07
1575-1550*	3.41	0.06	3.38	0.03
1725	3.65	0.04	3.59	0.06
1875	3.93	0.06	3.75	0.04
LWP				
1900	3.23 ±	0.11	3.41 ±	0.13
2100	2.90	0.08	3.11	0.11
2300	2.70	0.08	2.91	0.08
2500	2.59	0.08	2.76	0.07
2700	2.52	0.07	2.67	0.06
2900	2.47	0.07	2.50	0.04
3100	2.63	0.08	2.59	0.04
LWR				
1900	3.69 ±	0.20	3.76 ±	0.13
2100	3.24	0.10	3.38	0.10
2300	2.93	0.11	3.14	0.10
2500	2.81	0.08	2.93	0.10
2700	2.70	0.08	2.79	0.07
2900	2.65	0.07	2.73	0.03
3100	2.66	0.07	2.80	0.03

* the band at 1575 A refers to large aperture spectra

-TABLE 5-

GEOMETRIC CORRECTION RESIDUALS

Central position of the spectrum in the line-by-line spectra (diagonal pixels)

CAMERA	SWP			LWP		LWR	
λ(A)	LARGE	SMALL	λ(A)	LARGE	SMALL	LARGE	SMALL
1275	27.96	28.06	1900	28.32	28.28	27.78	27.74
1425	27.94	28.11	2100	28.22	28.29	27.77	27.67
1575	28.18	28.07	2300	28.03	28.04	28.00	27.99
1725	28.22	28.16	2500	27.99	28.02	28.00	27.93
1875	28.12	28.03	2700	27.87	27.81	28.09	28.03
			2900	28.00	27.07	28.15	28.05
			3100	28.12	28.18	28.20	28.10

Note that in the case of two sources falling into the large entrance aperture of the spectrographs, these can be resolved provided their distance perpendicular to the dispersion direction is:

$$d \gtrsim 0.849 \text{ FWHM}$$

(c.f. with equation 1 in Section 5). Since the minimum value of the FWHM perpendicular to the dispersion is (at optimum focussing conditions) about 4.6 arcsec and 4.0 arcsec for the SWP and LWR, respectively, this implies for example that large aperture double spectra can be separated provided their distance is larger than ~3.9 or ~3.4 arcsec respectively. This is demonstrated in Figure 4 where we show two cross profile double spectra in the SWP (around 1600 A) obtained exposing the target twice (with the same exposure time) in two different points distant 3.9 and 6.1 arcsec along the major axis of the large aperture: in the latter case the two profiles are separated while they are not resolved in the former case.

For the analysis of large aperture spectra of extended sources it is sometimes important to disentangle the

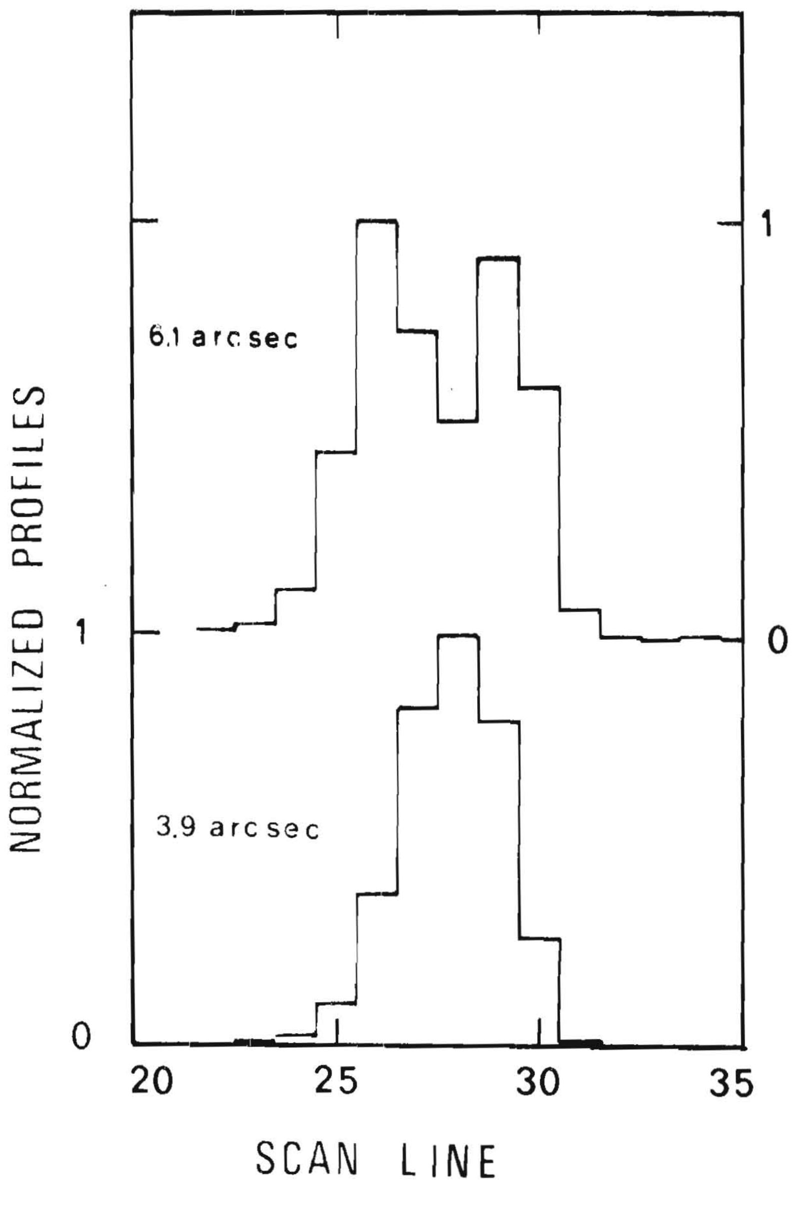


FIGURE 4

Cross profiles of two double spectra around 1600 A. The spectra were obtained by exposing the target twice in two different points of the large aperture distant 3.9 (bottom) and 6.1 arcsec along the major axis of aperture. Abscissae represent the scan line number (in diagonal pixels) oriented towards the large aperture.

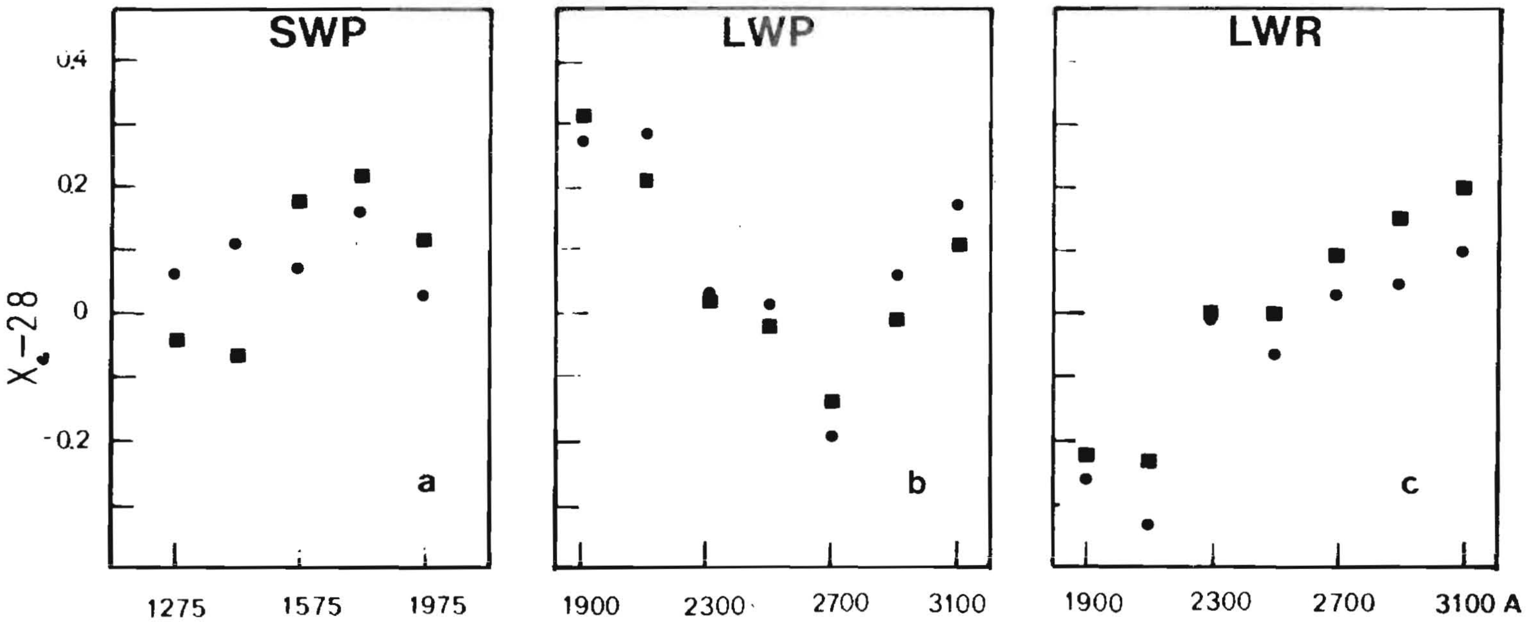


FIGURE 5

Geometric correction residuals X_c-28 (diagonal pixel) for the SWP, LWP and LWR cameras (curves a, b, and c respectively) as a function of wavelength.

residual geometrical distorsions in the direction perpendicular to the dispersion from spatial inhomogeneities intrinsic in the source. In order to determine the geometrical correction residuals, we selected well exposed images of calibration standards taken through both large and small apertures (12, 13 and 10 images for the SWP, LWP and LWR, respectively). The line-by-line spectra were averaged in bands 150 A or 200 A wide for the SWP and the LWP and LWR cameras respectively. A gaussian profile was then fitted to the average cross profiles and the central position of the spectrum X_c (which is scan line 28 in principle) was determined. The values X_c v.s. wavelength for both large and small aperture spectra are reported in Table 5 for the three cameras. The data are also shown in Figure 5. The typical r.m.s. error on the mean X_c is 0.10 pixels, irrespective of wavelength and camera used. Figure 7 indicates that the geometric correction residuals (X_c-28) for both small and large aperture spectra are very similar within the same camera. As expected, the residuals are negligeable near the center of the cameras. These statistical results are in good agreement with those of Panek (1982). No evident correlation has been found between the geometric correction residuals and THDA or focus STEP.

5. SPECTRAL RESOLUTION

Information on the spectral resolution at low dispersion may be found in Boggess et al. (1978), Cassatella and Penston (1978), Clavel (1980) and Ponz and Cassatella (1981). However, the wavelength dependence of the resolution was not considered in detail.

In order to provide an extended set of direct measurements of the spectral resolution we used about 20 SWP and 10 LWR low resolution spectra of emission line sources (RR Tel, V 1016 Cyg, AG Dra, Z And, CI Cyg, Mira Ceti B) and measured about 80 emission lines in the SWP and 40 in the LWR.

The measurements were done by fitting a gaussian profile to the emission lines in the extracted spectra as provided by IUESIPS. A major source of inaccuracy was the location of the continuum, especially at longer wavelengths, where the crowding of the emission lines is often important. This makes the results rather uncertain for the LWR camera.

In this analysis we also made use of images with STEP values outside the optimum focussing range (see Section 3). This is not expected to change the validity of the results

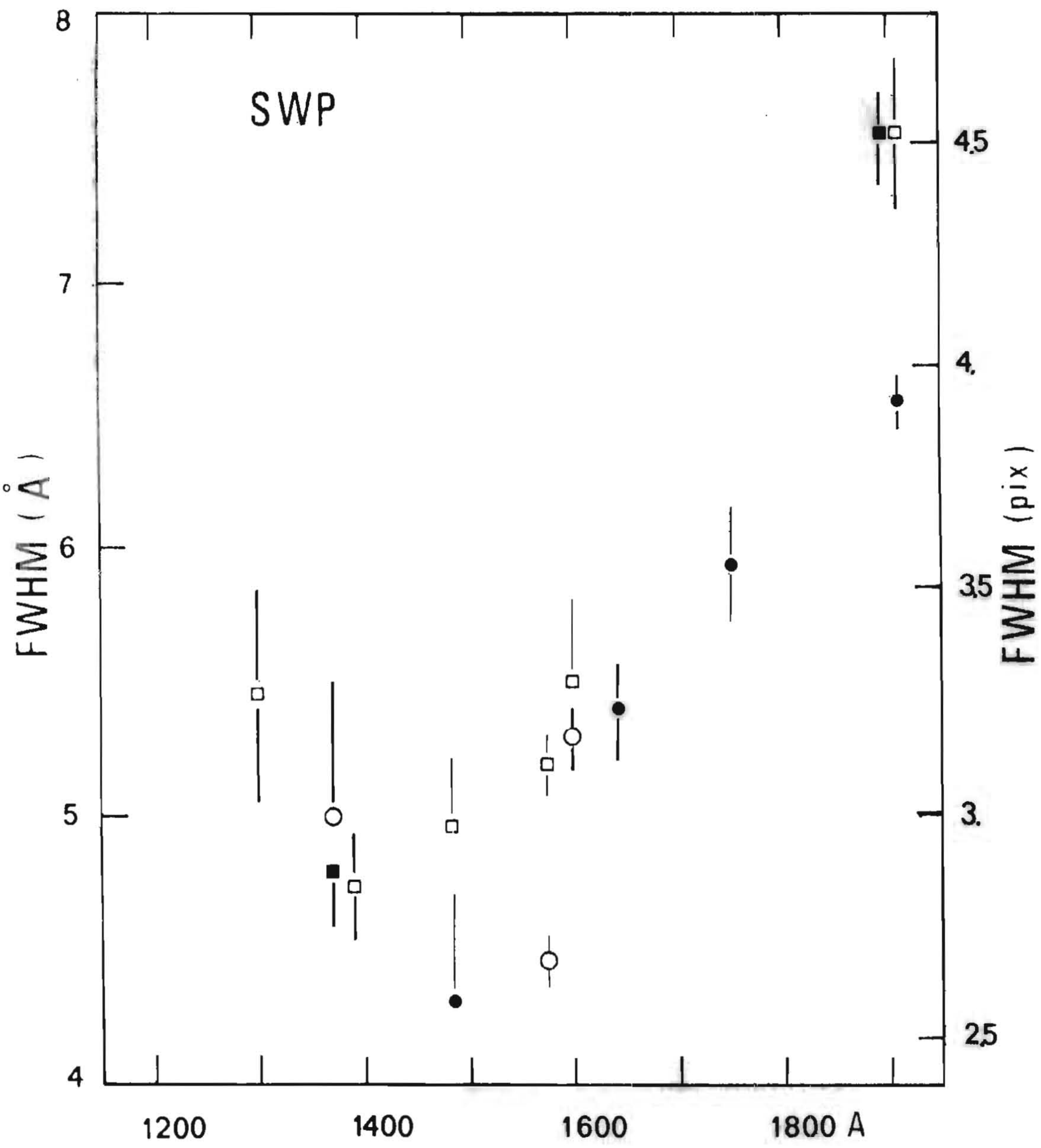


FIGURE 6

FWHM along the dispersion as a function of wavelength for the SWP camera obtained from spectra of emission line objects. Squares and dots represent data from the large and small aperture respectively. Open and filled symbols represent data obtained from 2 to 3 measurements or 4 to 8 measurements respectively.

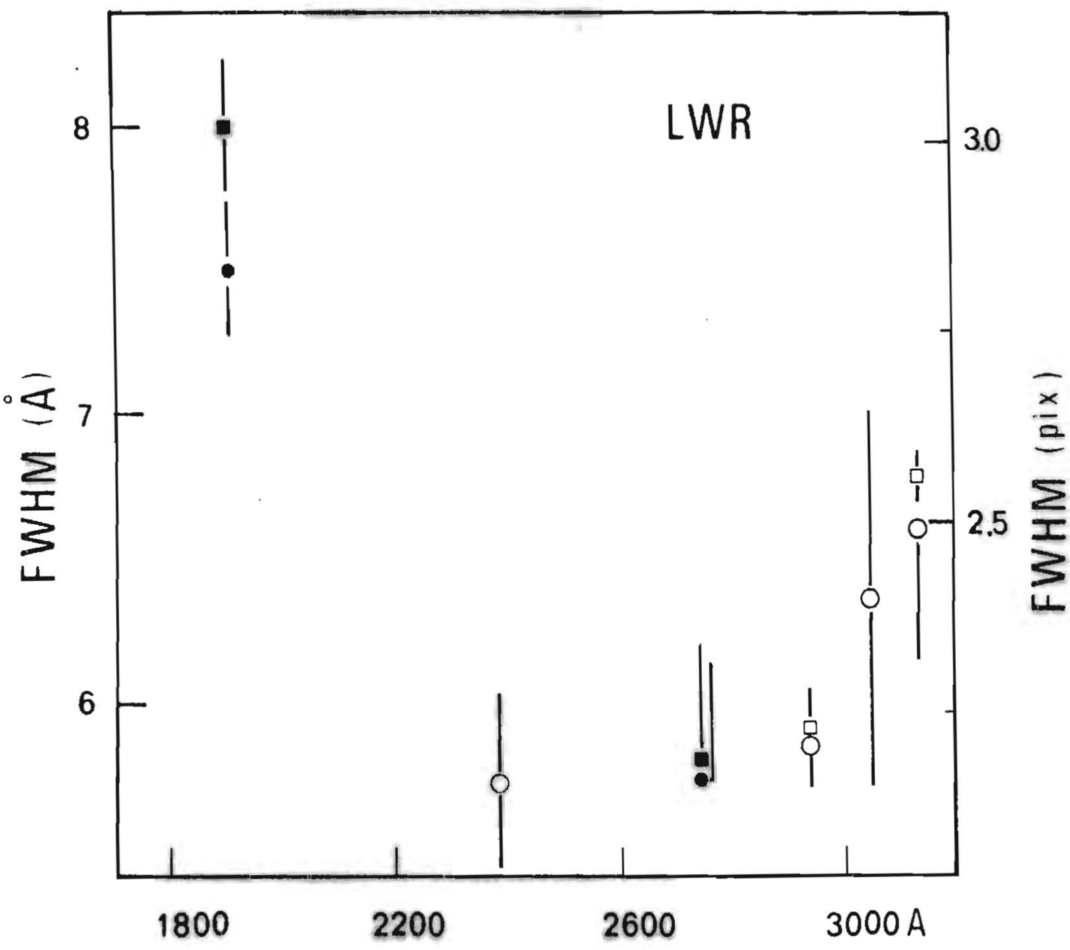


FIGURE 7

Same as Figure 6 for the LWR camera.

since, as shown later in this section, the spectral resolution (along the dispersion) is sensibly less dependent on the focussing conditions than is the spatial resolution (perpendicular to the dispersion).

The relevant results of the gaussian fitting, i.e. the FWHM (in A) of the emission lines along the dispersion direction are shown in Figure 6 and 7 for the SWP and LWR cameras, respectively. The agreement with the previous results by Barbero and Cassatella (1983) is good for the SWP camera while large discrepancies exist for the LWR camera in the region from 2400 to 2800 A. This discrepancy is mainly due to the use, in the previous report, of emission lines of poor quality, which were rejected in this analysis. Note also that the behaviour of FWHM v.s. lambda is rather uncertain at the short wavelength end of the SWP camera ($\lambda \lesssim 1300$ A). Actually, the only lines usable are OVI 1218 A and NV 1240. The former is generally faint and not completely reliable, while the latter is a doublet.

Figures 6 and 7 show that the best resolution is obtained around 1400 A in the SWP camera and around 2400 A in the LWR camera. This compares well with the blaze wavelengths of the short and long wavelength spherical gratings, i.e. 1400 A and 2500 A, respectively.

The actual resolution can be easily evaluated from the curves FWHM v.s. wavelength in Figures 6 and 7 using:

$$\Delta\lambda = 0.5\sqrt{2/\ln 2}\ \text{FWHM} = 0.849\ \text{FWHM} \qquad (1)$$

which represents the minimum wavelength separation necessary for two gaussian lines of width FWHM and equal central intensity to be resolved i.e. to show a minimum half way between their central wavelengths. The above equation implies for example, that in agreement with what is observed, the SiIV and MgII doublets (around 1400 A and 2800 A respectively) can be at least partially resolved with IUE low resolution spectra. An interesting result which can be derived from Figures 6 and 7 is the possible gain in resolution using small aperture spectra relative to large aperture spectra. The observations actually indicate that such a gain exists for SWP images, of the order of 8% on average, while the gain is very little (~3%) and probably not significant for the LWR spectra.

No reliable information about the spectral resolution could be derived for the LWP camera, essentially because of the lack of data on emission line sources. The existing data seem to indicate, however, that the spectral resolution performances of the LWP are ≲ 10% better than for the LWR. Similar results have been reported by Imhoff (1983) who finds that high resolution LWP images of the on-board Ne-Pt wavelength calibration lamps provide a better resolution than LWR images of the same kind, in most of the spectral range covered by the cameras. Note that, as discussed in Section 4, the spatial resolution of the LWP is also on average 9% better than the LWR.

We finally want to comment about the dependence of the spectral resolution on focussing conditions. Test images of RR Tel taken on March 31, 1980 at three different focus steps from -2.1 to 3.3 indicate that the spectral resolution is not significantly sensitive to the variation of STEP, while the contrary is true for the widths of the profiles perpendicular to the dispersion. This assures us that the results presented in this section are representative of the average observing conditions.

6. TWO-DIMENSIONAL SHAPE OF THE POINT SPREAD FUNCTION

A first look to low resolution images of emission line sources indicates immediately that the emission lines have a different two-dimensional shape according to the position in the image. This is seen as for example, in Figure 8 which shows amplified sections of three low resolution large aperture images of RR Tel corresponding to three different spectral regions: the short wavelength end (lines of OV] 1218 A and of NV 1240 A), the central region (NIV] 1486 A), and the long wavelength end of the camera (SiIII] 1893, CIII] 1909 A). One image (SWP 8610) was taken at good focussing conditions (STEP = -2.1), while the other two, (SWP 8607 and SWP 8606) had a bad focus (STEP = 1.4 and 3.3, respectively).

It is apparent from Figure 8 that the emission lines are roughly symmetric near the camera center while they appear elongated in the dispersion direction towards the long and the short wavelength ends of the camera.

Also, it is possible to verify, as concluded at the end of the previous section, that the width of the emission lines in the dispersion direction is about the same in the well focussed image as in the badly focussed images, while the profiles perpendicular to the dispersion are clearly broader in the latter ones. This confirms that changes of focus STEP mainly affect the spatial resolution rather than the spectral resolution.

The two-dimensional shape of the low resolution PSF can be deduced from Figures 9a and b where we report, as a

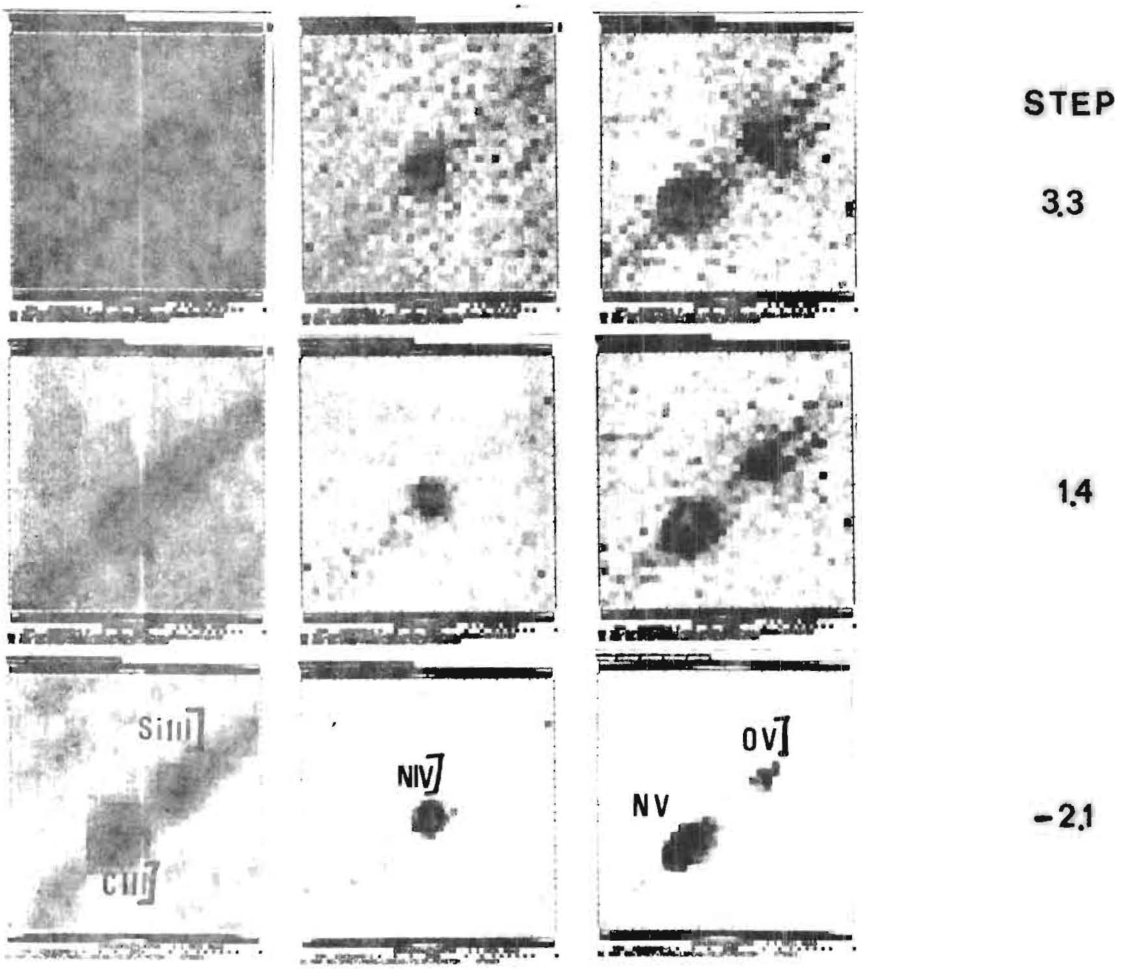


FIGURE 8

From top to bottom: three sections of SWP 8606, 8607 and 8610. From right to left: the CIII] 1909 and Si III] 1893 A lines, the NIV] 1486 A line, and the NV 1240 and OVI 1218 A lines. The focus STEP is very bad for SWP 8606 (3.3), is bad for SWP 8607 (1.4) and good for SWP 8610 (-2.1).

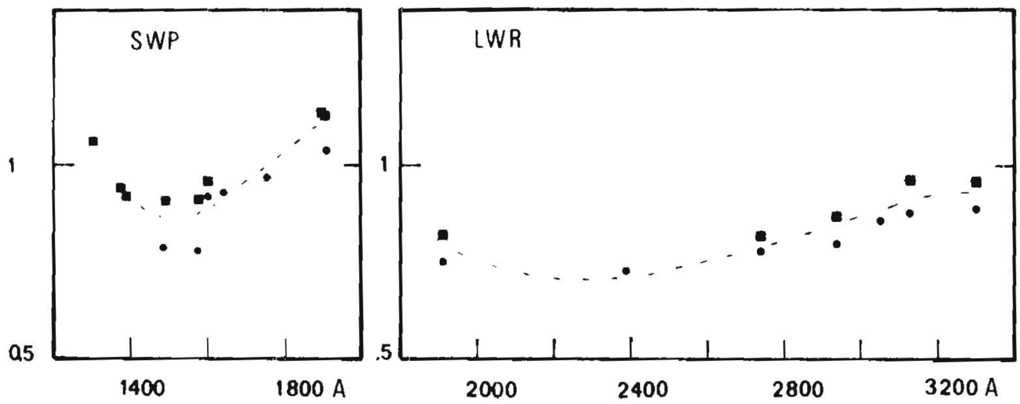


FIGURE 9

Ratio between the FWHM along and across the dispersion for the large (squares) and small (dots) aperture spectra as a function of wavelength in the SWP and LWR cameras.

function of wavelength, the ratio of the FWHM along the dispersion to the FWHM across the dispersion for both SWP and LWR cameras. The values of FWHM were obtained from the data in Figures 3a and c (FWHM across the dispersion) and 6 and 7 (FWHM along the dispersion), interpolating the first set of curves corresponding to the data in Figure 6 and 7. Figure 9 clearly confirms the results of the visual inspection of Figure 8, as described above. Figure 9 also indicates that the ratio FWHM(along)/FWHM(across) depends strongly on wavelength for the SWP, contrary to the LWR, case. For the SWP camera we have on average:

$$\mathrm{FWHM(along)/FWHM(across)} = \begin{cases} 1.06 \pm 0.16 & \text{large aperture} \\ 0.94 \pm 0.13 & \text{small aperture} \end{cases}$$

while for the LWR camera we find:

$$\mathrm{FWHM(along)/FWHM(across)} = \begin{cases} 0.87 \pm 0.07 & \text{large aperture} \\ 0.81 \pm 0.06 & \text{small aperture} \end{cases}$$

These results compare very well with those of Ponz and Cassatella (1981) derived from the analysis of spectra of RR Tel.

7. ANALYTICAL SHAPE OF THE PSF PERPENDICULAR TO THE DISPERSION

The profiles along the dispersion direction, as derived from the extracted spectra of emission line sources, do not indicate any detectable asymmetry, and can suitably be represented by gaussian profiles. The same is found in high resolution spectra (Fricke, 1983). This is not the case for the cross profiles which generally show evident asymmetries (at least for the SWP). An accurate knowledge of the analytical profile across the dispersion is clearly important, as in the case of two partially resolved sources falling in the large entrance aperture and the astronomer wanting to extract separately the two spectra by fitting the cross profiles with analytical functions. To this purpose, we analysed a few selected line-by-line spectra obtained at optimum focussing conditions, namely SWP 18881 and SWP 18067 of BD + 28° 4211, LWR 10129 of BD + 75° 325 and LWP 1676 of BD + 75° 321. In order to get a better resolution on the cross profiles, we used a special modification of the IUE SIPS which provides a sampling interval of half diagonal pixel in the direction perpendicular to the dispersion, instead of one diagonal pixel as in the standard software.

The line-by-line spectra were averaged in bands 50 A or 200 A wide for the SWP and the LWP and LWR, respectively. The average cross profiles were then fitted through a χ^2 fitting algorithm which makes use of either the following analytical functions:

a) a gaussian profile represented by:

$$y = y_0 \exp\left\{ - \ln 2 \left[\frac{2(x-x_0)}{FWHM} \right]^2 \right\} \tag{2}$$

where y_0 and x_0 are the peak intensity and the central position, respectively. The area beneath this curve is:

$$A = \frac{1}{2} \left[\frac{\pi}{\ln 2} \right]^{1/2} y_0 \; FWHM \tag{3}$$

b) a skewed function represented by:

$$y = y_0 \exp\left\{ -\ln 2 \left[\frac{\ln[1+2b(x-x_0)/f]}{b} \right]^2 \right\} \tag{4}$$

for $2b(x-x_0)/f > -1$,
and $y = 0$ for $2b(x-x_0)/f \leq -1$.

Changing the value of b, a different degree of skewness is obtained. As $b \rightarrow 0$ eq. 4 reduces to a symmetrical gaussian function. The parameter f is related to the full width at half maximum as follows:

$$f = \frac{FWHM \times b}{\sinh b} \tag{5}$$

while the area beneath curve (4) is:

$$A = \frac{1}{2}\left[\frac{\pi}{\ln 2}\right]^{1/2} y_o \; f \; \exp\left[\frac{b^2}{4\ln 2}\right] \qquad (6)$$

The results of this analysis can be summarized as follows:

1) The r.m.s. deviation of observed with respect to fitted analytical profiles is very good in all cases, irrespective of camera used and analytical shape adopted, ranging typically from 0.2×10^{-4} to 3×10^{-4}.

2) The skewed function is decidely a better representation for the SWP profiles as indicated by the very small σ values approaching 1.2×10^{-4}, compared with sigmas a factor about 7-10 larger for the gaussian representation. On the contrary, for the LWP and LWR the fitting accuracy is about the same with either the representations, eq. 2 or eq. 4. This is due to the fact that the short wavelength spectra do show an asymmetry, while the long wavelength spectra are only marginally asymmetric. This is clearly seen in Figure 10 where a comparison is shown between observed and analytical profiles for the image SWP 18881 (large aperture data) around 1425 A.

   A closer analysis of the values of b obtained after the fitting points towards the same conclusion: b (which measures the degree of asymmetry) is larger for the SWP, while it is closer to zero for the two long wavelength cameras. The way b varies with wavelength is shown in Figure 11 for the two SWP large aperture spectra 18067 and 18881. It is interesting to note that the behaviour of b v.s. wavelength is very similar for the two images confirming that b actually describes an optical property of the spectrograph. Note that the value of b is smaller for the SWP small aperture spectra analysed here than for the large aperture spectra, becoming of the same order only at longer wavelengths.

3) A comparison of the areas beneath the fitted curves indicates that, for the SWP, about 1.3% more flux is extracted using the skew function than with the gaussian function. Since the former representation has been shown to be best for the SWP we conclude that the flux is more accurate too.

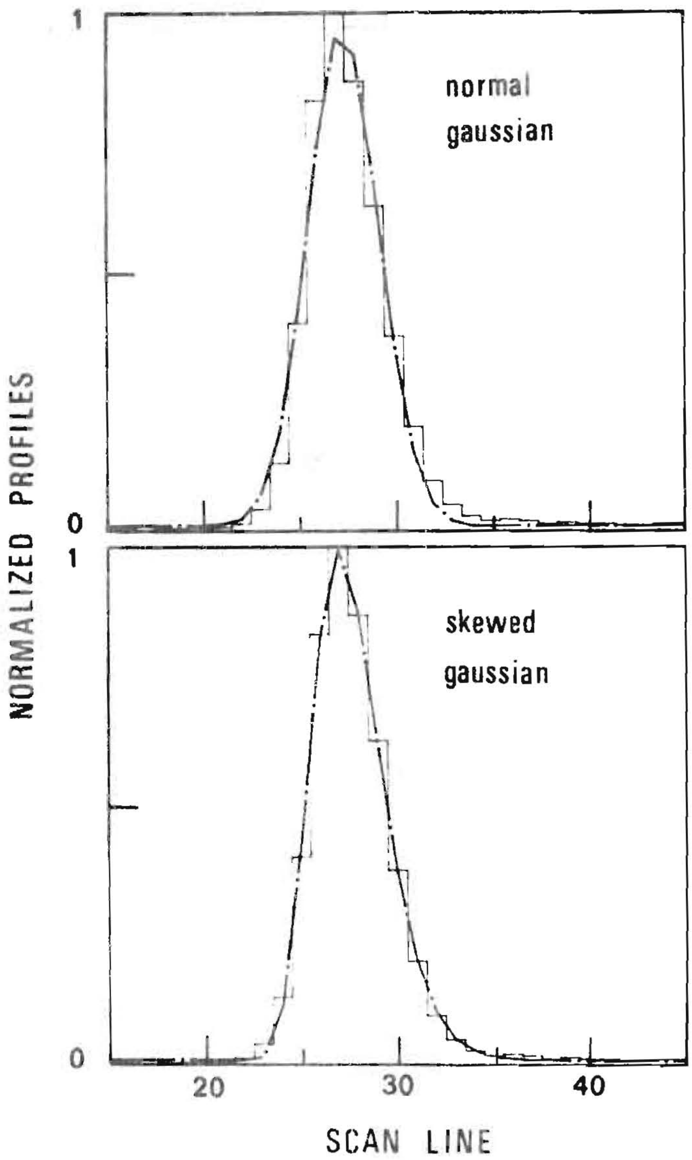


FIGURE 10

Comparison between observed profiles perpendicular to the dispersion and analytical profiles around 1425 A. Top: comparison with a normal gaussian profile (eq. 2) bottom: comparison with a skewed gaussian (eq. 4). Abscissae are in units of $\sqrt{2}/2$ pixels counted from the large to the small aperture.

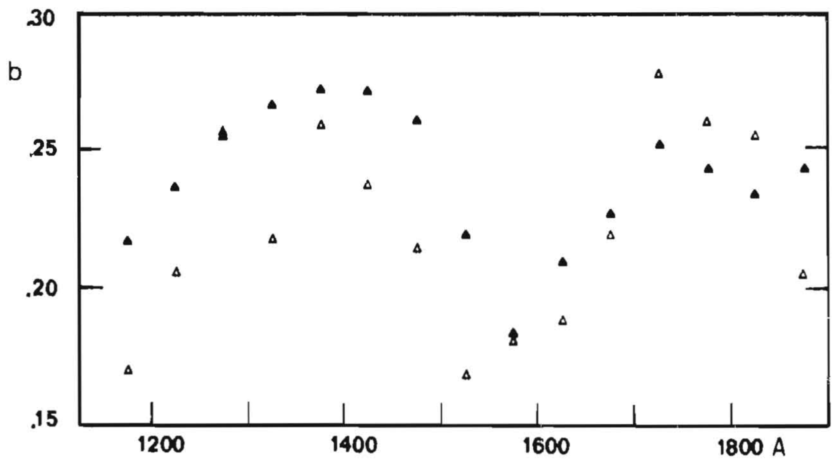


FIGURE 11

Variation of the skew parameter b (eq. 4) as a function of wavelength for SWP 18067 (open triangles) and SWP 18881 (filled triangles). The data refer to large aperture spectra.

FIGURE 12 (Overleaf)

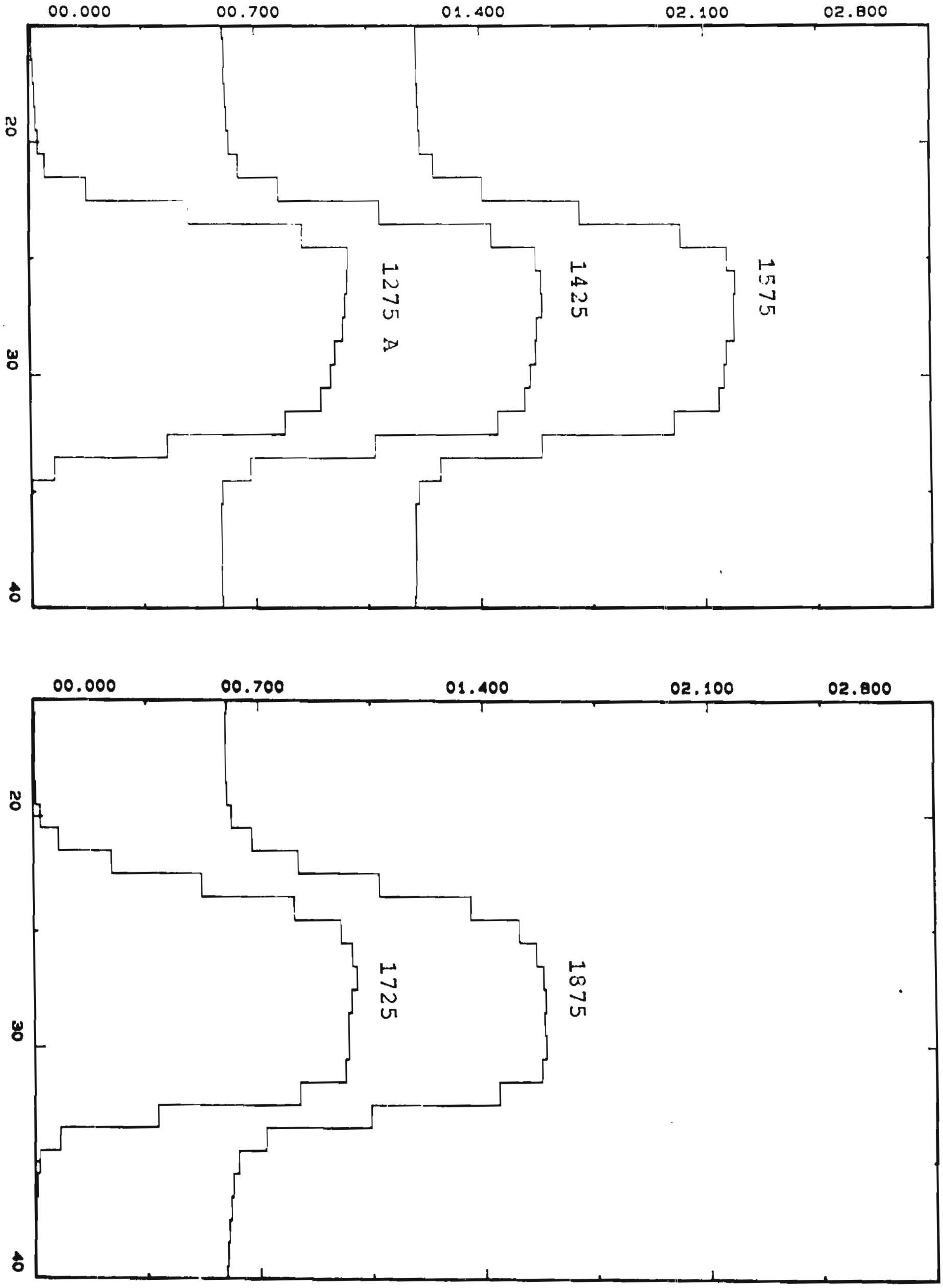
Normalized cross profiles obtained from averaging trailed spectra of IUE standard stars obtained with the SWP (a), LWP (b) and LWR (c) cameras. Abscissae are in diagonal pixels counted from the small to the large aperture for the SWP and LWR and from the large aperture to the small aperture for the LWP.

8. CROSS PROFILES OF EXTENDED SOURCES

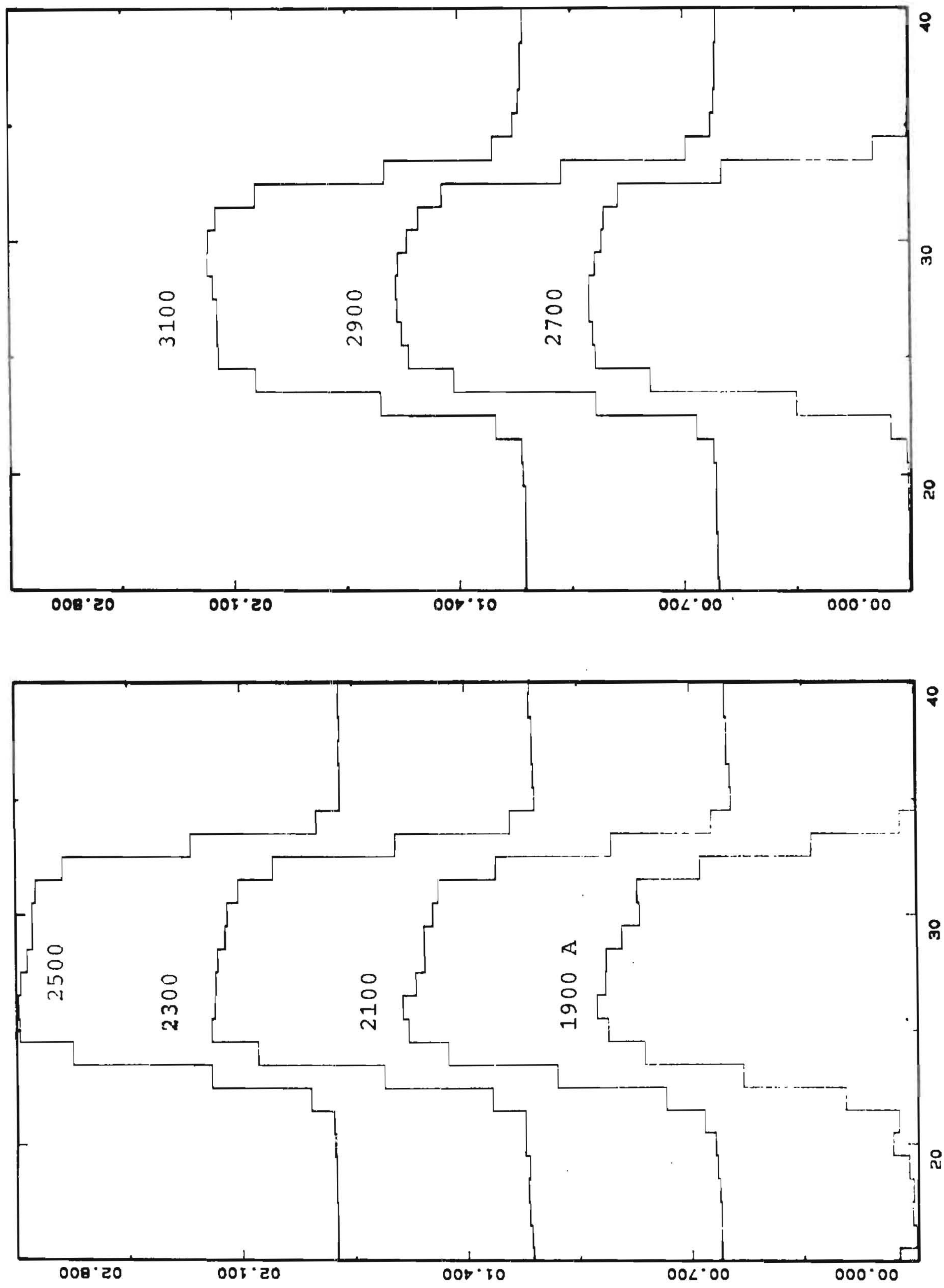
In order to help in the analysis of extended source spectra observed at low resolution, we studied the instrumental profile of the large apertures in the direction perpendicular to the dispersion using trailed spectra of IUE calibration standards. The trailing procedure is performed by maneuvering the IUE spacecraft in such a way the star crosses both edges of the large aperture from positive to negative X_{FES} coordinates of the Fine Error Sensor (FES) while keeping the Y_{FES} approximately constant and equal to the Y coordinate of the centre of the large apertures.

Since the large apertures of both the short and long wavelength spectrographs each have a small inclination with respect to the direction Y_{FES} = constant (about 13° counted clock wise from the major axis of the apertures to the negative X_{FES} axis), the cross profiles of trailed spectra are taken to represent suitably the response of the large aperture when observing homogeneous extended sources. The results are presented in Figures 12 a, b and c for the SWP, LWP and LWR, respectively. The profiles were obtained by averaging the profiles of 6 to 8 trailed spectra for each camera.

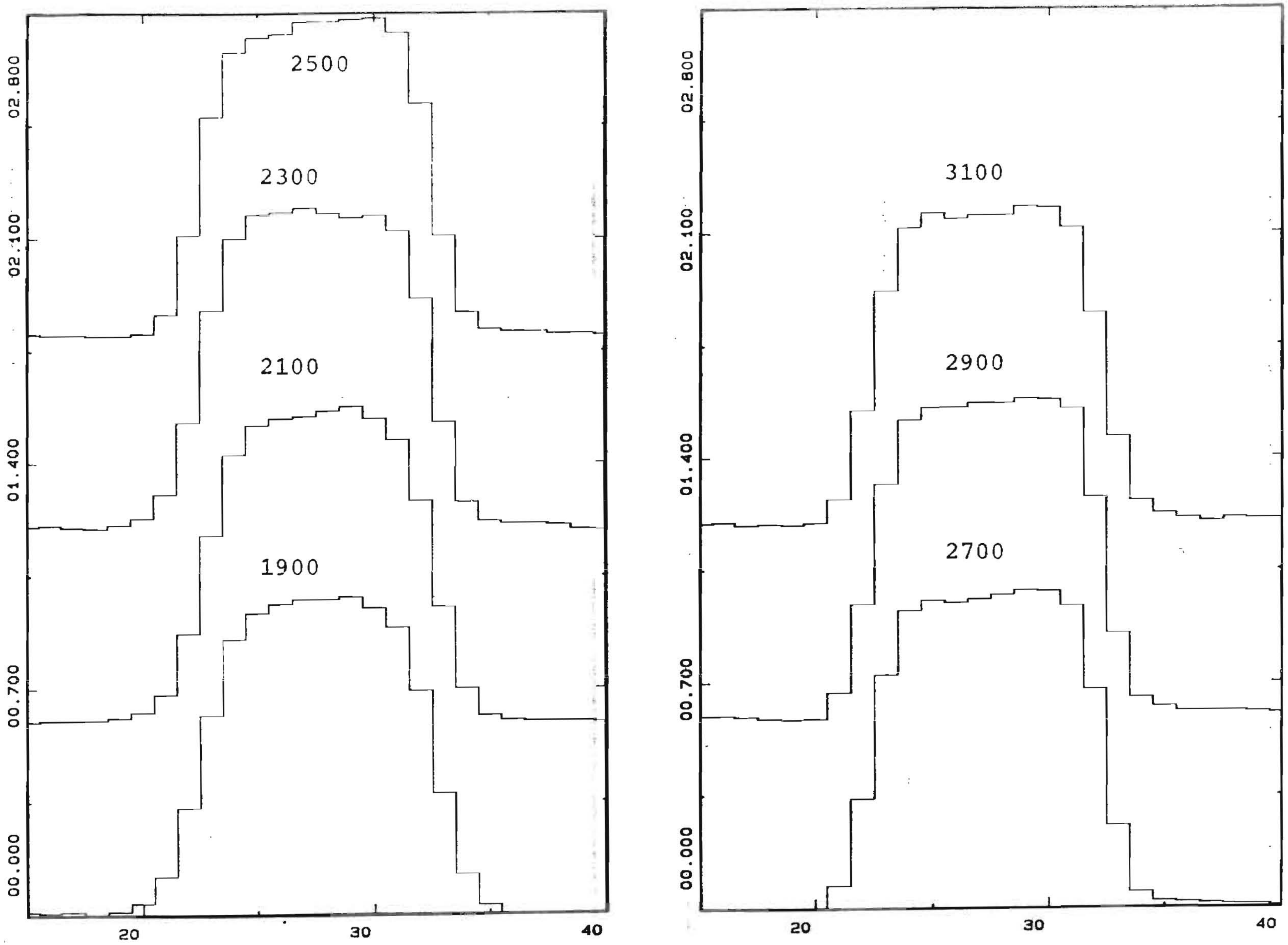
NORMALIZED CROSS PROFILES



- FIGURE 12a -


3100
2900
2700
2500
2300
2100
1900 A
02.800
02.100
01.400
00.700
00.000
20
30
40

- FIGURE 12b -



2500
2300
2100
1900
3100
2900
2700
02.800
02.100
01.400
00.700
00.000
20
30
40

- FIGURE 12c -

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THE PROCEDURE IN USE AT THE TRIESTE ASTRONOMICAL OBSERVATORY TO EXTRACT THE MAXIMUM INFORMATION FROM IUE HIGH RESOLUTION IMAGES

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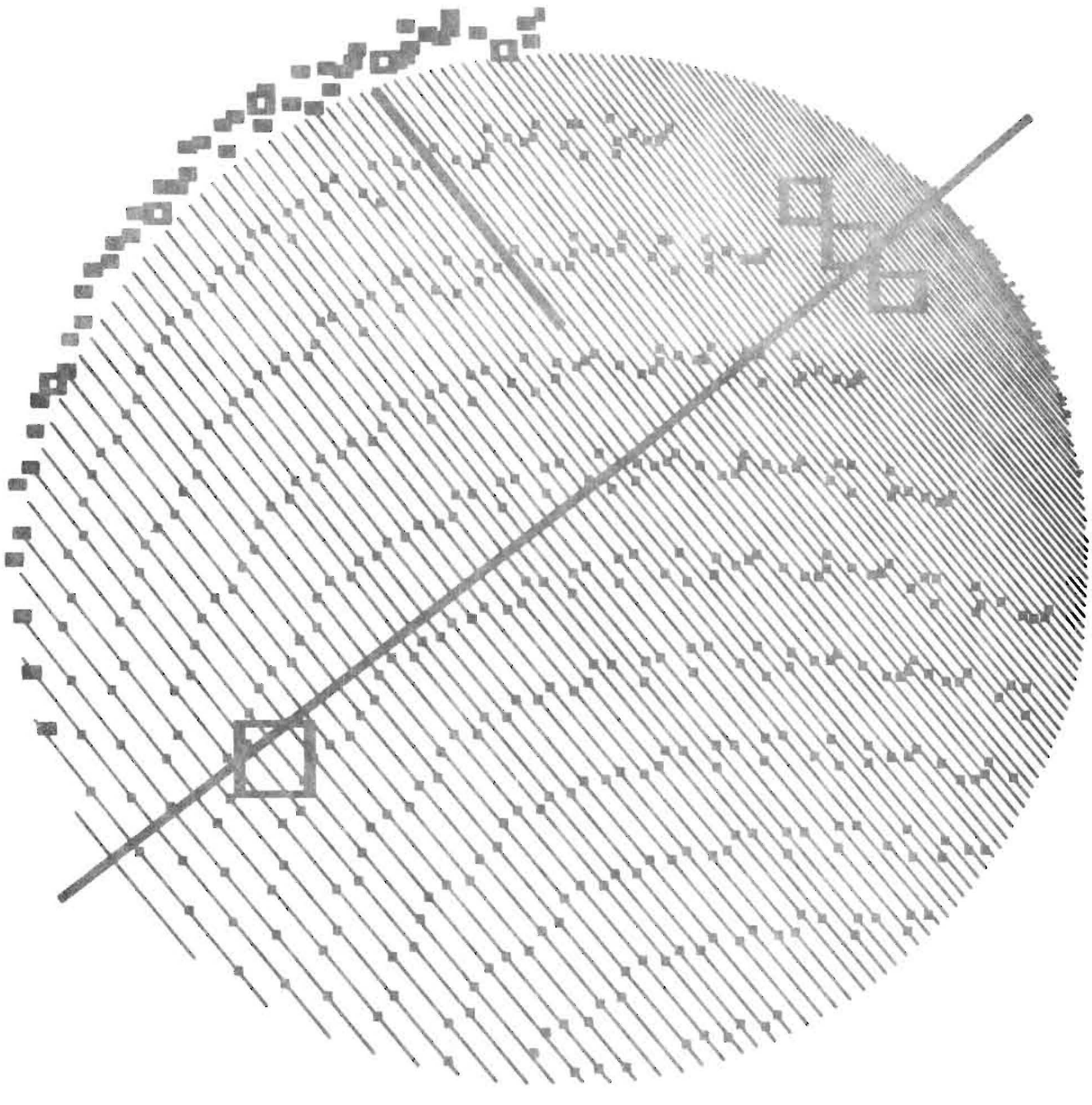
The standard extraction procedure, IUESIPS, for High Resolution IUE spectra is unable to compensate adequately for certain inherent defects in the output image of the echelle spectrograph. Light scattered by the cross-disperser and the imaging system enlarges the width of the spectral orders. In those parts of the image where the orders lie close together, these "wings" overlap. As a consequence the determination of the background, BKG, to be subtracted is incorrect, and even the resulting "NET" spectrum not only has incorrect intensities but also contains spurious contributions from nearby orders. We have developed an entirely new extraction procedure, IUEARM, which is more effective and reliable.

The procedure begins with the first program which copies the 2nd file of the IUE tape on to a disc file in an appropriate standard format. The colour display management program (Pucillo M. 1981, Publ. Oss. Astron. Trieste, No.733) is given control in order to allow the user to select interactively areas and cross-sections on the image shown. We show as an example (Fig.1), the selection of BKG zones, of a zone where the signal is present, and of two cross-sections, one perpendicular and one parallel to the direction of the dispersion.

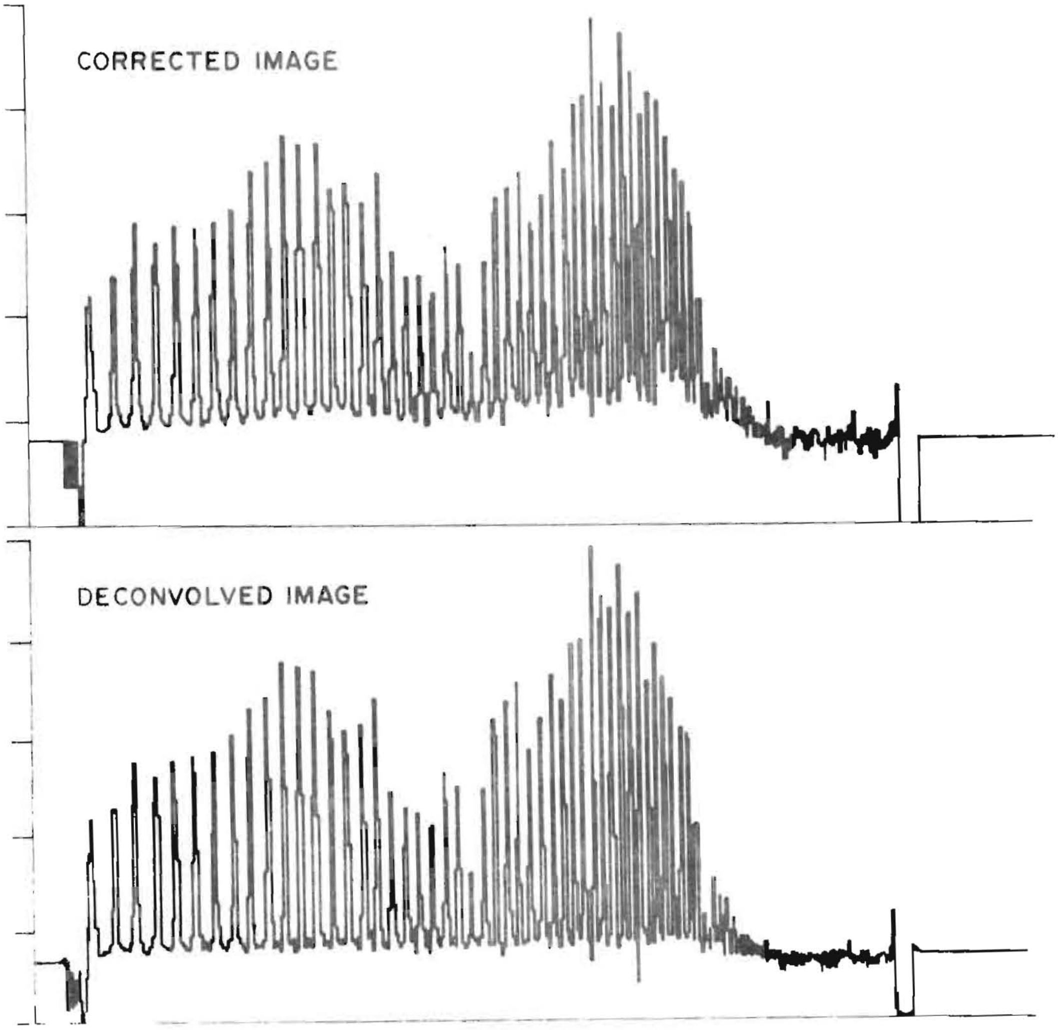
We perform a two-dimensional Fourier transform of the whole image and a gaussian filter is used to remove the high frequency noise. It is possible at this point to deconvolve the image using the IUE instrumental profile. After an inverse FT of the filtered and deconvolved signal, we obtain an image with well-separated orders. The value of the BKG level is estimated and then subtracted from the whole image.

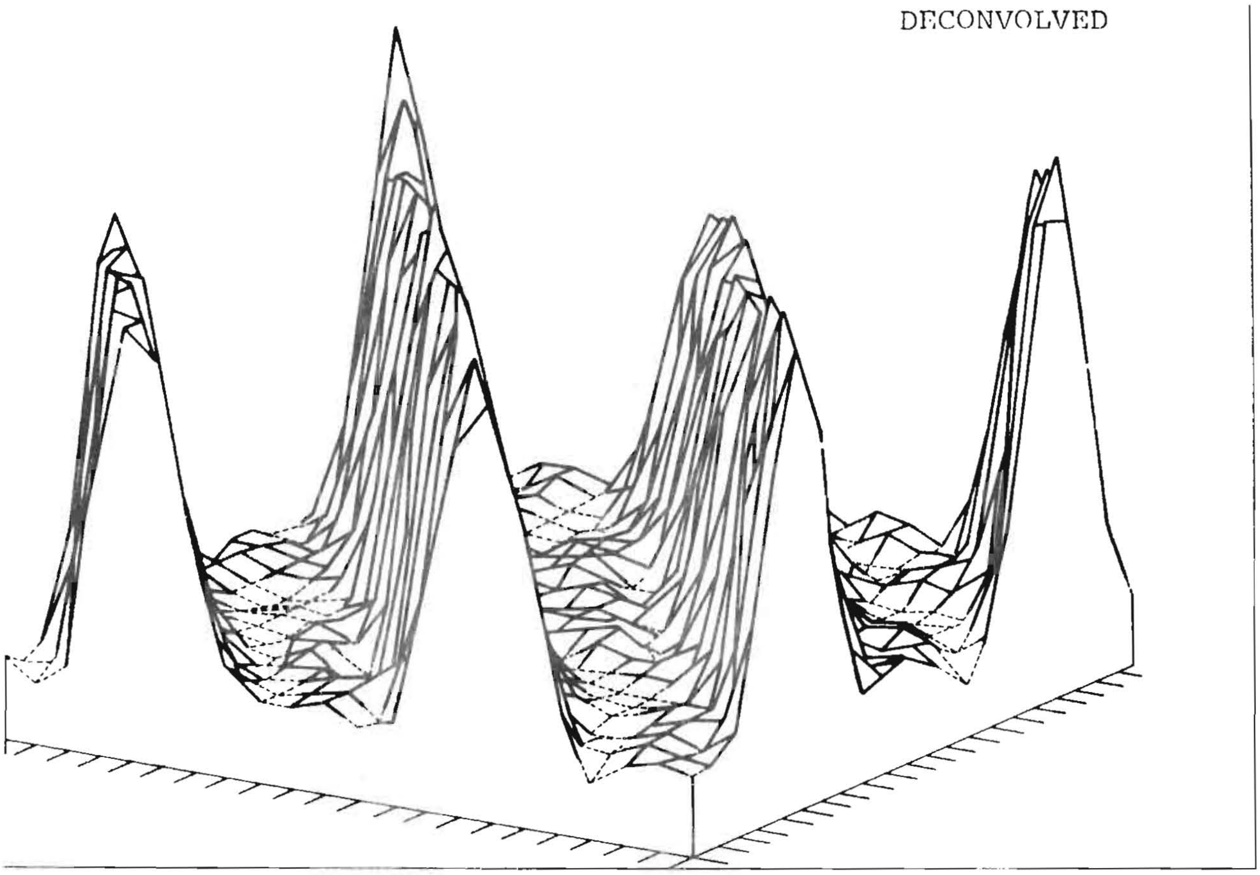


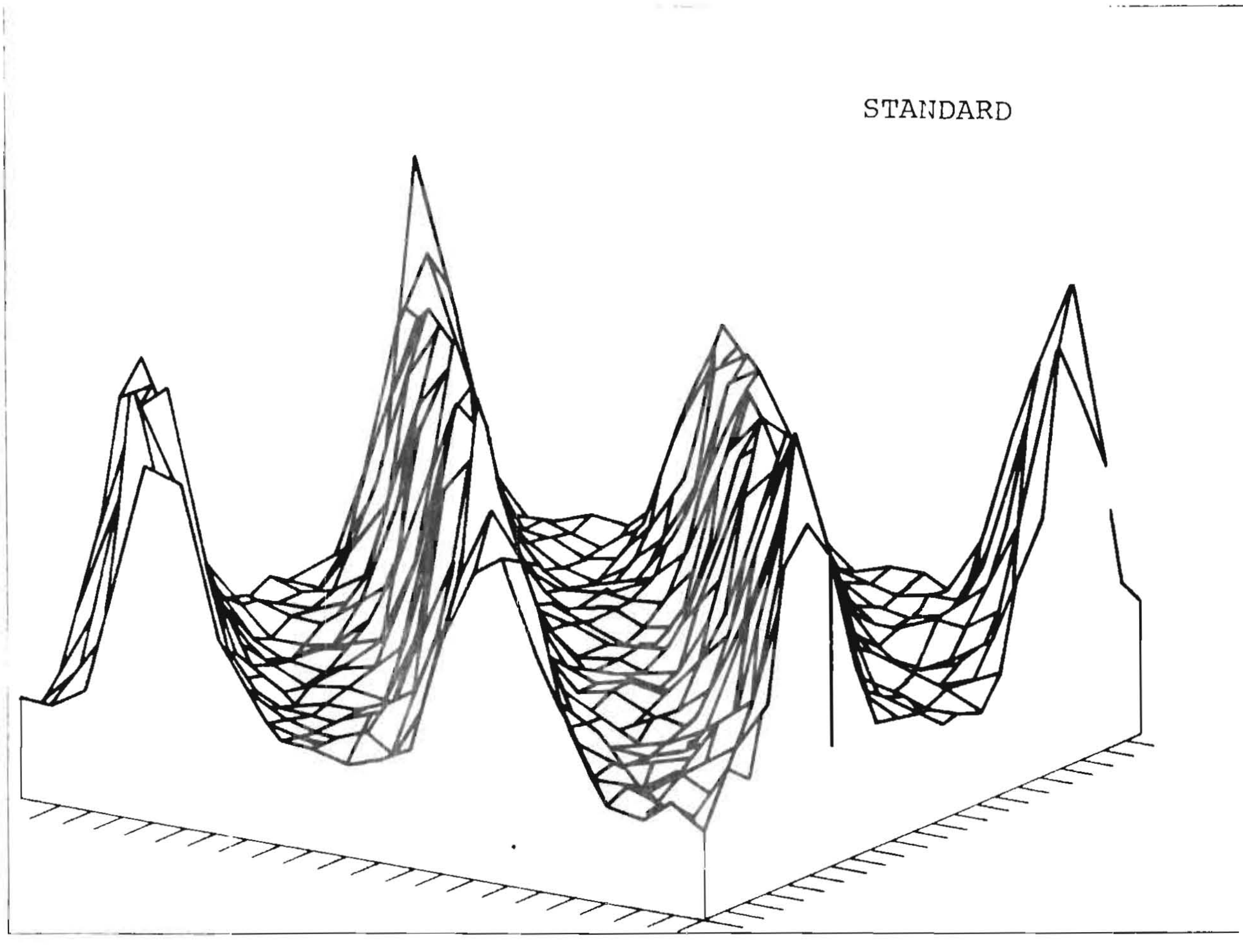
- FIGURE 1 -

The way deconvolution reduces overlapping of the orders is clear from the comparison between the two corresponding cross-sections (Fig.2) and between the two three-dimensional representations of the same area, taken on the standard and on the deconvolved image respectively, (Fig.3). In particular, the true BKG level (dashed lines) can be seen between the orders in the reprocessed area, while it is covered by the "wings" of the orders in the other one.

FIGURE 2







- FIGURE 3 -

After deconvolution and BKG subtraction, the spectrum is extracted from an order by passing a narrow mathematical pseudo-slit, two pixels high, along the orders. As a chief consequence of this use of a very small pseudo-slit the number of spectral regions badly affected by detected anomalies (for example the "bright spots" which appear on the cathode) is significantly reduced. It is also useful to note that the same extraction method can be used to obtain Low Resolution spectra directly from a photometrically corrected LR image. The extracted spectrum is calibrated at each wavelength point using an interpolation from the table of Bohlin et al, (1980 A.&A. 85, 1) obtained by means of a 5th degree lagrangian spline. Using our procedure, the interpolation function turns out to be reasonably smooth, and problems in the regions of order overlap disappear. The calibration functions that we have derived for each order do indeed coincide in the overlap regions of the adjacent orders, and this gives a "prima facie" confirmation of the validity of our method.

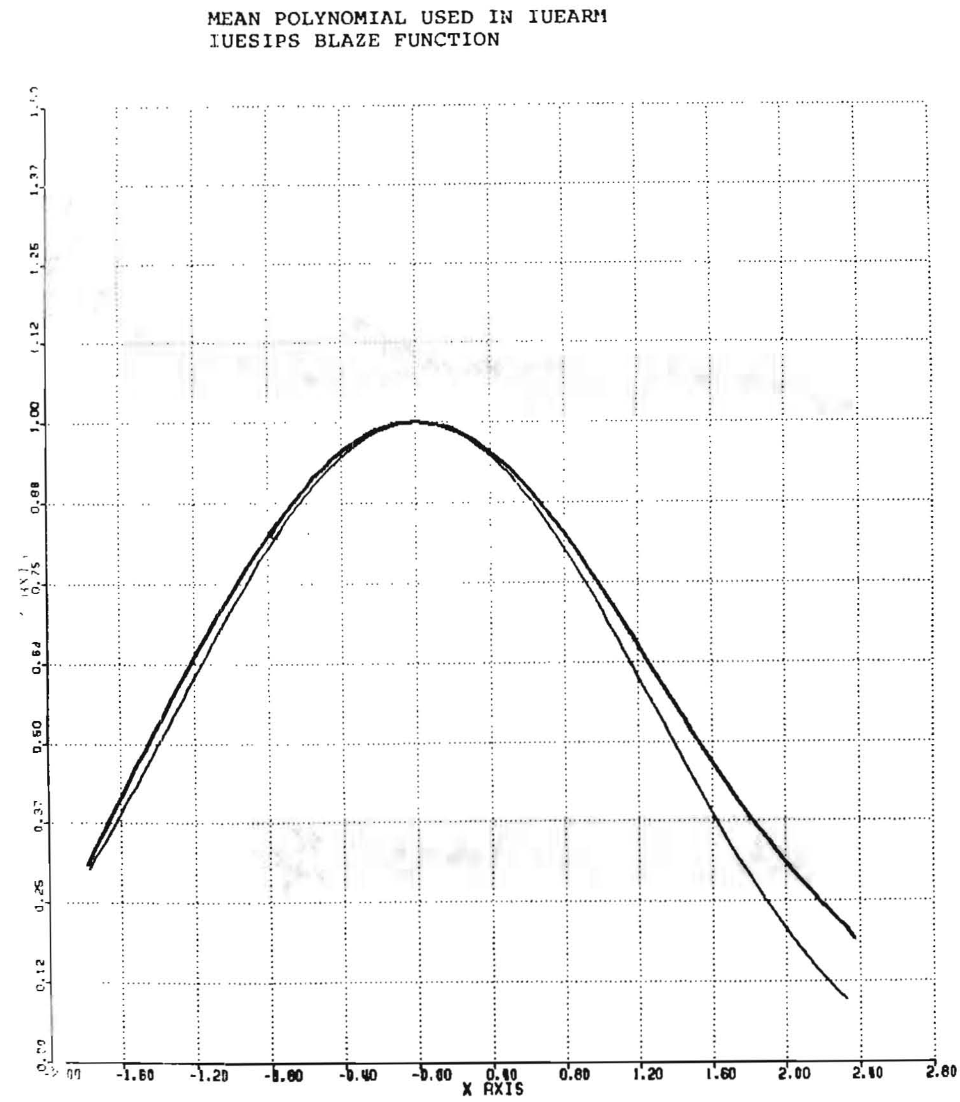


FIGURE 4

A 6th degree polynomial (Figure 4, thick line) is used as a blaze efficiency correction function. It has been derived by comparing the IUE spectra with those obtained with the Copernicus satellite for the same stars (Allocchio et al, 1983, A.&A., in press). It has been proven that the derived polynomial works more effectively than the standard blaze correction function used in IUESIPS (thin line).

As an example (Figure 5) of the output of our procedure, we show three orders image SWP 13589 of the star ζ Oph. The goodness of the fit of the orders in the overlapping regions is clearly seen.

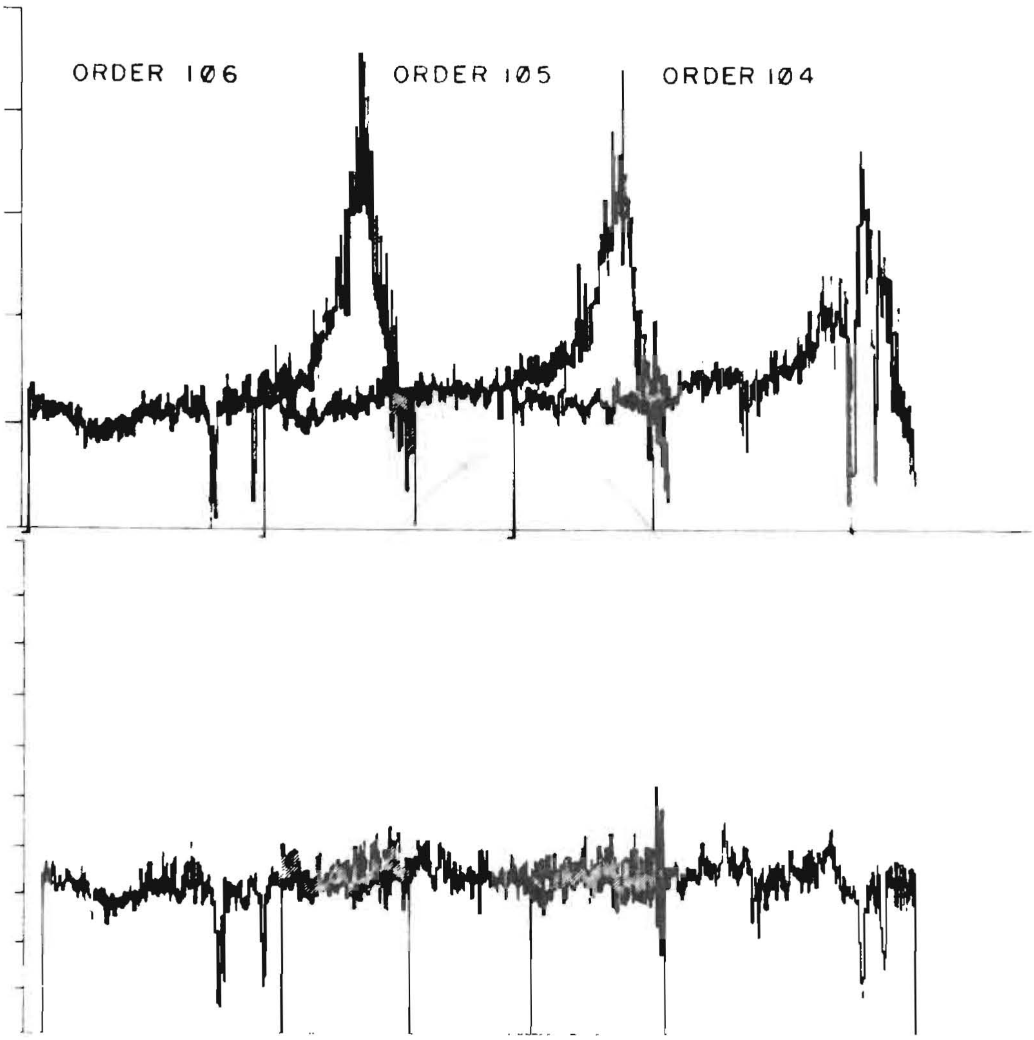
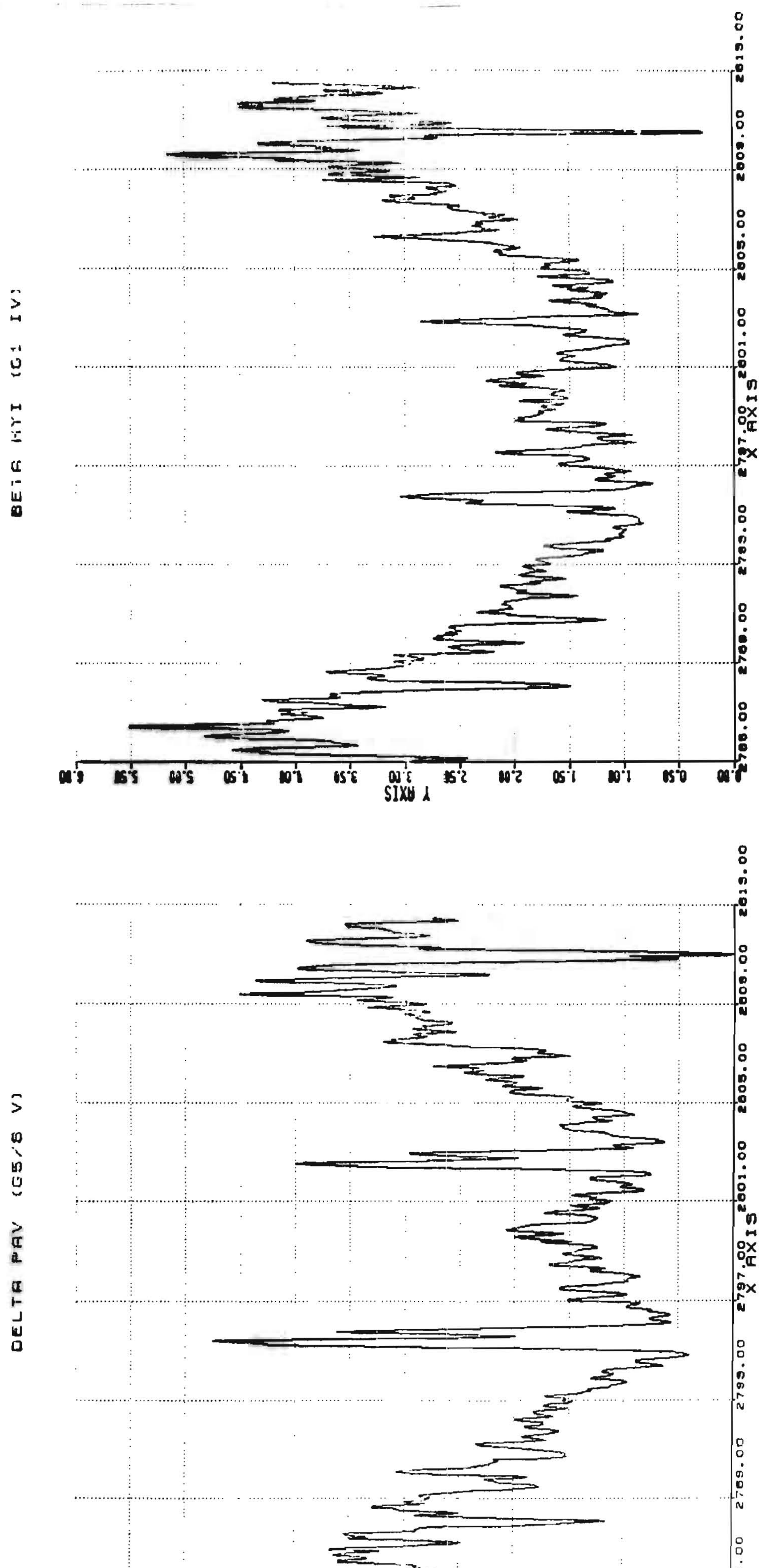


FIGURE 5

The limiting case of MgII line profiles. - The improved subtraction of the BKG and better correction for blaze allow us to achieve undistorted line profiles. The resolution in the spectra is also improved. In a forthcoming paper, we will present a set of high quality MgII h and k profiles for a selected group of sample stars, β TrA, α Hyi, ζ Tuc, β Hyi, δ Pav and τ Cet, from F0 V to G8 V. The quality of the newly reduced data, supplemented with a more recent set of spectra, has enabled us to improve on our previous search for variability, reported in Crivellari et al (1983, A.&A. Suppl. Ser. 52, 135), and the enhanced resolution has revealed a new absorption feature in the chromospheric Mg II lines of β Hyi (Figure 6). We believe these profiles represent the practical limit of the quality of High Resolution spectra obtained with IUE.



- FIGURE 6 -

Improving the Ripple Correction

The non-constant characteristic of the Echelle constant K of the IUE spectra has been pointed out by various authors (Benvenuti, 1981; Ake, 1982). One of the corrections performed for the echelle blaze is of the form:- (Ahmed, 1981).

$$F = \mathrm{sinc}^2 (\pi \alpha x) \qquad (1)$$

The values of α used by Ake (1981) were:-

α = 0.85 SWP spectra
α = 0.89 LWR spectra

This correction is an alternative to the IUESIPS package because the parabolic term $(1 + Ax^2)$ has been replaced by introducing α. Using equation (1) or any other appropriate form, K is given in all cases by:-

$$K = m\lambda_c \qquad (2)$$

where m= order, λ_c is the central wavelength of the order m. x is represented by:-

$$x = (\pi m/K) . (m\lambda - K) \qquad (3)$$

Because of the complexity of the exact value of K, the user must frequently consult his own measurements. Thus we analysed from the net data recorded a systematic phase-shift of the form:-

$$K = m (\lambda_c + \Delta \lambda_c) \qquad (4)$$

This means the scaling of λ_c has to be shifted by approximately 1A. The second problem that must be overcome when using a correction for K is an additive small shift per record. This modulation can best be approximated by:-

$$K = m (\lambda_c + b(\lambda) . \Delta\lambda_c) \qquad (5)$$

Assuming that the systematic shift of λ_c remains constant, the additive change $b(\lambda)$ produces a shift starting from $<\Delta\lambda_c + 0.25A$ to $<\Delta\lambda_c - 0.25A$. It would seem that the error of λ_c is systematically produced by some instrumental effects.

By substituting α = 0.82 in equation (1) and using equation (5) for K, the example spectrum in Figure 1 is obtained. In this example, observations of the Be star HD120991 made in Jan 1980 have been investigated. In comparision, Figure 2 shows the same data processed using the standard Vilspa software in use at that time. Figure 3 shows the same data, this time reprocessed with the new IUESIPS software. The ripple correction in Figures 1 and 3 each compare favourably with that in Figure 2.

It should be noted, however, that at the right-hand end of the spectra, there is increased instrumental noise and thus small features may be buried. Due to this noise constraint, the accuracy is lowered at the longer wavelength end of the spectrum. Figure 1 was produced using the following values or functions respectively:-

$$\Delta\lambda_c = 0.8 \text{ A}$$
$$b(\lambda) = (\lambda_c/\lambda)^a$$
$$a = 40$$
$$\lambda_c = 137725 \ . \ m$$
$$\alpha = 0.82$$

Smoothing by means of simple averaging for example, improves the appearance of the noisy spectrum, but obviously does not affect the ripple correction itself.

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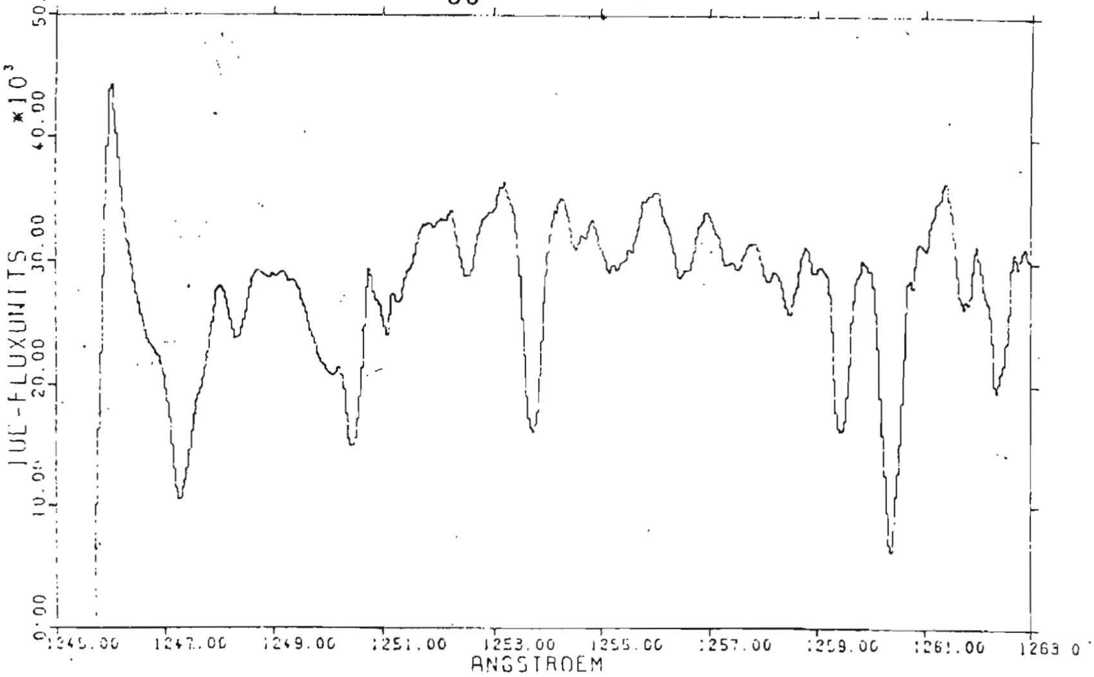
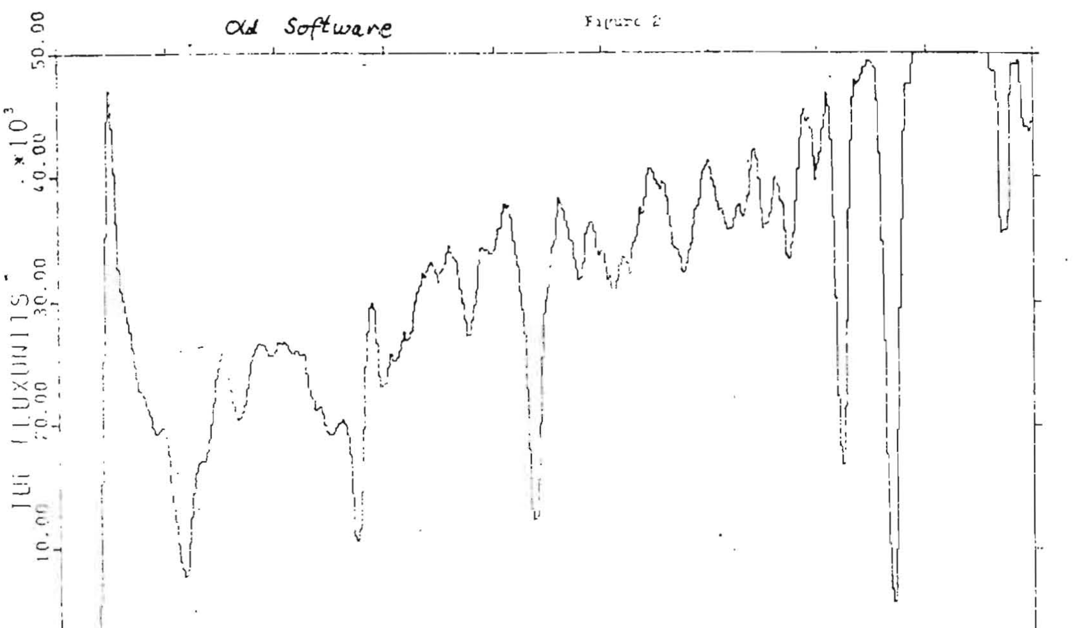
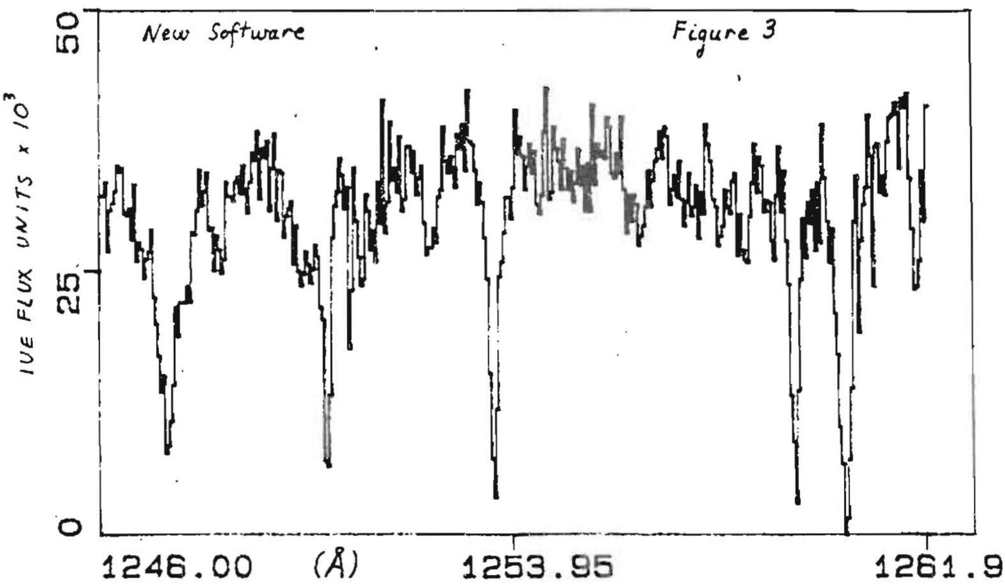
Figure 1



HD 12 09 91 -- 01 90 110

Figure 2





HOW THE ADDITIONAL NOISE CAME

IUE users of spectra obtained in the high resolution mode have noticed a substantial increase of the noise in the data obtained with the new software, in use since November 1981 at GSFC and March 1982 at Vilspa (Turnrose, Thompson and Bohlin, 1982). This fact is usually attributed to the normal increase of noise expected while doubling the sampling. Nevertheless, looking at some IUE high resolution spectra suggests that an additional effect is present. We suspected that the relative position of the pseudo-slit centre with respect to individual pixels may play a role in the new software. A model of the procedure used to obtain spectra from photometrically corrected images has been constructed to study this problem.

I Ideal situation

We suppose that only one order is present, and the signal I at wavelength λ is spread in the x-direction perpendicular to the order following a gaussian law,

$$S_\lambda(x) = \frac{I(\lambda)}{\sqrt{2\pi}\sigma} \exp\left(-(x-x_o)^2/2\sigma^2\right) \qquad (1)$$

where x_o is the position of the centre of the order and σ the order width.

If this signal is collected with a receptor of sufficient length in the x-direction and with constant efficiency E, one should measure

$$\frac{I(\lambda)\ E}{\sqrt{2\pi}\ \sigma} \int_{-\infty}^{\infty} \exp\left(-(x-x_o)^2/2\sigma^2\right) dx = I(\lambda)\ E \qquad (2)$$

II Extraction with an infinite row of pixels

Suppose now that the extraction is carried out with a detector made of a set of square pixels, the diagonals of which lie in the x-direction. The response of such a receptor is proportional to its surface area and the response $R_j(x)$ of an individual pixel located between abscissae j and j+1 can be represented as follows:-

- null outside [j,j+1] (3)
- $R_j(x) = P(x)\ E = 4\ (x-j)\ E \quad \text{for} \quad j < x < j+1/2$
- $R_j(x) = P(x)\ E = 4\ (j+1-x)\ E \quad \text{for} \quad j+1/2 < x < j+1$

The length here and below is the pixel-diagonal and the factor 4 is chosen to normalise the mean value of $R(x)$ to E. The contribution C_j of a single pixel may be evaluated analytically:

$$C_j = \frac{4\ I(\lambda)E}{\sqrt{2\pi}} \int_j^{j+1/2} (x-j)\ \exp\ (-(x-x_o)^2/2\sigma^2)\ dx \qquad (4)$$

$$\int_{j+1/2}^{j+1} (j+1-x)\ \exp\ (-(x-x_o)^2/2\sigma^2)\ dx$$

$$C_j = 4I(\lambda)E\left\{\frac{\sigma}{\sqrt{2\pi}}\left[\exp\left(-\frac{(j-x_o)^2}{2\sigma^2}\right) + \exp\left(-\frac{(j+1-x_o)^2}{2\sigma^2}\right) - 2\exp\left(-\frac{(j+1/2-x_o)^2}{2\sigma^2}\right)\right] + \frac{1}{2}\left[(j-x_o)\left\{\mathrm{erf}\left(\frac{j-x_o}{\sqrt{2}\sigma}\right) - \mathrm{erf}\left(\frac{j+1/2-x_o}{\sqrt{2}\ \sigma}\right)\right\} (j+1-x_o)\left\{\mathrm{erf}\left(\frac{j+1-x_o}{2}\right) - \mathrm{erf}\left(\frac{j+1/2-x_o}{2}\right)\right\}\right]\right\} \qquad (5)$$

where erf is the usual statistical error function.

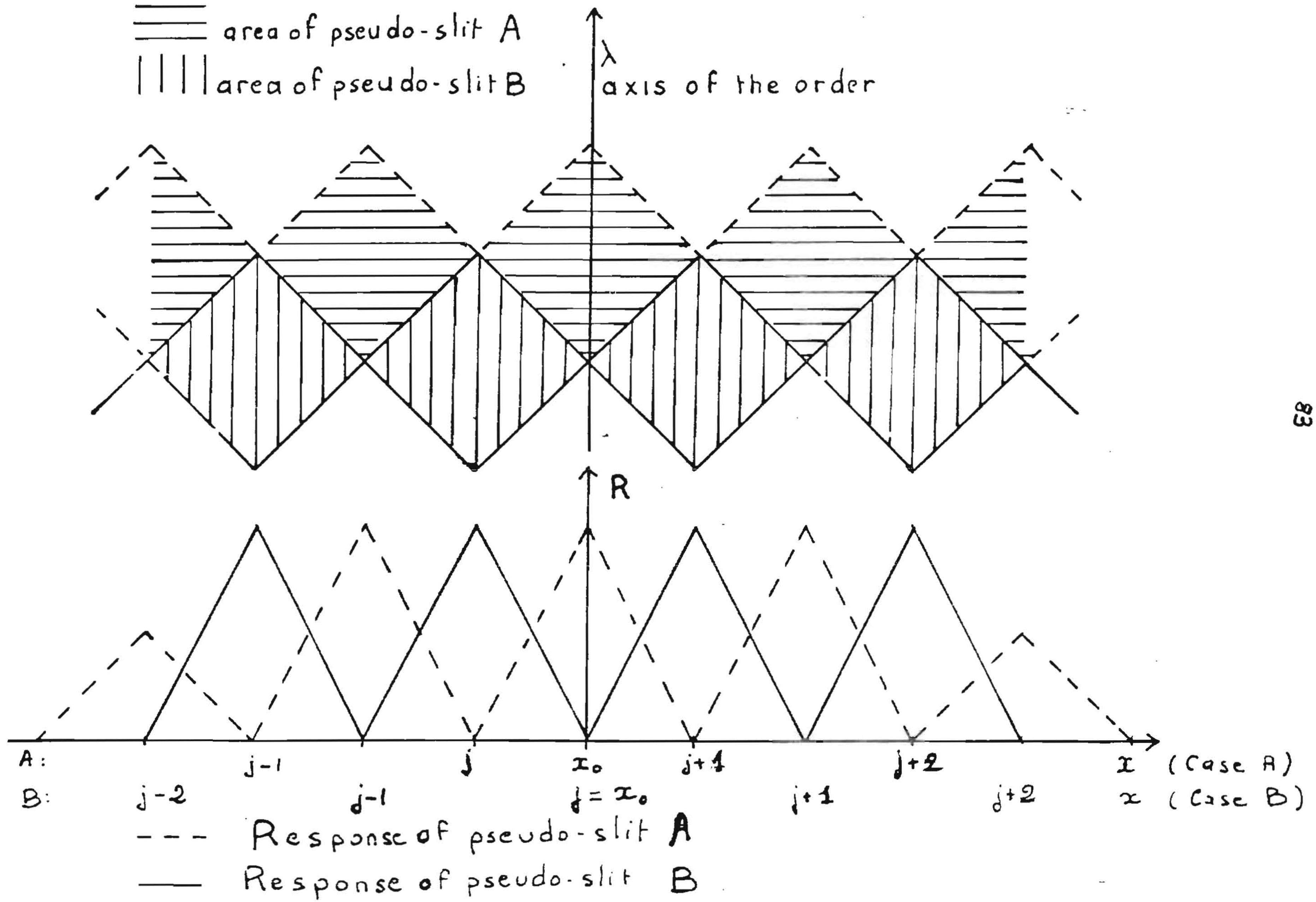
Although the mean value of R_j over [j,j+1] is E a hypothetical sum over all C_j will not lead to the value $I(\lambda)E$, except in the ideal situation.

The table below, showing the results of summation over all C_j of significant value, illustrates the cases when the axis of the order crosses a pixel right in the middle (case A, $x_o = j+1/2$), or when it is located exactly between two pixels (case B, $x_o = j$, see figure). For the sake of simplicity, it will be assumued that $I(\lambda)E=1$. The adopted values of are suggested following De Boer, Preussner & Grewing (1983) and by personal experience.

<u>Summation of an infinite row</u>

σ	0.6	0.8	1.0	1.2	1.4
Case A:	1.000665	1.000003	1.000000	1.000000	1.000000
Case B:	0.999335	0.999997	1.000000	1.000000	1.000000

No noticeable bias is introduced in this case.



area of pseudo-slit A
area of pseudo-slit B
λ
axis of the order
R
A:
j-1
j
x₀
j+1
j+2
x (Case A)
B:
j-2
j-1
j = x₀
j+1
j+2
x (Case B)
Response of pseudo-slit A
Response of pseudo-slit B

III Extraction with a finite pseudo-slit exactly centred on the order

We suppose now that we limit the summation to a width of 4 pixel-diagonals as in the new IUE software. If the centre of the pseudo-slit lies exactly between two pixels (case B), the extraction consists of a simple sum of the contribution of 4 pixels: otherwise, the edge of the pseudo-slit comes across the two extreme pixels. In this latter case, the contribution of those pixels is affected in the summation by a factor which is the ratio of the area within the slit to the total area of the pixel. By this means the pseudo-slit keeps a virtual area of 4 pixels. The results of a summation with a pseudo-slit, under the assumption that the actual order centre coincides exactly with the pseudo slit centre are shown below for the two extreme cases mentioned above.

Summation with a pseudo-slit (width = 4)

σ	0.6	0.8	1.0	1.2	1.4
Case A:	0.9964	0.9730	0.9319	0.8805	0.8251
Case B:	0.9998	0.9900	0.9589	0.9092	0.8512

Of course there is a general loss of signal as is already known, and taken into account in the interpretation of the results. But there is also a significant difference between cases A and B.

Unfortunately, these two extremes are routinely encountered with the extraction of the new IUE software in two successive points of the "gross spectrum". In fact, the relative position of the slit centre versus pixel centre differs in two successive pseudo-slits by approximately 0.5 pixel-diagonals (see figure), which is the worst possible case. Therefore the new software introduces a systematic mathematical bias that can be as high as 3% of the Flux Number between Case A and Case B. This bias acting systematically in opposite directions on two successive points of the extracted spectra, appears as noise in the plotted results.

It must be stressed here that using a pseudo-slit with its edge falling across a pixel does not mean that we are able to distinguish between photons coming inside or outside the slit. It only means that we apply a correction factor to the contribution of the whole pixel proportional to the area of the pixel within the pseudo-slit. This pixel-slicing operation supposes that the pixel is more or less uniformly exposed, which is not the case in an IUE image with flux varying rapidly in the x-direction. This procedure rejects too many photons in the extreme pixels of the pseudo-slit.

IV Extraction with a pseudo-slit not exactly centred on the order

The table below illustrates the case when the actual postion of the centre of the order differs from the position of the centre of the pseudo-slit (generally the theoretical position of the order). When the distance between the two centres is 0.3 pixel-diagonals, the following results are obtained:-

Summation with a de-centred pseudo-slit

σ	0.6	0.8	1.0	1.2	1.4
Case A:	0.9907	0.9635	0.9212	0.8703	0.8162
Case B:	0.9987	0.9843	0.9493	0.8988	0.8418

From the point of view of the systematic mathematical "noise" introduced, there is no qualitative difference. However, the loss of signal that can result from incorrectly positioning the centre of the pseudo-slit is obvious. As the theoretical position of an order may differ from the actual position by as much as 0.5 pixel-diagonals (Bohlin & Turnrose, 1982), this effect is worth noting.

V How do the old and new software differ?

In the old software, the pseudo-slit shape did not vary from one extraction point to the next, the extreme pixels were always wholly taken into account, and the effect mentioned above could not appear. In order to keep the shape of the pseudo-slit unchanged, the old software allowed the slit centre to deviate slightly from the exact position of the order. Consequently, there was a drift of the slit centre with respect to the theoretical position of the order as the extraction progressed along that order.

Compensation for this drift in x_0 was made by means of discrete jumps in the slit position. This procedure is expected to add some small oscillations to the global sensitivity of IUE, but such a study is beyond the scope of this paper.

VI What can be done?

The most straightforward manner to eliminate the effect introduced by the new software is to add three successive λ-points of extracted spectra with respective weights 1/4, 1/2, 1/4. This should simulate fairly well a receptor with a flat response in the x-direcion. However, this causes drastic degradation in the λ-resolution. Another way is to adjust $I(\lambda)$ with a non-linear least-square minimisation procedure along the x-direction, taking into account the particular geometry of the problem. Work is under way to provide a suitable extraction procedure starting from the photometrically corrected image (2nd file).

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*        VILSPA PUBLICATIONS LIST         *
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*    Published 1 Jan - 31 Aug 1983        *
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LIST OF VILSPA IUE PAPERS IN MAIN JOURNALS

Publication dates 1 Jan - 31 Aug 1983

This list contains all IUE papers that have appeared during the above dates in major refereed journals (Mon. Not. R. astr. Soc., Astron. Astrophys, Astrophys. J) and which originate from Europe. Underlining of an author's name indicates membership of the Vilspa Observatory staff, and papers by Observatory staff on topics not involving IUE data are marked by '(Obs)' after the entry.

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(Obs)

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##################################
#                                #
#        MERGED IUE LOG          #
#                                #
#  1 APRIL 1983 - 31 JULY 1983   #
#                                #
##################################
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Readers will notice the change in policy from previous newletters in which only Vilspa images were listed, in that henceforth, we shall publish the MERGED NASA/VILSPA LOG. The present release is in accordance with the microfiche copies of the merged log distributed with ESA Newsletter No.17, covering the period 1 April 1978 to 31 March 1983. Thus with the present supplement, all merged log entries up to 31 July 1983 are available.

We shall continue to release at suitable intervals microfiche copies of the complete merged log, sorted by right ascencion.

Minor differences exist between the entries originating from Vilspa and Goddard (indicated by V or G in column 17). The most important of these concerns the means by which the final exposure is described. For the Goddard images, instead of using the Exposure Classification Code familiar to Vilspa users, the data numbers (DN) of the background (B), continuum (C) and emission lines (E) are recorded.

The programme reference codes (column 1) identifying the ESA and NASA programmes can be found in IUE ESA Newsletter No.16 p45 & 55.

The object classification codes (column 3) and the Vilspa Exposure Classification codes (column 16) are listed overleaf.

EXPOSURE CLASSIFICATION CODES
****

SINCE 1 AUG 78 A TWO-DIGIT CODE HAS BEEN USED TO DESCRIBE EXPOSURE LEVELS. THIS CODE OCCUPIES THE FIRST TWO CHARACTER POSITIONS OF THE COMMENT FIELD.

DIGIT 1: EXPOSURE LEVEL OF CONTINUUM
DIGIT 2: EXPOSURE LEVEL OF EMISSION LINES

THE CLASSIFICATIONS BELOW APPLY TO BOTH:

0: NOT APPLICABLE
1: NO SPECTRUM VISIBLE
2: FAINT SPECTRUM: MAX DN < 20 ABOVE BACKGROUND
3: UNDEREXPOSED: MAX DN < 100 ABOVE BACKGROUND
4: WEAK: MAX DN BETWEEN 100 AND 150 ABOVE BACKGROUND
5: GOOD: NO SATURATION BUT MAX DN OVER 150 ABOVE BACKGROUND
6: A BIT STRONG: A FEW PIXELS SATURATED
7: SATURATED FOR LESS THAN HALF THE SPECTRUM
8: MOSTLY SATURATED BUT SOME PARTS USABLE
9: COMPLETELY SATURATED

ON 1 SEP 79 A FURTHER DIGIT WAS ADDED TO DESCRIBE THE LEVEL OF THE BACKGROUND. THE MEAN DN GIVEN BY A SUBSET HISTOGRAM OF WIDTH 2 PIXELS BETWEEN:

SWP 550,130 AND 685,310
AND LWR 160,195 AND 90,300

HAS BEEN CODED AS FOLLOWS: (LIMITS INCLUSIVE)

0 DN<20
1 21<DN<30
2 31<DN<40
3 41<DN<50
4 50<DN<60
5 60<DN70
6 71<DN<80
7 80<DN<90
8 91<DN<100
9 DN>101
X SATURATED

CLASSIFICATION OF OBJECTS USED IN THE JOINT ESA/SRC LOG OF IUE OBSERVATIONS

00	SUN
01	EARTH
02	MOON
03	PLANET
04	PLANETARY SATELLITE
05	MINOR PLANET
06	COMET
07	INTERPLANETARY MEDIUM
08	
09	
10	W C
11	W N
12	MAIN SEQUENCE O
13	SUPERGIANT O
14	OE
15	OF
16	SD O
17	WD O
18	
19	UV-STRONG
20	B0-B2 V-IV
21	B3-B5 V-IV
22	B6-B9.5 V-IV
23	B0-B2 III-I
24	B3-B5 III-I
25	B6-B9.5 III-I
26	BE
27	BP
28	SDB
29	WDB
30	A0-A3 V-IV
31	A4-A9 V-IV
32	A0-A3 III-I
33	A4-A9 III-I
34	AE
35	AM
36	AP
37	WDA
38	
39	COMPOSITE
40	F0-F2
41	F3-F9
42	FP
43	LATE TYPE DEGENERATE STARS
44	G (TO 1FEB79); GIV-VI (FROM 1FEB79)
45	G I-II (FROM 1FEB79)
46	K (TO 1FEB79); K IV-VI (FROM 1FEB79)
47	K I-III (FROM 1FEB79)
48	M (TO 1FEB79); M DWARFS (FM 1FEB79)
49	M I-III (FROM 1FEB79)
50	R,N OR S TYPES
51	LONG PERIOD VARIABLE STARS
52	IRREGULAR VARIABLES
53	REGULAR VARIABLES
54	DWARF NOVAE
55	CLASSICAL NOVAE
56	SUPERNOVAE
57	SYMBIOTIC STARS
58	T TAURI
59	X-RAY
60	SHELL STAR
61	ETA CARINAE
62	PULSAR
63	NOVA-LIKE
64	STELLAR OBJECT NOT INCLUDED ABOVE
65	
66	
67	
68	
69	
70	PLANETARY NEBULA + CENTRAL STAR
71	PLANETARY NEBULA - CENTRAL STAR
72	H II REGION
73	REFLECTION NEBULA
74	DARK CLOUD (ABSORPTION SPECTRUM)
75	SUPERNOVA REMNANT
76	RING NEBULA (SHOCK IONISED)
77	
78	
79	
80	SPIRAL GALAXY
81	ELLIPTICAL GALAXY
82	IRREGULAR GALAXY
83	GLOBULAR CLUSTER
84	SEYFERT GALAXY
85	QUASAR
86	RADIO GALAXY
87	BL LACERTAE OBJECT
88	EMISSION LINE GALAXY (NON-SEYFERT)
89	
90	INTERGALACTIC MEDIUM
91	
92	
93	
94	
95	
96	
97	
98	WAVELENGTH CALIBRATION (NASA LOG)
99	NULLS AND FLAT FIELDS (NASA LOG)

THE CLASSIFICATION IS SUPPLIED BY D STICKLAND FOR USE ONLY WITHIN THE PROJECT

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
PHCAL	NULL	99	9999	0000000	000000		1	01893		83060723	235400	000000	000000	000000		V	
FETOO	NULL READ	99	9999	0000000	000000		1	01949		83071400	000000	000000	000000	000000		V	
PHCAL	NULL IMAGE	99	9999	0000000	000000		3	20150		83060500	000000	000000	000000	000000		V	
PHCAL	OOSAF READ	99	9999	0000000	-000000	L	2	15850	L	83043023	000000	000000	232500	000000		G	B=8
FE139	NULL	99	9999	0000000	000000		1	01869		83051600	000000	000000	000000	000000		V	
FC265	NULL	99	9999	0000000	000000		2	15821		83042700	000000	000000	000000	000000		V	
FE191	NULL	99	9999	0000000	-000000		4	01176		83052600	000000	000000	000000	000000		V	SWR SAFETY READ
CALUV	CALUV60%	99	9999	0000000	000000		3	20107		83053105	051707	000149	000000	000000		V	
CALUV	NULL	99	9999	0000000	000000		3	20106		83053100	000000	000000	000000	000000		V	
CALUV	NULL	99	9999	0000000	000000		2	16047		83053100	000000	000000	000000	000000		V	
CALUV	CALUV160%	99	9999	0000000	000000		3	20111		83053107	070932	000451	000000	000000		V	
PHCAL	OO NULL	99	9999	0000000	-000000	L	1	01907	S	83062706	062500	000000	000000	000000		G	B=18
FE178	60%TFLOOD	99	9999	0000000	000000		3	20118		83053122	000000	000000	220242	000009		V	
FC221	NULL IMAGE	99	9999	0000000	000000		2	16418		83072400	000000	000000	000000	000000		V	
FM167	CALUV 60%	99	9999	0000000	000000		3	20151		83060601	013800	000149	000000	000000		V	
FC210	NULL	99	9999	0000000	000000		1	01845		83042000	000000	000000	000000	000000		V	NULL IMAGE
FC210	NULL	99	9999	0000000	000000	H	2	15781		83042000	000000	000000	000000	000000		V	SAFETY READ
PHCAL	NULL	99	9999	0000000	000000		2	16260		83062901	000000	000000	010142	000000		V	
FC210	NULL	99	9999	0000000	000000	L	1	01844		83042000	000000	000000	000000	000000		V	SAFETY READ
PHCAL	TFLOOD 100	99	9999	0000000	000000		3	20152		83060601	015932	000016	000000	000000		V	
PHCAL	CALUV 160%	99	9999	0000000	000000		3	20153		83060602	022639	000451	000000	000000		V	
CALUV	NULL	99	9999	0000000	000000		2	16045		83053100	000000	000000	000000	000000		V	
FA115	NULL	99	9999	0000000	-000000		2	16032		83053007	000000	000000	000000	000000		V	
FC221	NULL IMAGE	99	9999	0000000	000000		1	01952		83072300	000000	000000	000000	000000		V	
CALUV	CALUV 60%	99	9999	0000000	000000		3	20110		83053106	064241	000149	000000	000000		V	
CALUV	CALUV120%	99	9999	0000000	000000		3	20109		83053106	061429	000338	000000	000000		V	
CALUV	CALUV160%	99	9999	0000000	000000		2	16044		83053103	031056	000501	000000	000000		V	
FC221	NULL IMAGE	99	9999	0000000	000000		2	16427		83072500	000000	000000	000000	000000		V	
FI128	SKY BACKGR	99	9999	0000000	000000	H	3	20253	L	83061821	000000	000000	212449	039000	003	V	CHECKING REMANENCE AFTER STRO
PHCAL	NULL	99	9999	0000000	000000		2	16097		83060800	000000	000000	000000	000000		V	
PHCAL	NULL	99	9999	0000000	000000		1	01901		83060800	000000	000000	000000	000000		V	
PHCAL	NULL	99	9999	0000000	000000	L	2	16004		83052300	000000	000000	000000	000000		V	
CALUV	100%TFLOOD	99	9999	0000000	000000		2	16043		83053102	024210	000022	000000	000000		V	
CALUV	CALUV60%	99	9999	0000000	000000		2	16042		83053102	021752	000153	000000	000000		V	
PHCAL	NULL	99	9999	0000000	000000		1	01900		83060800	000000	000000	000000	000000		V	
CALUV	CALUV120%	99	9999	0000000	000000		2	16041		83053101	014617	000346	000000	000000		V	
PHCAL	160% CALUV	99	9999	0000000	000000		1	01899		83060804	042018	000531	000000	000000		V	
PHCAL	60% CALUV	99	9999	0000000	000000		1	01898		83060803	033652	000140	000000	000000		V	
PHCAL	60% CALUV	99	9999	0000000	000000		1	01897		83060803	030008	000204	000000	000000		V	
PHCAL	120% CALUV	99	9999	0000000	000000		1	01896		83060802	020129	000408	000000	000000		V	
PHCAL	20% CALUV	99	9999	0000000	000000		1	01895		83060801	012807	000041	000000	000000		V	
PHCAL	60% CALUV	99	9999	0000000	000000		1	01894		83060800	005117	000204	000000	000000		V	
CALUV	CALUV20%	99	9999	0000000	000000		2	16040		83053101	011746	000038	000000	000000		V	
CALUV	CALUV20%	99	9999	0000000	000000		3	20108		83053105	054848	000036	000000	000000		V	
FC221	NULL	99	9999	0000000	000000		2	16442		83072700	000000	000000	000000	000000		V	

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT	
FE182	NULL IMAGE	99	9999	0000000	000000		2	16259		83062700	000000	000000	000000	000000		V		
PHCAL	NULL	99	9999	0000000	000000		3	20154		83060602	024400	000000	000000	000000		V		
PHCAL	NULL	99	9999	0000000	000000		3	20155		83060600	000000	000000	000000	000000		V		
PHCAL	NULL	99	9999	0000000	000000		3	20156		83060600	000000	000000	000000	000000		V		
CALUV	60%CALUV	99	9999	0000000	000000		2	16039		83053100	003824	000153	000000	000000		V		
CALUV	NULL	99	9999	0000000	000000		2	16038		83053100	000000	000000	000000	000000		V		
FA027	SB8	28	1339	0000420	-235600	L	3	20539	L	83072922	000000	000000	225301	001800	501	V		
FA027	SB8	28	1347	0000420	-235600	L	2	16477	L	83072923	000000	000000	232712	002200	503	V		
QSFWS	00MARK 335	84	1370	0003452	+195529	L	3	20544	L	83073012	000000	000000	120700	007500		G	E=255,C=140,B=90	
QSFWS	00MARK 335	84	1370	0003452	+195529	L	2	16482	L	83073013	000000	000000	132800	007500		G	E=227,C=200,B=100	
BEFPB	HD 144	26	0560	0003497	+635505	H	3	20433	L	83071015	000000	000000	150300	001400		G	C=200,B=42	
WDFJS	BD+63 0003	39	0980	0006477	+634032	L	3	19902	L	83050423	000000	000000	231900	003000		G	C=41,B=28	
WDFJS	BD+63 0003	39	0980	0006477	+634032	L	2	15878	L	83050422	000000	000000	225900	001500		G	E=116,C=80,B=25	
CCFLH	HD 693	41	0490	0008432	-154433	H	2	16092	L	83060715	000000	000000	155100	003000		G	E=90,C=2.5X,B=50	
PHCAL	00SAFEREAD	99	9999	0016033	+433048	H	1	01902	S	83061715	154400	000000	000000	000000		G	B=43	
PHCAL	00 WAVCAL	99	9999	0016033	+433048	L	3	20239	S	83061715	153000	000002	000000	000000		G	E=10X,B=100	TFLOOD=05
PHCAL	00 T FLOOD	99	9999	0016033	+433048	H	2	16180	S	83061715	151200	000007	000000	000000		G	B=120	
PHCAL	00 WAVCAL	99	9999	0016033	+433048	H	1	01904	S	83061719	191500	000016	000000	000000		G	E=10X,B=112	TFLOOD=25
PHCAL	00 WAVCAL	99	9999	0016033	+433048	H	3	20240	S	83061716	164000	000200	000000	000000		G	E=50X,B=121	TFLOOD=05
PHCAL	00 WAVCAL	99	9999	0016033	+433048	H	2	16179	S	83061714	144700	000016	000000	000000		G	E=5-10X,B=110	TFLOOD=07
PHCAL	00 WAVCAL	99	9999	0016033	+433048	L	2	16178	S	83061714	141600	000001	000000	000000		G	E=5-10X,B=85	TFLOOD=07
PHCAL	00 NULL	99	9999	0016033	+433048	H	1	01906	S	83061720	203500	000000	000000	000000		G	B=38	
PHCAL	00 WAVCAL	99	9999	0016033	+433048	H	3	20241	S	83061717	171300	000040	000000	000000		G	33% STANDARD EXP.	TFLOOD=05
PHCAL	00 T FLOOD	99	9999	0016033	+433048	H	1	01905	S	83061720	200600	000025	000000	000000		G	B=104	
PHCAL	00 T FLOOD	99	9999	0016033	+433048	H	3	20244	S	83061718	183000	000005	000000	000000		G	B=110	
PHCAL	00 WAVCAL	99	9999	0016033	+433048	H	3	20243	S	83061718	180200	000200	000000	000000		G	E=50X,B=117	TFLOOD=05
PHCAL	00 WAVCAL	99	9999	0016033	+433048	H	3	20242	S	83061717	173700	000100	000000	000000		G	50% STANDARD EXP.	TFLOOD=05
PHCAL	00 WAVCAL	99	9999	0016033	+433048	L	1	01903	S	83061718	184700	000001	000000	000000		G	E=10X,B=98	TFLOOD=25
PHCAL	00 T-FLOOD	99	9999	0018206	-695408	H	3	19922	S	83050719	194800	000005	000000	000000		G	B=108	
PHCAL	00 WAVCAL	99	0000	0018206	-695408	L	2	15886	S	83050720	200400	000001	000000	000000		G	E=10X,B=82	TFLOOD=07
PHCAL	00 WAVCAL	99	0000	0018206	-695408	H	2	15887	S	83050720	202800	000016	000000	000000		G	E=50X,B=147	TFLOOD=07
PHCAL	00 WAVCAL	99	0000	0018206	-695408	L	3	19920	S	83050718	181300	000002	000000	000000		G	E=10X,B=101	TFLOOD=05
PHCAL	00 WAVCAL	99	0000	0018206	-695408	H	3	19921	S	83050718	184200	000200	000000	000000		G	E=50X,B=130	TFLOOD=05
GHFST	00 PI TUC	22	0550	0018206	-695408	H	1	01865	L	83050715	000000	000000	150300	001000		G	C=200,B=90	
PHCAL	00 WAVCAL	99	0000	0018206	-695408	H	1	01867	S	83050716	165200	000016	000000	000000		G	E=50X,B=105	TFLOOD=25
PHCAL	00 WAVCAL	99	0000	0018206	-695408	L	1	01866	S	83050716	162400	000001	000000	000000		G	E=10X,B=100	TFLOOD=25
PHCAL	00 T-FLOOD	99	9999	0018206	-695408	H	1	01868	S	83050717	173400	000025	000000	000000		G	B=102	
PHCAL	00 T-FLOOD	99	9999	0018206	-695408	H	2	15888	S	83050720	205500	000007	000000	000000		G	B=138	
NVFSM	00000SMCN2	70	1640	0030331	-715832	L	3	20527	L	83072905	000000	000000	050400	009000		G	E=214,B=25	
NVFSM	00000SMCN2	70	1640	0030331	-715832	L	3	20454	L	83071309	000000	000000	090200	010000		G	C=251,B=40	
PHCAL	HD 3360	21	0370	0034103	+533719	H	3	20079	L	83052622	000000	000000	225300	000024		G	C=172,B=35	
PHCAL	HD 3360	20	0370	0034103	+533719	L	2	16183	L	83061815	000000	000000	153000	000001		G	C=205,B=24	
PHCAL	HD 3360	21	0370	0034103	+533719	H	1	01883	L	83052622	000000	000000	224800	000021		G	C=192,B=42	
NJFMK	00RAQR JET	57	9999	0034103	+533719	D	9	01442	L	83052600	000000	000000	002900	016000		G	ARCHIVED UNDER PHCAL	
PHCAL	HD 3360	21	0370	0034103	+533719	H	2	15967	L	83051822	000000	000000	221800	000021		G	C=215,B=32	

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
PHCAL	HD3360	21	0354	0034103	533720	H	1	01926	L	83062903	000000	000000	032834	000017	503	V
PHCAL	HD3360	21	0358	0034103	533720	L	1	01925	L	83062902	000000	000000	024715	000000	503	V TRAIL R=20.83 1 PASS
WDFCB	PG0037+313	37	1470	0037110	+311648	L	3	20236	L	83061619	000000	000000	195100	002000		G B=60
WDFCB	PG0037+313	37	1470	0037110	+311648	L	2	16176	L	83061620	000000	000000	202700	002700		G B=34
FE243	NGC 205	81	1351	0037384	412454	L	2	16363	L	83071720	000000	000000	205441	040900	409	V
IGFBS	HD 3827	23	0801	0038288	+391946	H	3	20321	L	83062614	000000	000000	144500	001400		G C=215,B=70
IGFBS	HD 3827	23	0801	0038289	+391947	H	3	20297	L	83062317	000000	000000	173600	000700		G C=200,B=105
NVFSM	OO000SMCN5	70	1640	0039260	-730143	L	3	20453	L	83071307	000000	000000	070500	008000		G E=206,B=25
WDFGW	OO 0039+04	37	1290	0039289	+045259	L	2	16330	L	83071116	000000	000000	163700	002427		G C=207,B=45
WDFGW	OO 0039+04	37	1290	0039290	+045300	L	3	20445	L	83071117	000000	000000	170900	001000		G C=170,B=30
WDFGW	OO 0039+04	37	1290	0039290	+045300	L	3	20444	L	83071116	000000	000000	160200	002100		G C=1.3X,B=25
ZAFNO	HD 4174	57	0750	0041520	+402423	L	2	16400	L	83072114	000000	000000	144700	001400		G E=2X,C=150,B=60
ZAFNO	HD 4174	57	0750	0041520	+402423	H	3	20269	L	83062006	000000	000000	064500	035500		G C=160,B=108
PHCAL	OOSKY BKGD	07	0000	0041520	+402423	H	2	16190	L	83062006	000000	000000	064800	027000		G B=50
ZAFNO	HD 4174	57	0750	0041520	+402423	L	3	20497	L	83072115	000000	000000	151500	001000		G E=3X,C=90,B=75
PHCAL	OO NULL	99	0000	0041520	+402423	H	2	16191	S	83062011	113900	000000	000000	000000		G B=25
BEFPB	HD 4180	26	0450	0041557	+480040	H	3	20436	L	83071017	000000	000000	171100	000200		G C=160,B=35
CCFLH	HD 4813	41	0520	0047373	-105448	H	2	16093	L	83060717	000000	000000	170500	004000		G E=119,C=2X,B=50
NVFSM	OO00SMCN43	70	1690	0049245	-741354	L	3	20455	L	83071311	000000	000000	111700	003300		G E=91,B=27
HSFJM	OO0050-033	37	0000	0050540	-331600	L	3	20338	SL	83062914	142700	001500	144700	001500		G C=200,B=32
FA153	HD5394	20	0223	0053403	602647	H	2	16231	L	83062501	000000	000000	015837	000006	502	V
FA153	HD5394	20	0214	0053403	602647	H	3	20312	L	83062501	000000	000000	013026	000008	501	V
FA152	HD5394	26	0220	0053403	602647	H	3	19656	L	83040605	000000	000000	051110	000008	501	V
FI095	SMC L302	70	1400	0054351	-722310	L	2	15738	L	83041506	000000	000000	063520	018000	215	V PREVIOUS 2SWP 10TIMES (SPREP)
GHFST	NG 362	83	1500	0100359	-710200	H	1	01864	L	83050700	000000	000000	005900	079900		G C=200,B=130
GHFST	OOSKY BKGD	07	9999	0100359	-710700	L	3	19919	L	83050708	000000	000000	084000	075700		G B=105
FN133	NGC362	83	0952	0101360	-710700	E	9	01420	2	83050700	000000	000000	000000	000000		V FES REF. FOR LWP 1864
MLFPM	HD 6327	11	1140	0102170	+600912	L	2	16222	L	83062412	000000	000000	123900	000900		G C=140,B=32
MLFPM	HD 6327	11	9999	0102171	+600913	L	3	20303	L	83062412	000000	000000	125500	001200		G C=175,B=38
FA027	SB446	28	1338	0104240	-333800	L	2	16479	L	83073002	000000	000000	021239	002000	403	V
FA027	SB446	28	1363	0104240	-333800	L	3	20542	L	83073002	000000	000000	024041	001400	500	V
QSFRC	OO 3C 33	86	1520	0106145	+130415	L	3	20238	L	83061707	000000	000000	070800	039000		G E=107,B=110
BEFPB	HD 6811	26	0430	0106353	+465833	H	3	20437	L	83071017	000000	000000	175300	000210		G C=170,B=35
MGFLH	HD 6920	41	0570	0107278	+414858	H	2	16091	L	83060714	000000	000000	141000	006000		G E=145,C=255,B=52
MDFRD	OO SMC N81	72	0010	0107449	-732736	H	2	15983	L	83052008	000000	000000	084800	042000		G C=20,B=145
FA027	JL236	28	1345	0112000	-530000	L	2	16494	L	83073123	000000	000000	230348	002000	402	V
FA027	JL236	28	1335	0112000	-530000	L	3	20557	L	83073122	000000	000000	223647	001400	500	V
CSFNM	OOPESCH 51	21	0985	0115475	+575008	L	2	16211	L	83062217	000000	000000	172300	004000		G C=5X,B=112
CSFNM	OOPESCH 51	21	0985	0115475	+575008	L	2	16210	L	83062216	000000	000000	163500	000700		G C=220,B=38
CSFNM	OOPESCH 51	21	0985	0115475	+575008	L	3	20286	L	83062216	000000	000000	164900	001800		G C=240,B=70
CSFNM	OOPESCH 13	21	1080	0115589	+580200	L	2	16206	L	83062211	000000	000000	110100	002000		G C=1.1X,B=32
CSFNM	OOPESCH 13	21	1080	0115589	+580200	L	3	20284	L	83062211	000000	000000	113200	004500		G C=250,B=57
CSFNM	OOPESCH 13	21	1080	0115589	+580200	L	2	16207	L	83062212	000000	000000	122100	006000		G C=3X,B=88
CSFNM	OOPESCH009	20	1080	0116134	+580255	L	2	16209	L	83062214	000000	000000	145300	003200		G C=5X,B=65
CSFNM	OOPESCH009	20	1080	0116135	+580255	L	3	20285	L	83062214	000000	000000	141800	001800		G C=198,B=65

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
CSFNM	OOPESCH009	20	1080	0116135	+580254	L	2	16208	L	83062214	000000	000000	140400	000700		G C=200,B=35
CSFNM	BD+57 252	20	0951	0116241	+575945	L	2	16213	L	83062219	000000	000000	194300	001400		G C=5X,B=40
CSFNM	BD+57 252	20	0951	0116241	+575945	L	2	16214	L	83062220	000000	000000	204400	000330		G C=180,B=23
CSFNM	BD+57 0252	20	0951	0116241	+575945	L	3	20287	L	83062219	000000	000000	190900	001200		G C=245,B=79
CSFNM	BD+57 0252	20	0951	0116241	+575945	L	2	16212	L	83062218	000000	000000	185800	000500		G C=1.5X,B=38
CSFNM	OOPESCH 25	21	1020	0116330	+575910	L	2	16203	L	83062207	000000	000000	070800	000500		G C=135,B=25
CSFNM	OOPESCH 25	21	1020	0116330	+575910	L	3	20281	L	83062207	000000	000000	072000	000600		G C=60,B=19
CSFNM	OOPESCH 34	22	1060	0116360	+575643	L	2	16204	L	83062207	000000	000000	075500	001400		G C=215,B=26
CSFNM	OOPESCH 34	21	1060	0116360	+575643	L	3	20283	L	83062210	000000	000000	101100	003500		G C=210,B=17
CSFNM	OOPESCH 34	21	1060	0116360	+575643	L	3	20282	L	83062208	000000	000000	082500	003000		G C=185,B=17
CSFNM	OOPESCH 34	23	1060	0116360	+575643	L	2	16205	L	83062209	000000	000000	090600	006000		G C=3X,B=50
CSFNM	HD 7927	40	0499	0116550	+575809	L	2	16215	L	83062221	000000	000000	213500	000500		G C=3X,B=22
CSFNM	HD 7927	40	0499	0116550	+575809	L	3	20288	L	83062221	000000	000000	210100	003000		G C=195,B=15
VVFTA	HD 7927	40	0500	0116551	+575810	L	3	20548	L	83073107	000000	000000	073000	026000		G C=8X,B=115
OD02K	HD 8358	44	0820	0120167	+002715	H	2	16337	L	83071217	000000	000000	170700	014000		G E=188,C=160,B=85
OD02K	HD 8358	44	0820	0120167	+002715	L	2	16335	L	83071212	000000	000000	124600	000200		G E=87,C=90,B=26
OD02K	HD 8358	44	0820	0120167	+002715	L	3	20450	L	83071212	000000	000000	125200	015000		G E=146,C=135,B=91
OD02K	HD 8358	44	0820	0120167	+002715	L	2	16336	L	83071215	000000	000000	152700	000300		G E=117,C=100,B=24
OD02K	HD 8358	44	0820	0120167	+002715	L	3	20451	L	83071216	000000	000000	160200	006000		G E=88,C=110,B=81
FE130	NGC 526A	84	1400	0121372	-351933	L	2	16117	L	83061002	000000	000000	024050	018300	215	V
FC068	HD9528	44	0836	0130290	-494701	L	3	19779	L	83042107	000000	000000	071635	015000	331	V
MLFPM	OOM33-B368	13	1720	0131067	+301209	L	3	20302	L	83062406	000000	000000	065300	030000		G
MLFPM	OOM33 101A	13	1730	0131286	+301806	L	3	20292	L	83062307	000000	000000	070300	030500		G E=110,C=105,B=73
EPFJG	NG 625	82	1400	0132567	-414132	L	3	19993	SL	83051513	135700	006000	135600	006000		G C=180,B=143
EPFJG	NG 625	82	1400	0132567	-414132	L	2	15951	SL	83051514	150000	005000	145900	005000		G C=180,B=140
ZAFNO	OO AX PER	57	1050	0133050	-540023	L	3	20498	L	83072116	000000	000000	160200	001100		G E=183,C=125,B=100
ZAFNO	OO AX PER	57	1050	0133050	+540023	L	3	20479	L	83071622	000000	000000	220000	004000		G E=237,B=22
ZAFNO	OO AX PER	57	1050	0133050	+540023	L	3	20270	SL	83062013	133600	001500	131600	001500		G E=175,B=81
ZAFNO	OO AX PER	57	1050	0133050	+540023	L	3	20495	L	83072112	000000	000000	124800	001900		G E=175,B=70
ZAFNO	OO AX PER	57	1050	0133050	+540023	L	2	16399	L	83072113	000000	000000	131500	002000		G E=178,C=105,B=50
ZAFNO	OO AX PER	57	1050	0133050	+540023	L	3	20496	L	83072113	000000	000000	135200	003000		G E=1.5X,C=100
MLFPM	HD 9974	11	1080	0135376	+575406	L	3	20293	L	83062312	000000	000000	125300	000500		G E=205,C=200,B=22
MLFPM	HD 9974	11	1080	0135377	+575406	L	2	16217	L	83062312	000000	000000	124400	000300		G C=155,B=26
HSFES	OO GD 391	28	1180	0141280	-242012	H	3	20337	L	83062906	000000	000000	063900	024000		G C=200,B=65
HSFES	OO GD 39	28	1180	0141280	-242012	H	2	16261	L	83062910	000000	000000	104500	016500		G C=195,B=90
FA027	SB744	28	1246	0146253	-265105	L	2	16480	L	83073003	000000	000000	033834	000800	402	V
WDFGW	OO GD279	37	1240	0148560	+464512	L	2	16331	L	83071118	000000	000000	182300	002000		G C=180,B=30
WDFGW	OO GD279	37	1240	0148560	+464512	L	3	20446	L	83071119	000000	000000	190000	002000		G C=125,B=25
FA154	HD11753	22	0518	0152174	-424431	H	3	19760	L	83041906	000000	000000	064856	002400	701	V
FA154	HD11753	22	0519	0152174	-424431	H	2	15774	L	83041908	000000	000000	082633	001100	604	V
FA154	HD11753	22	0519	0152174	-424431	H	3	19761	L	83041908	000000	000000	085757	000900	501	V
FA154	HD11753	22	0519	0152174	-424431	H	2	15775	L	83041909	000000	000000	092850	000600	502	V
FE182	Q0215+015	85	1600	0215141	013100	L	1	01910	L	83062723	000000	000000	234642	035600	112	V
OBFBS	OO OO 922	20	0949	0215223	+565434	L	2	16256	L	83062718	000000	000000	185700	000330		G C=170,B=35
OBFBS	OO OO 922	20	0949	0215223	+565434	L	3	20333	L	83062719	000000	000000	191700	000900		G C=145,B=40

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
OBFBS	00 00 922	20	0949	0215223	+565434	L	2	16257	L	83062719	000000	000000	195100	001200		G	C=3X,B=30
OBFBS	00 00 978	23	1060	0215271	+565537	L	2	16258	L	83062721	000000	000000	212800	001700		G	C=230,B=30
OBFBS	00 00 978	23	1060	0215271	+565537	L	3	20334	L	83062720	000000	000000	202400	006000		G	C=240,B=30
OBFBS	HD 14134	23	0655	0215327	+565420	L	3	20331	L	83062716	000000	000000	162500	000230		G	C=158,B=20
OBFBS	HD 14134	23	0655	0215327	+565420	L	2	16254	SL	83062716	161500	000300	160200	000030		G	C=200,B=30
OBFBS	BD+56 524	23	0975	0215348	+565344	L	2	16253	L	83062715	000000	000000	150100	001500		G	C=3X,B=40
OBFBS	BD+56 524	23	0975	0215348	+565344	L	3	20330	L	83062714	000000	000000	142400	001600		G	C=175,B=40
OBFBS	BD+56 524	23	0975	0215348	+565344	L	2	16252	L	83062714	000000	000000	141200	000600		G	C=190,B=30
OBFBS	HD 14143	23	0666	0215419	+565621	L	2	16255	SL	83062717	173600	000400	173100	000040		G	C=225,B=35
OBFBS	HD 14143	23	0666	0215419	+565621	L	3	20332	L	83062717	000000	000000	174300	000300		G	C=180,B=30
CBFAH	00 MIRA B	66	1000	0216489	-031213	H	3	20420	L	83070909	000000	000000	093800	057000		G	E=172,C=160,B=105
PHCAL	00SKY BKGD	07	0000	0216489	-031212	H	2	16322	L	83070905	000000	000000	055100	030000		G	B=75
PHCAL	00 NULL	99	0000	0216490	-031213		2	16321	S	83070905	052800	000000	000000	000000		G	B=20
FI075	HD 14386	53	0314	0216495	-031213	L	2	16320	L	83070901	000000	000000	014818	001300	462	V	SWP 20420
OBFBS	BD+056 571	20	0936	0218272	+565439	L	3	20295	L	83062314	000000	000000	145200	000900		G	C=170,B=42
OBFBS	BD+056 571	20	0936	0218272	+565439	L	2	16219	L	83062315	000000	000000	152800	001200		G	C=3X,B=48
OBFBS	BD+056 571	20	0936	0218272	+565439	L	2	16218	L	83062314	000000	000000	144100	000400		G	C=190,B=34
OBFBS	HD 14443	23	0805	0218277	+565503	L	3	20296	L	83062316	000000	000000	160500	000330		G	C=160,B=27
OBFBS	HD 14443	23	0805	0218277	+565503	L	2	16220	SL	83062316	164900	000700	164300	000106		G	C=205,B=52
OBFBS	BD+056 574	23	0853	0218337	+565307	L	2	16226	SL	83062417	171700	000700	170900	000140		G	C=1.5X,B=70
OBFBS	BD+056 574	23	0853	0218337	+565307	L	3	20305	L	83062416	000000	000000	161900	000420		G	C=170,B=35
OBFBS	BD+056 576	23	0938	0218359	+565327	L	2	16225	L	83062415	000000	000000	154200	001200		G	C=3X,B=52
OBFBS	BD+056 576	23	0938	0218359	+565327	L	2	16224	L	83062414	000000	000000	144800	000400		G	C=210,B=30
OBFBS	BD+056 576	23	0938	0218359	+565327	L	3	20304	L	83062414	000000	000000	145800	001000		G	C=203,B=60
MLFPM	BD+060 497	13	0880	0228084	+612329	L	3	20294	L	83062313	000000	000000	134600	001000		G	C=190,B=68
MLFPM	BD+60 0497	13	1140	0228084	+612328	L	2	16223	L	83062413	000000	000000	133600	000800		G	C=1.5X,B=35
EHFBM	00 FEIGE24	37	2250	0232300	+033035	L	1	01934	L	83063017	000000	000000	170700	000900		G	C=200,B=72
GCFRZ	00000FOR 3	83	1300	0237434	-342816	L	3	20320	L	83062606	000000	000000	065400	053000		G	C=130,B=92
FE002	FORNAX#3	83	9999	0237435	-342817	E	9	01447	2	83062500	000000	000000	000000	000000		V	
GCFRZ	00XGLOBULA	83	1250	0237435	-342817	L	2	16232	L	83062503	000000	000000	030000	055500		G	C=225,B=125
FE137	NGC 1068	84	1121	0240071	-001321	L	3	20349	L	83070103	000000	000000	034435	008300	360	V	
FE137	SKY AROUND	07	9999	0240071	-001321	L	2	16271	L	83070104	000000	000000	041519	004000	003	V	
FE137	NGC 1068	84	1114	0240071	-001321	L	2	16270	L	83070102	000000	000000	023045	007000	454	V	
CCFFF	HD 17144	44	0810	0242080	-250343	L	3	20377	L	83070404	000000	000000	045300	018000		G	B=40
FE108	NGC1097	80	1200	0244116	-302859	L	2	16189	L	83062003	000000	000000	030208	016200	304	V	
FC221	HD17138	44	0785	0244228	692533	L	3	20506	L	83072321	000000	000000	212826	009000	801	V	
FC221	HD 17138	30	0737	0244228	692533	L	1	01953	LS	83072321	210715	000300	210054	000300	812	V	612%
EHFBM	HD 18100	20	0850	0251296	-262132	L	1	01917	L	83062819	000000	000000	190100	000300		G	C=3X,B=62
EHFBM	HD 18100	20	0850	0251296	-262132	H	1	01918	L	83062820	000000	000000	200200	002000		G	C=235,B=50
EHFBM	HD 18100	20	0850	0251296	-262132	L	1	01919	L	83062820	000000	000000	205700	000100		G	C=200,B=35
EHFBM	HD 18100	20	8460	0251296	-262132	L	1	01936	L	83063019	000000	000000	192900	000100		G	C=200,B=37
EHFBM	HD 18100	20	0850	0251296	-262132	L	1	01920	L	83062821	000000	000000	213400	000100		G	C=205,B=35
EHFBM	HD 18100	20	9999	0251296	-262132	L	1	01935	L	83063018	000000	000000	185000	000100		G	C=210,B=40
NPFJK	00K1 26	70	1360	0255098	-442220	L	3	20275	L	83062020	000000	000000	201100	001500		G	R=29
WDFHS	00 GD 40	29	1560	0300209	-012011	L	3	20384	L	83070505	000000	000000	050400	040000		G	C=170,B=75

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT	
FC265	TW HOR	50	0583	0311170	-573030	L	1	01852	L	83042703	000000	000000	030135	005000	232	V		
DEFPB	HD 20336	26	0480	0315338	+652818	H	3	19934	L	83050820	000000	000000	203800	000120		G	C=180,B=40	
CCFLH	HD 20807	44	0520	0317074	-624148	H	2	16076	L	83060518	000000	000000	180000	004000		G	E=110,C=255,B=55	
LDFKH	HD 20794	44	0430	0318048	-431512	H	2	15863	L	83050216	000000	000000	163300	003000		G	E=168,C=1.5X,B=59	
LDFKH	HD 20794	44	0430	0318048	-431512	L	3	19880	SL	83050217	171000	003500	170900	003500		G	E=109,C=125,B=68	
LDFKH	HD 20794	44	0430	0318050	-431510	L	3	19716	SL	83041320	205300	003500	205200	003500		G	E=91,C=105,B=42	
LDFKH	HD 20794	44	0430	0318050	-431510	H	2	15727	L	83041320	000000	000000	201800	003000		G	E=153,C=1.5X,B=43	
EHFBM	Q 0318-196	85	1490	0318054	-193717	L	1	01930	L	83063007	000000	000000	071100	032000		G	C=130,C=120,B=95	
EHFBM	Q 0318-196	85	1490	0318054	-193717	L	1	01911	L	83062806	000000	000000	065500	033000		G	E=141,C=130,B=99	
EHFBM	Q 0318-196	85	1490	0318055	-193718	L	1	01938	L	83070205	000000	000000	050000	039000		G	C=120,B=81	
EHFBM	OOSKY BKGD	07	9999	0318055	-193717	L	3	20345	L	83063008	000000	000000	081200	018500		G	B=25	
EHFBM	Q SKYBKGRN	07	1490	0318055	-193718	L	3	20354	L	83070205	000000	000000	052100	032500		G	B=65	
EHFBM	HD 21532	22	0940	0325131	-213410	L	1	01916	L	83062817	000000	000000	175100	000500		G	C=200,B=107	
EHFBM	HD 21532	22	0940	0325132	-213411	H	1	01937	L	83063020	000000	000000	203100	007000		G	C=140,B=50	
EHFBM	HD 21996	21	0880	0329117	-212457	L	1	01912	L	83062813	000000	000000	130600	000300		G	C=176,B=54	
EHFBM	HD 21996	21	0880	0329118	-212458	L	1	01932	L	83063014	000000	000000	143800	000300		G	C=170,B=45	
EHFBM	HD 21996	21	0880	0329118	-212458	H	1	01931	L	83063013	000000	000000	131500	004500		G	C=200,B=92	
FE131	NGC1433	88	1281	0340170	-472248	L	3	20134	L	83060222	000000	000000	225328	041400	203	V		
FE131	NGC 1433	88	1288	0340270	-472248	L	2	16064	L	83060322	000000	000000	225338	040900	308	V		
HCFSP	HD 23089	39	0160	0341187	+631122	H	2	16237	L	83062517	000000	000000	173000	001700		G	C=1.5X,B=160	
HCFSP	HD 23089	39	0160	0341187	+631122	L	3	20314	L	83062517	000000	000000	172400	000040		G	C=180,B=18	
BEFPB	HD 24479	26	0500	0352594	+625541	H	3	20434	L	83071015	000000	000000	155300	000530		G	C=185,B=40	
IMFTS	HD 26571	25	0610	0409531	+221712	H	2	15649	L	83040318	000000	000000	182300	001900		G	C=250,B=73	
IMFTS	HD 26571	25	0610	0409531	+221712	H	3	19627	L	83040318	000000	000000	185100	001900		G	C=240,B=160	
IMFTS	HD 26571	25	0610	0409531	+221712	H	3	19628	L	83040319	000000	000000	195200	001700		G	C=235,B=160	
IMFTS	HD 26571	25	0610	0409531	+221712	H	2	15650	L	83040319	000000	000000	192400	001700		G	C=250,B=100	
IMFTS	HD 26571	25	0610	0409531	+221712	H	2	15648	L	83040317	000000	000000	172600	001900		G	C=240,B=59	
IMFTS	HD 26571	25	0610	0409531	+221712	H	3	19626	L	83040317	000000	000000	175100	002000		G	C=200,B=113	
HCFSP	HD 26630	39	0070	0411130	+481704	L	3	20492	L	83072108	000000	000000	084400	000340		G	C=200,B=15	
HCFSP	HD 26630	39	0070	0411130	+481704	H	2	16396	L	83072107	000000	000000	074400	005500		G	E=234,C=1.5X,B=41	
HCFSP	HD 26630	39	0070	0411130	+481704	L	3	20491	L	83072107	000000	000000	073400	000320		G	C=185,B=15	
HCFSP	HD 26673	39	0070	0411387	+402130	L	3	20493	L	83072110	000000	000000	103800	000150		G	C=180,B=15	
HCFSP	HD 26673	39	0310	0411387	+402130	H	2	16397	L	83072109	000000	000000	093900	005500		G	E=219,C=240,B=65	
FC221	HD26736	44	0829	0411322	232702	L	1	01957	L	83072422	000000	000000	220037	000800	652	V		
PHCAL	OO TFLOOD	99	0000	0412272	-080308	H	1	01964	S	83072517	172000	000025	000000	000000		G	B=105	
PHCAL	OO WAVCAL	99	0000	0412272	-080308	H	1	01963	S	83072516	163000	000016	000000	000000		G	E=50X,B=112	TFLOOD=25
PHCAL	OO WAVCAL	99	0000	0412272	-080308	L	1	01962	S	83072515	160100	000001	000000	000000		G	E=10X,B=105	TFLOOD=25
PHCAL	OO WAVCAL	99	0000	0412272	-080308	H	3	20513	S	83072515	154700	000018	000000	000000		G	E=10X,B=110	TFLOOD=05
PHCAL	OO WAVCAL	99	0000	0412272	-080308	H	3	20512	S	83072515	152200	000002	000000	000000		G	E=2X,B=110	TFLOOD=05
PHCAL	OO TFLOOD	99	0000	0412272	-080308	H	3	20511	S	83072514	145600	000005	000000	000000		G	B=105	
PHCAL	OO WAVCAL	99	0000	0412272	-080308	H	3	20510	S	83072514	142700	000200	000000	000000		G	E=50X,B=128	TFLOOD=05
PHCAL	OO WAVCAL	99	0000	0412272	-080308	L	3	20509	S	83072513	140100	000002	000000	000000		G	E=10X,B=100	TFLOOD=05
PHCAL	OO TFLOOD	99	0000	0412272	-080308	H	2	16431	S	83072513	132100	000007	000000	000000		G	B=140	
PHCAL	OO WAVCAL	99	0000	0412272	-080308	L	2	16429	S	83072512	122500	000001	000000	000000		G	E=10X,B=90	TFLOOD=07
PHCAL	OO WAVCAL	99	0000	0412272	-080308	H	2	16430	S	83072512	125100	000016	000000	000000		G	E=50X,B=130	TFLOOD=07

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT	
XGFGR	X 0412-082	84	1490	0412272	-080309	L	3	20508	L	83072510	000000	000000	100200	011000		G C=55,B=50	
BEFPB	HD 26670	26	0570	0412282	+614337	H	3	20435	L	83071016	000000	000000	163000	000645		G C=225,B=50	
EHFBM	HD 26976B	37	9520	0412591	-074553	L	1	01933	L	83063015	000000	000000	154100	000430		G C=220,B=59	
FC221	HD285690	46	0987	0415278	155803	L	1	01958	L	83072422	000000	000000	225328	004000	442	V	
FC221	HD27250	44	0886	0416021	194713	L	1	01959	L	83072500	000000	000000	001745	002000	652	V	
BEFPB	HD 26356	26	0560	0416243	+834133	H	3	19933	L	83050819	000000	000000	195500	000635		G C=1.1X,B=61	
FC221	HD284414	46	0966	0420271	193237	L	1	01969	LS	83072702	025634	004500	020753	003500	443	V 333$ SAP HD284253 RA=04,13,35	
IMFTS	HD 27778	21	0620	0420586	+241111	H	2	15651	L	83040321	000000	000000	211800	001000		G C=195,B=72	
IMFTS	HD 27778	21	0620	0420586	+241111	H	3	19631	L	83040322	000000	000000	224100	001000		G C=1.5X,B=200	
IMFTS	HD 27778	21	0620	0420586	+241111	H	3	19630	L	83040321	000000	000000	214700	001000		G C=205,B=155	
IMFTS	HD 27778	21	0620	0420586	+241111	H	3	19629	L	83040320	000000	000000	205200	002000		G C=2-3X,B=200	
FC221	HD286734	46	1117	0421060	135600	L	1	01954	L	83072400	000000	000000	003646	006500	332	V	
EGETT	NG 1667	88	1290	0446101	-062423	L	2	15644	L	83040216	000000	000000	162900	007800		G B=105	
EGETT	NG 1667	88	1290	0446101	-062423	L	3	19608	L	83040211	000000	000000	111100	031000		G E=60,C=75,B=70	
NVFSM	OO000LMCP2	70	1700	0448270	-723327	L	3	20421	L	83070912	000000	000000	123900	015000		G E=2X,C=84,B=80	
NVFSM	OO000LMCP2	70	1700	0448270	-723327	L	3	20422	L	83070915	000000	000000	153500	004500		G E=158,C=60,B=60	
NVFSM	OOBACKGRND	07	9999	0448270	-723327	L	2	16323	L	83070912	000000	000000	124600	010000		G C=60,B=60	
IMFTS	HD 31327	23	0610	0452595	+360526	H	3	19633	L	83040400	000000	000000	000600	001000		G C=165,B=105	
IMFTS	HD 31327	23	0610	0452595	+360526	L	2	15653	SL	83040400	005300	000011	004900	000030		G C=1.5X,B=26	
IMFTS	HD 31327	23	0610	0452595	+360526	L	3	19634	L	83040401	000000	000000	013400	000015		G C=38,B=17	
IMFTS	HD 31327	23	0610	0452595	+360526	H	3	19632	L	83040323	000000	000000	232400	000640		G C=200,B=140	
IMFTS	HD 31327	23	0610	0452595	+360526	H	2	15652	L	83040323	000000	000000	233700	000600		G C=166,B=82	
EPFJG	NG 1705	82	1400	0453059	-532626	L	3	19992	SL	83051509	090500	024000	090400	024000		G C=180,B=58	
EPFJG	NG 1705	82	1400	0453172	-532630	S	9	01432	L	83051409	000000	000000	091300	012500		G NO COMMENTS	
PHCAL	OO WAVCAL	99	0000	0453255	-664519	H	3	19638	S	83040420	203600	000200	000000	000000		G E=50X,B=128	TFLOOD=05
PHCAL	OO TFLOOD	99	0000	0453255	-664519	H	2	15657	S	83040418	184700	000007	000000	000000		G B=135	
PHCAL	OO TFLOOD	99	9999	0453255	-664519	H	1	01840	S	83040422	225200	000025	000000	000000		G B=100	
PHCAL	OO WAVCAL	99	0000	0453255	-664519	L	2	15655	S	83040417	174600	000001	000000	000000		G E=10X,B=87	TFLOOD=07
PHCAL	OO WAVCAL	99	0000	0453255	-664519	H	1	01839	S	83040422	220700	000016	000000	000000		G E=50X,B=105	TFLOOD=25
PHCAL	OO WAVCAL	98	0000	0453255	-664519	H	2	15656	S	83040418	181300	000016	000000	000000		G E=50X,B=140	TFLOOD=07
PHCAL	OO WAVCAL	99	0000	0453255	-664519	L	1	01838	S	83040421	213600	000001	000000	000000		G E=10X,B=95	TFLOOD=25
PHCAL	OO WAVCAL	99	0000	0453255	-664519	L	3	19637	S	83040419	192700	000002	000000	000000		G E=10X,B=103	TFLOOD=05
PHCAL	OO TFLOOD	99	0000	0453255	-664519	H	3	19639	S	83040421	210900	000005	000000	000000		G B=110	
CVFES	UNKNOWN	63	9999	0455515	-484540	L	3	19753	L	83041821	000000	000000	211700	000700		G C=130,B=130	
VVFDL	BS 1605	33	0300	0458225	+434504	L	2	15674	SL	83040722	225600	000400	230300	000400		G C=10X,B=45	
VVFDL	BS 1605	33	0300	0458225	+434504	H	2	15675	L	83040723	000000	000000	234600	005500		G E=1X,C=2-3X,B=125	
VVFDL	BS 1605	33	0300	0458225	+434504	L	3	19672	L	83040800	000000	000000	002000	000600		G C=220,B=32	
VVFDL	BS 1605	33	0300	0458225	+434504	L	3	19671	L	83040722	000000	000000	222200	005500		G C=10X,B=195	
VVFDL	BS 1605	33	0300	0458225	+434504	L	3	19673	L	83040801	000000	000000	010200	002000		G E=61,C=3X,B=37	
VVFDL	BS 1605	33	0300	0458225	+434504	H	2	15676	L	83040801	000000	000000	013100	001500		G E=82,C=185,B=30	
VVFRC	HD 31964	40	0300	0458225	+434505	H	3	19750	L	83041816	000000	000000	161100	003000		G C=220,B=155	
VVFRC	HD 31964	40	0300	0458225	+434505	L	2	15765	L	83041810	000000	000000	102800	000020		G C=205,B=21	
VVFRC	HD 31964	40	0300	0458225	+434505	L	3	19751	L	83041817	000000	000000	171700	000600		G C=1.5X,B=75	
VVFRC	HD 31964	40	0300	0458225	+434505	H	3	19749	L	83041810	000000	000000	103200	030000		G C=5X,B=103	
VVFDL	BS 1605	33	0300	0458225	+434530	H	2	16473	L	83072912	000000	000000	122300	001500		G E=79,C=173,B=38	

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
VVFRC	HD 31964	40	0300	0458225	+434505	L	2	15767	L	83041816	000000	000000	164700	000300		G C=4-5X,B=33
VVFDL	BS 1605	33	0300	0458225	+434505	L	3	20529	L	83072912	000000	000000	124200	004500		G E=110,C=8X,B=65
VVFDL	BS 1605	33	0300	0458225	+434530	L	2	16474	SL	83072913	133600	000300	133200	000022		G C=185,B=30
VVFDL	BS 1605	33	0300	0458225	+434530	H	2	16475	L	83072914	000000	000000	142500	004500		G E=229,C=3X,B=132
VVFDL	BS 1605	33	0300	0458225	+434505	L	3	20530	L	83072915	000000	000000	150100	000500		G C=210,B=30
VVFDL	BS 1605	33	0300	0458225	+434505	L	3	20531	L	83072915	000000	000000	153700	001000		G C=2X,B=50
VVFRC	HD 31964	40	0300	0458225	+434505	H	2	15766	L	83041815	000000	000000	153700	001800		G E=105,C=240,B=42
VVFDL	BS 1605	33	0300	0458225	+434504	L	2	15673	L	83040722	000000	000000	221800	000022		G C=190,B=25
VVFTA	OO EPS AUR	40	0300	0458226	+434505	L	2	15788	L	83042118	000000	000000	183500	000020		G C=205,B=20
VVFTA	OO EPS AUR	40	0300	0458226	+434505	L	2	15790	L	83042121	000000	000000	211300	000300		G C=8X,B=25
VVFTA	OO EPS AUR	40	0300	0458226	+434505	L	3	19782	L	83042120	000000	000000	205100	004300		G E=119,C=8X,B=52
VVFTA	OO EPS AUR	40	0300	0458226	+434505	L	3	19780	L	83042118	000000	000000	182300	000600		G C=1.5X,B=18
VVFIA	HD 32068	39	0380	0458586	+410017	H	3	20551	L	83073115	000000	000000	153100	000900		G C=205,B=72
VVFIA	HD 32068	39	0380	0458586	+410017	H	2	16489	L	83073115	000000	000000	150300	000615		G E=252,C=165,B=50
VVFIA	HD 32068	39	0380	0458587	+410018	H	3	20550	L	83073114	000000	000000	142700	001800		G C=1.5X,B=100
VVFIA	HD 32068	39	0380	0458587	+410018	H	2	15783	L	83042022	000000	000000	225600	000615		G E=245,C=200,B=48
VVFIA	HD 32068	39	0380	0458587	+410018	H	3	19775	L	83042023	000000	000000	230800	001600		G C=255,B=65
VVFIA	HD 32068	39	0380	0458587	+410018	H	2	16488	L	83073114	000000	000000	141500	000615		G E=240,C=195,B=40
FC110	HD32068	47	0394	0458590	410030	H	2	15635	L	83040105	000000	000000	055924	003000	803	V
FC110	HD32068	47	0410	0458590	410030	H	3	19601	L	83040105	000000	000000	052515	003000	701	V
EPFJG	NG 1800	82	1400	0504324	-320106	L	3	19983	SL	83051409	091000	035000	090900	035000		G C=220,B=165
EPFJG	NG 1800	82	1400	0504324	-320106	S	9	01431	L	83051409	000000	000000	090000	012500		G NO COMMENTS
LDFKH	HD 33262	41	0470	0504388	-573221	H	2	15681	L	83040820	000000	000000	204500	001500		G E=177,C=250,B=59
LDFKH	HD 33262	41	0470	0504388	-573221	L	3	19680	SL	83040821	210800	003100	210700	003100		G E=173,C=3X,B=130
LDFKH	HD 33262	41	0470	0504388	-573222	H	2	15764	L	83041800	000000	000000	005300	001500		G E=166,C=230,B=30
LDFKH	HD 33262	41	0470	0504388	-573222	L	3	19747	SL	83041801	012400	002500	012300	002500		G E=117,C=2X,B=23
LDFKH	HD 33262	41	0470	0504388	-573221	H	2	15792	L	83042123	000000	000000	235400	001500		G E=174,C=240,B=32
LDFKH	HD 33262	41	0470	0504388	-573221	L	3	19784	SL	83042200	001400	003100	001300	003100		G E=57,C=2X,B=20
LDFKH	HD 33262	41	0470	0504388	-573221	H	2	15735	L	83041420	000000	000000	204100	001500		G E=213,C=240,B=56
LDFKH	HD 33262	41	0470	0504388	-573222	H	2	16051	L	83053120	000000	000000	203500	001500		G E=158,C=220,B=40
LDFKH	HD 33262	41	0470	0504388	-573221	L	3	19724	SL	83041420	200500	003100	200400	003100		G E=139,C=2X,B=63
LDFKH	HD 33262	41	0470	0504388	-573222	L	3	19669	SL	83040718	190200	003100	185900	003100		G E=132,C=2X,B=50
LDFKH	HD 33262	41	0470	0504388	-573221	H	2	15670	L	83040718	000000	000000	184000	001500		G E=182,C=227,B=45
LDFKH	HD 33262	41	0470	0504388	-573222	L	3	19735	SL	83041520	200900	003100	200800	003100		G E=171,C=2X,B=120
LDFKH	HD 33262	41	0470	0504388	-573222	L	3	19718	SL	83041323	233100	003100	233000	003100		G E=120,C=2X,B=30
LDFKH	HD 33262	41	0470	0504388	-573222	H	2	15729	L	83041323	000000	000000	230300	001500		G E=191,C=250,B=37
LDFKH	HD 33262	41	0470	0504388	-573222	H	2	15742	L	83041520	000000	000000	204400	001500		G E=192,C=255,B=55
LDFKH	HD 33262	41	0470	0504388	-573221	L	3	19666	L	83040623	000000	000000	234500	003100		G E=125,C=2X,B=42
LDFKH	HD 33262	41	0470	0504389	-573222	H	2	16063	L	83060317	000000	000000	172600	001500		G E=175,C=220,B=35
LDFKH	OOSKYBKGND	41	0470	0504389	-573222	L	3	20013	SL	83051717	171200	003100	171200	003100		G E=111,C=2X,B=42
LDFKH	33262	41	0470	0504389	-573222	L	3	20137	SL	83060316	165100	003100	165000	003100		G E=70,C=2X,B=32
LDFKH	HD 33262	41	0470	0504389	-573222	H	2	16121	L	83061016	000000	000000	165000	001500		G E=180,C=240,B=32
LDFKH	HD 33262	41	0470	0504389	-573222	H	2	15961	L	83051716	000000	000000	165100	001500		G E=198,C=1.2X,B=38
LDFKH	HD 33262	41	0470	0504389	-573222	H	2	16021	L	83052816	000000	000000	163600	001500		G E=166,C=230,B=40
LDFKH	HD 33262	41	0470	0504389	-573222	H	2	15904	L	83051023	000000	000000	233000	001500		G E=169,C=220,B=27

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
LDFKH	HD 33262	41	0470	0504389	-573222	L	3	20086	SL	83052816	165600	002600	165500	002600		G E=115,C=2X,B=38
LDFKH	HD 33262	41	0470	0504389	-573222	L	3	19956	SL	83051022	225400	003100	225300	003100		G E=135,C=2X,B=27
LDFKH	HD 33262	41	0470	0504389	-573222	H	2	15903	L	83051022	000000	000000	222500	001500		G E=172,C=225,B=53
LDFKH	HD 33262	41	0470	0504389	-573222	L	3	20185	SL	83061017	171800	003100	171700	003100		G E=125,C=2X,B=30
LDFKH	HD 33262	41	0470	0504389	-573222	L	3	20116	SL	83053119	200000	003100	195900	003100		G C=2X,B=65
NSFRF	OO0505-679	75	9999	0505529	-675643	L	3	19636	L	83040410	000000	000000	104400	036500		G B=90
NSFRF	OO BKGND	07	9999	0505529	-675705	L	2	15654	L	83040410	000000	000000	104600	032500		G B=60
NVFSM	OO000LMCP9	70	1630	0508034	-684358	L	2	16472	L	83072907	000000	000000	070800	012000		G E=103,B=40
NVFSM	OO000LMCP9	70	1630	0508172	-684401	L	3	20423	L	83070916	000000	000000	165500	003000		G E=80,C=60,B=60
NVFSM	OO000LMCP9	70	1630	0508172	-684401	L	3	20424	L	83070918	000000	000000	183600	007200		G E=99,C=37,B=35
CCFFF	HD 34198	47	0710	0512289	-261550	L	3	20378	L	83070408	000000	000000	083900	019000		G E=221,B=47
LDFTA	OOCAPEL HL	48	0950	0513412	+454725	L	2	15688	L	83040917	000000	000000	171100	002000		G E=87,B=40
LDFTA	OOCAPEL HL	48	0950	0513412	+454725	L	3	19686	L	83040917	000000	000000	174100	003000		G E=114,B=99
PHCAL	HD 34816	20	0430	0517162	-131337	H	3	19682	L	83040823	000000	000000	234800	000022		G C=180,B=34
PHCAL	HD 34816	20	0430	0517162	-131337	H	2	15683	L	83040823	000000	000000	234400	000026		G C=215,B=33
PHCAL	HD 34816	20	0430	0517162	-131337	H	1	01850	L	83042223	000000	000000	231800	000022		G C=200,B=42
FC110	HD34842	22	0803	0518333	322751	L	2	15634	L	83040104	000000	000000	044518	002000	502	V
FA032	S DOR	33	0954	0518352	-691802	H	3	20413	L	83070721	000000	000000	211139	039500	463	V
LDFKH	HD 35296	41	0500	0521307	+172019	L	3	19734	SL	83041518	182500	003500	182400	003500		G E=185,C=2X,B=122
LDFKH	HD 35296	41	0500	0521307	+172019	H	2	15741	L	83041519	000000	000000	190500	002200		G E=220,C=2X,B=72
LDFKH	HD 35296	41	0500	0521307	+172019	H	2	15703	L	83041019	000000	000000	192400	002200		G E=221,C=1.2X,B=100
LDFKH	HD 35296	41	0500	0521307	+172019	L	3	19698	SL	83041018	184500	003500	184400	003500		G E=208,C=3X,B=176
LDFKH	HD 35296	41	0500	0521307	+172019	L	3	19715	SL	83041318	185600	003500	185500	003500		G E=139,C=2X,B=40
LDFKH	HD 35296	41	0500	0521307	+172019	H	2	15672	L	83040721	000000	000000	212100	002200		G E=197,C=250,B=65
LDFKH	HD 35296	41	0500	0521307	+172019	L	3	19723	SL	83041418	185100	003500	185000	003500		G E=189,C=2X,B=123
LDFKH	HD 35296	41	0500	0521307	+172019	L	3	19667	L	83040701	000000	000000	011900	003100		G E=152,C=1.5X,B=26
LDFKH	HD 35296	41	0500	0521307	+172019	H	2	15669	L	83040700	000000	000000	005100	002200		G E=164,C=1.1X,B=32
LDFKH	HD 35296	41	0500	0521307	+172019	L	3	19783	SL	83042122	224400	003500	224300	003500		G E=87,C=2X,B=42
LDFKH	HD 35296	41	0500	0521307	+172019	H	2	15791	L	83042122	000000	000000	221000	002200		G E=199,C=255,B=50
LDFKH	HD 35296	41	0500	0521307	+172019	L	3	19679	L	83040819	000000	000000	193600	003500		G E=168,C=3X,B=145
LDFKH	HD 35296	41	0500	0521307	+172019	L	3	19670	SL	83040720	203800	003500	203700	003500		G E=156,C=2X,B=77
LDFKH	HD 35296	41	0500	0521307	+172019	H	2	15671	L	83040720	000000	000000	200900	002200		G E=176,C=240,B=55
LDFKH	HD 35296	41	0500	0521307	+172019	H	2	15680	L	83040818	000000	000000	181300	002200		G E=210,C=1.2X,B=73
LDFKH	HD 35296	41	0500	0521307	+172019	H	2	15726	L	83041318	000000	000000	182900	002200		G E=184,C=240,B=40
LDFKH	HD 35296	41	0500	0521308	+172019	H	2	15734	L	83041418	000000	000000	181700	002200		G E=206,C=1.5X,B=65
FKFJL	HD 36705	45	0680	0528357	-652918	H	2	15712	L	83041118	000000	000000	183200	002000		G C=120,B=94
FKFJL	HD 36705	45	0680	0528357	-652918	H	2	15713	L	83041119	000000	000000	192600	004000		G E=233,C=205,B=132
FC015	HD36705	46	0709	0528358	-652919	H	2	15706	L	83041104	000000	000000	042229	003500	232	V
FC015	HD36705	46	0709	0528358	-652919	L	3	19706	L	83041103	000000	000000	030409	007500	231	V
FKFJL	HD 36705	45	0680	0528358	-652919	H	3	19713	L	83041301	000000	000000	013900	083000		G E=182,C=200,B=142
FKFJL	HD 36705	45	0680	0528358	-652919	L	3	19714	L	83041316	000000	000000	162300	008500		G E=186,C=80,B=43
CCFEG	HD 36705	45	0690	0528358	-652919	L	2	16460	L	83072810	000080	000000	102800	000400		G E=192,C=160,B=27
CCFEG	HD 36705	45	0690	0528358	-652919	L	3	20521	L	83072805	000000	000000	052400	006000		G E=100,C=50,B=25
CCFEG	HD 36705	45	0690	0528358	-652919	L	2	16458	SL	83072804	050900	001000	045900	000300		G E=157,C=145,B=25
CCFEG	HD 36705	45	0690	0528358	-652919	H	2	16447	L	83072711	000000	080000	110700	003500		G E=127,C=110,B=55

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
FC068	HD36705	46	0713	0528358	-652919	H	2	15786	L	83042106	000000	000000	060651	004000	332	V
FC068	HD36705	46	0710	0528358	-652919	L	3	19778	L	83042104	000000	000000	044356	008000	341	V
FC068	HD36705	46	0710	0528358	-652919	H	2	15785	L	83042104	000000	000000	040030	004000	332	V
CCFEG	HD 36705	45	0690	0528358	-652919	L	2	16446	L	83072710	000000	000000	103000	000100		G E=74,C=80,B=23
CCFEG	HD 36705	45	0690	0528358	-652919	L	3	20518	L	83072709	000000	000000	095500	005000		G E=108,C=63,B=60
FKFJL	HD 36705	45	0680	0528358	-652919	H	2	15725	L	83041315	000000	000000	153900	004000		G E=98,C=85,B=35
FC068	HD36705	46	9999	0528358	-652919	E	9	01414	2	83041309	000000	000000	093000	016000		V REFERS TO SWP19713
FC015	HD36705	46	0680	0528358	-652919	H	2	15708	L	83041108	000000	000000	083054	007000	232	V
FC015	HD36705	46	0708	0528358	-652919	L	3	19708	L	83041107	000000	000000	070703	008000	231	V
FC015	HD36705	46	0707	0528358	-652919	H	2	15707	L	83041106	000000	000000	061900	004500	232	V
FC015	HD36705	46	0706	0528358	-652919	L	3	19707	L	83041105	000000	000000	050045	007500	231	V
FC015	HD36705	46	0710	0528358	-652919	H	2	15705	L	83041102	000000	000000	022535	003500	232	V
FKFJL	HD 36705	45	0680	0528390	-652918	D	9	01413	L	83041301	000000	000000	012900	016000		G NO COMMENTS
FKFJL	HD 36705	45	0680	0528390	-652930	H	2	15719	L	83041217	000000	000000	174000	003500		G E=198,C=160,B=100
FM104	NGC2004	83	1084	0530439	-671859	H	3	20301	L	83062322	000000	000000	222527	044200	307	V REF POINT 104,-92
FC068	HD37909	30	0829	0531452	-813725	L	3	19777	LS	83042102	032328	002000	024008	004000	731	V 511$
IMFRP	OO B328	25	1070	0532120	-051207	L	2	15637	L	83040118	000000	000000	185200	006000		G C=255,B=140
IMFRP	BD-05 1310	25	1050	0532340	-050757	L	2	15643	L	83040201	000000	000000	011900	003000		G C=135,B=35
IMFRP	BD-05 1310	25	1050	0532340	-050757	L	3	19604	L	83040120	000000	000000	200400	003000		G C=190,B=150
IMFRP	HD 294264	21	0950	0532460	-045356	L	2	15641	L	83040123	000000	000000	234300	000500		G C=255,B=72
IMFRP	HD 37022	12	9999	0532489	-052516	H	3	19606	L	83040201	000000	000000	010700	000100		G C=160,B=39
IMFRP	HD 37130	25	1000	0533330	-044654	L	2	15642	L	83040200	000000	000000	002100	000700		G C=180,B=61
OD97B	DOORN NEB	73	9999	0533543	-064731	D	9	01408	L	83040612	000000	000000	125400	002000		G NO COMMENTS
OD97B	DOORN NEB	73	9999	0533543	-064731	L	3	19660	SL	83040611	110500	040600	110400	040600		G C=130,B=93
OD97B	DOORN NEB	73	9999	0533552	-064629	L	2	15666	SL	83040611	110800	037800	110700	037800		G B=75
HHFJS	OO HH-2H	64	1590	0533597	-064902	L	3	19685	L	83040911	000000	000000	110200	033000		G E=127,C=95,B=70
IMFRP	OO B1018	25	1070	0534100	-052953	L	2	15638	L	83040120	000000	000000	204700	003500		G C=220,B=90
NVFSM	0000LMCP33	70	1570	0534304	-690015	L	3	20528	L	83072910	000000	000000	100900	007000		G E=149,C=65,B=47
FI095	A0538-66	59	1400	0535427	-665340	L	2	15737	L	83041502	000000	000000	024643	007000	314	V BLIND OFFSET
FI095	A0538-66	59	1400	0535428	-665340	L	3	20279	L	83062103	000000	000000	033053	013600	301	V
FI095	A0538-66	59	1400	0535428	-665340	L	3	19730	L	83041504	000000	000000	040114	012000	311	V PREVIOUS 2SWP 10TIMES (SPREP)
FI095	A0538-66	59	1400	0535428	-665340	L	2	16193	L	83062101	000000	000000	015613	009001	303	V
FA084	LMC N66	70	1520	0536262	-671954	L	3	19905	L	83050504	000000	000000	044402	018300	521	V
HSFTS	HD 37490	26	0450	0536326	+040541	H	3	19609	L	83040218	000000	000000	181700	000210		G C=250,B=53
HSFTS	HD 37490	26	0450	0536326	+040541	H	3	19610	L	83040218	000000	000000	184600	000525		G C=3X,B=110
HSFTS	HD 37490	26	0450	0536326	+040541	H	3	19621	L	83040301	000000	000000	014300	000210		G C=240,B=40
NDFRD	OOLMC N157	72	0010	0538553	-690621	H	3	20055	L	83052309	000000	000000	090500	033000		G C=160,B=110
NDFRD	OOLMC N157	72	0010	0539066	-690639	H	2	16005	L	83052309	000000	000000	090200	036000		G C=200,B=125
NDFRD	OOLMC N157	72	0010	0539066	-690640	D	9	01438	L	83052309	000000	000000	094400	002000		G NO COMMENTS
NDFRD	OOLMC N157	72	0010	0539066	-690640	D	9	01439	L	83052310	000000	000000	102300	002000		G NO COMMENTS
NDFRD	OOLMC N160	72	1100	0540090	-694022	L	3	20060	L	83052321	000000	000000	215400	011400		G E=180,C=160,B=55
NDFRD	OOLMC N160	72	1100	0540090	-694022	L	3	20059	L	83052320	000000	000000	205600	002000		G C=180,B=140
NDFRD	OOLMC N160	72	0010	0540108	-694008	H	3	20057	L	83052317	000000	000000	173500	007500		G B=215
NDFRD	OOLMC N160	72	0010	0540108	-694008	L	2	16006	L	83052316	000000	000000	162900	006000		G C=2X,B=97
NDFRD	OOLMC N160	72	1100	0540108	-694008	H	2	16007	L	83052318	000000	000000	185500	003000		G B=130

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
NDFRD	OOLMC N160	72	0010	0540108	-694008	L	3	20056	L	83052315	000000 000000	152500 006000		G C=3X,B=135
NDFRD	OOLMC N160	72	1100	0540116	-694007	L	3	20058	L	83052319	000000 000000	194400 002000		G C=2X,B=195
MLFPH	OOC 7 LMC	24	1500	0542179	-691439	L	3	20416	SL	83070812	124600 012000	124500 012000		G C=130,B=80
MLFPH	OOC 7 LMC	24	1500	0542179	-691438	L	2	16317	SL	83070814	145000 007500	144900 007500		G C=140,B=65
MLFPH	00 C36	20	1560	0542185	-691553	L	2	16324	L	83071005	000000 000000	050300 001000		G B=25
MLFPH	00 C36	20	1560	0542185	-691553	L	3	20428	L	83071005	000000 000000	051700 004500		G B=20
MLFPH	OOC 1 LMC	32	1200	0542189	-691516	L	3	20417	SL	83070816	161100 006000	161100 006000		G C=150,B=115
MLFPH	00 C01	32	1190	0542190	-691517	L	2	16318	SL	83070817	171700 002000	171600 002000		G C=107,B=45
MLFPH	00 C01	32	1190	0542190	-691517	L	2	16325	L	83071006	000000 000000	061000 006000		G C=125,B=32
MLFPH	00 C01	32	1190	0542190	-691517	L	3	20429	SL	83071007	071800 027500	071700 027500		G C=160,B=75
MLFPH	00 L18	23	1380	0542254	-691436	L	2	16315	SL	83070806	065700 006000	065600 006000		G C=90,B=30
MLFPH	00 L18	23	1380	0542254	-691436	L	3	20414	SL	83070805	053200 008000	053100 008000		G C=50,B=20
MLFPH	00 C14	23	1530	0542307	-691426	L	3	20415	SL	83070808	081600 015000	081600 015000		G C=205,B=35
MLFPH	OOC 14 LMC	23	1530	0542307	-691425	L	2	16316	SL	83070810	105200 010000	105100 010000		G C=1.35X,B=40
PHCAL	HD38666	20	0519	0544083	-321927	L	1	01921	L	83062822	000000 000000	222731 000002	503	V
FA032	SK-67 266	13	1204	0545506	-671630	L	3	20410	L	83070621	000000 000000	210534 001000	401	V
FA032	SK-67 266	13	1203	0545506	-671630	L	2	16308	L	83070621	000000 000000	211909 002000	603	V
FA032	SK-67 266	13	1205	0545506	-671630	H	3	20411	L	83070621	000000 000000	214721 036000	403	V
IMFRP	00 UX ORI	30	0870	0552010	-035124	L	2	15639	L	83040121	000000 000000	215300 001500		G E=152,C=145,B=75
IMFRP	00 UX ORI	30	0870	0552010	-035124	L	3	19605	L	83040122	000000 000000	221800 001000		G C=160,B=131
IMFRP	00 UX ORI	30	0870	0552010	-035124	L	2	15640	L	83040122	000000 000000	224700 002000		G C=225,B=150
FE130	A0556.383	84	1400	0556211	-382016	L	2	16104	L	83060822	000000 000000	225032 006200	112	V
OD94B	HD 42475	49	0660	0608509	+215252	H	2	15787	L	83042110	000000 000000	104500 042000		G C=180,B=100
NVFSM	0000LMCP40	70	1600	0610366	-675534	L	3	20452	L	83071304	000000 000000	045200 009000		G E=189,B=35
FC268	HD43039	47	0463	0612114	293105	L	2	15838	L	83042906	000000 000000	064902 000125	502	V
NPFJK	OOABELL 15	70	1540	0624599	-252101	L	3	20276	L	83062021	000000 000000	211400 003500		G C=90,B=20
FC265	UU AUR	50	0533	0633070	382918	L	1	01854	L	83042706	000000 000000	064048 011113	332	V
FC110	HD48329	44	0331	0640520	251100	L	3	19600	L	83040102	000000 000000	022241 012000	361	V
CVFJR	OOHL C MA	54	1210	0643031	-164822	L	2	15857	L	83050120	000000 000000	201100 001000		G C=140,B=43
CVFJR	00 HL CMA	54	9999	0643031	-164822	L	2	15870	L	83050323	000000 000000	233500 001000		G E=109,B=27
CVFJR	00 HL CMA	54	9999	0643031	-164822	L	3	19892	L	83050322	000000 000000	225600 002500		G E=131,C=107,B=35
CVFJR	OOHL C MA	54	1210	0643031	-164822	L	3	19874	L	83050120	000000 000000	204000 002000		G E=213,C=190,B=106
CVFJR	OOHL C MA	54	1210	0643031	-164822	L	2	15858	L	83050121	000000 000000	211300 001000		G C=155,B=53
CVFJR	OOHL C MA	54	1210	0643031	-164822	L	3	19873	L	83050119	000000 000000	194500 002000		G E=202,C=190,B=106
CVFJR	OOHL C MA	54	1210	0643031	-164822	L	2	15860	L	83050123	000000 000000	233800 001000		G C=130,B=26
CVFJR	OOHL C MA	54	1210	0643031	-164822	L	3	19876	L	83050123	000000 000000	230300 002000		G E=150,C=153,B=58
CVFJR	OOHL C MA	54	1210	0643031	-164822	L	2	15859	L	83050122	000000 000000	222100 001000		G C=140,B=42
CVFJR	OOHL C MA	54	1210	0643031	-164822	L	3	19875	L	83050121	000000 000000	214700 002000		G E=223,C=210,B=121
COETA	HD 49368	50	0770	0645421	+053553	L	2	15811	L	83042510	000000 000000	103400 013500		G E=205,C=85,B=37
CCFLH	HD 50223	41	0510	0648299	-463338	H	2	16075	L	83060516	000000 000000	164900 003500		G E=105,C=1.5X,B=50
HCFSP	HD 50337	39	0070	0648461	-533347	L	3	20316	L	83062520	000000 000000	204900 000230		G C=190,B=18
HCFSP	HD 50337	39	0070	0648461	-533347	H	2	16240	L	83062520	000000 000000	205700 004900		G C=1X,B=40
OD91B	HD 50646	21	0770	0651086	-240616	H	3	19709	L	83041116	000000 000000	160300 001500		G C=178,B=48
OD91B	HD 51283	21	0000	0653406	-225232	H	2	15711	L	83041117	000000 000000	174800 000130		G C=180,B=37
OD91B	HD 51283	21	0530	0653406	-225232	H	3	19710	L	83041117	000000 000000	171500 000215		G C=170,B=38

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
FA141	HD52356	21	0711	0657460	-281944	H	3	20189	L	83061023	000000 000000	230057 002500	501	V
FA141	HD52356	21	0706	0657460	-281944	H	2	16125	L	83061022	000000 000000	224644 001000	302	V
OD91B	HD 52596	21	0000	0658447	-253419	H	2	15710	L	83041116	000000 000000	165700 001000		G C=180,B=45
OD91B	HD 52596	21	0000	0658447	-253419	H	3	19678	L	83040817	000000 000000	172600 001200		G C=190,B=60
NPFWF	NG 2346	70	1260	0706492	-004324	L	3	19740	L	83041711	000000 000000	113200 015000		G E=148,C=53,B=33
NPFWF	NG 2346	70	1260	0706492	-004324	L	2	15756	L	83041714	000000 000000	140800 002500		G B=27
NPFWF	NG 2346	70	1260	0706492	-004334	L	3	19741	L	83041714	000000 000000	144000 010500		G E=238,C=200,B=160
NPFWF	NG 2346	70	1260	0706492	-004334	L	2	15757	L	83041716	000000 000000	163100 007500		G C=255,B=255
NPFWF	NG 2346	70	1260	0706496	-004328	L	3	19967	L	83051308	000000 000000	085200 018000		G E=174,C=65,B=42
NPFWF	NG 2346	70	1260	0706496	-004328	L	2	15928	L	83051311	000000 000000	115900 012000		G E=109,C=100,B=42
NPFWF	NG 2346	70	1260	0706496	-004328	L	3	19768	L	83042011	000000 000000	111500 016500		G E=160,C=62,B=38
FC265	RU CAM	50	0885	0716204	694553	L	1	01855	L	83042709	000000 000000	092803 001500	301	V
IGFBS	HD 57193	20	0774	0717062	-252821	H	3	20325	L	83062619	000000 000000	194200 003000		G C=2X,B=92
AFFJL	HD 58728	41	9999	0724464	+213257	H	2	15748	L	83041617	000000 000000	171800 002500		G E=245,C=2X,B=145
CCFEB	HD 58728	41	0520	0724464	+213257	L	3	20030	L	83051921	000000 000000	211600 005000		G E=157,C=5X,B=120
CCFEB	HD 58728	41	0520	0724464	+213257	H	2	15977	L	83051920	000000 000000	204600 002500		G C=1.5X,B=75
FA082	NGC2392	70	1003	0726134	210056	H	2	15866	L	83050306	000000 000000	060016 010300	433	V
FA082	NGC2392	70	1002	0726134	210056	H	3	19889	L	83050304	000000 000000	042626 009000	452	V
NPFJK	ODYM 29	70	0000	0726145	+132044	L	2	15841	L	83042915	000000 000000	154100 013800		G C=235,B=105
FI240	3A0729+103	59	1450	0728444	100246	L	3	19803	L	83042405	000000 000000	052302 007600	331	V
FI240	3A0729-103	59	1450	0728444	100246	L	3	19804	L	83042408	000000 000000	080409 007600	331	V
FI240	3A0729+103	59	1450	0728444	100246	L	2	15805	L	83042404	000000 000000	040303 007600	333	V
FI240	3A0729+103	59	1450	0728444	100246	L	3	19802	L	83042402	000000 000000	024143 007600	331	V
FI240	3A0729+103	59	1450	0728444	100246	L	2	15806	L	83042406	000000 000000	064325 007600	333	V
FC265	HD59643	50	0807	0728526	243637	L	1	01853	L	83042704	000000 000000	043801 002500	351	V
FC265	HD59643	50	0808	0728526	243637	L	3	19829	L	83042705	000000 000000	050604 004000	230	V
PHCAL	HD60753	21	0677	0732080	-502829	L	2	16243	L	83062601	000000 000000	014330 000007	502	V
PHCAL	HD60753	21	0672	0732080	-502829	L	2	16082	LS	83060605	053550 000021	053242 000007	501	V 500$
PHCAL	HD60753	21	0673	0732080	-502829	L	3	20158	LS	83060605	052758 000030	052423 000010	501	V 601$
PHCAL	HD60753	21	0671	0732080	-502829	L	1	01922	L	83062823	000000 000000	232519 000006	503	V
PHCAL	HD60753	21	0674	0732080	-502829	L	3	20335	L	83062823	000000 000000	232954 000010	500	V
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	20248	L	83061816	000000 000000	163100 000013		G C=190,B=13
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	16184	L	83061816	000000 000000	162800 000010		G C=190,B=21
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	19599	L	83040100	000000 000000	000900 000041		G C=215,B=58
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	15632	L	83040100	000000 000000	005900 000008		G C=120,B=70
PHCAL	OO TFLOOD	99	0670	0732081	-502829	L	2	15633	L	83040101	000000 000000	013800 000001		G C=160,B=38
PHCAL	HD 60753	21	0670	0732081	-502829	L	1	01841	L	83040423	000000 000000	235300 000006		G C=200,B=32
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	15849	SL	83043019	192600 000021	193200 000007		G C=224,B=23
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	16185	L	83061817	000000 000000	172400 000031		G C=200,B=25
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	20249	L	83061817	000000 000000	173300 000041		G 195,B=20
PHCAL	HD 60753	21	0670	0732081	-502829	L	1	01856	SL	83043020	205400 000018	205100 000006		G C=180,B=32
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	19861	SL	83043020	203700 000030	203300 000010		G C=180,B=19
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	16279	L	83070118	000000 000000	184900 000031		G C=205,C=25
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	16287	L	83070317	000000 000000	171600 000007		G C=180,B=22
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	20352	L	83070119	000000 000000	193500 000010		G C=165,B=16

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	20117	L	83053121	000000 000000	213700 000012		G C=25,B=15
PHCAL	HD 60753	21	0670	0732081	-502829	L	1	01942	L	83070412	000000 000000	125600 000006		G C=185,B=31
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	16278	L	83070118	000000 000000	181600 000031		G C=200,B=26
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	19862	SL	83043021	211800 000030	212100 000010		G C=270,B=20
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	16280	L	83070119	000000 000000	192300 000031		G C=200,B=25
FC268	HD60552	41	0686	0732103	-134537	L	3	19850	L	83042903	000000 000000	032510 000700	300	V
FC268	HD60552	41	0685	0732103	-134537	L	2	15835	L	83042904	000000 000000	040333 000150	602	V
FC268	HD60552	41	0685	0732103	-134537	L	2	15834	LS	83042903	031308 000220	030536 000300	702	V 102$START OUT OF SMALL APERTU
CSFTA	HD 61421	41	0030	0736411	+052116	H	2	16003	L	83052221	000000 000000	211000 000300		G E=2X,C=3-4X,B=89
CSFTA	HD 61421	41	0030	0736411	+052116	H	3	20048	L	83052221	000000 000000	212100 011000		G E=215,C=10X,B=2X
CSFTA	00 WAVCAL	99	0030	0736411	+052116	H	3	20049	S	83052223	233600 000200	000000 000000		G E=50X,B=120 TFLOOD=05
CCFTA	00 YZ CMI	48	1120	0742029	+034031	L	3	20047	L	83052219	000000 000000	192200 006000		G E=158,C=125,B=93
CCFTA	00 YZ CMI	48	1120	0742029	+034031	L	2	16002	L	83052218	000000 000000	184500 003000		G E=173,C=100,B=47
CCFTA	00 YZ C MI	48	1120	0742029	+034031	L	2	15690	L	83040920	000000 000000	202600 001500		G E=141,B=40
CCFTA	00 YZ C MI	48	1120	0742029	+034031	L	2	15691	L	83040921	000000 000000	212200 002200		G E=202,C=122,B=73
CCFTA	00 YZ C MI	48	1120	0742029	+034031	L	3	19688	L	83040920	000000 000000	204700 003000		G E=116,B=95
HCFSP	HD 64440	39	0130	0750298	-402645	L	3	20315	L	83062518	000000 000000	185400 000050		G C=185,B=19
HCFSP	HD 64440	39	0130	0750298	-402645	H	2	16239	L	83062519	000000 000000	195000 002500		G C=230,B=65
HCFSP	HD 64440	39	0130	0750298	-402645	H	2	16238	L	83062519	000000 000000	190800 001500		G C=205,B=88
OBFTS	HD 65575	20	0360	0755304	-525051	H	3	20355	L	83070212	000000 000000	122100 000042		G C=1.1X,B=41
OBFTS	HD 67536	21	0630	0804004	-624133	H	3	20356	L	83070212	000000 000000	125400 000810		G C=210,B=45
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	19923	L	83050723	000000 000000	233000 000043		G C=150,B=15
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	15891	SL	83050723	232000 000112	232500 000024		G C=1.1X,B=25
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	16018	L	83052723	000000 000000	233400 000114		G C=160,B=24
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	19918	L	83050623	000000 000000	233200 000014		G C=160,B=13
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	1	01863	SL	83050623	232300 000100	232800 000020		G C=1.1X,B=32
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	1	01967	L	83072519	000000 000000	193900 000020		G C=190,B=35
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	15685	L	83040901	000000 000000	013300 000024		G C=160,B=24
PHCAL	BD+75 0325	21	0950	0804432	+750648	L	2	16140	L	83061216	000000 000000	164800 000012		G C=110,B=25
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	20203	L	83061216	000000 000000	165200 000007		G C=100,B=12
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	16017	L	83052722	000000 000000	225100 000229		G C=240,B=25
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	20082	L	83052722	000000 000000	221600 000043		G C=160,B=19
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	1	01892	L	83060421	000000 000000	212800 000010		G C=110,B=32
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	15733	SL	83041410	110000 000152	105000 000024		G C=140,B=25
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	19720	SL	83041411	110900 000042	111400 000014		G C=125,B=12
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	1	01843	L	83040501	000000 000000	012100 000020		G C=195,B=32
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	1	01886	L	83052721	000000 000000	212700 000140		G C=218,B=42
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	1	01851	L	83042300	000000 000000	003900 000140		G C=205,B=39
PHCAL	00SAFETYRD	99	9999	0804432	+750648	L	2	16070	L	83060421	000000 000000	214100 000000		G B=15
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	19794	L	83042301	000000 000000	012300 000043		G C=160,B=19
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	15800	L	83042301	000000 000000	013300 000114		G C=160,B=22
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	19793	L	83042300	000000 000000	000700 000014		G C=160,B=18
IGFBS	HD 68450	23	0644	0809107	-370834	H	3	20298	L	83062319	000000 000000	190800 000700		G C=235,B=105
IGFBS	HD 69106	23	0714	0812120	-364758	H	3	20299	L	83062319	000000 000000	194700 001200		G C=212,B=55
DCFCS	00 AI VEL	53	0090	0812260	-442518	L	2	16302	SL	83070516	164600 000230	163800 000400		G C=2.5X,B=25

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
DCFCS	00 AI VEL	53	0090	0812262	-442521	L	2	16303	SL	83070517	174600	000150	174000	000300		G	C=3X,B=25
DCFCS	00 AI VEL	53	0090	0812262	-442521	L	3	20038	L	83052023	000000	000000	231300	000500		G	C=175,B=20
DCFCS	00 AI VEL	53	0090	0812262	-442521	L	3	20388	L	83070517	000000	000000	175100	000600		G	C=230,B=27
DCFCS	00 AI VEL	53	0090	0812262	-442521	L	2	16304	SL	83070518	185400	000130	184800	000230		G	C=2.5X,B=25
DCFCS	00 AI VEL	53	0090	0812262	-442521	L	3	20389	L	83070518	000000	000000	185900	000430		G	C=1.5X,B=22
DCFCS	00 AI VEL	53	0090	0812262	-442521	L	2	16305	SL	83070519	193900	000130	194400	000245		G	C=190,B=25
DCFCS	00 AI VEL	53	0030	0812262	-442521	L	2	15989	SL	83052023	230700	000200	230000	000330		G	E=2X,B=28
CVFES	CP-48 1577	63	0960	0813496	-490401	L	3	19765	SL	83041922	223400	000330	222600	000130		G	E=142,C=200,B=60
CVFES	CP-48 1577	63	0960	0813496	-490401	L	2	15778	SL	83041920	212400	000200	205700	000100		G	C=140,B=25
CVFES	CP-48 1577	63	0960	0813496	-490401	L	2	15779	SL	83041922	224900	000300	224300	000130		G	C=187,B=33
CVFES	CP-48 1577	63	0960	0813496	-490401	L	3	19764	SL	83041920	211400	000400	205100	000200		G	E=148,C=225,B=42 *E=1
CVFES	CP-48 1577	63	0960	0813496	-490401	L	3	19766	SL	83041923	232700	000345	232000	000145		G	E=125,C=207,B=32
SCFMA	OOCOM IRAS	06	1060	0814570	-062939	L	2	15917	L	83051222	000000	000000	223400	004000		G	E=119,B=45
SCFMA	OOCOM IRAS	06	1060	0816290	-052722	L	3	19965	SL	83051222	221900	001000	221800	001000		G	E=144,B=45
SCFMA	OOCOM IRAS	06	1060	0816290	-052722	F	9	01430	L	83051221	000000	000000	215700	002000		G	NO COMMENTS
SCFMA	OOCOM IRAS	06	1060	0818530	-035511	L	2	15916	SL	83051220	203400	003000	201900	003000		G	E=153,B=85
SCFMA	OOCOM IRAS	06	1060	0820580	-023351	L	2	15915	SL	83051219	191400	003000	191300	003000		G	E=135,B=70
AFFJL	HD 70958	40	0560	0822055	-033516	H	2	15714	L	83041120	000000	000000	204900	002200		G	E=191,C=240,B=115
FA141	HD71216	21	0711	0822479	-403460	H	3	20191	L	83061101	000000	000000	014450	003000	501	V	
FA141	HD71216	21	0710	0822479	-403460	H	2	16127	L	83061101	000000	000000	011800	001700	402	V	
SCFMA	OOCOM IRAS	06	1060	0822536	-011058	L	2	15914	SL	83051217	175500	003000	172700	003000		G	E=107,B=55
SCFMA	UOCOMET 83	06	9999	0825421	+101223	L	3	19964	SL	83051214	144500	009000	144400	009000		G	E=8-10X,B=90
FC221	SA0236033	46	0978	0828203	-540633	L	1	01968	L	83072620	000000	000000	205258	006000	752	V	
FA115	UV0832-01	16	1143	0832480	-014500	L	2	16031	L	83053000	000000	000000	005548	000150	402	V	
FA115	UV0832-01	16	1149	0832480	-014500	H	3	20098	L	83053001	000000	000000	010147	018000	502	V	
SCFMA	OOCOM IRAS	06	1060	0833118	+705846	F	9	01429	L	83051210	000000	000000	102200	000020		G	NO COMMENTS
SCFMA	OOCOM IRAS	06	1060	0833118	+705846	H	2	15913	L	83051212	000000	000000	124700	014000		G	E=118,B=53
FA009	HD 73666	30	0669	0837191	200857	L	3	20025	L	83051906	000000	000000	063858	000630	810	V	
FA009	HD 73666	30	0661	0837191	200857	H	2	15974	L	83051907	000000	000000	071121	003200	513	V	
FA009	HD 73666	30	0661	0837191	200857	H	2	15973	L	83051905	000000	000000	054449	004931	614	V	
DCFCS	00 VZ CNC	53	0030	0838095	+100010	L	2	15988	SL	83052021	214800	000230	213600	000530		G	E=2X,B=29
DCFCS	00 VZ CNC	53	0030	0838095	+100010	L	3	20037	L	83052021	000000	000000	215700	000430		G	C=100,B=20
DCFCS	00 VZ CNC	53	0030	0838095	+100010	L	2	15987	L	83052021	000000	000000	210200	000330		G	C=1.5X,B=29
DCFCS	00 VZ CNC	53	0030	0838095	+100010	L	3	20036	L	83052020	000000	000000	200900	000800		G	C=82,B=42
DCFCS	00 VZ CNC	53	0030	0838095	+100010	L	2	15986	SL	83052019	195800	000430	194200	001000		G	C=2X,B=43
DCFCS	00 VZ CNC	53	0030	0838100	+100018	L	2	15984	SL	83052016	165100	000400	163900	000600		G	C=2X,B=32
DCFCS	00 VZ CNC	53	0030	0838100	+100018	L	3	20034	SL	83052017	170100	001200	172000	002000		G	C=210,B=76
DCFCS	00 VZ CNC	53	0030	0838100	+100018	L	2	15985	SL	83052017	180900	000330	174800	000730		G	C=2X,B=34
DCFCS	00 VZ CNC	53	0030	0838100	+100018	L	3	20035	L	83052018	000000	000000	183800	000600		G	C=95,B=36
FSTOO	COMET IRAS	06	9999	0839126	150657	E	9	01427	2	83051203	000000	000000	031400	016000		V	
NFFJR	00 VELA	75	0000	0839297	-443623	L	2	15869	L	83050320	000000	000000	202200	012000		G	C=137,B=135
NFFJR	00 VELA	75	0000	0839298	-443623	L	3	19891	L	83050317	000000	000000	175700	014000		G	E=217,C=173,B=170
NFFJR	00 VELA	75	0000	0839299	-443624	L	2	15868	L	83050317	000000	000000	175900	010500		G	C=75,B=75
FSTOO	COMET IRAS	06	1003	0840000	200000	L	2	15911	LS	83051204	055832	001000	041200	004000	242	V	242$NUCLEUS IN X=-107,10744,S
FSTOO	COMET IRAS	06	9999	0840000	200000	E	9	01428	2	83051205	000000	000000	055000	016000		V	"WRONG FIELD ARCHIVED " DO N

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
OBFGS	HD 74280	21	0432	0840366	+033445	H	3	19762	L	83041917	000000	000000	170800	000055		G	C=190,B=40
FSTOO	IRAS-COMET	06	9999	0844069	190614	E	9	01426	2	83051200	000000	000000	004000	016000		V	
FSTOO	COMET IRAS	06	1003	0845000	200000	L	3	19963	LS	83051200	031939	003900	005222	004100	061	V	061$NUCLEOUS IN X=105,Y=-44,S
FSTOO	COMET IRAS	06	1003	0845000	200000	L	2	15910	LS	83051201	032110	001500	011303	002000	031	V	031$NUCLEOUS IN X=105,Y=-44,S
XGFCB	X 0849+080	85	0000	0849342	+080458	L	2	16027	L	83052912	000000	000000	121900	021000		G	E=170,C=190,B=85
XGFCB	X 0849+080	85	0000	0849343	+080459	L	2	16014	L	83052517	000000	000000	175600	004500		G	C=80,B=34
XGFCB	X 0849+080	85	0000	0849343	+080459	L	3	20071	L	83052517	000000	000000	170500	004500		G	E=66,C=50,B=26
XGFCB	X 0849+080	85	0000	0849343	+080459	L	3	20085	L	83052813	000000	000000	134500	012500		G	E=147,C=135,B=98
SCFMA	DOCOM IRAS	06	9999	0850110	+231208	F	9	01425	L	83051122	000000	000000	221500	000000		G	NO COMMENTS
SCFMA	DOCOM IRAS	06	9999	0850530	+233812	L	3	19962	SL	83051122	222700	001000	220500	001000		G	E=203,B=20
QSFMS	OO OJ 287	87	1400	0851571	+201758	L	2	15740	L	83041517	000000	000000	172200	003000		G	C=140,B=69
QSFMS	OO OJ 287	87	1400	0851571	+201758	L	3	19733	L	83041516	000000	000000	160500	007000		G	C=160,B=112
BLFAG	Q 0851+202	87	1430	0851572	+201758	L	2	15906	L	83051114	000000	000000	144000	006500		G	C=110,B=32
BLFAG	Q 0851+202	87	1430	0851573	+201759	L	3	19959	L	83051112	000000	000000	121300	014000		G	C=95,B=33
SCFMA	DOCOM IRAS	06	9999	0856549	+270615	L	2	15909	SL	83051120	202800	001000	202700	010000		G	E=3X,C=90,B=45
SCFMA	DOCOM IRAS	06	9999	0857420	+273200	L	3	19961	SL	83051119	195200	001000	195100	001000		G	E=213,B=20
FA141	HD77366	22	0728	0858458	-381322	H	2	16126	L	83061023	000000	000000	234945	002000	402	V	
FA141	HD77366	21	0730	0858458	-381322	H	3	20190	L	83061100	000000	000000	001626	004000	501	V	
SCFMA	DOCOM IRAS	06	9999	0900480	+291400	L	2	15908	SL	83051118	184900	003000	184800	003000		G	E=198,B=35
OBFTS	HD 78764	26	0490	0905145	-702014	H	3	20357	L	83070213	000000	000000	134700	000233		G	C=1.5X,B=50
SCFMA	DOCOM IRAS	06	9999	0905210	+314451	L	3	19960	SL	83051117	174700	002000	174600	002000		G	E=2X,B=20
CCFEB	HD 78362	35	0470	0906490	+634306	H	2	15960	L	83051622	000000	000000	224700	002000		G	C=1.5X,B=45
CCFEB	HD 78362	35	0470	0906490	+634306	H	3	20009	L	83051623	000000	000000	231600	003200		G	C=130,B=30
CCFEB	HD 78362	35	0470	0906490	+634306	L	3	20008	SL	83051622	224000	000100	222400	000300		G	C=1.5X,B=45
SCFMA	DOCOM IRAS	06	9999	0906495	+323452	L	2	15907	SL	83051117	170100	003000	170000	003000		G	E=161,C=70,B=25
SCFMA	DOCOM IRAS	06	9999	0907334	+325952	F	9	01423	L	83051116	000000	000000	163000	016000		G	NO COMMENTS
SCFMA	DOCOM IRAS	06	9999	0907334	+325952	F	9	01422	L	83051116	000000	000000	162100	016000		G	NO COMMENTS
SCFMA	DOCOM IRAS	06	9999	0907334	+325952	D	9	01424	L	83051116	000000	000000	164200	016000		G	NO COMMENTS
SGFAU	HD 79186	24	0500	0909154	-443945	L	2	16490	L	83073117	000000	000000	170500	000005		G	C=240,B=22
SGFAU	HD 79186	24	0500	0909154	-443945	L	3	20552	L	83073117	000000	000000	170100	000018		G	C=220,B=15
QSFRC	OO MRK 704	84	1480	0915395	+163059	L	3	20255	L	83061910	000000	000000	101200	015000		G	E=100,C=82,B=50
QSFRC	OO MRK 704	84	1480	0915395	+163059	L	2	16188	L	83061912	000000	000000	124600	004500		G	E=96,C=100,B=25
FA115	KS 292	16	1133	0918200	-451907	L	3	20099	L	83053007	000000	000000	070011	000200	500	V	
FA115	KS 292	16	1141	0918200	-451907	H	1	01887	L	83053004	000000	000000	044023	017300	501	V	
FC110	HD81817	46	0456	0929580	813230	L	3	19602	L	83040106	000000	000000	065815	016900	231	V	
RGFRR	OO 3C 227	86	1630	0945066	+073917	L	2	16083	SL	83060612	120900	005000	120800	005000		G	B=32
FC268	HD85504	32	0606	0949373	024116	L	2	15836	LS	83042904	045540	000025	045159	000020	602	V	502$
HSFJD	OO LSS1362	16	1230	0950478	-460243	H	3	19830	L	83042711	000000	000000	111700	024500		G	C=180,B=95
CCFEB	HD 86146	41	0510	0954377	+411740	L	3	20230	L	83061515	000000	000000	152800	006000		G	C=10-20,B=45
CCFEB	HD 86146	41	0510	0954377	+411740	H	2	16167	L	83061514	000000	000000	145500	002400		G	E=108,C=2X,B=48
CCFEB	HD 86146	41	0510	0954378	+411741	L	3	20004	L	83051618	000000	000000	181200	002000		G	E=151,C=2-3X,B=180
CCFEB	HD 86146	41	0510	0954378	+411741	H	2	15956	L	83051616	000000	000000	163800	002000		G	E=179,C=1.5X,B=125
CCFEB	HD 86146	41	0510	0954378	+411741	L	3	20029	L	83051919	000000	000000	192900	005000		G	C=5X,B=143
CCFEB	HD 86146	41	0510	0954378	+411741	H	2	15957	L	83051617	000000	000000	174200	002000		G	E=187,C=1.5X,B=125
CCFEB	HD 86146	41	0510	0954378	+411741	L	3	20003	L	83051617	000000	000000	170500	003000		G	E=201,C=2-3X,B=222

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT	
WDFJS	HD 86590	39	0790	0957133	+244737	L	3	19901	L	83050420	000000	000000	205100	006000		G E=150,B=73	
WDFJS	HD 86590	39	0790	0957133	+244737	L	2	15875	L	83050410	000000	000000	102100	000800		G E=178,C=120,B=21	
WDFJS	HD 86590	39	0790	0957133	+244737	L	3	19899	L	83050410	000000	000000	103600	036000		G E=1.2X,C=146,B=90	
WDFJS	HD 86590	39	0790	0957133	+244737	L	2	15876	L	83050416	000000	000000	165800	003000		G E=2X,C=2X,B=30	
WDFJS	HD 86590	39	0790	0957133	+244737	L	2	15877	SL	83050420	202500	002000	200800	001000		G E=211,C=160,B=32	
WDFJS	HD 86590	39	0790	0957133	+244737	L	3	19900	L	83050417	000000	000000	173300	015000		G E=148,C=108,B=80	
QSFAD	00Q0957+56	85	9999	0957572	+560817	L	1	01888	L	83060307	000000	000000	071700	039000		G E=191,C=130,B=75	
RGFRR	00 3C 234	86	1630	0958574	+290137	L	2	16084	SL	83060619	192100	014600	192000	014600		G B=73	
RGFRR	00 3C 234	86	1630	0958574	+290137	L	3	20160	SL	83060616	164700	015000	164600	015000		G C=135,B=115	
XGFGR	X 1006+817	85	1610	1006342	+814501	L	2	16432	L	83072604	000000	000000	043800	035500		G C=143,B=83	
AFFJL	HD 88215	41	0530	1007396	-123405	H	2	15720	L	83041219	000000	000000	190600	003500		G C=2X,B=127	
FA082	IC2553	70	1540	1007472	-622203	L	3	19897	L	83050406	000000	000000	065200	005500	361	V	
FA084	IC2553	70	1134	1007472	-622203	L	3	19904	L	83050502	000000	000000	023325	001500	521	V	
FA084	IC2553	70	1138	1007472	-622203	L	2	15880	L	83050503	000000	000000	030409	006500	521	V	
FA009	HD89254	40	0539	1015087	-074907	H	2	15972	L	83051904	000000	000000	042223	002830	513	V 22 SEXO	
FA009	HD89254	40	0545	1015087	-074907	H	2	15971	L	83051903	000000	000000	032129	003123	613	V 22 SEXO	
CCFTA	00 AD LEO	48	0940	1016529	+200715	L	2	16001	L	83052216	000000	000000	164400	002230		G E=253,C=90,B=32	
CCFTA	00 AD LEO	48	0940	1016529	+200715	L	3	20046	L	83052217	000000	000000	171800	006000		G E=213,C=80,B=50	
CCFTA	00 AD LEO	48	0940	1016529	+200715	L	3	20045	L	83052215	000000	000000	154800	005000		G E=223,C=65,B=46	
CCFTA	00 AD LEO	48	0940	1016529	+200715	L	2	15689	L	83040918	000000	000000	184100	001000		G E=186,C=80,B=35	
CCFTA	00 AD LEO	48	0940	1016529	+200715	L	2	16000	L	83052215	000000	000000	151200	001500		G E=170,C=81,B=30	
CCFTA	00 AD LEO	48	0940	1016529	+200715	L	3	19687	L	83040918	000000	000000	185600	001500		G E=93	
CCFDS	HD 89449	41	0480	1017010	+194331	H	2	16012	L	83052419	000000	000000	193000	001400		G E=95,C=220,B=45	
FE130	NGC3227	84	1300	1020468	200706	L	2	16116	L	83060922	000000	000000	224822	016800	345	V	
FA082	NGC3242	71	1220	1022214	-182316	L	3	19893	LS	83050400	005414	000500	004627	000300	550	V 500$	
FA082	NGC3242	71	1250	1022214	-182316	L	2	15871	LS	83050401	012432	001000	011614	000500	432	V 402$	
FA082	NGC3242	71	1220	1022219	-182334	L	2	15873	L	83050403	000000	000000	032944	001500	332	V	
FA082	NGC3242	71	1220	1022219	-182329	L	2	15872	L	83050402	000000	000000	022005	001500	442	V	
FA082	NGC3242	71	1220	1022219	-182329	L	3	19894	L	83050401	000000	000000	014945	001500	470	V	
FA082	NGC3242	71	1220	1022219	-182334	L	2	15874	L	83050405	000000	000000	050144	006000	552	V	
FA082	NGC3242	71	1220	1022219	-182334	L	3	19896	L	83050403	000000	000000	035740	006000	841	V	
FA082	NGC3242	71	1220	1022219	-182334	L	3	19895	L	83050402	000000	000000	025910	001500	370	V	
QSFGK	00 MKR 142	84	0000	1022229	+515550	L	3	20121	L	83060112	000000	000000	121500	009500		G E=80,C=60,B=25	
QSFGK	00 MKR 142	84	0000	1022230	+515550	L	3	20113	L	83053113	000000	000000	130300	013000		G E=134,C=85,B=52	
FC268	HD90362	47	0570	1023142	-064824	L	2	15837	L	83042905	000000	000000	053850	001600	402	V	
AFFJL	HD 90089	41	0530	1025099	+824852	H	2	15749	L	83041618	000000	000000	182000	001800		G E=194,C=2X,B=130	
VVFTA	HD 90772	33	0460	1025324	-572300	L	2	16486	SL	83073104	043100	000580	044000	000040		G C=5X,B=27	
VVFTA	HD 90772	33	0460	1025324	-572300	L	3	20547	SL	83073104	063100	000010	044500	010000		G E=20-30X,B=48	
PHCAL	00 WAVCAL	99	0000	1027440	-002247	H	3	20023	S	83051818	184800	000200	000000	000000		G E=50X	TFLOOD=05
PHCAL	00 TFLOOD	99	0000	1027440	-002247	H	2	15965	S	83051820	203100	000007	000000	000000		G B=140	
PHCAL	00 TFLOOD	99	0000	1027440	-002247	H	3	20024	S	83051819	191600	000005	000000	000000		G NO COMMENTS	
PHCAL	00 WAVCAL	99	0000	1027440	-002247	L	2	15963	S	83051819	193400	000001	000000	000000		G E=10X	TFLOOD=07S
PHCAL	00 WAVCAL	99	0000	1027440	-002247	L	3	20022	S	83051818	182300	000002	000000	000000		G E=10X	TFLOOD=05
PHCAL	00 TFLOOD	99	0000	1027440	-002247	H	1	01877	S	83051817	174900	000025	000000	000000		G NO COMMENTS	
PHCAL	00 WAVCAL	99	0000	1027440	-002247	L	1	01875	S	83051816	163500	000001	000000	000000		G E=10X	TFLOOD=25

PRO	OBJECT	CL	MAG	P.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT	
PHCAL	00 WAVCAL	99	0000	1027440	-002247	H	1	01876	S	83051817	170600 000016	000000 000000		G E=50X	TFLOOD=25
PHCAL	00 WAVCAL	99	0000	1027440	-002247	H	2	15964	S	83051820	200300 000016	000000 000000		G E=50X	TFLOOD=07
CCFLH	HD 91324	41	0490	1029250	-532740	H	2	16074	L	83060515	000000 000000	154300 003000		G E=95,C=2X,B=45	
HSFTS	HD 91465	26	0360	1030145	-612540	H	3	19611	L	83040219	000000 000000	193000 000100		G C=1.5X,B=55	
HSFTS	HD 91465	26	0360	1030145	-612540	H	3	20257	L	83061915	000000 000000	151900 000140		G C=3X,B=62	
HSFTS	HD 91465	26	0360	1030145	-612540	H	3	20256	L	83061914	000000 000000	143800 000100		G C=2X,B=45	
HSFTS	HD 91465	26	0360	1030145	-612540	H	3	19612	L	83040220	000000 000000	200300 000140		G C=3X,B=73	
OBFBS	HD 303067	20	0955	1033352	-575621	L	3	20306	L	83062418	000000 000000	183500 000200		G C=205,B=42	
OBFBS	HD 303067	20	0955	1033353	-575622	L	2	16221	L	83062321	000000 000000	214400 000130		G C=174,B=22	
OBFBS	HD 91943	23	0673	1033472	-575559	L	2	16227	L	83062419	000000 000000	190500 000008		G C=210,B=25	
OBFBS	00 T 65	23	0985	1033503	-575751	L	2	16248	L	83062618	000000 000000	181800 000240		G C=220,B=30	
OBFBS	00 T 65	23	0985	1033503	-575751	L	3	20324	L	83062618	000000 000000	182400 000300		G C=170,B=32	
OBFBS	HD 91969	21	0652	1033545	-575753	L	2	16249	L	83062619	000000 000000	190100 000008		G C=1X,B=25	
OBFBS	CP57 3521	23	0812	1034020	-575859	L	2	16247	L	83062617	000000 000000	171400 000035		G C=210,B=25	
OBFBS	CP57 3521	23	0812	1034020	-575859	L	3	20323	L	83062617	000000 000000	171900 000040		G C=125,B=18	
OBFBS	CP 57 3527	23	0895	1034033	-575905	L	3	20307	L	83062419	000000 000000	194000 000130		G C=165,B=19	
OBFBS	CP 57 3527	23	0895	1034033	-575905	L	2	16228	L	83062419	000000 000000	194500 000110		G C=210,B=25	
OBFBS	CP57 3528	23	1060	1034088	-575859	L	2	16246	L	83062616	000000 000000	160200 000600		G C=205,B=35	
OBFBS	CP57 3528	23	1060	1034088	-575859	L	3	20322	L	83062616	000000 000000	161400 000800		G C=180,B=35	
LGFEB	HD 92055	50	0480	1035050	-130726	L	3	20228	L	83061506	000000 000000	064600 016000		G B=32	
GHFFB	00 FE 34	16	1170	1036400	+432152	H	3	20125	L	83060207	000000 000000	070000 007000		G C=160,B=40	
CSFHJ	HD 92626	50	0710	1038418	-474549	L	2	16377	L	83071916	000000 000000	162900 002000		G C=205,B=85	
PHCAL	HD 93521	12	0700	1045336	+375004	L	1	01948	L	83070418	000000 000000	185900 000003		G C=200,B=31	
PHCAL	HD 93521	12	0700	1045336	+375004	L	1	01947	L	83070417	000000 000000	175800 000010		G C=205,B=31	
PHCAL	HD 93521	12	0700	1045336	+375004	L	1	01842	L	83040500	000000 000000	004100 000003		G C=190,B=32	
PHCAL	HD 93521	12	0700	1045336	+375004	L	1	01946	L	83070416	000000 000000	164400 000045		G C=200,B=32	
PHCAL	HD 93521	12	0700	1045336	+375004	L	2	15966	SL	83051821	211800 000009	211400 000003		G C=180,B=24	
PHCAL	HD 93521	12	0700	1045336	+375004	L	2	15684	L	83040900	000000 000000	005100 000003		G C=140,B=21	
PHCAL	HD 93521	12	0700	1045336	+375004	L	3	19683	L	83040900	000000 000000	005600 000003		G C=140,B=16	
PHCAL	HD 93521	12	0700	1045336	+375004	L	2	16289	L	83070319	000000 000000	190600 000003		G C=145,B=22	
PHCAL	HD 93521	12	0700	1045336	+375004	L	3	20375	L	83070319	000000 000000	191100 000003		G C=150,B=15	
PHCAL	HD 93521	12	0700	1045336	+375004	L	1	01945	L	83070415	000000 000000	155300 000003		G C=195,B=31	
PHCAL	HD93521	12	0699	1045340	375004	L	3	20050	LS	83052301	013608 000009	013140 000003	400	V 600$	
PHCAL	HD93521	12	0700	1045340	375004	L	1	01878	LS	83052301	012636 000009	012909 000003	502	V 502$	
FE131	NGC3393	84	1360	1046000	-245348	L	3	20148	L	83060422	000000 000000	224737 040000	356	V	
CCFLH	HD 94388	41	0520	1051026	-195209	H	2	16073	L	83060514	000000 000000	143200 003500		G E=94,C=255,B=40	
FM167	HD94910	26	0710	1054106	-601111	L	3	20149	L	83060523	000000 000000	230714 000800	771	V	
FM167	HD94910	26	0709	1054106	-601111	L	2	16079	LS	83060522	224012 000030	223358 000100	561	V 441$	
FM167	HD94910	26	0712	1054106	-601111	H	2	16080	L	83060523	000000 000000	232013 004500	561	V	
FM167	HD94910	26	0709	1054106	-601111	L	3	20157	L	83060604	000000 000000	040201 000400	501	V	
FM167	AG CAR-B	26	1400	1054122	-601103	L	2	16081	L	83060601	000000 000000	012045 015700	502	V	
QSFGK	X 1059+730	85	0000	1059084	+730247	L	3	20120	L	83060106	000000 000000	063900 027500		G C=60,B=50	
TTFJL	-34 7151	58	1040	1059303	-342610	H	2	15747	L	83041615	000000 000000	154800 004700		G C=180,B=122	
CCFEB	HD 95608	35	0440	1059397	+202653	H	3	20005	L	83051619	000000 000000	193100 001000		G C=1.5X,B=225	
CCFEB	HD 95608	35	0440	1059397	+202653	L	2	15959	SL	83051620	203200 000003	202800 000009		G C=2X,B=25	

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT	
CCFEB	HD 95608	35	0440	1059397	+202653	H	2	15958	L	83051619	000000 000000	192000 000500		G C=240,B=75	
CCFEB	HD 95608	35	0440	1059397	+202653	L	3	20006	SL	83051620	204100 000010	203700 000010		G C=185,B=33	
CCFEB	HD 95608	35	0440	1059397	+202653	H	3	20007	L	83051621	000000 000000	210800 000400		G C=225,B=130	
CBFPS	OOCW110+25	63	1600	1102584	+252242	L	3	20172	L	83060909	000000 000000	094600 004000		G E=54,C=37,B=26	
CBFPS	OOCW110+25	63	1600	1102584	+252242	L	2	16107	L	83060908	000000 000000	083800 006500		G E=106,C=80,B=35	
CBFPS	OOCW110+25	63	1600	1102584	+252242	L	3	20171	L	83060907	000000 000000	075300 004000		G E=38,C=43,B=22	
CBFPS	OOCW110+25	63	1600	1102584	+252242	L	2	16106	L	83060906	000000 000000	065100 005700		G E=120,C=81,B=32	
CBFPS	OOCW110+25	63	1600	1102584	+252242	L	3	20173	L	83060910	000000 000000	105000 004500		G E=58,C=48,B=29	
CBFPS	OOCW110+25	63	1600	1102584	+252242	L	2	16109	L	83060912	000000 000000	121800 003500		G E=73,C=75,B=32	
CBFPS	OOCW110+25	63	1600	1102584	+252242	L	2	16108	L	83060911	000000 000000	114000 004000		G E=69,C=77,B=31	
CBFPS	OOCW110+25	63	1600	1102584	+252242	L	3	20174	L	83060912	000000 000000	122700 004500		G E=70,C=43,B=32	
FE052	NGC3516	84	1301	1103228	725020	L	2	15905	L	83051105	000000 000000	052233 014000	354	V	
FE052	NGC3516	84	1291	1103228	725020	L	3	19957	L	83051100	000000 000000	005711 026000	342	V	
FE052	NGC 3516	84	1291	1103229	725022	L	3	19940	L	83050900	000000 000000	005306 026000	342	V	
FE052	NGC 3516	84	1292	1103229	725022	L	2	15897	L	83050905	000000 000000	051832 014400	354	V	
FE052	NGC 3516	84	1291	1103229	725022	L	3	19948	L	83051000	000000 000000	004632 030600	352	V	
SGFAU	HD 96919	25	0510	1106286	-614034	L	2	16491	L	83073118	000000 000000	180200 000007		G C=200,B=25	
SGFAU	HD 96919	25	0510	1106286	-614034	L	3	20553	L	83073117	000000 000000	175700 000028		G C=190,B=15	
MGFLH	HD 97334	44	0640	1109493	+360517	H	2	16312	L	83070714	000000 000000	141100 007000		G E=185,C=200,B=45	
PHCAL	OO TFLOOD	99	9999	1111270	+204751	H	3	19792	S	83042220	205300 000005	000000 000000		G B=119	
PHCAL	OO TFLOOD	99	9999	1111270	+204751	H	2	15799	S	83042219	192000 000007	000000 000000		G B=145	
PHCAL	OO WAVCAL	99	0000	1111270	+204751	H	1	01848	S	83042221	213800 000016	000000 000000		G E=50X,B=107	TFLOOD=25
PHCAL	OO WAVCAL	99	0000	1111270	+204751	L	1	01847	S	83042221	210600 000001	000000 000000		G E=10X,B=102	TFLOOD=25
PHCAL	OO WAVCAL	99	0000	1111270	+204751	L	2	15797	S	83042218	182400 000001	000000 000000		G E=10X,B=85	TFLOOD=07
PHCAL	OO WAVCAL	99	0000	1111270	+204751	H	3	19791	S	83042220	202500 000200	000000 000000		G E=50X,B=127	TFLOOD=05
PHCAL	OO TFLOOD	99	9999	1111270	+204751	H	1	01849	S	83042222	222100 000025	000000 000000		G B=105	
PHCAL	OO WAVCAL	99	0000	1111270	+204751	H	2	15798	S	83042218	185200 000016	000000 000000		G E=50X,B=145	TFLOOD=07
PHCAL	OO WAVCAL	99	0000	1111270	+204751	L	3	19790	S	83042219	195900 000002	000000 000000		G E=10X,B=100	TFLOOD=05
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	16115	L	83060921	000000 000000	210500 000130		G C=185,B=32	
HSFSA	BS 4359	30	0330	1111370	+154220	L	2	15947	L	83051421	000000 000000	213900 000005		G C=200,B=40	
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	19975	L	83051323	000000 000000	231800 001730		G C=6X,B=100	
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	15935	L	83051323	000000 000000	230400 000530		G C=3.5X,B=47	
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	19974	L	83051322	000000 000000	220800 000400		G C=1.5X,B=75	
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	15934	L	83051322	000000 000000	220100 000305		G C=2X,B=60	
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	15933	L	83051321	000000 000000	210900 000130		G C=205,B=40	
HSFSA	BS 4359	30	0330	1111370	+154220	L	3	19988	L	83051422	000000 000000	220400 000006		G C=160,B=58	
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	20180	L	83060921	000000 000000	213500 000500		G C=2X,B=42	
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	19973	L	83051321	000000 000000	210200 000220		G C=207,B=70	
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	20170	L	83060821	000000 000000	212200 001600		G C=6X,B=90	
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	16103	L	83060820	000000 000000	205300 000542		G C=3X,B=50	
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	20169	L	83060820	000000 000000	202000 001745		G C=6X,B=105	
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	15946	L	83051420	000000 000000	202700 000236		G C=2X,B=75	
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	19987	L	83051420	000000 000000	203400 000300		G C=2X,B=130	
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	20179	L	83060920	000000 000000	203300 000245		G C=188,B=32	
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	16114	L	83060920	000000 000000	200300 000348		G C=2X,B=40	

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	19972	L	83051320	000000	000000	200200	000250		G C=225,B=65
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	15932	L	83051320	000000	000000	201000	000130		G C=2,B=200
HSFSA	BS 4359	30	0330	1111370	+154220	H	3	20178	L	83060919	000000	000000	192800	000516		G C=2X,B=43
HSFSA	BS 4359	30	0330	1111370	+154220	H	2	16113	L	83060919	000000	000000	191500	000610		G C=3.5X,B=53
FM098	HD97895	24	0884	1112550	-291436	H	3	19796	L	83042304	000000	000000	041808	011000	501	V
CBFPS	DOX1114+18	63	1800	1114381	+181405	L	3	20181	L	83061006	000000	000000	065900	027000		G E=97,C=70,B=40
WDFCB	PG1123+189	37	1400	1123465	+185517	L	2	16163	L	83061421	000000	000000	210700	002500		G B=26
QSFRR	OO MRK423	84	1400	1124075	+353116	L	3	20164	SL	83060806	071000	041000	064200	041000		G E=107,C=100,B=73
CBENM	HD 100213	12	0820	1128561	-652800	H	3	19651	L	83040522	000000	000000	224200	009000		G C=2-3X,B=95
CBENM	HD 100213	12	0820	1128561	-652800	H	3	19642	L	83040511	000000	000000	110600	006000		G C=210,B=46
CBENM	HD 100213	12	0820	1128561	-652800	H	3	19643	L	83040512	000000	000000	123200	007000		G C=220,B=51
CBENM	HD 100213	12	0820	1128561	-652800	L	3	19641	L	83040510	000000	000000	103900	000020		G C=105,B=22
CSFMJ	BD-13 3407	50	0880	1133109	-141900	L	2	16376	L	83071915	000000	000000	150700	004500		G C=2X,B=130
HSFJH	OOFEIGE 46	16	0000	1134540	+142710	L	3	20342	L	83062918	000000	000000	183300	001200		G C=225,B=32
HSFJH	OOFEIGE 46	16	0000	1134540	+142710	L	2	16264	L	83062919	000000	000000	190500	001820		G C=200,B=33
EHFWS	NG 3783	84	1290	1136330	-372741	L	3	20001	L	83051613	000000	000000	134200	003000		G E=131,C=66,B=37
EHFWS	OOBACKGRND	07	9999	1136330	-372741	H	3	20000	L	83051601	000000	000000	014700	067000		G B=110
EHFWS	NG 3783	84	1290	1136330	-372741	H	1	01870	L	83051601	000000	000000	010300	074500		G E=1.1X,C=180,B=100
FE139	NGC 3783	84	9999	1136330	-372741	E	9	01433	2	83051600	000000	000000	000000	000000		V FES FOR LWP 1870
QSFRR	OO MKN 744	84	1550	1137046	+321112	L	3	20159	SL	83060606	065100	024000	065000	024000		G C=80,B=57
IGFBS	HD 102475	23	0850	1144522	-620928	H	3	20326	L	83062620	000000	000000	204800	006000		G C=210,B=45
OBFTS	HD 102776	26	0450	1147143	-633047	H	3	20360	L	83070215	000000	000000	153400	000128		G C=225,B=40
FA082	NGC3918	70	0936	1147490	-565416	H	3	19888	L	83050300	000000	000000	003313	019500	182	V
FE135	Q1148+546	85	9999	1148425	545412	L	2	16290	L	83070321	000000	000000	210506	003000	002	V SERENDIPITY
FE135	Q1148+546	85	1600	1148425	545412	L	3	20376	L	83070320	000000	000000	203626	043100	303	V
FE135	Q1148+546	85	9999	1148425	545412	L	2	16291	L	83070322	000000	000000	220209	005000	003	V SERENDIPITY
FIT00	NOVA MUS	55	1011	1149350	-665543	L	2	16148	L	83061305	000000	000000	050458	001300	572	V
FIT00	NOVA MUS	55	1013	1149350	-665543	L	3	20212	L	83061305	000000	000000	053427	001300	561	V
FIT00	NOVA MUS	55	1006	1149350	-665543	L	2	16147	LS	83061303	040408	000300	033813	002000	793	V 343$
FIT00	NOVA MUS	55	1010	1149350	-665543	H	3	20211	L	83061304	000000	000000	041109	005000	331	V
FIT00	NOVA MUS	55	1007	1149350	-665543	L	3	20210	LS	83061302	033151	000200	025837	003000	781	V 331$
FI076	NOVA MUS	55	1011	1149351	-665543	H	3	19658	L	83040608	000000	000000	081727	001200	031	V
FIT00	NOVA MUS	55	1029	1149351	-665543	L	2	15851	LS	83050101	015434	000330	012458	002000	682	V 352$
FIT00	NOVA MUS	55	1025	1149351	-665543	H	3	19865	L	83050102	000000	000000	020244	006000	041	V
FIT00	NOVA MUS	55	1026	1149351	-665543	H	2	15852	L	83050103	000000	000000	030800	003000	231	V
FI076	NOVA MUS	55	1013	1149351	-665543	L	2	15664	LS	83040607	081103	000300	073828	001500	582	V
FI076	NOVA MUS	55	1017	1149351	-665543	L	3	19657	LS	83040606	073214	000300	065742	003000	481	V
FIT00	NOVA MUS	55	1023	1149351	-665543	L	3	19864	LS	83050100	011708	000400	003746	003500	581	V 161$
FIT00	NOVA MUS	55	1022	1149351	-665543	L	3	19866	L	83050103	000000	000000	034240	000300	051	V
HEFES	001151-029	17	1630	1151414	-025524	L	3	19763	L	83041918	000000	000000	181900	004500		G C=180,B=85
HEFES	001151-029	17	1630	1151414	-025524	L	2	15777	L	83041919	000000	000000	190700	004500		G C=125,B=50
HSFJH	BD+10 2357	16	0060	1153227	+100730	L	3	20341	L	83062917	000000	000000	173300	000035		G C=195,B=17
HSFJH	BD+10 2357	16	0060	1153227	+100730	L	2	16263	L	83062917	000000	000000	173700	000100		G C=205,B=26
BLFAG	OOSKY BKGD	07	9999	1156581	+293124	L	2	16131	L	83061107	000000	000000	071700	012000		G B=45
BLFAG	Q 1156+295	85	1600	1156581	+293124	L	3	20195	L	83061106	000000	000000	065400	019000		G C=90,B=42

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
HEFES	001159-035	64	1470	1159122	-032856	L	2	15768	L	83041819	000000	000000	192100	003000		G C=1.5X,B=140
HEFES	001159-035	64	1470	1159122	-032856	L	3	19752	L	83041818	000000	000000	185700	001200		G C=225,B=150
XQEMS	Q 1202+281	85	0000	1202089	+281053	L	3	19721	L	83041412	000000	000000	120200	015000		G E=127,C=90,B=52
SGFAU	HD 105056	13	0750	1203128	-691741	L	2	16492	L	83073118	000000	000000	185900	000013		G C=190,B=22
SGFAU	HD 105056	13	0750	1203128	-691741	L	3	20554	L	83073118	000000	000000	185500	000018		G C=180,B=15
HZFRG	PG1206+459	85	1580	1206266	+455717	L	3	19805	L	83042410	000000	000000	103800	043500		G C=130,B=90
HZFRG	PG1206+459	85	1580	1206266	+455717	L	2	15796	L	83042210	000000	000000	104400	042500		G E=241,C=170,B=78
EHFWS	NG 4151	84	1120	1208001	+394101	L	1	01874	L	83051815	000000	000000	152600	002000		G E=222,C=170,B=50
EHFWS	NG 4151	84	1120	1208001	+394101	L	3	20021	L	83051815	000000	000000	150000	002000		G E=139,C=60,B=25
EHFWS	NG 4151	84	1120	1208004	+394102	L	3	20012	L	83051715	000000	000000	152900	001700		G E=132,C=95,B=51
EHFWS	NG 4151	84	1120	1208004	+394102	L	3	20002	L	83051615	000000	000000	154700	001200		G E=160,C=120,B=90
FE045	NGC4156	84	1310	1208180	394502	L	2	16171	L	83061523	000000	000000	230351	040000	209	V
HCFEB	OO S MUS	53	0620	1210042	-695226	L	3	20026	SL	83051908	090000	000200	085000	000400		G C=200,B=18
HCFEB	OO S MUS	53	0620	1210042	-695226	H	2	15975	L	83051909	000000	000000	091000	015000		G C=225,B=65
OBFTS	HD 106490	20	0310	1212286	-582815	H	3	20361	L	83070216	000000	000000	160500	000020		G C=3X,B=61
EHFCB	OONGC 4244	80	9999	1215039	+380457	L	3	20476	SL	83071603	105000	088200	035700	088200		G B=112
EHFCB	OO 4244	80	9999	1215039	+380457	L	2	16345	SL	83071603	104000	087700	035900	087700		G B=105
FE228	NGC4244	80	9999	1215040	380440	E	9	01458	2	83071520	000000	000000	203000	000040		V FIELD FOR NGC4244 ORBSERVING
OBFTS	HD 106911	22	0440	1215221	-790205	H	3	20358	L	83070214	000000	000000	142400	000242		G C=220,B=40
FA114	NGC4361	70	1288	1221540	-183100	H	3	20440	L	83071020	000000	000000	204710	042000	474	V
FA084	NGC4361	70	1281	1221548	-183028	L	3	19903	LS	83050501	012212	000800	011226	000400	521	V 521$
FA084	NGC4361	70	1287	1221548	-183028	L	2	15879	L	83050501	000000	000000	013728	000900	501	V
FC221	HD108570	44	0645	1225492	-560741	H	1	01955	L	83072402	000000	000000	023928	006300	432	V
QSFMS	OO 3C 273	85	1250	1226333	+021941	L	2	15739	L	83041511	000000	000000	112500	001500		G C=115,B=28
QSFMS	OO 3C 273	85	1250	1226333	+021941	L	3	19731	L	83041511	000000	000000	110200	001500		G E=133,C=60,B=23
CCFEB	HD 108722	41	0550	1226570	+242306	L	3	20031	L	83051923	000000	000000	232100	003000		G E=52,C=5X,B=22
CCFEB	HD 108722	41	0550	1226570	+242306	L	3	20233	L	83061521	000000	000000	211200	003500		G E=69,C=2X,B=22
CCFEB	HD 108722	41	0550	1226570	+242306	H	2	15978	L	83051922	000000	000000	225100	002500		G C=185,B=34
QSFCW	Q 1229+204	85	1470	1229330	+202602	L	2	16071	L	83060506	000000	000000	064000	026000		G E=138,C=195,B=50
QSFCW	Q 1229+204	85	1470	1229330	+202602	L	2	16065	L	83060411	000000	000000	110100	014512		G E=141,C=140,B=45
QSFCW	Q 1229+204	85	1470	1229331	+202603	L	3	20142	L	83060406	000000	000000	065100	024000		G E=1.2X,C=100,B=51
FM126	HD109399	23	0776	1232116	-722629	H	2	16216	L	83062301	000000	000000	011915	003000	702	V
FM126	HD109399	23	0771	1232116	-722629	H	3	20290	L	83062300	000000	000000	001959	005500	701	V
IGFBS	HD 109399	23	0760	1232179	-722629	H	3	20308	L	83062420	000000	000000	205100	005500		G C=1.5X,B=55
FE045	NGC4593	84	1344	1237047	-050416	L	3	20237	L	83061702	000000	000000	020415	022300	331	V
FE045	NGC4593	84	1342	1237047	-050416	L	2	16177	L	83061623	000000	000000	232022	016000	455	V
CCFEB	HD 110317	41	0600	1238402	-124426	L	3	20232	L	83061519	000000	000000	192400	004000		G C=10X,B=126
CCFEB	HD 110317	41	0600	1238402	-124426	H	2	16170	L	83061520	000000	000000	201300	002000		G C=185,B=54
AFFJL	HD 110379	40	0280	1239074	-011032	L	3	19712	L	83041220	000000	000000	204500	000700		G E=132,C=5X,B=59
AFFJL	HD 110379	40	0280	1239074	-011032	H	2	15721	L	83041220	000000	000000	205800	000400		G C=2X,B=50
FM098	FEIGE67	16	1184	1239216	174900	H	3	20488	L	83072022	000000	000000	221230	018000	502	V
OBFTS	HD 110879	20	0330	1243115	-675005	H	3	20359	L	83070215	000000	000000	150000	000028		G C=2X,B=50
FI095	HD 111226	22	0656	1245138	-243446	H	2	16192	L	83062023	000000	000000	231815	001500	502	V
FI095	HD111226	22	0654	1245138	-243446	H	3	20277	L	83062022	000000	000000	224421	003000	701	V
SNFRK	OOSN N4753	56	1260	1249471	-005553	L	2	15709	L	83041111	000000	000000	112300	020000		G C=120,B=50

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
FE022	SNEVANS 83	56	1300	1249472	-005554	L	2	15732	L	83041404	000000	000000	041554	030000	317	V	BLIND OFFSET
SNFRK	NG4753 SN	56	1320	1249472	-005553	L	2	15776	L	83041911	000000	000000	111600	028531		G	C=140,B=73
SNFRK	OOSN 1983	56	1300	1249472	-005553	L	2	15679	L	83040815	000000	000000	150600	008000		G	C=100,B=40
FE022	SNEVANS 83	56	9999	1249472	-005554	L	2	15810	L	83042504	000000	000000	040902	033400	307	V	
FE022	SNEVANS 83	56	1275	1249474	-005554	L	2	15687	L	83040903	000000	000000	080523	009000	202	V	
FE022	SNEVANS 83	56	1269	1249474	-005554	L	3	19674	L	83040805	000000	000000	055129	000600	110	V	
FE022	SNEVANS 83	56	1271	1249474	-005554	L	2	15677	L	83040804	000000	000000	042456	005000	302	V	
FE022	SNEVANS 83	56	1271	1249474	-005554	E	9	01411	2	83040804	042000	000000	000000	000000		V	FIELD FOR SN EVANS 83
NPFJK	OOLT 5	70	0010	1253078	+260944	L	2	15883	L	83050521	000000	000000	214400	000500		G	E=130,C=90,B=30
NPFJK	OOLT 5	70	0010	1253078	+260944	H	2	15882	L	83050520	000000	000000	201400	003500		G	E=104,C=52,B=50
NPFJK	OOLT 5	70	0010	1253078	+260944	L	3	19909	L	83050521	000000	000000	210200	000500		G	C=95,B=27
NPFJK	OOLT 5	70	0010	1253078	+260944	H	2	15884	L	83050522	000000	000000	222000	008500		G	E=154,C=120,B=77
CCFEB	HD 112374	41	0680	1253483	-261121	L	2	16168	SL	83061517	174200	000300	171300	000600		G	C=170,B=31
CCFEB	HD 112374	41	0680	1253483	-261121	L	3	20231	L	83061517	000000	000000	175100	004000		G	B=93
CCFEB	HD 112374	41	0680	1253483	-261121	L	2	16169	L	83061518	000000	000000	183700	002500		G	C=3X,B=65
WDFFB	OO 1254+22	37	1340	1254350	+221812	H	3	20369	L	83070304	000000	000000	044300	036200		G	C=170,B=80
CCFDS	BD+362322A	48	1060	1255190	+352948	L	2	16010	L	83052417	000000	000000	173000	000900		G	B=40
FE113	NGC4889	81	1377	1257436	281446	L	3	19748	L	83041803	000000	000000	032000	038700	203	V	
WDFJS	HD 113158	66	0850	1259133	-193018	L	3	19898	SL	83050408	090700	002000	083200	003000		G	C=255,B=25
AFFJL	HD 114378	41	0430	1307333	+174736	L	3	19737	L	83041620	000000	000000	200800	001500		G	E=162,C=5X,B=125
AFFJL	HD 114378	41	0430	1307333	+174736	L	3	19738	L	83041621	000000	000000	211700	001200		G	E=168,C=5X,B=155
AFFJL	HD 114378	41	0430	1307333	+174736	H	2	15751	L	83041620	000000	000000	204100	001200		G	E=209,C=2X,B=90
QSFMS	Q 1308+326	87	1530	1308075	+323640	L	3	19732	L	83041512	000000	000000	124200	015000		G	C=63,B=48
FM112	HD 114444	23	1040	1309067	-750301	H	3	20067	L	83052500	000000	000000	004550	042000	713	V	
GHFFB	OO FE 80	16	1130	1317360	+122000	L	3	20126	L	83060208	000000	000000	085100	000100		G	C=105,B=20
DBFTS	HD 116072	21	0650	1319229	-604337	H	3	20362	L	83070216	000000	000000	163900	000735		G	C=160,B=50
IGFGB	SA 82800	31	0710	1319370	+250837	H	2	16172	L	83061606	000000	000000	063200	014000		G	C=2X,B=55
NJFCB	NG 5128	86	0000	1322316	-424421	L	2	15820	SL	83042610	105900	029600	105800	029600		G	C=110,B=74
NJFCB	NG 5128	86	0000	1322333	-424520	L	3	19827	L	83042622	000000	000000	220500	003000		G	B=152
NJFCB	NG 5128	86	0000	1322355	-424502	L	3	19826	L	83042620	000000	000000	203500	004500		G	B=218
NJFCB	NG 5128	86	0000	1322367	-424453	L	3	19822	L	83042615	000000	000000	155200	001500		G	E=82,C=45,B=45
NJFCB	NG 5128	86	0000	1322367	-424452	L	3	19824	L	83042618	000000	000000	180000	003000		G	B=123
NJFCB	NG 5128	86	0000	1322367	-424453	L	3	19821	SL	83042610	105700	026500	105600	026500		G	E=4-5X,C=73,B=72
NJFCB	NG 5128	86	0000	1322367	-424453	L	3	19828	L	83042623	000000	000000	233400	013500		G	B=58
NJFCB	NG 5128	86	0000	1322367	-424452	L	3	19825	L	83042619	000000	000000	190700	004500		G	B=142
NJFCB	NG 5128	86	0000	1322381	-424452	L	3	19823	L	83042616	000000	000000	165300	003000		G	B=120
IGFGB	SA 82825	30	0580	1322436	+240652	H	2	16272	L	83070106	000000	000000	061100	006000		G	C=2X,B=58
EGETT	NG 5135	88	1280	1322565	-293424	L	2	15636	L	83040116	000000	000000	161700	009000		G	C=1600,B=90
EGETT	NG 5135	88	1280	1322565	-293424	L	3	19603	L	83040110	000000	000000	105800	031500		G	E=165,C=122,B=75
FE067	PKS1327-20	85	9999	1327245	-204048	L	3	20061	L	83052400	000000	000000	005505	041200	213	V	
FC201	HD117555	45	0849	1328246	242924	L	2	15990	L	83052100	000000	000000	003354	000300	342	V	
FKFJL	HD 117555	45	0820	1328246	+242923	H	2	15718	L	83041215	000000	000000	152600	006000		G	E=141,C=100,B=45
FKFJL	HD 117555	45	0820	1328246	+242923	D	9	01412	L	83041201	000000	000000	011900	016000		G	NO COMMENTS
FC201	HD117555	45	0851	1328246	242924	L	3	20039	L	83052100	000000	000000	004027	016000	351	V	
FKFJL	HD 117555	45	0820	1328246	+242923	H	3	19711	L	83041206	000000	000000	063900	070000		G	E=161,C=105,B=105

PRO	OBJECT	CL	MAG	R A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL (1)	EXP.SMALL (2)	EXP.LARGE (1)	EXP.LARGE (2)	ECC	COMMENT
CCFEG	HD 117555	45	0820	1328247	+242925	L	3	20517	L	83072705	000000	000000	052900	012000		G E=150,C=55,B=34
CCFEG	HD 117555	45	0820	1328247	+242925	L	2	16443	SL	83072705	051200	000600	050100	000400		G E=192,C=80,B=25
FC201	HD117555	45	0851	1328247	242925	L	3	20032	L	83052000	000000	000000	005244	013000	341	V
CCFEG	HD 117555	45	0820	1328247	+242925	L	2	16444	SL	83072706	064700	000900	063600	000500		G E=210,C=85,B=25
FC201	HD117555	45	0852	1328247	242925	L	2	15981	L	83052003	000000	000000	032610	001500	483	V
FKFJL	HD 117555	45	0820	1328247	+242924	L	2	15722	L	83041222	000000	000000	222300	000500		G E=165,C=120,B=80
FKFJL	HD 117555	45	0820	1328247	+242924	L	2	15715	L	83041122	000000	000000	221700	000500		G E=187,C=145,B=90
CCFEG	HD 117555	45	0820	1328247	+242925	H	2	16445	L	83072708	000000	000000	081000	006000		G E=95,C=80,B=40
FC201	HD117555	45	0851	1328247	242925	L	2	15979	L	83052000	000000	000000	004701	000200	342	V
FA153	HD117555	45	0855	1328247	242925	L	2	15991	L	83052103	000000	000000	032341	001500	582	V
CCFEG	HD 117555	45	0820	1328247	+242925	L	3	20522	L	83072807	000000	000000	074600	010000		G E=140,C=50,B=35
CCFEG	HD 117555	45	0820	1328247	+242925	L	2	16459	L	83072807	000000	000000	073000	000600		G E=243,C=90,B=22
FC201	HD117555	45	0853	1328247	242925	L	2	15980	L	83052001	000000	000000	013804	000800	472	V
FA042	GD325	64	1424	1333589	484405	L	3	20480	L	83071623	000000	000000	234805	012000	401	V
FET00	SN EVANS-M	56	9999	1334016	-293847	E	9	01457	2	83071421	000000	000000	214500	004000		V FIELD FOR SN EVANS.THE TARGET
FET00	SN EVANS-M	56	1153	1334016	-293847	L	1	01950	L	83071421	000000	000000	212809	002500	300	V
OD15K	OOSN M 83	56	1150	1334016	-293847	L	2	16419	L	83072409	000000	000000	094800	011000		G C=120,B=35
FE022	SUPERNOVA	56	9999	1334016	-293847	E	9	01449	2	83070420	000000	000000	203500	004000		V FIELD FOR SN EVANS 1983
FET00	SN EVANS M	56	1147	1334016	-293847	L	2	16378	L	83071920	000000	000000	203643	008000	402	V
SNFRK	OONGC 5236	56	1180	1334016	-293847	L	2	16334	L	83071210	000000	000000	105400	004700		G C=160,B=33
OD15K	NG 5236	56	1150	1334016	-293847	L	3	20507	L	83072404	000000	000000	044400	030000		G C=87,B=60
SNFRK	OO SN M83	56	1170	1334016	-293847	L	3	20470	L	83071509	000000	000000	095100	010000		G C=110,B=78
SNFRK	OO SN M83	56	1170	1334016	-293847	H	1	01951	L	83071505	000000	000000	054600	068000		G C=100,B=110
FET00	SN M83	56	1201	1334017	-293848	L	2	16319	L	83070821	000000	000000	211518	005500	403	V
FET00	SN EVANS	56	1254	1334017	-293848	L	2	16306	L	83070520	000000	000000	203554	008000	404	V
FET00	SN IN M83	56	1167	1334017	-203848	L	3	20448	L	83071101	000000	000000	012925	013800	302	V
FET00	SN EVANS M	56	1149	1334017	-293848	L	3	20484	L	83071921	000000	000000	215956	022800	301	V
FET00	SN EVANS	56	1247	1334017	-293848	L	3	20390	L	83070522	000000	000000	221141	025000	302	V
FET00	SN EVANS M	56	1203	1334017	-293848	L	3	20546	L	83073023	000000	000000	235211	023500	302	V
FET00	SN IN M83	56	1168	1334017	-203848	L	2	16332	L	83071100	000000	000000	004204	004000	402	V
FE022	SN EVANS	56	1284	1334017	-293848	L	2	16293	L	83070420	000000	000000	205713	003000	301	V
FE022	SN EVANS	56	1284	1334017	-293848	L	2	16294	L	83070422	000000	000000	223233	008700	303	V
FET00	SN EVANS	56	1248	1334017	-293848	L	2	16307	L	83070502	000000	000000	022623	007700	403	V
SNFRK	NGC 5236	56	1230	1334017	-293948	L	2	16309	L	83070704	000000	000000	045100	006000		G C=145,B=27
FET00	SN M83	56	1195	1334017	-293848	L	3	20419	L	83070822	000000	000000	221817	016000	302	V
FET00	SN EVANS M	56	1200	1334017	-293848	L	2	16485	L	83073020	000000	000000	204633	018000	305	V
SNFRK	NGC 5236	56	1230	1334017	-293948	L	3	20412	L	83070705	000000	000000	055700	024000		G C=90,B=50
FE022	SN EVANS	56	1280	1334017	-293848	L	3	20380	L	83070421	000000	000000	213307	005500	200	V
SNFRK	OONGC 5236	56	1180	1334017	-293848	L	3	20449	L	83071205	000000	000000	053300	031500		G C=130,B=75
SNFRK	NGC 5236	56	1230	1334020	-293845	D	9	01450	L	83070704	000000	000000	044100	002000		G NO COMMENT
SNFRK	NGC 5236	56	1230	1334021	-293846	L	2	16310	L	83070710	000000	000000	100300	009000		G C=200,B=40
FE182	NGC 5236	80	1135	1334110	-293639	H	1	01929	L	83062922	000000	000000	225147	041200	303	V
FE019	MCG0532052	88	1460	1334366	-324513	L	2	16019	L	83052804	000000	000000	043316	019000	304	V
FE019	MCG0532052	88	1460	1334366	-324513	L	3	20083	L	83052801	000000	000000	010936	020000	331	V
GHFFB	OO FE 86	28	1010	1336060	+293700	H	3	20127	L	83060209	000000	000000	093400	024500		G C=205,B=72

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
IGFBS	HD 119069	23	0843	1333530	-453558	H	3	20300	L	83062320	000000	000000	203500	003000		G	C=230,B=43
FM126	HD119078	10	0965	1339342	-670858	H	3	20280	L	83062123	000000	000000	233121	037600	773	V	
FA141	HD119921	30	0523	1344009	-360009	H	2	16128	L	83061102	000000	000000	024538	001200	502	V	
FA141	HD119921	30	0523	1344009	-360009	H	3	20192	L	83061103	000000	000000	030713	003000	701	V	
FS118	SATURN	03	9999	1345030	-081030	L	3	20426	L	83070922	000000	000000	223746	004000	831	V	
PHCAL	HD120315	21	0190	1345340	493344	H	2	16267	L	83063022	000000	000000	225456	000006	502	V	
PHCAL	HD120315	21	0189	1345340	493344	H	1	01923	L	83062900	000000	000000	005735	000005	502	V	
PHCAL	HD120315	21	0190	1345340	493344	H	3	20336	L	83062901	000000	000000	010142	000006	500	V	
PHCAL	HD 120315	21	0180	1345343	+493344	H	3	19916	L	83050620	000000	000000	204100	000006		G	C=180,B=31
PHCAL	HD 120315	21	0180	1345343	+493344	H	1	01944	L	83070415	000000	000000	151200	000005		G	C=220,B=42
PHCAL	HD 120315	21	0180	1345343	+493344	H	3	20374	L	83070318	000000	000000	180600	000006		G	C=180,B=32
PHCAL	HD 120315	21	0180	1345343	+493344	H	2	15890	L	83050722	000000	000000	224200	000006		G	C=220,B=31
PHCAL	HD 120315	21	0180	1345343	+493344	H	2	16288	L	83070318	000000	000000	180200	000006		G	C=220,B=32
PHCAL	HD 120315	21	0180	1345343	+493344	H	1	01861	L	83050620	000000	000000	203700	000005		G	C=220,B=42
FE112	A1795	81	1450	1346340	265028	L	3	20514	L	83072520	000000	000000	205056	018000	221	V	
FE112	A1795	81	1450	1346340	265028	L	3	20515	L	83072600	000000	000000	002436	020300	232	V	
FM098	HD120958	21	0769	1350290	-384840	H	3	19797	L	83042306	000000	000000	065522	002800	500	V	
FM098	HD120958	21	0769	1350290	-384840	H	2	15801	L	83042307	000000	000000	072618	001800	402	V	
QSFWS	DOMARK 279	84	1440	1351535	+693312	L	3	19800	L	83042319	000000	000000	191800	006000		G	E=107,C=65,B=35
QSFWS	DOMARK 279	84	1440	1351536	+693313	L	2	15803	L	83042317	000000	000000	173100	010000		G	E=189,C=140,B=41
XGFGR	X 1352+183	85	1550	1352123	+181959	L	2	16428	L	83072504	000000	000000	043000	027000		G	C=140,B=60
QSFGK	X 1352+182	85	0000	1352124	+181959	L	3	20112	L	83053108	000000	000000	081700	024000		G	E=172,C=105,B=65
OBFTS	HD 121263	20	0310	1352245	-470235	H	3	20363	L	83070217	000000	000000	172100	000010		G	C=1.2X,B=43
FS246	COMET TEMP	06	1410	1352336	-130508	L	2	16372	L	83071901	000000	000000	011005	012000	134	V	EXPOS. ON NUCLEUS//01:10:05/0
FC221	HD121416	46	0613	1353128	-462050	L	1	01961	L	83072503	000000	000000	032729	000200	322	V	
FA013	COD-398581	22	1003	1354422	-394408	L	2	15699	L	83041007	000000	000000	073237	003000	703	V	NGC 5367 STAR 1 (N+S)
FA013	COD-398581	22	1001	1354422	-394408	L	3	19696	L	83041008	000000	000000	080830	005000	700	V	NGC 5367 STAR 1 N+SS)
FA013	COD-398581	22	0995	1354422	-394408	L	2	15700	L	83041009	000000	000000	090230	002900	703	V	NGC 5367 STAR 1 N+SS)
FA013	COD-398581	22	1010	1354422	-394408	L	2	15698	L	83041006	000000	000000	063402	001500	503	V	NGC 5367 STAR 1(N+S)
FA013	COD-398581	22	1002	1354422	-394408	L	3	19695	L	83041007	000000	000000	070134	002400	600	V	NGC 5367 STAR 1(N+S)
FA013	COD-398583	22	1029	1354551	-394944	L	2	15697	L	83041004	000000	000000	045730	000730	502	V	NGC 5367 STAR 2
FA013	COD-398583	22	1032	1354551	-394944	L	3	19692	L	83041003	000000	000000	031259	003000	500	V	NGC 5367 STAR 2
FA013	COD-398583	22	1029	1354551	-394944	L	3	19693	L	83041004	000000	000000	042654	001500	500	V	NGC 5367 STAR 2
FA013	COD-398583	22	1027	1354551	-394944	L	2	15695	L	83041002	000000	000000	025106	001500	602	V	NGC 5367 STAR 2
FA013	COD-398583	22	1030	1354551	-394944	L	3	19694	L	83041005	000000	000000	052419	003500	700	V	NGC 5367 STAR 2
FA013	COD-398583	22	1030	1354551	-394944	L	2	15696	L	83041003	000000	000000	034731	003500	802	V	NGC 5367 STAR 2
OBFTS	HD 121743	20	0400	1355133	-415127	H	3	20260	L	83061917	000000	000000	170900	000120		G	C=3X,B=67
FM098	HD121983	24	0811	1356470	-331749	H	3	19798	L	83042308	000000	000000	080843	009500	701	V	
WRFWK	NG 5430 SE	88	1500	1359100	+593353	L	2	16346	L	83071613	000000	000000	132800	006000		G	C=100,B=40
WRFWK	NG 5430 SE	88	1500	1359100	+593353	L	3	20478	L	83071614	000000	000000	144300	015000		G	C=140,B=85
WRFWK	NG 5430 SE	88	1500	1359100	+593353	L	2	16347	L	83071617	000000	000000	171800	014500		G	C=120,B=45
WRFWK	NG 5430 SE	88	1500	1359100	+593353	L	3	20477	L	83071612	000000	000000	122600	006000		G	C=85,B=38
FI240	H1405-45	59	1550	1405582	-450306	L	2	15818	L	83042604	000000	000000	043556	005100	332	V	
FI240	H1405-45	59	1550	1405582	-450306	L	3	19819	L	83042605	000000	000000	053700	010100	331	V	
FI240	H1405-45	59	1550	1405582	-450306	L	3	19818	L	83042602	000000	000000	025056	010100	331	V	

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
FE135	1407+265	85	1570	1407076	263229	L	3	19858	L	83043003	000000	000000	031101	035600	332	V
MLFJL	HD 124897	47	0010	1413227	+192630	H	2	15753	L	83041623	000000	000000	231900	000300		G E=2.5X,C=185,B=45
PHCAL	DO NULL	99	0000	1413227	+192630	H	2	15993	S	83052110	103800	000000	000000	000080		G B=23
MLFJL	HD 124897	47	0010	1413227	+192630	H	2	15752	L	83041622	000000	000000	224500	000100		G E=248,C=95,B=35
LGFTA	HD 124897	47	0010	1413228	+192631	H	3	20844	L	83052209	000000	000000	095900	000080		G EXP 1290 MIN
LGFTA	HD 124897	47	0010	1413228	+192631	H	2	15997	L	83052120	000000	000000	205500	000045		G E=162,C=180,B=22
LGFTA	HD 124897	47	0010	1413228	+192631	H	2	15998	L	83052121	000000	000000	212800	000330		G E=3X,C=170,B=27
LGFTA	HD 124897	47	0010	1413228	+192631	H	2	15999	L	83052122	000000	000000	220700	005000		G E=40X,C=10X,B=60
LGFTA	HD 124897	47	0010	1413228	+192631	F	9	01436	L	83052122	000000	000000	225900	016000		G NO COMMENTS
FC062	HD124897	47	9999	1413228	192631	E	9	01437	2	83052206	000000	000000	061230	016000		V SWP20844,SWLA
FM126	HD124979	12	0868	1414512	-511624	H	3	20291	L	83062302	000000	000000	023700	019000	702	V
FST00	NGC5548	84	1314	1415432	252200	L	2	15912	L	83051207	000000	000000	072509	002000		V WRONG OBJECT NOT SPECTRUM VI
FE070	NGC 5548	84	1353	1415435	252201	L	2	15949	L	83051501	000000	000000	010050	010000	564	V
FE070	NGC 5548	84	1351	1415435	252201	L	3	19991	L	83051506	000000	000000	060933	009800	350	V
FE070	NGC 5548	84	1355	1415435	252201	L	3	19990	L	83051502	000000	000000	024515	010000	350	V
FE070	NGC 5548	84	1353	1415435	252201	L	2	15950	L	83051504	000000	000000	043006	009500	564	V
QSFCW	PG1416-129	85	1520	1416212	-125657	L	2	16072	L	83060511	000000	000000	114300	013000		G B=40
FC221	HD125455	46	0778	1416598	-045514	L	1	01956	L	83072420	000000	000000	203805	001000	552	V
FC221	HD125595	46	0926	1418227	-400852	L	1	01960	L	83072501	000000	000000	015438	005000	442	V
IGFGB	SA 120434	30	0510	1421419	+060246	H	3	20222	L	83061407	000000	000000	073700	008000		G C=3X,B=73
IGFGB	SA 120434	30	0510	1421419	+060246	H	2	16159	L	83061407	000000	000000	070200	003000		G C=2X,B=48
IGFGB	SA 120453	30	0770	1423246	+050456	H	2	16173	L	83061609	000000	000000	093800	025000		G C=1.5X,B=105
AFFJL	HD 126660	41	0410	1423296	+520452	H	2	15723	L	83041223	000000	000000	234100	001000		G E=180,C=1.5X,B=65
HEFES	PG1424+535	17	1620	1424149	+532852	L	3	19767	L	83042001	000000	000000	011100	003500		G C=140,B=25
HEFES	PG1424+535	17	1620	1424149	+532852	L	2	15780	L	83042000	000000	000000	002900	004000		G C=95,B=30
WDFGW	OO L19-2	37	1380	1425240	-810700	L	3	20443	L	83071112	000000	000000	122400	012000		G C=86,B=85
WDFGW	OO L19-2	37	1380	1425240	-810700	L	2	16329	L	83071111	000000	000000	113900	007000		G C=40,B=40
XGFCB	X 1426+015	85	0000	1426000	+013000	L	3	20084	L	83052808	000000	000000	085000	012000		G E=223,C=85,B=35
XGFCB	X 1426+015	59	0000	1426336	+013027	L	3	20076	L	83052614	000000	000000	145700	005000		G E=125,C=95,B=35
XGFCB	X 1426+015	59	0000	1426337	+013028	L	2	16020	L	83052810	000000	000000	105200	012000		G C=160,B=38
XGFCB	X 1426+015	85	0000	1426337	+013028	L	3	20072	L	83052519	000000	000000	193900	001000		G E=50,C=40,B=20
XGFCB	X 1426+015	85	0000	1426337	+013028	L	2	16015	L	83052519	000000	000000	195400	002000		G C=90,B=32
OBFTS	HD 127381	20	0460	1429140	-501412	H	3	20261	L	83061917	000000	000000	174100	000150		G C=2X,B=63
HSFTS	HD 127972	26	0260	1432193	-415622	H	3	19614	L	83040221	000000	000000	211200	000025		G C=3X,B=66
HSFTS	HD 127972	26	0260	1432193	-415622	H	3	19613	L	83040220	000000	000000	204700	000010		G C=210,B=37
HSFTS	HD 127972	26	0260	1432193	-415622	H	3	20537	L	83072919	000000	000000	194700	000025		G C=2-3X,B=70
HSFTS	HD 127972	26	0260	1432193	-415622	H	3	20536	L	83072919	000000	000000	192000	000010		G C=210,B=35
HSFTS	HD 127972	26	0260	1432193	-415622	H	3	20259	L	83061916	000000	000000	162400	000025		G C=2.5X,B=64
HSFTS	HD 127972	26	0360	1432193	-415622	H	3	20258	L	83061915	000000	000000	155600	000010		G C=215,B=37
FM098	HD128220	16	0865	1432566	192558	H	3	20489	L	83072102	000000	000000	025812	004000	501	V
FM098	HD128220	16	0862	1432566	192558	H	3	20487	L	83072020	000000	000000	204440	004000	501	V
FI095	HD128220	16	0858	1432566	192558	H	3	20289	L	83062222	000000	000000	224732	004000	501	V
FI095	HD128220B	16	0862	1432566	192558	H	3	20278	L	83062100	000000	000000	000635	004000	501	V
FM098	HD128220	16	0860	1432570	192558	H	3	19795	L	83042302	000000	000000	023633	004000	501	V
LDFDS	HD 128621	46	0140	1435536	-603737	L	3	19953	L	83051019	000000	000000	194900	000300		G E=68,C=65,B=42

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
LDFKH	HD 128621	46	0130	14 5536	-603737	H	2	15667	L	83040621	000000	000000	214700	000152	G	E=183,C=195,B=26
LDFKH	HD 128621	46	0130	14 5536	-603737	H	2	15730	L	83041400	000000	000000	004100	000152	G	E=164,C=180,B=25
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19772	L	83042019	000000	000000	190700	004000	G	E=2X,C=1.5X,B=80
LDFKH	HD 128621	46	0130	14 5536	-603737	L	3	19700	L	83041021	000000	000000	214300	000240	G	E=116,C=65,B=40
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19727	L	83041423	000000	000000	232000	000300	G	E=128,C=57,B=40
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	20019	L	83051722	000000	000000	225600	004000	G	E=125,C=215,B=35
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	20018	L	83051722	000000	000000	221700	000300	G	E=114,C=52,B=22
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19729	L	83041500	000000	000000	005200	004000	G	E=4X,C=1.5X,B=40
LDFDS	HD 128621	46	0140	14 5536	-603737	H	2	15736	L	83041501	000000	000000	013400	000152	G	E=146,C=170,B=30
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19885	L	83050221	000000	000000	215200	000300	G	E=121,C=55,B=30
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19886	L	83050222	000000	000000	222900	004000	G	E=168,C=230,B=60
LDFKH	HD 128621	46	0130	14 5536	-603737	L	3	20115	SL	83053117	173200	000240	173100	000240	G	C=40,B=25
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19912	L	83050616	000000	000000	165400	004000	G	E=4X,C=2X,B=110
LDFKH	HD 128621	46	0130	14 5536	-603737	L	3	19882	L	83050219	000000	000000	193600	000240	G	E=120,C=43,B=27
LDFKH	HD 128621	46	0130	14 5536	-603737	H	2	16049	L	83053117	000000	000000	172600	000152	G	E=173,C=180,B=25
LDFKH	HD 128621	46	0130	14 5536	-603737	H	2	15865	L	83050219	000000	000000	193200	000152	G	E=189,C=200,B=26
LDFKH	HD 128621	46	0130	14 5536	-603737	H	2	16120	L	83061016	000000	000000	160800	000152	G	E=174,C=195,B=26
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19705	L	83041101	000000	000000	010100	004000	G	E=4X,C=240,B=50
LDFKH	HD 128621	46	0130	14 5536	-603737	L	3	20184	SL	83061016	161200	000240	161100	000240	G	E=123,C=46,B=13
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19664	L	83040621	000000	000000	210300	004000	G	E=6X,C=240,B=45
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19663	L	83040620	000000	000000	202300	000300	G	E=48,C=48,B=25
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19950	L	83051017	000000	000000	170700	004000	G	E=4X,C=2-4X,B=90
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19702	L	83041023	000000	000000	230100	000300	G	E=145,C=86,B=58
LDFKH	HD 128621	46	0130	14 5536	-603737	L	3	20015	L	83051719	000000	000000	194800	000240	G	E =98,C=48,B=25
LDFKH	HD 128621	46	0130	14 5536	-603737	L	3	19746	L	83041800	000000	000000	000400	000240	G	E=106,C=43,B=38
LDFKH	HD 128621	46	0130	14 5536	-603737	H	2	15763	L	83041800	000000	000000	000900	000152	G	E=185,C=170,B=26
LDFDS	HD 128621	46	0140	14 5536	-603737	L	3	19915	L	83050619	000000	000000	193300	000300	G	E=131,C=55,B=30
LDFDS	HD 128621	46	0140	14 5537	-603737	L	3	20064	L	83052421	000000	000000	213200	000300	G	E=101,C=48,B=17
LDFKH	HD 128621	46	0130	14 5537	-603737	H	2	15902	L	83051021	000000	000000	213300	000152	G	E=137,C=150,B=27
LDFKH	HD 128621	46	0130	14 5537	-603737	L	3	19955	L	83051021	000000	000000	213800	000240	G	E=120,C=60,B=35
LDFDS	HD 128621	46	0140	14 5537	-603737	L	3	20141	L	83060320	000000	000000	205400	004000	G	E=4X,C=200,B=45
LDFDS	HD 128621	46	0140	14 5537	-603737	L	3	20140	L	83060320	000000	000000	201500	000300	G	E=48,C=50,B=25
LDFDS	HD 128621	46	0140	14 5537	-603737	L	3	20066	L	83052423	000000	000000	231400	003500	G	E=3X,C=175,B=20
LDFKH	HD 128621	46	0130	14 5541	-603738	L	3	19835	L	83042721	000000	000000	212100	000240	G	E=168,C=180,B=38
LDFKH	HD 128621	46	0130	14 5541	-603738	L	3	20088	L	83052819	000000	000000	192700	000240	G	E=117,C=50,B=19
LDFKH	HD 128621	46	0130	14 5541	-603738	H	2	15825	L	83042721	000000	000000	211600	000152	G	E=111,C=2X,B=45
LDFKH	HD 128621	46	0130	14 5541	-603738	L	3	20136	SL	83060316	160800	000240	160700	000240	G	C=45,B=20
LDFKH	HD 128621	46	0130	14 5541	-603738	H	2	16062	L	83060316	000000	000000	160300	000152	G	E=187,C=200,B=25
LDFKH	HD 128621	46	0130	14 5541	-603738	H	2	16023	L	83052819	000000	000000	192300	000152	G	E=145,C=180,B=30
LDFKH	HD 128620	44	0000	14 5551	-603718	L	3	20183	SL	83061015	150300	000300	150200	000300	G	E=159,C=2X,B=18
LDFKH	HD 128620	44	0000	14 5551	-603718	H	2	16061	L	83060314	000000	000000	145900	000100	G	E=212,C=2X,B=35
LDFKH	HD 128620	44	0000	14 5551	-603718	H	2	15731	L	83041401	000000	000000	011800	000100	G	E=190,C=2X,B=35
LDFKH	HD 128620	44	0000	14 5551	-603718	H	2	16119	L	83061014	000000	000000	145800	000100	G	E=178,C=2X,B=33
LDFKH	HD 128620	44	0000	14 5551	-603718	H	2	15762	L	83041722	000000	000000	225100	000100	G	E=188,C=2X,B=60
LDFKH	HD 128620	44	0000	14 5551	-603718	L	3	19699	L	83041020	000000	000000	204800	000300	G	E=147,C=2X,B=32

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
LDFKH	HD 128620	44	0000	1435551	-603718	H	2	15704	L	83041020	000000 000000	205400 000100	G	E=170,C=3X,B=35
LDFKH	HD 128620	44	0000	1435551	-603718	H	2	15962	L	83051718	000000 000000	183000 000100	G	E=177,C=2X,B=36
LDFKH	HD 128620	44	0000	1435551	-603718	L	3	19881	L	83050218	000000 000000	183200 000300	G	E=148,C=2X,B=30
LDFKH	HD 128620	44	0000	1435551	-603718	L	3	19745	L	83041722	000000 000000	225500 000230	G	E=164,C=2X,B=110
LDFKH	HD 128620	44	0000	1435551	-603718	L	3	20114	SL	83053116	162100 000300	162000 000300	G	C=2X,B=18
LDFKH	HD 128620	44	0000	1435551	-603718	L	3	20014	L	83051718	000000 000000	183300 000300	G	E=156,C=2X,B=20
LDFKH	HD 128620	44	0000	1435551	-603718	L	3	19719	L	83041401	000000 000000	012200 000300	G	E=143,C=2X,B=20
LDFKH	HD 128620	44	0000	1435551	-603718	H	2	16048	L	83053116	000000 000000	161600 000100	G	E=185,C=2X,B=32
LDFKH	128620	44	0000	1435551	-603718	L	3	20135	SL	83060315	150400 000300	150300 000300	G	C=2X,B=18
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19914	L	83050618	000000 000000	185700 000300	G	E=150,C=3X,B=33
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	20139	L	83060319	000000 000000	193700 000300	G	E=205,C=2X,B=30
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19774	L	83042021	000000 000000	211900 000300	G	E=144,C=2X,B=30
LDFDS	HD 128620	44	0000	1435552	-603718	F	9	01409	L	83040618	000000 000000	183600 016000	G	NO COMMENTS
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19913	L	83050618	000000 000000	181000 001000	G	E=213,C=10X,B=48
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19887	L	83050223	000000 000000	234100 000300	G	E=143,C=2,B=26
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19773	L	83042020	000000 000000	202900 001000	G	E=189,C=10X,B=45
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19701	L	83041022	000000 000000	222500 000300	G	E=154,C=2X,B=43
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19884	L	83050221	000000 000000	211500 000300	G	E=148,C=2X,B=32
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19883	L	83050220	000000 000000	202500 001000	G	E=255,C=10X,B=38
LDFKH	HD 128620	44	0000	1435552	-603718	H	2	15864	L	83050218	000000 000000	182900 000100	G	E=183,C=2X,B=33
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19728	L	83041500	000000 000000	000400 001000	G	E=3X,C=10X,B=60
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19703	L	83041023	000000 000000	234000 000300	G	E=146,C=2X,B=46
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19662	L	83040619	000000 000000	194700 000300	G	E=207,C=3X,B=22
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	20138	L	83060318	000000 000000	184600 001000	G	E=161,C=10X,B=25
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19704	L	83041100	000000 000000	001700 001000	G	E=2.5X,C=10X,B=67
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	20063	L	83052420	000000 000000	204300 000300	G	E=160,C=2X,B=21
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	20065	L	83052422	000000 000000	222100 001000	G	E=159,C=10X,B=18
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	20016	L	83051720	000000 000000	202800 001000	G	E=177,C=10X,B=38
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19661	L	83040618	000000 000000	185800 001000	G	E=133,C=10X,B=25
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	20017	L	83051721	000000 000000	213400 000300	G	E=155,C=2X,B=22
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19951	L	83051018	000000 000000	182100 001000	G	E=2X,C=10X,B=42
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19726	L	83041422	000000 000000	224000 000300	G	E=152,C=1.5X,B=45
LDFDS	HD 128620	44	0000	1435552	-603718	L	3	19952	L	83051019	000000 000000	191000 000300	G	E=160,C=3X,B=35
LDFKH	HD 128620	44	0000	1435556	-603719	H	2	15793	L	83042201	000000 000000	013100 000100	G	E=174,C=2X,B=32
LDFKH	HD 128620	44	0000	1435556	-603719	H	2	15668	L	83040622	000000 000000	225200 000100	G	E=178,C=2X,B=32
LDFKH	HD 128620	44	0000	1435556	-603719	H	2	15824	L	83042720	000000 000000	200300 000100	G	E=176,C=2X,B=39
LDFKH	HD 128620	44	0000	1435556	-603719	L	3	19665	L	83040622	000000 000000	225500 000300	G	E=139,C=2X,B=22
LDFKH	HD 128620	44	0000	1435556	-603719	L	3	20087	L	83052818	000000 000000	181900 000300	G	E=120,C=2X,B=18
LDFKH	HD 128620	44	0000	1435556	-603719	L	3	19834	L	83042720	000000 000000	200700 000300	G	C=2X,B=35
LDFKH	HD 128620	44	0000	1435556	-603719	L	3	19954	L	83051020	000000 000000	202900 000300	G	E=140,C=2X,B=40
LDFKH	HD 128620	44	0000	1435556	-603719	H	2	16022	L	83052818	000000 000000	181500 000100	G	E=131,C=2X,B=32
LDFKH	HD 128620	44	0000	1435556	-603719	H	2	15901	L	83051020	000000 000000	202600 000100	G	E=164,C=2X,B=40
LDFKH	HD 128620	44	0000	1435556	-603719	L	3	19785	L	83042201	000000 000000	012500 000300	G	E=65,C=2X,B=20
LDFDS	HD 128621	46	0140	1436112	-603749	H	2	15826	L	83042801	000000 000000	011500 000152	G	E=155,C=170,B=28
LDFDS	HD 128621	46	0140	1436112	-603749	L	3	19837	L	83042723	000000 000000	230500 000300	G	E=118,C=60,B=38

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
LDFDS	HD 128620	44	0000	1436112	-603749	L	3	19838	L	83042723	000000 000000	234400 001000		G E=255,C=10X,B=43
LDFDS	HD 128620	44	0000	1436112	-603749	L	3	19836	L	83042722	000000 000000	221900 000300		G E=153,C=3X,B=55
LDFDS	HD 128621	46	0140	1436112	-603749	L	3	19839	L	83042800	000000 000000	003100 004000		G E=4X,C=1.5X,B=32
GHFFB	OO FE 99	28	1000	1437120	+193900	H	3	20350	L	83070107	000000 000000	074000 027000		G C=210,B=80
QSFRC	OO I ZW 92	84	1630	1439025	+534304	L	3	20254	L	83061907	000000 000000	071100 012000		G E=197,C=60,B=35
QSFWS	OOMARK 478	84	1490	1440045	+353907	L	3	20545	L	83073018	000000 000000	181900 009000		G E=210,C=60,B=32
QSFWS	OOMARK 478	84	1490	1440045	+353907	L	2	16483	L	83073015	000000 000000	154200 006000		G C=195,B=115
QSFWS	OOMARK 478	84	1490	1440045	+353907	L	2	16484	L	83073017	000000 000000	171200 006000		G E=106,C=110,B=50
FA141	HD129685	30	0495	1441547	-345852	H	2	16129	L	83061104	000000 000000	040801 000900	502	V
FA141	HD129685	30	0497	1441547	-345852	L	3	20194	L	83061105	000000 000000	051937 000018	602	V
FA141	HD129685	30	0494	1441547	-345852	L	2	16130	L	83061105	000000 000000	053841 000009	500	V
FA141	HD129685	30	0495	1441547	-345852	H	3	20193	L	83061104	000000 000000	042948 002300	701	V
NSFCW	OOS-M STAR	16	1670	1459367	-414731	L	3	19927	L	83050809	000000 000000	092500 036000		G C=185,B=99
LGFEB	HD 133208	45	0350	1500037	+403513	H	2	16166	L	83061510	000000 000000	102400 002500		G E=101,C=200
LGFEB	HD 133208	45	0350	1500037	+403513	L	3	20229	L	83061510	000000 000000	105400 019500		G E=3X,C=1.5X,B=112
WDFJN	OO 13368	17	0000	1501234	+662403	L	2	16154	L	83061315	000000 000000	151300 002500		G C=70,B=32
WDFJN	OO 13368	17	0000	1501234	+662403	L	3	20217	L	83061315	000000 000000	154500 003000		G C=130,B=15
OBFTS	HD 133242	21	0400	1501422	-465125	H	3	20364	L	83070217	000000 000000	175200 000112		G C=240,B=44
FE244	NGC5846	81	9999	1503564	014748	E	9	01407	2	83040200	000000 000000	000000 000000	000	V FIELD FOR NGC5846
FE244	NGC5846	81	1299	1503564	014748	L	3	19607	L	83040203	000000 000000	032603 038100	203	V
CCFDS	HD 134083	41	0492	1505061	+250345	H	2	16011	L	83052418	000000 000000	182400 001600		G E=84,C=225,B=40
IBFGM	HD 134687	66	0480	1509274	-441847	H	3	20204	L	83061218	000000 000000	180900 000120		G C=190,B=35
IBFGM	HD 134687	21	0480	1509274	-441847	H	2	16122	L	83061018	000000 000000	183300 000140		G C=253,B=33
IBFGM	HD 134687	21	0480	1509274	-441847	H	3	20186	L	83061018	000000 000000	182700 000300		G C=2-3X,B=50
IBFGM	HD 134687	21	0480	1509274	-441847	H	2	16156	L	83061319	000000 000000	190600 000125		G C=220,B=32
IBFGM	HD 134687	66	0480	1509274	-441847	H	2	16141	L	83061218	000000 000000	181500 000125		G C=225,B=34
IBFGM	HD 134687	21	0480	1509274	-441847	H	3	20219	L	83061319	000000 000000	190100 000135		G C=210,B=35
FM098	HD135485	21	0824	15 2580	-143030	H	2	16393	L	83072101	000000 000000	014002 005000	503	V
FC268	HD135722	47	0379	1513290	333000	L	2	15839	L	83042908	000000 000000	083554 000030	601	V
FC268	HD135722	47	0371	1513290	333000	L	3	19851	L	83042907	000000 000000	075235 004080	201	V
HEFES	001520+525	64	1530	1520196	+523243	L	2	15769	L	83041900	000000 000000	004700 002800		G C=120,B=45
HEFES	001520+525	64	1530	1520196	+523243	L	3	19755	L	83041901	000000 000000	011700 003000		G C=165,B=30
HEFES	001520+525	64	1530	1520196	+523243	L	3	19754	L	83041900	000000 000000	003100 001300		G C=120,B=65
FE135	QS01522+10	85	9999	1522000	100903	L	3	19840	L	83042803	000000 000000	034500 036200	303	V
FM098	HD137569	24	0799	1524010	145204	H	3	19789	L	83042208	000000 000000	082140 008500	501	V
QSFAG	Q 1526+285	85	1640	1526377	+283557	L	2	15900	L	83051013	000000 000000	135200 011500		G C=100,B=60
QSFAG	Q 1526+285	85	1640	1526378	+283558	L	3	19949	L	83051009	000000 000000	094800 024000		G E=128,C=80,B=55
FE191	E 1530 -08	88	1600	1530390	-083158	L	3	20074	L	83052623	000000 000000	232308 036500	333	V EXP STARTED AT GSFC ON 830525
FA153	HD138749	22	0425	1530547	313136	H	3	20040	L	83052104	000000 000000	043909 000145	501	V
FA152	HD200120	00	9999	1530547	313136	H	3	20486	L	83072003	000000 000000	030713 000130	501	V
FA153	HD138749	22	0427	1530547	313136	H	3	20485	L	83072002	000000 000000	022355 000145	501	V
FA153	HD138749	22	0429	1530547	313136	H	2	16379	L	83072002	000000 000000	022907 000115	501	V
FA153	HD138749	22	0418	1530547	313136	H	3	20309	L	83062422	000000 000000	224216 000145	501	V
FA152	HD138749	26	0426	1530547	313136	H	2	15662	L	83040602	000000 000000	024058 000115	502	V
FA152	HD138749	26	0425	1530547	313136	H	3	19653	L	83040602	000000 000000	023434 000145	500	V

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
XGFCB	SA 140607	49	1000	1531070	-081926	D	9	01440	L	83052522	000000	000000	224900	016000		G	NO COMMENTS
FC221	HD139319	66	0856	1533071	640422	L	3	20516	SL	83072622	225535	002000	235043	003500	313	V	313$9.5 MAG COMPANION P=23, S
QSFWS	OOMARK 290	84	1490	1534448	+580401	L	2	15804	L	83042320	000000	000000	205000	016500		G	E=211,C=160,B=60
QSFWS	OOMARK 290	84	1490	1534448	+580401	L	3	19801	L	83042323	000000	000000	233900	013000		G	E=220,C=95,B=40
FE260	MKN 290	84	1560	1534448	580400	L	2	16338	L	83071222	000000	000000	221025	033300	568	V	
EGFJH	OO MK 487	88	1500	1535483	+552533	L	3	19697	L	83041011	000000	000000	114900	024000		G	C=110,B=65
IBFGM	HD 139892	66	0510	1537296	+364749	H	3	20197	L	83061118	000000	000000	185100	000320		G	C=180,B=40
IBFGM	HD 139892	66	0510	1537296	+364749	H	2	16135	L	83061118	000000	000000	185800	000215		G	C=180,B=35
FS246	COMET KOPF	06	1289	1540100	-144000	L	2	16371	L	83071821	000000	000000	212322	006000	133	V	EXP. TIME 21:23:22/24MIN///21
FS246	COMET KOPF	06	1295	1540100	-144000	L	3	20481	L	83071822	000000	000000	224345	003000	150	V	EXPOSING ON THE NUCLEUS
MGFLH	HD 141004	44	0440	1544008	+073031	H	2	16313	L	83070716	000000	000000	160500	003000		G	E=134,C=2X,B=45
WDFGW	OO L481-06	37	1280	1544120	-374551	L	3	20441	L	83071105	000000	000000	051200	012000		G	C=150,B=25
WDFGW	OO L481-06	37	1280	1544134	-374551	L	2	16327	L	83071104	000000	000000	043800	003000		G	C=135,B=30
PHCAL	BD+33 2642	20	1094	1550010	330528	L	3	20051	LS	83052303	031711	001200	031030	000400	500	V	500$
PHCAL	BD+33 2642	12	1087	1550010	330528	L	3	20208	L	83061223	000000	000000	230142	000400	401	V	
PHCAL	BD+33 2642	12	1086	1550010	330528	L	2	16144	L	83061222	000000	000000	223800	000300	402	V	
PHCAL	BD+33 2642	20	1091	1550010	330528	L	1	01879	LS	83052302	025020	000930	030458	000310	502	V	602$
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	2	15847	L	83043017	000000	000000	173600	000310		G	C=158,B=26
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	3	19917	L	83050622	000000	000000	221500	000400		G	C=180,B=30
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	1	01862	L	83050622	000000	000000	220800	000310		G	C=220,B=50
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	2	16403	L	83072119	000000	000000	193600	000310		G	C=185,B=22
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	1	01966	L	83072518	000000	000000	185600	000310		G	C=230,B=35
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	1	01857	L	83043022	000000	000000	224000	000310		G	C=220,B=50
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	2	15889	L	83050722	000000	000000	220700	000310		G	C=195,B=32
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	2	16292	L	83070419	000000	000000	194800	000310		G	C=195,B=25
PHCAL	BD+33 2642	20	1080	1550019	+330528	L	3	19863	L	83043022	000000	000000	223000	000400		G	C=180,B=29
CBFPS	OOPG155+19	63	1550	1550331	+190455	L	2	16118	L	83061012	000000	000000	123800	003000		G	E=84,C=65,B=25
CBFPS	OOPG155+19	63	1550	1550331	+190455	L	3	20182	L	83061013	000000	000000	131300	004000		G	E=80,C=42,B=30
GCFRZ	HD 142574	46	0540	1552219	+202720	L	2	16244	L	83062612	000000	000000	122100	001400		G	E=200,C=80,B=28
TTFJL	HD 142560	58	1100	1553240	-374100	D	9	01416	L	83041700	000000	000000	002100	016000		G	NO COMMENTS
TTFJL	HD 142560	58	1100	1553240	-374100	L	2	15754	L	83041700	000000	000000	003000	000800		G	E=2X,C=135,B=27
FC215	HD 142560	58	1148	1553240	-374058	L	2	16283	L	83070303	000000	000000	033002	001300	362	V	
TTFJL	HD 142560	58	1100	1553240	-374100	D	9	01415	L	83041523	000000	000000	232800	016000		G	NO COMMENTS
FC215	HD 142560	58	1148	1553240	-374058	L	3	20368	L	83070302	000000	000000	020535	008000	331	V	
FC215	HD 142560	58	1148	1553240	-374058	L	2	16282	L	83070301	000000	000000	011149	005000	673	V	
FC215	HD142560	58	1141	1553240	-374058	L	2	16281	L	83070221	000000	000000	210309	012000	774	V	
FC215	HD142560	58	1142	1553240	-374058	L	3	20367	L	83070223	000000	000000	230748	012000	341	V	
TTFJL	HD 142560	58	1100	1553240	-374100	L	2	15745	L	83041600	000000	000000	000000	002500		G	E=3X,C=200,B=75
TTFJL	HD 142560	58	1100	1553240	-374100	H	3	19736	L	83041601	000000	000000	014600	075500		G	E=221,C=205,B=133
TTFJL	HD 142560	58	1100	1553240	-374100	H	2	15746	L	83041600	000000	000000	005900	004000		G	E=102,C=40,B=34
FC138	HD142560	58	1072	1553243	-374040	H	2	15755	L	83041702	000000	000000	024651	041600	369	V	
FC138	HD142560	58	1101	1553243	-374040	L	3	19739	L	83041700	000000	000000	004224	012000	452	V	
FC210	HD142560	58	1135	1553243	-374035	L	1	01846	L	83042003	000000	000000	032027	037500	365	V	
AFFJL	HD 142860	41	0390	1554085	+154925	H	2	15716	L	83041123	000000	000000	233200	001000		G	C=1.5X,B=95
SPFRN	OO EUROPA	04	0550	1554585	-193441	H	2	16381	L	83072004	000000	000000	045800	012000		G	C=160,B=40

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
SPFRN	00 EUROPA	04	0550	1554585	-193441	H	2	16382	L	83072007	000000 000000	075300 015000		G C=200,B=73
SPFRN	OOGANYMEDE	04	0530	1554585	-193441	L	2	16391	L	83072018	000000 000000	183500 000200		G C=180,B=25
SPFRN	00 EUROPA	04	0550	1554585	-193441	L	2	16383	L	83072011	000000 000000	111400 000600		G C=180,B=35
SPFRN	00 EUROPA	04	0550	1554585	-193441	L	2	16388	L	83072015	000000 000000	155700 000600		G C=198,B=53
SPFRN	00 EUROPA	04	0550	1554585	-193441	L	2	16384	L	83072011	000000 000000	115600 000600		G C=180,B=32
SPFRN	OOGANYMEDE	04	0530	1554585	-193441	L	2	16390	L	83072017	000000 000000	174500 000100		G C=180,B=25
SPFRN	00 IO	04	0510	1554585	-193441	L	2	16385	L	83072012	000000 000000	125500 003200		G C=230,B=75
SPFRN	00 EUROPA	04	0550	1554585	-193441	L	2	16389	L	83072016	000000 000000	165200 000600		G C=205,B=60
SPFRN	OOGANYMEDE	04	0530	1554585	-193441	L	2	16392	L	83072018	000000 000000	183500 000200		G C=185,B=25
SPFRN	00 IO	04	0510	1554585	-193441	L	2	16386	L	83072014	000000 000000	141700 001200		G C=190,B=50
SPFRN	00 EUROPA	04	0550	1554585	-193441	L	2	16387	L	83072015	000000 000000	151100 000600		G C=200,B=45
SPFRN	OOGANYMEDE	04	0510	1555177	-193512	L	2	16351	L	83071707	000000 000000	072900 000148		G C=200,B=25
SPFRN	OOGANYMEDE	04	0510	1555177	-193512	L	2	16352	L	83071708	000000 000000	080900 000135		G C=200,B=23
SPFRN	00 EUROPA	04	0580	1555177	-193512	L	2	16353	L	83071709	000000 000000	090300 000600		G C=190,B=21
SPFRN	00 EUROPA	04	0550	1555177	-193512	H	2	16366	L	83071814	000000 000000	141900 004500		G C=210,B=117
SPFRN	00 EUROPA	04	0550	1555177	-193512	H	2	16365	L	83071812	000000 000000	122700 006000		G C=215,B=94
SPFRN	00 IO	04	0550	1555177	-193512	L	2	16355	L	83071710	000000 000000	105200 001500		G C=175,B=28
SPFRN	00 EUROPA	04	0550	1555177	-193512	L	2	16367	L	83071815	000000 000000	154700 000240		G C=190,B=28
SPFRN	00 IO	04	0550	1555177	-193512	L	2	16354	L	83071710	000000 000000	100300 001500		G C=180,B=25
SPFRN	00 EUROPA	04	0550	1555177	-193512	H	2	16370	L	83071817	000000 000000	175300 007500		G C=210,B=70
SPFRN	00 EUROPA	04	0580	1555177	-193512	L	2	16350	L	83071706	000000 000000	063600 000600		G C=185,B=25
SPFRN	00 IO	04	0550	1555177	-193512	L	2	16348	L	83071704	000000 000000	044900 001630		G C=200,B=25
SPFRN	00 IAPETUS	04	1210	1555177	-193512	L	2	16364	L	83071805	000000 000000	055000 034500		G C=180,B=73
SPFRN	00 IO	04	0550	1555177	-193512	L	2	16356	L	83071711	000000 000000	114800 001500		G C=200,B=34
SPFRN	00 EUROPA	04	0550	1555177	-193512	L	2	16369	L	83071817	000000 000000	171100 000250		G C=195,B=30
SPFRN		04	9999	1555177	-193512	L	2	16358	L	83071714	000000 000000	142100 003000		G C=190,B=43
SPFRN	00 EUROPA	04	0550	1555177	-193512	L	2	16368	L	83071816	000000 000000	162900 000120		G C=190,B=31
SPFRN	00 IO	04	0550	1555177	-193512	L	2	16357	L	83071712	000000 000000	125700 003000		G C=190,B=39
SPFRN	00 EUROPA	04	0580	1555177	-193512	L	2	16349	L	83071705	000000 000000	054500 000630		G C=200,B=25
SPFRN	00 IO	04	0550	1555180	-193521	L	2	16362	L	83071718	000000 000000	184700 003000		G C=170,B=28
SPFRN	00 IO	04	0550	1555187	-193519	L	2	16361	L	83071717	000000 000000	173500 003000		G C=200,B=51
SPFRN	OOCALLISTO	04	0590	1555456	-193622	L	2	16360	L	83071716	000000 000000	164500 000630		G C=190,B=31
SPFRN	OOCALLISTO	04	0590	1555456	-193622	L	2	16359	L	83071715	000000 000000	155500 000600		G C=180,B=32
SIFHM	00 JUPITER	03	-0200	1555554	-193607	L	3	20464	L	83071410	000000 000000	104100 001500		G E=87,3X,B=30
SIFHM	00 JUPITER	03	-0200	1555554	-193607	L	3	20465	L	83071411	000000 000000	112800 001500		G C=10X,B=34
SJFHM	JUPITER	03	-0200	1556063	-193618	L	3	20459	L	83071316	000000 000000	162900 001500		G C=4X,B=47
SJFHM	JUPITER	03	-0200	1556063	-193618	L	3	20458	L	83071315	000000 000000	153500 001500		G B=38
SJFHM	JUPITER	03	-0200	1556063	-193618	L	3	20457	L	83071313	000000 000000	135600 001500		G E=97,C=3X,B=28
SJFHM	JUPITER	03	-0200	1556063	-193618	L	3	20460	L	83071317	000000 000000	172000 001500		G B=41
SJFHM	JUPITER	03	-0200	1556063	-193618	L	3	20461	L	83071318	000000 000000	181300 001500		G C=4X,B=33
SJFHM	JUPITER	03	-0200	1556063	-193618	L	3	20456	L	83071312	000000 000000	125700 001500		G E=82,C=3X,B=28
SJFHM	JUPITER	03	-0200	1556063	-193618	L	3	20462	L	83071319	000000 000000	190500 001500		G E=53,C=3X,B=21
SIFHM	JUPITER	03	-0200	1556063	-193618	D	9	01455	L	83071319	000000 000000	195500 016000		G NO COMMENTS
SIFHM	OOIO TORUS	03	0500	1556064	-193618	L	3	20463	L	83071320	000000 000000	201000 083000		G E=236,C=135,B=130
FE191	E 1556+274	88	9999	1556253	272545	E	9	01441	2	83052607	000000 000000	070541 004000	000	V FES FOR SWP 20075

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
XGFCB	X 1556+274	85	0000	1556 53	+272545	L	3	20075	L	83052607	000000	000000	070500	039500		G	E=189,C=100,B=75
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16465	L	83072815	000000	000000	153900	000120		G	C=3X,B=90
IGFLH	00 ETA LUP	20	0340	1556 80	-381520	H	2	16450	L	83072714	000000	000000	143100	000120		G	C=3X,B=88
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16451	L	83072715	000000	000000	151300	000117		G	C=3X,B=85
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16439	L	83072617	000000	000000	170900	000120		G	C=3X,B=92
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16438	L	83072616	000000	000000	162500	000114		G	C=3X,B=90
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16423	L	83072416	000000	000000	160000	000114		G	C=3X,B=80
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16436	L	83072614	000000	000000	144400	000123		G	C=2.5X,B=85
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16415	L	83072316	000000	000000	165200	000117		G	C=3X,B=72
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16435	L	83072614	000000	000000	140200	000117		G	C=2X,B=100
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16407	L	83072216	000000	000000	160600	000111		G	C=3X,B=120
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16408	L	83072216	000000	000000	165100	000103		G	C=3X,B=100
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16463	L	83072814	000000	000000	142200	000040		G	C=4X,B=50
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16466	L	83072816	000000	000000	162400	000120		G	C=3X,B=85
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16413	L	83072314	000000	000000	144100	000123		G	C=3X,B=85
IGFLH	00 ETA LUP	20	0340	1556480	-381520	H	2	16421	L	83072413	000000	000000	135800	000114		G	C=3X,B=70
IGFLH	00SKY BKGD	07	9999	1556480	-381520	H	2	16464	L	83072814	000000	000000	145700	000040		G	B=25
FS118	JUPITER	03	9999	1556497	-193748	L	3	20425	L	83070921	000000	000000	211455	001000	841	V	
FI076	HD143454	57	1013	1557240	260339	H	3	20163	L	83060723	000000	000000	233152	031000	032	V	
FI076	T CRB	63	0995	1557245	260339	L	2	16145	L	83061200	000000	000000	000032	002000	572	V	
FI076	T CRB	63	0995	1557245	260339	L	3	19869	L	83050107	000000	000000	070156	004500	561	V	
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20397	L	83070609	000000	000000	092700	001500		G	C=3X,B=20
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20394	L	83070607	000000	000000	070500	001500		G	C=3X,B=20
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20398	L	83070610	000000	000000	101300	001500		G	C=3X,B=20
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20406	L	83070616	000000	000000	164900	001500		G	E=91,C=3X,B=32
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20391	L	83070604	000000	000000	044100	001500		G	C=3X,B=20
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20395	L	83070607	000000	000000	075400	001500		G	C=3X,B=20
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20399	L	83070610	000000	000000	105900	001500		G	C=3X,B=20
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20405	L	83070616	000000	000000	160300	001500		G	E=80,C=3X,B=28
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20404	L	83070615	000000	000000	151500	001500		G	E=162,C=3X,B=25
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20402	L	83070613	000000	000000	132700	001500		G	E=176,C=3X,B=25
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20407	L	83070617	000000	000000	173400	001500		G	E=139,C=3X,B=30
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20400	L	83070611	000000	000000	115000	001500		G	E=156,C=3X,B=25
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20403	L	83070614	000000	000000	142000	001500		G	E=182,C=3X,B=25
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20396	L	83070608	000000	000000	084000	001500		G	C=3X,B=20
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20408	L	83070618	000000	000000	182100	001500		G	E=132,C=3X,B=25
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20409	L	83070619	000000	000000	191100	002500		G	E=196,C=4-5X,B=25
SJFHM	00 JUPITER	03	-0200	1557488	-193954	L	3	20401	L	83070612	000000	000000	123700	001500		G	E=172,C=3X,B=25
SJFHM	00 JUPITER	03	-0200	15 7488	-193954	L	3	20392	L	83070605	000000	000000	052800	001500		G	C=3X,B=20
SJFHM	00 JUPITER	03	-0200	15 7488	-193954	L	3	20393	L	83070606	000000	000000	061500	001500		G	C=3X,B=20
FS275	IO TORUS	03	9999	15 7531	-194150	E	9	01456	2	83071400	000000	000000	001500	016000		V	FOR SWP 20463
CCFLH	HD 143761	44	0543	15 9077	+332711	H	2	15701	L	83041016	000000	000000	161100	004500		G	E=132,C=255,B=70
FM167	AG DRA	57	0996	16 1230	665624	L	2	16087	L	83060705	000000	000000	051239	001200	451	V	
FI166	AG DRA	57	0996	16 1230	665624	L	2	16086	L	83060704	000000	000000	041548	000600	351	V	
FI166	AGDRA	57	0993	16 1230	665624	L	3	20209	LS	83061200	012735	000500	005802	002000	361	V	251$

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
FI166	AG DRA	57	0991	1601230	665624	H	3	20162	L	83060702	000000 000000	023643 014000	071	V
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16437	L	83072615	000000 000000	153300 000056		G C=3X,B=90
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16434	L	83072613	000000 000000	130200 000050		G C=3X,B=75
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16406	L	83072215	000000 000000	151300 000047		G C=5X,B=120
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16409	L	83072217	000000 000000	174800 000048		G C=3X,B=80
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16467	L	83072817	000000 000000	171400 000107		G C=3X,B=95
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16448	L	83072712	000000 000000	124600 000059		G C=3X,B=90
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16449	L	83072713	000000 000000	133900 000059		G C=3X,B=82
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16452	L	83072715	000000 000000	155900 000057		G C=3X,B=95
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16462	L	83072813	000000 000000	133500 000107		G C=3X,B=100
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16461	L	83072812	000000 000000	124700 000107		G C=3X,B=90
IGFLH	OOBET1 SCO	20	0260	1602315	-194012	H	2	16453	L	83072716	000000 000000	164800 000103		G C=3X,B=100
FE178	NGC6052	82	9999	1603009	204043	E	9	01443	2	83053123	000000 000000	230000 004000		V
FE178	NGC6052	82	1360	1603010	204044	L	3	20119	L	83053123	000000 000000	230259 042000	302	V
SPFRN	00 EUROPA	04	0500	1603191	-195115	L	2	16195	L	83062108	000000 000000	085200 000700		G C=1.2X,B=15
SPFRN	00 IO	04	0500	1603191	-195115	L	2	16194	L	83062107	000000 000000	070800 003100		G C=225,B=26
SPFRN	00GANYMEDE	04	0510	1604591	-195710	L	2	16201	L	83062120	000000 000000	200500 000222		G C=215,B=25
SPFRN	00 EUROPA	04	0580	1604591	-195710	L	2	16200	L	83062119	000000 000000	190600 000610		G C=230,B=37
SPFRN	00CALLISTO	04	0630	1604591	-195710	L	2	16199	L	83062118	000000 000000	181500 000526		G C=225,B=42
SPFRN	00 IO	04	0550	1604591	-195710	L	2	16202	L	83062121	000000 000000	210300 002500		G C=180,B=25
CDFJH	BS 5999	52	0766	1605127	-385822	L	3	20133	L	83060221	000000 000000	213000 001800		G C=255,B=19
CDFJH	BS 5999	52	0766	1605127	-385822	L	2	16060	L	83060220	000000 000000	205600 003000		G C=5X,B=35
FM098	HD145774	20	0754	1610100	-013542	H	3	19788	L	83042207	000000 000000	071325 001300	402	V
FM098	HD145774	20	0753	1610100	-013542	H	2	15795	L	83042206	000000 000000	064635 001500	502	V
SPFJC	00 URANUS	03	0550	1611284	-210049	L	3	20505	SL	83072304	040700 079000	204700 079000		G C=4X,B=110
FS269	URANUS	03	9999	1611300	-210053	E	9	01460	2	83072220	000000 000000	204727 016000		V URANUS
SPFJC	00 URANUS	03	0550	1611320	-205854	L	3	20504	SL	83072210	112600 005000	105700 005000		G C=152,B=92
FS269	URANUS	03	9999	1611331	-210100	E	9	01459	2	83072203	000000 000000	031656 016000		V URANUS AT REFERENCE POINT
SPFJC	00 URANUS	03	0550	1611331	-210100	L	3	20503	SL	83072203	040200 038500	031700 038500		G C=2X,B=84
FS269	URANUS	03	0588	1611344	-210104	L	3	20502	L	83072122	000000 000000	222649 021000	512	V
FS269	URANUS	03	0592	1611346	-210104	L	3	20501	L	83072120	000000 000000	205513 006000	301	V
FS118	URANUS	03	0546	1612449	-210352	L	3	20427	LS	83071000	001122 020400	000000 000000	042	V 332$APERTURE CLOSED AFTER 105
XGFCB	X 1613+658	59	0000	1613268	+655105	L	3	20094	L	83052908	000000 000000	083000 018000		G E=141,C=83,B=47
XGFCB	X 1613+658	85	0000	1613362	+655034	L	3	20073	L	83052521	000000 000000	210900 006000		G E=90,C=80,B=38
HSFJH	CD38 10980	37	0020	1620104	-390650	L	3	20340	SL	83062916	165300 000340	164500 000150		G C=225,B=32
WDFFB	00 1620-39	37	1100	1620120	-390700	L	3	20370	L	83070311	000000 000000	115000 000133		G C=190,B=13
PHCAL	00 WAVCAL	99	0000	1620376	-390440	H	1	01940	S	83070312	130100 000016	000000 000000		G E=50X,B=110 TFLOOD=25
PHCAL	00 TFLOOD	99	0000	1620376	-390440	H	1	01941	S	83070313	134300 000025	000000 000000		G B=103
PHCAL	00 WAVCAL	99	0000	1620376	-390440	L	3	20371	S	83070314	141900 000002	000000 000000		G E=10X,B=102 TFLOOD=05
PHCAL	00 WAVCAL	99	0000	1620376	-390440	L	1	01939	S	83070312	123100 000001	000000 000000		G E=10X,B=105 TFLOOD=25
PHCAL	00 WAVCAL	99	0000	1620376	-390440	H	3	20372	S	83070314	144300 000200	000000 000000		G E=50X,B=130 TFLOOD=05
PHCAL	00 TFLOOD	99	0000	1620376	-390440	H	3	20373	S	83070315	151100 000005	000000 000000		G B=112
PHCAL	00 WAVCAL	98	0000	1620376	-390440	L	2	16284	S	83070315	153600 000001	000000 000000		G E=10X,B=82 TFLOOD=07
PHCAL	00 WAVCAL	99	0000	1620376	-390440	H	2	16285	S	83070315	160100 000016	000000 000000		G E=50X,B=145 TFLOOD=07
PHCAL	00 TFLOOD	99	0000	1620376	-390440	H	2	16286	S	83070316	162800 000007	000000 000000		G B=139

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
IGFLH	OORHOA OPH	20	0460	1622348	-231957	H	2	16455	L	83072718	000000 000000	184500 002530	G	C=3X,B=105
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16468	L	83072818	000000 000000	180400 002230	G	C=3X,B=95
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16404	L	83072212	000000 000000	124500 001900	G	C=5X,B=110
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16405	L	83072213	000000 000000	135600 001900	G	C=5X,B=120
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16440	L	83072618	000000 000000	180100 002100	G	C=3X,B=100
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16441	L	83072619	000000 000000	190700 002530	G	C=3X,B=110
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16410	L	83072218	000000 000000	184700 000720	G	C=3X,B=90
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16416	L	83072317	000000 000000	175400 002530	G	C=3X,B=85
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16411	L	83072312	000000 000000	120600 002130	G	C=3X,B=80
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16417	L	83072319	000000 000000	190900 001720	G	C=3X,B=75
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16420	L	83072412	000000 000000	123400 002530	G	C=3X,B=100
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16426	L	83072419	000000 000000	191000 002530	G	C=3X,B=105
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16425	L	83072418	000000 000000	180300 002530	G	C=3X,B=105
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16424	L	83072416	000000 000000	164800 002130	G	C=3X,B=90
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16412	L	83072313	000000 000000	131100 002500	G	C=3X,B=98
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16454	L	83072717	000000 000000	173700 002230	G	C=3X,B=105
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16469	L	83072819	000000 000000	190800 002600	G	C=3X,B=102
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16422	L	83072414	000000 000000	144700 002230	G	C=3X,B=100
IGFLH	OORHOA OPH	20	0460	1622349	-231958	H	2	16414	L	83072315	000000 000000	153800 002100	G	C=3X,B=92
CCFLH	HD 147584	44	0490	1623038	-695829	H	2	16077	L	83060519	000000 000000	192100 004000	G	E=214,C=3X,B=68
WDFJN	OO 13384	17	0000	1623118	+015238	L	2	16155	L	83061317	000000 000000	170000 002500	G	B=27
WDFJN	OO 13384	17	0000	1623118	+015238	L	3	20218	L	83061317	000000 000000	172800 002200	G	B=19
SUFCB	OOSKY BKGD	07	9999	1624031	-213029	L	3	19854	L	83042919	000000 000000	195600 004000	G	B=34
SUFCB	OOSKY BKGD	07	9999	1624031	-213029	L	3	19853	L	83042918	000000 000000	185700 002000	G	B=19
SUFCB	OO URANUS	03	0580	1624031	-213029	L	2	15845	L	83042923	000000 000000	234400 002000	G	C=15X,B=32
SUFCB	OO URANUS	03	0580	1624031	-213029	L	2	15844	L	83042921	000000 000000	214100 002000	G	C=15X,B=59
SUFCB	OO URANUS	03	0580	1624031	-213029	L	3	19856	L	83042922	000000 000000	221100 008000	G	E=213,C=210,B=126
SUFCB	OO URANUS	03	0580	1624031	-213029	L	3	19857	L	83043000	000000 000000	001000 008600	G	E=151,C=132,B=32
SUFCB	OO URANUS	03	0580	1624031	-213029	L	2	15842	L	83042919	000000 000000	195200 000050	G	C=210,B=25
SUFCB	OO URANUS	03	0580	1624031	-213029	L	2	15843	L	83042921	000000 000000	210300 000050	G	B=28
SUFCB	OO URANUS	03	0580	1624031	-213029	L	3	19855	L	83042921	000000 000000	210800 003000	G	B=67
SUFCB	OO URANUS	03	0580	1624128	-213051	L	2	15830	L	83042819	000000 000000	190100 000050	G	C=200,B=25
SUFCB	OO URANUS	03	0580	1624128	-213051	L	3	19849	L	83042823	000000 000000	235100 010500	G	E=185,C=160,B=43
SUFCB	OOSKY BKGD	07	9999	1624128	-213051	L	3	19845	L	83042819	000000 000000	193400 003000	G	E=224,B=220
SUFCB	OO URANUS	03	0580	1624128	-213051	L	2	15831	L	83042820	000000 000000	201200 000050	G	C=210,B=28
SUFCB	OO URANUS	03	0580	1624128	-213051	L	3	19846	L	83042820	000000 000000	204400 002000	G	E=201,B=220
SUFCB	OO URANUS	03	0580	1624128	-213051	L	2	15832	L	83042821	000000 000000	211800 002000	G	C=15X,B=140
SUFCB	OO URANUS	03	0580	1624128	-213051	L	3	19847	L	83042821	000000 000000	214900 002000	G	E=232,B=255
SUFCB	OO URANUS	03	0580	1624128	-213051	L	2	15833	L	83042822	000000 000000	222000 001500	G	B=110
SUFCB	OO URANUS	03	0580	1624128	-213051	L	3	19848	L	83042822	000000 000000	224900 001500	G	E=127,B=128
SUFCB	OOSKY BKGD	07	9999	1624128	-213051	L	3	19844	L	83042818	000000 000000	182800 002000	G	E=178,B=150
GCFRZ	HD 148349	48	0520	1625014	-072904	L	2	16245	L	83062613	000000 000000	132000 001400	G	E=260,C=105,B=35
NPFJK	OOABELL 39	70	0000	1625322	+280112	L	2	15846	L	83043015	000000 000000	154200 008200	G	C=200,B=90
SGFAU	HD 148379	23	0540	1626044	-460804	L	3	20555	L	83073119	000000 000000	194000 000115	G	C=205,B=15
OD03K	OO HH57	58	1600	1628567	-444907	L	2	16009	L	83052413	000000 000000	135400 008000	G	B=130

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
OD03K	00 HH57	58	1600	1628567	-444907	L	3	20062	L	83052408	000000	000000	085700	029000		G	B=70
OD03K	OOSKY BKGD	07	9999	1628567	-444907	L	2	16008	L	83052409	000000	000000	090000	026000		G	B=48
FA154	HD149121	22	0576	1630079	053734	H	3	19757	L	83041903	000000	000000	033729	003000	701	V	
FA154	HD149121	22	0576	1630079	053734	H	2	15770	L	83041903	000000	000000	030520	001900	703	V	
FA154	HD149121	22	0571	1630079	053734	H	3	19756	L	83041902	000000	000000	024308	001500	501	V	
FA154	HD149121	22	0575	1630079	053734	H	2	15771	L	83041904	000000	000000	041112	000900	503	V	
HSFJH	HD 149382	16	0140	1631453	-035441	L	2	16265	L	83062920	000000	000000	201500	000025		G	C=205,B=23
HSFJH	HD 149382	16	0140	1631453	-035441	L	3	20343	L	83062920	000000	000000	201000	000016		G	C=205,B=17
PHCAL	HD 149438	20	0280	1632459	-280651	H	3	20500	L	83072118	000000	000000	184600	000006		G	C=170,B=35
PHCAL	HD 149438	20	0280	1632459	-280651	H	1	01858	L	83043023	000000	000000	234000	000006		G	C=208,B=42
PHCAL	HD 149438	20	0280	1632459	-280651	H	1	01965	S	83072518	181600	000006	000000	000000		G	C=232,B=42
PHCAL	HD 149438	20	0280	1632459	-280651	H	2	16402	L	83072118	000000	000000	184200	000006		G	C=210,B=30
PHCAL	HD 149438	20	0280	1632459	-280651	L	3	20499	L	83072117	000000	000000	172200	000006		G	C=85X
PHCAL	HD 149438	20	0280	1632459	-280651	H	2	15848	L	83043018	000000	000000	183300	000006		G	C=188,B=32
PHCAL	HD 149438	20	0280	1632459	-280651	H	3	19860	L	83043018	000000	000000	183700	000006		G	C=188,B=38
PHCAL	00 AX PER	57	1050	1632459	-280651	L	2	16401	L	83072117	000000	000000	171600	000006		G	C=60X
FM098	BD 5 3235	21	0921	1634170	052322	H	3	19787	L	83042204	000000	000000	043818	011200	501	V	
IGFGB	SA 121807	31	0740	1640330	+033250	H	2	16161	L	83061411	000000	000000	113800	013500		G	C=225,B=90
QSFMS	00 3C 345	85	9999	1641175	+395410	L	3	19722	L	83041415	000000	000000	154000	011200		G	E=127,C=85,B=40
BLFAG	Q 1641+399	85	1600	1641176	+395410	L	3	19958	L	83051108	000000	000000	082900	016500		G	E=87,C=60,B=35
HSFJD	BD+13 3224	27	9999	1645460	-132119	L	3	19841	L	83042810	000000	000000	104700	021000		G	C=190,B=68
FA107	BD+133224	27	1064	1645461	132053	L	2	15925	L	83051306	000000	000000	061204	000230	502	V	
FA107	BD+133224	27	1060	1645461	132053	L	2	15926	L	83051306	000000	000000	064904	000300	502	V	
FA107	BD+133224	27	1056	1645461	132053	L	2	15927	L	83051307	000000	000000	073153	000300	502	V	
FA107	BD+133224	27	1070	1645461	132053	L	2	15918	L	83051301	000000	000000	011033	000300	502	V	
FA107	BD+133224	27	1066	1645461	132053	L	2	15919	L	83051301	000000	000000	015340	000300	502	V	
FA107	BD+133224	27	1066	1645461	132053	L	2	15920	L	83051302	000000	000000	023148	000300	502	V	
FA107	BD+133224	27	1060	1645461	132053	L	2	15924	L	83051305	000000	000000	052757	000230	502	V	
FA107	BD+133224	27	1065	1645461	132053	L	2	15921	L	83051303	000000	000000	031608	000230	502	V	
FA107	BD+133224	27	1064	1645461	132053	H	3	19966	L	83051301	000000	000000	011722	026000	502	V	COMBINATION OF 9 EXPOSURES
FA107	BD+133224	27	1063	1645461	132053	L	2	15922	L	83051304	000000	000000	040004	000300	502	V	
FA107	BD+133224	27	1061	1645461	132053	L	2	15923	L	83051304	000000	000000	044403	000300	502	V	
OD75B	OOSKY BACK	07	0000	1647446	-162949	H	3	19668	S	83040703	031900	085500	000000	000000		G	B=165
EM063	LIM	99	9999	1648028	-162744	E	9	01410	2	83040703	030200	000000	000000	000000		V	
CCFEB	HD 153597	41	0490	1655448	+651239	L	3	19999	L	83051523	000000	000000	231300	003500		G	E=106,C=2X,B=25
CCFEB	HD 153597	41	0490	655448	+651239	H	2	15955	L	83051522	000000	000000	224300	002000		G	E=136,C=1.5X,B=47
WDFJN	00 13379	17	0000	1658573	+442800	L	3	20216	L	83061313	000000	000000	133100	004500		G	C=55,B=32
WDFJN	00 13379	17	0000	658573	+442800	L	2	16153	L	83061312	000000	000000	125700	002500		G	C=70,B=32
FI066	V2051OPH	63	1450	1705140	-254438	L	3	20524	L	83072820	000000	000000	202111	004000	231	V	
FI066	V2051OPH	63	1450	705140	-254438	L	2	16470	L	83072821	000000	000000	210747	004000	333	V	
FI066	V2051OPH	63	1450	705140	-254438	L	3	20525	L	83072821	000000	000000	215115	018000	341	V	
FI066	V2051OPH	63	1450	705140	-254438	L	2	16471	L	83072900	000000	000000	005601	009000	343	V	
FI066	V2051OPH	63	1450	705140	-254438	L	3	20526	L	83072902	000000	000000	023039	007600	331	V	
PHCAL	HD155763	21	0327	708381	654634	L	1	01924	L	83062901	000000	000000	015231	000001	503	V	TRAIL R=13.89 I=1
PHCAL	HD 155763	25	0320	708382	+654634	L	2	16433	L	83072611	000000	000000	113700	000002		G	C=200,B=25

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE A		DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
PHCAL	HD 155763	25	0320	1708382	+654634	L	3	20245	L	83061721	000000	000000	213900	000082		G	C=145,B=20
FE131	NGC6300	84	1266	1712168	-624554	L	2	16054	L	83060201	000000	000000	013741	020000	115	V	SERENDIPITY
FE131	NGC6300	84	1266	1712168	-624554	L	3	20124	L	83060201	000000	000000	013115	025500	211	V	
MGFLH	HD 156026	46	0630	1713087	-262833	H	2	16311	L	83070712	000000	000000	122500	005000		G	E=206,C=80,B=33
OD16K	HD 157864	30	0630	1723493	-255403	H	2	16273	L	83070112	000000	000000	124900	001400		G	C=195,B=40
OD10K	HD 157864	30	0630	1723494	-255404	H	2	16160	L	83061409	000000	000000	095900	001400		G	C=160,B=35
AFFJL	HD 157950	41	0450	1723586	-050239	H	2	15717	L	83041200	000000	000000	003300	001200		G	E=245,B=55
CCFEB	HD 157950	41	0450	1723586	-050239	L	3	19998	L	83051521	000000	000000	215300	001500		G	E=170,C=2-3X,B=200
CCFEB	HD 157950	41	0450	1723586	-050239	L	3	19997	L	83051521	000000	000000	210400	001000		G	E=211,C=2X,B=255
CCFEB	HD 157950	41	0450	1723586	-050239	H	2	15954	L	83051520	000000	000000	203700	000800		G	E=208,C=1.5X,B=155
MGFLH	OO GL 685	48	0995	1735019	+614305	H	2	15702	L	83041017	000000	000000	173400	001700		G	E=103,B=50
MGFLH	OO GL 685	48	0990	1735020	+614306	L	2	16088	L	83060706	000000	000000	063200	005500		G	E=113,C=70,B=31
HSFJD	OO LSE 161	16	1190	1735199	+221059	L	3	19842	L	83042814	000000	000000	145000	000300		G	C=200,B=25
HSFJD	OO LSE 161	16	1190	1735199	+221059	L	2	15827	L	83042814	000000	000000	145800	000500		G	C=180,B=40
HSFJH	BD+29 3070	16	0010	1736220	+291013	L	2	16266	L	83062921	000000	000000	212600	000335		G	C=160,B=21
HSFJH	BD+29 3070	16	0010	1736220	+291013	L	3	20344	L	83062921	000000	000000	211800	000220		G	C=160,B=14
FA107	HD160641	13	1008	1738550	-175300	L	2	15940	L	83051404	000000	000000	044041	000230	401	V	
FA107	HD160641	13	1008	1738550	-175300	L	3	19977	L	83051401	000000	000000	015812	000530	500	V	
FA107	HD160641	13	1010	1738550	-175300	L	2	15939	L	83051403	000000	000000	033542	000230	501	V	
FA107	HD160641	13	1008	1738550	-175300	L	3	19978	L	83051403	000000	000000	032615	000530	400	V	
FA107	HD160641	13	1010	1738550	-175300	L	3	19979	L	83051404	000000	000000	043018	000530	400	V	
FA107	HD160641	13	1003	1738550	-175300	L	3	19980	L	83051405	000000	000000	053810	000530	500	V	
FA107	HD160641	13	1000	1738550	-175300	L	3	19981	L	83051406	000000	000000	064534	000530	400	V	
FA107	HD160641	13	1003	1738550	-175300	L	3	19982	L	83051407	000000	000000	073946	000700	500	V	
FA107	HD160641	13	1006	1738550	-175300	L	3	19976	L	83051400	000000	000000	005415	000300	400	V	
FA107	HD160641	13	1004	1738550	-175300	L	2	15942	L	83051406	000000	000000	065357	000230	501	V	
FA107	HD160641	13	1008	1738550	-175300	L	2	15938	L	83051402	000000	000000	022907	000230	501	V	
FA107	HD160641	13	1004	1738550	-175300	L	2	15941	L	83051405	000000	000000	054648	000230	401	V	
FA107	HD160641	13	1006	1738550	-175300	L	2	15937	L	83051401	000000	000000	015140	000230	501	V	
FA107	HD160641	13	1004	1738550	-175300	L	2	15936	L	83051400	000000	000000	004419	000230	501	V	
NPFWF	OO HE2-274	70	1170	1741526	-460410	H	3	19968	L	83051314	000000	000000	145500	005500		G	C=30%X,B=200
CSFHJ	OO SZ SGR	50	0860	1742001	-183813	L	3	20483	L	83071918	000000	000000	180300	010700		G	C=93,B=70
CSFHJ	OO SZ SGR	50	0860	1742001	-183813	L	3	20482	L	83071909	000000	000000	090800	004500		G	E=74,C=45,B=35
CSFHJ	OO SZ SGR	50	0870	1742001	-183813	L	2	16374	L	83071909	000000	000000	095900	012000		G	C=195,B=95
SPFCB	OO NEPTUNE	07	0770	1746020	-220832	L	3	20472	L	83071513	000000	000000	133000	004500		G	B=81
SPFCB	OO NEPTUNE	03	0770	1746020	-220832	L	2	16342	L	83071514	000000	000000	141800	000500		G	C=200,B=28
SPFCB	OO NEPTUNE	03	0770	1746020	-220832	L	2	16341	L	83071513	000000	000000	132100	000500		G	C=190,B=26
SPFCB	OO NEPTUNE	07	0770	1746020	-220832	L	3	20471	L	83071512	000000	000000	122400	003000		G	B=52
SPFCB	OO NEPTUNE	03	0770	1746020	-220832	L	3	20473	L	83071515	000000	000000	154300	003000		G	B=111
SPFCB	OO NEPTUNE	03	0770	1746020	-220832	L	2	16343	L	83071516	000000	000000	162400	000500		G	C=210,B=35
SPFCB	OO NEPTUNE	03	0770	1746020	-220832	L	3	20474	L	83071516	000000	000000	165300	003000		G	B=120
SPFCB	OO NEPTUNE	03	0770	1746020	-220832	L	3	20475	L	83071518	000000	000000	180600	005500		G	C=95,B=73
SPFCB	OO NEPTUNE	03	0770	1746020	-220832	L	2	16344	L	83071517	000000	000000	173600	000500		G	C=210,B=32
SPFCB	OOSKYBKGRN	07	0770	1746060	-220833	L	3	20467	L	83071414	000000	000000	140800	004000		G	B=56
SPFCB	OO NEPTUNE	03	0770	1746060	-220833	L	2	16339	L	83071413	000000	000000	135800	000500		G	C=180,B=29

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
SPFCB	00 NEPTUNE	03	0770	1746060	-220833	L	3	20469	L	83071418	000000	000000	180500	007700		G B=65
SPFCB	00 NEPTUNE	03	0770	1746060	-220833	L	3	20468	L	83071416	000000	000000	164600	003000		G B=72
SPFCB	00 NEPTUNE	03	0770	1746060	-220833	L	2	16340	L	83071415	000000	000000	153900	004000		G C=5-6X,B=80
SPFCB	00SKYBKGRN	07	9999	1746061	-220908	L	3	20466	L	83071412	000000	000000	125900	002000		G B=30
FM098	HD162365	20	0805	1747520	153031	H	3	19786	L	83042202	000000	000000	024601	005500	601	V
FM098	HD162365	20	0807	1747520	153031	H	2	15794	L	83042203	000000	000000	034401	003500	603	V
FA153	HD162732	22	0681	1748447	482425	H	3	20310	L	83062423	000000	000000	233824	002500	601	V
FA153	HD162732	22	0681	1748447	482425	H	2	16229	L	83062423	000000	000000	230556	002200	602	V
FA153	HD162732	22	0680	1748447	482425	L	2	16230	LS	83062500	001117	000025	000802	000015	601	V 502$
FA152	HD162732	26	0681	1748447	482425	H	3	19654	L	83040603	000000	000000	032418	002500	500	V
FA153	HD162732	22	0677	1748448	482425	H	3	20041	L	83052105	000000	000000	051917	002500	501	V
FA153	HD162732	22	0678	1748450	482425	H	2	15992	L	83052105	000000	000000	055112	002200	503	V
FA153	HD162732	22	0678	1748450	482425	L	3	20042	LS	83052106	062717	000008	062302	000018	500	V 300$
SPFCB	00 NEPTUNE	03	0770	1754014	-221042	L	2	15814	L	83042519	000000	000000	190700	000500		G C=200,B=28
SPFCB	00SKY BKGD	07	9999	1754014	-221042	L	3	19814	L	83042519	000000	000000	194000	003000		G B=70
SPFCB	00 NEPTUNE	03	0770	1754014	-221042	L	3	19817	L	83042523	000000	000000	234100	011300		G C=65,B=50
SPFCB	00 NEPTUNE	03	0770	1754014	-221042	L	3	19815	L	83042520	000000	000000	205000	003000		G B=190
SPFCB	00SKY BKGD	07	9999	1754014	-221042	L	3	19813	L	83042518	000000	000000	183200	002000		G B=50
SPFCB	00 NEPTUNE	03	0770	1754014	-221042	L	2	15817	L	83042522	000000	000000	225000	004000		G C=6X,B=190
SPFCB	00 NEPTUNE	03	0770	1754014	-221042	L	2	15816	L	83042521	000000	000000	212800	002000		G C=4X,B=54
SPFCB	00 NEPTUNE	03	0770	1754014	-221042	L	3	19816	L	83042521	000000	000000	215800	004500		G B=190
SPFCB	00 NEPTUNE	03	0770	1754014	-221042	L	2	15815	L	83042520	000000	000000	201500	000500		G C=150,B=30
SPFCB	00 NEPTUNE	03	0830	1754024	-221042	L	2	15807	L	83042420	000000	000000	205700	000400		G C=170,B=25
SPFCB	00 NEPTUNE	03	0830	1754024	-221042	L	3	19807	L	83042419	000000	000000	193700	002000		G B=18
SPFCB	00 NEPTUNE	03	0830	1754024	-221042	L	3	19808	L	83042420	000000	000000	202400	003000		G C=45,B=25
SPFCB	00 NEPTUNE	03	0830	1754024	-221042	L	2	15808	L	83042422	000000	000000	223300	002000		G C=4X,B=35
SPFCB	00 NEPTUNE	03	0830	1754024	-221042	L	3	19809	L	83042421	000000	000000	212700	006000		G C=100,B=70
SPFCB	00 NEPTUNE	03	0830	1754024	-221042	L	2	15809	L	83042500	000000	000000	000700	002000		G C=4X,B=25
SPFCB	00 NEPTUNE	03	0830	1754024	-221042	L	3	19810	L	83042423	000000	000000	230100	012000		G C=80,B=50
SPFCB	00SKY BKGD	07	9999	1754024	-221042	L	3	19806	L	83042418	000000	000000	185200	001500		G B=15
FC110	HD163770	47	0417	1754320	371530	L	3	19624	L	83040307	000000	000000	070442	016300	351	V
HSFTS	HD 164284	26	0480	1757480	+042130	H	3	20534	L	83072918	000000	000000	181000	000145		G C=200,B=35
HSFTS	HD 164284	26	0480	1757480	+042130	H	3	20535	L	83072918	000000	000000	183800	000230		G C=250,B=45
HSFTS	HD 164284	26	0480	1757480	+042130	H	3	20366	L	83070219	000000	000000	193800	000320		G C=1.5X,B=50
HSFTS	HD 164284	26	0480	1757480	+042130	H	3	19618	L	83040223	000000	000000	234000	000320		G C=4X,B=121
HSFTS	HD 164284	26	0480	1757480	+042130	H	3	19617	L	83040223	000000	000000	230900	000210		G C=1.5X,B=78
HSFTS	HD 164284	26	0480	1757480	+042130	H	3	20365	L	83070219	000000	000000	190600	000210		G C=230,B=40
NPFTB	NG 6543	71	0770	1758157	+663820	L	3	20122	L	83060114	000000	000000	143300	018000		G E=132,B=100
NPFTB	NG 6543	71	0770	1758157	+663820	L	2	16052	L	83060117	000000	000000	173700	012000		G B=82
NPFTB	NG 6543	71	0770	1758342	+663805	L	3	20123	S	83060119	195200	000400	000000	000000		G E=225,C=120,B=25
NPFTB	NG 6543	71	0770	1758342	+663809	L	2	16053	S	83060120	203300	007200	000000	000000		G E=152,C=140,B=45
HCFEB	00 BL HER	53	1060	1758595	+191503	L	3	20027	L	83051912	000000	000000	123300	012000		G C=65,B=45
RPSTD	HD 164865	25	0762	1801096	-241108	L	2	16333	L	83071204	000000	000000	045000	001400		G C=1.3X,B=28
RPSTD	HD 164865	25	0762	1801096	-241108	L	3	20519	L	83072719	000000	000000	193500	001400		G C=60,B=15
CCFAD	HD 165195	47	0770	1802112	+034634	L	1	01909	L	83062712	000000	000000	122600	005000		G C=230,B=75

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
SPFRN	00410 CHLR	05	1080	1804564	-205445	L	2	16196	L	83062111	000000	000000	111200	008300		G	C=190,B=50
MGFLH	HD 166620	46	0640	1807580	+382712	H	2	16314	L	83070717	000000	000000	172900	013000		G	E=189,C=180,B=73
HSFJD	00 LSE0234	16	0030	1808214	-645553	L	2	15822	L	83042716	000000	000000	161900	001000		G	C=220,B=51
HSFJD	00 LSE0234	16	0030	1808214	-645553	L	3	19831	L	83042716	000000	000000	160900	000336		G	C=190,B=34
FST00	COMET IRAS	06	1173	1810000	624000	L	3	19924	L	83050802	000000	000000	021258	001000	041	V	COMBINATION OF TWO EXPOSURES:
FST00	COMET IRAS	06	1169	1810000	624000	L	3	19926	L	83050806	000000	000000	062426	002000	030	V	SERENDIPITY WITH LWR1589535 M
FST00	COMET IRAS	06	1173	1810000	624000	L	2	15893	L	83050802	000000	000000	024321	001200	221	V	
FST00	COMET IRAS	06	1169	1810000	624000	L	2	15896	L	83050807	000000	000000	071756	001300	231	V	
FST00	COMET IRAS	06	9999	1810000	624000	E	9	01421	2	83050800	000000	000000	000000	000000		V	FIELD FOR IRAS COMET
FST00	COMET IRAS	06	1164	1810000	624000	L	3	19925	LS	83050803	032245	012000	032245	012000	221	V	221$03:22:45/35MIN//04:02:12/
FST00	COMET IRAS	06	1164	1810000	624000	L	2	15894	LS	83050804	040321	005000	040321	005000	233	V	COMBINATION OF TWO EXPOSURES
FST00	COMET IRAS	06	1219	1810000	624000	L	2	15892	L	83050801	000000	000000	010107	001200	001	V	ERROR IN DECLINATION RATE
FST00	COMET IRAS	06	1169	1810000	624000	L	2	15895	LS	83050805	054502	006000	054502	006000	232	V	232$NUCLEUS IN X=-34; Y=+352/
FC199	HDE319139	46	1061	1810530	-324830	L	3	20033	L	83052006	000000	000000	061816	008900	221	V	
FC199	HDE319139	46	1058	1810530	-324830	L	2	15982	LS	83052004	055851	001500	045141	006000	353	V	
CSFHJ	HD 168227	50	0870	1816294	-153805	L	2	16375	L	83071912	000000	000000	123600	009000		G	C=180,B=110
BEFPB	HD 169033	26	0570	1820242	-120228	H	3	19929	L	83050816	000000	000000	165500	001830		G	C=250,B=73
NPFJK	OOK1 16	70	1510	1821352	+642030	L	3	20273	L	83062016	000000	000000	161300	001000		G	C=120,B=30
NPFJK	OOK1 16	70	1510	1821352	+642030	L	3	20272	L	83062015	000000	000000	152600	001000		G	C=112,B=29
NPFJK	OOK1 16	70	1510	1821352	+642030	L	3	20271	L	83062014	000000	000000	144200	001000		G	C=115,B=36
NPFJK	OOK1 16	70	1510	1821353	+642030	L	3	20274	L	83062016	000000	000000	165600	001000		G	C=127,B=45
OD91B	OO S 68	70	1600	1822256	+004954	L	3	19677	L	83040812	000000	000000	121300	009000		G	C=55,B=25
OD91B	OO S 68	70	1600	1822256	+004954	L	3	19676	L	83040810	000000	000000	104900	006000		G	C=45,B=20
AFFJL	HD 171802	40	0540	1834046	+090454	H	2	15744	L	83041522	000000	000000	223600	001800		G	C=1.5X,B=125
FA180	V348SGR	30	1301	1837182	-225719	L	2	16456	L	83072720	000000	000000	203651	009500	305	V	
FA180	V348SGR	20	1305	1837182	-225719	L	3	20520	L	83072722	000000	000000	221538	024000	301	V	
FA180	V348SGR	20	1295	1837182	-225719	L	2	16457	L	83072802	000000	000000	020626	009700	304	V	
AFFJL	HD 173667	41	0420	1843305	+202950	H	2	15724	L	83041300	000000	000000	003900	001500		G	E=127,C=1.5X,B=45
FST00	COMET IRAS	06	0600	1843434	560718	E	9	01418	2	83050600	000000	000000	000000	000000		V	
FST00	COMET IRAS	06	1050	1843435	560719	L	2	15885	L	83050601	000000	000000	013655	003000	231	V	SLIT CENTERED ON NUCLEUS,RARA
FST00	COMET IRAS	06	1050	1843435	560719	L	3	19910	L	83050602	000000	000000	021044	002000	151	V	SLIT CENTERED ON NUCLEUS,RARA
BEFPB	HD 174237	26	0590	1845360	+525556	H	3	19930	L	83050817	000000	000000	175300	000550		G	C=220,B=45
BEFPB	HD 174237	26	0590	1845360	+525556	H	3	20430	L	83071012	000000	000000	125100	000510		G	C=185,B=35
FI240	4U1849-31	59	1353	1851500	-311339	L	3	19820	L	83042608	000000	000000	084836	005300	341	V	
FI240	4U1849-31	59	1365	1851500	-311339	L	2	15819	L	83042608	000000	000000	080428	004000	402	V	
CCFLH	HD 177171	41	0510	1902227	-522459	H	2	16096	L	83060721	000000	000000	211500	003000		G	E=147,C=220,B=41
BEFPB	HD 178175	26	0550	1905204	-192213	H	3	19928	L	83050816	000000	000000	161600	000445		G	C=210,B=42
CCFAD	00 A59	47	1090	1906079	-600203	L	1	01908	L	83062707	000000	000000	070700	024000		G	C=95,B=58
PHCAL	00 TFLOOD	99	0000	1911213	+021231	H	3	20147	S	83060418	185200	000005	000000	000000		G	B=105
PHCAL	00 WAVCAL	99	0000	1911213	+021231	H	1	01890	S	83060419	193500	000000	000000	000000		G	E=50X,B=108 TFLOOD=00
PHCAL	00 WAVCAL	99	0000	1911213	+021231	L	3	20145	S	83060417	175900	000002	000000	000000		G	E=10X,B=100 TFLOOD=05
PHCAL	00 WAVCAL	99	0000	1911213	+021231	L	1	01889	S	83060419	190500	000001	000000	000000		G	E=10X,B=100 TFLOOD=25
PHCAL	00 WAVCAL	99	0000	1911213	+021231	L	2	16067	S	83060416	161100	000001	000000	000000		G	E=10X,B=81 TFLOOD=07
PHCAL	00 WAVCAL	99	0000	1911213	+021231	H	3	20146	S	83060418	182300	000200	000000	000000		G	E=50X,B=130 TFLOOD=05
PHCAL	00 WAVCAL	99	0000	1911213	+021231	H	2	16068	S	83060416	163900	000016	000000	000000		G	E=50X,B=118 TFLOOD=07

PRO		OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
PHCAL	00	TFLOOD	99	0000	1911213	+021231	H	2	16069	S	83060417	170600	000007	000000	000000		G B=115
PHCAL	00	TFLOOD	99	0000	1911213	+021231	H	1	01891	S	83060420	202700	000025	000000	000000		G B=103
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	19970	L	83051317	000000	000000	175300	000500		G C=205,B=55
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	20175	L	83060914	000000	000000	144900	000820		G C=1.1X,B=42
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	16099	L	83060815	000000	000000	153000	000700		G C=2X,B=40
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	16110	L	83060915	000000	000000	150400	000320		G C=210,B=33
HSFSA	BS	7287	22	0510	1911214	+021232	L	2	16112	L	83060917	000000	000000	174900	000011		G C=195,B=26
HSFSA	BS	7287	22	0510	1911214	+021232	L	3	20177	L	83060917	000000	000000	173900	000019		G C=200,B=26
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	16100	L	83060816	000000	000000	164100	000700		G C=2X,B=40
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	20176	L	83060915	000000	000000	153300	000512		G C=185,B=35
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	16111	L	83060916	000000	000000	160600	000700		G C=2X,B=40
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	15931	L	83051318	000000	000000	182000	000320		G C=205,B=40
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	15929	L	83051316	000000	000000	163700	000710		G C=3X,B=55
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	16098	L	83060814	000000	000000	143900	001210		G C=3X,B=50
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	19971	L	83051318	000000	000000	185000	000721		G C=1.5X,B=80
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	20143	L	83060414	000000	000000	143100	001840		G C=3X,B=72
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	20144	L	83060415	000000	000000	152100	001636		G C=3X,B=68
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	15930	L	83051317	000000	000000	172000	000236		G C=175,B=33
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	20165	L	83060814	000000	000000	145700	001530		G C=3X,B=65
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	19969	L	83051316	000000	000000	165200	000324		G C=150,B=40
HSFSA	BS	7287	22	0510	1911214	+021232	H	2	16066	L	83060414	000000	000000	145500	001210		G C=3X,B=50
HSFSA	BS	7287	22	0510	1911214	+021232	H	3	20166	L	83060816	000000	000000	160000	000742		G C=295,B=41
BEFPB	HD	180968	26	0540	1915366	+225603	H	3	19931	L	83050818	000000	000000	183300	000630		G C=220,B=45
BEFPB	00	2 VUL	26	0490	1915366	+225603	H	3	20431	L	83071013	000000	000000	133500	000620		G C=205,B=37
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20221	L	83061321	000000	000000	211800	002700		G C=206,B=40
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20207	L	83061221	000000	000000	213400	001500		G C=128,B=30
IBFGM	HD	181182	66	0660	1916371	+193104	H	2	16157	L	83061320	000000	000000	205000	001700		G C=210,B=40
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20213	L	83061307	000000	000000	072800	002500		G C=179,B=38
IBFGM	HD	181182	66	0660	1916371	+193104	H	2	16143	L	83061221	000000	000000	210600	001500		G C=190,B=33
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20205	L	83061219	000000	000000	193200	002500		G C=210,B=45
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20206	L	83061220	000000	000000	203500	002500		G C=200,B=40
IBFGM	HD	181182	66	0660	1916371	+193104	H	2	16136	L	83061120	000000	000000	205400	002400		G C=245,B=40
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20187	L	83061019	000000	000000	194600	002400		G C=200,B=40
IBFGM	HD	181182	66	0660	1916371	+193104	H	2	16149	L	83061307	000000	000000	070600	001500		G C=198,B=37
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20199	L	83061121	000000	000000	212300	002500		G C=185,B=38
IBFGM	HD	181182	66	0660	1916371	+193104	H	2	16142	L	83061220	000000	000000	200600	001500		G C=200,B=36
IBFGM	BD	181182	66	0660	1916371	+193104	H	2	16123	L	83061020	000000	000000	201700	001500		G C=215,B=35
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20188	L	83061020	000000	000000	204400	002400		G C=200,B=38
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20198	L	83061120	000000	000000	200400	004500		G C=250,B=56
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20214	L	83061308	000000	000000	084100	002600		G C=200,B=38
IBFGM	HD	181182	66	0660	1916371	+193104	H	2	16124	L	83061021	000000	000000	211500	001500		G C=200,B=33
IBFGM	HD	181182	66	0660	1916371	+193104	H	3	20220	L	83061320	000000	000000	201800	002700		G C=210,B=45
IBFGM	HD	181182	66	0660	1916371	+193104	H	2	16151	L	83061309	000000	000000	092200	001700		G C=200,B=38
IBFGM	HD	181182	66	0660	1916371	+193104	H	2	16150	L	83061308	000000	000000	080500	001600		G C=200,B=38
FE021	TO	1924416	88	1550	1924293	-414039	L	2	16158	L	83061323	000000	000000	231752	038500	669	V

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
FE021	T 1924-416	88	1550	1924293	-414039	L	3	20200	L	83061123	000000	000000	230412	040300	552	V	
CCFLH	HD 183650	44	0700	1927258	+313035	H	2	16089	L	83060708	000000	000000	080600	021000		G	E=112,C=1.1X,B=60
FC268	HD185657	47	0670	1936333	491003	L	2	15840	L	83042909	000000	000000	092010	001600	602	V	2EXP LAP FROM RP(-16,-208)&(-
HCFEB	00 SU CYG	53	0690	1942484	+290834	H	2	15976	L	83051914	000000	000000	145600	015000		G	C=2X,B=135
GCFRZ	HD 186776	48	0630	1943069	+403541	L	2	16233	L	83062513	000000	000000	130300	003500		G	E=255,C=115,B=65
FA114	NGC6826	70	0976	1943300	502400	H	3	20447	L	83071120	000000	000000	202404	018000	672	V	
FA009	HD186786	40	0627	1946152	-654348	H	2	15969	L	83051900	000000	000000	002848	004653	614	V	
FA009	HD186786	40	0617	1946152	-654348	H	2	15970	L	83051901	000000	000000	015042	004653	613	V	NZ PAVO
BEFPB	HD 187811	26	0490	1948548	+222854	H	3	19937	L	83050822	000000	000000	222300	000215		G	C=220,B=45
BEFPB	HD 187811	26	0490	1948548	+222854	H	3	20432	L	83071014	000000	000000	141000	000205		G	C=200,B=37
BEFPB	HD 189687	26	0520	1958051	+365417	H	3	19936	L	83050821	000000	000000	214800	000210		G	C=185,B=42
HSFGD	00 RR TEL	63	1050	2000200	-555200	H	3	20246	L	83061806	000000	000000	062100	082000		G	E=600X,C=1.1X,B=160
HSFGD	00 RR TEL	63	1050	2000200	-555200	L	2	16186	L	83061819	000000	000000	194400	000200		G	E=2X,C=90,B=27
FI128	RR TEL	57	1071	2000200	-555200	H	2	16187	L	83061820	000000	000000	205723	052400	389	V	EXPOSURE STARTED AT GSFC FOR
HSFGD	00 RR TEL	63	1050	2000200	-555200	H	3	20251	L	83061819	000000	000000	191900	001000		G	E=3X,B=32
HSFGD	00 RR TEL	63	1050	2000200	-555200	L	3	20250	L	83061818	000000	000000	183700	000200		G	E=5X,C=65,B=19
HSFGD	00 RR TEL	63	1050	2000200	-555200	H	2	16181	L	83061812	000000	000000	124700	002000		G	E=2-3X,C=85,B=32
HSFGD	00 RR TEL	63	1050	2000200	-555200	D	9	01446	L	83061818	000000	000000	182800	002000		G	NO COMMENTS
HSFGD	00 RR TEL	63	1050	2000200	-555200	H	3	20247	L	83061813	000000	000000	131800	002000		G	E=5-10X,C=60,B=32
FI128	RR TEL	57	9999	2000200	-555200	E	9	01445	2	83061722	000000	000000	000000	000000		V	FIELD FOR RR TEL
HSFGD	00 RR TEL	63	1050	2000200	-555200	H	3	20252	L	83061820	000000	000000	201800	001000		G	E=3X,B=23
CCFLH	HD 190406	44	0580	2001513	+165600	H	2	16090	L	83060712	000000	000000	121300	008000		G	E=148,C=2X,B=48
CVFJN	X 2003+225	63	1500	2003326	+223128	L	3	20215	L	83061311	000000	000000	110900	006000		G	C=50,B=30
CVFJN	X 2003+225	63	1500	2003326	+223128	L	2	16152	L	83061310	000000	000000	103900	002500		G	C=76,B=32
SCFPF	ODCOM1983E	06	9999	2005550	+064312	L	2	16137	L	83061208	000000	000000	083300	030000		G	E=162,B=55
FC110	HD192577	46	0400	2012033	463520	H	2	15645	L	83040302	000000	000000	025556	001200	602	V	
FC110	HD192577	46	0398	2012033	463520	H	3	19622	L	83040302	000000	000000	023929	001200	601	V	
BEFPB	HD 192685	26	0480	2013087	+252617	H	3	19932	L	83050819	000000	000000	191400	000130		G	C=220,B=40
BEFPB	HD 192685	26	0480	2013087	+252617	H	2	16326	L	83071019	000000	000000	192100	000100		G	C=185,B=30
BEFPB	HD 192685	26	0480	2013087	+252617	H	3	20439	L	83071019	000000	000000	191600	000130		G	C=190,B=32
HCFSP	HD 192713	39	0040	2013205	+232117	L	3	19744	L	83041720	000000	000000	201700	001500		G	E=228,C=165,B=155
HCFSP	HD 192713	39	0040	2013205	+232117	H	2	15758	L	83041718	000000	000000	184800	001500		G	E=157,C=120,B=65
HCFSP	HD 192713	39	0870	2013205	+232117	H	3	19812	L	83042516	000000	000000	165900	003000		G	C=120,B=80
HCFSP	HD 192713	39	0040	2013205	+232117	H	2	16235	L	83062514	000000	000000	145800	003000		G	E=250,C=200,B=88
HCFSP	HD 192713	39	9999	2013205	+232117	L	2	16234	L	83062514	000000	000000	141100	000400		G	C=245,B=35
HCFSP	HD 192713	39	0040	2013205	+232117	L	3	19811	L	83042513	000000	000000	134100	000300		G	C=160,B=25
HCFSP	HD 192713	39	0040	2013205	+232117	H	2	15813	L	83042517	000000	000000	173300	001800		G	E=137,C=100,B=48
HCFSP	HD 192713	39	0040	2013205	+232117	L	3	20313	L	83062514	000000	000000	142800	000230		G	C=200,B=20
HCFSP	HD 192713	39	0040	2013205	+232117	L	3	20490	L	83072104	000000	000000	043300	000230		G	C=180,B=15
HCFSP	HD 192713	39	0040	2013205	+232117	L	2	15760	L	83041720	000000	000000	204700	000600		G	E=3X,C=2X,B=40
HCFSP	HD 192713	39	0040	2013205	+232117	L	3	19743	L	83041719	000000	000000	191700	001000		G	E=141,C=100,B=95
HCFSP	HD 192713	39	0040	2013205	+232117	H	2	16394	L	83072104	000000	000000	044100	008500		G	E=3X,C=240,B=45
HCFSP	HD 192713	39	0040	2013205	+232117	L	3	19742	L	83041718	000000	000000	183900	000300		G	E=57,C=41,B=40
HCFSP	HD 192713	39	0040	2013205	+232117	L	3	19781	L	83042119	000000	000000	195200	000800		G	E=85,C=40,B=25
HCFSP	HD 192713	39	0040	2013205	+232117	H	2	15789	L	83042119	000000	000000	192300	002500		G	E=157,C=80,B=32

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
HCFSP	HD 192713	39	0040	2013205	+232117	L	2	15759	L	83041719	000000	000000	194800	000300		G	E=2X,C=2200,B=30
FC110	HD192713	44	0541	2013210	232100	H	3	19623	L	83040303	000000	000000	033702	015000	502	V	
VVFIA	HD 192909	39	0420	2013555	+473336	H	2	16025	L	83052821	000000	000000	213800	001500		G	E=1.2X,C=140,B=39
VVFIA	HD 192909	39	0420	2013555	+473336	H	2	16275	L	83070115	000000	000000	152200	000600		G	E=156,C=110,B=30
VVFIA	HD 192909	39	0420	2013555	+473336	H	2	15784	L	83042101	000000	000000	011700	001800		G	E=2X,C=200,B=32
VVFIA	HD 192909	39	0420	2013555	+473336	H	3	19776	L	83042100	000000	000000	003700	003233		G	C=170,B=38
VVFIA	HD 192909	39	0420	2013555	+473336	H	3	20089	L	83052821	000000	000000	210200	003000		G	C=200,B=85
VVFIA	HD 192909	39	0420	2013555	+473336	H	2	16024	L	83052820	000000	000000	205000	000600		G	E=145,C=100,B=38
VVFIA	HD 192909	39	0420	2013555	+473336	H	3	20351	L	83070114	000000	000000	143700	003800		G	C=200,B=66
VVFIA	HD 192909	39	0420	2013555	+473336	H	2	16274	L	83070114	000000	000000	141300	001800		G	E=2X,C=190,B=41
VVFIA	HD 192909	39	0420	2013555	+473336	H	3	20549	L	83073112	000000	000000	125200	003000		G	C=190,B=65
VVFIA	HD 192909	39	0420	2013555	+473336	H	2	16487	L	83073112	000000	000000	122900	001800		G	E=2.5X,C=200,B=40
FA074	HD193237	23	0494	2015565	375236	L	3	19868	LS	83050106	062431	000100	062042	000018	501	V	601$
FI074	HD193237	23	0505	2015565	375236	L	2	15665	LS	83040609	094314	000020	094057	000004	701	V	
FA074	HD193237	23	0502	2015565	375236	L	2	15854	LS	83050105	054959	000020	054539	000004	702	V	502$
FA074	HD193237	23	0498	2015565	375236	H	3	19867	L	83050105	000000	000000	051108	002400	661	V	
FA074	HD193237	23	0499	2015565	375236	H	2	15853	L	83050104	000000	000000	044920	000600	562	V	
FA074	HD193237	23	0499	2015565	375236	L	3	20052	LS	83052304	045342	000110	045030	000018	500	V	700$
FA074	HD193237	23	0499	2015565	375236	L	1	01880	LS	83052304	044809	000020	044530	000004	502	V	702$
PHCAL	HD193237	23	0493	2015565	375236	H	3	20318	L	83062523	000000	000000	234522	002500	661	V	
PHCAL	HD193237	23	0498	2015565	375236	H	2	16242	L	83062600	000000	000000	001732	000600	561	V	
PHCAL	HD193237	23	0500	2015565	375236	L	3	20319	L	83062600	000000	000000	004457	000018	500	V	
FI074	HD193237	23	0503	2015565	375236	L	3	19659	L	83040609	000000	000000	093757	000018	501	V	
BEFPB	HD 194335	26	0590	2021520	+371850	H	3	19938	L	83050823	000000	000000	230000	000300		G	C=200,B=40
FA218	BD+40 4219	64	1049	2030263	411657	L	3	20227	L	83061503	000000	000000	035316	011500	321	V	
FA218	BD+40 4219	64	1051	2030263	411657	L	2	16165	L	83061503	000000	000000	031241	003600	402	V	
FA218	MISID.	65	1055	2030411	411412	L	2	15678	L	83040807	000000	000000	072817	003600	502	V	
FA218	MISID.	65	1059	2030411	411412	L	3	19675	L	83040808	000000	000000	080906	009800	400	V	
FA218	BD+404227	13	0903	2031272	410831	L	2	15686	L	83040902	000000	000000	022754	004200	503	V	
FA218	BD+404227	13	0905	2031273	410831	L	3	19684	L	83040903	000000	000000	031352	017500	331	V	
FA218	BD+40 4227	64	0909	2031273	410831	L	3	20226	L	83061423	000000	000000	231658	022000	431	V	
FA218	BD+40 4227	64	0908	2031273	410831	L	2	16164	L	83061422	000000	000000	223329	004000	502	V	
FE235	ES0400-G43	88	9999	2034309	-353939	L	3	19635	L	83040403	000000	000000	030634	039600	403	V	
FA154	HD196426	22	0630	2034446	-000441	H	2	15772	L	83041905	000000	000000	053358	001800	703	V	
FA154	HD196426	22	0628	2034446	-000441	H	3	19759	L	83041906	000000	000000	060118	001300	501	V	
FA154	HD196426	22	0633	2034446	-000441	H	3	19758	L	83041905	000000	000000	050049	002800	701	V	
FA154	HD196426	22	0629	2034446	-000441	H	2	15773	L	83041906	000000	000000	063818	001100	502	V	
CCFLH	HD 196378	41	0510	2035551	-604305	H	2	16095	L	83060719	000000	000000	193900	005500		G	E=162,C=4X,B=72
FI065	AE AQR	52	1149	2037342	-010257	H	3	20353	L	83070120	000000	000000	205704	041000	333	V	
CCFTA	OO AT MIC	48	1010	2038449	-323646	L	3	19690	L	83041000	000000	000000	002900	002000		G	E=111,B=57
CCFTA	OO AT MIC	48	1010	2038449	-323646	L	3	19691	L	83041001	000000	000000	013300	001600		G	E=69,B=19
CCFTA	OO AT MIC	48	1010	2038449	-323646	L	2	15693	L	83040923	000000	000000	235800	002500		G	E=1.1X,C=120,B=60
CCFTA	OO AT MIC	48	1010	2038449	-323646	L	2	15694	L	83041001	000000	000000	010500	002000		G	E=240,C=70,B=33
HSFJD	ODIV+10009	16	0040	2040382	+102320	H	3	19852	L	83042910	000000	000000	103600	024000		G	C=180,B=70
CCFTA	OO AU MIC	48	0860	2042049	-313117	L	3	19689	L	83040923	000000	000000	231600	001000		G	E=101,B=73

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
CCFTA	00 AU MIC	48	0860	2042049	-313117	L	2	15692	L	83040922	000000	000000	225500	001500		G C=249,C=120,B=68
NFFJR	00 CYGNUS	75	0000	2043174	+304902	L	3	19890	L	83050308	000000	000000	085100	042000		G C=92,B=90
NFFJR	00 CYGNUS	75	0000	2043174	+304902	D	9	01417	L	83050313	000000	000000	131600	016000		G NO COMMENTS
NFFJR	00 CYGNUS	75	0000	2043174	+304902	L	2	15867	L	83050315	000000	000000	155300	006000		G C=36,B=35
CDETA	HD 198164	50	0870	2045082	+455203	L	2	15812	L	83042514	000000	000000	140600	015500		G C=125,B=76
FI031	HBV475	57	1263	2049026	352336	L	2	16250	L	83062623	000000	000000	234532	003000	452	V
FI031	HBV475	57	1259	2049026	352336	L	3	20327	L	83062623	000000	000000	231157	003000	241	V
FI031	HBV475	57	1255	2049026	352336	L	3	20329	L	83062704	000000	000000	043823	006900	361	V
FI031	HBV475	57	1263	2049026	352336	H	3	20328	L	83062700	000000	000000	001940	020000	042	V
FI031	HBV475	57	1263	2049026	352336	L	2	16251	L	83062703	000000	000000	034348	005000	462	V
NFFJR	HD 198820	24	0640	2049581	+323937	H	3	19872	L	83050118	000000	000000	181100	001500		G C=2X,B=80
CBENM	HD 198846	20	0700	2050036	+342808	L	2	15661	L	83040519	000000	000000	191500	000040		G C=210,B=28
CBENM	HD 198846	20	0700	2050036	+342808	H	3	19652	L	83040601	000000	000000	010800	004000		G C=2X,B=60
CBENM	HD 198846	20	0700	2050036	+342808	L	2	15660	L	83040518	000000	000000	181100	000040		G C=210,B=28
CBENM	HD 198846	20	0700	2050036	+342808	L	3	19648	L	83040519	000000	000000	192600	000103		G C=220,B=18
CBENM	HD 198846	20	0700	2050036	+342808	H	3	19650	L	83040521	000000	000000	210600	003000		G C=230,B=48
CBENM	HD 198846	20	0700	2050036	+342808	H	3	19649	L	83040520	000000	000000	200900	002500		G C=225,B=25
CBENM	HD 198846	20	0700	2050040	+342808	H	3	19647	L	83040517	000000	000000	173800	002500		G C=1.1X,B=50
CBENM	HD 198846	20	0700	2050040	+342808	H	3	19646	L	83040516	000000	000000	164000	002500		G C=250,B=46
CBENM	HD 198846	20	0700	2050040	+342808	H	2	15659	L	83040516	000000	000000	161100	001200		G C=207,B=35
CBENM	HD 198846	20	0700	2050040	+342808	L	3	19644	L	83040514	000000	000000	145000	000103		G C=220,B=25
CBENM	HD 198846	20	0700	2050040	+342808	L	2	15658	L	83040515	000000	000000	150000	000121		G C=2X,B=25
CBENM	HD 198846	20	0700	2050040	+342808	H	3	19645	L	83040515	000000	000000	153400	002500		G C=240,B=45
NFFJR	HD 199140	24	0640	2052149	+281952	H	3	19871	L	83050117	000000	000000	172200	001500		G C=2X,B=90
SCFPF	OOCOM 83 E	06	9999	2054240	+265252	L	2	16133	SL	83061115	153700	001500	153700	001500		G E=54,B=25
NFFJR	00 CYGNUS	75	0000	2054479	+305549	L	2	15856	L	83050115	000000	000000	150600	012000		G C=110,B=107
NFFJR	00 CYGNUS	75	0000	2054479	+305549	L	3	19870	L	83050109	000000	000000	090400	036000		G E=197,C=90,B=85
NFFJR	00BACKGRND	07	9999	2054482	+305445	L	2	15855	L	83050109	000000	000000	092600	024500		G B=50
CCFEB	HD 199766	41	0530	2056345	+040602	L	3	19995	L	83051517	000000	000000	173100	003000		G E=205,C=2X,B=200
CCFEB	HD 199766	41	0530	2056345	+040602	L	3	19994	L	83051516	000000	000000	163300	002000		G E=160,C=2X,B=165
CCFEB	HD 199766	41	0530	2056345	+040602	H	2	15952	L	83051517	000000	000000	170000	001200		G E=137,C=185,B=83
HSFTS	HD 200120	26	0450	2058069	+471929	H	3	20533	L	83072917	000000	000000	171000	000300		G C=2X,B=60
HSFTS	HD 200120	26	0450	2058070	+471930	H	3	19620	L	83040300	000000	000000	004900	000300		G C=4X,B=90
HSFTS	HD 200120	26	0450	2058070	+471930	H	3	20266	L	83061921	000000	000000	210800	000300		G C=2X,B=55
HSFTS	HD 200120	26	0450	2058070	+471930	H	3	20265	L	83061920	000000	000000	203300	000300		G C=2X,B=60
HSFTS	HD 200120	26	0450	2058070	+471930	H	3	20532	L	83072916	000000	000000	163300	000120		G C=200,B=40
HSFTS	HD 200120	26	0450	2058070	+471930	H	3	19619	L	83040300	000000	000000	002000	000200		G C=2X,B=90
HSFTS	HD 200120	26	0450	2058070	+471930	H	3	20264	L	83061920	000000	000000	200500	000200		G C=1.2X,B=46
FA153	HD200120	20	0494	2058070	471930	H	3	20043	L	83052106	000000	000000	060804	000130	501	V
FA152	HD200120	26	0500	2058074	471930	H	3	19655	L	83040604	000000	000000	043325	000130	501	V
FA153	HD200120	22	0522	2058074	471930	H	2	16380	L	83072003	000000	000000	033913	000120	501	V
FA153	HD200120	20	0484	2058074	471930	H	3	20311	L	83062500	000000	000000	005012	000130	501	V
FA152	HD200120	26	0499	2058074	471930	H	2	15663	L	83040604	000000	000000	043746	000130	602	V
CCFLH	HD 199532	41	0510	2058440	-771301	H	2	16078	L	83060520	000000	000000	205000	004500		G E=153,C=1.5X,B=50
BEFPB	HD 200310	26	0540	2059261	+455731	H	3	19939	L	83050823	000000	000000	233100	000135		G C=180,B=35

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
FA084	NGC7027	70	0950	2105094	420202	L	3	19878	L	83050204	000000	000000	042940	016200	271	V	
FA084	NGC7027	70	0950	2105094	420201	L	3	19877	L	83050201	000000	000000	010714	001200	051	V	
FA084	NGC7027	70	0950	2105094	420202	L	2	15862	L	83050207	000000	000000	071725	002700	352	V	
FA084	NGC7027	70	0950	2105094	420202	L	2	15861	L	83050201	000000	000000	012429	018000	582	V	
WDFGW	OOBPM 1266	37	1350	2105119	-820059	L	3	20442	L	83071109	000000	000000	092000	012000		G	C=130,B=45
WDFGW	OOBPM 1266	37	1350	2105119	-820059	L	2	16328	L	83071108	000000	000000	081300	006000		G	C=132,B=30
HCFSP	HD 202447	39	0330	2113194	+050224	H	2	15761	L	83041721	000000	000000	212500	000700		G	C=1.5X,B=90
BEFPB	HD 203467	26	0520	2118201	+643934	H	3	20438	L	83071018	000000	000000	182900	000345		G	C=160,B=30
GHFST	OOSKY BKGD	07	9999	2127359	+115659	H	3	19911	L	83050611	000000	000000	111800	058700		G	B=95
GHFST	NG 7078	83	1510	2127359	+115659	H	1	01859	L	83050611	000000	000000	111600	063000		G	C=185,B=105
FM133	M 15	83	9999	2127360	115700	E	9	01419	2	83050600	000000	000000	000000	016000		V	FES IMAGE CORRESPONDING TO LW
GHFST	HD 204862	22	0598	2128443	+115500	H	1	01860	L	83050615	000000	000000	151100	001000		G	C=162,B=82
QSFWS	OOIIZW 136	84	1490	2130012	+095501	L	3	19799	L	83042314	000000	000000	141200	015000		G	E=191,C=80,B=43
QSFWS	OOIIZW 136	84	1490	2130012	+095501	L	2	15802	L	83042311	000000	000000	110800	018000		G	E=156,C=157,B=43
NPFJK	OOABELL 78	70	0010	2133201	+312818	L	2	15881	L	83050515	000000	000000	155800	000600		G	C=111,B=30
NPFJK	OOABELL 78	70	0010	2133201	+312818	L	3	19907	L	83050516	000000	000000	162700	000400		G	E=119,C=95,B=25
NPFJK	OOABELL 78	70	0010	2133201	+312818	H	3	19879	L	83050208	000000	000000	084100	042500		G	C=190,B=104
NPFJK	OOABELL 78	70	0010	2133201	+312818	H	3	19906	L	83050508	000000	000000	085100	042000		G	E=165,C=190,B=110
HSFTS	HD 205637	23	0470	2134170	-194128	H	3	19616	L	83040222	000000	000000	223100	000400		G	C=4X,B=128
HSFTS	HD 205637	23	0470	2134170	-194128	H	3	19615	L	83040221	000000	000000	215600	000150		G	C=1.5X,B=81
HSFTS	HD 205637	23	0470	2134170	-194128	H	3	20263	L	83061919	000000	000000	191700	000345		G	C=3X,B=80
HSFTS	HD 205637	23	0470	2134170	-194128	H	3	20262	L	83061918	000000	000000	184900	000150		G	C=1.5X,B=52
HSFJH	HD 205805	28	0040	2135559	-461926	L	2	16262	L	83062915	000000	000000	153300	000215		G	C=1.1X,B=28
HSFJH	HD 205805	28	0040	2135559	-461926	L	3	20339	L	83062915	000000	000000	152900	000100		G	C=220,B=17
PHCAL	BD+28 4211	16	1052	2148560	283735	L	3	20347	L	83070100	000000	000000	004952	000003	500	V	
PHCAL	BD+28 4211	16	1044	2148560	283735	L	3	20348	L	83070101	000000	000000	014321	000118	500	V	TRAIL R=.256 1 PASS
PHCAL	DB+28 4211	16	1043	2148560	283735	L	2	16269	L	83070100	000000	000000	004537	000100	502	V	
PHCAL	BD+28 4211	16	1049	2148560	283735	L	1	01881	LS	83052306	060713	000230	060411	000050	502	V	602$
PHCAL	BD+28 4211	16	1040	2148560	283735	L	1	01882	L	83052307	000000	000000	070950	000320	502	V	TRALED R=0.100 I=1
PHCAL	BD+28 4211	15	1049	2148560	283735	L	1	01928	L	83062905	000000	000000	054731	000050	503	V	
PHCAL	BD+28 4211	16	1050	2148560	283735	L	2	16295	L	83070501	000000	000000	012603	000200	502	V	DOUBLE EXPOSURE, 1MIN EACH,RP
PHCAL	BD+28 4211	16	1046	2148560	283735	L	3	20054	L	83052300	000000	000000	074819	000118	500	V	TRAILED R=0.2564, I=1
PHCAL	BD+28 4211	16	1047	2148560	283735	L	3	20053	LS	83052306	061552	000118	061221	000026	500	V	600$
PHCAL	BD+28 4211	16	1058	2148560	283735	L	2	16296	L	83070502	000000	000000	022316	000200	502	V	DOUBLE EXPOSURE, 1MIN EACH, R
PHCAL	BD+28 4211	16	1055	2148560	283735	L	3	20317	LS	83062522	224907	000118	224455	000026	500	V	500$
PHCAL	BD+28 4211	16	1053	2148560	283735	L	2	16241	LS	83062522	225821	000300	225409	000100	501	V	601$
PHCAL	BD+28 4211	16	1056	2148560	283735	L	2	16297	L	83070503	000000	000000	032817	000200	502	V	DOUBLE EXPOSURE, 1MIN EACH, R
PHCAL	BD+28 4211	16	1053	2148560	283735	L	3	20381	L	83070501	000000	000000	011807	000052	600	V	DOUBLE EXPOSURE, 26SEC EACH,
PHCAL	BD+28 4211	16	1053	2148560	283735	L	3	20382	L	83070502	000000	000000	023235	000052	600	V	DOUBLE EXPOSURE, 26SEC EACH,
PHCAL	BD+28 4211	16	1054	2148560	283735	L	3	20346	L	83063023	000000	000000	235443	000026	500	V	
PHCAL	BD+28 4211	16	1046	2148560	283735	L	2	16268	L	83063023	000000	000000	235015	000100	502	V	
PHCAL	BD+284211	16	1054	2148560	283735	L	2	16146	L	83061302	000000	000000	020530	000100	402	V	
PHCAL	BD+28 4211	16	1054	2148560	283735	L	3	20383	L	83070503	000000	000000	032558	000052	600	V	DOUBLE EXPOSURE, 26SEC EACH,
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	2	16139	L	83061215	000000	000000	154000	000100		G	C=170,B=23
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	1	01943	L	83070414	000000	000000	143000	000050		G	C=185,B=31

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	3	20202	L	83061215	000000	000000	153600	000026		G	C=185,B=12
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	2	16138	L	83061214	000000	000000	143200	000200		G	C=180,B=26
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	2	15968	SL	83051823	232300	000300	231800	000100		G	C=205,B=26
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	3	20201	L	83061214	000000	000000	142800	000052		G	C=200,B=12
BEFPB	HD 208682	26	0590	2154123	+650459	H	3	19935	L	83050821	000000	000000	211100	000340		G	C=165,B=46
VVFIA	HD 208816	39	0490	2155145	+632314	H	2	16276	L	83070116	000000	000000	162200	001300		G	E=1.2X,C=140,B=46
VVFIA	HD 208816	39	0490	2155145	+632314	H	2	16277	L	83070117	000000	000000	170400	001000		G	E=252,C=115,B=46
VVFIA	HD 208816	39	0490	2155145	+632314	H	3	20090	L	83052822	000000	000000	223100	007500		G	E=117,C=82,B=36
HCFEB	OO BG LAC	53	0890	2158225	+431215	L	3	20028	L	83051917	000000	000000	175100	006000		G	E=121,C=122,B=96
AFFJL	HD 209369	41	0500	2158325	+725630	H	2	15750	L	83041619	000000	000000	192200	001500		G	E=157,C=250,B=85
LDFKH	HD 209100	46	0470	2159481	-570054	L	2	15728	L	83041322	000000	000000	220500	000130		G	E=186,C=135,B=20
LDFKH	HD 209100	46	0470	2159481	-570054	L	3	19833	L	83042718	000000	000000	184700	001900		G	B=80
LDFKH	HD 209100	46	0470	2159481	-570054	L	2	15823	L	83042718	000000	000000	184000	000130		G	E=157,C=140,B=23
LDFKH	HD 209100	46	0470	2159481	-570054	L	3	19717	L	83041322	000000	000000	221400	001900		G	E=65,B=30
LDFKH	HD 209100	46	0470	2159486	-570056	L	2	15682	L	83040822	000000	000000	221500	000130		G	E=140,C=120,B=26
LDFKH	HD 209100	46	0470	2159486	-570056	L	3	19681	L	83040822	000000	000000	222400	001900		G	E=181,B=160
LDFKH	HD 209100	46	0470	2159486	-570056	L	2	15743	L	83041521	000000	000000	215200	000130		G	E=169,C=160,B=25
LDFKH	HD 209100	46	0470	2159486	-570056	L	3	19725	L	83041421	000000	000000	213200	001600		G	E=176,B=160
BLFAG	OOSKY BKGD	07	9999	2200394	+420209	L	3	20196	L	83061111	000000	000000	110200	012000		G	B=32
BLFAG	Q 2200+420	88	1500	2200394	+420209	L	2	16132	L	83061110	000000	000000	103600	019000		G	C=100,B=55
CCFLH	HD 210302	41	0490	2207133	-324741	H	2	16094	L	83060718	000000	000000	183100	003000		G	E=116,C=2X,B=50
SPFRN	0001 CERES	05	0850	2214387	-221158	L	2	16197	L	83062114	000000	000000	141800	002000		G	C=165,B=45
SPFRN	0001 CERES	05	0850	2214390	-221209	L	2	16198	L	83062115	000000	000000	154200	002700		G	C=225,B=65
QSFWS	OOMARK 304	84	1490	2214459	+135920	L	2	16481	L	83073008	000000	000000	081900	019500		G	C=140,B=68
QSFWS	OOMARK 304	84	1490	2214459	+135920	L	3	20543	L	83073005	000000	000000	050500	019000		G	E=125,C=100,B=40
HSFJD	NG 7293	70	1340	2226550	-210532	L	2	15828	L	83042815	000000	000000	155600	001400		G	C=170,B=40
HSFJD	NG 7293	70	1340	2226550	-210532	H	3	19859	L	83043010	000000	000000	101800	027000		G	C=160,B=62
HSFJD	NG 7293	70	1340	2226550	-210532	L	3	19832	L	83042717	000000	000000	174300	000500		G	C=205,B=28
OBFTS	HD 213420	20	0450	2228195	+425200	H	3	20267	L	83061921	000000	000000	214100	000130		G	C=187,B=34
FE130	NGC 7314	84	1200	2233005	-261834	L	2	16105	L	83060901	000000	000000	011759	024800	216	V	
PHCAL	HD 214680	12	0488	2237007	+384721	L	2	16182	L	83061814	000000	000000	144100	000002		G	C=195,B=24
PHCAL	HD 214680	12	0490	2237008	+384722	L	3	20379	L	83070413	000000	000000	135600	000002		G	C=195,B=18
PHCAL	HD214680	41	0457	2237010	384722	L	1	01927	L	83062904	000000	000000	041955	000002	503	V	TRAIL RATE=9.90 1 PASS
HSFSA	BS 8641	30	0480	2239243	+290247	H	2	15943	L	83051416	000000	000000	164300	000430		G	C=200,B=50
HSFSA	BS 8641	30	0480	2239243	+290247	H	3	20132	L	83060219	000000	000000	193400	000854		G	C=200,B=42
HSFSA	BS 8641	30	0480	2239243	+290247	H	2	16059	L	83060219	000000	000000	190500	000554		G	C=220,B=35
HSFSA	BS 8641	30	0480	2239243	+290247	H	3	19984	L	83051416	000000	000000	165300	000630		G	C=205,B=86
HSFSA	BS 8641	30	0480	2239244	+290248	H	3	20130	L	83060217	000000	000000	172400	001620		G	C=2X,B=50
HSFSA	BS 8641	30	0480	2239244	+290248	H	2	16058	L	83060217	000000	000000	175900	001250		G	C=3X,B=50
HSFSA	BS 8641	30	0480	2239244	+290248	L	3	20168	L	83060819	000000	000000	192200	000023		G	C=135,B=28
HSFSA	BS 8641	30	0480	2239244	+290248	H	3	20167	L	83060818	000000	000000	181500	001620		G	C=2X,B=53
HSFSA	BS 8641	30	0480	2239244	+290248	H	2	16101	L	83060817	000000	000000	174100	001854		G	C=3X,B=58
HSFSA	BS 8641	30	0480	2239244	+290248	H	2	15944	L	83051417	000000	000000	175200	000455		G	C=200,B=47
HSFSA	BS 8641	30	0480	2239244	+290248	L	3	19986	L	83051419	000000	000000	190000	000143		G	C=6X,B=70
HSFSA	BS 8641	30	0480	2239244	+290248	H	3	19989	L	83051423	000000	000000	231100	003700		G	C=5-6X,B=90

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
HSFSA	BS 8641	30	0480	2239244	+290248	H	2	16102	L	83060818	000000	000000	185200	001145		G C=3X,B=42
HSFSA	BS 8641	30	0480	2239244	+290248	H	2	16055	L	83060214	000000	000000	142400	001800		G C=3X,B=52
HSFSA	BS 8641	30	0480	2239244	+290248	H	3	19985	L	83051418	000000	000000	180200	000650		G C=200,B=70
HSFSA	BS 8641	30	0480	2239244	+290248	L	2	15945	L	83051419	000000	000000	191100	000045		G C=2-3X,B=35
HSFSA	BS 8641	30	0480	2239244	+290248	L	2	15948	L	83051423	000000	000000	230500	000019		G C=200,B=27
HSFSA	BS 8641	30	0480	2239244	+290248	H	3	20131	L	83060218	000000	000000	183100	001600		G C=2X,B=55
HSFSA	BS 8641	30	0480	2239244	+290248	H	3	20128	L	83060214	000000	000000	145400	003900		G C=4X,B=80
HSFSA	BS 8641	30	0480	2239244	+290248	H	2	16056	L	83060215	000000	000000	153900	001800		G C=3X,B=55
HSFSA	BS 8641	30	0480	2239244	+290248	H	3	20129	L	83060216	000000	000000	160900	004000		G C=4X,B=95
HSFSA	BS 8641	30	0480	2239244	+290248	H	2	16057	L	83060216	000000	000000	165400	001250		G C=2X,B=45
CSFTA	HD 214952	49	0220	2239414	-470848	H	2	15994	L	83052116	000000	000000	160100	012000		G E=10X,C=130,B=61
CSFTA	HD 214952	49	0220	2239414	-470848	H	2	15995	L	83052118	000000	000000	184600	001500		G E=2X,C=95,B=31
CSFTA	WAVECAL	98	0220	2239414	-470848	H	2	15996	SL	83052119	193200	000016	193400	000007		G E=50X,B=145
HCFSP	HD 215182	39	0310	2240393	+295733	H	2	16398	L	83072111	000000	000000	112100	001100		G C=255,B=45
HCFSP	HD 215182	39	0310	2240393	+295733	L	3	20494	L	83072111	000000	000000	114700	000050		G C=225,B=18
HCFSP	HD 215182	39	0310	2240393	+295733	H	2	16395	L	83072106	000000	000000	064100	001200		G E=118,C=240,B=35
HCFSP	HD 215182	39	0310	2240393	+295733	H	2	16236	L	83062516	000000	000000	162500	001100		G C=1.5X,B=75
SCFPF	OOCOM 83 E	06	9999	2254240	+165252	L	2	16134	L	83061116	000000	000000	165600	004200		G E=68,B=35
SCFPF	OOCOM 83 E	06	9999	2254240	+165252	D	9	01444	L	83061115	000000	000000	155400	002000		G NO COMMENTS
FA027	LB1516	28	1302	2259120	-481600	L	3	20556	L	83073120	000000	000000	205849	001000	501	V
FA027	LB1516	28	1309	2259120	-481600	L	2	16493	L	83073121	000000	000000	212443	001400	502	V
FA027	JL119	28	1371	2259120	-712900	L	3	20538	L	83072921	000000	000000	210631	001200	500	V
FA027	JL119	28	1371	2259120	-712900	L	2	16476	L	83072921	000000	000000	213008	001700	402	V
EHFWS	NG 7469	84	1310	2300445	+083618	H	1	01873	L	83051800	000000	000000	005100	078000		G C=185,B=105
EHFWS	NG 7469	84	1310	2300445	+083618	H	1	01871	L	83051701	000000	000000	010300	070000		G C=170,B=99
EHFWS	OOBACKGRND	07	9999	2300445	+083618	H	3	20010	L	83051708	000000	000000	085100	062000		G B=110
EHFWS	NG 7469	84	1310	2300445	+083618	L	3	20011	L	83051712	000000	000000	125000	006000		G E=125,C=90,B=32
FE139	NGC7469	84	9999	2300445	083618	E	9	01435	2	83051800	000000	000000	000000	000000		V FES FOR LWP 1873
EHFWS	NG 7469	84	1310	2300445	+083618	L	1	01872	L	83051713	000000	000000	135600	003500		G E=214,C=162,B=73
EHFWS	OOBACKGRND	07	9999	2300445	+083618	L	3	20020	L	83051801	000000	000000	011100	071200		G B=115
FE139	NGC7469	84	9999	2300445	083618	E	9	01434	2	83051706	000000	000000	000000	000000		V FES FOR LWP 1871
OD11K	HD 218356	47	0478	2304399	+251159	H	2	16050	L	83053118	000000	000000	183800	003300		G E=255,C=100,B=42
NPFJK	OOWEIN 12	70	1070	2310027	+591945	L	3	19770	L	83042016	000000	000000	160500	003500		G C=185,B=59
NPFJK	OOWEIN 12	70	1070	2310027	+591945	L	3	19769	L	83042015	000000	000000	151900	001000		G C=62,B=20
NPFJK	OOWEIN 12	70	1070	2310027	+591945	L	2	15782	L	83042015	000000	000000	153500	002500		G C=1.1X,B=33
FE108	NGC7552	80	1200	2313252	-425126	L	3	20268	L	83061922	000000	000000	223720	020000	302	V
FA115	FEIGE 110	16	1179	2317235	-052622	L	3	20091	L	83052900	000000	000000	003652	000230	500	V
EHFBM	OOFEIG 110	16	1150	2317239	-052600	L	1	01914	L	83062815	000000	000000	152200	002100		G C=3X,B=81
EHFBM	OOFEIG 110	16	1150	2317239	-052600	L	1	01913	L	83062814	000000	000000	142000	002100		G C=3X,B=79
EHFBM	OOFEIG 110	16	1150	2317239	-052600	L	1	01915	L	83062816	000000	000000	162500	000730		G C=1.1X,B=61
FM167	N7635-A1	72	9999	2318300	605501	L	3	20161	L	83060622	000000	000000	225132	006000	001	V
FM167	N7635-A1	72	9999	2318300	605501	L	2	16085	L	83060623	000000	000000	235633	012000	101	V
NPFTB	NG 7662	70	0840	2323294	+421537	L	3	20100	S	83053009	090100	001000	000000	000000		G E=88,C=30,B=23
NPFTB	NG 7662	70	0840	2323294	+421537	L	3	20101	S	83053012	121800	001000	000000	000000		G E=111,C=81,B=22
NPFTB	NG 7662	70	0840	2323294	+421537	L	2	16037	S	83053021	210500	001500	000000	000000		G E=94,C=80,B=35

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
NPFTB	NG 7662	71	0840	2323294	+421549	L	3	20105	SL	83053021	214300	012700	214200	012000		G E=164,C=64,B=40
NPFTB	NG 7662	71	0840	2323294	+421541	L	2	16036	S	83053019	190400	006000	000000	000000		G E=245,C=130,B=75
NPFTB	NG 7662	70	0840	2323294	+421537	L	2	16028	S	83052917	174400	001000	000000	000000		G C=78,B=30
NPFTB	NG 7662	70	0840	2323294	+421537	L	3	20096	S	83052920	202800	001000	000000	000000		G E=139,C=110,B=26
NPFTB	NG 7662	71	0840	2323294	+421541	L	2	16029	S	83052918	185200	008000	000000	000000		G NO COMMENTS
NPFTB	NG 7662	71	0840	2323294	+421545	H	3	20104	S	83053020	201700	002000	000000	000000		G E=185,C=72,B=52
NPFTB	NG 7662	71	0840	2323294	+421545	L	3	20102	SL	83053015	151100	006000	151200	006000		G E=1.5X,C=105,B=75
NPFTB	NG 7662	71	0840	2323294	+421541	L	3	20095	S	83052918	181500	003000	000000	000000		G E=246,C=83,B=45
NPFTB	NG 7662	71	0840	2323294	+421549	L	2	16033	S	83053009	093600	015000	000000	000000		G C=80,B=40
NPFTB	NG 7662	71	0840	2323294	+421545	L	2	16034	S	83053013	130000	012000	000000	000000		G E=227,C=100,B=58
NPFTB	NG 7662	71	0840	2323297	+421532	L	2	16030	S	83052921	211400	007500	000000	000000		G E=1.5X,C=110,B=59
NPFTB	NG 7662	71	0840	2323297	+421532	L	3	20103	S	83053018	181900	003000	000000	000000		G E=212,C=80,B=55
NPFTB	NG 7662	71	0840	2323301	+421527	L	2	16035	S	83053016	162300	010000	000000	000000		G C=138,B=83
NPFTB	NG 7662	71	0840	2323301	+421527	L	3	20097	SL	83052922	224300	006500	224400	006500		G E=215,C=46,B=24
WDFCB	PG2333-002	37	1600	2333079	-001423	L	3	20223	L	83061415	000000	000000	151400	006000		G C=112,B=60
NJFMK	OORAQ SPOT	57	1200	2341139	-153340	L	3	20081	S	83052715	153000	014000	000000	000000		G E=180,C=130,B=100
NJFAM	OO R AQR	57	1100	2341141	-153344	L	3	20069	L	83052513	000000	000000	133000	004000		G E=1.5X,C=60,B=25
NJFMK	OORAQ SPOT	57	1200	2341143	-153340	L	3	20077	S	83052618	185500	009000	000000	000000		G E=255,C=180,B=112
NJFAM	OO R AQR	57	1100	2341143	-153344	L	2	16013	L	83052512	000000	000000	125700	002000		G E=1.5X,C=25,B=80
NJFAM	OO R AQR	57	1100	2341143	-153340	L	3	20070	S	83052514	144200	006500	000000	000000		G E=77,C=58,B=30
NJFMK	OORAQR JET	57	1200	2341145	-153337	L	2	16016	L	83052617	000000	000000	171300	009000		G E=234,C=160,B=62
NJFAM	OORAQR JET	57	1200	2341145	-153335	L	3	20068	L	83052508	000000	000000	084800	024000		G E=3X,C=100,B=50
PHCAL	OO NULL	99	0000	2341145	-153335	H	1	01885	L	83052712	000000	000000	125800	000000		G B=34
PHCAL	OOSKY BKGD	07	0000	2341145	-153337	H	1	01884	L	83052708	000000	000000	081700	022000		G B=53
NJFMK	OORAQR JET	57	1200	2341146	-153335	H	3	20080	L	83052712	000000	000000	124600	086300		G E=1.2X,C=132,B=130
NJFMK	OORAQ LOBE	57	1200	2341204	-153052	L	3	20078	L	83052621	000000	000000	210200	003000		G C=52,B=30
WDFCB	PG2342+807	37	1450	2342569	+804011	L	3	20225	L	83061419	000000	000000	195600	002000		G C=125,B=40
WDFCB	PG2342+807	37	1450	2342569	+804011	L	2	16162	L	83061419	000000	000000	191200	004000		G C=190,B=67
NPFJK	OOABELL 82	70	1300	2343205	+564720	L	3	19771	L	83042017	000000	000000	172100	002500		G B=85
NPFJK	OOABELL 82	70	1300	2343206	+564721	L	3	19908	L	83050517	000000	000000	173200	012000		G C=170,B=125
CSFH[illegible]	OO TX PSC	50	0500	2343500	+031233	L	2	16373	L	83071905	000000	000000	050900	018000		G E=199,C=105,B=38
DCFCS	OO SX PHE	53	0050	2343540	-415051	L	3	20386	L	83070513	000000	000000	135200	000400		G C=221,B=20
DCFCS	OO SX PHE	53	0050	2343540	-415051	L	2	16300	SL	83070514	145400	000230	144400	000400		G C=3X,B=25
DCFCS	OO SX PHE	53	0050	2343540	-415051	L	2	16301	SL	83070515	154200	000215	153400	000330		G C=3X,B=25
DCFCS	OO SX PHE	53	0050	2343540	-415051	L	2	16299	SL	83070513	134600	000215	133800	000400		G C=3.5X,B=25
DCFCS	OO SX PHE	53	0050	2343540	-415051	L	3	20387	L	83070515	000000	000000	154800	000500		G C=165,B=25
DCFCS	OO SX PHE	53	0050	2343541	-415051	L	2	16298	SL	83070512	123700	000130	122800	000300		G C=3.5X,B=25
DCFCS	OO SX PHE	53	0050	2343541	-415051	L	3	20385	L	83070512	000000	000000	124300	000400		G C=187,B=20
WDFCB	PG2349+286	37	1510	2349241	+283833	L	3	20234	L	83061615	000000	000000	151200	003000		G C=82,B=52
WDFCB	PG2349+286	37	1510	2349241	+283833	L	2	16174	L	83061616	000000	000000	161000	006000		G C=145,B=79
HSFJD	OO SB 884	16	1210	2349599	-302659	L	2	15829	L	83042817	000000	000000	172100	000700		G C=200,B=43
HSFJD	OO SB 884	16	1210	2349599	-302659	L	3	19843	L	83042817	000000	000000	171100	000400		G C=200,B=28
FA115	SB 884	16	1208	2350000	-302700	L	3	20093	L	83052907	000000	000000	070256	000345	500	V
FA115	SB 884	16	1208	2350000	-302700	L	2	16026	L	83052907	000000	000000	071430	000430	402	V
FA115	SB 884	16	1216	2350000	-302700	H	3	20092	L	83052901	000000	000000	013508	030000	402	V

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
WDFCB	PG2353+027	37	1580	2353541	+024021	L	3	20224	L	83061417	000000	000000	170500	005000		G C=127,B=62
FA027	SB931	28	1362	2356293	-265530	L	3	20541	L	83073001	000000	000000	011450	001500	500	V
FA027	SB931	28	1358	2356293	-265530	L	2	16478	L	83073000	000000	000000	004603	002400	503	V
FA027	SB931	28	1360	2356293	-265530	L	3	20540	L	83073000	000000	000000	001316	002200	700	V
CCFEB	HD 224617	41	0400	2356444	+063510	L	3	19996	L	83051519	000000	000000	190000	002500		G E=215,C=2-3X,B=235
CCFEB	HD 224617	41	0400	2356444	+063510	H	2	15953	L	83051518	000000	000000	184200	001000		G E=168,C=1-5X,B=80
WDFCB	PG2357+296	37	1510	2357331	+294019	L	2	16175	L	83061618	000000	000000	182100	005000		G C=1.2X,B=119
WDFCB	PG2357+296	37	1510	2357332	+294020	L	3	20235	L	83061617	000000	000000	174700	002500		G C=165,B=92
IMFTS	SA 21019	12	0900	2359360	+670751	L	3	19625	L	83040311	000000	000000	110200	015000		G C=120,B=40
IMFTS	SA 21019	12	0900	2359360	+670751	L	2	15647	L	83040313	000000	000000	133600	017500		G C=6X,B=500
IMFTS	SA 21019	12	0900	2359360	+670751	L	2	15646	L	83040310	000000	000000	103300	002500		G C=210,B=27

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