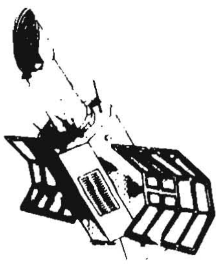


IUE esa

NEWSLETTER

TABLE OF CONTENTS

NO.23 JUNE 1985

IUE ESA NEWSLETTER

Editor:- B.J.M. Hassall

Published by:- The ESA IUE Observatory
Apartado 54065
Madrid 28080, Spain.
Telephone:- +34-1-4019661
Telex:- 42555 VILS E

Typing:- C. Ramirez Palacios

OBSERVATORY CONTROLLER'S MESSAGE

At the time of printing of this Newsletter most of those who have been allocated observing time for the 8th round of IUE observing will already have received their scheduling message. As announced in Newsletter #22, this Newsletter includes a report on the deliberations of the IUE Long Range Planning Committee (IUE-LRPC). The second meeting of the IUE-LRPC took place during the 3-Agency Meeting which was held in April 1985 at VILSPA. As a consequence of the recommendations of the LRPC, S/C power configuration modifications have already been implemented - opening up the available Beta range on the sky - and further possible changes are under analysis.

Users sometimes complain that originally scheduled shifts have to be moved. This problem and the consequent inconvience is a matter of serious concern for the ESA IUE Observatory and especially its scheduler. However, such descheduling normally only occurs on very good scientific grounds and is unfortunately unavoidable if one wants to keep making the best scientific use of the IUE spacecraft.

The observations required for the generation of new ITFs for all three operational cameras have now been taken and are being prepared for implementation in IUESIPS as soon as the necessary revised calibrations are finished. A report is presented in this Newsletter (page 48) which gives a very useful recipe to correct data taken with the LWR camera for the sensitivity variation over the years that this camera has been in use.

As part of an effort to enhance the infrastructure in VILSPA, various small improvements are gradually being implemented. One of these, from which we hope you will benefit, is the better quality printing of the ESA IUE Newsletter. At the beginning of this year VILSPA started a series of IUE Observatory preprints. These preprints - last mailing #6 - are sent to the libraries of most Observatories; however if your institute is not on our mailing list please let us know. To keep the costs within limits we will only accept institutional requests for mailing.

In the meantime, the IUE Observing programme has been extended by ESA for the 9th round. In this Newsletter you will find the call for proposals. Please note the revised deadline (23 Nov 1985), which is a consequence of the fact that the 8th round had 13 months.

I would like to thank all the Users who have taken the trouble to return the IUE questionnaire to us for the very serious attention they have given to this. We will probably have analysed the returns in time to inform you in the next Newsletter on the present and anticipated future use of IUE and the IUE Database.

Willem WAMSTEKER

28 June 1985

PROPOSALS FOR OBSERVATIONS WITH IUE IN 1986

Dear Colleague

The International Ultraviolet Explorer (IUE) spacecraft is currently operating very successfully and continues to provide valuable UV spectroscopic data in the 1200 to 3000 A wavelength region. Such data are obtained on a routine basis, 8 hours per day at the ESA Villafranca IUE Observatory and 16 hours per day at the NASA IUE Observatory at Goddard in Maryland. The observing programmes carried out have been those recommended by the relevant European and US selection committees.

The present observing programmes extend to May 1986. Thereafter an additional year of observations will be initiated. In preparation for this, the European Selection Committee (a single committee which has replaced the separate ESA and SERC Selection Committees) will meet later this year to review those observing proposals which have been received by 23 November 1985. The recommendations of this committee will be the basis for the one year European observing programme starting May 1986.

We therefore invite European astronomers to submit proposals for IUE observations in accordance with the procedures set out in the attached letter.

Yours sincerely,

Professor R.M Bonnet
Director of Scientific Programmes
European Space Agency

Dr. B. Martin
Head of Astronomy, Space and Radio Division
UK Science and Engineering Research Council

esa serc

Dear Colleague,

As previous users know, the International Ultraviolet Explorer (IUE) is an astronomical satellite designed to obtain ultraviolet spectra in the region from about 1200 to 3000 Angstroms. Its characteristics and performance have been described by Boggess, et al. in Nature, volume 275, pages 372 and 377, 1978. The satellite was built jointly by NASA, ESA and SERC and is operated 16 hours each day by NASA from a control center at the Goddard Space Flight Center and eight hours each day for ESA and SERC observers from the ESA control center at Villafranca.

The observing program for IUE is based on unsolicited proposals for use of the satellite. Proposals may be submitted at any time but, as a matter of practice, those in hand by 23 November 1985 will be reviewed in order to establish the year's observing program starting the following May. While proposals of a genuine emergency nature may be dealt with more promptly, other proposals received too late will be saved for subsequent review the following year. Applications are accepted both from observers proposing new programs and from current IUE observers who wish to apply for more time than they have currently been allotted.

Normally, the observer is expected to be present at either the Goddard or Villafranca control center. Observing procedures are flexible and adaptable to individual needs, the observer being able to direct his own program, monitor it in real time, and alter it if necessary to enhance its scientific value. Responsibility for actual operation of the spacecraft, however, lies with a trained operations staff. Scientists from all countries may apply to use the IUE. Those interested in observing with this facility should send a letter requesting current proposal instructions to the most appropriate one of the following addresses:

IUE Operations Scientist
Code 684.1
Goddard Space Flight Center
Greenbelt, MD 20771
U.S.A.

IUE Observatory Controller
ESA Villafranca Satellite
Tracking Station
Apartado 54065
28080 Madrid, SPAIN

Note: SERC and ESA have agreed to combine their allocating procedures with the administrative aspects handled by ESA.

Responders will receive additional information regarding the satellite operations and proposal submission procedures for the ninth observing episode.

Sincerely,

Yoji Kondo NASA/IUE Project Scientist	Willem Wamsteker ESA/IUE Observatory Controller	Robert Wilson SERC/IUE Project Director

LONG RANGE PLANNING COMMITTEE REPORT

A Long Range Planning Committee for the IUE satellite was appointed in 1984; this committee has met twice in conjunction with the semi-annual 3-Agency meeting for IUE. The membership of the committee was selected to provide scientific and technical representation from each of the three communities served by NASA, ESA, and SERC; a list of current members is included at the end of this report.

At the first meeting, held at Goddard in November 1984, the Long Range Planning Committee accomplished two major tasks: (1) the purpose and goals of this committee were defined, and (2) information concerning future operations and options for the satellite was requested of the three agencies. The "Terms of Reference" of the LRPC are:

> In the light of the future constraints that will limit the operational flexibility of IUE and ultimately end it, and taking full account of the views of the international user community, to assess the optimum ways of maximising the scientific returns and preserving the data in an accessible for future use; to report and make recommendations to the 3 agencies accordingly.

Further action taken at the first meeting of the LRPC included recommendations concerning future operations philosophy (to continue interactive guest observing as long as possible, to plan ahead for necessary coordination in scheduling and planning by the two ground stations, and to plan for an era of integrated scheduling); a recommendation that an IUE data bank be established for future use which will maintain the data in a fully calibrated and reduced form; a request for further study of the degree of improvement to be gained by the calibration and reprocessing of images for the final archives; a recommendation that the predicted constraints in operations and lifetime of IUE be considered as a factor in the assessment of proposals in the peer review; and a recommendation that the project should consider arranging for the writing of a book on the scientific accomplishments of the IUE.

At the second meeting of the LRPC, held at VILSPA late April 1985, reports were presented concerning the expected evolution of observing constraints as the spacecraft continues to age, and on possible means of minimizing the effects of such constraints on the scientific programs of IUE. In response to these reports, the LRPC formulated the following.

POLICY STATEMENT ON FUTURE IUE OPERATIONS

IUE is the first satellite designed as a purely Guest Observer instrument with the maximum flexibility for real time observations. This mode of operations has been highly productive of important scientific results as indicated by the continuing high rate of publications in the scientific literature. An essential aspect of this high productivity has been the ability for an observer to select targets and specific observational parameters in a flexible way in real time to maximize their utility in answering the scientific questions of the program.

Since operational flexibility is a major contributor to the success of IUE, and as it will be more difficult for this flexibility to be maintained in the future as the spacecraft ages and the observing constraints become tighter, the Long Range Planning Committee therefore urges that all steps be taken to maintain and maximize this observational flexibility. In particular, we encourage steps to lower the power consumption without requiring turning off one camera.

As the Hubble Space Telescope (HST) is due to be launched in 1986, and as it also has spectroscopic capability in the UV, the LRPC also addressed the question of the relation between HST and IUE, with the following resolution:

THE ROLE OF IUE IN THE ERA OF THE HUBBLE SPACE TELESCOPE

The need for IUE observations will likely increase after the launch of the Hubble Space Telescope (HST) for the following reasons: (1) the need for observations of brighter targets in proposed HST program in order to plan future HST operations; (2) the need for long term monitoring of targets suspected of variability; (3) the need for full UV wavelength coverage at high resolution; (4) the need to observe targets of opportunity not easily scheduled by HST; (6) the need to observe targets that cannot or will not be observed by HST; (7) the need to observe large numbers of targets.

Although some of these seven points are also true in absence of the HST, their importance is enhanced at the time when the HST is launched. This, together with the present stable oversubscription for IUE observing time, will place heavy demand on the IUE Spacecraft for years to come.

Projected changes in the spacecraft suggest currently that the most limiting constraint in the future will be provided by the power needs of the satellite. In response to this, the LRPC passed this resolution:

> We recommend that a study be undertaken regarding the risks and possible scientific impact of turning off cameras not in use - including the SWP camera - at the observer's option.

Among the important missions of the LRPC is planning for the long term quality and accessibility of the archived data from IUE. Two further recommendations addressed this issue:

UV CALIBRATION

We recognize the importance of the far and extreme UV (shortward of about 1200 A) data from the EUV spectrometers on board Voyagers 1 and 2 as aid to the calibration of the spectra of the IUE hot standard stars. As the IUE standard spectra will be used to calibrate the Hubble Space Telescope (HST) spectra, the importance of such Voyager data must be stressed. Further, improved models of hot stars are prerequisite in successfully merging the Voyager data with those of IUE.

We also recommend that the sampling frequency of the IUE standard star spectral energy distribution be improved from the current sampling intervals of 50 A to smaller intervals in order especially to accomodate their use in the analysis of HST data.

ARCHIVE REPROCESSING

The IUE archives are considered as the best organized of all in astronomy, and the enormous demand for them shows how useful they are. Their usefulness is expected to increase in the context of Space Telescope observations. As the archive data are currently heterogeneous in their calibration and processing, and as it will be possible to use calibrations currently being obtained to significantly improve the scientific value of these archives, the Long Range Planning Committee strongly recommends that all archival data be reprocessed according to these new parameters. This reprocesing should not be done however at the expense of the operation of the satellite and the guest observer programs.

The Long Range Planning Committee recommends that planning for the final archives include reformatting to an astronomical standard (almost certainly FITS format).

Other items of some significance from the LRPC meeting: (1) A request was made to ESA and NASA to prepare a joint short report on the projected status of the spacecraft over the next 3-6 years of operation, including the impact of some of the options currently under consideration (e.g. turning off camera(s) not in use). (2) Plans for a book on the Scientific Results from IUE were announced and approved, and Y. Kondo was selected as Chairman of the Editorial Board.

Current members of the LRPC:

NASA	ESA	SERC
Y. Kondo	W. Wamsteker	R. Wilson
D. West	D. de Pablo	D. Stickland
C. Imhoff	J. Lequeux	
D. Stone		
G. Sonneborn		
J. Linsky		
L.A. Willson		

Report submitted by L.A. Willson, May 8, 1985.

9th year Accepted Proposals from European Community

for INTERNATIONAL ULTRAVIOLET EXPLORER

Program Title	P.I.	Institute	Number
Oxygen-rich young SMC SNR	Danziger	ESO	HM 001
Simultaneous UV, X-ray and optical monitoring of NGC 4593	Clavel	VILSPA	HQ 002 HQ 002
Stellar activity cycle in Beta Hydri	Dravins	Lund	HC 004 HC 004
UV spectroscopy of white dwarfs	Weidemann	Kiel	HC 005
UV and optical observations of active late type stars (newly identified X-ray emitters)	Bianchi	Torino	HC 009 HC 009 HC 009
UV observations of FK Comae stars with simultaneous optical photometry	Bianchi	Torino	HC 010 HC 010 HC 010
Stellar winds in nearby galaxies	Bianchi	Torino	HA 012
Gas in cosmic voids	Gondhalekar	R.A.L.	HQ 014
Doppler imaging of the chromo-spheres of AR Lac components	Rodono	Catania	HC 016 HC 016
UV stellar classification of peculiar stars	Egret	Strasbourg	HC 017 HC 017
Chromosphere and wind of the metal deficient Giant HD 6833	Reimers	Hamburg	HC 018 HC 018
Mass loss of Red Giants with Hot Companions	Reimers	Hamburg	HC 020 HC 020
A long look at Zeta Aurigae during total eclipse	Reimers	Hamburg	HC 021 HC 021
Mass accretion rates for eclipsing cataclysmic variables	Horne	Cambridge	HI 022 HI 022
Blue edge of the ZZ Ceti instability strip	Vauclair	Toulouse	HA 023 HA 023
UV Observations of a soft X-ray emitting White Dwarf	Fricke	Gottingen	HA 024 HA 024
Star formation bursts in blue compact dwarf galaxies	Loose	Gottingen	HE 027 HE 027
Study of interstellar C IV and Si IV in the local medium (<200 pc)	Molaro	Trieste	HM 029 HM 029 HM 029
Atmospheric abundances of white dwarfs in binary and suspected binary systems	Bues	Bamberg	HC 030 HC 030 HC 030
Simultaneous ground based and UV observations of Pre main sequence stars	de la Reza	Rio	HC 031 HC 031 HC 031
Activity in late type stars	Fdez Figueroa	Madrid	HC 036
The nature of the continuum radiation in the UV and X-ray ranges in F9	Ulrich	E.S.O.	HQ 038 HQ 038 HQ 038
Time resolved spectroscopy of superhumps in eclipsing SU UMa systems	Charles	Oxford	HI 039 HI 039 HI 039

Ultraviolet observation and	Frontera	Bologna	HI 041
monitoring of the optical			HI 041
counterpart of 4U1700+24			HI 041
(=HD 154791)			HI 041
The accretion discs and white	Pringle	Cambridge	HI 042
dwarfs in the extreme period			HI 042
Dwarf Novae OY Car, Z Cha & BV			HI 042
Cen			HI 042
Far UV changes associated with	Doazan	Paris	HA 047
the visual variability pattern			HA 047
of Be stars			HA 047
Far UV study of non-radially	Doazan	Paris	HA 048
pulsating B stars			HA 048
Comet Giacobini-Zinner and	Rahe	Bamberg	HS 051
and the ICE mission			HS 051
The chromosphere, corona and	Jordan	Oxford	HC 052
wind of alpha TrA (K 4 II)			HC 052
The P Cyg star AG Carinae	Barylak	VILSPA	HA 053
A deep look at the newly discover-	Reimers	Hamburg	HI 054
ed companion of the M giant 4 Dra			HI 054
Chromospheric eclipse of the G	Reimers	Hamburg	HC 055
supergiant 22 Vul			HC 055
The unique eclipsing binary	Eriksson	Uppsala	HC 057
system TZ Fornacis			HC 057
The mild Ba star beta UMi (K 4III)	Jordan	Oxford	HC 058
High resolution spectroscopy and	Jordan	Oxford	HC 059
atmospheric modelling of low			HC 059
gravity cool stars			HC 059
Chromospheric activity and spin-	Jordan	Oxford	HC 060
down in the Hertzprung gap			HC 060
The hydrogen-deficient star	Morrison	St Andrews	HA 061
LSSI922			HA 061
UV variability of the T Tauri	Lago	Porto	HC 062
star RU Lupi			HC 062
Star formation in active	Diaz	R.G.O.	HQ 063
galactic nuclei			HQ 063
UV Observations of the very bright	Wall	R.G.O.	HQ 064
BL Lac object PKS 2005-489			HQ 064
The UV spectrum of the low-	Pettini	R.G.O.	HQ 065
redshift BAL QSO PG 1700+518			HQ 065
Monitoring of NGC 3516	Penston	R.G.O.	HQ 067
Distances of 21 centimeter high	Pettini	R.G.O.	HM 068
velocity (Oort) clouds			HM 068
UV Observations of classical novae	Snijders	R.G.O.	HI 069
Continued monitoring of NGC 4151	Penston	R.G.O.	HQ 070
Simultaneous IUE and EXOSAT	White	ESOC	HC 071
observations of RS CVn binaries			HC 071
UV Observations of soft X-ray	Barr	ESOC	HQ 076
selected AGN's			HQ 076
UV investigation of very strong	Israel	Leiden	HE 077
starburst in irregular galaxy			HE 077
NGC 1569			HE 077
Coordinated IUE, optical, EXOSAT	Butler	Armagh	HC 078
& radio observations of dMe stars			HC 078
The rise of dwarf-nova outbursts:	V. d. Woerd	Utrecht	HI 079
BV Cen			HI 079
Anticenter interstellar gas	de Boer	Tubingen	HM 080
densities from Mg II lines in			HM 080
fast rotating A stars			HM 080

UV Observation of Supernovae	Panagia	Baltimore	HE 081
The interstellar 2175 A extinction bump for highly reddened stars	Mattila	Helsinki	HM 083 HM 083 HM 083
Observation of chromospheric and transition region line profiles in the spectrum of the Herbig Ae stars HR 5999 and BN Ori	Tjin A Djie	Amsterdam	HA 084 HA 084 HA 084 HA 084
Ultraviolet studies of the shells of Herbig Ae and Be stars	The	Amsterdam	HA 085 HA 085
Effects of binarity and age on the chromospheric activity of rapidly rotating very late-type stars	Vilhu	Helsinki	HC 086 HC 086 HC 086
UV investigation of post-T Tauri stars	Lindroos	Stockholm	HC 087 HC 087
Ultraviolet observations of infra- red sources in the IRAS mini- survey	Jordan	Oxford	HC 088 HC 088 HC 088
High resolution spectroscopy of the PMS star T Tauri	Jordan	Oxford	HC 090 HC 090
Variability time scales in OJ287	Pollock	Birmingham	HQ 092
The symbiotic star CH Cygni	Hack	Trieste	HC 096
Study of the local interstellar medium through Mg II absorptions	Molaro	Trieste	HM 097 HM 097
Integrated spectra of globular clusters in M 31	Cacciari	Baltimore	HE 098 HE 098
Ultraviolet observations of ultraluminous merging galaxies	Joseph	London	HE 100 HE 100
Search for delimitations of the Ly alpha and chromospheric emission between A and F stars	Freire	Strasbourg	HA 102 HA 102 HA 102
UV spectroscopy of Nova Muscae 1983 during the late stages	Krautter	ESO	HI 103 HI 103
Observations of the eclipse of EX Hya with high time resolution	Krautter	ESO	HI 104 HI 104
Evolutionary stages of some selected Algols	Heintze	Utrecht	HC 106 HC 106
A search for signs of self- propagating star formation in the Large Magellanic Cloud	Westerlund	Uppsala	HA 108 HA 108 HA 108
Diffuse Lyman Alpha emission from dominant galaxies	Norgaard	Copenhagen	HE 109 HE 109
Coordinated EXOSAT/IUE observations of the Of binary HD 153919	Howarth	UCL	HI 110 HI 110 HI 110
Repeated multifrequency observations of the variable quasar PG 1351+64	Treves	Milano	HQ 111 HQ 111 HQ 111
UV observations of the black hole candidate LMC X-3	Treves	Milano	HI 112 HI 112
Coordinated UV, X-ray and optical observations of magnetic white dwarfs in binaries	Maraschi	Milano	HI 115 HI 115 HI 115
Probing Seyfert I nuclei over a large wavelength interval	Wamsteker	VILSPA	HQ 117 HQ 117
Observations of planetary nebulae with anomalously high Ne abundance	Pottasch	Groningen	HM 121 HM 121

A large scale survey of inter-stellar absorption in the galactic halo	West	Manchester	HM 122 HM 122 HM 122
Ultraviolet spectroscopy of quasars around Z=2	Gondhalekar	RAL	HQ 123 HQ 123
Non-LTE analysis of the central stars of Planetary Nebula	Kudritzki	Munchen	HA 124 HA 124
The ultraviolet continua of Herbig Haro objects	Liseau	Stockholm	HM 125 HM 125
Stellar flare continua and emission mechanisms	Andersen	Oslo	HC 126 HC 126
The nucleus of NGC 1705	Cacciari	Baltimore	HE 129
A deep SWP echelle exposure of a red dwarf flare star: AT Microscopii	Engvold	Oslo	HC 131 HC 131 HC 131
Local interstellar hydrogen and deuterium	Vidal-M.	Paris	HM 133 HM 133
UV observations of NGC 205	Bertola	Padova	HE 134
Chromospheric modelling of quiescent and active late-type dwarfs	Beckman	Tenerife	HC 135 HC 135
The symbiotic star HBV 475	Nussbaumer	Zurich	HI 136
Observations of nearly-aligned early-type stars in the disc/halo interface region	Harris	VILSPA	HM 137 HM 137 HM 137
The long-term variability of the Lyman alpha emission from Jupiter, Saturn, and Uranus	Fricke	Bonn	HS 139 HS 139 HS 139
Mass loss from Cepheid variables	Deasy	Dublin	HC 141
Dynamics of gas in LMC constellation III	de Boer	Tubingen	HM 142 HM 142
Investigations of motions in the Gaseous Galactic Halo	de Boer	Tubingen	HM 143 HM 143
Deuterium in the upper atmosphere of Venus + monitoring of SO2 in upper atmosphere	Bertaux	Verrieres	HS 144 HS 144 HS 144
The stability and homogeneity of the IO Torus	Bertaux	Verrieres	HS 145 HS 145
Spectral photometry of Blue Stragglers	Schoenberner	Kiel	HA 146 HA 146
The chemical abundance in LMC Supernova remnants: a probe of star formation history	D'Odorico	ESO	HM 147 HM 147 HM 147
Ultraviolet observations of newly identified X-ray sources	Bonnet-B.	Saclay	HI 151 HI 151
Far UV extinction law and gas-to-dust ratio as a function of galactocentric distances	L. Prevot	Marseille	HM 153 HM 153 HM 153
The evolution of early type sub-dward and blue horizontal branch stars	Heber	Kiel	HA 158 HA 158 HA 158
High dispersion observations of Planetary Nebulae	Koppen	Heidelberg	HM 159 HM 159
Photometry of the eclipsing cataclysmic variable V Sge	Watts	Tubingen	HI 160 HI 160
Structural changes in the chromo-spheres of M Dwarfs	Schrijver	Utrecht	HC 161 HC 161
Interstellar extinction in the Small Magellanic Cloud	Nandy	Edinburgh	HM 162 HM 162

A study of galactic very low excitation (VLE) compact nebulae	Nandy	Edinburgh	HA 164 HA 164
Interstellar molecular lines	Somerville	UCL	HM 166
A new distance determination for the RR Lyrae star X Arietis	Lynas-Gray	UCL	HA 168 HA 168
Short-time variations in the stellar winds of luminous early type stars	Prinja	UCL	HA 169 HA 169 HA 169
Distant blue galaxies	O'Brien	UCL	HE 171
Rapid UV variability in WR stars Evidence for pulsations?	Willis	UCL	HA 172 HA 172
Short period photospheric & wind variations in HD 45166	Willis	UCL	HA 173 HA 173
The extreme O-star AZ 232 in the SMC - an intermediate of WN type?	Willis	UCL	HA 174 HA 174 HA 174
The physical & chemical nature of the WN-C star HD 62910	Willis	UCL	HA 175 HA 175
Target of opportunity Observations of A0538-66 in outburst	Howarth	UCL	HI 177 HI 177 HI 177
On the OFF state of A0538-66: activity and paramaters in quiescence	Howarth	UCL	HI 179 HI 179 HI 179
High resolution spectroscopy of the X-ray binary HZ Her	Howarth	UCL	HI 180 HI 180
Ofpe/WN 9 stars in the LMC	Wolf	Heidelberg	HA 181
UV observations of V348 Sgr	Heck	Strasbourg	HA 182
Search of BeII in Cp and early F stars showing large Li abundance	Faraggiana	Trieste	HA 184 HA 184
The outburst of Z Andromedae	Viotti	Frascati	HI 185
"A" type stars as probes of the local interstellar medium	Freire	Strasbourg	HM 188 HM 188
The relation between ultraviolet excess and the interstellar medium in elliptical galaxies	Sparks	Sussex	HE 189 HE 189 HE 189
IUE observations of variability in the WR + compact candidate HD 96548	Smith	UCL	HI 190 HI 190 HI 190
Hydrogen-poor binary systems	Hack	Trieste	HA 191
Absolute spectrophotometry of faint blue stars for calibraton of the space telescope	Harris	VILSPA	HA 193 HA 193 HA 193
The IR-variable WR stars HD 192641: is the temporary CS dust condensation caused by stellar wind variations?	v. d. Hucht	Utrecht	HA 194 HA 194 HA 194 HA 194
Hot superluminous stars near the instability limit	Cassatella	VILSPA	HA 196 HA 196
The UV activity of the recurrent Nova T Cr B	Cassatella	VILSPA	HI 197 HI 197
Probing the wind of P Cygni by studying its variable shells	Lamers	Utrecht	HA 199 HA 199
The stellar content of young globular clusters in the Magellanic Clouds	Cassatella	VILSPA	HE 201 HE 201 HE 201
LWP-high resolution spectra of the carbon star TW Hor	Querci	Toulouse	HC 202 HC 202

The carbon proto-planetary nebula HD 59643	M. Querci	Toulouse	HC 203 HC 203
UV observations of T Tauri stars	Lago	Porto	HC 204
High excitation blobs of the Magellanic Clouds and their environment	Heydari	Meudon	HE 208 HE 208 HE 208
Variations in grain properties	Patriarchi	Arcetri	HM 209
International search program of Dwarf Novae during the first day of outburst	Echevarria	UNAM	HI 210 HI 210 HI 210
A search for acetylene and aurorae in the atmosphere of Neptune	Fricke	Bonn	HS 212 HS 212 HS 212
Multifrequency behaviour of A0535+26/HDE 245770 system in quiescence and in outburst	Giovannelli	Frascati	HI 215 HI 215 HI 215
Metals in hot white dwarfs: check of the diffusion theory	G. Vauclair	Toulouse	HA 218 HA 218
Intergalactic Lyman alpha systems	Wamsteker	VILSPA	HQ 220
C IV in Galactic Halo	Blades	VILSPA	HM 221
Spatially resolved observations of Jupiter and Saturn	Moore	London	HS 223 HS 223
Ultraviolet study of the pulsar period in 2A0526-328 (TV Col)	Bonnet-B.	Saclay	HI 224 HI 224
Interstellar or circumstellar matter toward Beta Pic?	Vidal-M.	Paris	HM 225 HM 225
Coordinated optical - UV - X ray observations of three BL Lac objects	Tanzi	Milano	HQ 226 HQ 226
Solar flux spectra at 2000-3000 Angstrom, high and low resolution	Greve	IRAM	HC 229 HC 229
UV behaviour of the shock propagation in Mira variables	Gilmozzi	VILSPA	HC 230 HC 230
Observations of comets P/Halley and P/Giacobini-Zinner	Festou	Paris	HS 231 HS 231
UV observations of a bright quasar at redshift 3.7	McMahon	Cambridge	HQ 233 HQ 233
Coordinated study of variability of MKN 421	Bromage	RAL	HQ 234 HQ 234
Active galactic nuclei: along the way from a Seyfert 2 to a Seyfert 2 to a Seyfert 1 state, what are the time delays between the X, UV and BLR changes? The case of NGC 1566	Alloin	Meudon	HQ 235 HQ 235 HQ 235 HQ 235 HQ 235 HQ 235
Search for NV in the Herbig star AB Aur	Catala	Meudon	HA 240 HA 240
Ultraviolet Observations of RCB stars	Evans	Keele	HC 241 HC 241
Correlated short term spectral variability in the Herbig star AB Aur	Praderie	Meudon	HA 246 HA 246 HA 246
Ultraviolet study of the unusual Herbig-Haro objects H-H 24 and H-H 32	Solf	Heidelberg	HM 247 HM 247 HM 247
Study of the chromosphere/corona of HDE 319139	Byrne	Armagh	HC 248 HC 248

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. MICHAEL F. A'HEARN COMETS AS TARGETS OF OPPORTUNITY	MARYLAND	U. S.	SSHMA	TARG OF	
DR. MICHAEL F. A'HEARN COMET GIACOBINI-ZINNER AND THE ICE MISSION	MARYLAND	U. S.	SCHMA		
DR. SAUL J. ADELMAN THE POPULATION II A TYPE STAR HD 109995. II	CITADEL	U. S.	ACHSA		
DR. BRUCE M. ALTNER ANOMALOUS ABSORPTION FEATURES IN GLOBULAR CLUSTER SWP SPECTRA	A. R. CORP.	U. S.	EGHBA	ARCHIVAL	
DR. THOMAS R. AYRES A CRITICAL TEST OF THE SWP WAVELENGTH SCALE	COLORADO-LASP	U. S.	PTHTA		
DR. THOMAS R. AYRES A DEEP SWP ECHELLE EXPOSURE OF A RED DWARF FLARE STAR: AT MICROSCOPII	COLORADO-LASP	U. S.	FSHTA		
DR. THOMAS R. AYRES A FAR-ULTRAVIOLET ECHELLE SURVEY OF YOUNG F STARS IN THE URSA MAJOR CLUSTER	COLORADO-LASP	U. S.	CCHTA		
DR. THOMAS R. AYRES HOW STEADY ARE THE FAR-ULTRAVIOLET EMISSIONS OF THE F STARS?	COLORADO-LASP	U. S.	FEHTA		
DR. SALLIE L. BALIUNAS ACTIVITY CYCLES IN THE HYADES AND PRAESEPE	CFA - SAO	U. S.	LGHSB		
DR. TIMOTHY BARKER THE IONIZATION STRUCTURE OF PLANETARY NEBULAE	WHEATON	U. S.	PNHTB		
DR. GIBOR S. BASRI ATMOSPHERIC STRUCTURES IN HIGH AND LOW MASS T TAURI STARS	CAL BERKELEY	U. S.	PMHGB		
DR. GIBOR S. BASRI CHROMOSPHERIC ACTIVITY IN SOLAR MASS PRE-MAIN SEQUENCE STARS	CAL BERKELEY	U. S.	TTHGB		
DR. ROGER A. BELL IUE OBSERVATIONS OF SUBDWARFS AND RR LYRAE VARIABLES	MARYLAND	U. S.	RRHRB		
DR. ROGER A. BELL IUE OBSERVATIONS OF GLOBULAR CLUSTERS	MARYLAND	U. S.	GCHRB		
DR. JAY T. BERGSTRALH GEOMETRIC ALBEDO OF URANUS FROM 2000 A TO 3000 A	JPL	U. S.	SUHJB		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. WILLIAM P. BLAIR AN O-RICH SUPERNOVA REMNANT IN THE SMC	JOHNS HOPKINS	U. S.	SNHWB		
DR. ALBERT BOGGESS UV OBSERVATIONS OF SEYFERT GALAXIES	GSFC	U. S.	AGHAB		
DR. KARL-HEINZ BOHM ULTRAVIOLET STUDY OF THE UNUSUAL HERBIG-HARO OBJECTS H-H 24 AND H-H 32	WASH.	U. S.	HHHKB		
DR. ERIKA BOHM-VITENSE AGE DEPENDENCE OF THE BOUNDARY LINE FOR CHROMOSPHERIC EMISSION IN THE HR DIAGRAM	WASH.	U. S.	ACHEB		
DR. ERIKA BOHM-VITENSE PERIODIC LIGHT VARIATIONS OF ALPHA-SQUARED CVN	WASH.	U. S.	AVHEB		
DR. HOWARD E. BOND WINDS AND SHELLS AROUND LOW-MASS SUPERGIANTS	ST SC. I.	U. S.	CGHHB		
DR. BERNARD W. BOPP INTERACTING F + BE BINARY STARS	TOLEDO	U. S.	HCHBB		
DR. C. STUART BOWYER FAR UV SPECTROSCOPY OF THE OPTICAL EMISSION KNOTS IN THE INNER JET OF CEN A	CAL BERKELEY	U. S.	XGHCB		
DR. C. STUART BOWYER UV SPECTROSCOPY OF A JET-GALAXY INTERACTION	CAL BERKELEY	U. S.	EGHCB		
DR. DOUGLAS N. BROWN ULTRAVIOLET DOPPLER TOMOGRAPHY OF THE STELLAR WIND OF V444 CYGNI	WASH.	U. S.	WRHDB		
DR. DOUGLAS N. BROWN IUE SPECTROPHOTOMETRIC CENSUS OF THE ORION OBI ASSOCIATION B STARS	WASH.	U. S.	OBHDB		
DR. FREDERICK C. BRUHWEILER BROAD ABSORPTION LINE QSOS IN IUE SPECTRA	CATHOLIC UNIV	U. S.	QSHFB	ARCHIVAL	
DR. FREDERICK C. BRUHWEILER "INTERSTELLAR-LIKE" C IV AND SI IV IN LATE B MAIN SEQUENCE STARS	CATHOLIC UNIV	U. S.	BSHFB	ARCHIVAL	
DR. FREDERICK C. BRUHWEILER VARIABLE MASS LOSS IN HOT SUBLUMINOUS STARS	CATHOLIC UNIV	U. S.	MLHFB	ARCHIVAL	
DR. FREDERICK C. BRUHWEILER MASS LOSS AND LEVITATION IN HOT WHITE DWARFS	CATHOLIC UNIV	U. S.	WDHFB		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. FREDERICK C. BRUHWEILER THE INTERSTELLAR WIND AND THE IONIZATION OF THE LOCAL CLOUD	CATHOLIC UNIV	U. S.	ISHFB		
DR. FREDERICK C. BRUHWEILER UV SPECTROSCOPY OF THE JET-LIKE NLR CONDENSATIONS IN NGC 4151	CATHOLIC UNIV	U. S.	EGHFB		
DR. DAVID BURSTEIN K GIANT SPECTRA FOR STELLAR POPULATION MODELS	ARIZONA ST.	U. S.	CSHDB		
DR. JOHN J. CALDWELL IUE SOLAR SYSTEM OBSERVATIONS II. SPATIAL AND TEMPORAL VARIATIONS ON SATURN	STONY BROOK	U. S.	SSHJC		
DR. JOHN J. CALDWELL IUE SOLAR SYSTEM OBSERVATIONS I. URANUS AND NEPTUNE	STONY BROOK	U. S.	SNHJC		
DR. ROBERT D. CHAPMAN PHYSICS OF THE EPSILON AURIGAE SYSTEM	GSFC	U. S.	VVHRC		
DR. JOHN T. CLARKE SOLAR WIND INFLUENCE ON URANUS AURORA	NASA/MSFC	U. S.	SUHJC	TARG OF	
DR. MARTIN COHEN C/O RATIOS IN PLANETARY NEBULAE WITH THE 6.2 AND 7.7 MICRON EMISSION FEATURES	CAL BERKELEY	U. S.	PNHMC		
DR. PETER S. CONTI MASS LOSS AND NARROW ABSORPTION COMPONENT VARIABILITY IN XI PER AND DELTA ORI	COLORADO	U. S.	MLHPC		
DR. FRANCE ANNE CORDOVA HIGH DISPERSION SWP STUDIES OF WINDS IN CATACLYSMIC VARIABLE STARS	LOS ALAMOS	U. S.	CVHFC		
DR. ANNE P. COWLEY THE STELLAR CONTENT OF M31 GLOBULAR CLUSTERS	ARIZONA ST.	U. S.	GCHAC		
DR. RONALD A. DOWNES THE NATURE OF THE UV EXCESS OBJECTS WITH MISSING H ALPHA	A. R. CORP.	U. S.	HSHRD		
DR. REGINALD J. DUFOUR H II REGIONS IN THE MAGELLANIC CLOUDS & THE ORION NEBULA	RICE	U. S.	NGHRD		
DR. REGINALD J. DUFOUR IUE OBSERVATIONS OF I ZW 18	RICE	U. S.	EGHRD		
DR. DOUGLAS K. DUNCAN STRUCTURAL CHANGES IN THE CHROMOSPHERES OF M DWARFS	CAL TECH-MT.W	U. S.	LDHDD		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. ANDREA K. DUPREE THE VARIABLE ATMOSPHERE OF ALPHA ORIONIS	CFA - SAO	U. S.	LSHAD		
DR. ANDREA K. DUPREE THE INCIDENCE OF WINDS FROM METAL DEFICIENT GIANT STARS	CFA - SAO	U. S.	LGHAD		
DR. ANDREA K. DUPREE THE CHROMOSPHERE AND WIND OF HD 6833	CFA - SAO	U. S.	CGHAD		
DR. JOEL A. EATON LINE IDENTIFICATIONS FOR THE STRATIFIED EXTENDED ATMOSPHERES OF WOLF-RAYET STARS	INDIANA	U. S.	WRHJE	ARCHIVAL	
DR. JOEL A. EATON ULTRAVIOLET COLORS OF LATE-TYPE STARS WITH DIFFERENT AMOUNTS OF CHROMOSPHERIC ACTIVITY	INDIANA	U. S.	CCHJE	ARCHIVAL	
DR. JOEL A. EATON INTERACTING BINARIES THAT ARE JUST BEGINNING TO INITIATE MASS TRANSFER	INDIANA	U. S.	IBHJE		
DR. JUAN ECHEVARRIA INTERNATIONAL SEARCH PROGRAM OF DWARF NOVAE DURING THE FIRST DAY OF OUTBURST	U.N.A. DE MEX	MEXICO	CVHJE	TARG OF	
DR. MARTIN S. ELVIS QSOS WITH IPC X-RAY SPECTRA	CFA - SAO	U. S.	XQHME		
DR. NANCY REMAGE EVANS NEW CALIBRATORS FOR THE CEPHEID PERIOD-LUMINOSITY RELATION	CSC	U. S.	PLHNE		
DR. NANCY REMAGE EVANS REDDENING AND TEMPERATURE SCALES FOR CEPHEIDS	CSC	U. S.	DCHNE		COMBINED #'S 231 & 232
DR. WALTER A. FEIBELMAN EMISSION LINE RATIOS IN PLANETARY NEBULAE AND RELATED OBJECTS	GSFC	U. S.	NPHWF	ARCHIVAL	
DR. WALTER A. FEIBELMAN THE ECLIPSING NUCLEUS OF THE PLANETARY NEBULA NGC 2346	GSFC	U. S.	NCHWF		
DR. FRANCIS C. FEKEL, JR. MASS RATIOS OF COMPOSITE BINARIES	VANDERBILT	U. S.	SBHFF		
DR. PAUL D. FELDMAN IUE OBSERVATIONS OF COMETS AS TARGETS OF OPPORTUNITY	JOHNS HOPKINS	U. S.	SPHPF	TARG OF	
DR. PAUL D. FELDMAN IUE OBSERVATIONS OF HALLEY'S COMET	JOHNS HOPKINS	U. S.	SCHPF		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. GARY J. FERLAND EMISSION LINE REGION KINEMATICS IN NGC 1068	KENTUCKY	U. S.	AGHGF		
DR. ROBERT A. FESEN A UV INVESTIGATION OF THE CENTRAL STAR OF THE PLANETARY NEBULA S216	COLORADO-LASP	U. S.	PNHRF		
DR. ROBERT A. FESEN UV OBSERVATION OF THE BLUE STAR BEHIND THE YOUNG TYPE I SNR OF AD 1006	COLORADO-LASP	U. S.	SNHRF		
DR. MICHEL FICH CARBON ABUNDANCES IN OUTER GALAXY HII REGIONS	WASH.	U. S.	NGHMF		
DR. EDWARD L. FITZPATRICK A FURTHER INVESTIGATION OF EXTINCTION IN THE LARGE MAGELLANIC CLOUD	COLORADO-JILA	U. S.	ISHEF		
DR. PRISCILLA C. FRISCH INTERSTELLAR CLOUDS NEAR THE SUN	CHICAGO	U. S.	ISHPF		
DR. CATHARINE D. GARMANY SHORT-TIME VARIATIONS IN STELLAR WINDS OF LUMINOUS EARLY-TYPE STARS	COLORADO	U. S.	OSHCG		
DR. CATHARINE D. GARMANY RAPID VARIABILITY IN W-R STARS: EVIDENCE FOR PULSATIONS?	COLORADO	U. S.	WRHCG		
DR. CATHARINE D. GARMANY WINDS OF HOT STARS IN THE SMALL MAGELLANIC CLOUD	COLORADO	U. S.	OBHCG		
DR. MARK S. GIAMPAPA COORDINATED MAGNETIC AND CHROMOSPHERIC OBSERVATIONS OF STARS	NOAO - NSO	U. S.	CCHMG		
DR. MARK S. GIAMPAPA PROFILES OF THE MG II H AND K LINES IN SELECTED RED DWARFS	NOAO - NSO	U. S.	LDHMG		
DR. DAVID M. GIBSON AN IUE-ARCHIVE SEARCH FOR DOPPLER IMAGABLE CHROMOSPHERES IN ACTIVE STARS	NEW MEX TECH	U. S.	RSHDG	ARCHIVAL	
DR. DAYA P. GILRA ANALYSIS OF HIGH RESOLUTION SPECTRA OF SLOW NOVA RR TEL	S M SYSTEMS	U. S.	CVHDG	ARCHIVAL	
DR. A. E. GLASSGOLD MULTIFREQUENCY OBSERVATIONS OF BL LAC OBJECTS AND VIOLENTLY VARIABLE QUASARS	NEW YORK U.	U. S.	BLHAG		
DR. A. E. GLASSGOLD LINE VARIABILITY OF THE LUMINOUS QUASAR 3C446	NEW YORK U.	U. S.	QSHAG		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. CAROL A. GRADY A STUDY OF STELLAR WINDS IN LATE-TYPE BE STARS	CSC	U. S.	BEHCG		
DR. RICHARD F. GREEN QUASARS AND GALACTIC HALO EVOLUTION	NOAO - KPNO	U. S.	QSHRG		
DR. EDWARD F. GUINAN ULTRAVIOLET OBSERVATIONS OF ECLIPSING BINARY SYSTEMS WITH HIGHLY ECCENTRIC ORBITS	VILLANOVA	U. S.	EBHEG		
DR. BERNHARD M. HAISCH CONTINUATION OF A COMPARATIVE STUDY OF SOLAR-TYPE STARS	LOCKHEED	U. S.	LDHBH	ARCHIVAL	
DR. JOHANNES HARDORP A STUDY OF MASS-EXCHANGE IN ALGOL-TYPE BINARIES	STONY BROOK	U. S.	IBHJH		
DR. DOYAL A. HARPER OBSERVATIONS OF VEGA-TYPE CIRCUMSTELLAR NEBULAE	CHICAGO	U. S.	CSHDH		
DR. CYRIL HAZARD EXTENDED EXPOSURES OF A BRIGHT QUASAR AT REDSHIFT 3.7	PITTSBURGH	U. S.	QSHCH		
DR. JOY NICHOLS HECKATHORN NARROW ABSORPTION COMPONENTS IN EARLY-TYPE STARS	ST SC. I.	U. S.	HSHJH	ARCHIVAL	
DR. RICHARD C. HENRY LOCAL INTERSTELLAR HYDROGEN AND DEUTERIUM	JOHNS HOPKINS	U. S.	IMHRH		
DR. PAUL W. HODGE UV OBSERVATIONS OF NGC 205	WASH.	U. S.	GPHPH		
DR. JAY B. HOLBERG MEASUREMENT OF A GRAVITATIONAL REDSHIFT WITH IUE	ARIZONA	U. S.	DAHJH		
DR. JAN MICHAEL HOLLIS ULTRAVIOLET ABSORPTION STUDIES TOWARD COMET COMAE	GSFC	U. S.	SCHJH	TARG OF	
DR. ALBERT V. HOLM THE STRENGTH OF ULTRAVIOLET SPECTRAL FEATURES	CSC	U. S.	STHAH	ARCHIVAL	
DR. JOHN P. HUCHRA DISTANT BLUE GALAXIES	CFA - SAO	U. S.	EGHJH		
DR. JOHN B. HUTCHINGS STAR FORMATION IN THE MAGELLANIC CLOUDS	DAO	CANADA	MCHJH		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. CATHERINE L. IMHOFF ULTRAVIOLET EXTINCTION IN THE TAURUS DARK CLOUDS	CSC	U. S.	IMHCI		
DR. WILLIAM M. JACKSON A PROPOSAL FOR OBSERVATIONS OF COMETS, AS TARGETS OF OPPORTUNITY	HOWARD	U. S.	SCHWJ	TARG OF	
DR. WILLIAM M. JACKSON A PROPOSAL FOR OBSERVATIONS OF COMET P/HALLEY WITH THE INTERNATIONAL ULTRAVIOLET EXPLORER	HOWARD	U. S.	SHHWJ		
DR. WILLIAM M. JACKSON A PROPOSAL FOR OBSERVATIONS OF COMET P/GIACOBINI-ZINNER	HOWARD	U. S.	SSHWJ		
DR. EDWARD B. JENKINS INTERGALACTIC LYMAN ALPHA SYSTEMS	PRINCETON	U. S.	QSHEJ		
DR. HOLLIS R. JOHNSON UPPER ATMOSPHERES OF LATE M STARS	INDIANA	U. S.	LGHHJ		
DR. HOLLIS R. JOHNSON THE CARBON PROTO-PLANETARY NEBULA HD 59643	INDIANA	U. S.	CSHHJ		
DR. HOLLIS R. JOHNSON HIGH-RESOLUTION SPECTROSCOPY OF THE COOL CARBON STAR HD 20234	INDIANA	U. S.	CCHHJ		
DR. JUN JUGAKU TARGET-OF-OPPORTUNITY OBSERVATIONS OF SELECTED X-RAY BINARIES AT X-RAY OUTBURSTS	TOKYO AST OBS	JAPAN	XBHJJ	TARG OF	
DR. TIMOTHY R. KALLMAN MEASUREMENTS OF WIND FEATURES FROM CATACLYSMIC VARIABLES	GSFC	U. S.	CVHTK	ARCHIVAL	
DR. TIMOTHY R. KALLMAN SIMULTANEOUS ULTRAVIOLET AND X-RAY OBSERVATIONS OF TWO MASSIIVE X-RAY BINARIES	GSFC	U. S.	XBHTK		COMBINED #'S 255 & 256
DR. SCOTT KENYON TIME VARIABILITY IN SYMBIOTIC STARS	CFA - SAO	U. S.	ZAHSK	ARCHIVAL	
DR. SCOTT KENYON UV SPECTRA OF SYMBIOTIC STARS DETECTED BY THE VLA	CFA - SAO	U. S.	IBHSK		
DR. YOJI KONDO INVESTIGATION OF THE PECULIAR SECONDARY ECLIPSE OF THE INTERACTING BINARY R ARAE	GSFC	U. S.	HBHYK		
DR. RICHARD G. KRON INTEGRATED SPECTRA OF GLOBULAR CLUSTERS IN M31	CHICAGO	U. S.	GCHRK		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. DAVID L. LAMBERT A SEARCH FOR WHITE DWARF COMPANIONS OF ASYMPTOTIC GIANT BRANCH STARS	TEXAS	U. S.	HCHDL		
DR. KENNETH R. LANG COORDINATED IUE AND VLA OBSERVATIONS OF DWARF M FLARE STARS AND RS CVN TYPE STARS	TUFTS UNIV.	U. S.	FSHKL		
DR. JAMES W. LIEBERT A PECULIAR HOT X-RAY STAR IN THE LMC	ARIZONA	U. S.	XLHJL		
DR. JEFFREY L. LINSKY VARIABILITY OF THE WINDS, CHROMOSPHERES AND TRANSITION REGIONS OF HYBRID STARS	COLORADO-JILA	U. S.	LGHJL		
DR. JEFFREY L. LINSKY MAGNETIC ACTIVITY IN VERY LATE M DWARFS: ENHANCED OR REDUCED?	COLORADO-JILA	U. S.	DMHJL		
DR. JEFFREY L. LINSKY A LONG LOOK AT ZETA AURIGAE DURING TOTAL ECLIPSE	COLORADO-JILA	U. S.	ECHJL		
DR. JEFFREY L. LINSKY HIGH RESOLUTION SPECTROSCOPY OF LATE K AND M SUPERGIANTS	COLORADO-JILA	U. S.	CSHJL		
DR. JEFFREY L. LINSKY STELLAR WINDS IN COOL GIANTS AND SUPERGIANTS	COLORADO-JILA	U. S.	CCHJL		
DR. JEFFREY L. LINSKY CHROMOSPHERIC AND TRANSITION REGION LINE PROFILES OF THE HERBIG AE STAR HR 5999	COLORADO-JILA	U. S.	AEHJL		
DR. JEFFREY L. LINSKY THE ULTRAVIOLET SPECTRUM OF THE T TAURI STAR RY TAU SUBSEQUENT TO ITS 1983 BRIGHTENING	COLORADO-JILA	U. S.	TTHJL		
DR. JEFFREY L. LINSKY THE UNIQUE ECLIPSING BINARY SYSTEM TZ FORNACIS	COLORADO-JILA	U. S.	EBHJL		
DR. JEFFREY L. LINSKY AN UNBIASED DISTANCE-LIMITED SURVEY OF EARLY-K BRIGHT GIANTS	COLORADO-JILA	U. S.	KGHJL		
DR. JEFFREY L. LINSKY A PHASE-LINKED STUDY OF EMISSION LINES IN THE FLARE STAR EV LAC	COLORADO-JILA	U. S.	FSHJL		
DR. JULIE H. LUTZ IUE STUDIES OF INFRARED D-TYPE SYMBIOTIC STARS/PLANETARY NEBULAE	WASH. ST.	U. S.	SSHJL		
DR. GORDON M. MACALPINE OBSERVATIONS OF NARROW-LINED SEYFERT GALAXIES	MICHIGAN	U. S.	EGHGM		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. MATTHEW A. MALKAN LONG EXPOSURES OF HIGH-REDSHIFT QUASARS	CAL LA	U. S.	HZHMM		
DR. MATTHEW A. MALKAN COORDINATED UV/OPTICAL/IR OBSERVATIONS OF POLARIZED QUASARS	CAL LA	U. S.	QSHMM		
DR. STEPHEN P. MARAN COMPLETION OF SURVEY OF PLANETARIES IN THE MAGELLANIC CLOUDS	GSFC	U. S.	NPHSM		
DR. BRUCE MARGON A NEW, EXTREMELY HOT WHITE DWARF	WASH.	U. S.	WDHBM		
DR. PHILIP L. MASSEY STELLAR WINDS IN THE HOT STARS OF NEARBY GALAXIES	NOAO - KPNO	U. S.	OBHPM		
DR. JOHN S. MATHIS AN INVESTIGATION OF BROAD-LINE REGIONS OF SEYFERT 1 GALAXIES	WISCONSIN	U. S.	SGHJM		
DR. GEORGE E. MCCLUSKEY IUE SPECTROSCOPY OF THE STRONGLY INTERACTING BINARY TX URSAE MAJORIS	LEHIGH	U. S.	IBHGM		
DR. ANDREW G. MICHALITSIANOS UV VARIABILITY IN TWO PECULIAR EMISSION STARS IN THE MAGELLANIC CLOUDS	GSFC	U. S.	PEHAM		
DR. ANDREW G. MICHALITSIANOS TEMPORAL UV-LINE PROFILE VARIATIONS IN THE PECULIAR OBJECT RX PUPPIS	GSFC	U. S.	IBHAM		
DR. H. WARREN MOOS ULTRAVIOLET STUDY OF URANUS AND SATURN: COORDINATION WITH THE VOYAGER AND ASTRO MISSIONS	JOHNS HOPKINS	U. S.	SUHHM		
DR. H. WARREN MOOS THE LONG-TERM INTERACTION BETWEEN THE JOVIAN ATMOSPHERE AND MAGNETOSPHERE	JOHNS HOPKINS	U. S.	SJHHM		
DR. H. WARREN MOOS THE STABILITY AND LONGITUDINAL HOMOGENEITY OF THE IO TORUS	JOHNS HOPKINS	U. S.	SIHHM		
DR. DERMOTT J. MULLAN STATISTICAL STUDY OF MASS LOSS FLUCTUATIONS	DELAWARE	U. S.	CCHDM	ARCHIVAL	
DR. DERMOTT J. MULLAN A SEARCH FOR CO-ROTATING INTERACTION REGIONS IN STELLAR WINDS	DELAWARE	U. S.	MLHDM	ARCHIVAL	
DR. DERMOTT J. MULLAN A STUDY OF MASS LOSS IN A LONG-PERIOD CEPHEID VARIABLE	DELAWARE	U. S.	DCHDM		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. ROBERT M. NELSON	JPL	U. S.	SSHRN		
UV SPECTROPHOTOMETRY: GALILEAN AND SATURNIAN SATELLITES AND ASTEROIDS					
DR. NANCY A. OLIVERSEN	CSC	U. S.	COHNO	ARCHIVAL	
MASSES AND NEBULAR VELOCITY STRUCTURE OF SYMBIOTIC STARS					
DR. NANCY A. OLIVERSEN	CSC	U. S.	ZAHNO	TARG OF	COMBINED #S 248 & 258 + T OF O
NOVA-LITE OUTBURSTS IN Z AND OTHER SYMBIOTIC STARS					
DR. NANCY A. OLIVERSEN	CSC	U. S.	ZAHNO		
NOVA-LITE OUTBURSTS IN Z AND OTHER SYMBIOTIC STARS					
DR. SIDNEY B. PARSONS	CSC	U. S.	VVHSP		
ECLIPSE COVERAGE OF THE G SUPERGIANT 22 VUL					
DR. BENJAMIN F. PEERY, JR.	HOWARD	U. S.	LGHBP		
A SEARCH FOR HOT DEGENERATE COMPANIONS OF LATE-TYPE GIANTS WITH HEAVY-ELEMENT EXCESSES					
DR. ROBERT L. PENNINGTON	MINNESOTA	U. S.	EGHRP		
IUE OBSERVATIONS OF THE INNER JET OF CENTAURUS A					
DR. GERALDINE J. PETERS	USC	U. S.	BEHGP		
IUE, VOYAGER, AND GROUND-BASED OBSERVATIONS OF PULSATING BE STARS					
DR. RONALD E. PITTS	CSC	U. S.	STHRP		
ULTRAVIOLET SPECTRA OF SPECTROPHOTOMETRIC STANDARD STARS					
DR. MIREK J. PLAVEC	CAL LA	U. S.	IBHMP		
ECLIPSES OF INTERACTING BINARIES: AN IUE/VOYAGER PROJECT					
DR. RONALD S. POLIDAN	ARIZONA	U. S.	CVHRP	TARG OF	
SIMULTANEOUS IUE AND VOYAGER OBSERVATIONS OF THE DWARF NOVA Z CAMELOPARDALIS					
DR. RONALD S. POLIDAN	ARIZONA	U. S.	HSHRP		
C IV EMISSION IN BE STARS					
DR. RONALD S. POLIDAN	ARIZONA	U. S.	IBHRP		
500-3000 A FLUX DISTRIBUTIONS OF NOVA-LIKE VARIABLES					
DR. LAWRENCE W. RAMSEY	PENN ST.	U. S.	RSHLR		
COORDINATED OBSERVATIONS OF ROTATIONAL MODULATION IN LONG PERIOD					
DR. JOHN C. RAYMOND	CFA - SAO	U. S.	CVHJR	ARCHIVAL	
MASS LOSS FROM CATACLYSMIC VARIABLES					

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. JOHN C. RAYMOND EMISSION FROM NOVA SHELLS	CFA - SAO	U. S.	NEHJR		
DR. JOHN C. RAYMOND ACTIVE SECTORS OF YY GEM	CFA - SAO	U. S.	DMHJR		
DR. JOHN C. RAYMOND HIGH DISPERSION STUDY OF HZ HERCULIS	CFA - SAO	U. S.	XBHJR		
DR. JOHN C. RAYMOND A CLOUD STRUCK BY THE CYGNUS LOOP BLAST WAVE	CFA - SAO	U. S.	NSHJR		
DR. GAIL A. REICHERT SIMULTANEOUS UV AND EUV OBSERVATIONS OF ACTIVE GALAXIES	CSC	U. S.	AGHGR		
DR. GUENTER A. RIEGLER IUE ULTRAVIOLET OBSERVATIONS OF THE AM HERCULES-LIKE X-RAY BINARY H0139-68	JPL	U. S.	XBHGR	TARG OF	
DR. BLAIR D. SAVAGE HALO GAS HIGH GALACTIC LATITUDE	WISCONSIN	U. S.	HGHBS	ARCHIVAL	
DR. BLAIR D. SAVAGE STUDIES OF INTERSTELLAR GAS IN THE GALACTIC DISK AND HALO	WISCONSIN	U. S.	GDHBS	ARCHIVAL	
DR. BLAIR D. SAVAGE A SEARCH FOR VARIABILITY OF THE 2175A EXTINCTION BUMP	WISCONSIN	U. S.	ISHBS	ARCHIVAL	
DR. BLAIR D. SAVAGE INVESTIGATIONS OF MOTIONS IN THE GASEOUS GALACTIC HALO	WISCONSIN	U. S.	GHHBS		
DR. GARY D. SCHMIDT A STUDY OF STRONGLY MAGNETIC VARIABLE WHITE DWARFS	ARIZONA	U. S.	WDHGS		
DR. DONALD E. SHEMANSKY OBSERVATIONS OF HYDROGEN EMISSION FROM JUPITER	ARIZONA	U. S.	SJHDS		
DR. STEVEN N. SHORE THE GALACTIC EXTREME EMISSION-LINE SUPERGIANTS	CSC	U. S.	OBHSS		
DR. STEVEN N. SHORE A STUDY OF INTERACTING SEYFERT GALAXIES	CSC	U. S.	EGHSS		
DR. STEVEN N. SHORE THE SN STARS	CSC	U. S.	MLHSS		

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. J. MICHAEL SHULL INTERSTELLAR STUDIES WITH IUE ARCHIVES	COLORADO-LASP	U. S.	IMHJS	ARCHIVAL	
DR. J. MICHAEL SHULL IUE OBSERVATIONS OF HERBIG-HARO OBJECTS	COLORADO-LASP	U. S.	HHHJS		
DR. J. MICHAEL SHULL INTERSTELLAR OBSERVATIONS OF DISTANT OB STARS	COLORADO-LASP	U. S.	OBHJS		
DR. J. MICHAEL SHULL INTERSTELLAR METAL ABUNDANCES SURVEY	COLORADO-LASP	U. S.	ISHJS		
DR. J. MICHAEL SHULL SHOCK PROCESSING OF INTERSTELLAR GRAINS IN MONOCEROS	COLORADO-LASP	U. S.	SNHJS		
DR. THEODORE SIMON THE NATURE OF STELLAR ACTIVE REGIONS	HAWAII	U. S.	CCHTS		
DR. THEODORE SIMON CHROMOSPHERIC ACTIVITY IN PRE-MAIN-SEQUENCE STARS	HAWAII	U. S.	PMHTS		
DR. THEODORE SIMON CHROMOSPHERIC ACTIVITY AND SPINDOWN IN THE HERTZSPRUNG GAP	HAWAII	U. S.	CGHTS		
DR. EDWARD M. SION IUE ECHELLE STUDIES OF DIFFUSION, ABUNDANCES AND EVOLUTION OF THE HOTTEST DO WHITE DWARFS	VILLANOVA	U. S.	WDHES		
DR. EDWARD M. SION IUE SPECTROSCOPY OF PRE-CATACLYSMIC BINARIES	VILLANOVA	U. S.	CVHES		
DR. MICHAEL L. SITKO MULTIFREQUENCY OBSERVATIONS OF GQ COMAE	NOAO - KPNO	U. S.	XQHMS		
DR. THEODORE P. SNOW, JR INTERSTELLAR DEPLETIONS IN DIFFUSE CLOUD CORES	COLORADO-LASP	U. S.	IDHTS		
DR. THEODORE P. SNOW, JR ULTRAVIOLET OBSERVATIONS OF BE STARS WITH KNOWN INFRARED EXCESSES	COLORADO-LASP	U. S.	BIHTS		
DR. THEODORE P. SNOW, JR STELLAR WINDS IN B AND BE STAR	COLORADO-LASP	U. S.	MLHTS		
DR. GEORGE SONNEBORN PHASE-RESOLVED SPECTROSCOPY OF THE AP SI STAR 56 ARIETIS	CSC	U. S.	APHGS	ARCHIVAL	

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. GEORGE SONNEBORN	CSC	U. S.	CVHGS	TARG OF	
TIME-RESOLVED SPECTROSCOPY OF SUPERHUMPS IN THE LIGHT CURVES OF ECLIPSING SU UMA SYSTEMS					
DR. GEORGE SONNEBORN	CSC	U. S.	HSHGS		
ULTRAVIOLET FLUX DISTRIBUTIONS IN LATER-TYPE B AND BE STARS					
DR. SUMNER G. STARRFIELD	ARIZONA ST.	U. S.	CVHSS	TARG OF	REG. SHIFTS + T OF OPP
ULTRAVIOLET OBSERVATIONS OF NOVA VULPECULAE 1984 AND OTHER NOVAE IN OUTBURST					
DR. SUMNER G. STARRFIELD	ARIZONA ST.	U. S.	CVHSS		
ULTRAVIOLET OBSERVATIONS OF NOVA VULPECULAE 1984 AND OTHER NOVAE IN OUTBURST					
DR. STEPHEN E. STROM	MASSACHUSETTS	U. S.	PMHSS		
CHROMOSPHERIC ACTIVITY IN AN X-RAY SELECTED SAMPLE OF YOUNG STARS					
DR. PAULA SZKODY	WASH.	U. S.	CVHPS		
A STUDY OF THE ACCRETION CHARACTERISTICS OF SIX UNIQUE CATACLYSMIC VARIABLES					
DR. DAVID A. TURNSHEK	ST SC. I.	U. S.	QSHDT		
PG1700+518: A LOW REDSHIFT BROAD ABSORPTION LINE QSO					
DR. RICHARD A. WADE	ARIZONA	U. S.	CVHRW		
THE WHITE DWARFS AND INNER ACCRETION DISC OF 3 UNUSUAL DWARF NOVAE					
DR. J. H. WAITE, JR.	NASA/MSFC	U. S.	SJHJW		
OBSERVATIONS OF JOVIAN ION AURORA					
DR. FREDERICK M. WALTER	COLORADO-LASP	U. S.	LDHFW		
ULTRAVIOLET TOMOGRAPHY OF THE TRANSITION REGION OF V471 TAURI					
DR. DANIEL W. WEEDMAN	PENN ST.	U. S.	EGHDW		
SURFACE BRIGHTNESS OF NGC 4736					
DR. GARY A. WEGNER	DARTMOUTH	U. S.	WDHGW		
A STUDY OF THE ULTRAVIOLET ABSORPTIONS IN THE SPECTRA OF DA WHITE DWARFS					
DR. GARY A. WEGNER	DARTMOUTH	U. S.	PEHGW		
ULTRAVIOLET SPECTRA OF THE PECULIAR STAR HR 6560					
DR. FRANCOIS WESEMAEL	MONTREAL	CANADA	SBHFW		
CONTINUING HIGH-RESOLUTION ULTRAVIOLET OBSERVATIONS OF HOT B SUBDWARFS					
DR. FRANCOIS WESEMAEL	MONTREAL	CANADA	SDHFW		
CONTINUING LOW-RESOLUTION ULTRAVIOLET OBSERVATIONS OF HOT B SUBDWARFS					

NASA APPROVED IUE PROGRAMS FOR THE EIGHTH YEAR

NAME / TITLE	INSTITUTION	COUNTRY	PROG ID	OBSERVATIONAL/ ARCHIVAL	REMARKS
DR. BEVERLEY J. WILLS AN INVESTIGATION OF A PECULIAR HIGH LUMINOSITY QUASAR	TEXAS	U. S.	QSHBW		
DR. BEVERLEY J. WILLS CONTINUUM VARIABILITY OF INTERMEDIATE REDSHIFT QUASARS	TEXAS	U. S.	QCHBW		
DR. LEE ANNE WILLSON MGII EMISSION FROM MIRA VARIABLES	IOWA STATE	U. S.	SRHLW		
DR. ADOLF N. WITT THE UNUSUAL REFLECTION NEBULA CED 201	TOLEDO	U. S.	NRHAW		
DR. CHI-CHAO WU OBSERVATIONS OF LOW REDSHIFT QUASARS	CSC	U. S.	QSHCW		
DR. CHI-CHAO WU SHORT TERM VARIATIONS IN THE MASS LOSS RATE AND LINEAR POLARIZATION OF BE STARS	CSC	U. S.	MLHCW		
DR. CHI-CHAO WU UV AND OPTICAL OBSERVATIONS OF LINERS	CSC	U. S.	AGHCW		
DR. DONALD G. YORK HOW FAR WILL WE SEE AT 500A	CHICAGO	U. S.	ISHDY		
DR. DONALD G. YORK CIV/MGII AND THE IONIZATION IN QSO ABSORPTION LINE SYSTEMS	CHICAGO	U. S.	QSHDY		
DR. DONALD G. YORK IUE PROPOSAL FOR 1985-1986 OBSERVING YEAR CIV IN GALACTIC HALOS	CHICAGO	U. S.	GHHDY		
DR. DONALD G. YORK DISTANCES OF 21CM HIGH VELOCITY (OORT) CLOUDS	CHICAGO	U. S.	IMHDY		
DR. BENJAMIN M. ZUCKERMAN MODEL OF THE ORION NEBULA INCORPORATING IUE DATA	CAL LA	U. S.	NGHBZ	ARCHIVAL	

A NOTE FROM THE SCHEDULER

IUE has started its eighth year of successful life and in spite of some minor problems and increasing constraints we can say, and anyone coming to observe at VILSPA can see, that the operations are running as smoothly as ever or even more so than when IUE was a "young" satellite (should we call that maturity?).

One of the operational aspects which has developed the most during the life of IUE is the coordination with other observatoires. For the current year, 58 programmes (out of a total of 155 approved) involving 153 shifts require coordination with other spacecraft or ground based observatories (IUE-NASA, EXOSAT, ASTRON, VOYAGER, ESO, CALAR ALTO, MC. DONALD, OHP, LA PALMA,...).

If we add to those the programmes to perform time dependent observations of variable objects or requiring special aperture orientations (and therefore time constrained as well) we obtain about two thirds of the available time.

All that makes the scheduling task more and more difficult and that is the reason why the final schedule has not yet been communicated to all the users.

In this issue of the Newsletter you will find the provisional schedule until October 85. You should have received by now a letter with the scheduling of your programmes. The final dates will be confirmed as usual at the beginning of the month preceding your observations.

A few users did not send back to us the scheduling questionnaire or did it very late. In the former case we have scheduled their programmes when feasible according to the satellite constraints and in the latter (as we usually do) we have tried to accommodate the requirements of users.

As a consequence of all the above mentioned factors the schedule is very tight and any further request will be very difficult to accommodate and will be taken into consideration only if there is a major scientific justification.

If you have any doubt or problem do not hesitate to contact the IUE Observatory in which the Resident Astronomer in Training will be pleased to give you advice on any subject related to your IUE observations.

Some good news to end this message. As you can see in the Spacecraft Status Report, page 35, the power constraint region has diminished due to the power savings after switching off the Panoramic Attitude Sensors. The range available for the 8th year will be from now:

$$28^{\circ} \leq \mathrm{BETA} \leq 115^{\circ} \pm 2^{\circ}$$

I wish you all successful observations during the 8th IUE round.

Antonio TALAVERA

JULY 1985			AUGUST 1985		
	PROGRAM	P.A.		PROGRAM	P.A.
1	HA 181	WOLF	1	MAINT.	R.A.
2	HA 199	CASSATELLA	2	HI 104	KRAUTTER
	HA 048	DOAZAN	3	HI 103	KRAUTTER
3	HE 171	O'BRIEN		HA 024	FRICKE
4	HQ 002	CLAVEL	4	HI 104	KRAUTTER
5	HS 051	RAHE	5	HQ 014	GONDHALEKAR
6	HE 027	LOOSE	6	GE 057	GONDHALEKAR
7	HA 084	TJIN A DJIE	7	GE 057	GONDHALEKAR
8	HC 062	LAGO	8	GE 057	GONDHALEKAR
9	HC 052	JORDAN	9	GE 057	GONDHALEKAR
10	HC 062	LAGO	10	HA 199	CASSATELLA
11	HC 088	JORDAN		HA 196	VILSPA
12	HA 061	MORRISON	11	HM 029	MOLARO
13	HQ 123	GONDHALEKAR	12	HM 068	PETTINI
14	HQ 123	GONDHALEKAR	13	HM 122	WEST
15	HC 057	ERIKSSON	14	HM 068	PETTINI
16	HC 018	REIMERS	15	HM 122	WEST
17	MAINT.	R.A.	16	HI 042	PRINGLE
18	MAINT.	R.A.	17	HA 048	DOAZAN
	HC 071	WHITE		MAINT.	R.A.
19	HM 209	PATRIARCHI	18	HC 030	BUES
20	HC 031	DE LA REZA	19	HM 143	DE BOER
21	HC 018	REIMERS	20	HM 143	DE BOER
22	HC 071	WHITE	21	HM 248	BYRNE
	HA 196	CASSATELLA	22	HM 248	BYRNE
23	HM 133	VIDAL-MADJAR	23	HC 078	BUTLER
24	HC 071	WHITE	24	HC 078	BUTLER
	MAINT.	R.A.	25	HC 078	BUTLER
25	HA 108	WESTERLUND	26	HC 078	BUTLER
26	MAINT.	R.A.	27	MAINT.	R.A.
	HC 071	WHITE	28	HA 169	HOWARTH
27	HA 012	BIANCHI	29	HA 169	HOWARTH
28	HA 108	WESTERLUND	30	HI 136	NUSSBAUMER
29	HA 193	VILSPA		HA 191	HACK
30	HA 193	VILSPA	31	HC 005	WEIDEMANN
31	HI 160	WATTS			

SEPTEMBER 1985

	PROGRAM	P.A.
1	HQ 226	TANZI
	MAINT.	R.A.
2	HS 051	RAHE
3	HA 169	PRINJA
4	HA 169	PRINJA
5	HA 169	PRINJA
6	HM 001	DANZIGER
7	HA 169	PRINJA
8	HA 102	FREIRE
9	HQ 064	PETTINI
10	HS 051	RAHE
11	HS 051	RAHE
12	HA 085	THE
13	HA 085	THE
14	HE 001	DANZIGER
15	HC 131	ENGVOLD
16	HC 131	ENGVOLD
17	HI 197	CASSATELLA
18	HC 016	RODONO
19	HC 016	RODONO
20	HC 016	RODONO
21	HS 231	FESTOU
22	HA 190	SMITH
23	HQ 064	PETTINI
24	HC 141	DEASY
	HA 196	CASSATELLA
25	HA 190	SMITH
26	HQ 067	PENSTON
27	MAINT.	R.A.
28	HC 036	FERNANDEZ
29	HM 097	MOLARO
30	HA 175	WILLIS

OCTOBER 1985

	PROGRAM	P.A.
1	HA 191	HACK
	HA 048	DOAZAN
2	HS 212	FRICKE
3	HS 212	FRICKE
4	HQ 067	PENSTON
5	HI 042	PRINGLE
6	HI 042	PRINGLE
7	HI 042	PRINGLE
8	HA 184	FARAGGIANA
9	MAINT.	R.A.
10	HQ 235	ALLOIN
11	HM 133	VIDAL-MADJAR
12	HQ 067	PENSTON
13	HA 197	CASSATELLA
	HQ 226	TANZI
14	HC 106	HEINTZE
	HA 196	CASSATELLA
15	HI 136	NUSSBAUMER
16	HM 125	LISEAU
17	HC 090	JORDAN
18	HC 090	JORDAN
19	HS 231	FESTOU
20	HE 171	O'BRIEN
21	HM 125	LISEAU
22	HI 115	MARASCHI
23	HC 141	DEASY
	HQ 226	TANZI
24	HE 109	NORGAARD
25	HC 161	SCHRIJVER
26	HE 109	NORGAARD
27	HM 247	SOLF
28	HQ 233	MC MAHON
29	HQ 233	MC MAHON
30	HA 012	BIANCHI
31	MAINT.	R.A.

IUE SPACECRAFT STATUS

The IUE Spacecraft continues to support science operations normally and effectively in its 8th year of very successful in-orbit operations.

The control thermistor of gyro-4 ceased functionning in December 1984 after the telemetry thermistor stopped its proper function in February 1984 (see ESA IUE Newsletter No.20). As a result of this, the temperatures of the remaining 3 gyroscopes are increasing and consequently the manoeuvre errors have increased as well. The errors have been evaluated over the past months, and as a result a new set of gyro scale factors generated, which were uplinked to the OBC on 15 May 1985. The manoeuvring accuracy has improved considerably since then. However, since the temperatures have not yet stabilised, it is expected that another rescaling will become necessary within the next two to three months.

A Delta-V manoeuvre was successfully performed on 16 November 1984. The westwards drift of IUE in its orbit was stopped and a target drift rate of 0.1503 degrees east per day was introduced.

The satellite emerged from the bi-annual eclipse season (number 15) in February/March 1985 with no difficulties being noted. The maximum depth of discharge of the two on-board batteries was less than 52%.

The solar arrays continue to degrade at a rate of 5 to 6% per year and predictions for power positive solar aspect angles (beta) show power marginal conditions in 1991 for a nominal spacecraft load of 180 Watts. In order to maintain the maximum possible flexibility of IUE to support science operations in the years to come and without the need to restrict operations further as the spacecraft ages, studies have been undertaken to reduce the power consumption of the satellite by turning off non-critical equipment and by changing the spacecraft configuration in such a way that power savings can be achieved.

As an immediate measure it was agreed, during the last 3-Agency Meeting held at Vilspa in April 1985, to switch off the two panoramic attitude sensors, providing a power saving of 8 Watts. The consequence of this action is that the beta range for the remainder of the eighth episode will be enlarged and that targets between

Beta $\geq 28^{\circ}$ and Beta $\leq 115^{\circ} \pm 2^{\circ}$

are not power constrained. Users having targets outside the beta range indicated above are kindly requested to contact the observatory staff to investigate to possibility of performing such an observation.

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

Below is a complete and detailed IUE status report. This is an updated version of the report presented in ESA IUE Newsletter No.18, p11. The report has been updated where new figures are available or the status has changed since the previous publication date.

J. Faelker
21 May 1985

I. SCIENTIFIC INSTRUMENT HARDWARE STATUS

A. CAMERAS (4)

i) Long Wavelength Prime (LWP) - standard camera, since 16 Oct. 1983.
suffered in the past from READ scan control logic malfunctions, but reset by bad scan detection logic software. This problem has nearly disappeared since March 1984 and has only once been detected since then.

Last BAD SCAN detected: 2 Feb 1985 16:56 UT.

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

iii) Long Wavelength Redundant(LWR) - standby only. since 16 Oct 1983
Usage to be approved by project scientist. Camera has suffered from discharge in the UVC since April 1983, producing a bright patch (Flare) on the image (Harris, 1985)
Current flare rate at 5kV on UVC $\approx$2.5DN/min
Tests in progress with UVC voltage at 4.5kV with sensitivity reduced by 27% (Harris 1985).

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 (Muñoz 1985; 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 (Munoz 1985)
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
effective wavelength ~ 5200 A
visual calibration (Holm and Rice 1981, Stickland 1980)
sensitivity variation (Barylak et al, 1984,1985)
experiences electronic confusion from operation aperture closure mechanism and the Sun shutter mechanism

D. <u>TELESCOPE SUN-SHUTTER</u>

closed twice spontaneously in 1984
correction by ground command

II. SPACECRAFT (S/C) HARDWARE STATUS

A. GYROS (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 $\simeq 4 * 10^{-4}$ (Panek & Baroffio 1982)
    Recently degraded somewhat due to loss of thermal control in gyro 4.

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
    $\sim$ 21.1 kg available
    usage rate $\sim$ 0.5 kg/year

D. SOLAR ARRAYS AS OF APRIL 1985.

Power positive zone - depends upon activity level
    Beta angles 115° to 28° ± 2° with 1 camera reading and 1 camera exposing

E. BATTERIES(2)

Maximum depth of discharge during shadow season (no.15) (Feb/March 1985)
    Battery #1 51.5%
    Battery #2 51.2%

F. ON-BOARD COMPUTER(2)

i) OBC 1

Temperature limit 55.8 C
Last crash 1984 Jan 18
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. See ESA IUE Newsletter No.21 (NASA IUE Newsletter No.25) and IUE Image Processing Information Manual Version 2.0 and references therein for a full description. The following list indicates the most significant modifications and their implementation dates.

	GSFC		VILSPA
Averaged Intensity Transfer Function	1978 May 22	-	78 Jun 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 04	-	81 Mar 10
Parameterized high dispersion constants	1981 May 19	-	82 Mar 11
"New" High dispersion software	1981 Nov 10	-	82 Mar 11
Extended LBL for low dispersion	1985 Oct 01	-	85 Oct 01

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 at ~2190 A low dispersion, large aperture LWR only.
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
depending on solar activity (Imhoff 1985)

C. PHOTOMETRIC PROPERTIES

i) Upper limits to ITFs (Turnrose 1980)

ii) Linearity errors in processed spectra

SWP -10 to -20 percent for Net DN $\leq$ 20
+10 to +15 percent for ave. DN > 220 @ 1300 A
(Holm 1981)
LWR +10 to +20 percent for Net DN $\leq$ 40

LWP mean error +2% for Net DN > 100
mean error of-2.5% for Net DN < 100
overall RMS error 3%. (Harris 1983a)
(Settle et al. 1981)

D. ABSOLUTE CALIBRATION

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 LWP
as for LWR (Cassatella et al, 1983).

iv) Accuracy of standards
+10% 1300A - 3400 A (Bohlin 1985)

v) Echelle ripple correction (Ake 1981)

E. SENSITIVITY VARIATION

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
$\lesssim$ 0.3%/year since 1979.3

LWR wavelength dependent between -3.5% and .8% per year.
(Clavel et al 1985;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 $\lesssim$ 5 A (1400-1600A)
FWHM ~ 7.5A @ 1900A
(Cassatella et al 1985)
gain in resolution using SAP: about 8% mean over lambda
(Cassatella et al, 1985)

b) spatial resolution in LAP from cross-profiles:
FWHM 4.6 to 5.9 arcsec at optimum focus
(Cassatella et al, 1985)

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, 1985)

LWP large aperture: ~10% - better than LWR
(Cassatella et al, 1985)

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,1985)

G. <u>WAVELENGTH</u> <u>ACCURACY</u>

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; Basri et al 1985; Crivellari et al 1982)

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; Bohlin et al 1980)

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

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

REFERENCES

Ake, T.B. 1981, NASA IUE Newsletter, No.15, p60

Ake, T.B. 1982, IUE Internal memo

Alderman, D.F., Turnrose, B.E., and Northover, K.J.E. 1981, NASA IUE Newsletter, No.15, p77; ESA IUE Newsletter, No.11, p75

Barylak, M., 1982, ESA IUE Newsletter, No.15, p31

Barylak, M., Wasatonic, R., Imhoff, C., NASA IUE Newsletter No.26 p101 1985, ESA IUE Newsletter No.20,p55 1984.

Basri, G., Clarke, J.T., Haisch, B.M., 1985, Astron. Astrophys. 144, 161

Blades,J.C. & Cassatella, A. 1982, ESA IUE Newsletter No.15, p38

Boggess, A. et al. 1978, Nature, 275, 377

Bohlin, R.C., Holm, A.V., Savage, B.D., Snijders, M.A.J., Spaarks, W.M., 1980, Astron. Astrophys, 85,1.

Cacciari, C. & Wamsteker, W. 1982 Report to Three-Agency Meeting, London

Cassatella, A. & Harris, A.W. ESA IUE Newsletter, No.17, p12

Cassatella, A., Barbero, J. & Benvenuti, P. 1985. Astron. Astrophys. 144, 335

Cassatella, A., Holm, A., Ponz, D., Schiffer, F.H. 1980, NASA IUE Newsletter, No.8, p1

Cassatella, A., Ponz, D., and Selvelli, P.L. 1981, NASA IUE Newsletter, No.14, p170; ESA IUE Newsletter No.10, p31

Cassatella, A., Ponz, D., Selvelli, P.L., 1982, ESA IUE Newsletter, No.15, p43

Cassatella, A., Ponz, D., Selvelli, P.L., 1983. Report to the 3 Agencies Meeting, London, April 1983.

Clarke, J.T. 1981a, NASA IUE Newsletter, No.14, p149

Clarke, J.T. 1981b, NASA IUE Newsletter, No.14, p143

Clavel, J., Gilmozzi, R., Prieto, A., 1985, ESA IUE Newsletter No.23 p48.

Coleman, C.I. 1978, paper presented at the Seventh Symposium on Photoelectric Image Devices at Imperial College, September 1978

Coleman, C.I., Golton, E., Gondhalekar, P., Hall, J., Oliver, M., Sandford, M., Snijders, T., and Stewart, B., 1977, IUE Technical Note No.31

Crivellari, L., Praderie, F., 1982, Astron. Astrophus. 107, 75

Faelker, J. 1982, Memorandum "Periodic Noise (Microphonics) on the LWP Camera"

Harris, A.W., 1983a ESA IUE Newsletter, No.18, p25

Harris, A.W., 1983b Report to 3-Agency Meeting, GSFC

Harris, A.W., 1985, ESA IUE Newsletter No.22, p19

Harris, A.W. & Cassatella, A. 1983 Report to 3-Agency Meeting, London.

Heck, A. 1981, ESA IUE Newsletter, No.13, p40

Holm, A.V., 1981, NASA IUE Newsletter, No.15, p70

Holm, A.V., and Rice, G. 1981, NASA IUE Newsletter, No.15, p74, ESA IUE Newsletter, No.11, p15

Holm, A.V. and Panek, R.J. 1982, NASA IUE Newsletter, No.18, p56

Holm, A.V., Bohlin, R.C., Cassatella, A., Ponz, D., & Schiffer III

F.H. 1982, Astron. Astrophys. 112, 341.
Imhoff, C. 1983 Report to 3-Agency Meeting, GSFC
Imhoff, C. 1985 Report to 3-Agency Meeting, Vilspa
Leckrone, D.S. 1980, NASA IUE Newsletter, No.10, p25
Muñoz, J.R., 1985,ESA IUE Newsletter No.23 p58.
Northover, K.J.E. 1979, ESA IUE Newsletter, No.11, p27
Panek, R.J., 1981, Report to the Three Agencies.
Panek, R.J., 1982a, NASA IUE Newsletter, No.18, p68.
Panek, R.J., 1982b, Report to 3-Agency Meeting, Vilspa
Panek, R.J., and Baroffio, B. 1982, IUE Internal memo
Panek, R.J., Holm, A.V. & Schiffer, F.H., III 1982, in "Instrumentation in Astronomy IV. SPIE Proceedings Vol.331
Patriarchi, P., 1981, ESA IUE Newsletter, No.10, p7
Penston, M. 1979, Report to the Three Agencies
Ponz, D. 1980, ESA IUE Newsletter, No.8, p12
Schiffer, F.H. 1980a NASA IUE Newsletter No.9 p32
Schiffer, F.H. 1980b NASA IUE Newsletter No.11 p33
Schiffer, F.H. 1982a NASA IUE Newsletter No.18 p64
Schiffer, F.H. 1982b, IUE Internal memo
Settle, J., Shuttleworth, T., and Sandford, M.C.W. 1981, NASA IUE Newsletter No.15 p97
Snijders, T. 1983, ESA IUE Newsletter No.16, p10
Sonneborn, 1983 Report to 3-Agency Meeting, GSFC.
Stickland, D. 1980, ESA IUE Newsletter, No.5, p30
Thompson, R.W., Turnrose, B.E. & Bohlin, R.C. 1981, NASA IUE Newsletter, No.15, p8.
Turnrose, B.E. 1980, NASA IUE Newsletter, No.9, p13
West, K. & Shuttleworth, T. 1981, ESA IUE Newsletter, No.12, p27

A correction method for the loss of sensitivity of the LWR camera from 1978 to 1983

J. Clavel, R. Gilmozzi and A. Prieto

1. Introduction

It has been suggested several times that the LWR camera has suffered from a steady decline of its sensitivity since IUE was launched, January 26, 1978 (eg Sonneborn, 1984). Holm (1985) attempted a quantification of this effect as a function of wavelength and time. However, the data base he used was restricted to a small number (29) of low dispersion spectra of calibration stars. In addition, since the sampling rate he used was much smaller than that of the LWR calibration table (50 Å), the final curve he obtains is extremely noisy. It does suggest however that the rate at which the sensitivity dropped varies on a short wavelength scale. Moreover, his study included small aperture as well as trailed data which are known to yield slight discrepancies in the derivation of the fundamental sensitivity curve of the IUE instrument.

Given the amplitude of the sensitivity loss indicated by this and other studies and the impact this is bound to have both on long term monitoring projects of variable astronomical sources and on the calibration of future UV experiments, it was decided to undertake a more systematic investigation of this effect.

The aim of this paper is to provide a definitive correction method intended to bring all LWR low dispersion calibrated spectra on the same sensitivity scale.

We have analysed all the low-resolution spectra of the main IUE calibration stars obtained since launch up to 1983 (when the camera was turned-off) and derived the loss of sensitivity of the LWR camera both as a function of time and wavelength.
We have restricted our analysis to those stars faint enough to be observed in a point-source mode but with exposure times long enough to be accurate to better than 1 %. We present here the results of our study, together with a method for correcting for drop of sensitivity of the LWR camera.

2. The data base and its analysis

All the low dispersion large aperture spectra of the 5 main IUE calibration stars have been retrieved from the data bank. This includes 64 spectra of BD+28 424, 77 of HD 60753, 52 of BD+33 2642, 51 of BD+75 325 and 64 of HD 93521. All images have been processed (or reprocessed whenever necessary) with the new low dispersion software. The analysis itself was performed with the ESO IHAP system installed at VILSPA. Each star was analysed separately and it is only at a later stage that the various data sets were combined. In this way we are able to disentangle systematic effects which could be due, for instance, to the difference in spectral type.

The net fluxes were first averaged in bins of 50 Å, (coinciding with those of the LWR sensitivity curve) and the mean and standard deviation were computed for each spectrum and each bin, from 1850 Å up to 3300 Å, expanding our previous work carried out from 2000 Å up to 3200 Å (Clavel & Gilmozzi, 1984). These quantities were later divided by the exposure time and corrected for the thermal dependence of the LWR sensitivity, i.e. divided by:

$$1.0 - 0.011 * (THDA - 12)$$

(Shiffer, 1982; Bohlin & Holm, 1980). The exposure times t_{exp} were corrected for the rise time of the camera and the OBC timing, i.e.:

$$t_{exp} = 0.4096 * Int\ (t_{nom} / 0.4096\ ) - 0.12 \quad (sec)$$

where t_{nom} is the nominal exposure time as given in the header, and Int (n) denotes the integer portion of number n.

We inspected each individual spectrum and removed the hot spot near 2190 Å, the reseaux marks, the most obvious blemishes and, when appropriate, the presence of microphonic noise. Following the results of our preliminary analysis (Clavel & Gilmozzi, 1984), we only included those spectra which had been obtained through the large aperture and with the nominal exposure time. No trailed spectra were analysed . After a quick-look at the basic trends, we also decided to reject the few spectra which gave clearly discrepant information (usually more than three sigmas out).

The final combined data set includes 308 spectra. For each star and each bin separately we plotted the net count rate, C(λ,T) (IUE flux-numbers / sec) versus the time of acquisition, T . The launch-date, To, was taken as day 0. A linear regression analysis yielded:

$$C(\lambda,T) = Co(\lambda) + C1(\lambda) * T$$

The data were then normalized, i.e., divided by $Co(\lambda) = C(\lambda,To)$ which amounts to taking the count rate at launch as a reference value: Co = 1. A linear regression was performed again on the normalized data and yielded:

$$K(\lambda,T) = 1 + K1(\lambda) * T$$

The $K1(\lambda)$ values were later multiplied by 365 to obtain for each bin the rate of sensitivity loss in percentage per year. The results are listed in Table Ia for each star separately. The normalized data-sets for the five stars were merged and normalized again. Note that this second normalization never amounted to more than 0.6 %. A final regression analysis and multiplication by 365 yielded the results which are listed in column 3 of Table Ib. For comparison, we also give in column 2 the mean loss rates, i.e. the average of the results obtained separately for the five stars. Figure 1 shows an example of the decrease in the LWR count rate with time. Figure 2 represents the rate of sensitivity loss as a function of wavelength, $D(\lambda)$ (%/yr).

3.Results

The final $D(\lambda)$ curve as derived from the analysis of the 5 IUE standards, confirms the one obtained in our previous progress report where only two stars had been studied. It is also in very good agreement with the results by Holm (1985). As expected, the error-bars are rather large at the edges of the LWR wavelength range where the sensitivity is lower, but on the average the accuracy is of the order of 0.1 %. The small scale structure of the $D(\lambda)$ curve is confirmed.

It was assumed throughout that the degradation had been linear with time. There is some hint that this assumption is not entirely correct, since, irrespective of the wavelength, the data points around day 620 after launch (see fig. 1) for instance are systematically below the regression line. Nevertheless, the overall effect is sufficiently small (1%) that it can safely be ignored. Moreover, a more sophisticated functional representation of the temporal behaviour (e.g. a quadratic or higher order polynomial) would make the correction procedure somewhat cumbersome. Given the small amplitude of these non-linear trends and the intrinsic limitation due to the noise in the data, as well as for the sake of clarity, it was decided to retain a linear representation of the LWR sensitivity loss.

To correct for the degradation of the LWR performance, the following steps are recommended:

1/- First, to bring the D(λ) function onto the IUE LWR wavelength scale, use a quadratic interpolation of the natural logarithm of the values listed in table IIb, column 3. The same method of interpolation is used in Image Processing production to generate the IUE calibration file.

2/- The correction formula itself is straightforward:

$$F_{corr}(\lambda) = F(\lambda) \,/\, [1 - D(\lambda) * \Delta T]$$

$$\Delta T = T - 1978.8$$

where F(λ) and $F_{corr}(\lambda)$ refer to the calibrated spectrum respectively before and after correction, and ΔT is the time which has elapsed since the IUE absolute calibration was established (mean epoch 1978.8). As an example, we have applied the above procedure to correct two spectra of BD+78 4211 obtained ~ four years apart (both corrected for THDA). Figures 3 & 4 show the percentage difference for the uncorrected and corrected spectra respectively. The difference, averaged over the 2000-3000 Å interval are respectively:

- 8.7 ± 9.6 % (uncorrected)

+ 0.08 ± 10.2 % (corrected)

4. Conclusion and future work

It has been found that the rate of sensitivity loss of the LWR camera varies on a short wavelength scale (50 Å). It reaches a maximum of 3.54 % / yr at 2300 Å. No systematic differences exist between the results obtained for the 5 stars separately. To a good approximation, the sensitivity decreased linearly with time, and therefore the results presented here can safely be applied to correct LWR spectra taken at different epochs. A similar analysis is planned for the SWP camera, though this instrument apparently did not suffer from such a large drop of its performance as the long wavelength detector (Sonneborn, 1984).

5. References

Bohlin,R., Holm,A., 1980, NASA IUE Newsletter 10, 37.*
Clavel,J.,Gilmozzi,R.,1984,3-A Meeting Report,GSFC November 1984.
Holm,A., 1985, NASA IUE Newsletter 26, 11.
Schiffer,F.H., 1982, NASA IUE Newsletter 19, 33.
Sonneborn,G., 1984, NASA IUE Newsletter 24, 67.

* (= ESA IUE Newsletter 11, 18)

TABLE I.a : Final results for the five stars separately. Sensitivity is expressed in percentage per year.

	Rate of decrease of sensitivity (%/yr)				
Wavelength	BD+28 4211	HD 60753	BD+33 2642	BD+75 325	HD 93521
1825-1875	1.56±0.79	3.36±0.82	5.67±1.29	3.44±0.74	2.83±1.30
1875-1925	2.00±0.45	2.53±0.36	- ± -	3.19±0.39	1.88±0.46
1925-1975	1.30+0.30	2.32+0.30	2.61+0.45	2.75+0.26	1.56+0.44
1975-2025	2.13±0.25	2.00±0.26	2.53±0.40	2.44±0.25	2.30±0.28
2025-2075	2.02±0.21	2.30±0.23	2.78±0.36	2.85±0.19	2.45±0.27
2075-2125	2.40±0.26	1.92±0.27	2.53±0.36	2.93±0.25	2.60±0.29
2125-2175	2.31±0.21	1.83±0.19	2.20±0.27	2.47±0.19	2.21±0.22
2175-2225	2.70±0.29	3.01±0.25	2.55±0.42	3.47±0.28	2.81±0.33
2225-2275	3.28±0.24	3.01±0.20	3.24±0.32	3.20±0.21	2.99±0.21
2275-2325	3.32±0.24	3.42±0.25	3.55±0.36	3.68±0.19	3.65±0.27
2325-2375	3.36±0.24	2.77±0.28	3.69±0.35	3.71±0.20	3.54±0.28
2375-2425	2.60±0.28	2.06±0.21	2.64±0.29	2.56±0.24	2.36±0.25
2425-2475	2.55±0.25	1.89±0.25	2.42±0.26	2.49±0.21	2.13±0.22
2475-2525	2.30±0.25	1.56±0.23	1.73±0.26	1.89±0.22	1.70±0.23
2525-2575	1.96±0.23	1.30±0.26	1.65±0.31	2.43±0.23	1.72±0.26
2575-2625	2.02±0.25	1.72±0.21	2.41±0.29	1.28±0.25	1.73±0.24
2625-2675	1.33±0.22	1.33±0.19	1.33±0.26	1.70±0.23	1.10±0.23
2675-2725	1.92±0.24	1.88±0.20	1.88±0.25	2.07±0.23	1.43±0.26
2725-2775	1.95±0.27	1.98±0.23	1.89±0.27	2.13±0.29	1.30±0.24
2775-2825	2.12±0.29	2.06±0.26	2.42±0.33	2.72±0.31	1.96±0.35
2825-2875	2.22±0.29	1.87±0.22	2.29±0.30	2.29±0.22	1.77±0.26
2875-2925	1.79±0.26	1.46±0.22	1.91±0.23	1.98±0.25	1.45±0.28
2925-2975	1.59±0.23	1.22±0.23	2.06±0.26	1.88±0.25	1.54±0.32
2975-3025	1.58±0.30	1.28±0.25	1.96±0.33	1.69±0.25	1.17±0.34
3025-3075	1.89±0.29	1.26±0.34	2.58±0.35	2.02±0.36	1.51±0.40
3075-3125	1.52±0.31	1.51±0.31	1.97±0.42	2.04±0.38	1.52±0.37
3125-3175	0.91±0.49	1.12±0.36	1.84±0.44	1.19±0.47	0.78±0.49
3175-3225	3.23±0.62	2.38±2.28	4.24±0.89	4.30±0.72	1.50±0.99
3225-3275	1.53±0.94	0.79±0.65	2.70±1.53	1.78±0.89	0.76±0.96
3275-3325	- ± -	0.11±1.15	0.01±2.47	2.18±1.60	1.52±0.37

Table I.b : Final results for merged data; for comparison, the results obtained by averaging the sensitivity losses found for individual stars are also given. To correct for the sensitivity loss, use numbers of column 3 ("merged").

Rate of sensitivity loss (%/yr)		
Wavelength	Average	merged
1825-1875	3.47±1.50	3.75±0.49
1875-1925	1.92±1.19	2.19±0.25
1925-1975	2.11±0.64	2.31±0.17
1975-2025	2.28±0.22	2.30±0.12
2025-2075	2.48±0.34	2.56±0.12
2075-2125	2.48±0.37	2.49±0.14
2125-2175	2.20±0.24	2.20±0.10
2175-2225	2.91±0.36	2.99±0.14
2225-2275	3.14±0.13	3.12±0.11
2275-2325	3.52±0.15	3.54±0.12
2325-2375	3.41±0.39	3.42±0.12
2375-2425	2.44±0.24	2.42±0.12
2425-2475	2.30±0.28	2.27±0.11
2475-2525	1.84±0.28	1.77±0.11
2525-2575	1.81±0.42	1.83±0.13
2575-2625	1.83±0.42	1.75±0.12
2625-2675	1.36±0.22	1.40±0.10
2675-2725	1.84±0.24	1.86±0.11
2725-2775	1.85±0.32	1.90±0.12
2775-2825	2.26±0.31	2.31±0.14
2825-2875	2.09±0.25	2.10±0.11
2875-2925	1.72±0.25	1.74±0.11
2925-2975	1.66±0.32	1.67±0.12
2975-3025	1.54±0.32	1.55±0.13
3025-3075	1.85±0.51	1.87±0.16
3075-3125	1.71±0.27	1.77±0.16
3125-3175	1.17±0.41	1.26±0.20
3175-3225	3.73±1.21	3.30±0.63
3225-3275	1.51±0.80	1.67±0.43
3275-3325	0.76±1.02	0.59±0.80

Figure 1 : Net 2300 A flux of the 5 calibration stars as a function of time. The fluxes have been normalized to 1000 at time of launch.

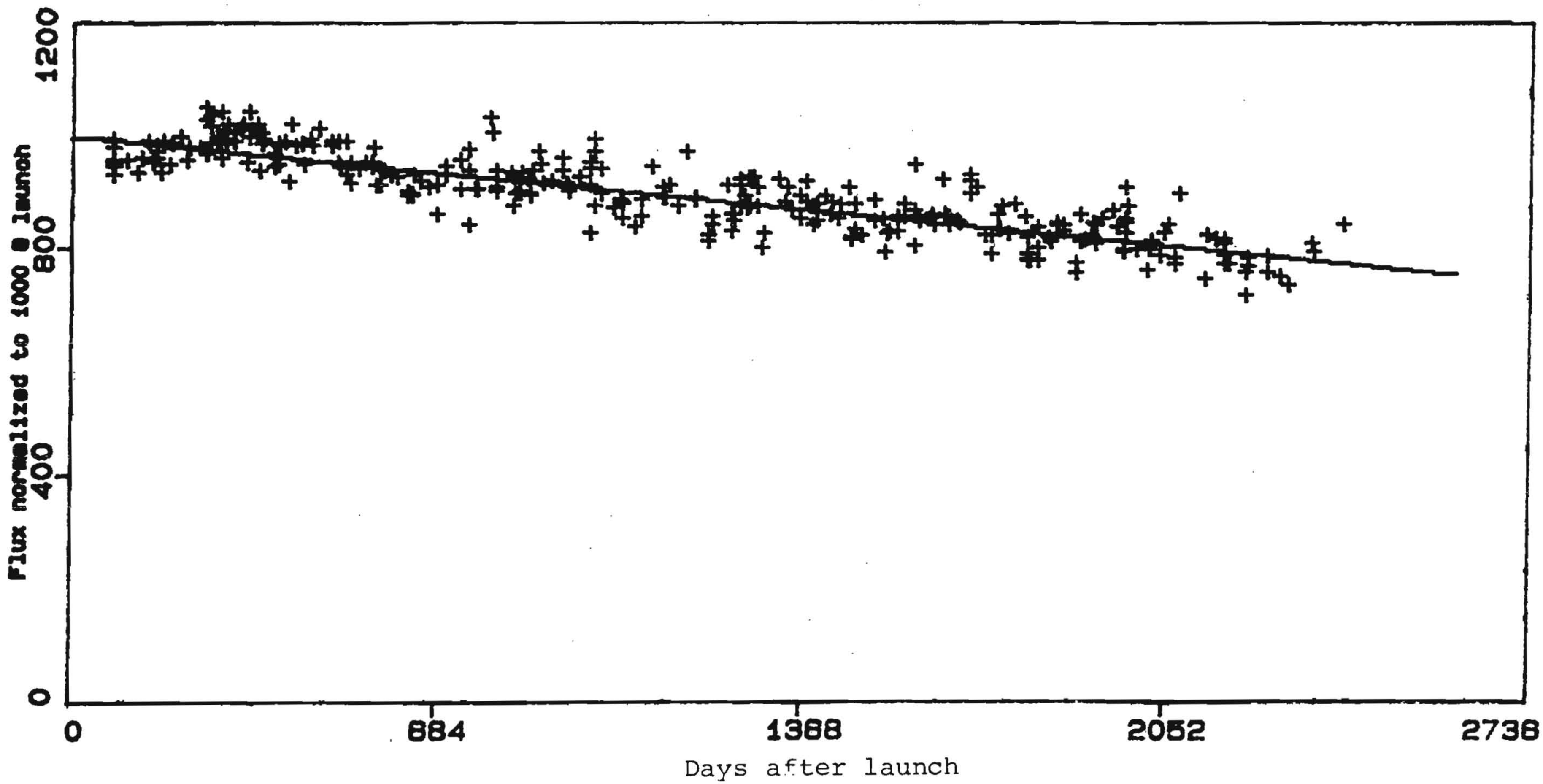


Figure 2 : The decrease in sensitivity of the LWR camera as a function of wavelength expressed in percentage per year.

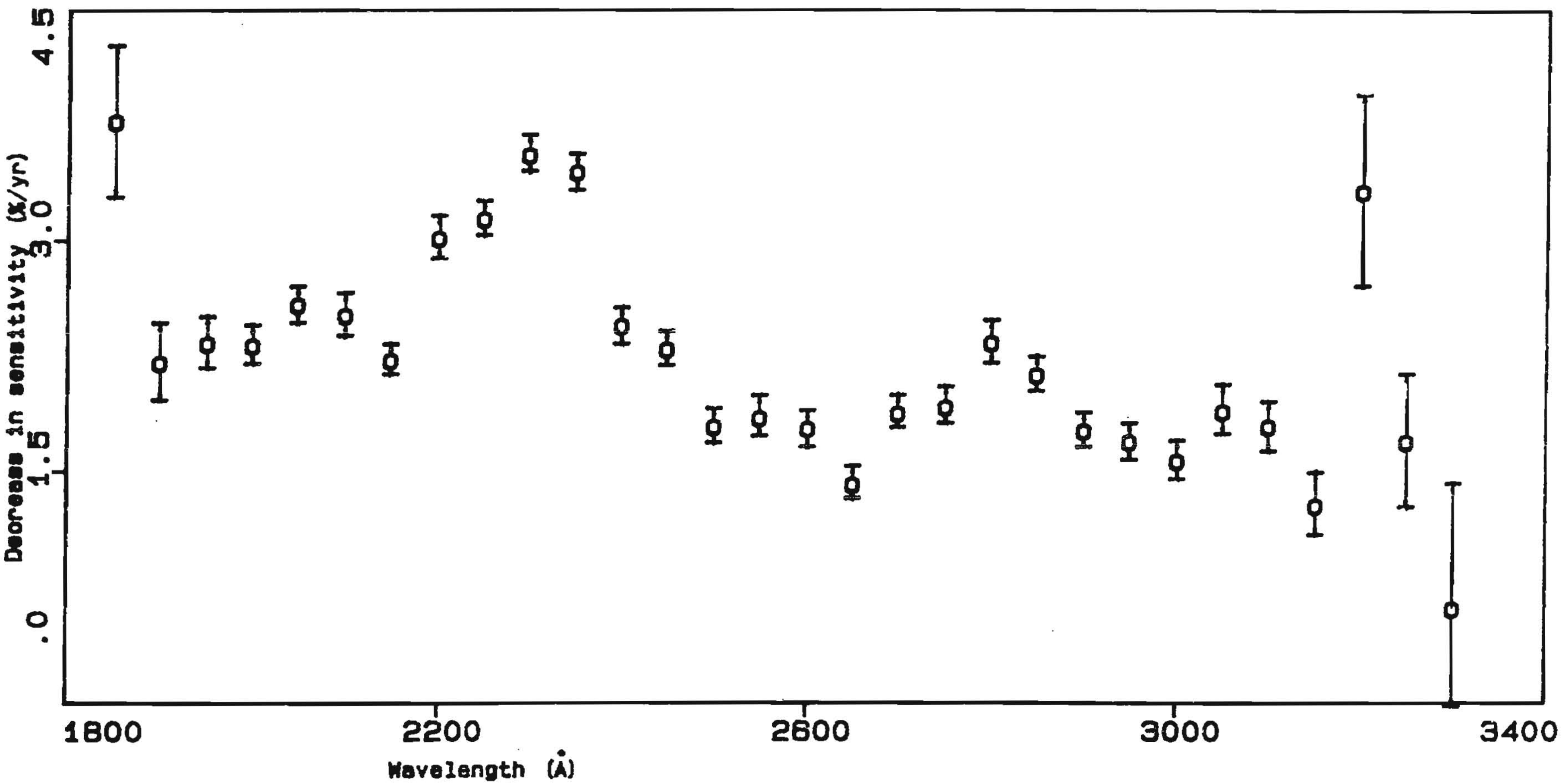


Figure 3 : Relative difference expressed in percentage between two spectra of BD+28 4211 taken approximately four years apart. Both spectra have been corrected for THDA. The difference averaged over the 2000-3000 A range amounts to 8.7 ± 9.6 %.

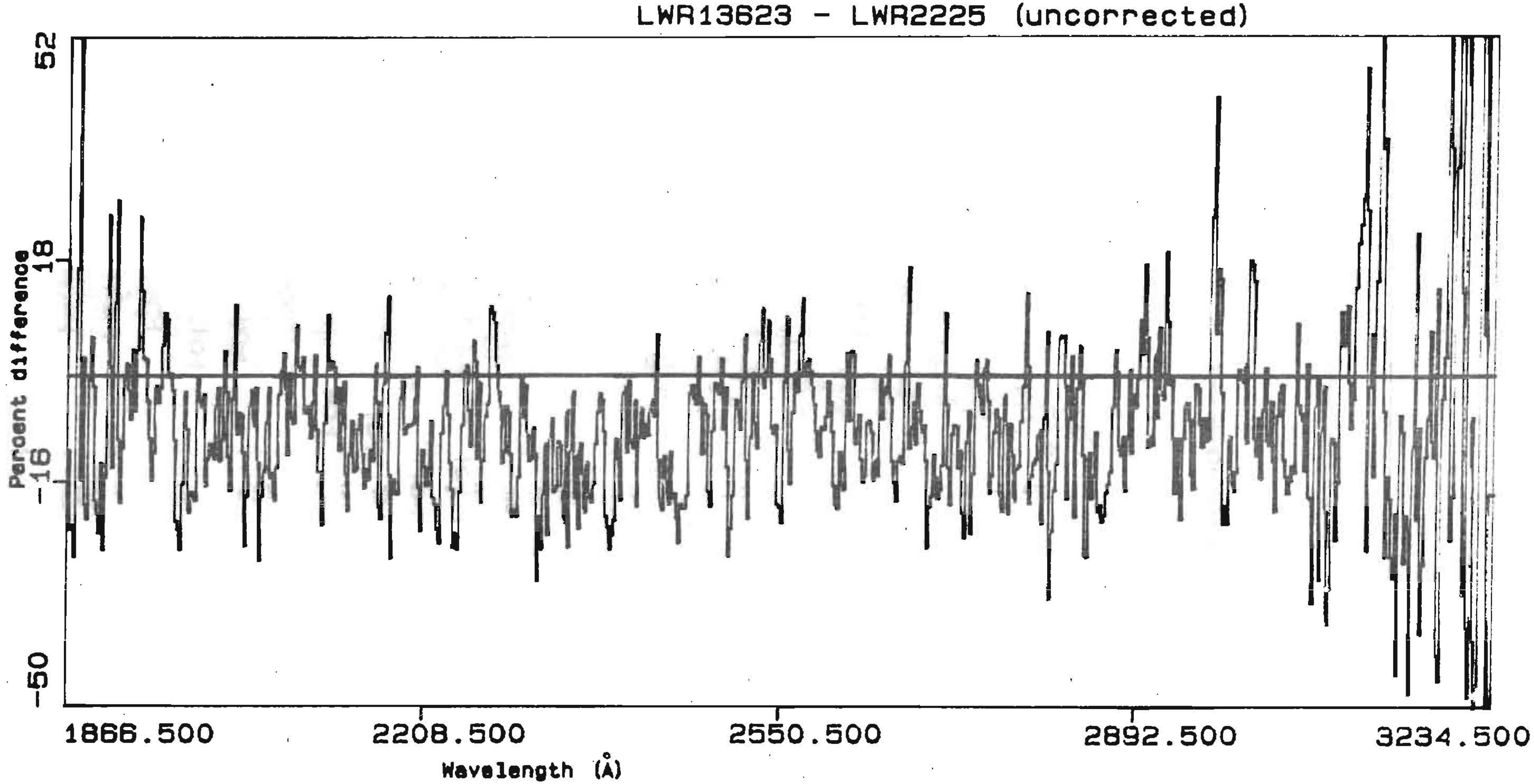
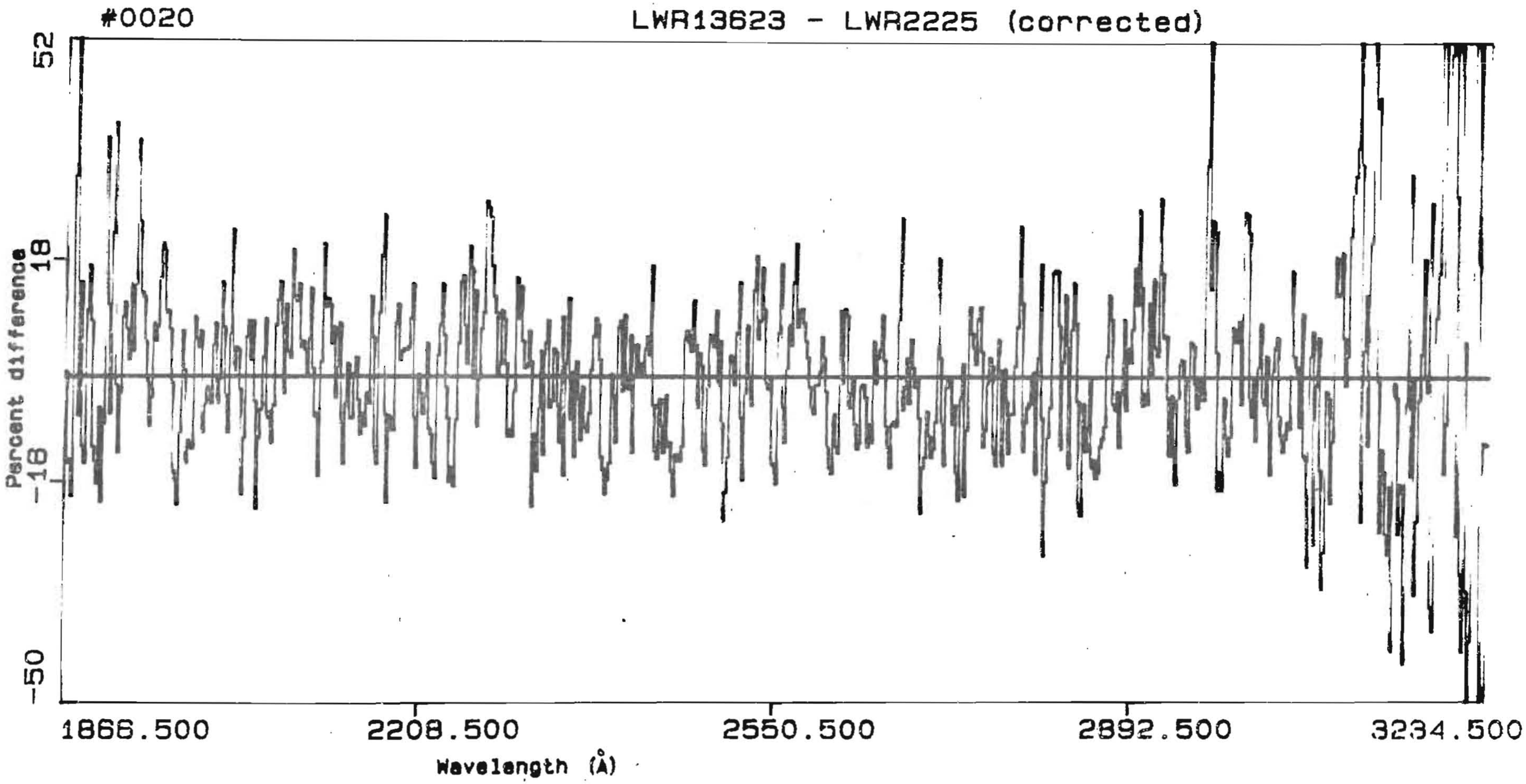


Figure 4 : Relative difference as a function of wavelength between the same spectra of BD+28 4211 as in the previous figure after correction for the sensitivity loss of the LWR camera. The average difference in the 2000-3000 A range is reduced to 0.08 ± 10.2 %.



GENERATION OF THE NEW EXTENDED LINE-BY-LINE SPECTRUM (ELBL)

ABSTRACT

The IUE Spectral Image Processing System (IUESIPS) will be upgraded in order to enhance the spatial resolution of the Line-By-Line (LBL) Low Dispersion Spectral File.

This document presents the corresponding software modifications and its impact on the G.O. Tape file format.

The implementation date of the new Extended Line-By-Line (ELBL) in the standard IUESIPS process will be : 1-October-1985 for both VILSPA and GSFC.

However, before the above date, the G.O.'s can have the ELBL just filling the appropiate option in the IUE Image Processing Request.

IGCS / VILSPA

J. R. Muñoz Peiro

April 1985

Table of Contents

1. INTRODUCTION

In its Low Resolution mode, IUE provides an opportunity to study the spatial distribution of light from an extended source across the Large Aperture of its spectrographs.

This information is written in the form of the so-called Line-By-Line (LBL) spectrum on the Guest-Observer (G.O.) tape. This file consists of 55 different narrow spectra, extracted in a direction parallel to the dispersion line. Each of these scan lines or "pseudo-orders" is ($\sqrt{2}$) 1.414 pixels high (i.e., a diagonal of a Raw Image pixel) and contiguous to the adjacent ones.

On the other hand, a detailed study by A. Cassatella, J. Barbero and P. Benvenuti (1985) has shown that the full width at half maximum (FWHM) of the IUE point spread function (PSF), perpendicular to the dispersion direction is about 3 pixels wide; its actual value is a function of wavelength and can be as low as 2.47 ± 0.07 pixels at 2900 A for the LWP camera (i.e., 3.8 arcsec) or as high as 4.5 pixels at 1900 A for the SWP Camera.

Therefore, the present sampling rate for the LBL Spectrum does not exploit the full resolving capability of the IUE instrument, since a proper sampling of the PSF requires a step of the order of $\sim$ 1/3rd of its FWHM. Such was the driving motivation which lead to the replacement of the LBL file by an " Extended Line-By-Line " (ELBL) Spectrum, where the "pseudo orders" have their slit-heigth reduced to half a diagonal pixel, i.e., $\sqrt{2}/2$ (0.707) pixels.

The terms 'present' or 'current' software will be used to indicate the IUESISPS software as after the installation of the ' New Low Resolution Software ' (GSFC, 3 November 1980 and VILSPA, 10 March 1981) Refer to ESA Newsletter #14 or NASA Newsletter #25.(Configuration #60).

2. EXTRACTION METHOD OF THE NORMAL LINE-BY-LINE SPECTRUM

(Present Software)

IUE images are arrays of 768 lines each of 768 samples (ie. 768 * 768 pixels). Low Resolution Data lie along a strip inclined by approx. 45^{o} with respect to the line/sample direction.

The present software extracts the fluxes from the Photometrically Corrected Image. It relates wavelengths and positions via the following dispersion formulae:

$$Lc = B(1) + B(2) * \lambda$$
$$Sc = A(1) + A(2) * \lambda \qquad [1]$$

where (Lc,Sc) represent the (Line,Sample) coordinates of the central point of the spectrum for a given wavelength λ. The locus of these central points defines the dispersion line. Note that Lc and Sc need not be integer, as a result of [1] for any real wavelength.

The values of the dispersion coefficients A and B can be found in the Image Header or in the Scale Factor Record (Record Zero) in the Tape files, or on the plots. They define the exact angle θ between the dispersion direction and the Line (L) direction (Figs. 1 & 2), since :

$$\theta = \text{Arc tan} (A(2) / B(2))$$

Along the dispersion line, wavelengths are sampled at a constant wavelength step, corresponding to half a diagonal pixel:

$$\Delta\lambda = \sqrt{2} / (2*\sqrt{(A(2)^2 + B(2)^2)}) \qquad A$$

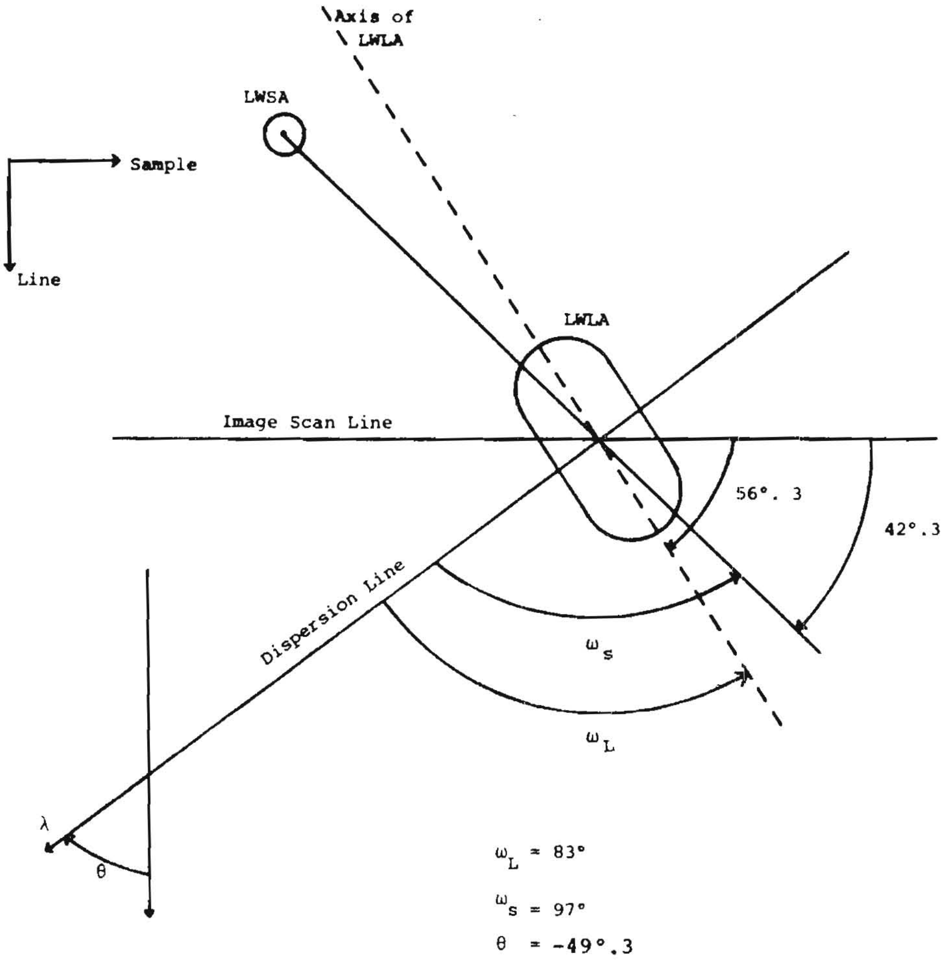


Fig. 1.a. LWP Geometry

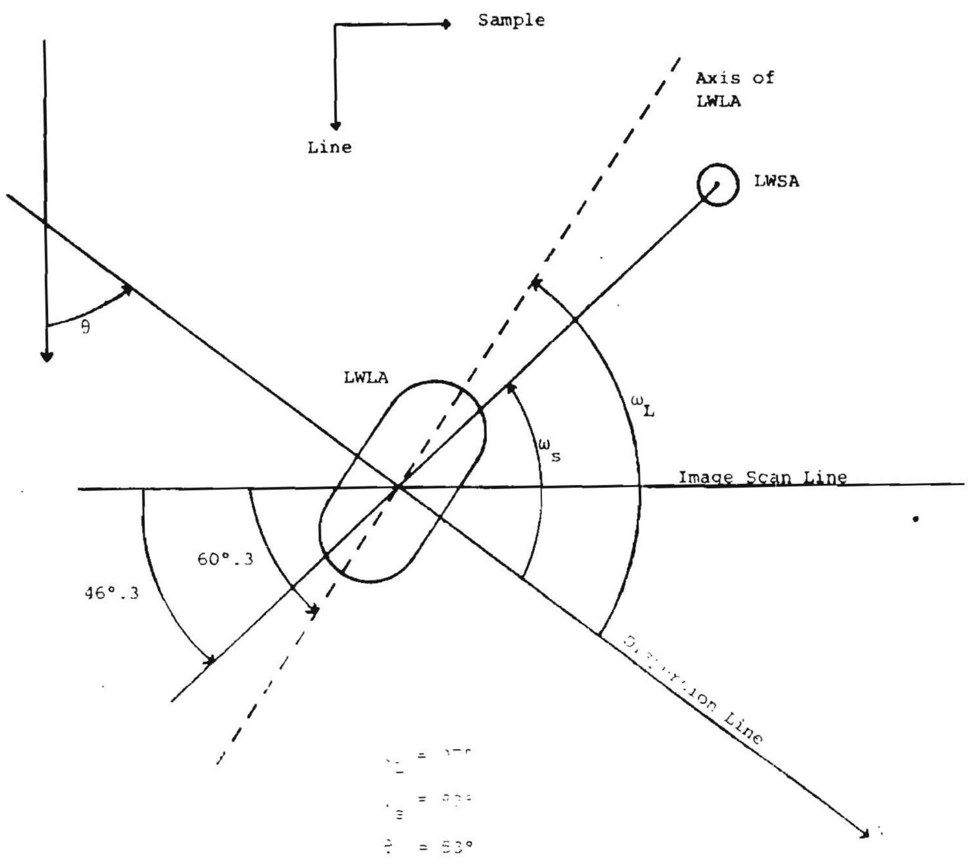
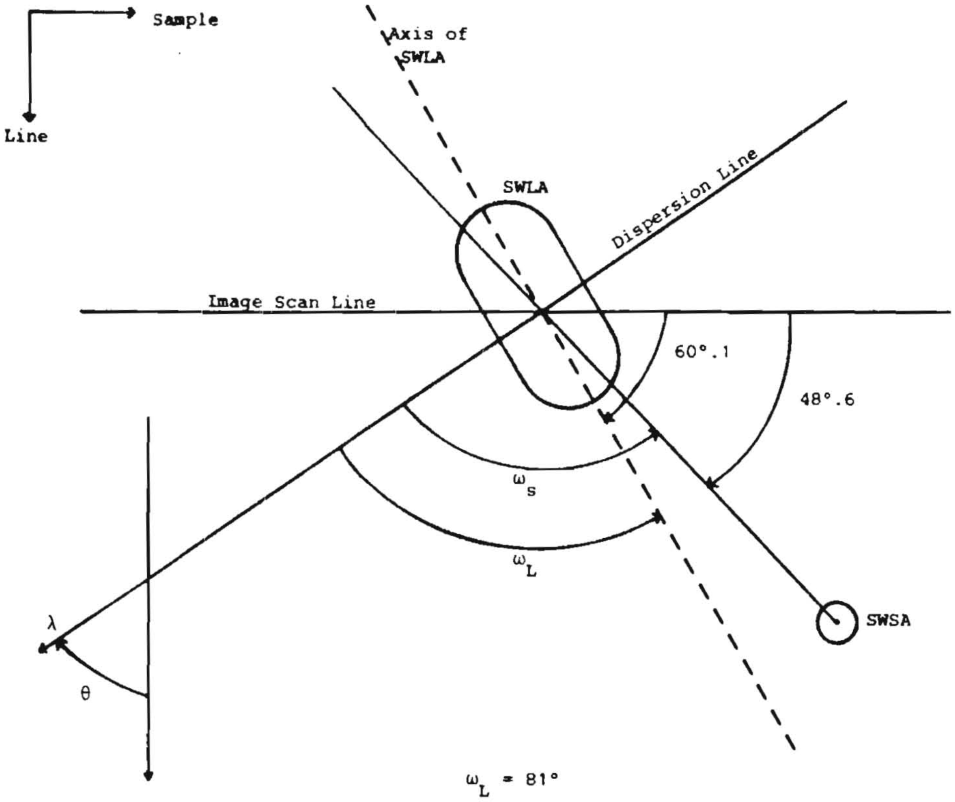


Fig. 1.b. LWP Geometry



$\omega_L = 81°$

$\omega_s = 92°.5$

$\theta = -51°$

Fig. 1.c. SWP Geometry

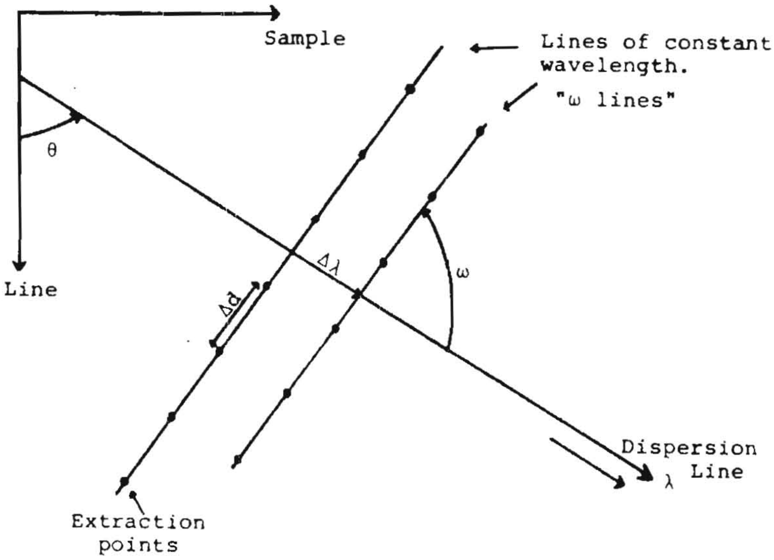


Fig. 2

Line-By-Line Extraction Procedure

$\Delta d = \sqrt{2}$ [illegible]

$\theta = \text{Arctan} \; (\; A(2) \; / \; B(2) \;)$

$\Delta\lambda = \sqrt{2}/2 * \sqrt{A(2)^2 + B(2)^2}$

A(2) and B(2) = Linear coefficients of dispersion constants (see text).

Because of the spectrograph geometry, lines of constant wavelength are not exactly normal to the dispersion line. The angle between the two directions (dispersion and constant wavelength) is called ω .

For Large Aperture data, it is the angle $\omega = \omega(L)$ defined by the direction of the Aperture Major Axis; for Small Aperture data $\omega = \omega(S)$, and it is defined by the line which joins the centers of the Large and Small Apertures (Fig.1); for trailed or multiple exposures , $\omega = 90^{o}$.

Flux values are extracted from the Photometrically Corrected Image (P.I.) every $\sqrt{2}/2$ pixels (relative to the Geometrically Corrected coordinates) along these lines of constant wavelength. There are 110 extraction points for each ω line. Therefore, the nth position of the extracting slit is defined by the following algorithm (Fig. 2) :

$$[L1,S1] = [Lc,Sc] + 54.5 * [\Delta l,\Delta s]$$

where $\Delta l = (\sqrt{2}/2) * \sin\alpha$

$$\alpha = \omega + \Theta - \pi/2$$

$\Delta s = - (\sqrt{2}/2) * \cos\alpha$

and,

$$[Ln,Sn] = [L1,S1] - \sum_{i=2}^{i=n} [\Delta l,\Delta s] \qquad [2]$$

$$n = 2,3,4,....,110$$

At each location (Ln,Sn), all the flux which falls into an area corresponding to the surface of 1 pixel (from the Geometrically Corrected Space) is summed. Bilinear interpolation between adjacent pixels from the Phot. Image is used to weight their contribution to the total flux at that point (Fig. 3a). At this stage, for historical reasons (compatibility with the original software at Launch Time), the flux values are then multiplied by 2.

Note that, first, although the ω line is tilted with respect to the line/sample direction, the extraction slit remains untilted, i.e. : with the normal orientation of the Raw Image pixel. Second, since the spatial increment ($\sqrt{2}/2$) is smaller than the dimension of a pixel along the ω line ($\sqrt{2}$), this implies that the flux is actually oversampled since two adjacent extracting slits overlap by ~ 1/4th of a pixel area (Fig. 3b); with this sampling procedure no loss of data occurs but the extracted fluxes are not totally independent from their neighbours.

Once they have been extracted, adjacent points are added in the spatial direction, resulting in a set of 55 spatially resolved gross flux points, each one distant from the next one by $\sqrt{2}$ pixels in the Geometrically Corrected Space. This process is repeated for each sampled wavelength (Fig. 4).

The final result of this extraction is a two dimensional image, called the Line-By-Line Spectrum. Within this image, each row is treated as a separate spectral ' pseudo-order'. The 28th or central row is centered on the Dispersion Line and assigned an arbitrary order number of 100.

As can be derived from algorithm [2] and Figs. 1a, 1b & 1c, the order numbers increase in the direction from the Large Aperture toward the Small Aperture for the LWR and SWP cameras; for the LWP camera, the order numbers increase in the opposite direction (Fig. 5) .

The resulting data file is output to the Guest Observer Tape and it is defined as the 'Line-By-Line Spectrum' (LBLS) file.

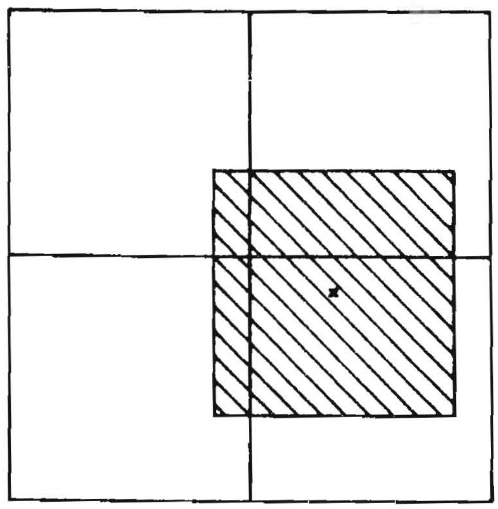


Fig. 3a

Flux value at x is equivalent to a weighted average of the surrounding four pixels in the Photometrically Corrected Image, with weights proportional to the area of each pixel within the hatched region.

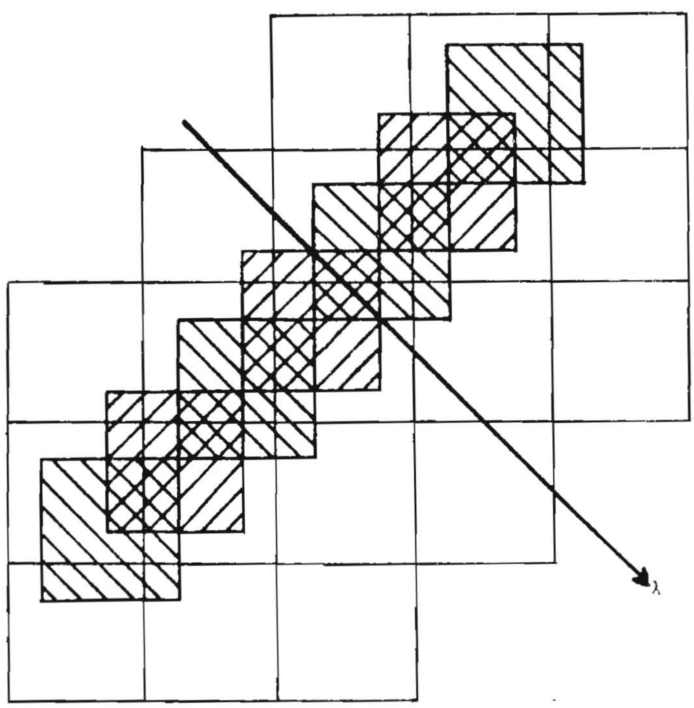


Fig. 3b

Extraction slits at a given wavelength. As can be seen, the flux is oversampled along the ω line, since the spatial increment is [illegible] pixels. The locations of the extraction points are the centers of the hatched squares. In this example, ω = 90°, for clarity.

3. EXTRACTION METHOD FOR THE EXTENDED LINE-BY-LINE SPECTRUM

("New" Software)

The generation of the Extended Line-By-Line (ELBL) Spectrum uses the same concepts as that of the LBL : dispersion line, ω line, bilinear interpolation,etc.

The differences can be summarized as follows:

(A) The algorithm used for finding the extraction points is slightly different.

(B) Adjacent lines are not added , i.e. all 110 "pseudo-orders" are retained.

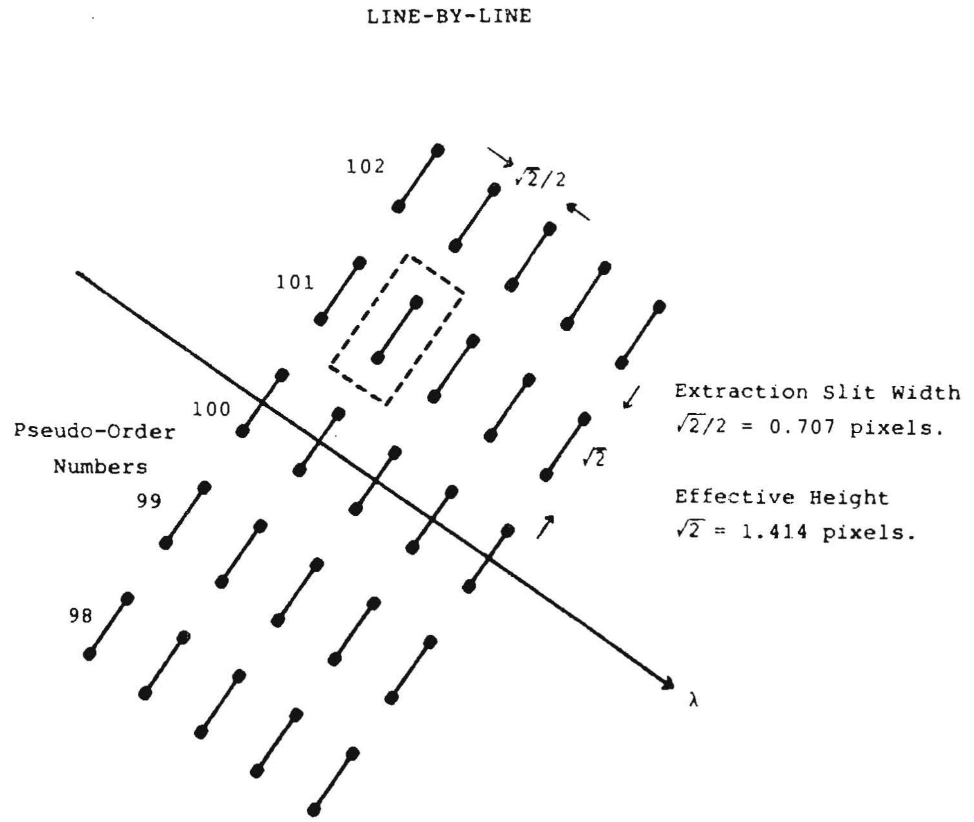
(C) The order numbers increase in the same direction for all three cameras (LWP,LWR and SWP), that is, from Large to Small Aperture.

(D) As a consequence of (B), the format of the LBL Tape File has been modified.

A detailed description of these modifications is given in the next sections :

(A) NEW ALGORITHM

The algorithm described in the previous section (present software) yields a systematic error in the coordinates of the extracted points. This error arises from the computation of the value of $\sqrt{2}$. This contains an implicit truncation error which, according to algorithm [2] is propagated and accumulated when computing the coordinates of the different extraction points.



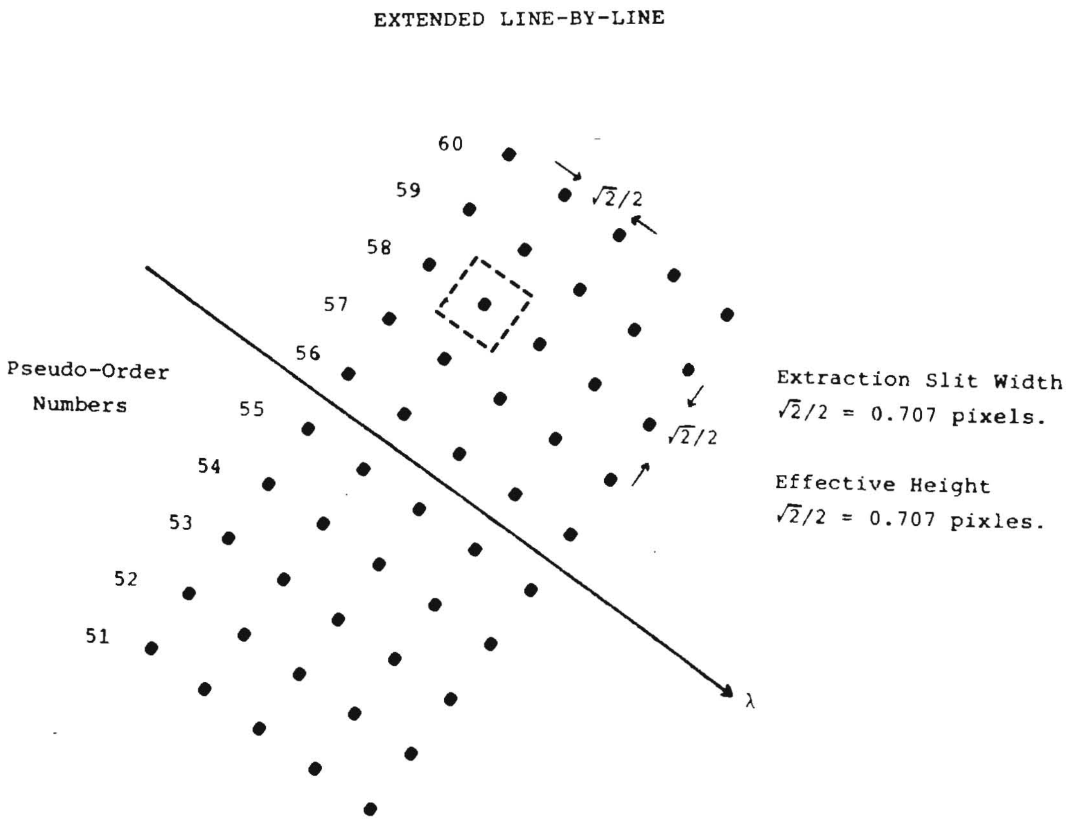


Fig. 4. Extraction of Flux Numbers and Pseudo-Order Numbering in the Normal LBL and in the Extended LBL.

The new algorithm is as follows :

[Lc,Sc] and [L1,S1] are unchanged, but subsequent positions are computed as :

$$[Ln,Sn] = [L1,S1] - (n-1) * [\Delta l,\Delta s] \qquad n=2,3,4,...,110 \qquad [3]$$

With algorithm [3], the truncation error is not accumulated, and the computed coordinates are symmetrical with respect to the dispersion line.

The new algorithm defined by [3] being more accurate, the extracted spectral flux values (MELO) will be slightly different than with the present software. On the average, this difference is always < 1 %.

(B) GENERATION OF 110 "ORDERS"

As described earlier, in the current software, adjacent points were added in the spatial direction.

In the New Extended Line-By-Line (ELBL), adjacent points are not added.

The ELBL Spectrum, therefore, contains 110 spectral 'pseudo-orders', (Fig. 4), each one distant from the preceeding and following ones by $\sqrt{2}/2$ pixels. Since 1 Raw Image pixel corresponds to 1".525 ± 0".010 on the sky (Panek, 1982; Bohlin et al., 1980), the heigth of the ELBL slit is 1".078 = 1".525 * $\sqrt{2}/2$.

Taking advantage of the software modification, this plate scale factor will be, from now on, written into the Record Zero of the ELBL file (item #37; see Table I and section 3.D).

The change in the number of pseudo-orders has no impact on the format of the Merged Extracted Low Dispersion File (MELO) (Fig. 6).

Flux values in the ELBL file remain in the same unit as before.

However, they correspond to a spatial area which is a factor of 2 smaller than with the LBL Spectrum and should be, therefore, half as large on the average.
For example, many G.O.'s are accustomed to re-extract the Gross flux directly from the LBL file. For a point source, they usually sum the flux in the 9 most central orders. For them, the only change will consist in summming the 18 central rows instead of 9, i.e., co-adding scan lines 47 to 64 of the ELBL. The rest of the extraction procedure, and in particular the absolute calibration, remains unchanged.

(C) ORDER NUMBERING AND "INVERSION" OF THE ELBL FOR THE LWP CAMERA

As a result of the extension of the LBL, the "pseudo-order" numbers had to be redefined to run from 1 to 110 and are no longer written in items #203-302 of Record Zero (see discussion of Record Zero structure in the following section).

As previously indicated, in the current software, the "pseudo-order" numbers could either increase or decrease, when going from the Large Aperture (LAP) to the Small Aperture (SAP), depending on the Camera. (Fig. 5)

Taking advantage of the ELBL implementation, a more uniform numbering was introduced :

From now on, the "pseudo-order" numbers will always increase along the Large to Small Aperture direction, whatever camera is used.

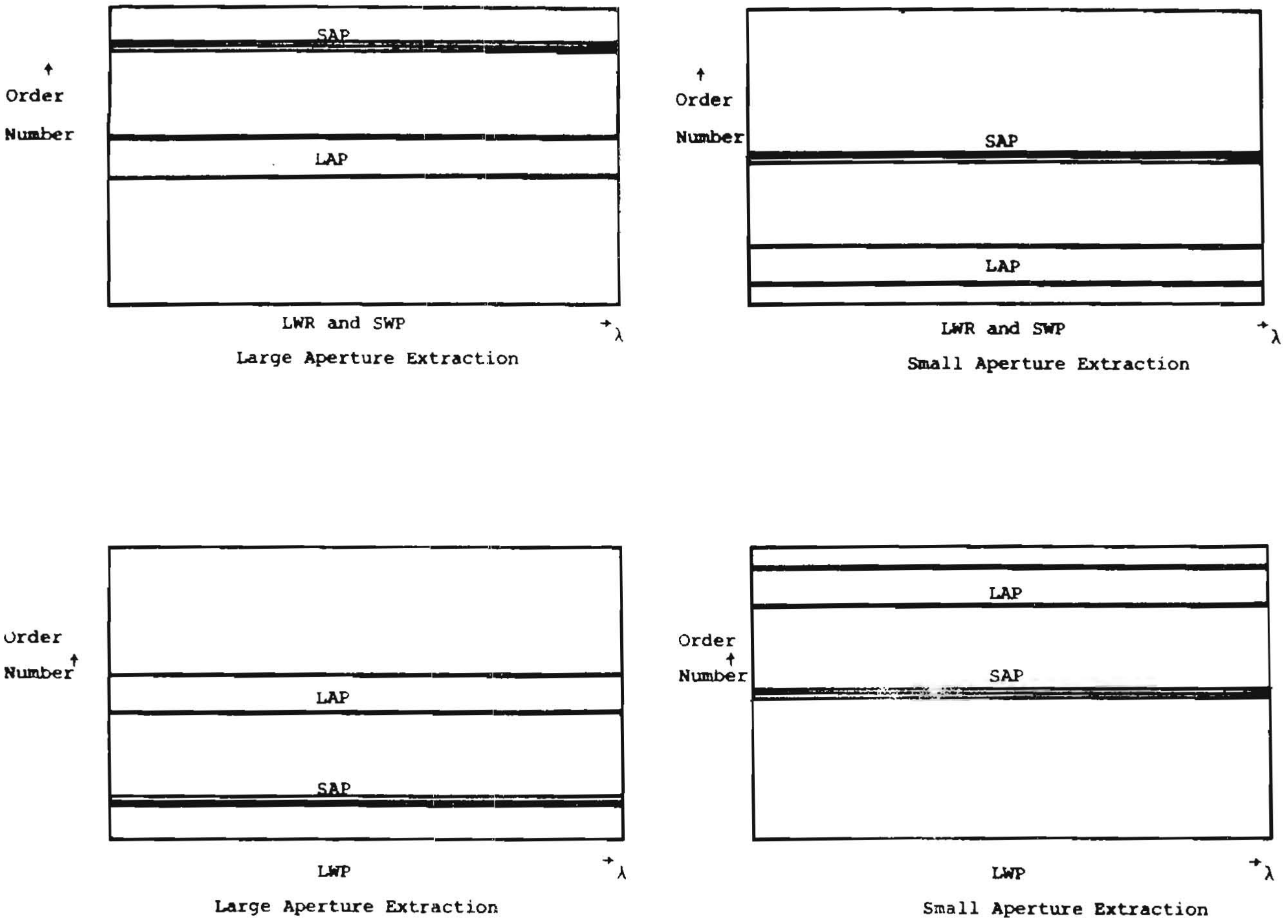


Figure 5. Order Numbering in the Present Software

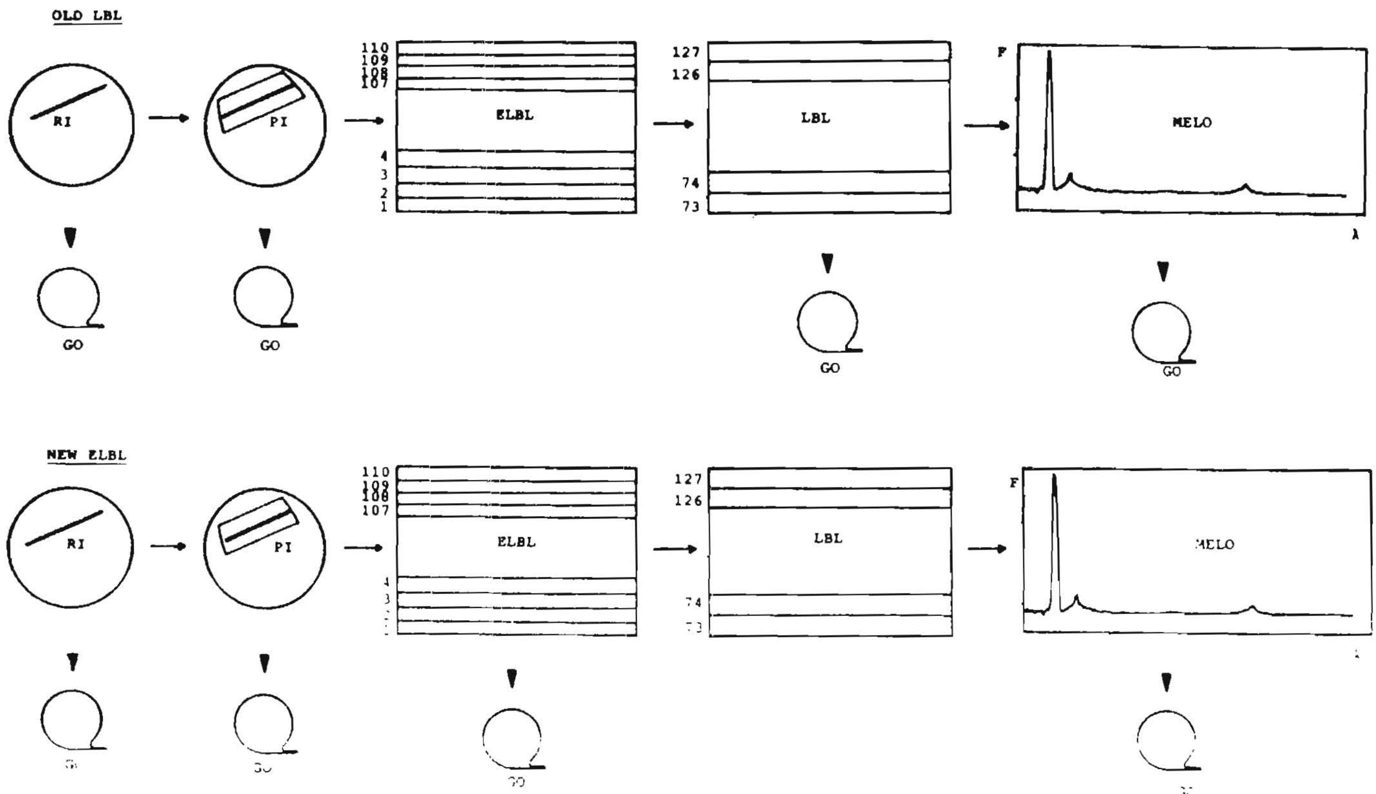


Fig. 6. Output Files from the Old LBL Software and New Extended LBL Software.

The "inversion" of LWP's ELBL is done merely by changing the sign of the [Δl,Δs] displacements along the ω line, that is:

$$\Delta l = -(\sqrt{2}/2) * \sin \alpha$$
$$\Delta s = (\sqrt{2}/2) * \cos \alpha$$

(D) MODIFICATION OF THE GUEST OBSERVER TAPE FORMAT

(LOW Dispersion only)

The sequence of files written to tape remains unchanged, e.g. for a single aperture exposure (Fig.6):

1. Raw Image (RI)
2. Photometrically Corrected Image (PI)
3. Extended Line-By-Line Spectrum (ELBLS)
4. Merged Extracted Spectrum (MELO)

and for double aperture exposures :

1. Raw Image (RI)
2. Photometrically Corrected Image (PI)
3. ELBLS (Large Aperture)
4. MELO (Large Aperture)
5. ELBLS (Small Aperture)
6. MELO (Small Aperture)

Among these files, only the structure of the ELBLS file (3rd or 3rd & 5th) is modified. The new format is as follows :

- The label records remain the same, except the number of lines field (bytes 33 to 36 of first label line), which is changed from 166 to 331.

- Since the name of the application program which generates the New Extended LBL has changed, the image processing history section of Label and the Plot Label will be different: 'SPECLO' changed to 'ESPECLO', and the old message 'LINE-BY-LINE SPECTRUM, SPATIALLY RESOLVED' is changed to 'EXTENDED LBL SPECTRUM, SPATIALLY RESOLVED'

- The data records are 2048 bytes long. Each entry is a two-byte or 16-bit halfword integer (range is 32767, with negatives in two's complement form), i.e., there are 1024 entries per record (Fig. 7).

  The first entry of each record is a data-record sequence number which begins with 0 for the first physical record.

  This first record (record sequence number 0) is a scale-factor record containing data pertinent to all following records. The changes in the so called Record Zero will be described below.

  The remaining records contain the actual extracted spectral data in scaled form, and arrenged in groups of logically associated records.

  For the ELBL Spectrum, there is only one scaled flux record per group, representing the Gross Line-By-Line flux for one "pseudo-order. Hence, there are three records per group :

  1) scaled wavelengths
  2) quality flags (epsilons)
  3) scaled fluxes.

  The total number of groups is 110.

** E L B L Format **

← 2048 BYTES →

		HALFWORD 1	HALFWORD 2	HALFWORD 3	HALFWORD 4	HALFWORD 5	HALFWORD 6	etc.....	HALFWORD 1024	
	RECORD# 1	0	1022	λ min	λ max	Camera	Image#	etc.	0	SCALE RECORD Record "Zero"
. ORDER 1 .	RECORD# 2	1	# points	λ 1	λ 2	λ 3	λ 4	etc.	0	SCALED λ's
	RECORD# 3	2	# points	ε 1	ε 2	ε 3	ε 4	etc.	0	ε's
	RECORD# 4	3	# points	F 1	F 2	F 3	F 4	etc.	0	SCALED FLUXES
. ORDER 2 .	RECORD# 5	4	# points	λ 1	λ 2	λ 3	λ 4	etc.	0	SCALED λ's
	RECORD# 6	5	# points	ε 1	ε 2	ε 3	ε 4	etc.	0	ε's
	RECORD# 7	6	# points	F 1	F 2	F 3	F 4	etc.	0	SCALED FLUXES
	⋮	⋮			⋮				⋮	
. ORDER 110 .	RECORD#329	328	# points	λ 1	λ 2	λ 3	λ 4	etc.	0	SCALED λ's
	RECORD#330	329	# points	ε 1	ε 2	ε 3	ε 4	etc.	0	ε's
	RECORD#331	330	# points	F 1	F 2	F 3	F 4	etc.	0	SCALED FLUXES

NOTE : The 110 pseudo-orders are "orders" 1 - 110, each one is one scan.
Within each "order", the λ_i, ε_i, F_i and # points refer to data for that "order".
For any point i, the λ_i values are the same for all orders
Within each "order", the corresponding λ_i, ε_i & F_i values are found in the same halfword of successive records.

Fig. 7

Record Zero Structure

The general structure of the Scale-Factor record (Record Zero) for all the extracted files, both resolutions (ELBL, MELO and MEHI) is shown in Table I.

In particular, for the old LBL Spectrum, the following items had the shown values :

Item	Value in LBL
5	55 (# of orders present)
8	3 (# of records per order)
21-24	Scale factors for flux
37-39	Spares
103-202	λo , wavelength offset for each order All values are 0 .
203-302	Order number; first 55 items are numbers 73 to 127; remaining are 0 .
303-402	Number of points per order; first 55 items have the same value, remaining ones are set to 0 .
403-502	Slit heigth * 100 = 141 . Only Item #403 . Remaining items are set to 0 .

For the ELBL Spectrum, some of these fields have been redefined :

Item	Value in ELBL
5	110 (new number of orders)
8	3 (unchanged)
21-24	Unchanged
37	"Plate" Scale factor for ELBL file (Arcsec * 1000 = 1078).
38	(Julian Date - 2440000) for midpoint of observation.
39	Fraction of Julian Date (* 10000) at midpoint of observation.
103-202	Unchanged. They remain set to 0 .
203-302	All items are set to 0 .
303-402	Number of points per order; it is the same for every scan and, therefore, it is written only once, in item #303 ; remaining entries are set to 0.
403-502	Slit height * 1000 = 707 . Only item #403. Remaining items are set to 0.

Table I . Format of Scale Factor Record
(Record Sequence Number Zero)

Item (16-bit halfword)		Quantity
1		Zero (for record 0)
2		1022 (Maximum number of halfword entries in remainder of record 0)
3		Minimum wavelength (truncated to nearest A)
4		Maximum wavelength (rounded to nearest A)
5		Number of orders present
6		Camera number
7		Image number
8		Number of records per group (i.e. per order)
9		Year
10		Day Number of midpoint of
11		Hour observation (GMT)
12		Min
13-16		As 9-12 for time of image processing (GMT)
17		Target aperture (1=large, 2=small)
18		Total line shift (pixels * 1000)
19		Total sample shift (pixels * 1000)
20	***	THDA * 10 (C) used for reseau correction (normally at the time of read)
21		Scaled minimum flux for Gross
22		Scaled maximum flux for Gross
23		J for Gross where actual FN = data on
24		K for Gross tape * J * 2**(-K)
25-28		as in 21-24 for Background
29-32		as in 21-24 for Net
33-36		as in 21-24 for Absolute Net (Low) or Ripple Corrected Net (High)
37		"Plate" scale factor for ELBL file (=1078) (Arcsec*1000).
38		(Julian Date - 2440000) at midpoint of observation
39		Fraction of Julian Date (*10000) at midpoint of observation
40-41		Spares
42-44	NI	Minutes, seconds and miliseconds of exposure in target aperture.
45		Hours
46		Minutes Right Ascension of target
47		Seconds * 10
48		Degrees
49		Arc minutes Declination of target
50		Arc seconds

51-53	**	(Vx , Vy , Vz) Velocity of Earth in celestial coordinates (km/sec * 10).
54-56	**	(Vx , Vy , Vz) Same as 51-53 for IUE with respect to Earth, at midpoint of exposure.
57	**	Net velocity correction applied (km/sec * 10)
58		Omega angle (degrees * 10) (Zero in High)
59		Wavelength scaling factor (5=Low , 500=High, where actual λ = (λ on tape)/(scal. factor) + λo
60		Background slit height - Low
61		Background distance - Dispersion from dispersion line - Only (pixels * 100)
62		Dispersion constant shift mode (0=no shift, 1=auto shift, 2=manual shift)
63	NI	Bright Spot removal threshold DN
64		THDA * 10 for dispersion constant correction (normally at the end of the exposure)
65-70		Spares
71-102		For use of IUE Regional Data Analysis Facility.
103-202		λo , offset wavelengths for each order
203-302		m, order number for each order
303-402		Number of extracted data points for each order
403-502		Slit height for each extracted order (pixels*100) In the ELBL, only item #403 is used (pixels*1000)
503		Sign and first 4 digits after decimal of dispersion constant A1
504		Sign and second set of 4 digits after decimal of dispersion constant A1
505		Sign and third 4 digits after decimal of dispersion constant A1
506		Exponent (including sign) of dispersion constant A1 where: A1=[item(503)*10**(-4) + item(504)*10**(-8) + item(505)*10**(-12)] * 10**(item(506))
507-538		As above, for dispersion constants A2 through A9
539-574		As above, for dispersion constants B1 through B9
575-1024		Spares

** High Dispersion only

*** Currently not used to correct reseau positions for the LWR and LWP cameras

NI Not implemented yet.

4. REFERENCES

- Bohlin, R.C., Holm, A.V., Savage, B.D., Snijders, M.A.J., Sparks, W.M. : 1980, Astron. Astrophys. 85, p. 1-13.
- Cassatella, A., Barbero, J., Benvenuti, P. : 1985, Astron. Astrophys. 144, p. 335-342.
- Panek, R.J. : 1982, Report to the 3-Agency Meeting, VILSPA.
- ESA IUE Newsletter, July 1982, No. 14, (Configuration #60).
- NASA IUE Newsletter, September 1984, No. 25, (Configuration #60).
- Bohlin, R.C., Lindler, D.J., Turnrose, B.E. : 'IUE Data Reduction XIX', NASA IUE Newsletter, January 1981, No. 12, p. 9-26 and also ESA IUE Newsletter, May 1981, No. 10, p. 10-21.
- Turnrose, B.E., Thompson, R.W. : IUE Image Processing Information Manual, Version 2.0 (New Software) , December 1984, CSC/TM-84/6085

APPENDIX

THE ORIENTATION OF THE CELESTIAL COORDINATES IN THE ELBL

With the new ordering, the ELBL Image files have the same appearence for the 3 cameras (LWP,LWR and SWP), (see section 3.C.

However, their orientation with respect to the Celestial Sphere is not uniform. Therefore, we illustrate below, by a simple example, the orientation of the IUE slits as they can be derived directly from the Spacecraft Roll Angle (R); (ESA IUE Newsletter #10, p.7).

The Large Aperture Position Angle (P.A.) is measured with respect to the Celestial North with normal astronomical conventions.
It defines the direction of its Major Axis which, by definition, is oriented positively from the Small to the Large Aperture. (Fig. 8).

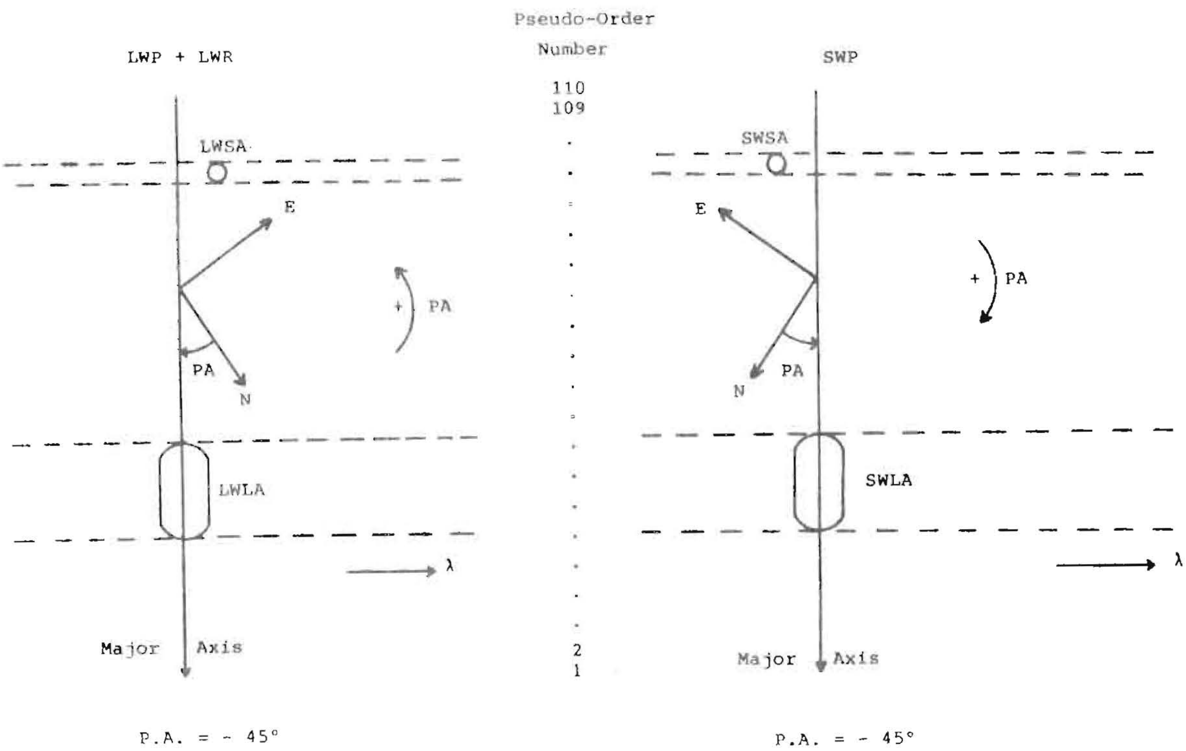
The P.A. of the Large Aperture is defined by:

$$PA = 73^o - R$$

Then, the Celestial Axes can be easily found on the ELBL as shown in the following figure.

For example, for an observation made at R = 118°, then,

$$PA = 73^o - 118^o = -45^o$$



The relative position ($\Delta\alpha$, $\Delta\delta$) in Arcsec, for any Aperture with respect to any other, can be found through :

$$\begin{pmatrix} \Delta\alpha \\ \Delta\delta \end{pmatrix} = \begin{pmatrix} -0.2680 \cos(R+28^{\circ}.31) & , & 0.2617 \sin(R+28^{\circ}.31) \\ -0.2680 \sin(R+28^{\circ}.31) & , & -0.2617 \sin(R+28^{\circ}.31) \end{pmatrix} \begin{pmatrix} \Delta X \\ \Delta Y \end{pmatrix}$$

The quantities ΔX and ΔY, which are the distance between any two apertures in FES units can be obtained from Fig. 8.

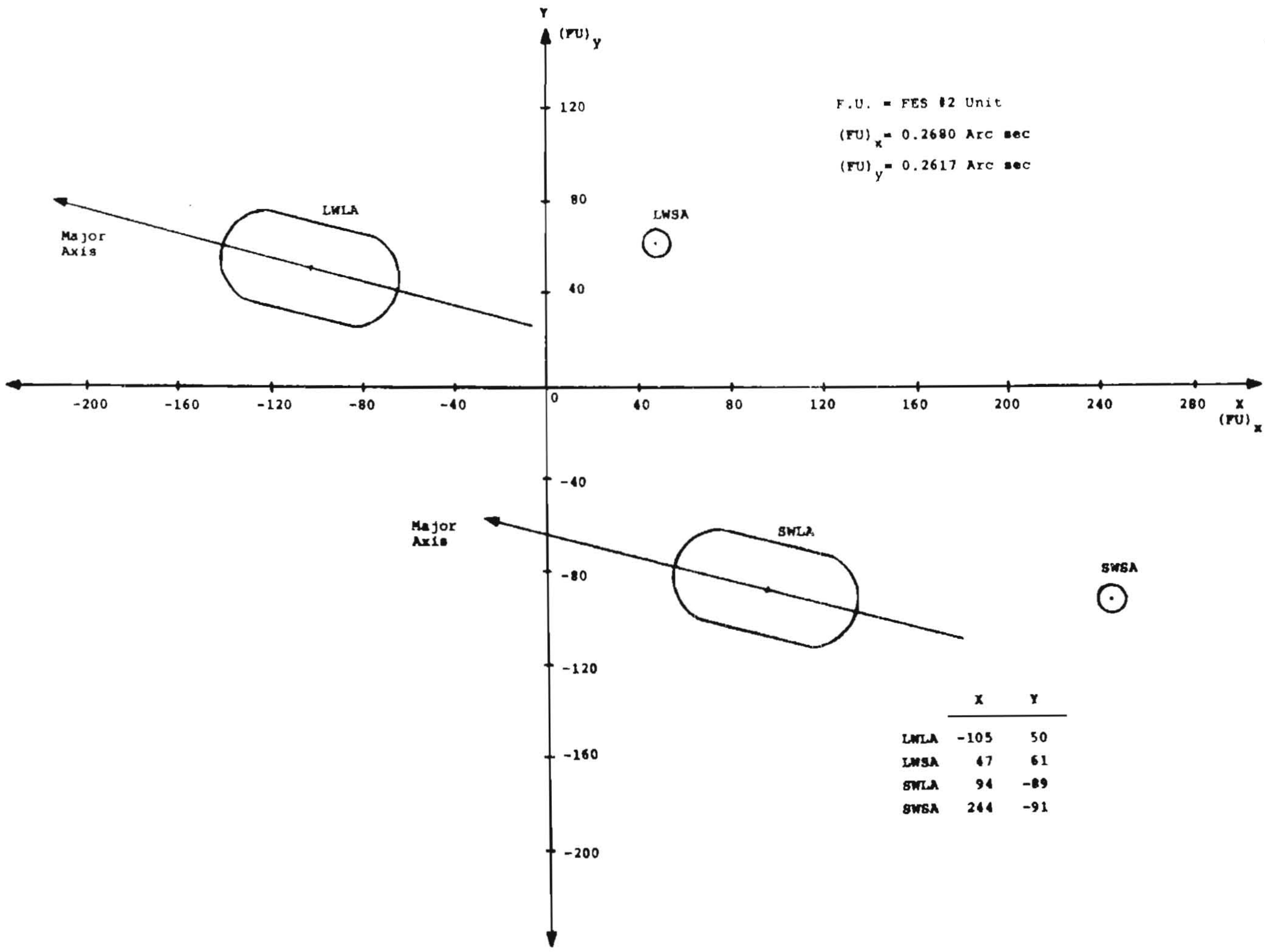


Fig. 8. Lay-out of the IUE focal plane in the FES #2 System of Coordinates. The four spectrograph apertures are shown and their (X, Y) positions are listed in FES units (FU). Note that the plate scale is slightly different along the 2 axis, $(FU)x \neq (FU)y$.

Effective Date: June 20, 1984
(GMT 112:13:51)

IUE Data Reduction *

XXXIV. Implementation of New Dispersion Constants and Second-order Time Corrections

On June 20, 1984 (GMT 112:13:51) updated dispersion constants were implemented in production processing for the LWP, LWR, and SWP cameras. These files replace those implemented for the LWR and SWP on September 21, 1982 and for the LWP on April 12, 1983.

The chief distinction of the new calibration files is the introduction of correlation coefficients to facilitate second-order time (and linear THDA) corrections for the LWR and SWP constants. Studies have shown that the second-order time correction more closely models the dispersion relations for both recent and early LWR and SWP spectra than the previous linear time correction. For the LWP camera only a THDA correction is currently implemented. (See IUE Data Reduction Memos XXX and XXXII in NASA IUE Newsletters No. 20 and 21, respectively.)

Table 1 shows statistics for the dispersion constants and the standard deviations before and after the corrections are applied. Table 2 lists the actual dispersion constants and correlation coefficients as implemented on June 20. The notation used in the latter table is defined in terms of the line (L) and sample (S) position for a given wavelength as calculated for high dispersion via the equations

$$S = A_1 + A_2 m\lambda + A_3(m\lambda)^2 + A_4 m + A_5\lambda + A_6 m^2\lambda + A_7 m\lambda^2 \quad (1)$$

$$L = B_1 + B_2 m\lambda + B_3(m\lambda)^2 + B_4 m + B_5\lambda + B_6 m^2\lambda + B_7 m\lambda^2 \quad (2)$$

where

m = order number and
λ = wavelength in Å.

For low dispersion (m = 1) only the first two terms are required.

For SWP and LWR the temperature and time corrections are terms W(S) and W(L) which are added to (1) and (2) above respectively. These are computed from the relations

$$W = W_1 + W_2 T + W_3 t + W_4 t^2 \quad (3)$$

where

T = head amplifier temperature (°C) and
t = number of days since January 1, 1978.

* Reprinted from NASA IUE Newsletter No. 26, p. 50.

The correlation coefficients, W, are defined such that the mean time and temperature correspond to a correction of zero. For the LWP camera $W_3 = 0$ and $W_4 = 0$, since no time correction is applied. The figures show graphically both the corrected and uncorrected spectral format shifts plotted as a function of time.

In addition to the new dispersion relations, a new version of the applications program TCCAL has been implemented which allows a correction for time independent of a correction for THDA. In the past, if the THDA value could not be extracted from the image header label, TCCAL would default to mean dispersion constants. The new version will allow images taken prior to March 1979, as well as History Replay images*, to be processed with time-corrected dispersion relations. Note that this should be particularly useful for SWP images ,for which the time corrections are more significant (i.e. produce smaller residual scatter) than the corrections for THDA.

Images for which a time correction was applied without any correction for THDA can be identified by checking the history portion of the image header label. Look for the entry '(MEAN)' on the line which lists the THDA value used to correct for spectrum motion. This implies that the THDA was not located in the header label, and, instead, the appropriate mean value was used.

J. E. Gass and R. W. Thompson

* History Replay images generally do not have THDA information in the header label.

Table 1

Dispersion Constant Statistics

	LWP		LWR		SWP	
	Low	High	Low	High	Low	High
No. of D.C.	51	50	105	103	107	109
Mean time	12/31/83	12/31/83	6/ 4/81	6/15/81	7/22/81	7/10/81
Start	6/17/80	6/17/80	7/15/78	9/30/78	9/30/78	9/11/78
End	3/11/84	3/11/84	3/ 7/84	3/ 7/84	3/11/84	3/11/84
Mean THDA(°C)	8.9	9.3	13.4	13.6	8.7	8.7
Lowest	6.2	6.5	8.8	9.5	5.1	5.1
Highest	12.2	12.2	18.3	18.3	13.2	12.8
Slope (DL/DS)	-.8599	1.20*	.7466	-1.38*	-.8063	1.28*
"Plate" Scale (pixel^{-1})	2.64 Å	7.22 km/s	2.65 Å	7.23 km/s	1.67 Å	7.70 km/s
Raw scatter (1σ in pixels)						
Parallel	.38	.64	.37	1.44	.84	1.07
Perpendicular	.63	.35	1.66	.31	1.03	.49
Scatter after correction	[THDA only]			[THDA & 2nd order time]		
Parallel	.30	.38	.29	.40	.19	.24
Perpendicular	.41	.19	.38	.24	.28	.15

* Order no. 100 used

Table 2. Coefficients Defining the Dispersion Relations For the Small Aperture (1 of 2)

	LWP HIGH	LWR HIGH	SWP HIGH
A1	5.873462158066862E 03	-4.568022566378104E 03	5.240320204548078E 02
A2	-1.722858383957817E-01	1.446262990785922E-01	-1.712491225166165E-01
A3	6.555369560052370E-07	-5.465497800144054E-07	1.270371733811783E-06
A4	1.595428893061642E 01	3.706365790765387E-02	2.400037009830254E-01
A5	3.593457426360678E-01	2.752782055000451E-01	-4.501831878764407E-01
A6	-6.872232913998719E-05	-1.128214756800759E-07	-1.710001924922418E-06
A7	-2.783347519836731E-06	1.178784019429775E-07	-1.229343742859447E-07
B1	1.722851374444825E 03	1.567990956548678E 04	-7.171777625701399E 03
B2	-1.525291559975196E-01	-2.798031396384101E-01	-1.180881485399540E-01
B3	6.234107147653489E-07	9.128413204610836E-07	1.221904605794151E-06
B4	2.195447834078006E-03	5.258053799093249E-02	-6.164813394499542E-02
B5	3.116702603413883E-01	2.249828862644492E-01	3.952920335125301E-01
B6	5.219524333350585E-08	2.913198089519675E-08	4.665040004845884E-07
B7	-2.825129628780807E-07	9.398635854889812E-09	-1.466678989324729E-07

CORRFLATTON COEFFICIFNTS

	LWP HIGH	LWR HIGH	SWP HIGH
W1(S)	-7.430500388145447E-01	5.459306716918945E 00	-2.977794647216797E 00
W2(S)	8.040672540644673E-02	-2.795313000679016E-01	4.107570648193359E-02
W3(S)		-1.768400659784675E-03	2.857662504538894E-03
W4(S)		3.070972525165416E-07	-5.223851076152641E-07
W1(L)	-4.000792503356934E 00	-8.628579139709473E 00	-2.841607093811035E 00
W2(L)	4.322262406349182E-01	5.308601856231689E-01	2.274644970893860E-01
W3(L)		1.599742565304041E-03	7.730186916887760E-04
W4(L)		-3.199881462023768E-07	-6.993195711402223E-08

Table 2. Coefficients Defining the Dispersion Relations For the Small Aperture (2 of 2)

	LWP LOW	LWR LOW	SWP LOW
A1	1.046282942865237E 03	-2.992355784397701E 02	9.833223402481985E 02
A2	-2.867015866207448E-01	3.022840587387481E-01	-4.665747674619282E-01
A3			
A4			
A5			
A6			
A7			
B1	-2.722748512318324E 02	-2.647551045134080E 02	-2.633234804632572E 02
B2	2.465361695604904E-01	2.256895703788157E-01	3.762166817667610E-01
B3			
B4			
B5			
B6			
B7			
CORRELATION COEFFICIENTS			
W1(S)	-7.578814029693604E-01	5.142534255981445E 00	-3.452352523803711E 00
W2(S)	8.561676740646362E-02	-2.351302504539490E-01	-3.286504652351141E-03
W3(S)		-1.864231890067458E-03	3.721332177519798E-03
W4(S)		1.824748778744834E-07	-6.585678420378827E-07
W1(L)	-2.995339393615723E 00	-8.595767974853516E 00	-1.659444808959961E 00
W2(L)	3.379166126251221E-01	4.655143022537231E-01	1.674554347991943E-01
W3(L)		2.750693820416927E-03	2.752062573563308E-05
W4(L)		-5.675888132827822E-07	8.504440529577550E-08

Table 3.

Total* RMS Scatter (1 σ in pixels) for Various Corrections to the Mean Dispersion Constants

HIGH DISPERSION

	LWP	LWR	SWP
Raw Scatter	0.73	1.48	1.18
1st Order THDA	0.42	0.83	0.94
1st Order Time	0.72	1.07	0.47
THDA & Time	0.42	0.48	0.32
THDA & 2nd order Time	0.41	0.47	0.28
No. of Points	50	103	109
Mean Time (1 = 1/1/78)	1865	1281	1288

LOW DISPERSION

	LWP	LWR	SWP
Raw Scatter	0.73	1.70	1.33
1st Order THDA	0.51	1.20	1.19
1st Order Time	0.71	1.00	0.46
THDA & Time	0.50	0.51	0.39
THDA & 2nd order Time	0.48	0.48	0.34
No. of Points	51	105	107
Mean Time (1 = 1/1/78)	1857	1257	1300

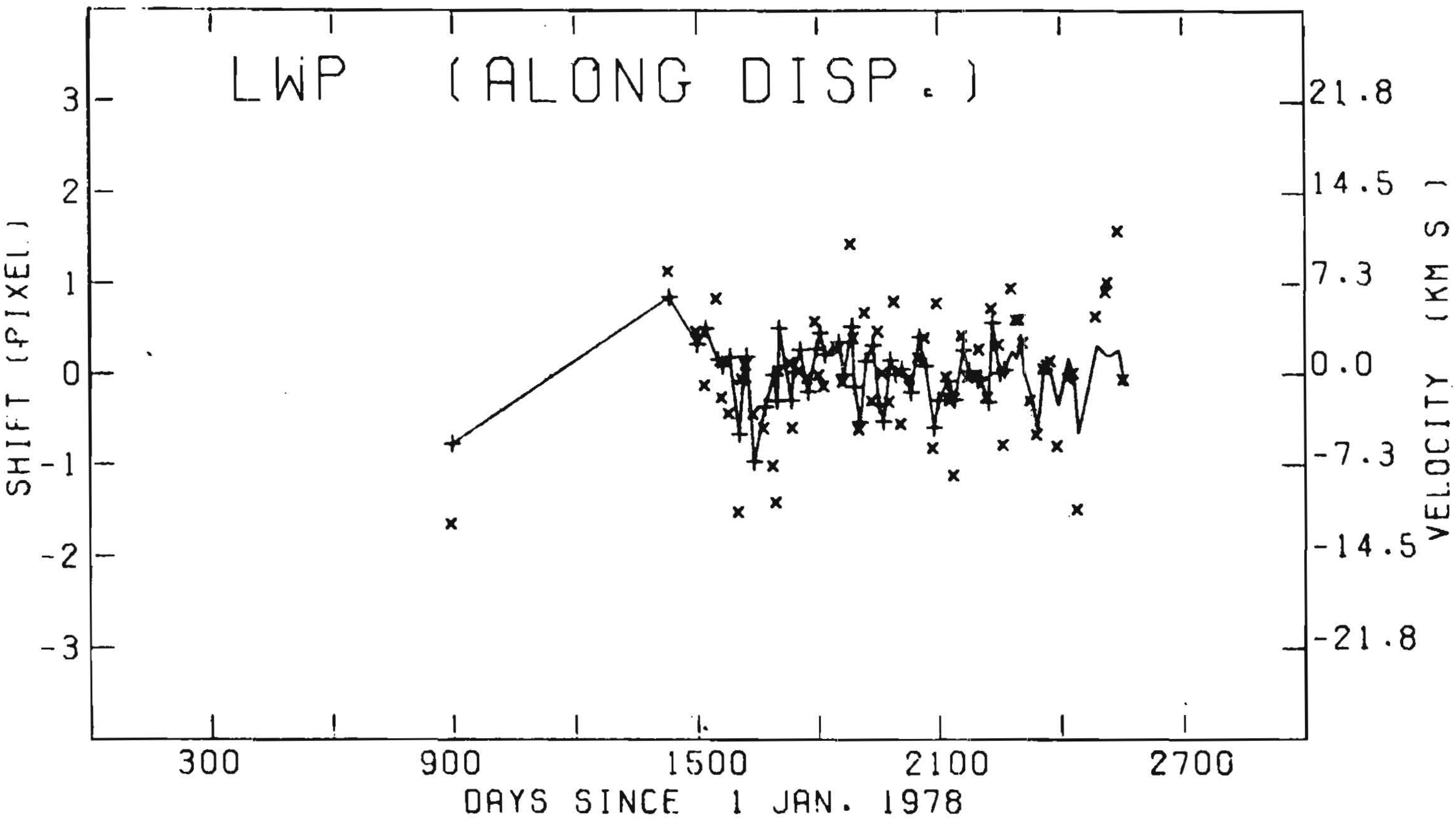
* Perpendicular and parallel components combined.

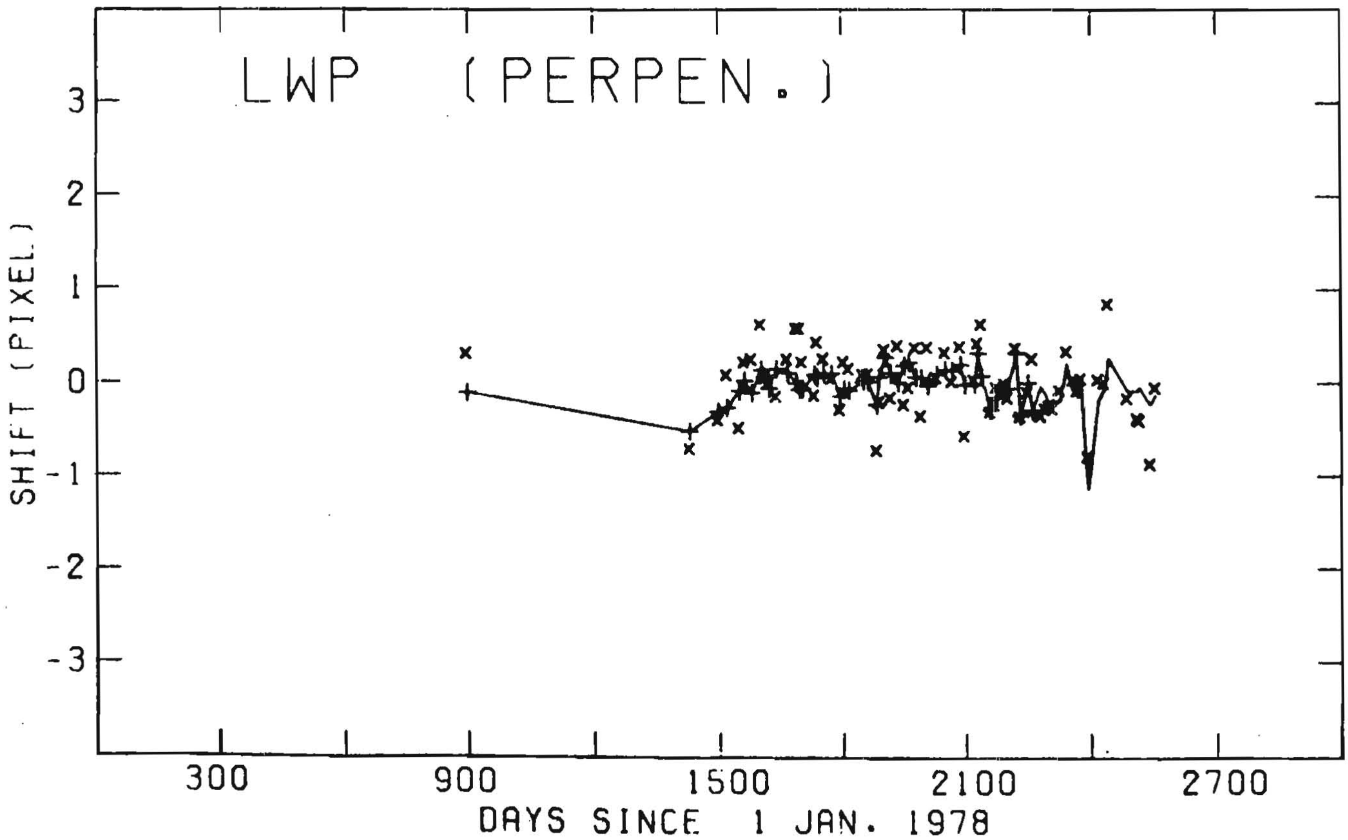
Figure Caption:

The plots in the following figures show, for an arbitrarily selected wavelength, the relative variation with time of the uncorrected spectral format shifts (indicated by the symbol "x") and the temperature and time corrected shifts (indicated by the symbol "+"). The corrected shifts shown in the figures for LWR and SWP have been generated using a linear THDA and second-order time relation. For the LWP only a linear temperature correction was performed.

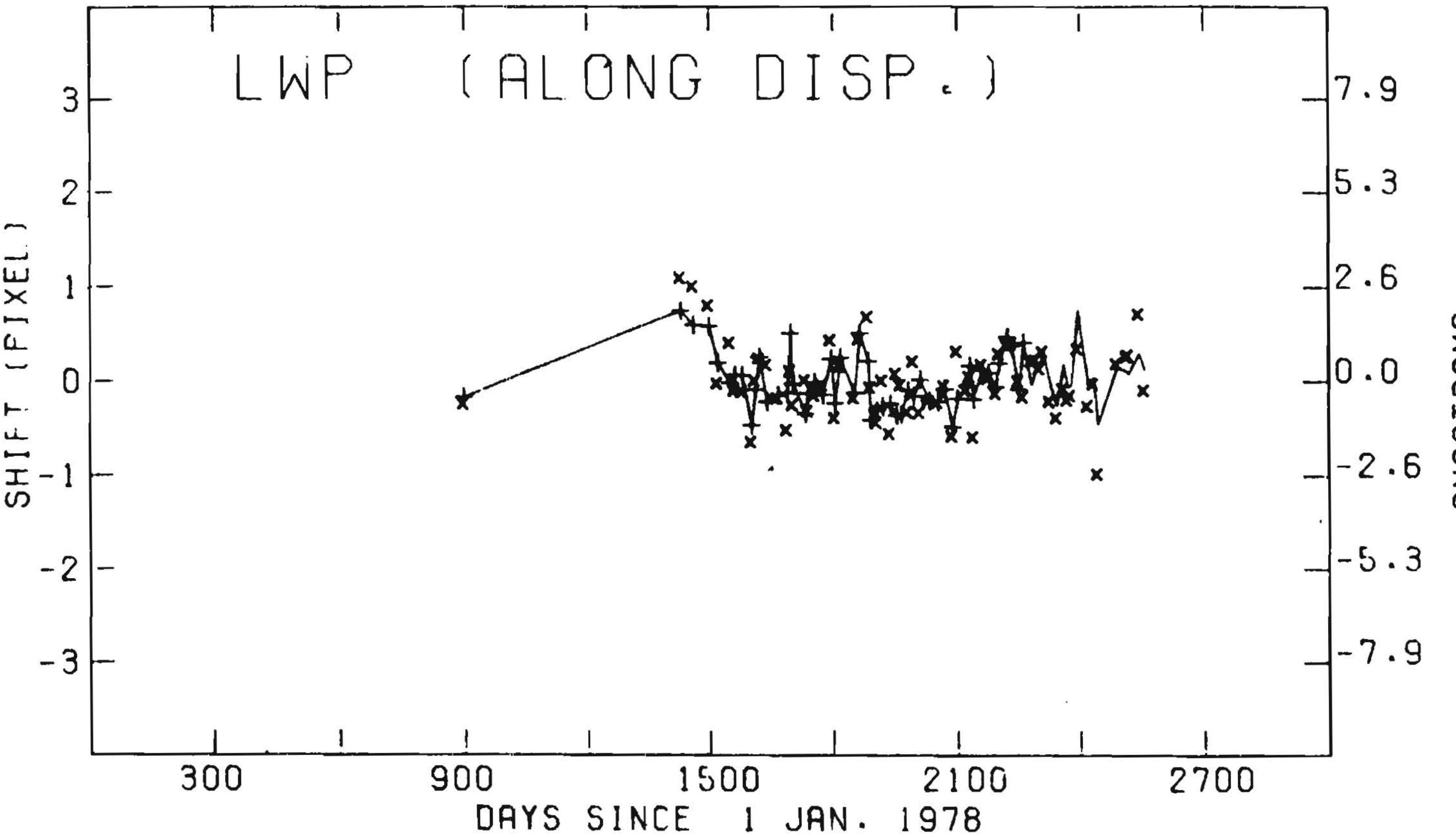
The plots for LWR and SWP confirm that the linear temperature and second-order time corrections are effective in compensating for the format shifts. For the LWP camera no time dependence is apparent.

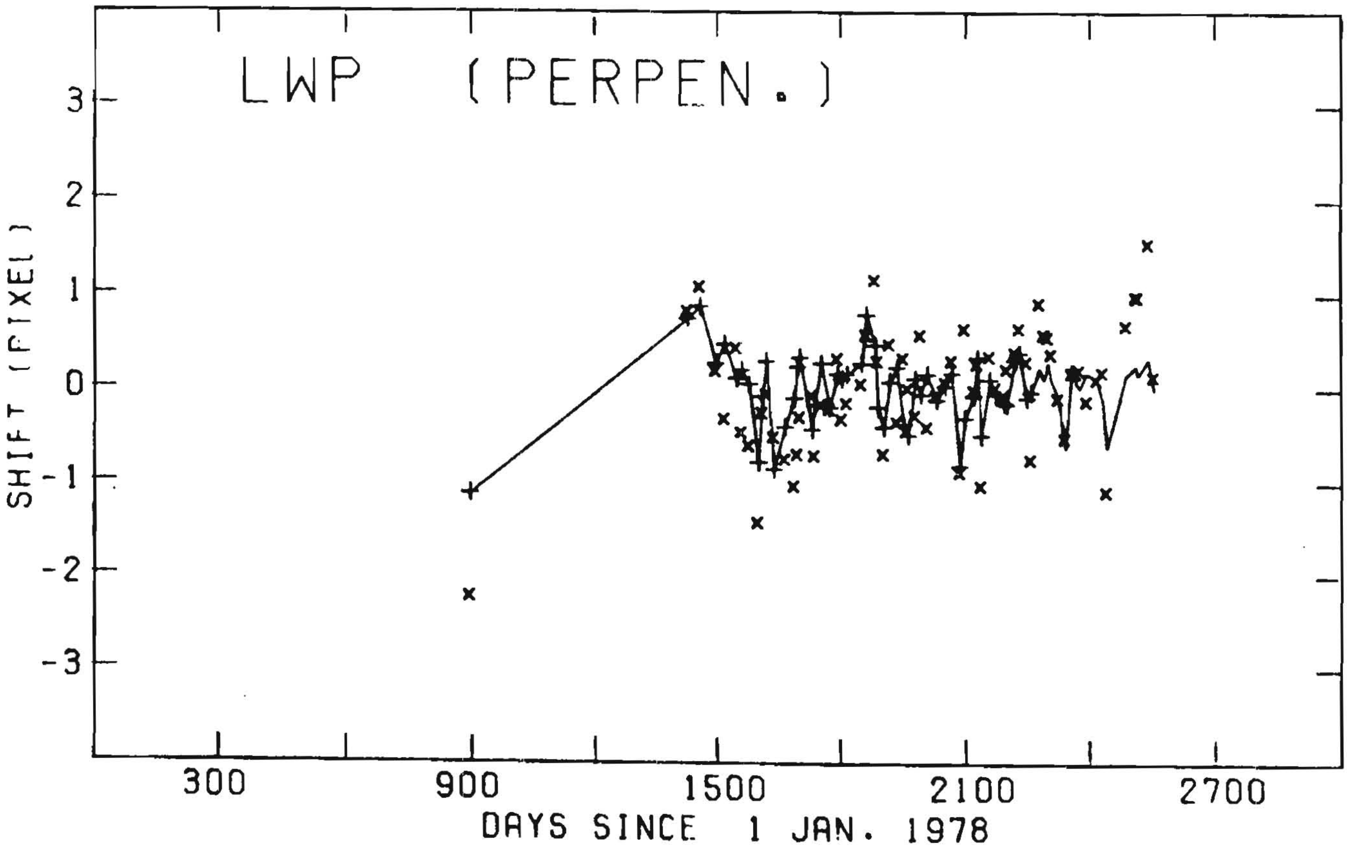
HIGH DISPERSION



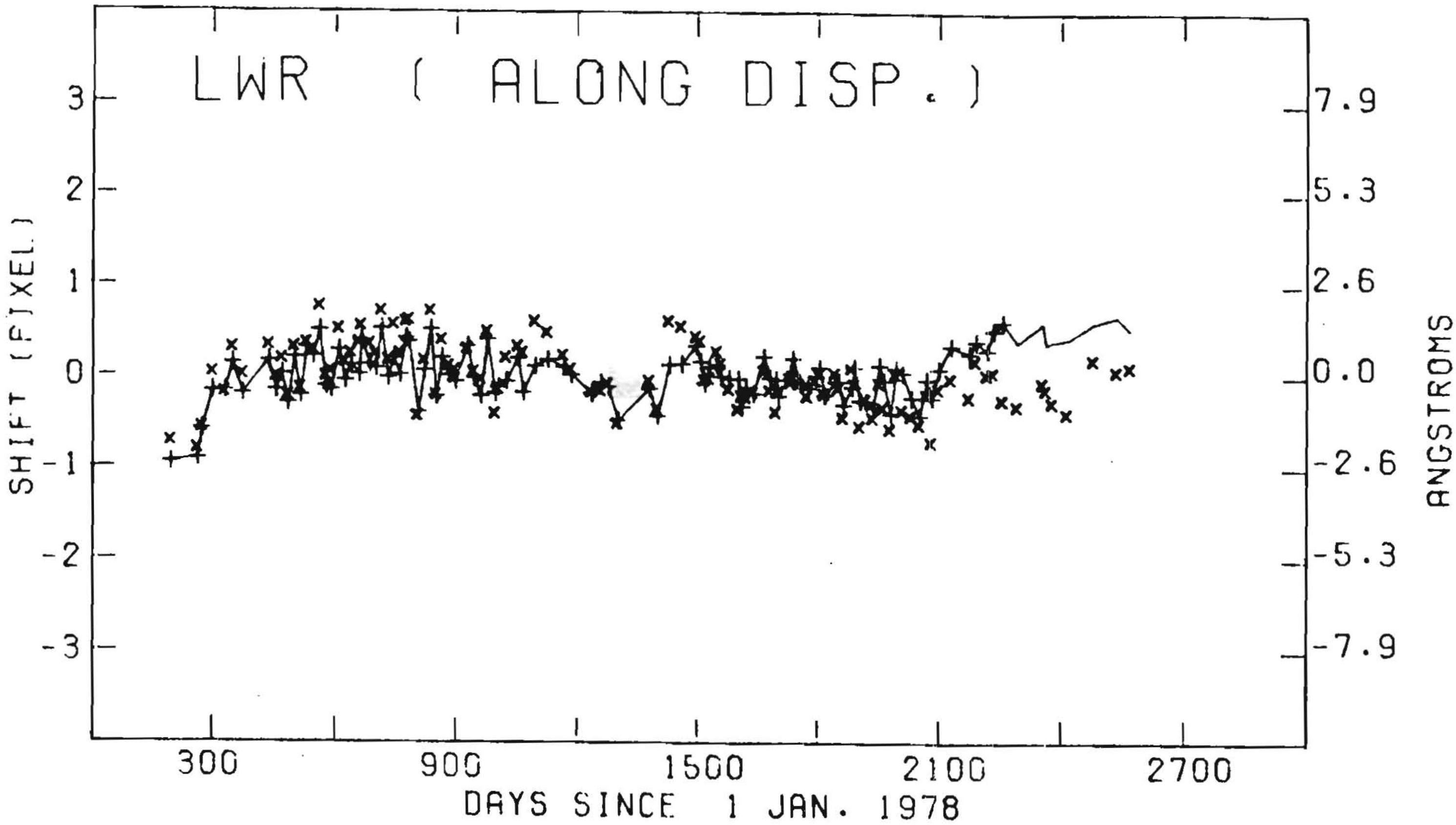


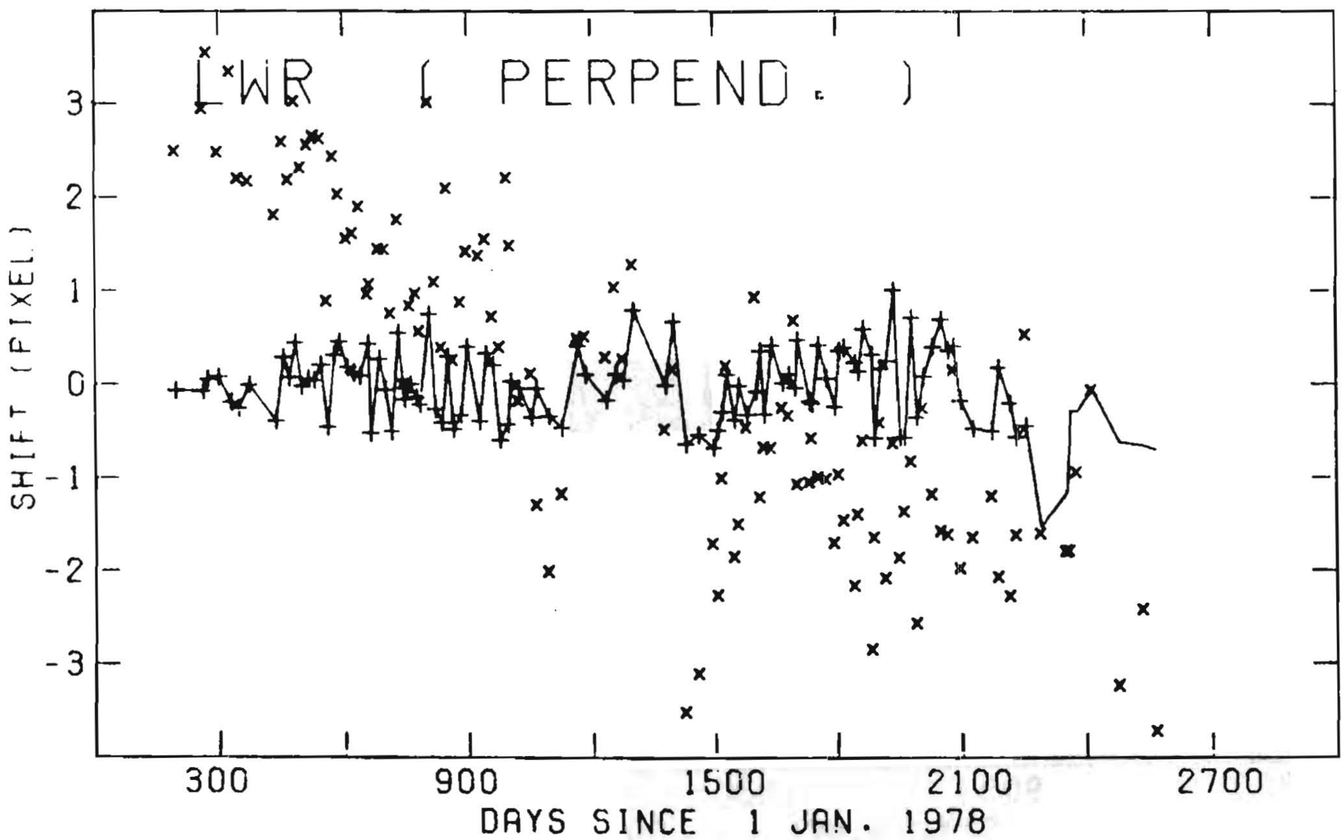
LOW DISPERSION



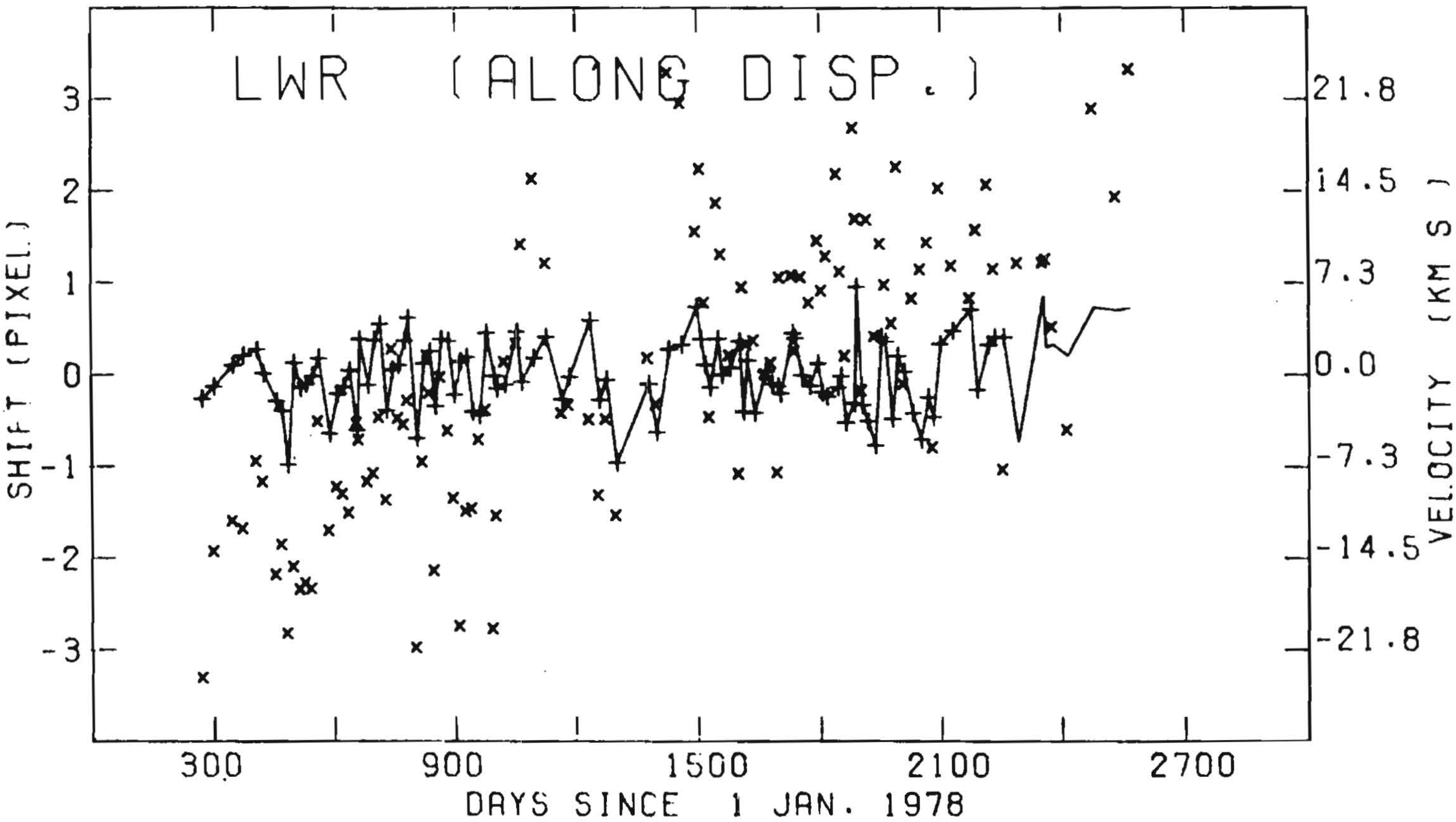


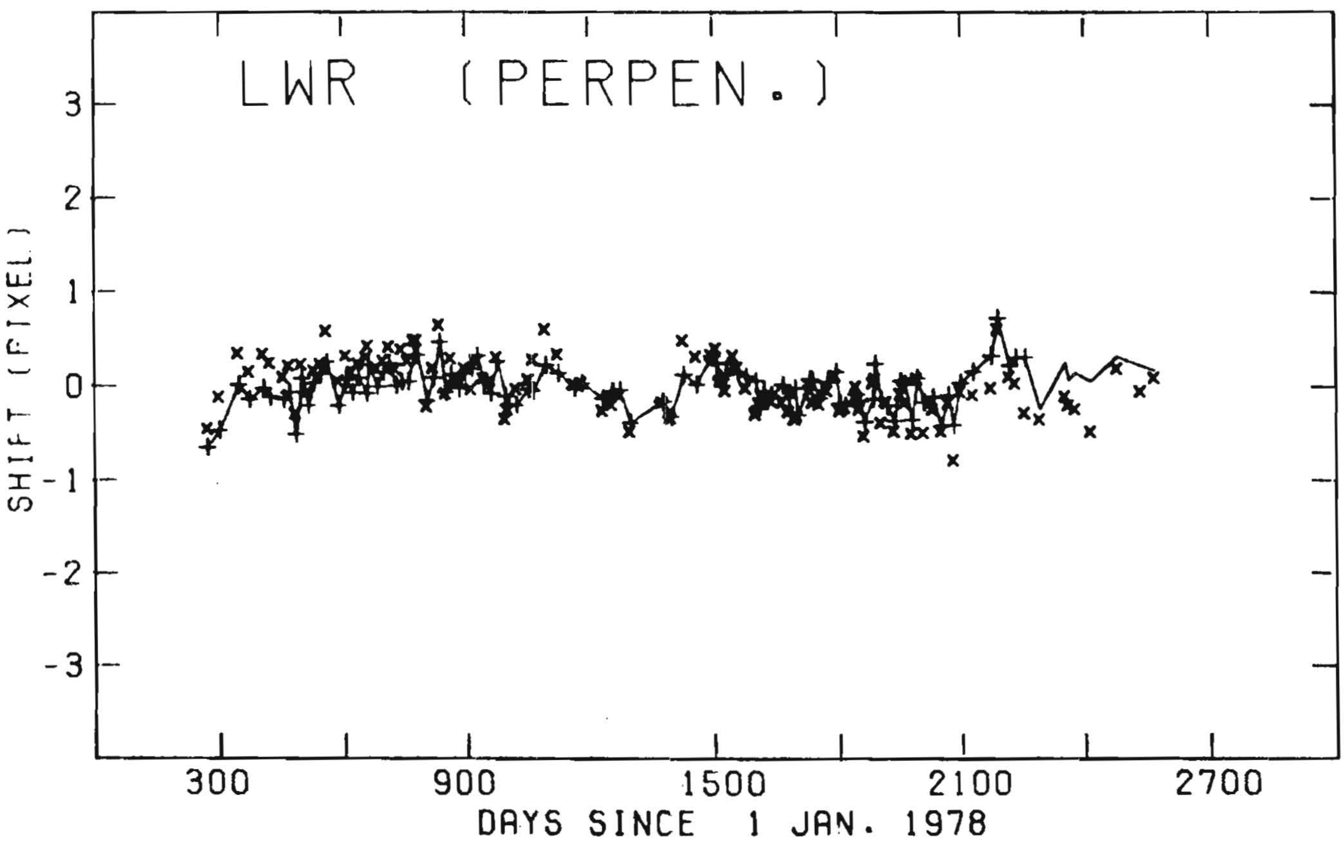
LOW DISPERSION



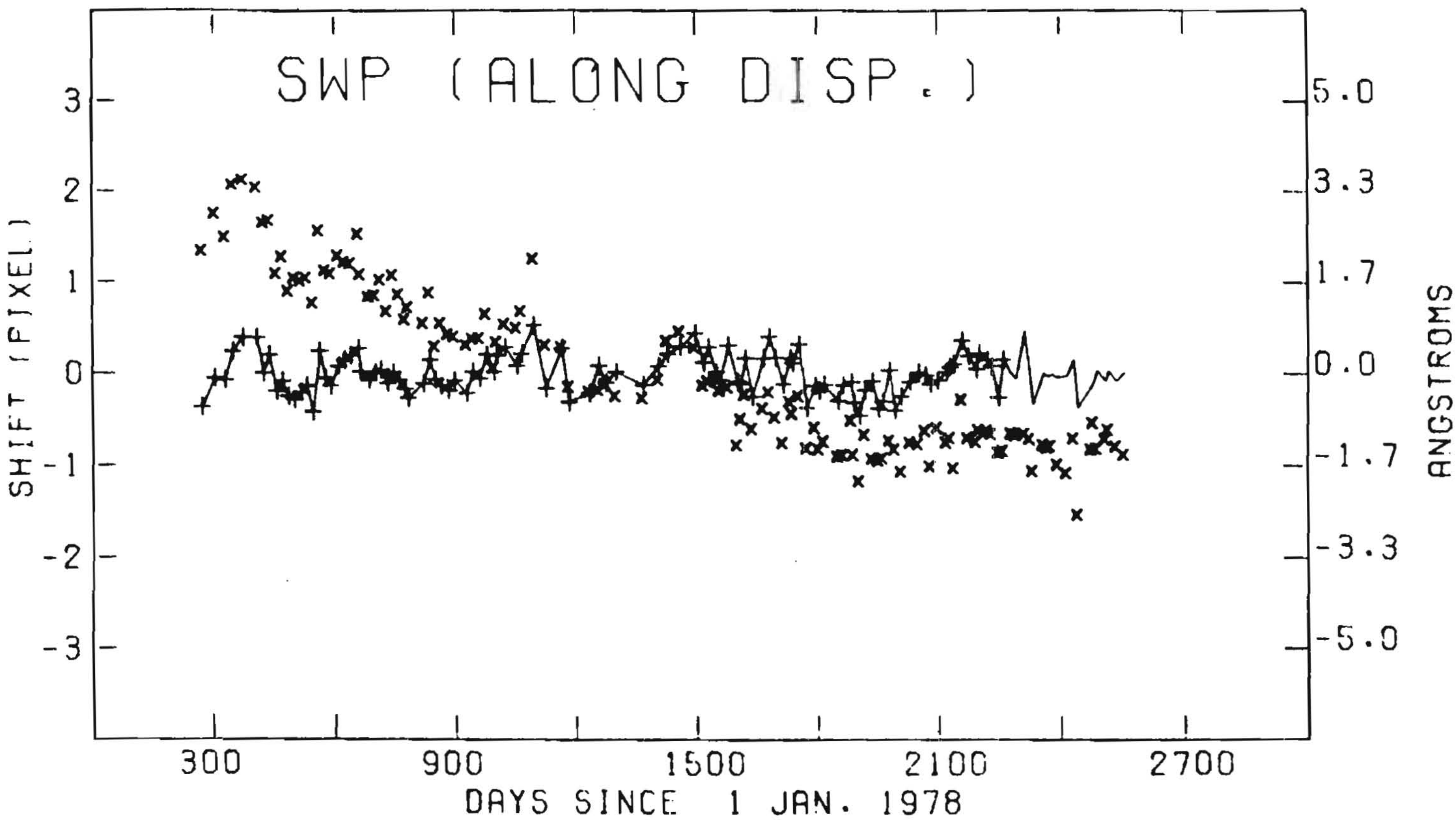


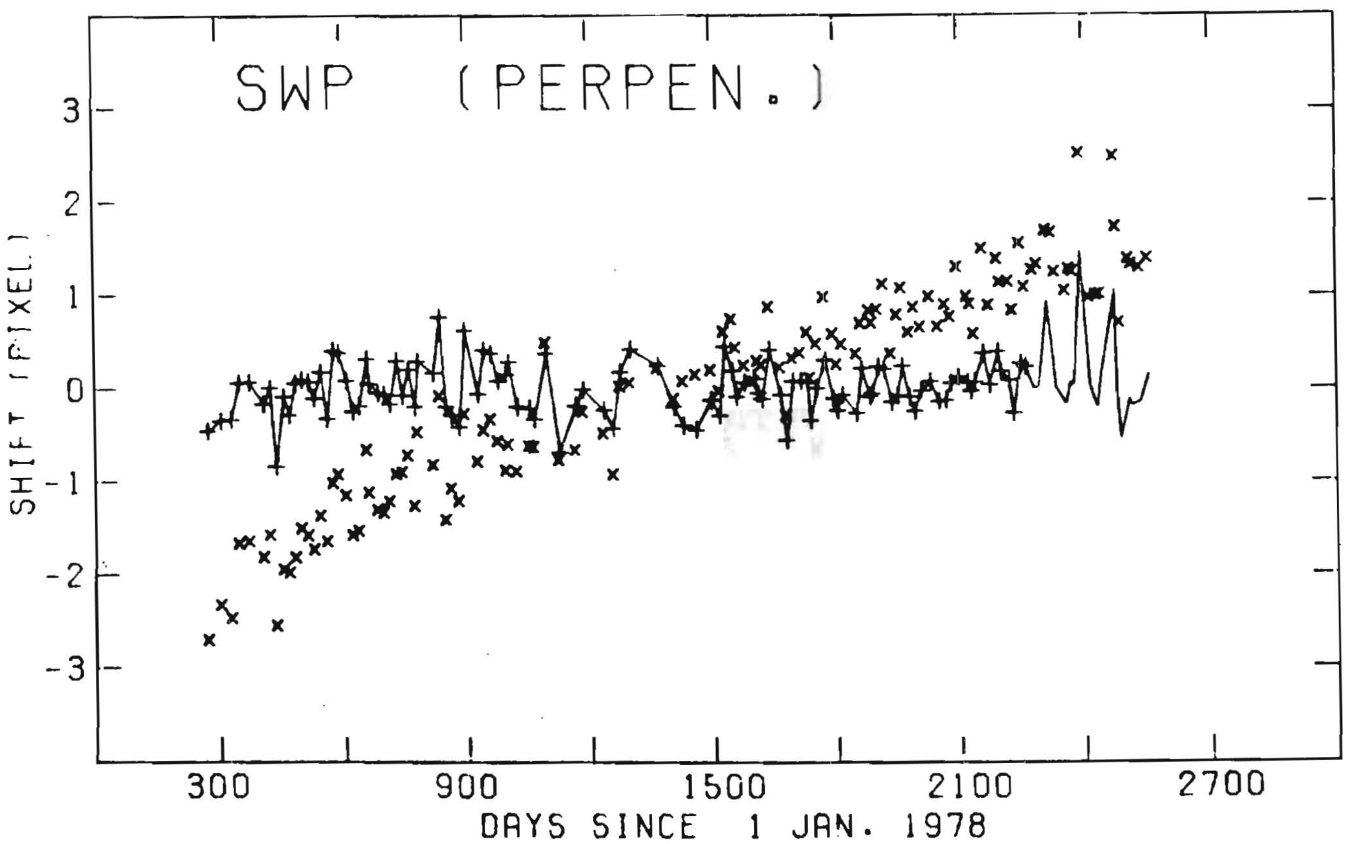
HIGH DISPERSION



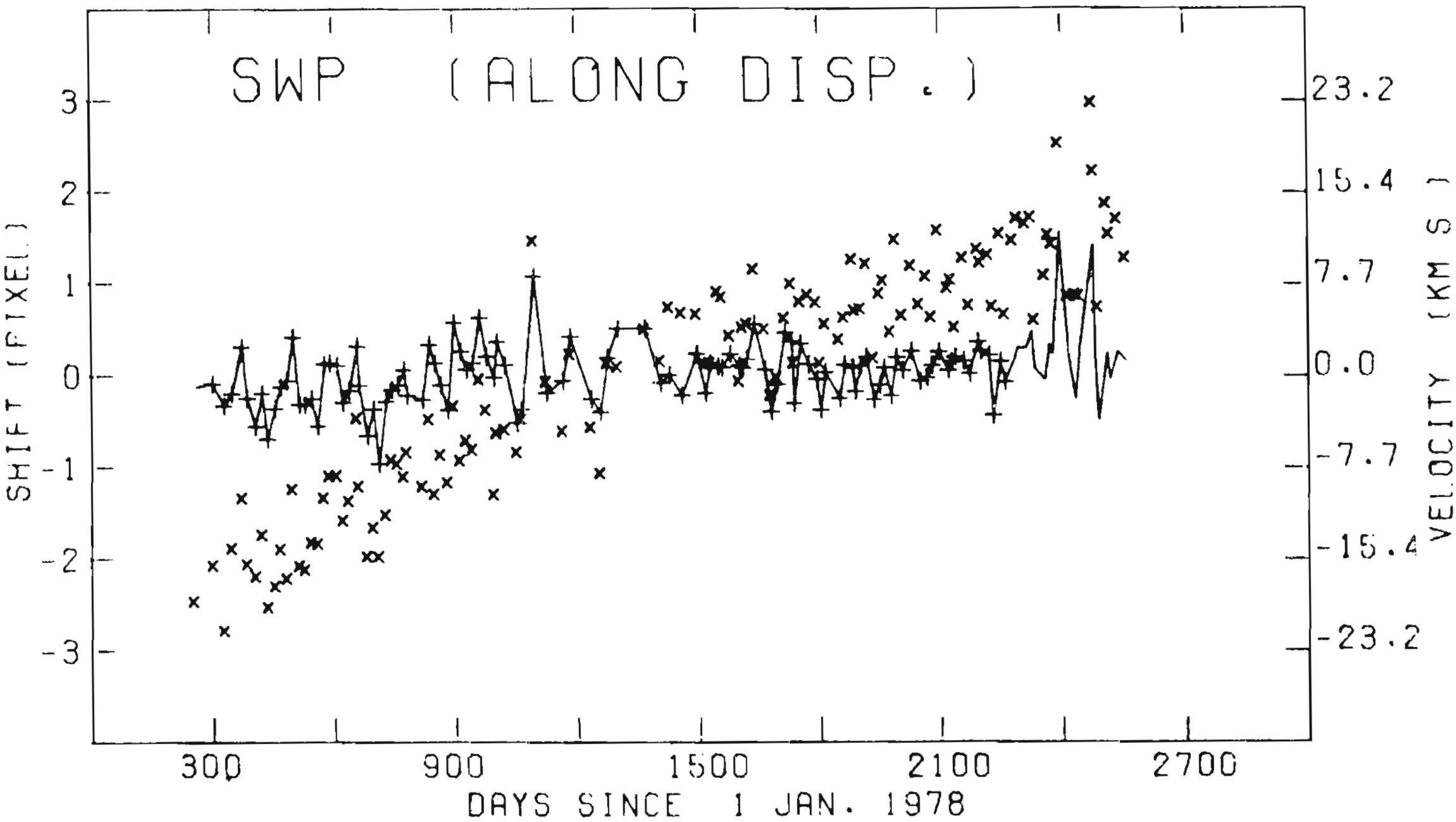


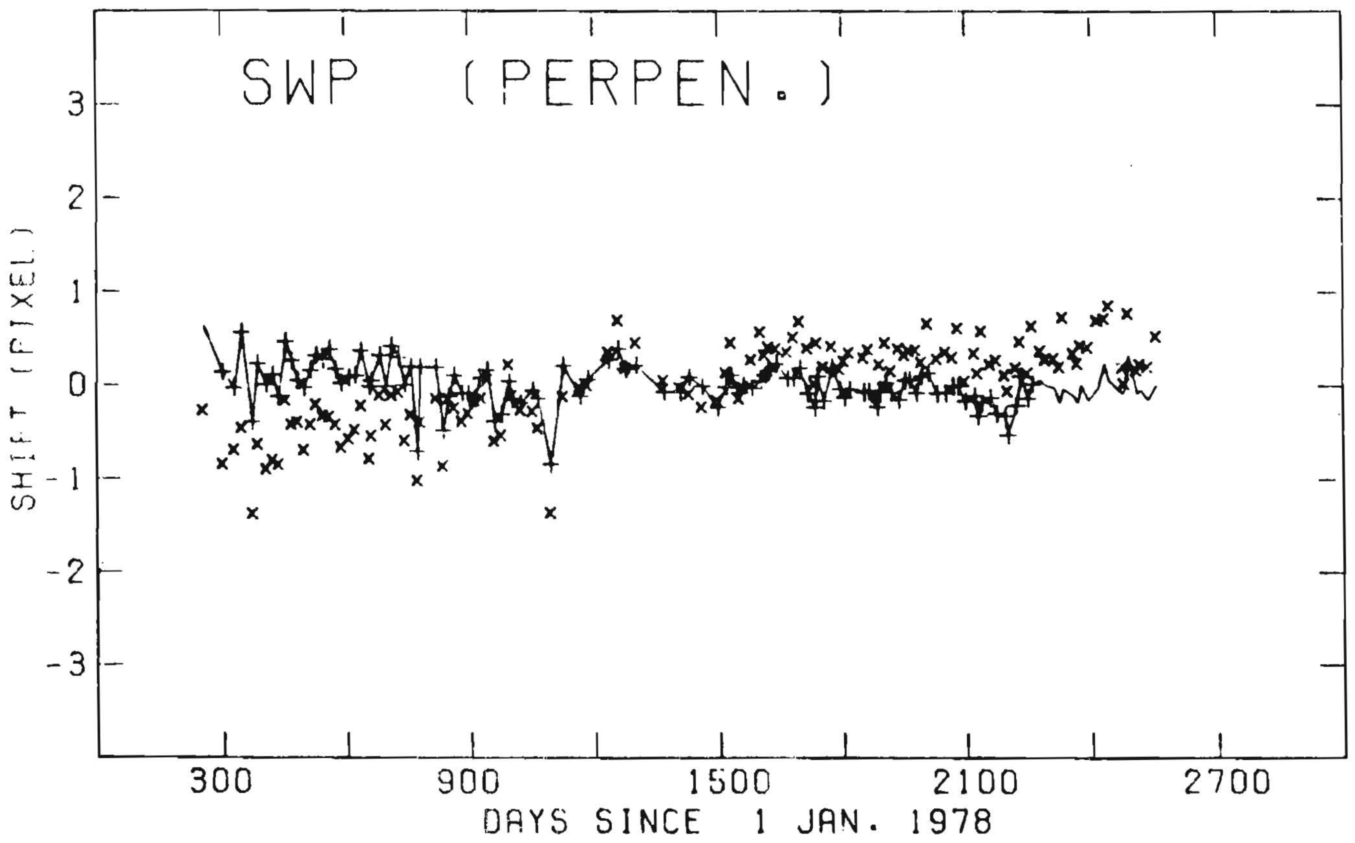
LOW DISPERSION





HIGH DISPERSION





ESTIMATION OF THE TRUE BACKGROUND LEVEL OF SWP HI-RES IMAGES

Werner Schmutz
Institute of Astronomy
ETH Zürich, Switzerland

ABSTRACT

From the analysis of 18 images with practically no signal we conclude that it is possible to estimate the true background level in the contaminated part of SWP HI-RES images (spectral orders $\geq$ 90). This may be done by linearly interpolating the coefficients of a third degree polynomial representation of the background between the uncontaminated parts of the image.

1. INTRODUCTION

When investigating a weak feature in the IUE spectrum of V 1042 Cyg (Schmutz et al. 1984) we found the knowledge of the background to be of crucial importance. For a study of this problem we used the SWP HI-RES images of the symbiotic stars V1016 Cyg and V1329 Cyg listed in Table 1. Actually these images contain about half a dozen emission lines above noise level (e.g. C IV in figure 1) but these lines cover only a small fraction of the image and do not influence the following analysis. The goal was to learn about the general behaviour of the background and to find ways for estimating the true form and level of the background in the regions where the orders are too close.

2. THE TRUE BACKGROUND

Inspection of the not ripple corrected spectrum shows that each order contains a flat region near the central wavelength $\lambda_c = K^{SWP}(m)/m$ and that the form of the background is not symmetrical relative to the central wavelength ($K^{SWP}(m) = 138827 - 27.43m + 0.1659m^2$, Ake 1982). We therefore fit each truncated order (no order overlap) with a least square approximation by the polynomial

$$FN_{backgr}(X) = a(m) + b(m)X^2 + c(m)X^3 \,.$$

Points outside 3σ were rejected. The variable X is the same as the one used in the ripple correction $X = \pi m(1 - \lambda_c/\lambda)$, where m is the order number. Therefore the values b and c give the deviation from a flat background at a given distance from the center wavelength λ_c (at the order cuts X is $\approx$ 1.6, see text to figures 1 and 2). Figure 1 and 2 show a section of a gross spectrum and the calculated polynomial fits to the background (thick line) and to the gross (thin line). Considering the simple polynomial function used the fits represent the form of the spectrum — e.g. of the background — quite well. The polynomial representation is worse for the wavelength region where the order overlap is marginal, i.e. for order numbers smaller then about 80. But this is the region where the background evaluation is no problem and therefore there is no need for a interpolation procedure. The fit to the background of order number 110 in Figure 2 differs more than usual from the fit to the gross spectrum. Inspection of LOW-RES spectra shows that the difference is not due to flux from the symbiotic star V1329 Cyg and therefore the difference is a real difference between the true background and the background between the orders. Figures 3, 4 and 5 show the values of the variables $a(m)$, $b(m)$ and $c(m)$ as a function of the order number m. There are two values for each order, one for the background fit and one for the gross fit. Again, the difference between the two values gives an idea of the background variation except for strong deviations which are due to image defects or flux from the observed object (e.g. in Figure 1 the contribution of C IV). Very strong deviations are indicated by gaps. In Figures 3a), 4a) and 5a) the coefficients for images with background values less than FN 5000 are displayed, in the figures marked b) coefficients for images with values higher than FN 10000 are shown. Not shown are the coefficients for the images between these limits as these values provide no additional information. We note that the value of the coefficients b and c are only slightly increased when the background level (coefficient a) is higher. The absolute values of $b(m)$ and $c(m)$ are in most cases smaller than 500, therefore the non-flatness of the background within an order is only important for very weak features. However differences of the background level for different orders, $a(m)$, may reach FN 7000 and they are typically 25% of the mean of the values $a(m)$. Assuming a constant background for all orders is therefore not justified.

3. BACKGROUND INTERPOLATION

In Figures 6, 7 and 8 we present the calculated fit coefficients of two SWP spectra of V1042 Cyg, Figures marked a) are for SWP 4086, those marked b) for SWP 22861. As these spectra contain continuum flux and strong emission lines most points belonging to the coefficient to the gross are outside the frames; '*' indicate the coefficients of the background fits; '+' indicate fits to the gross spectrum. Comparing the Figures 6 to 8 with Figures 3 to 6 it can be seen that the background contamination starts at about order number 90 and stops at about order number 120. This result agrees with the fact that the calibration curve for continuum sources deviates from the calibration for emission line sources for wavelengths $\leq$ 1600 Å (Cassatella et al., 1981). The orders at the very short wavelength end of the spectrum are not affected because the instrument is at these wavelengths not sensitve enough to register any flux from the target. Inspection of figures 3 to 5 shows that an approximation of the coefficients between order number 90 and 120 by a straight line is in most cases within the scatter between gross and background fit. A linear approximation of the most important coefficients $a(m)$ is excellent, of $b(m)$ is still quite good and of $c(m)$ still reasonable. Therefore we conclude that the straight connection between order 90 and 120 shown in figures 6 to 8 gives a good estimate of the polynomial coefficients of the true background. For most applications it will be sufficient to assume a flat background within one order and to estimate just the values $a(m)$ by a linear interpolation.

4. A WARNING ABOUT EMPIRICAL RIPPLE CORRECTION

Errors usually assigned to ripple correction may actually be due, at least in parts, to a wrongly evaluated background. Correcting an image with contaminated background by empiricaly adjusted ripple correction may give wrong results. For low signals comparable to the size of the background, background determination and ripple correction cannot be separated.

5. APPLICATION

Figure 9 shows the estimated background as well as the background given by the standard IUE data extraction for SWP22861. Figure 10 shows the resulting spectrum if the estimated background as shown in Figure 9 is subtracted from a deconvolved gross spectrum. Also shown is the spectrum resulting if the estimated background is subtracted from the gross spectrum calculated with the standard IUE data extraction and the standard net spectrum. From Figure 10 it is obivous that evaluation of the true background is only a first step in a careful IUE data reduction. At the short wavelength end of the spectrum it is as important to subtract the flux contribution of one order to the neighbouring one as the evaluation of the background. Subtraction of the additional flux can be done using a deconvolution routine, e.g. as implemented in the Trieste IUE data reduction package (Ramella et al. 1983), but this is not the subject of this paper. In Figure 10 it can also be seen that the present IUE data reduction gives very reasonable results, however with the old data reduction (before 1982) the discrepancies against the standard IUE data extraction would have been worse.

6. CONCLUSION

Using the uncontaminated interorder background of a SWP HI-RES image it is possible to estimate the true background level. Assuming a constant background for the whole image is only a poor approximation of the true background, it is important to account for different background levels in different orders. Depending on the level of exposure there may be also cases where the non-flatness within an order has to be taken into account.

7. FUTURE WORK

A more sophisticated background interpolation could give a better agreement between true background and fit. Note that we only analysed two relativly close sky-positions. It is also likely that the LW HI-RES images could be treated in the same way. The observation dates cover more or less the whole year. No obvious correlation between background and sun angle was seen. However such a correlation cannot be excluded and may appear in a more careful analysis.

We do not intend to continue this work and we would like to encourage others to refine the analysis presented here.

ACKNOWLEDGMENTS

We thank Drs. C. Morossi and M. Ramella for having put their program at our disposition.

REFERENCES

Ake,T.B.: 1982, *IUE NASA Newsletter No.* **19**, 37.

Cassatella,A., Ponz,D., Selvelli,P.L.: 1981, *IUE ESA Newsletter No.* **10**, 31.

Ramella,M., Morossi,C., Allocchio,C., Beckman,J.E., Crivellari,L., Franco,M.L., Molaro,P., Vladilo,G.: 1983, *IUE ESA Newsletter No.* **18**, 70.

Schmutz,W., Morossi,C., Ramella,M.: 1984, 'Fourth European IUE Conference', *ESA SP* **218**, 325.

Table 1

SWP 1669	SWP 5613	SWP 5615	SWP 9901	SWP 9881	SWP13706
SWP13858	SWP14687	SWP16746	SWP16761	SWP18660	SWP18671
SWP19567	SWP19576	SWP20328	SWP21750	SWP22841	SWP23624.

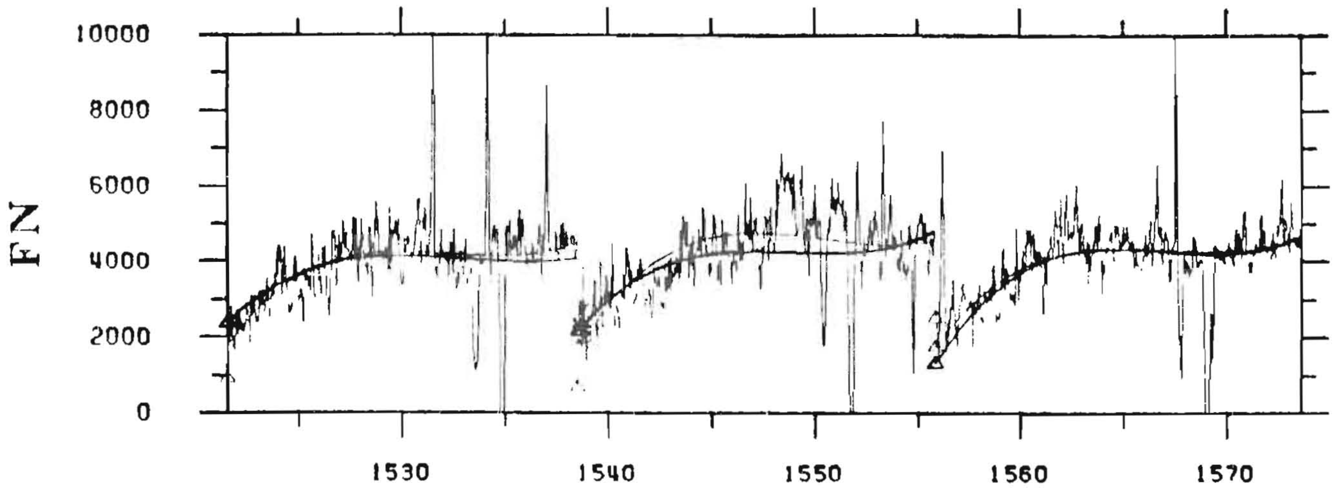


Figure 1. Orders number 90, 89 and 88 of the gross spectrum of SWP 13858. The thick line represents the polynomial that was fitted to the background, the thin the fit to the gross. The central wavlength of order number 89 is at $\lambda_c = 1547$, the cuts are at $\lambda = 1556$ ($X = -1.6$) and $\lambda = 1538$ ($X = 1.6$). The fit to the gross spectrum of order number 89 is influenced by the C IV emission lines λλ1548, 1551.

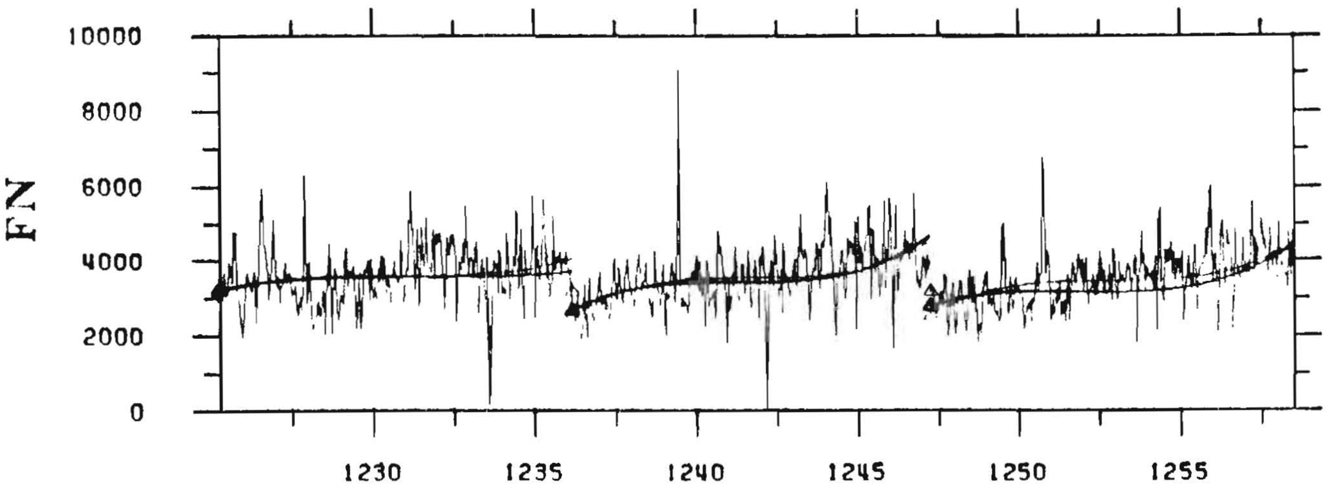


Figure 2. Orders number 112, 111 and 110 of the gross spectrum of SWP 13858. The thick line represents the polynomial that was fitted to the background, the thin the fit to the gross. The central wavlength of order number 111 is at $\lambda_c = 1242$, the cuts are at $\lambda = 1236$ ($X = -1.5$) and $\lambda = 1248$ ($X = 1.7$). The difference between the fits to the background and gross spectrum of order 110 is due to different FN values in the gross and background. Inspection of long exposed LOW-RES spectra shows that the difference is not due to flux from the symbiotic star HBV 475. Therefore this difference gives an idea of the accurancy of the background evaluation between the orders even if no 'background problem' is present.

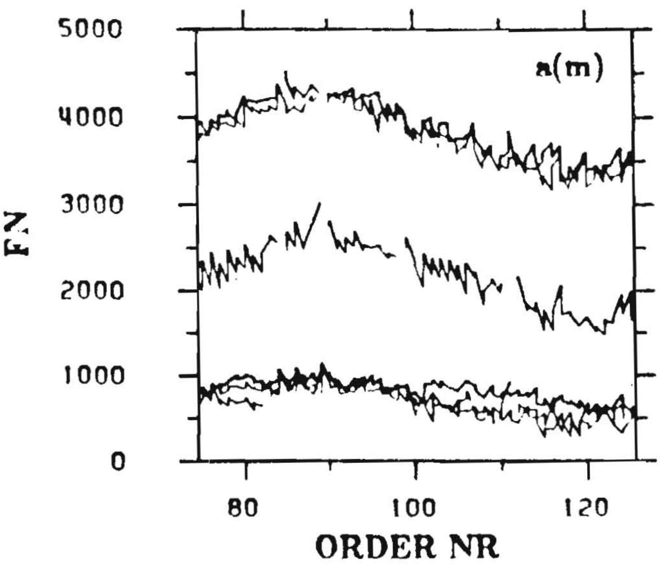


Figure 3a). Fit coefficient a(m) for the images SWP 1669, 5613, 5615, 9901, 13858, 14687.

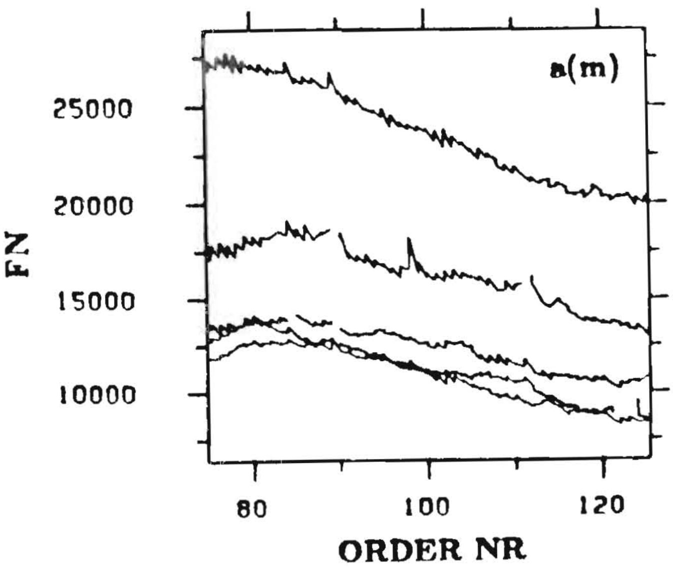


Figure 3b). Fit coefficient a(m) for the images SWP 16746, 16761, 21750, 22841, 23624

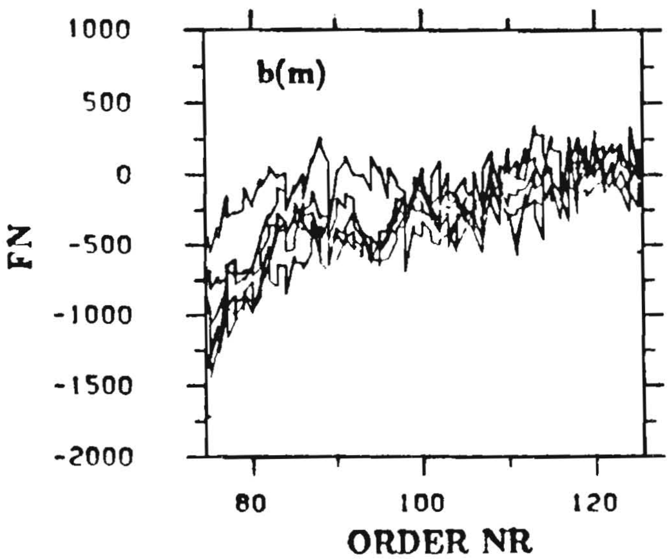


Figure 4a). Fit coefficient b(m) for the same images as in figure 3a.

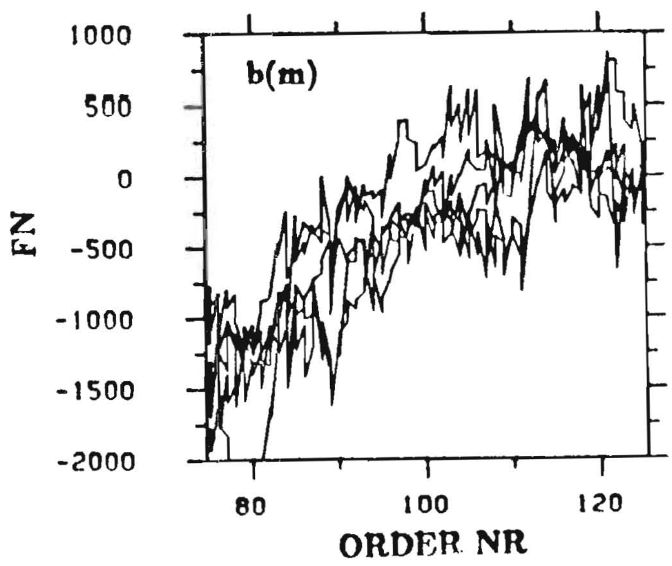


Figure 4b). Fit coefficient b(m) for the same images as in figure 3b.

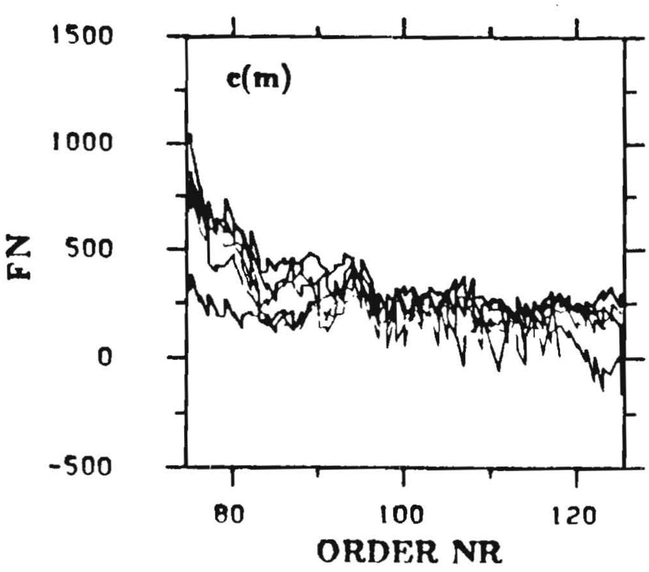


Figure 5a). Fit coefficient c(m) for the same images as in figure 3a.

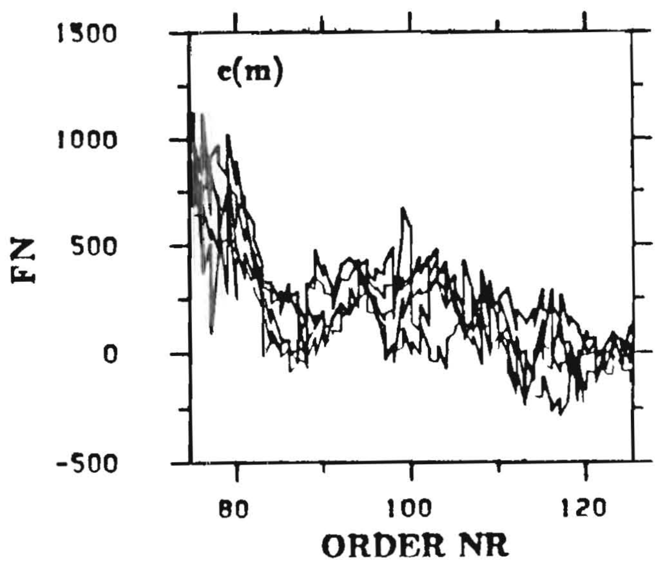


Figure 5b). Fit coefficient c(m) for the same images as in figure 3b.

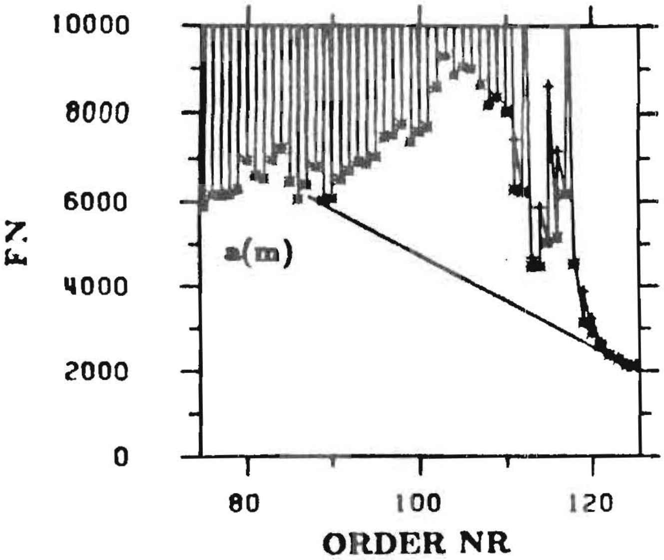


Figure 6a). Fit coefficient a(m) for the image SWP 4086. '*' indicate coefficients of the background fits; '+' indicate fits to the gross spectrum.

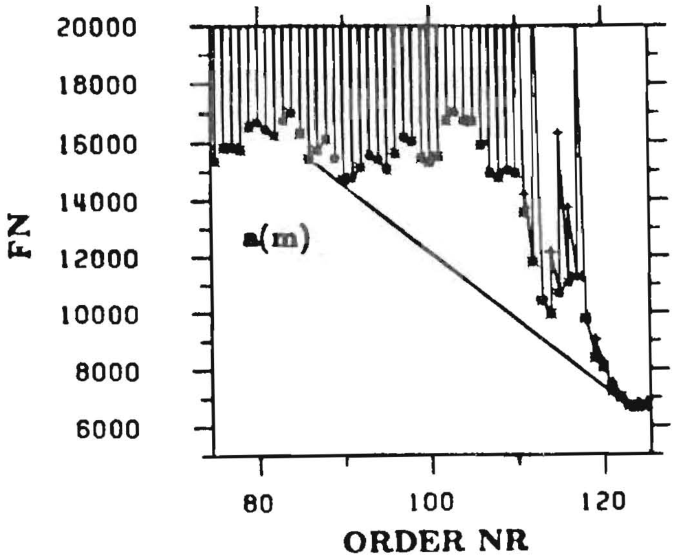


Figure 6b). Fit coefficient a(m) for the images SWP 22861. '*' indicate coefficients of the background fits; '+' indicate fits to the gross spectrum.

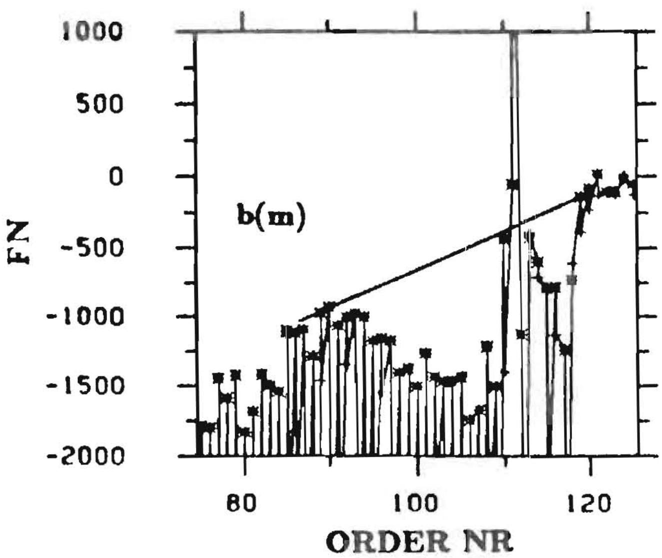


Figure 7a). Fit coefficient b(m) for the same image as in figure 6a.

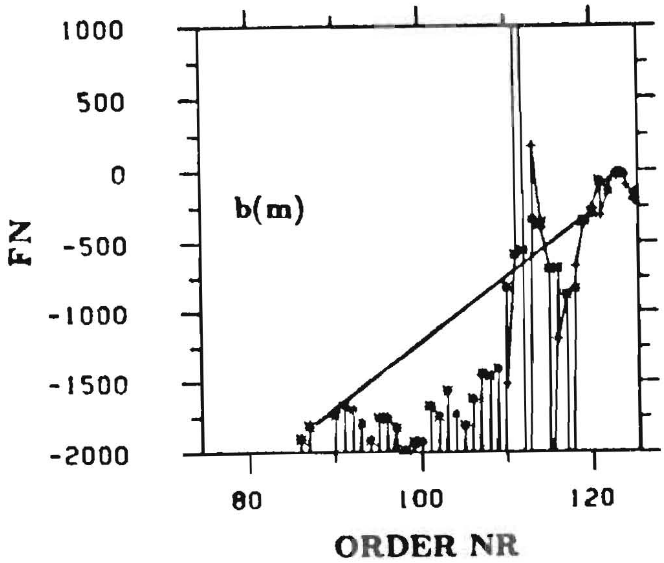


Figure 7b). Fit coefficient b(m) for the same image as in figure 6b.

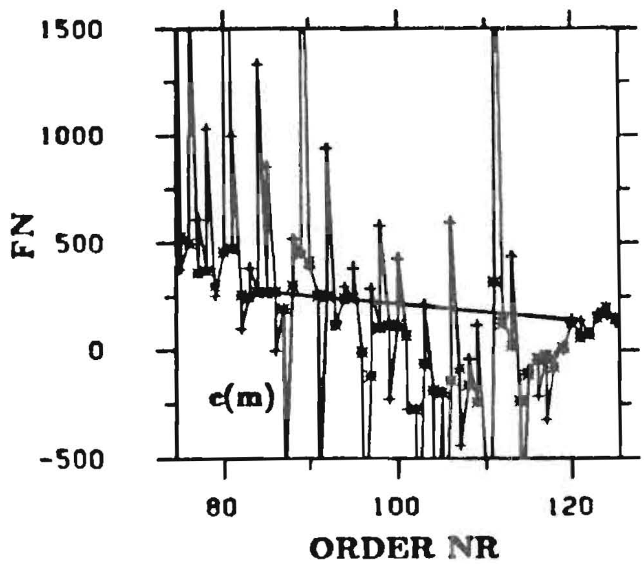


Figure 8a). Fit coefficient c(m) for the same image as in figure 6a.

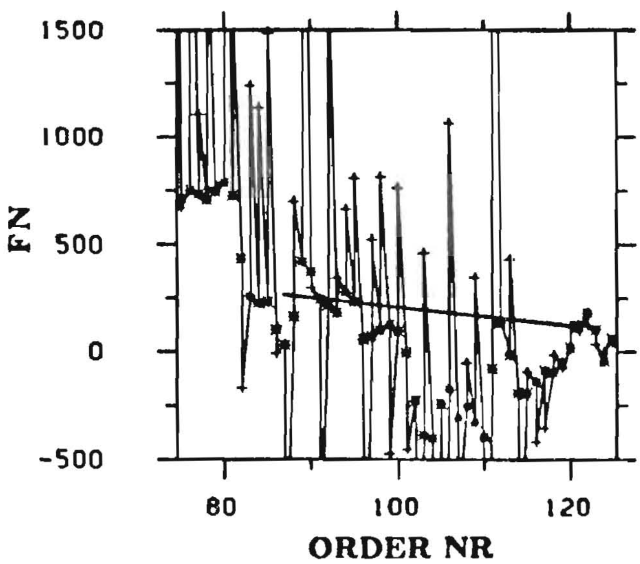


Figure 8b). Fit coefficient c(m) for the same image as in figure 6b.

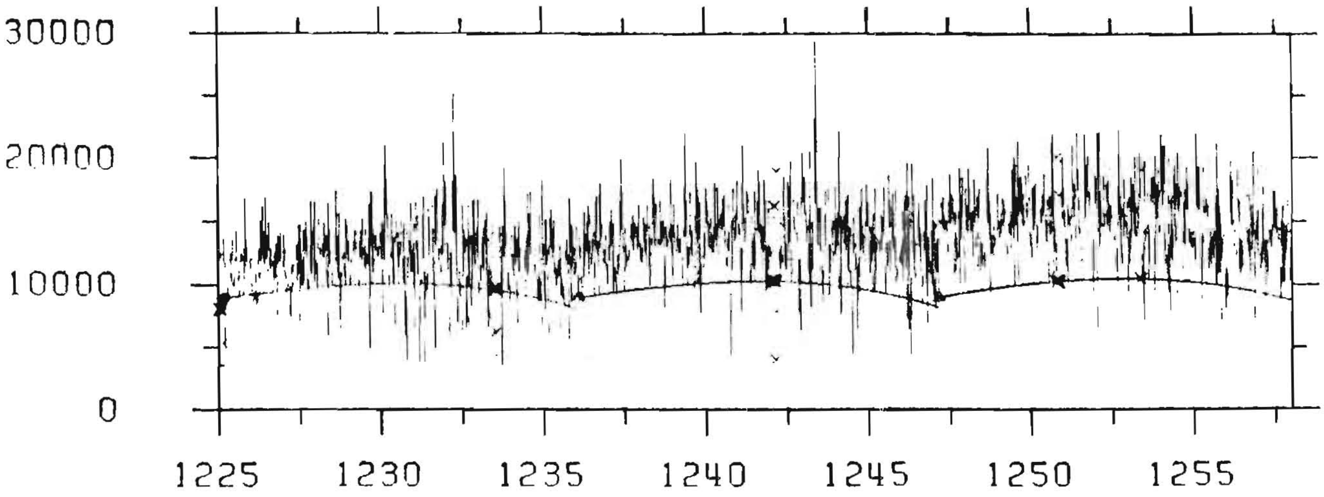


Figure 9. Orders number 112, 111 and 110 of the background spectrum of SWP 22861 (thin line) and the estimated true background (thick line).

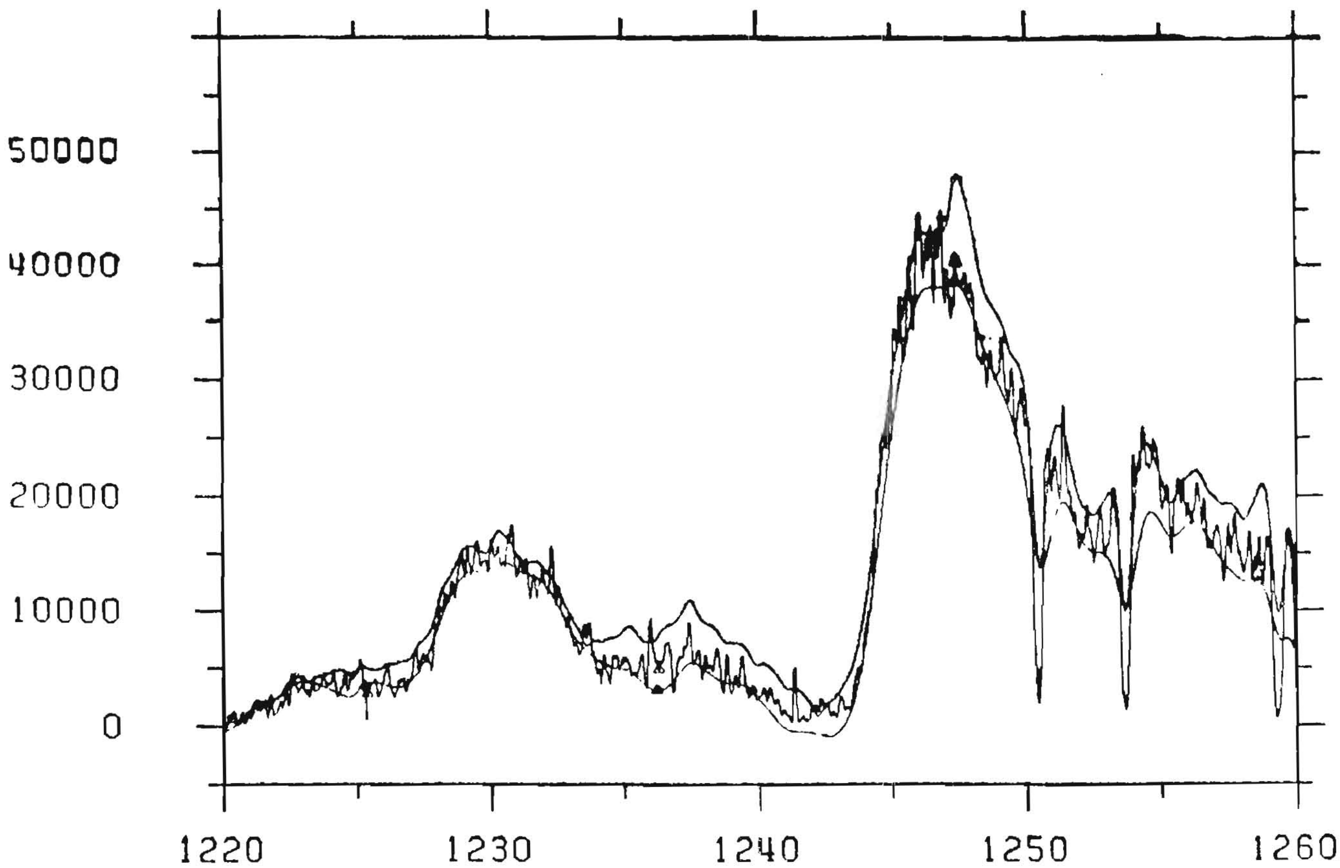


Figure 10. Orders number 112, 111 and 110 of SWP 22861. Lower smooth line: smoothed net flux from standard IUE data reduction; upper smooth line: estimated background subtracted from the smoothed gross spectrum; middle unsmoothed line: deconvolved image according to Ramella et al. (1983) with subtracted estimated background.

```
##############################################
#                                            #
#       VILSPA PUBLICATIONS LIST             #
#                                            #
#           IN MAIN JOURNALS                 #
#                                            #
#                                            #
#     Published 1 Oct - 31 Dec 1984          #
#                                            #
##############################################
```

This list contains all Vilspa papers that have appeared betweeen the above dates in major refereed journals (Mon. Not. R. astr. Soc., Astron. Astrophys., Astrophys. J.) and which originate from Europe. While the origin of the data is the main criterion for inclusion in this list, the affiliation of the authors is also taken into consideration. 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.

We remind users that, in any publications resulting from IUE data, whether it be from their own allocated shifts or data released from the Archive, they should acknowledge the use of the IUE Satellite and the Agency - ESA, NASA or SERC as appropriate, in a footnote on the title page. The following are examples of some of the possibilities.

Based on observations by the International Ultraviolet Explorer, collected at Villafranca Satellite Tracking Station of the European Space Agency. (In the case of one's own observations).

Based on data from the International Ultraviolet Explorer, de-archived from the Villafranca Data Archive of the European Space Agency. (In the case of archive data).

Maraschi, L, Treves, A., Tanzi, E.G., Mouchet, M., Lauberts, A., Motch, C., Bonnet-Bidaud, J.M., Phillips, M.M.
Coordinated UV and optical observations of the AM Herculis object E1405-451 in the high and low states
Astrophys. J., 285, 214-222, 1984

de Loore, C., Giovannelli, F., van Dessel, E.L., Bartolini, C., Burger, M., Ferrari-Toniolo, M., Giangrande, A., Guarnieri, A., Hellings, P., Hensberge, H., Persi, P., Piccioni, A., Van Diest, H.
Multispectral analysis in the UV, optical and IR of HDE 245770=A 0535+26
Astron. Astrophys., 141, 279-296, 1984

Castelli, F., Cornachin, M., Hack, M., Morossi, C.
The chemical composition of the He-w Bp star HR 6000
Astron. Astrophys., 141, 223-226, 1984

Stahl, O., Wolf, B., Leitherer, C., Zickgraf, F.-J., Krautter, J., de Groot, M.
Variable blue supergiants in the Large Magellanic Cloud: R84, R85, and R99
Astron. Astrophys., 140, 459-467, 1984

Catala, C., Talavera, A.
The presence of Si^{3+} and C^{3+} in the wind of AB Aur
Astron. Astrophys., 140, 421-426, 1984

Persic, M., Hack, M., Selvelli, P.L.
The UV variations of the symbiotic star CH Cygni from 1978 to 1981
Astron. Astrophys., 140, 317-324, 1984

Brosch, N., Gondhalekar, P.M.
Gas in cosmic voids
Astron. Astrophys., 140, L43-L46, 1984

Cugier, H., Molaro, P.
Accretion of mass in Algol
Astron. Astrophys., 140, 105-111, 1984

Hamann, W.-R., Kudritzki, R.-P., Mendez, R.H., Pottasch, S.R.
Mass loss from the central star of NGC 3242
Astron. Astrophys., 139, 459-463, 1984

Cacciari, C., Caloi, V., Castellani, V., Fusi Pecci, F.
IUE observations of UV bright stars in the globular clusters M15 and ω Cen
Astron. Astrophys., 139, 285-288, 1984

Clarke, J.T., Bowyer, S., Fahr, H.-J., Lay, G.
IUE high resolution spectrophotometry of H Lyα emission from the local interstellar medium
Astron. Astrophys., 139, 389-393, 1984

Molaro, P., Beckman, J.
An upper limit to the abundance of Be in the Population II star HD 76932 from a high resolution spectrum with IUE
Astron. Astrophys., 139, 394-400, 1984

Lanz, T.
Bolometric corrections for peculiar B-type stars
Astron. Astrophys., 139,161-170, 1984

Keenan, F.P., Dufton, P.L.
The masses of early-type stars in the galactic halo determined from ultraviolet resonance line profiles
Astron. Astrophys., 139, 227-229, 1984

Pwa, T.H., Mo, J.E., Pottasch, S.R.
Nebular and interstellar absorption lines in planetary nebulae: the case of NGC 6543
Astron. Astrophys., 139, L1-L4, 1984

Feitzinger, J.V., R.W. Hanuschik, Schmidt-Kaler, Th.
The interstellar lines and the energetics of the inner 30 Doradus nebula from the ultraviolet spectrum of R 136a
Mon. Not. R. astr. Soc., 211, 867-882, 1984

Smith, L.J., Pettini, M., Dyson, J.E., Hartquist, T.W.
The remarkable kinematics of the WR wind-blown bubble RCW 58
Mon. Not. R. astr. Soc., 211, 679-693, 1984

Byrne, P.B., Doyle, J.G., Butler, C.J., Andrews, A.D.
Optical photometry and UV spectroscopy of the flare star GI 735 (=V1285 Aql)
Mon. Not. R. astr. Soc., 211, 607-616

Howarth, I.D.
An analysis of V861 Sco - II. The stellar wind
Mon. Not. R. astr. Soc., 211, 167-194, 1984

Snijders, M.A.J., Batt, T.J., Seaton, M.J., Blades, J.C., Morton, D.C.
Nova Aquilae 1982 - a short report
Mon. Not. R. astr. Soc., 211, 7P-13P, 1984

Gilmozzi, R., Murdin, P., Clark, D.H.
The velocity structure of the supernova remnant N 157B
Astron. Astrophys., 140, 390-392, 1984
(OBS)

```
#######################################
#                                     #
#    MERGED LOG OF IUE OBSERVATIONS   #
#                                     #
# 1 OCTOBER 1984 - 31 DECEMBER 1984   #
#                                     #
#######################################
```

The merged log of Vilspa and Goddard images for the above dates is listed in order of right ascension. (For non-standard images the information given can be incomplete.)

The programme reference codes (column 1) identifying the ESA and NASA programmes for the sixth round can be found in ESA IUE Newsletter No.16 p45 and p55 for ESA and NASA respectively, and for the seventh round in ESA IUE Newsletter No.19 p17 and 23.

The Object Classification Codes (column 3) and the Vilspa Exposure Classification Codes (column 16) are listed overleaf.

CLASSIFICATION OF OBJECTS USED IN THE JOINT ESA/SERC 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 (FRM 1FEB79)
49	M I-III (FROM 1 FEB79)
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 NEBULAR+CENTRAL STAR
71	PLANETARY NEBULAR-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

EXPOSURE CLASSIFICATION CODES
###############################

The exposure levels of Vilspa images are described by a 3-digit code listed in column 16 in the merged log.

DIGIT 1: EXPOSURE LEVEL OF CONTINUUM
DIGIT 2: EXPOSURE LEVEL OF EMISSION LINES
DIGIT 3: BACKGROUND LEVEL

The CONTINUUM and EMISSION are both classified as follows:-

0: NOT APPLICABLE
1: NO SPECTRUM VISIBLE
2: FAINT SPECTRUM: MAX DN < 20 ABOVE LOCAL BACKGROUND
3: UNDEREXPOSED: MAX DN < 100 ABOVE LOCAL BACKGROUND
4: WEAK: MAX DN BETWEEN 100 AND 150 ABOVE LOCAL BACKGROUND
5: GOOD: NO SATURATION BUT MAX DN OVER 150 ABOVE LOCAL 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

The BACKGROUND is classified in terms of a standard region of each camera outside the area affected by the high resolution orders. The value used is the mean DN given by a subset histogram approximately 10 pixels in width.

The BACKGROUND classification codes are:- (limits inclusive)

0 DN<20
1 21<DN<30
2 31<DN<40
3 41<DN<50
4 51<DN<60
5 61<DN<70
6 71<DN<80
7 81<DN<90
8 91<DN<100
9 DN>101
X SATURATED

NOTES

1) No exposure classification code was assigned to VILSPA images before 1 August 1978.

2) Prior to 1 Sept 1979, the BACKGROUND digit was not included and the ECC occupied the first two places in the comment line.

3) The Goddard images are described in the comments by the gross DN of the CONTINUUM (C), EMISSION LINES (E) and BACKGROUND (B).

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
PHCAL	NULL	99	9999	0000000	000000	L	1	04816		84111511	115530 000000	000000 000000		V HIGH GAIN READ
PHCAL	60% CALUV	99	9999	0000000	000000	L	1	04817		84111512	123157 000204	000000 000000		V UVC TEMP=38
PHCAL	NULL	99	9999	0000000	000000	L	3	24472		84111315	000000 000000	155000 000000		V LO GAIN READ
PHCAL	NULL	99	9999	0000000	000000	L	3	24471		84111315	000000 000000	153000 000000		V HIGH GAIN READ
PHCAL	NULL	99	9999	0000000	000000	L	3	24470		84111315	150900 000000	000000 000000		V
PHCAL	100%TFLOOD	99	9999	0000000	000000	L	1	04821		84111516	163223 000140	000000 000000		V
PHCAL	160 CALUV	99	9999	0000000	000000	H	2	17539		84111216	165334 000501	000000 000000		V READ ONLY
PHCAL	100%TFLOOD	99	9999	0000000	000000	H	2	17538		84111216	162119 000022	000000 000000		V
PHCAL	60% CALUV	99	9999	0000000	000000	H	2	17537		84111215	155512 000153	000000 000000		V UVT=38
PHCAL	160% CALUV	99	9999	0000000	000000	L	3	24469		84111314	000000 000000	144924 000451		V
PHCAL	120% CALUV	99	9999	0000000	000000	H	2	17536		84111215	152250 000346	000000 000000		V UVT=42
PHCAL	SERENDIPIT	99	9999	0000000	000000	H	2	17530		84110311	000000 000000	114205 040000	003	V FLARE CHECK UVC4.5KV
PHCAL	NULL	99	9999	0000000	000000	L	1	04592	L	84101620	000000 000000	202000 000000		V
GE038	NULL	99	9999	0000000	000000		3	24382		84110211	000000 000000	110500 000000	300	V RESIDUAL CHECK
GE038	NULL	99	9999	0000000	000000		4	01179		84110211	000000 000000	112700 000000	00X	V SAFETY RD. TFDC=19.3
PHCAL	NULL	99	9999	0000000	000000	H	1	04714		84110300	000000 000000	183900 000000		V TURN ON
PHCAL	NULL	99	0311	0000000	000000	H	2	17511		84101500	000000 000000	150510 000000	003	V SWITCH ON
PHCAL	100%TFLOOD	99	9999	0000000	000000	L	3	24468		84111314	000000 000000	141846 000016		V TFLOOD
PHCAL	SERENDIPIT	99	9999	0000000	000000	L	2	17513	L	84101516	000000 000000	164852 012000	003	V FLARE CHECK
PHCAL	NULL	99	9999	0000000	000000		2	17525		84103113	000000 000000	133000 000000		V 4.5 KV UVC EHT
PHCAL	NULL	99	9999	0000000	000000	H	2	17533		84111213	135300 000000	000000 000000		V BASELINE HIGH READ
PHCAL	NULL	99	9999	0000000	000000	L	2	17563		84122110	000000 000000	100000 000000		V DEGAS
PHCAL	NULL	99	9999	0000000	000000	H	1	05051		84122115	000000 000000	155000 000000		V AFTER TURNON
PHCAL	NULL	99	1058	0000000	000000	L	1	04687		84103116	000000 000000	164000 000000		V
PHCAL	60% CALUV	99	9999	0000000	000000	L	3	24467		84111313	000000 000000	135424 000149		V UVT=35
PHCAL	120% CALUV	99	9999	0000000	000000	L	3	24466		84111313	000000 000000	132315 000338		V UVT=38
PHCAL	20% CALUV	99	9999	0000000	000000	L	3	24465		84111312	000000 000000	125705 000036		V UVTEMP=32
PHCAL	60% CALUV	99	9999	0000000	000000	L	3	24464		84111312	000000 000000	122908 000149		V UVT=34
PHCAL	NULL	99	9999	0000000	000000	L	4	01180		84121310	000000 000000	101500 000007	004	V SAFETY READ TFDC=19.
PHCAL	NULL	99	9999	0000000	000000	L	3	24463		84111312	000000 000000	120100 000000		V HI GAIN READ
PHCAL	SERENDIPIT	99	9999	0000000	000000	L	2	17512	L	84101515	000000 000000	153543 003000	002	V FLARE CHECK
PHCAL	20%CALUV	99	9999	0000000	000000	L	1	04818		84111513	130651 000041	000000 000000		V UVC=36
PHCAL	60% CALUV	99	9999	0000000	000000	H	2	17534		84111214	142526 000153	000000 000000		V UVT=38
PHCAL	NULL	99	9999	0000000	000000	L	1	04791		84111218	182000 000000	000000 000000		V TURN ON NULL
PHCAL	NULL	99	9999	0000000	000000	H	2	17542		84111217	175300 000000	000000 000000		V LO GAIN READ
PHCAL	LWR FLARE	99	9999	0000000	000000	L	2	17524	L	84101619	000000 000000	195833 002000	000	V
PHCAL	LWR FLARE	99	9999	0000000	000000	L	2	17523		84101617	000000 000000	172059 012000	003	V
PHCAL	20% CALUV	99	9999	0000000	000000	H	2	17535		84111214	145435 000038	000000 000000		V UVT=36
PHCAL	120%CALUV	99	9999	0000000	000000	L	1	04819		84111513	134803 000408	000000 000000		V UVC=42
PHCAL	NULL	99	9999	0000000	000000	H	2	17541		84111217	173000 000000	000000 000000		V HI GAIN READ
PHCAL	NULL	99	9999	0000000	000000	H	2	17540		84111217	171000 000000	000000 000000		V SECOND READ
PHCAL	NULL IMAGE	99	9999	0000000	000000	L	1	04822		84111518	184700 000000	000000 000000		V
PHCAL	NULL	99	9999	0000000	000000		1	04591		84101519	000000 000000	192459 000000		V SWITCH ON LWP
PHCAL	60%CALUV	99	9999	0000000	000000	L	1	04820		84111515	155117 000204	000000 000000		V UVC=39
AFGJL	HD 400	41	0620	0006061	+362101	L	3	24285	L	84102422	000000 000000	221400 018000		G C=10X,B=40

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
AFGJL	HD 400	41	0620	0006061	+362101	H	1	04632	L	84102501	000000	000000	012000	003000		G	E=84,C=185,B=52
DSGTA	HD 432	40	0230	0006298	+585227	H	3	24127	L	84100609	000000	000000	094400	018500		G	E=178,C=50X,B=50X
DSGTA	HD 432	40	0230	0006298	+585227	L	3	24089	L	84100106	000000	000000	061600	015000		G	E=132,C=30
VVGJS	BD+63 0003	39	0980	0006477	+634032	L	1	04693	L	84110106	000000	000000	065400	002500		G	E=179,C=110,B=37
VVGJS	BD+63 0003	39	0980	0006477	+634032	L	3	24365	L	84110104	000000	000000	044600	012000		G	E=128,C=80,B=31
GM015	HD1048	74	0644	0012204	220024	H	1	04669	L	84102816	000000	000000	163513	001800	502	V	
GE125	NGC55#1	72	1348	0012300	-392913	L	1	04570	L	84101315	000000	000000	154529	028700	705	V	
GE125	NGC 55#1	72	1400	0012300	-392913	L	3	24159	L	84101116	000000	000000	160643	028000	501	V	
GC025	HD1581	44	0457	0017382	-650925	H	1	04914	L	84120313	000000	000000	131955	002400	721	V	
GC025	HD2151	44	0313	0023093	-773208	H	1	04915	L	84120314	000000	000000	142830	000800	732	V	
CCGFF	HD 3196	41	0520	0032404	-035204	L	3	24522	L	84112106	000000	000000	065800	001500		G	E=192,C=2X,B=160
CCGFF	HD 3196	41	0520	0032404	-035204	H	1	04844	L	84112006	000000	000000	061900	002000		G	E=2X,C=2X,B=215
CCGFF	HD 3196	41	0520	0032404	-035204	H	1	04853	L	84112106	000000	000000	061500	002000		G	E=216,C=2X,B=152
PHCAL	HD 3360	20	0370	0034103	+533719	H	1	04601	L	84102110	000000	000000	103500	000021		G	C=250,B=59
PHCAL	HD3360	20	0376	0034103	533720	L	3	24545	L	84112311	000000	000000	115519	000000	500	V	TRAIL R=21.30,I=1
PHCAL	HD 3360	21	0370	0034103	+533719	L	1	05042	SL	84122005	053800	000001	053300	000001		G	C=2X,B=35
PHCAL	HD 3360	20	0370	0034103	+533719	H	3	24251	L	84102110	000000	000000	103100	000024		G	C=210,B=45
PHCAL	HD3360	20	0375	0034103	533720	L	1	04777	L	84111018	000000	000000	180949	000000	501	V	R=20.83 I=1,T=0.9601
PHCAL	HD3360	20	0383	0034103	533720	L	1	04895	L	84112714	000000	000000	144213	000000	503	V	TRAIL R=20.83,I=1
PHCAL	HD 3360	21	0370	0034103	+533719	L	1	04866	L	84112208	000000	000000	084500	000000		G	C=1.5X,B=33
PHCAL	HD3360	20	0375	0034103	533720	L	3	24439	L	84111017	000000	000000	175716	000000	500	V	R=21.30 I=1 T=.93897
PHCAL	OO WAVCAL	98	9999	0034103	+533719	H	3	24535	S	84112207	074800	000200	000000	000000		G	E=50X,B=150
PHCAL	HD 3360	20	0370	0034103	+533719	H	2	17521	L	84101611	000000	000000	112700	000021		G	C=215,B=32
PHCAL	OO WAVCAL	98	9999	0034103	+533719	L	3	24534	S	84112207	072400	000002	000000	000000		G	E=10X,B=101
PHCAL	HD3360	20	0376	0034103	533720	L	1	04878	L	84112312	000000	000000	120515	000000	500	V	R=20.83 I=1
PHCAL	OO WAVCAL	98	9999	0034103	+533719	H	1	04865	S	84112207	071100	000016	000000	000000		G	E=50X,B=119
PHCAL	OO WAVCAL	98	9999	0034103	+533719	L	1	04864	S	84112206	064000	000001	000000	000000		G	E=10X,B=101
PHCAL	HD3360	20	0376	0034103	533720	L	1	04879	L	84112312	000000	000000	123914	000003	800	V	TRAIL R=6.0 I=1
PHCAL	HD 3360	21	0370	0034103	+533719	L	1	05041	SL	84122004	045800	000001	045400	000001		G	C=1.5X,B=37
PHCAL	HD3360	20	0379	0034103	533720	L	3	24572	L	84112714	000000	000000	140616	000000	400	V	TRAIL R=21.3 I=1
GE136	ESO350IG38	88	1424	0034256	-334947	L	3	24158	L	84101016	000000	000000	161020	027700	352	V	
MLGPM	OOM31CFHT3	13	1760	0036172	+402347	D	9	01602	L	84112609	000000	000000	095200	016000		G	NO COMMENTS
MLGPM	OOM31CFHT3	13	1760	0037494	+402843	L	1	04892	L	84112701	000000	000000	011900	097500		G	C=1.5X,B=156
MLGPM	OOM31CFHT3	07	1760	0037494	+402843	L	3	24564	L	84112701	000000	000000	012100	095000		G	C=170,B=140
GE073	M31-CFHT3	13	1750	0037495	402843	D	9	01603	2	84112617	000000	000000	174000	002000		V	FOR LWP 4892
ZAGNO	HD 4174	57	0750	0041527	+402423	L	1	04942	L	84120807	000000	000000	070900	000115		G	E=152,C=93,B=56
ZAGNO	HD 4174	57	0750	0041527	+402423	L	3	24097	SL	84100205	061800	000700	055600	001500		G	E=4X,C=90
ZAGNO	HD 4174	57	0750	0041527	+402423	L	1	04941	L	84120805	000000	000000	054800	000500		G	E=2.0X,C=145,B=80
ZAGNO	HD 4174	57	0750	0041527	+402423	L	3	24635	L	84120806	000000	000000	060000	000500		G	E=1.5X,C=95,B=68
ZAGNO	HD 4174	57	0750	0041527	+402423	L	1	04478	SL	84100206	070400	000700	063100	002000		G	E=3X,B=185
HSGDB	HD 5737	27	0440	0056119	-293738	H	3	24750	L	84122601	000000	000000	013600	000300		G	C=2X,B=46
CCGAD	HD 6833	47	0680	0106510	+542821	H	1	04486	L	84100221	000000	000000	214100	042900		G	E=196,C=190,B=105
LGGTS	HD 6903	45	0550	0107084	+192331	L	3	24607	L	84120401	000000	000000	015300	007500		G	E=208,C=220,B=27
LGGTS	HD 6903	45	0550	0107085	+192332	L	3	24595	L	84120201	000000	000000	013800	007500		G	E=103,C=210,B=35
LGGTS	HD 6903	45	0550	0107085	+192332	L	3	24565	L	84112703	000000	000000	032900	007500		G	E=89,C=200,B=41

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
LGGTS	HD 6903	45	0550	0107085	+192332	L	3	24591	L	84120102	000000 000000	025800 007500		G E=103,C=215,B=20
LGGTS	HD 6903	45	0550	0107085	+192332	L	3	24574	L	84112803	000000 000000	032400 007500		G E=92,C=210,B=45
LGGTS	HD 6903	47	0550	0107085	+192332	D	9	01605	L	84112904	000000 000000	041700 016000		G NO COMMENTS
LGGTS	HD 6903	45	0550	0107085	+192332	L	3	24582	L	84113003	000000 000000	034000 007500		G E=103,C=207,B=25
LGGTS	HD 6903	45	0550	0107085	+192332	L	3	24578	L	84112904	000000 000000	042900 007500		G E=106,C=208,B=35
LGGTS	HD 6903	45	0550	0107085	+192332	D	9	01606	L	84112904	000000 000000	041700 016000		G
GQ052	ESO113IG45	84	1330	0121511	-590358	L	3	24345	L	84102919	000000 000000	191129 009100	351	V
GQ052	ESO113IG45	84	1330	0121512	-590359	L	3	24291	L	84102514	000000 000000	141529 012000	352	V
GQ052	ESO113G45	84	1330	0121512	-590359	L	1	04639	L	84102516	000000 000000	162010 012000	352	V
GQ052	ESO113IG45	84	1330	0121512	-590359	L	3	24254	L	84102118	000000 000000	180327 009000	342	V
GQ052	ESO113	84	1445	0121512	-590359	L	3	24193	L	84101719	000000 000000	195400 004800	241	V
GQ052	ESO113IG45	84	1330	0121512	-590359	L	1	04603	L	84102119	000000 000000	193944 006408	333	V
NEGRD	00 SMC N88	72	0030	0122547	-732453	D	9	01617	L	84121717	000000 000000	174800 002000		G NO COMMENTS
NEGRD	00 SMC N88	72	0000	0122548	-732453	H	1	05023	L	84121717	000000 000000	175600 031500		G C=193,B=145
NEGRD	00 SMC N88	72	0030	0122548	-732453	H	3	24701	L	84121517	000000 000000	175300 042500		G C=220,B=116
MLGPM	00 SKY BKG	07	9999	0130117	+301942	L	1	04891	L	84112518	000000 000000	185000 044000		G B=158
GE073	M33-B38	13	1700	0130117	301942	E	9	01601	2	84112517	000000 000000	173700 016000		V FOR SWP24561+LWP4891
MLGPM	00 M33B38	13	1730	0130118	+301941	L	3	24561	L	84112511	000000 000000	110400 094500		G C=230,B=143
MLGPM	00 M33B38	13	1730	0130118	+301941	D	9	01600	L	84112510	000000 000000	104400 002000		G NO COMMENTS
GE109	NGC 604	72	1400	0131429	303142	L	3	24508	L	84111912	000000 000000	121548 009000	330	V
GE109	NGC 604	72	9999	0131429	303142	E	9	01599	2	84111900	000000 000000	000000 004000		V FOR SWP 24508
GE109	NGC 604	72	1550	0131438	303141	L	3	24509	L	84111914	000000 000000	141416 026000	432	V
GHGLH	BD+32 0270	20	1030	0132000	+324032	H	3	24458	L	84111219	000000 000000	193100 018000		G C=207,B=60
ZAGNO	00 AX PER	57	1050	0133050	+540000	L	1	04479	L	84100208	000000 000000	084700 000600		G E=228,C=80,B=45
ZAGNO	00 AX PER	57	1050	0133050	+540000	L	3	24098	SL	84100207	081700 001500	074700 002000		G E=1.5X,B=30
GI110	AX PER	57	1137	0133060	540018	L	3	24278	L	84102317	000000 000000	170925 003000	361	V
GI110	AX PER	57	1137	0133060	540018	L	1	04619	L	84102317	000000 000000	174509 002500	371	V
WDGFW	00ROSS 548	37	1410	0133442	-113544	L	3	24794	L	84123122	000000 000000	224600 008500		G C=160,B=105
WDGFW	00 R548	37	1410	0133442	-113544	L	3	24550	L	84112405	000000 000000	055800 007000		G C=200,B=165
LEGCS	HD 9826	41	0409	0133510	+410921	H	1	04730	L	84110508	000000 000000	085200 001100		G C=1.5X,B=80
GC243	UV CETI	48	1156	0136250	-181242	L	1	04926	L	84120608	000000 000000	084911 002000	133	V 2 SPECTRA 10 MIN
GC243	UV CETI	48	1156	0136250	-181242	L	3	24622	L	84120616	000000 000000	163334 001400	111	V
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	3	24618	L	84120606	000000 000000	062800 001400		G B=98
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	3	24615	L	84120507	000000 000000	075500 001500		G B=68
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	1	04925	L	84120607	000000 000000	071800 001000		G B=130
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	3	24619	L	84120608	000000 000000	080500 001000		G B=60
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	1	04921	L	84120507	000000 000000	070000 001500		G B=130
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	3	24614	L	84120505	000000 000000	052900 005000		G B=112
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	1	04920	L	84120504	000000 000000	043200 003000		G E=90,B=39
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	3	24613	L	84120503	000000 000000	031200 006000		G B=20
FSGBH	00 GL65AB	52	1250	0136329	-181229	D	9	01610	L	84120608	000000 000000	084600 016000		G NO COMMENTS
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	3	24617	L	84120603	000000 000000	032900 006000		G B=40
FSGBH	00 GL65AB	52	1250	0136329	-181229	L	1	04924	L	84120604	000000 000000	044500 003000		G B=86
PMGJL	HD 10380	47	0444	0138495	+051406	H	1	04902	L	84112906	000000 000000	062100 004000		G E=208,C=172,B=123
XBGJR	00H0139-68	54	1500	0139374	-680831	L	3	24762	L	84122723	000000 000000	232200 010400		G E=83,C=58,B=41

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
XBGJR	OOH0139-68	54	1500	0139374	-680831	L	1	05087	L	84122718	000000 000000	185600 009000		G E=126,C=100,B=46
XBGJR	OOH0139-68	54	1500	0139374	-680831	L	3	24761	L	84122720	000000 000000	203100 005500		G E=55,C=50,B=23
XBGJR	OOH0139-68	54	1500	0139374	-680831	L	3	24760	L	84122717	000000 000000	174500 005000		G B=20
XBGJR	OOH0139-68	54	1500	0139374	-680831	L	3	24764	L	84122805	000000 000000	053000 005500		G E=108,C=105,B=30
XBGJR	OOH0139-68	54	1500	0139374	-680831	L	1	05089	L	84122802	000000 000000	021600 005500		G E=93,C=75,B=41
XBGJR	OOH0139-68	54	1500	0139374	-680831	L	1	05090	L	84122804	000000 000000	044800 003500		G E=136,C=127,B=100
XBGJR	OOH0139-68	54	1500	0139374	-680831	L	1	05088	L	84122721	000000 000000	213000 010000		G E=145,C=105,B=58
XBGJR	OOH0139-68	54	1500	0139374	-680831	L	3	24763	L	84122803	000000 000000	031800 008000		G E=98,C=75,B=50
GC025	HD10700	44	0383	0141450	-161200	H	1	04912	L	84120309	000000 000000	094537 002000	741	V
LEGTS	HD 11443	41	0350	0150134	+292010	L	3	24603	L	84120308	000000 000000	084700 000130		G E=33,C=150,B=20
LEGTS	HD 11443	41	0350	0150134	+292010	L	3	24575	L	84112805	000000 000000	052000 001000		G E=75,C=5X,B=19
PMGJL	HD 11937	45	0370	0154008	-515126	L	3	24419	L	84110819	000000 000000	195100 018000		G E=1.5X,C=2X,B=25
GC024	HD12533	47	0156	0200492	420527	L	3	24282	L	84102415	000000 000000	150133 007500	99	V REF POINT (-30,-204)
CCGJL	HD 13136	49	0780	0206484	+561925	D	9	01589	L	84101021	000000 000000	215000 016000		G NO COMMENTS
CCGJL	HD 13136	49	0780	0206484	+561925	L	1	04543	L	84101022	000000 000000	220300 042000		G E=1.5X,C=190,B=112
CSGHJ	HD 16115	50	0820	0232392	-093939	H	1	04901	L	84112819	000000 000000	195000 042000		G C=198,B=108
LDGDS	HD 16160B	48	1160	0233310	+063800	L	1	05079	L	84122707	000000 000000	073200 007200		G B=42
LEGTS	HD 16620	41	0484	0237085	-120459	L	3	24608	L	84120403	000000 000000	035700 007500		G E=96,C=10X,B=30
GQ186	NG 1052	86	1200	0238372	-082808	L	3	24581	L	84112920	000000 000000	203000 038000		G E=1.2X,C=93,B=57
OBGGS	HD 16978	22	0410	0238488	-682851	H	3	24455	L	84111209	000000 000000	092200 000450		G C=2.0X,B=57
OBGGS	HD 16978	22	0410	0238488	-682851	H	1	04789	L	84111209	000000 000000	091600 000145		G C=215,B=50
CBGMP	HD 17034	66	0850	0242190	+475600	L	3	24310	L	84102701	000000 000000	010200 001500		G E=122,C=150,B=21
CBGMP	HD 17034	66	0850	0242190	+475600	L	1	04655	L	84102701	000000 000000	013800 000600		G C=240,B=34
CBGMP	HD 17034	66	0850	0242190	+475600	L	3	24309	L	84102623	000000 000000	235100 003000		G E=165,C=130,B=30
CBGMP	HD 17034	66	0850	0242190	+475600	L	3	24308	L	84102622	000000 000000	220900 006000		G E=191,C=90,B=37
CBGMP	HD 17034	66	0850	0242190	+475600	L	1	04653	L	84102623	000000 000000	231600 002000		G C=130,B=30
CBGMP	HD 17034	66	0850	0242190	+475600	L	1	04654	L	84102700	000000 000000	002800 001200		G C=255,B=32
LEGTS	HD 17206	41	0450	0242461	-184659	L	3	24592	L	84120105	000000 000000	051200 010000		G E=140,C=8X,B=45
OD56K	HD 17878	39	0400	0250418	+523333	H	1	04872	L	84112303	000000 000000	035100 001500		G C=1.1X,B=46
OD56K	HD 17878	39	0400	0250418	+523333	L	3	24540	L	84112303	000000 000000	034700 000100		G C=203,B=19
CCGFF	HD 17878	39	0400	0250418	+523333	L	3	24523	L	84112108	000000 000000	082900 000100		G C=162,B=55
OD56K	HD 17878	39	0400	0250418	+523333	L	3	24536	L	84112209	000000 000000	093500 000140		G C=135,B=23
OD56K	HD 17878	39	0400	0250418	+523333	H	1	04868	L	84112210	000000 000000	104100 000900		G C=155,B=40
CCGFF	HD 17878	39	0400	0250418	+523333	H	1	04847	L	84112010	000000 000000	101100 002200		G E=210,C=2X,B=120
OD56K	HD 17878	39	0400	0250418	+523333	L	1	04867	L	84112210	000000 000000	101100 000016		G C=230,B=37
CCGFF	HD 17878	39	0400	0250418	+523333	H	1	04829	L	84111802	000000 000000	022900 002200		G C=1.5X,B=72
CCGFF	HD 17878	39	0400	0250418	+523333	L	3	24502	L	84111902	000000 000000	024200 000100		G C=190,B=16
CCGFF	HD 17878	39	0400	0250418	+523333	L	3	24515	L	84112010	000000 000000	100400 000100		G C=200,B=18
OD56K	HD 17878	39	0400	0250418	+523333	L	1	04873	L	84112304	000000 000000	044500 000014		G C=1.5X,B=35
EGGSL	NG 1140	82	1300	0252079	-101352	L	3	24623	L	84120618	000000 000000	180000 018000		G C=140,B=40
EGGSL	NG 1140	82	1300	0252079	-101352	L	3	24624	L	84120621	000000 000000	213500 018500		G C=187,B=93
GC243	GL 118.2	46	0777	0252411	264027	L	3	24629	L	84120710	000000 000000	100043 003000	110	V
GC243	GL 118.2	46	0780	0252411	264027	L	1	04933	L	84120709	000000 000000	093725 001000	501	V
GC024	HD20644	47	0473	0317185	285207	L	3	24718	L	84121913	000000 000000	134749 018000	221	V
GI082	HD21790	22	0507	0328080	-051443	H	3	24525	L	84112112	000000 000000	121229 000900	700	V

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
GI082	HD21790	22	0485	0328080	-051443	H	1	04856	L	84112111	000000	000000	115746	000800	701	V	
GI082	HD21790	22	0493	0328080	-051443	H	3	24553	L	84112412	000000	000000	120832	000530	500	V	
GI082	HD21790	22	0493	0328080	-051443	H	1	04884	L	84112412	000000	000000	121817	000530	701	V	
HSGDB	HD 21699	21	0547	0328359	+475115	H	3	24751	L	84122602	000000	000000	022600	000700		G	C=230,B=40
GC171	HD22468	53	0610	0334129	002532	H	3	24722	L	84122010	000000	000000	102122	038500	262	V	
GC171	HD22468	53	0611	0334129	002532	H	1	05046	L	84122009	000000	000000	095513	002000	361	V	
GC171	HD22468	53	0608	0334130	002600	L	3	24686	L	84121413	000000	000000	130008	004000	341	V	
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04987	L	84121322	000000	000000	222800	003500		G	E=2X,C=122,B=47
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04986	L	84121320	000000	000000	205200	003500		G	E=2X,C=115,B=41
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04985	L	84121319	000000	000000	192600	003500		G	E=2X,C=115,B=40
RSGJL	00 WAVECAL	98	9999	0334130	+002600	H	3	24675	S	84121319	191800	000018	000000	000000		G	E=5X,B=114
RSGJL	HD 22468	46	0580	0334130	+002600	H	3	24674	L	84121317	000000	000000	173400	042000		G	E=130,B=92
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04984	L	84121316	000000	000000	165700	003000		G	E=2X,C=108,B=37
GC171	HD22468	53	0605	0334130	002600	L	3	24685	L	84121411	000000	000000	113215	004000	341	V	
GC171	HD22468	53	0603	0334130	002600	L	3	24684	L	84121410	000000	000000	101858	004000	341	V	
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24692	L	84121422	000000	000000	225200	003000		G	E=178,C=70,B=35
GC171	HD22468	53	0602	0334130	002600	L	3	24683	L	84121409	000000	000000	090435	004000	341	V	
GC171	HD22468	53	0604	0334130	002600	H	1	04998	L	84121416	000000	000000	161129	002000	361	V	
GC171	HD22468	53	0602	0334130	002600	H	1	04997	L	84121413	000000	000000	134841	002000	361	V	
GC171	HD22468	53	0605	0334130	002600	H	1	04996	L	84121412	000000	000000	122025	002000	361	V	
GC171	HD22468	53	0603	0334130	002600	H	1	04995	L	84121411	000000	000000	110402	002000	351	V	
GC171	HD22468	53	0604	0334130	002600	H	1	04994	L	84121409	000000	000000	095010	002000	351	V	
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04991	L	84121406	000000	000000	060500	001500		G	E=1.3X,C=140,B=87
RSGJL	HD 22468	46	0580	0334130	+002600	D	9	01611	L	84121209	000000	000000	091900	016000		G	NO COMMENTS
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04970	L	84121205	000000	000000	051500	003500		G	E=2X,C=145,B=50
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24665	L	84121204	000000	000000	041900	005000		G	E=50,B=20
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04969	L	84121203	000000	000000	033800	003500		G	E=2X,C=130,B=34
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24664	L	84121202	000000	000000	024200	005000		G	E=197,C=80,B=20
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24681	L	84121406	000000	000000	062600	002500		G	E=168,C=110,B=76
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04992	L	84121407	000000	000000	070400	002000		G	E=2X,C=147,B=90
GC171	HD22468	53	0609	0334130	002600	L	3	24687	L	84121414	000000	000000	142542	010000	361	V	
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24691	L	84121421	000000	000000	212900	004000		G	E=244,C=80,B=25
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04968	L	84121202	000000	000000	020100	003500		G	E=2X,C=135,B=32
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04988	L	84121323	000000	000000	235800	003500		G	E=2X,C=135,B=58
GC171	HD22468	53	9999	0334130	002600	E	9	01612	2	84121311	000000	000000	115700	016000		V	FES FOR SWP24674
GC171	HD 22468	53	0612	0334130	002600	L	3	24673	L	84121309	000000	000000	090152	004000	441	V	
GC171	HD22468	53	0613	0334130	002600	H	1	04983	L	84121309	000000	000000	095000	003500	372	V	
GC171	HD22468	53	0608	0334130	002600	H	3	24667	L	84121210	000000	000000	101745	034200	363	V	
GC171	HD22468	53	0606	0334130	002600	H	1	04974	L	84121216	000000	000000	160526	004200	372	V	
GC171	HD22468	53	0619	0334130	002600	H	1	04973	L	84121208	000000	000000	085604	003500	363	V	STARTED AT GSFC
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24694	L	84121501	000000	000000	011800	003000		G	E=151,C=75,B=26
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24695	L	84121502	000000	000000	023200	003500		G	E=166,C=75,B=25
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24690	L	84121419	000000	000000	195600	004000		G	E=164,C=77,B=35
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24696	L	84121503	000000	000000	034900	003500		G	E=180,C=77,B=32
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24697	L	84121505	000000	000000	050600	003500		G	E=196,C=120,B=80

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24698	L	84121506	000000 000000	061800 002500	G	E=184,C=115,B=72
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24679	L	84121400	000000 000000	004700 004500	G	E=167,C=85,B=33
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24678	L	84121323	000000 000000	230200 005000	G	E=169,C=90,B=40
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04978	L	84121303	000000 000000	030500 003000	G	E=2X,C=115,B=40
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04979	L	84121304	000000 000000	041800 002500	G	E=1.5X,C=100,B=32
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24668	L	84121302	000000 000000	021800 004000	G	E=1.5X,C=80,B=18
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04977	L	84121301	000000 000000	014300 003000	G	E=2X,C=135,B=50
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24669	L	84121303	000000 000000	034400 002500	G	E=152,C=55,B=18
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24670	L	84121304	000000 000000	045600 003000	G	E=143,C=62,B=20
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04980	L	84121305	000000 000000	053300 003000	G	E=2X,C=140,B=66
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04981	L	84121306	000000 000000	064500 003000	G	E=2X,C=145,B=72
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24671	L	84121306	000000 000000	060900 003000	G	E=164,C=80,B=35
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24672	L	84121307	000000 000000	072000 003000	G	E=185,C=70,B=26
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04982	L	84121308	000000 000000	080200 003000	G	E=2X,C=120,B=40
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24676	L	84121320	000000 000000	200900 003500	G	E=121,C=69,B=31
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24677	L	84121321	000000 000000	213300 004000	G	E=138,C=74,B=32
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05000	L	84121419	000000 000000	191500 003500	G	E=2X,C=125,B=42
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05001	L	84121420	000000 000000	204300 003500	G	E=2X,C=123,B=42
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05002	L	84121422	000000 000000	221500 003000	G	E=2X,C=120,B=50
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05003	L	84121423	000000 000000	232900 003000	G	E=2X,C=135,B=60
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05004	L	84121500	000000 000000	004200 003000	G	E=2X,C=126,B=50
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05005	L	84121501	000000 000000	015700 003000	G	E=2X,C=130,B=52
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05006	L	84121503	000000 000000	031300 003000	G	E=2X,C=125,B=49
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05007	L	84121504	000000 000000	043000 003000	G	E=2X,C=160,B=82
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05008	L	84121505	000000 000000	054700 002500	G	E=2X,C=185,B=118
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	05009	L	84121506	000000 000000	065000 002500	G	E=2X,C=180,B=115
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24688	L	84121416	000000 000000	164500 004000	G	E=165,C=83,B=23
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04999	L	84121417	000000 000000	174700 003500	G	E=2X,C=125,B=42
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24682	L	84121407	000000 000000	073500 003000	G	E=152,C=90,B=43
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24689	L	84121418	000000 000000	182900 004000	G	E=201,C=78,B=25
RSGJL	HD 22468	46	0580	0334130	+002600	L	3	24693	L	84121500	000000 000000	000500 003000	G	E=177,C=75,B=40
RSGJL	HD 22468	46	0580	0334130	+002600	H	1	04993	L	84121408	000000 000000	081200 003000	G	E=2X,C=130,B=54
EGGSF	NG 1407	81	0920	0337570	-184424	L	3	24715	L	84121823	000000 000000	230600 010000	G	C=170,B=145
PMGJL	HD 23249	46	0350	0340510	-095553	H	1	04756	L	84110902	000030 000000	025300 002000	G	E=178,C=240,B=43
PMGJL	HD 23249	46	0350	0340510	-095553	L	3	24420	L	84110823	000000 000000	234100 018000	G	E=155,C=136,B=58
LEGCS	HD 23754	41	0423	0344416	-232346	H	1	04726	L	84110503	000000 000000	035000 001000	G	C=1.5X,B=45
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04470	L	84100105	000000 000000	052100 000145	G	C=4X,B=78
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04469	L	84100104	000000 000000	044600 000145	G	C=4X,B=74
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04462	L	84100100	000000 000000	002900 000145	G	C=4X,B=74
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04463	L	84100101	000000 000000	010700 000145	G	C=4X,B=73
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04464	L	84100101	000000 000000	014300 000145	G	C=4X,B=73
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04465	L	84100102	000000 000000	022200 000145	G	C=4X,B=73
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04466	L	84100102	000000 000000	025800 000145	G	C=4X,B=73
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04467	L	84100103	000000 000000	033700 000145	G	C=4X,B=74
IMGTS	OOZETA PER	23	0290	0350589	+314412	H	1	04468	L	84100104	000000 000000	041300 000145	G	C=4X,B=75

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
GA191	HZ4	37	1475	0352380	093834	L	3	24733	L	84122210	000000	000000	102222	021500	501	V
GA191	HZ4	37	1479	0352380	093834	L	3	24747	L	84122513	000000	000000	133843	019000	502	V
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04701	L	84110201	000000	000000	013900	000024		G C=2.5X,B=60
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24374	L	84110202	000000	000000	024200	000014		G C=230,B=40
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04708	L	84110209	000000	000000	092800	000024		G C=2.5X,B=60
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24380	L	84110209	000000	000000	092300	000014		G C=255,B=40
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24381	L	84110210	000000	000000	102400	000014		G C=255,B=43
PHCAL	HD24760	20	0276	0354294	395203	H	1	05085	L	84122715	000000	000000	154240	000007	501	V
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04709	L	84110210	000000	000000	102900	000024		G C=2.5X,B=60
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24373	L	84110201	000000	000000	013100	000014		G C=230,B=40
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04700	L	84110123	000000	000000	233500	000024		G C=2.5X,B=60
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24372	L	84110123	000000	000000	233100	000014		G C=230,B=40
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24371	L	84110122	000000	000000	223100	000012		G C=210,B=39
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04698	L	84110121	000000	000000	210800	000008		G C=215,B=41
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24370	L	84110121	000000	000000	210300	000010		G C=180,B=32
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24369	L	84110119	000000	000000	193200	000008		G C=158,B=30
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04699	L	84110122	000000	000000	223500	000024		G C=2.5X,B=59
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04702	L	84110202	000000	000000	024700	000024		G C=2.5X,B=59
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04697	L	84110119	000000	000000	194300	000008		G C=215,B=41
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24375	L	84110203	000000	000000	034100	000014		G C=235,B=40
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04703	L	84110203	000000	000000	034500	000024		G C=2.5X,B=55
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04704	L	84110204	000000	000000	044500	000024		G C=2.5X,B=57
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24376	L	84110204	000000	000000	044000	000014		G C=225,B=40
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24377	L	84110206	000000	000000	060400	000014		G C=233,B=40
PHCAL	HD24760	20	0290	0354294	395203	L	1	05086	L	84122716	000000	000000	161700	000000	500	V TRAIL R=51.28, I=1,
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04705	L	84110206	000000	000000	060800	000024		G C=2.5X,B=60
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24378	L	84110207	000000	000000	071500	000014		G C=23,B=18
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04706	L	84110207	000000	000000	072000	000024		G C=2.5X,B=57
OD31K	HD 24760	20	0300	0354294	+395202	H	3	24379	L	84110208	000000	000000	082000	000014		G C=230,B=40
OD31K	HD 24760	20	0300	0354294	+395202	H	1	04707	L	84110208	000000	000000	082500	000024		G C=2.5X,B=60
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24210	L	84101908	000000	000000	084600	000110		G C=235,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24231	L	84102008	000000	000000	083700	000110		G C=238,B=42
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24229	L	84102006	000000	000000	065700	000110		G C=235,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24228	L	84102006	000000	000000	062900	000110		G C=240,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24234	L	84102010	000000	000000	103200	000110		G C=1.1X,B=60
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24207	L	84101906	000000	000000	064000	000110		G C=230,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24213	L	84101912	000000	000000	120100	000110		G C=240,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24209	L	84101908	000000	000000	081800	000110		G C=230,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24206	L	84101906	000000	000000	061100	000110		G C=230,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24198	L	84101807	000000	000000	072600	000100		G C=205,B=35
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24212	L	84101911	000000	000000	113100	000110		G C=240,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24235	L	84102011	000000	000000	110100	000110		G C=250,B=50
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24237	L	84102012	000000	000000	123500	000110		G C=245,B=40
MLGCW	HD 24912	14	0400	0355429	+353859	H	3	24232	L	84102009	000000	000000	090700	000110		G C=240,B=45
GA039	HD24912	13	0408	0355430	353900	H	3	24238	L	84102013	000000	000000	130731	000110	501	V

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
GA039	HD24912	13	0419	0355430	353900	H	3	24223	L	84101918	000000	000000	185950	000110	551	V	
GA039	HD24912	13	0420	0355430	353900	H	3	24221	L	84101918	000000	000000	180515	000110	001	V	
GA039	HD24912	13	0420	0355430	353900	H	3	24222	L	84101918	000000	000000	183230	000110	551	V	
GA209	HD24912	13	0417	0355430	353856	H	3	24156	L	84100918	000000	000000	183002	000100	501	V	
GA039	HD24912	13	0406	0355430	353900	H	3	24246	L	84102019	000000	000000	193554	000110	501	V	
GA039	HD24912	13	0410	0355430	353900	H	3	24245	L	84102019	000000	000000	191019	000110	501	V	
GA039	HD24912	13	0419	0355430	353900	H	3	24215	L	84101914	000000	000000	140212	000110	551	V	
GA039	HD24912	13	0403	0355430	353900	H	3	24243	L	84102017	000000	000000	171608	000110	501	V	
GA039	HD24912	13	0417	0355430	353900	H	3	24219	L	84101916	000000	000000	162519	000110	551	V	
GA039	HD24912	13	0418	0355430	353900	H	3	24242	L	84102016	000000	000000	165024	000110	501	V	
GA039	HD24912	13	0418	0355430	353900	H	3	24218	L	84101915	000000	000000	155834	000110	551	V	
GA039	HD24912	13	0419	0355430	353900	H	3	24216	L	84101914	000000	000000	142825	000110	551	V	
GA191	LB227	37	1538	0406369	170004	L	1	05058	L	84122214	000000	000000	142729	014000	403	V	
GA191	LB227	37	1400	0406369	170004	L	3	24752	L	84122610	000000	000000	101147	032000	503	V	
GI178	VW HYI	54	0919	0409323	-712529	L	3	24301	L	84102614	000000	000000	143420	000040	500	V	
GI178	VW HYI	54	0914	0409323	-712529	L	3	24302	L	84102614	000000	000000	145857	000040	500	V	
GI178	VW HYI	54	0910	0409323	-712529	L	3	24300	L	84102614	000000	000000	140941	000040	500	V	
GI178	VW HYI	54	0984	0409323	-712529	L	1	04617	L	84102314	000000	000000	141403	000100	502	V	
GI178	VW HYI	54	0982	0409323	-712529	L	3	24276	L	84102314	000000	000000	141812	000110	500	V	
GI178	VW HYI	54	1218	0409323	-712529	L	3	24390	L	84110514	000000	000000	141316	001500	500	V	
GI178	VWHYI	54	1052	0409323	-712529	L	3	24131	L	84100620	000000	000000	203711	001139	300	V	
GI178	VW HYI	54	0893	0409323	-712529	L	3	24299	L	84102613	000000	000000	134335	000030	500	V	
GI178	VW HYI	54	0904	0409323	-712529	L	1	04648	L	84102615	000000	000000	152708	000025	501	V	
GI178	VWHYI	54	0907	0409323	-712529	L	1	04652	L	84102620	000000	000000	203459	000030	502	V	
GI178	VW HYI	54	1052	0409323	-712529	L	1	04510	L	84100620	000000	000000	202717	000700	550	V	
GI178	VW HYI	54	0923	0409323	-712529	L	1	04650	L	84102618	000000	000000	182831	000030	501	V	
GI178	VW HYI	54	0895	0409323	-712529	L	3	24303	L	84102615	000000	000000	152344	000035	500	V	
GI178	VW HYI	54	0905	0409323	-712529	L	3	24306	L	84102619	000000	000000	190615	007000	500	V	
GI178	VW HYI	54	0932	0409323	-712529	H	3	24305	L	84102616	000000	000000	161730	004900	401	V	24+7+18 MINS
GI178	VW HYI	54	0911	0409323	-712529	L	1	04649	L	84102616	000000	000000	165411	000100	500	V	2*30S(2-212)(-34-204
GI178	VW HYI	54	0976	0409323	-712529	L	1	04688	L	84103118	000000	000000	180836	000100	501	V	
GI178	VW HYI	54	0990	0409323	-712529	L	1	04520	L	84100714	000000	000000	140638	000130	600	V	
GI178	VW HYI	54	0920	0409323	-712529	L	1	04631	L	84102420	000000	000000	202853	000030	401	V	
GI178	VW HYI	54	1387	0409323	-712529	L	1	04773	L	84111012	000000	000000	125331	002500	442	V	
GI178	VW HYI	54	0919	0409323	-712529	L	3	24284	L	84102420	000000	000000	203247	000030	300	V	
GI178	VW HYI	54	0921	0409323	-712529	L	3	24304	L	84102615	000000	000000	155058	000040	500	V	
GI178	VW HYI	54	0988	0409323	-712529	L	3	24142	L	84100714	000000	000000	141124	000200	500	V	
GI178	VW HYI	54	1211	0409323	-712529	L	1	04734	L	84110513	000000	000000	135644	001000	501	V	
GI178	VW HYI	54	0899	0409323	-712529	L	1	04651	L	84102619	000000	000000	191109	000050	501	V	2*25S(-34-204)(2-212
GI178	VW HYI	54	1383	0409323	-712529	L	3	24415	L	84110812	000000	000000	124207	006000	500	V	
GI233	VWHYI	54	1415	0409323	-712529	L	1	04559	L	84101217	000000	000000	174908	010400	502	V	2X52 MINS IN LAP
GI233	VW HYI	54	1421	0409323	-712529	L	3	24166	L	84101219	000000	000000	194434	004500	330	V	
GI178	VW HYI	54	0969	0409323	-712529	L	3	24362	L	84103120	000000	000000	200518	000115	500	V	
GI178	VW HYI	54	0902	0409323	-712529	L	3	24295	L	84102520	000000	000000	203631	000040	500	V	
GI178	VWHYI	54	0912	0409323	-712529	L	3	24307	L	84102620	000000	000000	203821	000040	500	V	

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
GI178	VW HYI	54	1065	0409323	-712529	L	3	24148	L	84100813	000000	000000	134255	000300	500	V	
GI178	VW HYI	54	1399	0409323	-712529	L	1	04752	L	84110811	000000	000000	115411	004000	501	V	
GI178	VW HYI	54	1399	0409323	-712529	L	3	24435	L	84111011	000000	000000	115654	005000	430	V	
GI178	VW HYI	54	0973	0409323	-712529	L	3	24361	L	84103119	000000	000000	192159	000115	500	V	
GI178	VW HYI	54	0972	0409323	-712529	L	1	04690	L	84103119	000000	000000	192619	000100	501	V	
GI178	VW HYI	54	0957	0409323	-712529	L	1	04689	L	84103118	000000	000000	183751	000100	501	V	
GI178	VW HYI	54	0915	0409323	-712529	L	3	24294	L	84102520	000000	000000	201054	000040	500	V	
GI178	VW HYI	54	0909	0409323	-712529	L	3	24293	L	84102519	000000	000000	194350	000040	500	V	
GI178	VW HYI	54	0903	0409323	-712529	L	3	24292	L	84102518	000000	000000	184256	000030	400	V	
GI178	VW HYI	54	0903	0409323	-712529	L	1	04640	L	84102519	000000	000000	194012	000030	501	V	
GI233	VW HYI	54	1338	0409323	-712529	L	3	24157	L	84100920	000000	000000	202151	002000	330	V	
GI233	VW HYI	54	1338	0409323	-712529	L	1	04534	L	84100920	000000	000000	200159	001500	401	V	
GI178	VW HYI	54	1064	0409323	-712529	L	1	04528	L	84100813	000000	000000	135147	000200	501	V	
IMGTS	HD 26571	25	0610	0409530	+221711	H	3	24096	L	84100204	000000	000000	041000	004000		G	C=170,B=40
GA191	HZ2	37	1399	0409570	114414	L	1	05063	L	84122314	000000	000000	140508	004500	503	V	
GA191	HZ2	37	1410	0409570	114414	L	3	24736	L	84122310	000000	000000	104153	008000	701	V	
GA191	HZ2	37	1413	0409570	114414	L	1	05064	L	84122315	000000	000000	154050	004000	503	V	
GA191	HZ 2	37	1373	0409570	114414	L	1	05076	L	84122615	000000	000000	155836	004900	504	V	
GA191	HZ2	37	1402	0409570	114414	L	3	24737	L	84122313	000000	000000	131239	004500	501	V	
GA191	HZ2	37	1394	0409570	114414	L	3	24739	L	84122316	000000	000000	162625	002000	401	V	
GA191	HZ2	37	1404	0409570	114414	L	3	24738	L	84122314	000000	000000	145542	004000	501	V	
GA191	HZ2	37	1407	0409570	114414	L	1	05062	L	84122312	000000	000000	120956	005000	503	V	
CBGMP	00 RW PER	66	0990	0416469	+421159	L	1	04686	L	84103112	000000	000000	124100	001000		G	E=165,C=120,B=37
CBGMP	00 RW PER	66	0990	0416469	+421159	L	3	24360	L	84103112	000000	000000	120200	003500		G	E=101,C=90,B=35
AFGJL	HD 27524	41	0680	0418342	+205521	H	1	04638	L	84102512	000000	000000	122800	002000		G	E=85,C=123,B=55
IMGTS	HD 27778	21	0617	0420585	+241110	H	3	24095	L	84100202	000000	000000	021000	008500		G	C=3X,B=66
GC199	L1551IRAS5	64	1600	0428400	180141	L	3	24143	L	84100715	000000	000000	154419	028000	102	V	240MIN+30MIN+10MIN
GC199	L1551IRAS5	64	1600	0428400	180141	E	9	01586	2	84100715	000000	000000	150500	004000		V	FES FOR SWP24143
NJGMC	00 HH 30	64	9999	0428435	+180602	L	3	24144	L	84100721	000000	000000	213400	043500		G	E=101,C=100,B=85
NJGMC	00 HH 30	64	9999	0428435	+180602	L	3	24150	L	84100823	000000	000000	230300	034500		G	C=110,B=13
NJGMC	00 HH 30	64	9999	0428435	+180602	L	1	04529	L	84100822	000000	000000	222200	002500		G	B=36
NJGMC	00 HH 30	64	9999	0428435	+180602	L	3	24149	L	84100814	000000	000000	145100	044400		G	E=126,C=115,B=70
GC199	HH30	76	9999	0428436	180603	E	9	01587	2	84100814	000000	000000	140000	004000		V	
GQ225	3C120	84	1441	0430316	051500	L	3	24155	L	84100913	000000	000000	134817	019000	341	V	
GQ225	3C120	84	1450	0430316	051500	L	3	24165	L	84101213	000000	000000	134807	019000	331	V	
IMGTS	HD 29309	21	0710	0435026	+315359	H	1	04477	L	84100121	000000	000000	215600	003000		G	C=180,B=45
IMGTS	HD 29309	21	0710	0435026	+315359	H	3	24094	L	84100122	000000	000000	223200	018000		G	C=255,B=70
CCGJL	HD 29712	49	0540	0436104	-621032	L	1	04538	L	84101008	000000	000000	085500	002000		G	E=209,C=182,B=140
OD44K	00 AB AUR	34	0720	0452341	+302821	H	1	04759	L	84110906	000000	000000	062500	003000		G	E=197,C=165,B=60
OD44K	00 AB AUR	34	0720	0452341	+302821	H	1	04758	L	84110905	000000	000000	052400	003000		G	E=189,C=160,B=50
OD44K	00 AB AUR	34	0720	0452341	+302821	H	1	04770	L	84111005	000000	000000	055300	003000		G	E=207,C=165,B=60
OD44K	00 AB AUR	34	0720	0452341	+302821	H	1	04768	L	84111003	000000	000000	033600	003000		G	E=235,C=165
OD44K	00 AB AUR	34	0720	0452341	+302821	H	1	04757	L	84110904	000000	000000	041200	003000		G	E=191,C=165,B=50
OD44K	00 AB AUR	34	0720	0452341	+302821	L	3	24421	L	84110904	000000	000000	044800	000300		G	C=190,B=18
OD44K	00 AB AUR	34	0720	0452341	+302821	L	3	24430	L	84111003	000000	000000	032600	000300		G	C=205,B=20

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
OD44K	OO AB AUR	34	0720	0452341	+302821	L	3	24431	L	84111004	000000 000000	044200 000300		G C=200,B=20
OD44K	OO AB AUR	34	0720	0452341	+302821	H	1	04769	L	84111004	000000 000000	045000 003000		G E=230,C=173,B=55
GA211	AB AUR	34	0738	0452342	302822	H	1	04755	L	84110817	000000 000000	178133 003000	451	V
GA211	AB AUR	34	0738	0452342	302822	L	3	24418	L	84110816	000000 000000	162251 000300	500	V
GA211	AB AUR	34	0739	0452342	302822	H	1	04754	L	84110815	000000 000000	154659 003000	451	V
GA211	AB AUR	34	0728	0452342	302822	H	1	04737	L	84110613	000000 000000	131055 003000	451	V
GA211	AB AUR	34	0731	0452342	302822	H	1	04774	L	84111014	000000 000000	141805 003000	452	V
GA211	AB AUR	34	0728	0452342	302822	H	1	04764	L	84110914	000000 000000	142044 002056	341	V
GA211	AB AUR	34	0736	0452342	302822	H	1	04785	L	84111117	000000 000000	172034 003000	451	V
GA211	AB AUR	34	0729	0452342	302822	L	3	24446	L	84111115	000000 000000	155802 000300	500	V
GA211	AB AUR	34	0727	0452342	302822	H	1	04747	L	84110717	000000 000000	170549 003000	451	V
GA211	AB AUR	34	0739	0452342	302822	L	3	24417	L	84110815	000000 000000	151527 000300	500	V
GA211	AB AUR	34	0736	0452342	302822	L	3	24416	L	84110814	000000 000000	143011 000300	500	V
GA211	AB AUR	34	0730	0452342	302822	H	1	04775	L	84111015	000000 000000	152656 003000	452	V
GA211	AB AUR	34	0730	0452342	302822	L	1	04748	L	84110718	000000 000000	182514 000030	500	V
GA211	AB AUR	34	0735	0452342	302822	L	3	24411	L	84110717	000000 000000	174209 000300	500	V
GA211	AB AUR	34	0728	0452342	302822	H	1	04776	L	84111016	000000 000000	163427 003000	452	V
GA211	AB AUR	34	0728	0452342	302822	L	3	24436	L	84111014	000000 000000	140821 000300	500	V
GA211	AB AUR	34	0732	0452342	302822	L	3	24437	L	84111014	000000 000000	145441 000300	500	V
GA211	HD31293	34	0728	0452342	302822	H	1	04733	L	84110511	000000 000000	114905 003800	463	V
GA211	AB AUR	34	0729	0452342	302822	L	3	24438	L	84111016	000000 000000	160225 000300	500	V
GA211	AB AUR	34	0732	0452342	302822	H	1	04736	L	84110611	000000 000000	115619 003300	451	V
GA211	AB AUR	34	0730	0452342	302822	H	1	04765	L	84110915	000000 000000	154058 003000	451	V
GA211	AB AUR	34	0733	0452342	302822	H	1	04786	L	84111118	000000 000000	182238 002500	441	V
GA211	AB AUR	34	0727	0452342	302822	H	1	04766	L	84110916	000000 000000	165031 003000	451	V
GA211	AB AUR	34	0724	0452342	302822	L	3	24426	L	84110914	000000 000000	141133 000300	500	V
GA211	AB AUR	34	0730	0452342	302822	L	3	24427	L	84110915	000000 000000	150757 000300	500	V
GA211	AB AUR	34	0736	0452342	302822	L	3	24447	L	84111116	000000 000000	164314 000300	500	V
GA211	AB AUR	34	0734	0452342	302822	H	1	04784	L	84111116	000000 000000	160721 003000	451	V
GA211	AB AUR	34	0728	0452342	302822	L	3	24428	L	84110916	000000 000000	161652 000300	500	V
GA211	HD31293	34	0732	0452342	302822	L	3	24389	L	84110512	000000 000000	123321 000300	501	V
GA211	AB AUR	34	0738	0452342	302822	H	1	04753	L	84110814	000000 000000	143934 003000	451	V
GA211	AB AUR	34	0729	0452342	302822	L	3	24405	L	84110612	000000 000000	123457 000300	500	V
HYGLH	HD 31398	47	0270	0453439	+330519	H	1	04725	L	84110421	000000 000000	210300 033500		G E=15,C=3X,B=107
HYGLH	HD 31398	47	0270	0453439	+330519	H	1	04724	L	84110420	000000 000000	200900 002000		G E=255,C=85,B=35
GQ114	PKS454+039	85	1400	0454090	035615	L	1	04680	L	84103013	000000 000000	135801 040900	346	V
NEGRD	OO LMC N87	72	0010	0454408	-693425	L	1	05013	L	84121601	000000 000000	012600 003000		G C=2X,B=44
NEGRD	OO LMC N87	72	0010	0454408	-693425	H	3	24702	L	84121603	000000 000000	032200 006000		G B=26
NEGRD	OO LMC N87	72	0010	0454408	-693425	D	9	01613	L	84121604	000000 000000	043600 016000		G NO COMMENTS
FSGBH	OO GL 182	48	0910	0456589	+014231	L	1	04809	L	84111421	000000 000000	212100 001500		G E=132,B=35
FSGBH	OO GL182	52	0960	0456589	+014231	L	1	04810	L	84111422	000000 000000	221500 002200		G E=158,C=54,B=39
CBGMP	OO RS CEP	66	1000	0457120	+801100	L	3	24354	L	84103021	000000 000000	215600 012000		G E=90,C=55,B=30
CBGMP	OO RS CEP	66	1000	0457120	+801100	L	1	04681	L	84103100	000000 000000	000300 004000		G E=171,C=100,B=40
VVGTA	OO EPS AUR	40	0300	0458226	+434505	L	3	24541	L	84112305	000000 000000	054800 000150		G C=175,B=20
VVGTA	OO EPS AUR	40	0300	0458226	+434505	L	3	24432	L	84111006	000000 000000	063900 001500		G E=64,C=5X,B=25

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
VVGTA	00 EPS AUR	40	0300	0458226	+434505	H	1	04614	L	84102306	000000	000000	065400	000700		G E=91,C=1.2X,B=52
VVGTA	00 EPS AUR	40	0300	0458226	+434505	H	1	04613	L	84102305	000000	000000	054100	003500		G C=4X,B=99
VVGTA	00 EPS AUR	40	0300	0458226	+434505	L	3	24268	L	84102305	000000	000000	053600	000150		G =180,B=20
VVGTA	00 EPS AUR	40	0300	0458226	+434505	L	1	04615	SL	84102307	075000	000110	074400	000007		G C=1.2X,B=41
VVGTA	00 EPS AUR	40	0300	0458226	+434505	L	3	24542	L	84112306	000000	000000	062600	002000		G E=114,C=8X,B=92
VVGTA	00 EPS AUR	40	0300	0458226	+434505	H	1	04874	L	84112305	000000	000000	055400	002500		G E=185,C=3X,B=83
VVGTA	00 EPS AUR	40	0300	0458226	+434505	L	3	24269	L	84102306	000000	000000	062100	002000		G E=88,C=8X,B=41
GI082	HVV 5542	59	1480	0501049	-700932	L	1	04857	L	84112113	000000	000000	134630	008500	502	V
GI082	HV 5542	59	1470	0501049	-700932	L	3	24518	L	84112017	000000	000000	175312	005400	300	V
IBGGP	HD 32419	66	0850	0501330	+411313	L	3	24329	L	84102811	000000	000000	111400	000230		G C=190,B=23
IBGGP	HD 32419	66	0850	0501330	+411313	L	3	24328	L	84102810	000000	000000	104100	000130		G C=120,B=24
IBGGP	HD 32419	66	0850	0501330	+411313	L	3	24341	L	84102911	000000	000000	110600	000120		G C=138,B=20
IBGGP	HD 32419	66	0850	0501330	+411313	L	3	24348	L	84103008	000000	000000	081800	000130		G C=125,B=19
IBGGP	HD 32419	66	0850	0501330	+411313	L	1	04678	L	84103008	000000	000000	082800	000045		G C=170,B=40
GI082	SK-7036	59	1344	0501386	-703808	L	1	04869	L	84112212	000000	000000	120835	005000	504	V
GI082	SK 7036	59	1344	0501387	-703808	L	3	24537	L	84112213	000000	000000	130703	006500	401	V
GI082	SK-7036	59	1351	0501387	-703808	L	3	24516	L	84112012	000000	000000	121545	006000	430	V
GI082	SK-70 36	59	1320	0501387	-703808	L	1	04848	L	84112013	000000	000000	132254	006000	612	V
GI082	WO 564	59	1445	0502465	-663037	L	1	04849	L	84112016	000000	000000	160035	008000	511	V
GI082	WO 564	59	1445	0502465	-663037	L	3	24517	L	84112015	000000	000000	150029	005500	410	V
GC243	HD32977	30	0543	0504507	202115	H	1	04805	L	84111412	000000	000000	122129	002000	603	V
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24400	L	84110608	000000	000000	081300	000045		G C=185,B=18
IBGGP	HD 33357	66	0840	0508101	+420618	L	1	04735	L	84110610	000000	000000	103600	000035		G C=223,B=38
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24403	L	84110609	000000	000000	095200	000045		G C=195,B=20
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24401	L	84110608	000000	000000	084900	000040		G C=175,B=20
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24399	L	84110607	000000	000000	074300	000047		G C=190,B=19
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24402	L	84110609	000000	000000	092400	000040		G C=175,B=19
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24398	L	84110607	000000	000000	070800	000050		G C=195,B=18
IBGGP	HD 33357	66	0840	0508101	+420618	H	3	24395	L	84110603	000000	000000	034100	011000		G C=210,B=68
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24397	L	84110606	000000	000000	063900	000100		G C=210,B=18
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24404	L	84110610	000000	000000	103000	000045		G C=190,B=20
IBGGP	HD 33357	66	0840	0508101	+420618	L	3	24396	L	84110606	000000	000000	060200	000202		G C=1.5X,B=19
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24153	L	84100908	000000	000000	084300	000140		G C=205,B=18
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24327	L	84102810	000000	000000	100200	000045		G C=215,B=25
IBGGP	HD 33357	66	0840	0508102	+420619	H	3	24334	L	84102906	000000	000000	061700	007500		G C=200,B=72
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24326	L	84102809	000000	000000	093300	000040		G C=180,B=24
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24342	L	84102911	000000	000000	113400	000035		G C=170,B=20
IBGGP	HD 33357	66	0840	0508102	+420619	L	1	04675	L	84102910	000000	000000	103800	000020		G C=160,B=38
IBGGP	HD 33357	66	0840	0508102	+420619	H	3	24343	L	84102912	000000	000000	120800	004000		G C=150,B=40
IBGGP	HD 33357	66	0840	0508102	+420619	H	3	24346	L	84103005	000000	000000	052900	006000		G C=190,B=52
IBGGP	HD 33357	66	0840	0508102	+420619	H	1	04677	L	84103006	000000	000000	063700	002000		G C=150,B=50
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24336	L	84102908	000000	000000	083200	000055		G C=215,B=22
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24330	L	84102811	000000	000000	114500	000050		G C=223,B=20
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24347	L	84103007	000000	000000	070900	000035		G C=140,B=15
IBGGP	HD 33357	66	0840	0508102	+420619	H	3	24353	L	84103011	000000	000000	113200	007500		G C=195,B=55

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24331	L	84102812	000000	000000	122200	000050		G C=220,B=20
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24337	L	84102909	000000	000000	090400	000050		G C=200,B=25
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24333	L	84102905	000000	000000	053800	000050		G C=197,B=20
IBGGP	HD 33357	66	0840	0508102	+420619	H	3	24325	L	84102808	000000	000000	083000	002000		G C=2X,B=180
IBGGP	HD 33357	66	0840	0508102	+420619	H	1	04666	L	84102807	000000	000000	075300	002700		G C=3X,B=172
IBGGP	HD 33357	66	0840	0508102	+420619	H	3	24324	L	84102806	000000	000000	061600	009000		G C=10X,B=205
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24340	L	84102910	000000	000000	103300	000040		G C=192,B=21
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24335	L	84102908	000000	000000	080100	000100		G C=215,B=20
PHCAL	HD 33357	66	9999	0508102	+420619	D	9	01592	L	84103005	000000	000000	051200	016000		G NO COMMENT
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24339	L	84102910	000000	000000	100400	000043		G C=195,B=22
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24338	L	84102909	000000	000000	093300	000045		G C=200,B=24
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24352	L	84103011	000000	000000	110400	000105		G C=195,B=15
IBGGP	HD 33357	66	0840	0508102	+420619	H	1	04674	L	84102905	000000	000000	054500	002000		G C=135,B=43
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24349	L	84103009	000000	000000	093400	000040		G C=155,B=17
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24350	L	84103010	000000	000000	100700	000045		G C=150,B=18
IBGGP	HD 33357	66	0840	0508102	+420619	L	1	04679	L	84103009	000000	000000	093900	000020		G C=150,B=35
IBGGP	HD 33357	66	0840	0508102	+420619	L	3	24351	L	84103010	000000	000000	103600	000100		G C=190,B=18
CBGRP	HD 33411	21	0820	0508302	+422022	L	1	04531	L	84100908	000000	000000	081200	000025		G C=178,B=32
CBGRP	HD 33411	21	0853	0508302	+422022	L	3	24114	L	84100412	000000	000000	123800	000040		G C=175,B=19
CMGDH	HD 34085	25	0000	0512073	-081528	L	3	24557	S	84112423	230500	000500	000000	000000		G C=120,B=20
CMGDH	HD 34085	25	0000	0512073	-081528	L	3	24556	S	84112421	215600	000315	000000	000000		G C=2.0X,B=18
CMGDH	HD 34085	25	0000	0512073	-081528	L	1	04886	S	84112421	214800	000130	000000	000000		G C=2.0X,B=33
CMGDH	HD 34085	25	0000	0512073	-081528	L	1	04887	S	84112423	231500	000230	000000	000000		G C=138,B=36
PHCAL	HD34816	20	0416	0517160	-131337	L	3	24546	L	84112314	000000	000000	141349	000000	500	V TRAIL R=25.0 I=1
PHCAL	HD34816	20	0416	0517160	-131337	L	1	04880	L	84112314	000000	000000	142217	000001	500	V TRAIL R 18.02 I=1
PHCAL	HD34816	20	0416	0517160	-131337	L	1	04881	L	84112314	000000	000000	145853	000003	800	V TRAIL R 5.2 I=1
PHCAL	HD34816	20	0424	0517162	-131337	L	1	04949	L	84120912	000000	000000	121242	000001	503	V TRAIL R=18.02 I=1
PHCAL	HD 34816	20	0430	0517162	-131337	L	2	17519	L	84101609	000000	000000	093900	000001		G C=220,B=26
PHCAL	HD 34816	20	0430	0517162	-131337	H	3	24366	L	84110109	000000	000000	090500	000022		G C=180,B=32
PHCAL	HD34816	20	0434	0517162	-131337	L	3	24649	L	84120914	000000	000000	140627	000001	500	V TRAIL R=22.0 I=1
PHCAL	HD34816	20	0424	0517162	-131337	L	1	04951	L	84120913	000000	000000	131953	000003	704	V TRAIL R=6.0 I=11
PHCAL	HD 34816	20	0430	0517162	-131337	L	2	17520	L	84101610	000000	000000	101300	000001		G C=2X,B=25
PHCAL	HD 34816	20	0430	0517162	-131337	H	2	17518	L	84101609	000000	000000	090100	000026		G C=221,B=31
PHCAL	HD34816	20	0430	0517162	-131337	L	3	24648	L	84120913	000000	000000	132651	000001	500	V TRAIL R=22.0 I=1
PHCAL	HD34816	20	0416	0517162	-131337	L	1	04950	L	84120912	000000	000000	124538	000003	704	V TRAIL R=6.0 I=1
PHCAL	HD 34816	20	0430	0517162	-131337	L	2	17558	L	84121105	000000	000000	052500	000001		G C=200,B=30
PHCAL	HD 34816	20	0430	0517162	-131337	L	2	17559	L	84121106	000000	000000	060500	000002		G C=2.0X,B=30
PHCAL	HD 34816	20	0430	0517162	-131337	H	1	04694	L	84110109	000000	000000	091000	000022		G C=215,B=41
PHCAL	HD 34816	20	0430	0517162	-131337	L	1	05021	SL	84121706	063600	000001	064000	000001		G C=1.5X,B=34
PHCAL	HD 34816	20	0430	0517162	-131337	L	1	05020	SL	84121706	060000	000001	060400	000001		G C=248,B=32
PHCAL	HD 34816	20	0430	0517162	-131337	H	1	04963	L	84121101	000000	000000	011700	000022		G C=225,B=45
PHCAL	HD 34816	20	0430	0517162	-131337	L	2	17560	L	84121106	000000	000000	064200	000003		G C=2.0X,B=35
PHCAL	HD34816	20	0427	0517162	-131337	L	1	04948	L	84120911	000000	000000	113258	000001	503	V TRAIL R=18.02 I=1
PHCAL	HD 34816	20	0430	0517162	-131337	L	1	04964	L	84121102	000000	000000	020900	000022		G C=225,B=41
PHCAL	OD WAVECAL	98	0430	0517162	-131337	L	2	17555	S	84121103	032300	000001	000000	000000		G E=20X,B=95

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
PHCAL	HD 34816	20	0430	0517162	-131337	L	2	17557	L	84121104	000000	000000	044400	000001		G	C=200,B=30
PHCAL	OO WAVECAL	98	0430	0517162	-131337	H	2	17556	S	84121103	035300	000016	000000	000000		G	E=50X,B=133
PHCAL	OO WAVECAL	98	0430	0517162	-131337	L	3	24660	S	84121102	023400	000002	000000	000000		G	E=20X,B=105
PHCAL	OO WAVECAL	98	0430	0517162	-131337	H	3	24661	S	84121102	030000	000200	000000	000000		G	E=50X,B=125
PHCAL	HD 34816	20	0430	0517162	-131337	L	2	17561	L	84121107	000000	000000	072400	000003		G	C=2.0X,B=30
PHCAL	HD 34816	20	0430	0517162	-131337	L	2	17562	SL	84121107	080200	000001	075700	000001		G	C=180,B=25
PHCAL	HD 34816	20	0430	0517162	-131337	L	1	05019	SL	84121705	052300	000001	052700	000001		G	C=1.1X,B=30
NEGRD	OOLMC N197	72	0000	0521411	-714600	L	1	05024	L	84121800	000000	000000	005800	003000		G	C=160,B=72
NEGRD	OOLMC N197	72	0000	0521411	-714600	L	3	24710	L	84121723	000000	000000	235200	006000		G	C=150,B=74
NEGRD	OOLMCN127A	72	0000	0522007	-694326	L	3	24712	L	84121804	000000	000000	041500	004500		G	C=178,B=100
NEGRD	OOLMCN127A	72	0000	0522007	-694326	L	1	05026	L	84121805	000000	000000	050800	003000		G	C=2X,B=226
PHCAL	OO 115 TAU	21	0531	0524149	+175514	D	9	01596	L	84111704	000000	000000	041900	016000		G	NO COMMENTS
GATOO	GSB0526-66	90	2800	0525555	-660706	L	1	05106	L	84123109	000000	000000	094723	036800	104	V	SERENDIPITY TARGET I
GATOO	GSB0526-66	90	2800	0525555	-660706	L	3	24792	L	84123109	000000	000000	094600	038100	233	V	
GC243	HD36395	48	0807	0528553	-034104	L	1	04929	L	84120615	000000	000000	150909	001500	353	V	
CCGJL	HD 36389	49	0440	0529168	+183332	L	1	04539	L	84101009	000000	000000	095800	001000		G	E=2X,C=225,B=170
MLGCW	HD 36486	14	0220	0529269	-002003	H	3	24230	L	84102007	000000	000000	075200	000005		G	C=202,B=35
MLGCW	HD 36486	14	0220	0529269	-002003	H	3	24208	L	84101907	000000	000000	072300	000005		G	C=213,B=37
MLGCW	HD 36486	14	0220	0529269	-002003	H	3	24197	L	84101806	000000	000000	064500	000005		G	C=213,B=37
MLGCW	HD 36486	14	0220	0529269	-002003	H	3	24202	L	84101810	000000	000000	103900	000005		G	C=215,B=38
GA039	HD36486	13	0226	0529270	-002004	H	3	24241	L	84102015	000000	000000	155729	000005	501	V	
GA039	HD36486	13	0222	0529270	-002004	H	3	24214	L	84101912	000000	000000	125447	000005	551	V	
GA209	HD36486	13	0222	0529270	-002004	H	3	24169	L	84101313	000000	000000	133641	000005	501	V	
GA039	HD36486	13	0222	0529270	-002004	H	3	24239	L	84102013	000000	000000	135849	000005	501	V	
GA039	HD36486	13	0225	0529270	-002004	H	3	24217	L	84101915	000000	000000	151614	000005	551	V	
GQ225	3C120	84	1461	0530316	051500	L	1	04500	L	84100418	000000	000000	184427	012000	341	V	
GQ225	3C120	84	1441	0530316	051500	L	3	24115	L	84100415	000000	000000	150847	021000	341	V	
FI217	HDE245770	59	0929	0535480	261718	L	1	05098	L	84122910	080000	000000	105135	000330	501	V	
FI217	HDE245770	59	0888	0535480	261718	L	3	24776	L	84122910	000000	000000	103105	001600	502	V	
CCGJL	HD 37536	49	0610	0537269	+315343	L	1	04546	L	84101109	000000	000000	091100	001500		G	E=253,C=230,B=198
CCGJL	HD 37536	49	0610	0537269	+315343	L	1	04537	L	84101007	000000	000000	072800	004000		G	E=1.5X,C=158,B=114
MLGBS	OO R 136A	11	0942	0539039	-690735	L	3	24141	S	84100712	124700	000500	000000	000000		G	C=83,B=20
NPGLA	NG 2022	70	1110	0539239	+090359	L	3	24267	L	84102301	000000	000000	014100	012000		G	E=3X,C=192,B=88
NPGLA	NG 2022	70	1110	0539239	+090359	L	1	04612	L	84102303	000000	000000	034800	006000		G	E=208,C=205,B=124
NPGLA	NG 2022	70	1110	0539239	+090359	L	1	04621	L	84102403	000000	000000	031900	009000		G	E=255,C=150,B=180
XBGJH	OO LMC X-1	59	1450	0540050	-694602	L	3	24519	L	84112019	000000	000000	195800	016500		G	E=84,C=68,B=35
XBGJH	OO LMC X-1	59	1450	0540054	-694603	L	3	24562	L	84112604	000000	000000	040400	018000		G	C=166,B=100
XBGJH	OO LMC X-1	59	1450	0540054	-694601	L	3	24559	L	84112503	000000	000000	035000	015700		G	C=235,B=172
GI074	LMC X-1	59	1450	0540055	-694603	L	1	04882	L	84112317	000000	000000	175456	005300	311	V	INTENDED OFF CENTER
GI074	LMC X1	59	1450	0540055	-694603	L	1	04870	L	84112214	000000	000000	144651	012000	404	V	
GI082	LMC X-1	59	1450	0540055	-694603	L	3	24538	L	84112216	000000	000000	165355	011300	301	V	
GI082	LMC X-1	59	1450	0540055	-694604	L	3	24526	L	84112115	000000	000000	153842	018900	301	V	R148 AT X=112 Y=-115
GI074	LMC X-1	59	1450	0540055	-694604	L	3	24547	L	84112315	000000	000000	154822	012000	311	V	INTENDED OFF CENTER
XBGJH	OO LMC X-1	59	1450	0540061	-694602	L	3	24510	L	84111920	000000	000000	202700	014300		G	C=70,B=27
XBGJH	OO CAL B3	59	1600	0543489	-682334	L	3	24560	L	84112509	000000	000000	090000	003000		G	B=119

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
XBGJH	OD CAL 83	59	1600	0543489	-682334	L	1	04890	L	84112508	000000	000000	083300	002200		G	B=192
XBGJH	OD CAL 83	59	1700	0543489	-682334	L	3	24563	L	84112607	000000	000000	074200	009000		G	C=245,B=205
GI082	1E544-6823	59	1680	0543490	-682336	L	3	24554	L	84112414	000000	000000	143559	025100	311	V	
NEGRD	OD LMC N71	72	0010	0543537	-672823	L	3	24711	L	84121802	000000	000000	020600	006000		G	C=185,B=43
NEGRD	OD LMC N71	72	0010	0543537	-672823	L	1	05025	L	84121803	000000	000000	031200	003000		G	C=170,B=61
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17549	L	84111607	000000	000000	071400	000005		G	C=2,B=25
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17548	L	84111606	000000	000000	063400	000002		G	C=190,B=25
PHCAL	HD 38666	12	0520	0544084	-321927	L	1	05033	SL	84121906	062000	000001	061500	000001		G	C=2.0X,B=35
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17547	L	84111605	000000	000000	054900	000002		G	C=2,B=25
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17550	L	84111607	000000	000000	075400	000002		G	C=190,B=25
PHCAL	HD 38666	12	0520	0544084	-321927	L	1	05032	SL	84121905	054100	000001	053700	000001		G	C=150,B=33
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17551	L	84111608	000000	000000	083400	000006		G	C=2X,B=32
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17552	S	84111609	091000	000002	000000	000000		G	C=220,B=25
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17553	L	84111609	000000	000000	094300	000002		G	C=2,B=23
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17554	L	84111610	000000	000000	101600	000002		G	C=2X,B=25
PHCAL	HD 38666	12	0520	0544084	-321927	L	2	17546	SL	84111605	051500	000002	050800	000001		G	C=220,B=23
PHCAL	HD 38666	12	0520	0544084	-321927	L	1	05037	L	84121908	000000	000000	084000	000001		G	C=150,B=38
PHCAL	HD 38666	12	0520	0544084	-321927	L	1	05036	SL	84121908	081000	000001	080600	000001		G	C=2X,B=32
PHCAL	HD 38666	12	0520	0544084	-321927	L	1	05035	SL	84121907	073400	000001	073000	000001		G	C=1.5X,B=35
PHCAL	HD 38666	12	0520	0544084	-321927	L	1	05034	SL	84121906	065500	000001	065100	000001		G	C=2X,B=34
CMGDH	HD 39060	31	0384	0546054	-510456	L	1	04889	S	84112502	020100	005500	000000	000000		G	C=187,B=63
PHCAL	HD 39060	64	9999	0546058	-510501	D	9	01616	L	84121616	000000	000000	165700	016000		G	NO COMMENTS
CMGDH	ODBETA PIC	33	0384	0546058	-510501	H	3	24506	S	84111908	082200	000330	000000	000000		G	C=185,B=130
CMGDH	ODBETA PIC	33	0384	0546058	-510501	H	1	04839	S	84111907	074500	000300	000000	000000		G	C=210,B=125
GM190	HD39060	31	0408	0546059	-510502	H	1	05017	L	84121616	000000	000000	162518	000400	603	V	
GM190	HD39060	31	0405	0546059	-510502	H	3	24706	L	84121615	000000	000000	155046	001000	500	V	
GQ205	HD39060	31	0393	0546059	-510502	L	1	05015	L	84121614	000000	000000	143521	000003	503	V	
GQ205	HD39060	31	0393	0546059	-510502	H	3	24705	L	84121614	000000	000000	143929	001000	301	V	OUT APER FOR 4 MIN.
OD54K	HD 39060	31	0384	0546059	-510501	H	3	24393	L	84110520	000000	000000	205000	012000		G	C=10X,B=180
OD54K	HD 39060	31	0384	0546059	-510501	H	3	24394	L	84110600	000000	000000	001600	014800		G	C=10X,B=255
OD54K	HD 39060	31	0384	0546059	-510501	H	2	17532	L	84110600	000000	000000	000300	000345		G	C=190,B=32
OD54K	HD 39060	31	0384	0546059	-510501	L	2	17531	L	84110522	000000	000000	225700	000013		G	C=205,B=22
OD54K	HD 39060	31	0384	0546059	-510501	L	3	24392	L	84110520	000000	000000	200300	000022		G	C=146,B=18
GM190	HD39060	31	0401	0546059	-510502	H	1	05016	L	84121615	000000	000000	152231	000450	603	V	
CMGDH	HD 39060	33	0384	0546060	-510458	L	3	24558	S	84112501	012300	002000	000000	000000		G	C=4.0X,B=30
CMGDH	HD 39060	33	0384	0546060	-510456	L	1	04888	S	84112500	000500	007000	000000	000000		G	C=1.5X,B=50
CMGDH	HD 39060	30	0384	0546062	-510452	L	3	24555	S	84112420	200600	004000	000000	000000		G	C=49,B=25
CMGDH	HD 39060	30	0384	0546062	-510452	L	1	04885	S	84112419	193800	002000	000000	000000		G	C=60,B=36
CMGDH	ODBETA PIC	33	0384	0546062	-510251	H	3	24505	S	84111906	065900	001000	000000	000000		G	B=125
GQ225	MCG8-11011	84	1450	0551097	462551	L	3	24123	L	84100514	000000	000000	140153	028000	332	V	
GQ226	MCG8-11-01	84	1400	0551097	462551	L	1	04696	L	84110116	000000	000000	164639	012000	343	V	
GQ226	MCG8-11-01	84	1400	0551097	462551	L	3	24368	L	84110111	000000	000000	115142	029000	333	V	
GQ225	MCG8-11011	84	1450	0551097	462551	L	1	04505	L	84100518	000000	000000	184653	011000	342	V	
CCGJL	HD 39801	49	0050	0552278	+072358	L	1	04540	SL	84101010	105000	000010	104500	000025		G	E=5X,C=155,B=40
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24145	L	84100805	000000	000000	053900	005000		G	E=4X,C=180,B=50

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24146	L	84100807	000000	000000	072200	001000		G E=177,C=50,B=20
CSGAD	HD 39801	49	0050	0552280	+072358	L	1	04523	SL	84100807	075700	000030	080200	000005		G E=5X,C=65,B=30
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24387	L	84110409	000000	000000	091400	001000		G E=178,C=60,B=25
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24147	L	84100808	000000	000000	083300	001400		G E=224,C=78,B=28
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24511	L	84112000	000000	000000	001800	005000		G E=4.0X,C=178,B=50
CSGAD	HD 39801	49	0050	0552280	+072358	H	1	04842	S	84112001	011600	004000	000000	000000		G E=10X,C=220,B=120
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24512	L	84112002	000000	000000	020400	001000		G E=184,C=100,B=50
CSGAD	HD 39801	49	0050	0552280	+072358	L	1	04719	SL	84110409	095500	000030	095000	000005		G E=213,C=65,B=40
CSGAD	HD 39801	49	0050	0552280	+072358	H	1	04608	L	84102209	000000	000000	095400	000200		G E=1.5X,C=235,B=179
CSGAD	HD 39801	49	0050	0552280	+072358	H	1	04841	L	84112000	000000	000000	000900	000200		G E=191,C=80,B=38
CSGAD	HD 39801	49	0050	0552280	+072358	H	1	04718	S	84110408	082700	004000	000000	000000		G E=10X,C=178,B=95
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24386	L	84110407	000000	000000	072700	005000		G E=4X,C=170,B=40
CSGAD	HD 39801	49	0050	0552280	+072358	H	1	04522	S	84100806	063600	004000	000000	000000		G E=10X,C=112,B=52
CSGAD	HD 39801	49	0050	0552280	+072358	H	1	04717	L	84110407	000000	000000	071800	000200		G E=202,C=63,B=32
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24261	L	84102211	000000	000000	111400	000500		G E=188,C=140,B=106
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24262	L	84102212	000000	000000	121700	003000		G E=111,C=140,B=42
CSGAD	HD 39801	49	0050	0552280	+072358	L	1	04610	SL	84102212	120700	000030	120300	000005		G E=1.5X,C=120,B=31
CSGAD	HD 39801	49	0050	0552280	+072358	H	3	24388	L	84110410	000000	000000	102800	002200		G E=84,B=32
CSGAD	HD 39801	49	0050	0552280	+072358	H	1	04521	L	84100805	000000	000000	053000	000200		G E=200,C=65,B=37
CSGAD	HD 39801	49	0050	0552280	+072358	H	1	04609	L	84102210	000000	000000	103400	000200		G E=1.5X,C=200,B=143
CSGAD	HD 39801	49	0050	0552280	+072358	L	3	24260	L	84102210	000000	000000	100100	000500		G B=2-3X
PMGJL	HD 40409	47	0465	0553429	-630617	H	1	04903	L	84112907	000000	000000	075200	005000		G E=232,C=1.5X,B=170
PMGJL	HD 40409	47	9999	0553434	-630617	D	9	01607	L	84112907	000000	000000	074000	016000		G
CCGJL	HD 40239	49	0430	0556134	+455604	L	1	04547	L	84101110	000000	000000	101600	000300		G E=1.5X,C=160,B=122
GA232	G104-027	17	1353	0612236	174445	L	3	24321	L	84102720	000000	000000	203624	001200	501	V
IBGBB	HD 43246	39	0050	0613117	+285212	L	1	04605	L	84102205	000000	000000	054200	000106		G C=1.5X,B=31
IBGBB	HD 43246	39	0050	0613117	+285212	L	3	24257	L	84102205	000000	000000	054700	000150		G C=162,B=17
IBGBB	HD 43246	39	0050	0613117	+285212	H	1	04606	L	84102206	000000	000000	062100	003500		G C=225,B=110
IBGBB	HD 43246	39	0050	0613117	+285212	H	1	04744	L	84110706	000000	000000	061300	003700		G C=178,B=60
IBGBB	HD 43246	39	0050	0613117	+285212	L	3	24109	L	84100405	000000	000000	055100	000140		G C=153,B=19
IBGBB	HD 43246	39	0050	0613117	+285212	H	1	04497	L	84100405	000000	000000	052000	002500		G E=139,C=145,B=45
GA100	HD45166	11	1011	0623360	080018	H	3	24129	L	84100616	000000	000000	160649	006000	331	V
GA100	HD45166	11	1010	0623360	080018	H	3	24130	L	84100618	000000	000000	181016	006000	331	V
GA100	HD45166	11	1013	0623360	080018	H	3	24128	L	84100614	000000	000000	145445	006000	330	V
GA100	HD45166	11	1012	0623360	080018	H	1	04508	L	84100615	000000	000000	150148	006000	331	V
GA100	HD45166	11	1012	0623360	080018	H	1	04509	L	84100617	000000	000000	171332	005000	331	V
GA039	HD45314	20	0734	0624244	145515	H	3	24240	L	84102014	000000	000000	145516	002000	501	V
MLGCW	HD 46966	12	0680	0633450	+060731	H	3	24201	L	84101809	000000	000000	095200	001000		G C=250,B=105
MLGCW	HD 46966	12	0680	0633450	+060731	H	3	24196	L	84101806	000000	000000	060300	000900		G C=187,B=35
MLGCW	HD 47839	14	0460	0638134	+095636	H	3	24195	L	84101805	000000	000000	052200	000037		G C=200,B=37
MLGCW	HD 47839	14	0460	0638134	+095636	H	3	24233	L	84102009	000000	000000	095000	000040		G C=225,B=49
HYGLH	HD 48329	45	0310	0640514	+251057	H	1	04712	L	84110307	000000	000000	070700	003000		G E=1.5X,C=155,B=45
LEGTS	HD 48737	41	0340	0642290	+125704	L	3	24599	L	84120300	000000	000000	002200	004500		G E=193,C=15X,B=30
CVGJR	OO HL CMA	54	1090	0643034	-164824	L	3	24790	L	84123106	000000	000000	063000	001500		G E=133,C=125,B=60
CVGJR	OO HL CMA	54	1080	0643034	-164824	L	3	24780	SL	84123005	053900	001000	052300	000700		G E=150,C=148,B=95

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
CVGJR	00 HL CMA	54	1090	0643034	-164824	L	3	24789	S	84123105	053600 002200	000000 000000		G C=190,B=140
CVGJR	00 HL CMA	54	1130	0643034	-164824	L	1	05097	L	84122903	000000 000000	035800 000900		G C=200,B=50
CVGJR	00 HL CMA	54	1080	0643034	-164824	L	3	24782	SL	84123007	080100 003000	073900 001500		G E=146,C=122,B=32
CVGJR	00 HL CMA	54	1130	0643034	-164824	L	1	05096	L	84122902	000000 000000	023800 001500		G C=1.5X,B=39
CVGJR	00 HL CMA	54	1130	0643034	-164824	L	3	24771	L	84122902	000000 000000	022300 000800		G E=94,C=110,B=20
CVGJR	00 HL CMA	54	1080	0643034	-164824	L	3	24781	SL	84123006	065100 002000	063100 001000		G E=146,C=139,B=70
CVGJR	00 HL CMA	54	1130	0643034	-164824	L	3	24772	SL	84122903	032800 002000	031100 001100		G E=122,C=160,B=30
CVGJR	00 HL CMA	54	1130	0643034	-164824	L	3	24773	SL	84122904	051100 001900	044600 001000		G E=161,C=185,B=90
CVGJR	00 HL CMA	54	1090	0643034	-164824	L	3	24788	L	84123104	000000 000000	044900 001200		G E=155,C=145,B=85
CVGJR	00 HL CMA	54	1090	0643034	-164824	L	3	24791	SL	84123107	075100 006000	071200 003000		G E=182,C=200,B=50
CBGMP	HD 49521	66	0940	0646549	+331752	L	1	04658	L	84102707	000000 000000	075300 003000		G C=4X,B=150
CBGMP	HD 49521	66	0940	0646549	+331752	L	3	24314	L	84102708	000000 000000	082900 003000		G C=235,B=172
CBGMP	HD 49521	66	0940	0646549	+331752	L	3	24312	L	84102705	000000 000000	050900 002400		G E=105,C=100,B=38
CBGMP	HD 49521	66	0940	0646549	+331752	L	1	04657	L	84102705	000000 000000	054500 002000		G E=225,C=240,B=42
CBGMP	HD 49521	66	0940	0646549	+331752	L	3	24313	L	84102706	000000 000000	061600 009000		G C=1.2X,B=120
CBGRP	00 AU MON	66	0830	0652220	-011841	H	3	24152	L	84100906	000000 000000	061400 008000		G C=240,B=70
CBGRP	00 AU MON	66	0830	0652220	-011841	L	3	24151	L	84100905	000000 000000	054100 000105		G C=218,B=18
CBGRP	00 AU MON	66	0830	0652220	-011841	L	1	04530	L	84100905	000000 000000	053600 000035		G C=215,B=33
CBGRP	00 AU MON	66	0830	0652220	-011841	H	3	24112	L	84100409	000000 000000	092900 009000		G C=1.5X,B=92
CBGRP	00 AU MON	66	0830	0652220	-011841	L	1	04499	L	84100411	000000 000000	113300 000035		G C=1.2X,B=35
CBGRP	00 AU MON	66	0830	0652220	-011841	L	3	24113	L	84100411	000000 000000	113800 000110		G C=245,B=18
BLGAG	00 0711+22	65	1000	0711309	+222259	L	1	04946	L	84120900	000000 000000	003500 000425		G B=42
CCGJL	HD 56096	49	0510	0712007	-443326	L	1	04536	L	84101005	000000 000000	055600 005000		G E=154,C=158,B=105
LEGCS	HD 57669	47	0520	0720409	+404614	H	1	04975	L	84121218	000000 000000	180900 028000		G E=250,C=240,B=83
CBGMP	HD 58713	66	0840	0724330	+154600	L	1	04660	L	84102710	000000 000000	102200 000800		G C=255,B=85
CBGMP	HD 58713	66	0840	0724330	+154600	L	3	24316	L	84102710	000000 000000	105000 001000		G E=73,C=115,B=53
CBGMP	HD 58713	66	0840	0724330	+154600	L	1	04659	L	84102709	000000 000000	091900 001200		G C=3X,B=145
CBGMP	HD 58713	66	0840	0724330	+154600	L	3	24315	L	84102709	000000 000000	094900 002000		G C=5X,B=162
LGGDD	00 U MON	52	0620	0728240	-094012	L	1	04625	L	84102409	000000 000000	091600 000600		G C=2X,B=2X
GI224	3A0729+103	52	1515	0728444	100247	L	1	04905	L	84113012	000000 000000	124319 004000	333	V
GI224	3A0729+103	52	1452	0728444	100247	L	1	05070	L	84122416	000000 000000	160020 003500	333	V
GI224	3A0729+103	52	1452	0728444	100247	L	3	24744	L	84122413	000000 000000	135608 011500	331	V
GI224	3A0729+103	52	1450	0728444	100247	L	3	24587	L	84113013	000000 000000	133650 012000	332	V
GI224	3A0729+103	52	1515	0728444	100247	L	3	24586	L	84113011	000000 000000	115304 004000	231	V
PHCAL	HD59643	50	0780	0728526	243637	E	9	01604	2	84112715	000000 000000	155000 016000		V FIELD FOR LWP4896
CSGHJ	HD 59643	50	0800	0728527	+243638	H	1	04896	L	84112723	000000 000000	232200 048000		G E=3.0X,C=145,B=105
CSGHJ	HD 59643	50	0800	0728527	+243638	L	3	24573	L	84112800	000000 000000	003600 006000		G E=168,C=120,B=30
FSGBH	00 YY GEM	48	0910	0731257	+315846	L	3	24481	L	84111418	000000 000000	185500 009000		G E=100,C=62,B=40
FSGBH	00 YY GEM	48	0910	0731257	+315846	L	3	24476	L	84111404	000000 000000	043300 039000		G E=81,C=65,B=36
FSGBH	00 YY GEM	48	0910	0731257	+315846	L	3	24478	L	84111409	000000 000000	094500 006500		G E=131,C=90,B=62
FSGBH	00 YY GEM	48	0910	0731257	+315846	L	1	04813	L	84111504	000000 000000	043100 001000		G E=200,C=55,B=33
FSGBH	00 YY GEM	48	0910	0731257	+315846	L	1	04811	L	84111423	000000 000000	233600 001000		G E=206,C=60,B=39
FSGBH	00 YY GEM	48	0910	0731257	+315846	L	1	04803	L	84111409	000000 000000	092900 001000		G E=255,C=80,B=55
FSGBH	00YY GEM89	48	0910	0731257	+315846	L	3	24462	L	84111309	000000 000000	094200 006600		G C=128,B=95
FSGBH	00YY GEM89	48	0910	0731257	+315846	L	1	04795	L	84111309	000000 000000	092600 001000		G E=227,C=105,B=80

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
FSGBH	OOYY GEM89	48	0910	0731257	+315846	L	1	04794	L	84111308	000000	000000	080700	001000		G	E=246,C=130,B=100
FSGBH	OOYY GEM89	48	0910	0731257	+315846	L	3	24461	L	84111306	000000	000000	065800	006000		G	C=180,B=140
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	3	24483	L	84111502	000000	000000	020900	011000		G	E=75,C=70,B=40
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	3	24484	L	84111504	000000	000000	044700	009000		G	E=72,C=60,B=35
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	3	24482	L	84111423	000000	000000	235100	009000		G	E=72,C=70,B=39
FSGBH	OOYY GEM89	48	0910	0731257	+315846	L	1	04793	L	84111306	000000	000000	061200	001000		G	E=209,C=79,B=40
FSGBH	OOYY GEM89	48	0910	0731257	+315846	L	3	24460	L	84111304	000000	000000	043500	009000		G	E=77,C=70,B=41
FSGBH	OOYY GEM89	48	0910	0731257	+315846	L	1	04792	L	84111304	000000	000000	040700	001000		G	E=212,C=78,B=18
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	1	04800	L	84111404	000000	000000	041700	001000		G	E=237,C=65,B=35
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	1	04814	L	84111506	000000	000000	065100	001000		G	E=210,C=55,B=35
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	3	24485	L	84111507	000000	000000	070500	007500		G	E=96,C=95,B=65
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	1	04815	L	84111508	000000	000000	085300	001000		G	E=226,C=80,B=50
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	1	04801	L	84111406	000000	000000	061400	001500		G	E=245,C=65,B=38
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	1	04802	L	84111408	000000	000000	084100	001000		G	E=255,C=105,B=70
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	1	04812	L	84111501	000000	000000	012700	001000		G	E=185,C=60,B=38
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	3	24486	L	84111509	000000	000000	090800	009000		G	E=88,C=85,B=58
FSGBH	OO YY GEM	48	0910	0731257	+315846	L	3	24477	L	84111407	000000	000000	070600	006000		G	E=142,C=130,B=105
GC243	YY GEM	48	0890	0731260	315850	E	9	01595	2	84111417	000000	000000	175800	016000		V	TARGET SWLA
GC243	YY GEM	48	0876	0731260	315850	L	1	04808	L	84111418	000000	000000	181952	001000	252	V	
GC243	YY GEM	48	0890	0731260	315850	L	3	24480	L	84111416	000000	000000	164436	009000	330	V	
GC243	YYGEM	48	0875	0731260	315850	L	1	04804	L	84111411	000000	000000	111149	000800	352	V	RP=(-34,-208)
GC243	YY GEM	48	0879	0731260	315850	L	3	24479	L	84111413	000000	000000	134335	008500	341	V	
GC243	YY GEM	48	0883	0731260	315850	L	1	04806	L	84111415	000000	000000	151155	001000	352	V	
GC243	YY GEM	48	0913	0731260	315850	L	1	04807	L	84111416	000000	000000	160456	001000	351	V	
PHCAL	OO TFLOOD	99	0000	0732080	-502828	H	1	04833	L	84111808	000000	000000	085600	000025		G	B=110
PHCAL	OO WAVCAL	98	0000	0732080	-502828	L	1	04831	S	84111807	074300	000001	000000	000000		G	E=10X,B=110
PHCAL	OO WAVCAL	98	0000	0732080	-502828	H	1	04832	S	84111808	081300	000016	000000	000000		G	E=50X,B=125
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	24164	L	84101212	000000	000000	123300	000010		G	C=165,B=18
PHCAL	HD 60753	21	0670	0732081	-502829	L	1	04834	L	84111809	000000	000000	094000	000026		G	C=215,B=72
PHCAL	HD 60753	21	0670	0732081	-502829	L	1	04779	L	84111107	000000	000000	073300	000006		G	C=185,B=33
PHCAL	HD 60753	21	0670	0732081	-502829	L	1	04558	L	84101212	000000	000000	120400	000006		G	C=188,B=16
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	24442	L	84111107	000000	000000	074000	000010		G	C=170,B=20
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	24163	L	84101211	000000	000000	115900	000010		G	C=175,B=18
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	17517	L	84101608	000000	000000	082200	000031		G	C=190,B=22
PHCAL	HD 60753	21	0670	0732081	-502829	L	2	17516	SL	84101607	075400	000021	075000	000007		G	C=180,B=20
PHCAL	HD 60753	21	0670	0732081	-502829	L	3	24499	L	84111810	000000	000000	102500	000041		G	C=215,B=72
PHCAL	CD-31 4800	16	1050	0734344	-320546	L	1	04569	L	84101312	000000	000000	124900	000051		G	C=163,B=36
HCGTA	HD 61295	39	0620	0736424	+320734	L	3	24270	L	84102308	000000	000000	082200	000400		G	C=170,B=67
HCGTA	HD 61295	39	0620	0736424	+320734	L	1	04854	L	84112110	000000	000000	100800	000100		G	C=2X,B=40
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04488	L	84100307	000000	000000	072100	002500		G	E=3X,C=112,B=40
RSGTA	HD 62044	47	9999	0740114	+290022	L	3	24101	L	84100212	000000	000000	120400	002500		G	E=237,B=180
RSGTA	HD 62044	47	9999	0740114	+290022	H	1	04482	L	84100212	000000	000000	123900	000730		G	E=1.5X,C=118,B=70
RSGTA	HD 62044	47	9999	0740114	+290022	H	1	04481	L	84100211	000000	000000	112900	000500		G	E=1.2X,C=170,B=130
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04489	L	84100308	000000	000000	082100	001000		G	E=1.2X,C=70,B=35
RSGTA	HD 62044	47	9999	0740114	+290022	L	3	24100	L	84100210	000000	000000	105300	001000		G	E=193,B=170

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
RSGTA	HD 62044	47	9999	0740114	+290022	L	3	24099	L	84100209	000000 000000	094300 002500		G E=250,C=1.2X,B=195
RSGTA	HD 62044	47	9999	0740114	+290022	H	1	04480	L	84100210	000000 000000	101800 001000		G E=2X,C=1.2X,B=200
RSGTA	OO WAVECAL	98	9999	0740114	+290022	H	3	24108	S	84100404	043700 000018	000000 000000		G E=2X,B=108
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04506	L	84100521	000000 000000	212200 002500		G E=2-3X,C=125,B=39
RSGTA	HD 62044	47	0430	0740114	+290022	H	3	24124	L	84100521	000000 000000	215400 036000		G E=1.5X,B=70
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04507	L	84100604	000000 000000	041100 002500		G E=3X,C=127,B=40
RSGTA	OO WAVECAL	98	9999	0740114	+290022	H	3	24125	S	84100604	044300 000018	000000 000000		G E=3X,B=110
RSGTA	HD 62044	47	0430	0740114	+290022	L	3	24172	L	84101407	000000 000000	073100 002500		G E=2.5X,C=110,B=70
GC089	HD62044	47	0461	0740114	290022	E	9	01584	2	84100313	000000 000000	130303 016000		V FOR SWP24107
RSGTA	HD 62044	47	0430	0740114	+290022	L	3	24173	L	84101408	000000 000000	083500 001000		G E=249,C=122,B=75
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04573	L	84101405	000000 000000	054500 002500		G E=2.0X,C=180,B=100
RSGTA	HD 62044	47	0430	0740114	+290022	L	3	24178	L	84101506	000000 000000	065200 002500		G E=2.0X,C=68,B=26
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04474	L	84100112	000000 000000	122500 002300		G E=2X,C=2X,B=205
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04487	L	84100305	000000 000000	054200 006000		G E=6X,C=190,B=45
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04574	L	84101406	000000 000000	065700 002500		G E=3X,C=180,B=105
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04473	L	84100111	000000 000000	114400 000500		G E=2X,B=181
RSGTA	HD 62044	47	0430	0740114	+290022	L	3	24091	L	84100111	000000 000000	110700 001000		G E=2X,B=3X
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04583	L	84101507	000000 000000	072800 002500		G E=3.0X,C=198,B=110
RSGTA	HD 62044	47	0290	0740114	+290022	H	1	04582	L	84101506	000000 000000	060300 002500		G E=3.0X,C=160,B=73
RSGTA	HD 62044	47	0430	0740114	+290022	L	3	24090	L	84100109	000000 000000	095600 001000		G E=191,B=160
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04472	L	84100110	000000 000000	103300 000730		G E=2X,C=2X,B=2X
GC089	HD62044	47	0462	0740114	290022	H	1	04494	L	84100319	000000 000000	192830 002500	372	V
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04471	L	84100109	000000 000000	091900 002500		G E=2X,C=2X,B=2X
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04584	L	84101508	000000 000000	083500 001000		G E=2.0X,C=195,B=137
RSGTA	HD 62044	47	0430	0740114	+290022	L	3	24179	L	84101508	000000 000000	080000 002500		G E=1.5X,C=139,B=90
PHCAL	OO NULL	99	0430	0740114	+290022	H	1	04495	L	84100321	000000 000000	210600 000000		G B=40
RSGTA	HD 62044	47	0430	0740114	+290022	H	3	24107	L	84100322	000000 000000	221400 080800		G E=2X,C=220,B=140
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04575	L	84101408	000000 000000	080400 001000		G E=1.0X,C=175,B=102
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04493	L	84100311	000000 000000	115400 002500		G E=2X,C=135,B=50
RSGTA	HD 62044	47	0430	0740114	+290022	L	3	24171	L	84101406	000000 000000	062300 002500		G E=2.0X,C=68,B=36
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04492	L	84100311	000000 000000	111000 001000		G E=1.5X,C=100,B=50
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04491	L	84100310	000000 000000	100600 002500		G E=2X,C=140,B=65
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04490	L	84100309	000000 000000	090600 002500		G E=2X,C=123,B=45
RSGTA	HD 62044	47	0430	0740114	+290022	H	1	04496	L	84100404	000000 000000	040200 002500		G E=3X,C=125,B=35
FSGKL	OO YZ CMI	48	1120	0742007	+034031	L	3	24654	L	84121006	000000 000000	065800 003500		G B=180
FSGKL	OO YZ CMI	48	1120	0742007	+034031	L	1	04957	L	84121006	000000 000000	060400 003000		G B=1.2X
FSGKL	OO YZ CMI	48	1120	0742007	+034031	L	3	24653	L	84121004	000000 000000	045400 003500		G B=100
FSGKL	OO YZ CMI	48	1120	0742007	+034031	L	1	04956	L	84121003	000000 000000	035600 003000		G E=151,B=71
FSGKL	OO YZ CMI	48	1120	0742007	+034031	L	1	04958	L	84121007	000000 000000	075800 003000		G E=190,B=138
FSGKL	OO YZ CMI	48	1120	0742007	+034031	L	3	24652	L	84121002	000000 000000	025200 003500		G B=34
FSGKL	OO YZ CMI	48	1120	0742030	+034031	L	1	04955	L	84121002	000000 000000	020500 003000		G E=210,B=38
GC243	YZ CMI	48	1102	0742040	034048	L	1	04928	L	84120613	000000 000000	132155 002500	242	V 2 SPECTRA 10+15MIN
GC243	YZ CMI	48	1102	0742040	034048	L	3	24621	L	84120612	000000 000000	122425 004000	111	V 2 SPECTRA 20MIN EACH
GC243	YZ CMI	48	1102	0742040	034048	L	1	04927	L	84120611	000000 000000	113311 002500	142	V 2 SPECTRA 10+15MIN
GC243	YZ CMI	48	1101	0742040	034048	L	3	24620	L	84120610	000000 000000	104143 004000	111	V 2 SPECTRA 20MIN EACH

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
IBGPS	00 U GEM	54	1400	0752077	+220802	L	1	04850	L	84112100	000000 000000	002700 003500		G E=173,C=118,B=60
IBGPS	00 U GEM	54	1400	0752077	+220802	L	1	05030	L	84121902	000000 000000	020100 005000		G E=1.5X,C=195,B=106
IBGPS	00 U GEM	54	1400	0752077	+220802	L	1	05031	L	84121903	000000 000000	035600 003000		G E=255,C=215,B=158
IBGPS	00 U GEM	54	1400	0752077	+220802	L	1	04851	L	84112101	000000 000000	014500 002000		G E=139,C=120,B=65
IBGPS	00 U GEM	54	1400	0752077	+220802	L	3	24520	L	84112102	000000 000000	022800 002700		G C=62,B=34
IBGPS	00 U GEM	54	1400	0752077	+220802	L	3	24716	L	84121902	000000 000000	025800 004500		G C=160,B=101
IBGPS	00 U GEM	54	1400	0752077	+220802	L	1	04599	L	84102107	000000 000000	074300 003000		G E=1.1X,C=250,B=185
IBGPS	00 U GEM	54	1400	0752077	+220802	L	1	04598	L	84102106	000000 000000	062600 004500		G E=212,C=180,B=67
IBGPS	00 U GEM	54	1400	0752078	+220804	L	3	24634	L	84120803	000000 000000	030400 004200		G C=100,B=37
IBGPS	00 U GEM	54	1400	0752078	+220804	L	1	04940	L	84120803	000000 000000	035600 002700		G E=139,C=120,B=40
IBGPS	00 U GEM	54	1400	0752078	+220804	L	1	04939	L	84120802	000000 000000	020600 005000		G E=206,C=188,B=88
IBGPS	00 U GEM	54	1400	0752078	+220804	L	3	24385	L	84110404	000000 000000	044700 004500		G C=100,B=22
IBGPS	00 U GEM	54	1400	0752078	+220804	L	1	04716	L	84110405	000000 000000	054700 005000		G E=224,C=145,B=35
IBGPS	00 U GEM	54	1400	0752078	+220804	L	3	24154	L	84100911	000000 000000	112000 003000		G C=163,B=120
IBGPS	00 U GEM	54	1400	0752078	+220804	L	1	04715	L	84110403	000000 000000	034500 005000		G E=202,C=125,B=37
IBGPS	00 U GEM	54	1400	0752078	+220804	L	1	04532	L	84100909	000000 000000	094700 002200		G E=225,C=200,B=158
IBGPS	00 U GEM	54	1400	0752078	+220804	L	1	04533	L	84100912	000000 000000	120300 004500		G E=230,C=180,B=105
PHCAL	BD+75325	16	0966	0804430	750648	L	1	04952	L	84120915	000000 000000	153143 000020	503	V
PHCAL	BD+75 325	16	0964	0804430	750648	L	3	24650	L	84120915	000000 000000	152800 000014	500	V
PHCAL	BD+75 325	16	0953	0804430	750648	L	3	24651	L	84120916	000000 000000	164319 000014	500	V
PHCAL	BD+75 325	16	0952	0804430	750648	L	1	04953	L	84120916	000000 000000	160247 000140	503	V TRAIL R=0.2 I=1
PHCAL	BD+75 325	16	0965	0804430	750648	L	3	24729	LS	84122113	132618 000042	132301 000014	500	V 500$
PHCAL	BD+75 325	16	0969	0804430	750648	L	2	17566	LS	84122113	133403 000112	133000 000024	502	V 502$
PHCAL	BD75 325	16	0945	0804430	750648	L	3	24106	L	84100220	000000 000000	204115 000043	400	V TRAIL R=0.46;I=1
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	1	04781	L	84111110	000000 000000	100100 000020		G C=195,B=35
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	24168	L	84101311	000000 000000	112900 000014		G C=165,B=17
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	3	24444	L	84111110	000000 000000	100800 000014		G C=170,B=18
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	17571	L	84122606	000000 000000	065100 000144		G C=195,B=30
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	17522	L	84101612	000000 000000	120600 000024		G C=190,B=21
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	17573	L	84122608	000000 000000	081400 000028		G C=195,B=28
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	17572	L	84122607	000000 000000	073800 000056		G C=2X,B=30
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	2	17570	L	84122606	000000 000000	061200 000028		G C=200,B=28
PHCAL	BD+75 0325	16	0950	0804432	+750648	L	1	04568	L	84101311	000000 000000	112500 000020		G C=178,B=40
HYGLH	HD 67594	45	0430	0806048	-025013	H	1	04713	L	84110308	080000 000000	081400 004500		G E=225,C=250,B=55
OBGGS	HD 68520	22	0430	0807466	-682813	H	3	24456	L	84111210	080000 000000	103400 000225		G C=225,B=40
OBGGS	HD 68520	22	0430	0807466	-682813	H	1	04790	L	84111210	000000 000000	104100 000110		G C=210,B=42
EGGSL	00 DD0 50	82	1100	0813598	+705228	L	1	04938	L	84120723	000000 000000	234900 005000		G B=65
EGGSL	00 DD0 50	82	1100	0813598	+705228	L	3	24633	L	84120718	000000 000000	185900 028500		G C=130,B=85
LEGTS	HD 69897	41	0510	0817018	+272252	L	3	24600	L	84120302	000000 000000	020600 006000		G C=5X,B=35
NFGRF	00PUPPIS A	75	0000	0818095	-424127	L	3	24194	L	84101722	000000 000000	220400 040500		G E=115,C=125,B=80
PHCAL	00 WAVCAL	98	0000	0819582	-424031	H	2	17515	S	84101606	070000 000016	000000 000000		G E=50X,B=136
PHCAL	00 WAVCAL	98	0000	0819582	-424031	L	2	17514	S	84101606	063600 000001	000000 000000		G E=10X,B=82
PHCAL	00 WAVCAL	98	0000	0819582	-424031	L	3	24183	S	84101605	054100 000002	000000 000000		G E=10X,B=99
PHCAL	00 WAVCAL	98	0000	0819582	-424031	H	3	24184	S	84101606	060700 000200	000000 000000		G E=50X,B=121
NFGRF	00PUPPIS A	75	0000	0819585	-422823	L	3	24182	L	84101522	000000 000000	220600 040000		G B=80

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
GM248	HD73898	44	0521	0837379	-292256	H	1	04721	L	84110414	000000	000000	145957	006500	643	V	
CBGMP	HD 74307	66	0840	0841050	+191253	L	3	24356	L	84103105	000000	000000	055800	003000		G	E=80,B=25
CBGMP	HD 74307	66	0840	0841050	+191253	L	3	24357	L	84103107	000000	000000	071400	007000		G	E=244,B=200
CBGMP	HD 74307	66	0840	0841050	+191253	L	1	04683	L	84103106	000000	000000	063800	001600		G	E=121,C=77,B=67
NPGJH	00ABELL 30	70	0000	0844035	+180348	L	1	05018	L	84121702	000000	000000	021600	013500		G	E=1.1X,C=1.5X,B=132
NPGJH	00ABELL 30	70	1450	0844035	+180348	L	1	05022	L	84121707	000000	000000	074500	006300		G	E=197,C=1.2X,B=107
NPGJH	00ABELL 30	70	0000	0844035	+180348	L	3	24708	L	84121701	000000	000000	010400	003500		G	E=216°,C=180,B=37
NPGJH	00ABELL 30	70	0000	0844035	+180348	H	3	24707	L	84121618	000000	000000	181900	038000		G	E=175,C=230,B=138
GA191	LDS235B	29	1550	0845132	-184848	L	1	05074	L	84122509	000000	000000	094537	017000	404	V	
HCGTA	HD 75289	39	0636	0845510	-413254	L	1	04855	L	84112110	000000	000000	104700	000142		G	C=2X,B=39
HCGTA	HD 75289	39	0640	0845511	-413255	L	3	24272	L	84102310	000000	000000	100800	000142		G	B=100
CCGGS	00 T829	47	0950	0846510	+120245	L	1	04676	L	84102921	000000	000000	214000	041000		G	E=178,C=200,B=105
CCGGS	00 IV202	49	0890	0847279	+120238	L	1	04673	L	84102822	000000	000000	220100	041000		G	E=255,C=175,B=113
PHCAL	00 M 67	64	1050	0848427	+115958	D	9	01597	L	84111705	000000	000000	052800	004000		G	NO COMMENTS
BLGAG	Q 0851+202	87	1500	0851573	+201759	L	1	04945	L	84120818	000000	000000	182200	016000		G	E=88,C=95,B=60
BLGAG	Q 0851+202	87	1500	0851573	+201759	L	3	24637	L	84120821	000000	000000	210600	017000		G	C=104,B=77
BLGAG	Q 0851+202	87	1500	0851573	+201759	L	1	04962	L	84121018	000000	000000	180700	016000		G	C=95,B=60
GS227	AREND RIGA	06	1375	0857312	082613	L	3	24783	L	84123011	000000	000000	110255	000500	001	V	
GS227	AREND RIGA	06	1380	0857312	082613	E	9	01620	2	84123010	000000	000000	103000	004000		V	LWP5102
GS227	AREND RIGA	06	1375	0857312	082613	L	1	05102	L	84123010	000000	000000	105130	002000	001	V	
GS227	AREND RIGA	06	1424	0857313	082614	L	3	24784	L	84123011	000000	000000	114312	006000	001	V	
HCGTA	HD 77258	39	0440	0858133	-410330	L	3	24273	L	84102310	000000	000000	104400	000112		G	C=220,B=65
GE118	NGC2798	80	1300	0914097	421240	L	3	24699	L	84121509	000000	000000	092324	020000	301	V	
GE118	NGC2798	80	1300	0914097	421240	L	1	05011	L	84121509	000000	000000	095753	016500	103	V	SERENDIPITY EXPOSURE
GM248	HD81101	44	0516	0919450	-621128	H	1	04722	L	84110416	000000	000000	165307	005000	533	V	
WDGFW	00G117-B15	37	1550	0921116	+352940	D	9	01624	L	84123121	000000	000000	210800	004000		G	NO COMMENTS
WDGFW	00G117-B15	37	1550	0921116	+352940	L	3	24549	L	84112400	000000	000000	003100	020000		G	C=220,B=168
WDGFW	00G117-B15	37	1550	0921116	+352940	L	3	24793	L	84123117	000000	000000	171100	024000		G	C=120,B=70
WDGFW	SA 61454	65	0860	0921116	+353149	D	9	01623	L	84123116	000000	000000	165200	016000		G	NO COMMENTS
CBGMP	HD 82829	66	0770	0931199	-445911	L	1	04656	L	84102704	000000	000000	040200	002000		G	E=2X,C=185,B=42
CBGMP	HD 82829	66	0770	0931199	-445911	L	3	24311	L	84102702	000000	000000	025500	006000		G	E=105,C=75,B=45
QSGRG	PG0946+301	85	1590	0946463	+300919	L	3	24786	L	84123022	000000	000000	225900	011000		G	C=108,B=80
QSGRG	PG0946+301	85	1590	0946463	+300919	L	1	05100	L	84122918	000000	000000	182600	030000		G	E=243,C=200,B=160
QSGRG	PG0946+301	85	1590	0946463	+300919	L	3	24785	L	84123018	000000	000000	180300	024000		G	C=115,B=85
QSGRG	PG0946+301	85	1590	0946463	+300919	D	9	01619	L	84122918	000000	000000	181200	002000		G	NO COMMENTS
QSGRG	PG0946+301	85	1590	0946463	+300919	L	1	05104	L	84123022	000000	000000	221500	004000		G	C=95,B=75
QSGRG	00 0953+41	85	1450	0953482	+412957	L	3	24778	S	84122923	235300	005500	000000	000000		G	B=48
PHCAL	NGC3132	70	1014	1004551	-401129	H	3	24487	L	84111511	000000	000000	114745	040000	352	V	
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	1	04761	L	84110909	000000	000000	090500	003000		G	E=252,B=152
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	1	04771	L	84111007	000000	000000	074500	003000		G	E=230,B=145
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	3	24433	L	84111008	000000	000000	083000	003500		G	B=135
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	1	04772	L	84111009	000000	000000	092300	003000		G	E=251
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	3	24422	L	84110908	000000	000000	081200	003500		G	E=120,B=85
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	3	24408	L	84110707	000000	000000	075400	003500		G	B=90
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	3	24423	L	84110909	000000	000000	095600	003500		G	B=50

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	1	04760	L	84110907	000000	000000	073500	003000		G	E=226,B=118
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	1	04750	L	84110808	000000	000000	080100	003000		G	E=255,C=150,B=110
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	3	24414	L	84110808	000000	000000	084500	003500		G	B=100
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	3	24434	L	84111010	000000	000000	101400	003500		G	B=47
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	3	24409	L	84110709	000000	000000	094300	003500		G	B=65
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	1	04745	L	84110708	000000	000000	085100	002000		G	E=233,C=165,B=125
FSGKL	00 AD LEO	48	0940	1016528	+200718	L	1	04751	L	84110809	000000	000000	094800	003000		G	E=237,C=110,B=96
GC026	HD89758	49	0325	1019215	414506	L	3	24264	L	84102217	000000	000000	170352	012000	351	V	
WRGLA	HD 90657	11	0980	1024408	-582310	L	3	24639	L	84120902	000000	000000	025900	000900		G	E=211,C=140,B=36
WRGLA	HD 90657	11	0980	1024408	-582310	L	3	24641	L	84120904	000000	000000	042900	000900		G	E=194,C=145,B=42
WRGLA	HD 90657	11	0980	1024408	-582310	L	3	24644	L	84120906	000000	000000	061200	000900		G	E=240,C=215,B=110
GE118	NGC3256	80	1200	1025420	-433854	L	3	24700	L	84121513	000000	000000	133839	018800	101	V	
GE118	NGC3256	80	1200	1025420	-433854	L	1	05012	L	84121514	000000	000000	140642	014300	102	V	SERENDIPITY WITH SWP
QSGRC	00 MRK 34	84	1480	1030514	+601721	L	3	24249	L	84102100	000000	000000	003900	019000		G	E=178,C=123,B=90
QSGRC	00 MRK 34	84	1480	1030514	+601721	L	1	04597	L	84102022	000000	000000	220300	015000		G	E=91,C=78,B=33
PHCAL	00SKY BKGD	99	9999	1030514	+601721	H	3	24248	L	84102022	000000	000000	221200	011000		G	C=70,B=42
IGGJS	HD 91597	12	0990	1031120	-603512	L	3	24475	L	84111402	000000	000000	024400	000310		G	C=155,B=15
IGGJS	HD 91597	12	0990	1031120	-603512	H	1	04799	L	84111400	000000	000000	001800	014000		G	C=240,B=68
IGGJS	HD 91597	12	0990	1031120	-603512	H	3	24474	L	84111320	000000	000000	201100	024000		G	C=220,B=80
LEGTS	HD 91816	46	0800	1033333	-113909	L	3	24601	L	84120304	000000	000000	040600	003500		G	B=24
LEGTS	HD 91816	46	0800	1033333	-113909	L	1	04911	L	84120303	000000	000000	034800	000500		G	E=134,C=90,B=35
NDGRD	00 HOMUN.	61	0050	1043060	-592515	H	3	24713	L	84121808	000000	000000	080000	004500		G	E=153,C=135,B=66
PHCAL	00 WAVECAL	98	0000	1043068	-592515	H	1	05028	S	84121806	064900	000016	000000	000000		G	E=60X,B=115
PHCAL	00 WAVECAL	98	0000	1043068	-592515	L	1	05027	S	84121806	062000	000001	000000	000000		G	E=10X,B=106
PHCAL	00 T-FLOOD	99	0000	1043068	-592515	H	1	05029	L	84121807	000000	000000	073100	000025		G	B=104
LGGDD	00 SV UMA	52	0970	1043290	+551800	L	1	04624	L	84102408	000000	000000	081200	001500		G	B=210
PHCAL	HD 93521	12	0700	1045336	+375004	L	3	24250	L	84102109	000000	000000	091400	000003		G	C=170,B=17
PHCAL	HD 93521	12	0700	1045336	+375004	L	1	04600	L	84102109	000000	000000	090300	000003		G	C=195,B=32
PHCAL	HD 93521	12	0700	1045336	+375004	L	3	24443	L	84111108	000000	000000	085200	000003		G	C=153,B=20
PHCAL	HD 93521	12	0700	1045336	+375004	L	1	04780	L	84111108	000000	000000	085700	000003		G	C=180,B=35
PHCAL	HD 93521	12	0700	1045336	+375004	L	3	24290	L	84102510	000000	000000	105900	000003		G	C=165,B=11
PHCAL	HD93521	12	0714	1045336	375004	L	3	24728	LS	84122111	120159	000009	115858	000003	500	V	600$
PHCAL	HD93521	12	0716	1045336	375004	L	2	17565	LS	84122112	120824	000009	120522	000003	401	V	501$
PHCAL	HD93521	12	0702	1045340	375004	L	1	04767	L	84110918	000000	000000	182015	000010	701	V	
PHCAL	HD93521	12	0709	1045340	375004	L	3	24757	L	84122712	000000	000000	122213	000004	500	V	
PHCAL	HD93521	12	0706	1045340	375004	L	1	04762	L	84110911	000000	000000	115136	000003	502	V	
PHCAL	HD 93521	12	0698	1045340	375004	L	3	24425	L	84110912	000000	000000	124833	000012	500	V	TRAILED R=1.67 I=1
PHCAL	HD93521	12	0703	1045340	375004	L	1	04763	L	84110912	000009	000000	125540	000011	501	V	TRAILED R=1.80 I=1
PHCAL	HD93521	12	0698	1045340	375004	H	3	24759	L	84122713	000000	000000	135336	000500	500	V	
PHCAL	HD93521	12	0712	1045340	375004	L	1	05082	L	84122712	000000	000000	122527	000003	500	V	
PHCAL	HD93521	12	0701	1045340	375004	L	3	24758	L	84122713	000000	000000	131800	000013	500	V	TRAIL R=1.50 I=1
PHCAL	HD93521	12	0709	1045340	375004	L	1	05083	L	84122713	000000	000000	132346	000010	800	V	
PHCAL	HD93521	12	0708	1045340	375004	L	3	24424	L	84110911	000000	000000	114749	000003	500	V	
PHCAL	HD93521	12	0706	1045340	375004	H	1	05084	L	84122714	000000	000000	142901	000430	501	V	
LDGJL	00LH332-20	58	1110	1057507	-764556	L	3	24666	L	84121207	000000	000000	070000	003000		G	B=25

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
LDGJL	00LH332-20	58	1110	1057507	-764556	L	1	04971	L	84121206	000000	000000	064800	000500		G	E=51,C=50,B=37
BLGCB	00 MK 421	87	1350	1101410	+382843	L	1	04923	L	84120519	000000	000000	192200	008000		G	C=185,B=43
BLGCB	00 MK 421	87	1350	1101410	+382843	L	3	24605	L	84120317	000000	000000	175000	021000		G	C=170,B=50
BLGCB	00 MK 421	87	1350	1101410	+382843	L	3	24606	L	84120322	000000	000000	220300	015700		G	C=148,B=45
BLGCB	00 MK 421	87	1350	1101410	+382843	L	3	24616	L	84120520	000000	000000	204800	023000		G	C=195,B=65
BLGCB	00 MK 421	87	1350	1101410	+382843	L	1	04917	L	84120321	000000	000000	212600	003000		G	C=100,B=38
GQ052	NGC3516	84	1300	1103228	725024	L	3	24344	L	84102914	000000	000000	145322	018000	342	V	
GQ052	NGC3516	84	1302	1103228	725024	L	3	24192	L	84101713	000000	000000	134558	020000	352	V	
GQ052	NGC3516	84	1301	1103228	725024	L	3	24253	L	84102113	000000	000000	132911	020300	343	V	
GQ052	NGC3516	84	1301	1103228	725024	L	3	24391	L	84110515	000000	000000	152921	020000	342	V	
LDGJL	CP 76 486	58	1060	1106010	-772148	L	1	04989	L	84121402	000000	000000	023300	001500		G	E=60,C=60,B=40
CMGMS	HD 97048	34	0850	1106400	-772300	L	1	04906	SL	84120100	010800	002500	005500	000700		G	C=2X,B=43
CMGMS	HD 97048	34	0850	1106400	-772300	H	3	24748	L	84122518	000000	000000	180500	033500		G	C=168,B=74
CMGMS	HD 97048	34	0850	1106400	-772300	L	3	24749	SL	84122600	003500	002000	001100	001500		G	C=150,B=25
CMGMS	HD 97048	34	0850	1106400	-772300	L	1	05075	SL	84122517	175300	000600	174300	000400		G	C=198,B=31
CMGMS	HD 97048	34	0850	1106400	-772300	L	3	24590	L	84120101	000000	000000	013900	003000		G	C=250,B=21
CMGMS	HD 97048	34	0850	1106400	-772300	H	3	24589	L	84113018	000000	000000	182500	038500		G	C=190,B=90
LDGJL	00 VW CHA	58	1250	1106418	-772559	L	1	04990	L	84121404	000000	000000	040700	002000		G	E=104,C=74,B=50
WRGLA	HD 97152	10	0830	1107569	-604227	L	3	24642	L	84120905	000000	000000	051000	000030		G	E=205,C=134,B=23
WRGLA	HD 97152	10	0830	1107569	-604227	L	3	24640	L	84120903	000000	000000	034400	000030		G	E=201,C=142,B=22
WRGLA	HD 97152	10	0830	1107569	-604227	L	3	24643	L	84120905	000000	000000	053800	000030		G	E=211,C=145,B=22
WRGLA	HD 97152	10	0830	1107569	-604227	L	3	24638	L	84120902	000000	000000	021900	000030		G	E=229,C=150,B=21
LDGJL	00LH332-21	58	1090	1110512	-762737	L	3	24680	L	84121403	000000	000000	031300	006000		G	E=90,C=72,B=61
LDGJL	00X-RAY 22	58	1050	1111035	-770613	L	1	04972	L	84121207	000000	000000	075900	000500		G	C=45,B=35
QSGRC	00 MRK 176	84	1600	1129553	+531335	L	3	24255	L	84102122	000000	000000	224500	022500		G	B=55
BLGYK	00 MRK180	87	1500	1133326	+702559	L	3	24412	L	84110720	000000	000000	201400	039500		G	C=112,B=75
BLGAG	Q 1156+295	85	1600	1156581	+293124	L	3	24659	L	84121021	000000	000000	213600	016000		G	C=85,B=48
CMGMS	GQ COM	85	1550	1202089	281053	L	1	04904	L	84112911	000000	000000	115142	015000	313	V	
CMGMS	GQ COM	85	1550	1202089	281053	L	3	24580	L	84112914	000000	000000	142939	025700	342	V	
GQ205	NGC4151	84	1236	1208000	394056	L	1	05014	L	84121611	000000	000000	110000	003000	563	V	
GQ205	NGC4151	84	1232	1208000	394056	L	1	05038	L	84121910	000000	000000	101226	002500	351	V	
GQ205	NGC4151	84	1250	1208000	394056	L	3	24717	LS	84121910	113710	003000	104306	004500	350	V	230$
GQ205	NGC4151	84	1230	1208000	394056	L	1	05039	L	84121912	000000	000000	121203	004500	471	V	
GQ205	NGC4151	84	1243	1208000	394056	L	3	24704	L	84121611	000000	000000	113707	003300	351	V	
GQ205	NGC4151	84	1237	1208000	394056	L	3	24703	LS	84121609	102459	003000	093143	004500	351	V	341$
GQ205	NGC4151	84	1242	1208004	394102	L	1	05068	L	84122409	000000	000000	092217	002500	451	V	
GQ205	NGC4151	84	1236	1208004	394102	L	1	05069	L	84122411	000000	000000	112158	004500	573	V	
GQ205	NGC4151	84	1237	1208004	394102	L	3	24742	LS	84122409	104352	003000	095305	004500	351	V	231%
GQ205	NGC4151	84	1246	1208004	394102	L	1	05093	L	84122812	000000	000000	120754	005000	472	V	
GQ205	NGC4151	84	1234	1208004	394102	L	3	24743	L	84122412	000000	000000	121433	004500	351	V	
GQ205	NGC4151	84	1241	1208004	394102	L	3	24767	L	84122811	000000	000000	111601	004500	352	V	
GQ205	NGC4151	84	1242	1208004	394102	L	3	24766	L	84122809	000000	000000	095254	004500	352	V	
GQ205	NGC4151	84	1240	1208004	394102	L	1	05092	L	84122810	000000	000000	104400	002500	352	V	
GC024	HD108907	49	0528	1227558	692841	L	1	04630	L	84102413	000000	000000	134816	003000	770	V	
GC026	HD108907	49	0513	1227558	692841	L	3	24265	L	84102219	000000	000000	195937	004800	451	V	

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
EGGSF	NG 4494	81	0990	1228545	+260305	L	3	24719	L	84121918	000000	000000	181700	025000		G C=95,B=80
LEGCS	HD 109358	44	0426	1231222	+413743	H	1	04732	L	84110510	000000	000000	103700	001200		G C=1.5X,B=53
LEGCS	HD 109358	44	0426	1231222	+413743	H	1	04731	L	84110509	000000	000000	094900	001200		G C=1.5X,B=80
HSGFW	00FEIGE 66	28	1050	1234546	+252029	L	3	24551	L	84112408	000000	000000	082300	000102		G C=195,B=20
HSGFW	00FEIGE 66	28	1050	1234546	+252029	L	1	04883	L	84112408	000000	000000	082700	000117		G C=225,B=48
HCGTA	HD 110716	39	0620	1241559	-683327	L	3	24271	L	84102309	000000	000000	092300	000400		G B=175
GE173	NGC4697	81	1218	1246006	-053142	L	3	24709	L	84121709	000000	000000	094133	042400	203	V
GE173	NGC4742	81	1252	1249116	-101059	E	9	01618	2	84121809	000000	000000	093000	004000		V FOR SWP24714 LO RES
EGGSF	NG 4742	81	1130	1249120	-101100	L	3	24714	L	84121817	000000	000000	170600	070000		G C=180,B=105
LGGTS	HD 111812	45	0500	1249158	+274843	H	1	04918	L	84120408	000000	000000	081900	003000		G E=237,C=2X,B=130
LGGTS	HD 111812	45	0500	1249158	+274843	L	3	24609	L	84120406	000000	000000	061800	004500		G E=226,C=3X,B=152
LGGTS	HD 111812	45	0500	1249158	+274843	L	3	24610	L	84120407	000000	000000	073400	003500		G E=194,C=2.0X,B=130
CCGTS	00 WAVECAL	98	9999	1249159	+274844	H	3	24598	S	84120223	232000	000018	000000	000000		G E=8X,B=105
LGGTS	HD 111812	45	0500	1249159	+274844	L	3	24593	L	84120108	000000	000000	080000	004500		G E=146,C=2X,B=55
CCGTS	HD 111812	45	0500	1249159	+274844	H	1	04907	L	84120205	000000	000000	052400	002500		G E=176,C=225,B=40
LGGTS	HD 111812	45	0500	1249159	+274844	L	3	24569	L	84112710	000000	000000	100600	004300		G E=111,C=1.5X,B=35
CCGTS	HD 111812	45	0500	1249159	+274844	D	9	01609	L	84120208	000000	000000	081800	016000		G NO COMMENTS
LGGTS	HD 111812	45	0500	1249159	+274844	L	3	24579	L	84112910	000000	000000	100500	004500		G E=110,C=250,B=20
CCGTS	HD 111812	45	0500	1249159	+274844	H	3	24597	L	84120208	000000	000000	081000	082500		G E=2X,C=2X,B=160
LGGTS	HD 111812	45	0500	1249159	+274844	L	3	24585	L	84113010	000000	000000	100900	004000		G E=103,C=245,B=35
LGGTS	HD 111812	45	0500	1249159	+274844	L	3	24567	L	84112707	000000	000000	071200	004500		G E=230,C=3X,B=164
LGGTS	HD 111812	45	0500	1249159	+274844	L	3	24576	L	84112809	000000	000000	094800	004500		G E=111,C=1.5X,B=42
CCGTS	HD 111812	45	0500	1249159	+274844	L	3	24596	L	84120204	000000	000000	040700	004500		G E=113,C=2X,B=30
LGGTS	HD 111812	45	0500	1249159	+274844	L	3	24602	L	84120305	000000	000000	054100	004000		G E=129,C=227,B=110
CCGTS	HD 111812	45	0500	1249159	+274844	H	1	04909	L	84120207	000000	000000	072500	005000		G E=1.2X,C=2.5X,B=85
CCGTS	HD 111812	45	0500	1249159	+274844	H	1	04910	L	84120222	000000	000000	223200	004000		G E=255,C=2X,B=55
EGGJH	00 BSO 234	88	1750	1300424	+360733	L	3	24594	L	84120117	000000	000000	174000	036000		G E=130,C=183,B=135
GE038	BSO 234	88	1740	1300425	360734	E	9	01608	2	84120109	000008	000000	094700	004000		V FES FOR SWP24594,SWL
WDGFW	00 GD154	37	1530	1307382	+352539	L	3	24548	L	84112320	000000	000000	200600	021000		G C=75,B=50
EGGJH	00 MK 66	88	1480	1323577	+573038	D	9	01594	L	84110310	000000	000000	102600	000115		G NO COMMENTS
EGGJH	00 MK 66	88	1480	1323577	+573038	L	3	24384	L	84110310	000000	000000	103400	093000		G C=203,B=130
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05049	L	84122102	000000	000000	025000	004500		G E=218,C=212,B=160
RSGFW	HD 117555	45	0820	1328247	+242924	L	3	24724	L	84122103	000000	000000	034100	004000		G E=157,C=177,B=141
RSGFW	00 WAVECAL	98	9999	1328247	+242924	H	1	05067	S	84122406	062300	000005	000000	000000		G E=15X,B=103
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05071	L	84122417	000000	000000	175100	033000		G E=1.5X,C=175,B=92
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05072	L	84122504	000000	000000	041700	012000		G E=235,C=180,B=130
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05054	L	84122117	000000	000000	174500	030000		G E=3X,C=150,B=80
RSGFW	00 WAVECAL	98	9999	1328247	+242924	H	1	05055	S	84122123	233800	000005	000000	000000		G E=15X,B=102
RSGFW	HD 117555	45	0820	1328247	+242924	L	3	24746	L	84122506	000000	000000	062300	013000		G E=138,C=83,B=53
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05056	L	84122204	000000	000000	040600	006500		G E=180,C=145,B=95
RSGFW	HD 117555	45	0820	1328247	+242924	L	3	24732	L	84122205	000000	000000	053800	017500		G E=198,C=142,B=100
RSGFW	00 WAVECAL	98	9999	1328247	+242924	H	1	05073	S	84122506	065800	000005	000000	000000		G E=15X,B=102
RSGFW	00 WAVECAL	98	9999	1328247	+242924	H	1	05057	S	84122206	063000	000005	000000	000000		G E=15X,B=105
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05059	L	84122217	000000	000000	175700	031500		G E=1.5X,C=150,B=80
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05060	L	84122304	000000	000000	040500	014000		G E=220,C=185,B=122

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05047	L	84122018	000000	000000	180200	027000		G	E=4.0X,C=1.5X,B=160
RSGFW	HD 117555	45	0820	1328247	+242924	L	1	05010	L	84121508	000000	000000	082300	008200		G	E=157,C=75,B=34
RSGFW	HD 117555	45	0820	1328247	+242924	L	3	24741	L	84122405	000000	000000	054700	016500		G	E=192,C=120,B=85
RSGFW	OO WAVECAL	98	0820	1328247	+242924	H	1	05048	S	84122023	235800	000002	000000	000000		G	E=6X,B=100
RSGFW	HD 117555	45	0820	1328247	+242924	L	3	24735	L	84122306	000000	000000	063100	012000		G	E=92,C=94,B=49
RSGFW	OO WAVECAL	98	9999	1328247	+242924	H	1	05061	S	84122307	070700	000005	000000	000000		G	E=15X,B=101
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05066	L	84122404	000000	000000	042600	007500		G	E=180,C=160,B=115
RSGFW	HD 117555	45	0820	1328247	+242924	H	1	05065	L	84122318	000000	000000	180300	033000		G	E=2X,C=170,B=94
RSGFW	HD 117555	45	0820	1328247	+242924	L	3	24723	L	84122022	000000	000000	225100	006000		G	E=152,C=140,B=106
PHCAL	ETA UMA	21	0200	1345340	493344	H	3	24730	L	84122114	000000	000000	144248	000006	400	V	
PHCAL	ETA UMA	21	0198	1345340	493344	H	2	17567	L	84122114	000000	000000	144728	000006	502	V	
PHCAL	ETA UMA	21	0203	1345340	493344	H	1	05052	L	84122115	000000	000000	154743	000005	502	V	
PHCAL	HD 120315	21	0180	1345343	+493344	H	3	24367	L	84110110	000000	000000	102900	000006		G	C=173,B=31
PHCAL	HD 120315	21	0180	1345343	+493344	H	1	04695	L	84110110	000000	000000	103700	000005		G	C=220,B=40
PHCAL	HD 120315	21	0180	1345343	+493344	L	1	04908	L	84120206	000000	000000	063800	000000		G	C=220,B=35
GQ226	PG 1351+64	85	1400	1351461	640029	L	1	05094	L	84122816	000000	000000	165953	004700	303	V	
GQ226	PG 1351+64	85	1400	1351461	640029	L	3	24768	L	84122814	000000	000000	145958	011000	343	V	
LEGCS	HD 121710	47	0500	1354172	+274411	H	1	04966	L	84121117	000000	000000	174200	029000		G	E=2X,C=142,B=74
GE125	SEARLE5	72	9999	1401087	543648	E	9	01598	2	84111711	000000	000000	114000	004000		V	SWP24494,GD(461,-642
GE125	SEARLE5	72	1400	1401088	543649	L	3	24494	L	84111711	000000	000000	115925	040800	303	V	GDE(461,-624)
GE125	SEARLE5	72	1400	1401088	543649	L	1	04835	L	84111811	000000	000000	115945	040800	307	V	
GS227	SCHAUMASSE	06	1340	1405136	002850	E	9	01621	2	84123000	000000	000000	000000	004000		V	
LEGTS	HD 128167	40	0440	1432302	+295741	L	3	24568	L	84112708	000000	000000	083100	006000		G	E=180,C=6.5X,B=123
QSGRC	OO I ZW 92	84	1630	1439025	+534303	L	3	24256	L	84102204	000000	000000	040900	004200		G	E=128,C=150,B=104
QSGRC	OO I ZW 92	84	1630	1439025	+534303	L	1	04604	L	84102203	000000	000000	031700	004500		G	C=217,B=175
QSGAB	OOI ZW 92	84	1630	1439026	+534304	L	1	04778	L	84111019	000000	000000	193800	036000		G	E=174,C=150,B=102
QSGAB	OOI ZW 92	84	1630	1439026	+534304	L	3	24440	L	84111101	000000	000000	014400	007000		G	E=121,C=55,B=45
QSGAB	OOI ZW 92	84	1630	1439026	+534304	L	3	24429	L	84110919	000000	000000	194900	040500		G	E=1.5X,C=120,B=90
WDGJN	X 1504+664	17	0010	1501234	+662403	L	3	24363	L	84103122	000000	000000	224600	002500		G	C=80,B=19
WDGJN	X 1504+664	17	0010	1501234	+662403	L	1	04691	L	84103123	000000	000000	231900	010000		G	C=95,B=50
WDGJN	X 1504+664	17	0010	1501234	+662403	L	3	24364	L	84110101	000000	000000	012100	006500		G	C=200,B=22
WDGJN	X 1504+664	17	0010	1501234	+662403	L	1	04692	L	84110102	000000	000000	023700	010000		G	C=165,B=49
PHCAL	BD+332642	20	1099	1550019	330528	L	3	24647	L	84120910	000000	000000	100357	000400	501	V	
PHCAL	BD+332642	20	1101	1550019	330528	L	1	04947	L	84120909	000000	000000	094046	000310	503	V	
GI147	HD143454	63	0991	1557245	260339	L	3	24104	L	84100218	000000	000000	180357	004000	450	V	
GI147	HD143454	63	0986	1557245	260339	L	1	04484	L	84100217	000000	000000	173027	002500	562	V	
CCGJL	HD 144205	49	0570	1601088	+472236	L	1	04542	L	84101012	000000	000000	122100	002700		G	E=194,C=140,B=105
CCGJL	HD 144205	49	0570	1601088	+472236	L	1	04541	L	84101011	000000	000000	114200	001000		G	E=155,B=125
GI110	AG DRA	57	0991	1601230	665624	L	1	04620	L	84102319	000000	000000	194055	001500	561	V	
GI110	AG DRA	57	0996	1601230	665624	L	3	24279	LS	84102318	193117	000500	165131	002000	361	V	251$
GM261	NGC 6153	70	1213	1628046	-400849	L	3	24093	L	84100117	000000	000000	175848	016700	331	V	
GM261	NGC 6153	70	1219	1628046	-400849	L	3	24092	L	84100114	000000	000000	144503	006000	201	V	
GM261	NGC6153	70	1215	1628046	-400849	L	1	04476	L	84100115	000000	000000	155439	012000	332	V	
GM261	NGC 6153	70	1216	1628046	-400849	L	1	04475	L	84100114	000000	000000	140859	003000	201	V	
LGGDD	OO UU HER	52	0900	1634120	+380357	L	1	04629	L	84102412	000000	000000	124100	000900		G	C=123,B=36

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	EXP.LARGE	ECC	COMMENT
WDGHS	OO GD 356	29	1500	1639490	+534654	L	3	24753	L	84122618	000000 000000	182100 003000		G B=28
WDGHS	OO GD 356	29	1500	1639490	+534654	L	3	24754	L	84122619	000000 000000	191700 032500		G C=93,B=67
CCGDS	HD 151044	41	0650	1641083	+500152	H	1	05077	L	84122701	000000 000000	014300 012000		G E=125,C=2X,B=65
MLGBS	HD 326328	20	1020	1650139	-414409	L	3	24118	L	84100506	000000 000000	063600 001300		G C=220,B=17
MLGBS	HD 326328	20	1020	1650139	-414409	L	1	04501	L	84100506	000000 000000	061900 000900		G C=3X,B=30
MLGBS	HD 152217	23	0844	1650239	-411025	L	3	24122	L	84100512	000000 000000	124100 000140		G C=190,B=18
MLGBS	CP 41 7715	20	1050	1650299	-414614	L	3	24119	L	84100508	000000 000000	082200 001400		G C=212,B=20
MLGBS	CP 41 7715	20	1050	1650299	-414614	L	1	04502	L	84100508	000000 000000	081000 000500		G C=235,B=35
MLGBS	OO S 274	21	0900	1650349	414443	L	3	24116	S	84100422	221300 010000	000000 000000		G
MLGBS	CP 41 7724	20	0950	1650350	-414426	H	3	24117	L	84100500	000000 000000	004100 030000		G C=220,B=80
MLGBS	CP 41 7724	20	0950	1650350	-414426	D	9	01585	L	84100500	000000 000000	002400 016000		G NO COMMENTS
MLGBS	HD 326333	20	0963	1651109	-414446	L	1	04503	L	84100510	000000 000000	100300 000315		G C=2X,B=37
MLGBS	HD 326333	20	0963	1651109	-414446	L	3	24120	L	84100510	000000 000000	101700 000600		G C=208,B=20
MLGBS	HD 152560	20	0827	1652257	-405646	L	3	24121	L	84100511	000000 000000	114800 000100		G C=212,B=19
MLGBS	HD 152560	20	0827	1652257	-405646	L	1	04504	SL	84100511	113400 000240	114100 000040		G C=5X,B=40
QSGDT	PG1700+518	85	1540	1700132	+515336	L	1	04596	L	84101814	000000 000000	142100 086500		G C=2X,B=143
QSGDT	PG1700+518	85	1540	1700132	+515336	L	3	24185	L	84101703	000000 000000	030400 084500		G E=192,C=195,B=137
GQ229	PG1700+518	84	1550	1700133	515337	D	9	01590	2	84101613	000000 000000	133000 002000		V OFFSET FOR SWP24185
GQ229	PG1700+518	84	1550	1700133	515337	E	9	01591	2	84101814	000000 000000	140500 016000		V FIELD FOR LWP4596
PHCAL	HD155763	25	0331	1708381	654634	L	1	04485	L	84100219	000000 000000	193931 000001	502	V TRAIL R=13.89;I=1
PHCAL	HD155763	25	0335	1708381	654634	L	3	24105	L	84100219	000000 000000	194657 000003	500	V TRAIL R=6.7;I=1=1
HCGTA	HD 155341	39	0610	1709594	-564950	L	3	24274	L	84102311	000000 000000	113700 000500		G C=80,B=55
CCGFF	HD 157482	41	0550	1720049	+400120	H	1	04843	L	84112004	000000 000000	041900 002000		G E=133,C=165,B=81
CCGFF	HD 157482	41	0550	1720049	+400120	L	3	24513	L	84112004	000000 000000	044300 002500		G E=41,C=2X,B=30
CCGFF	HD 157482	41	0550	1720050	+400121	L	3	24521	L	84112104	000000 000000	043400 002500		G C=2X,B=43
CCGFF	HD 157482	41	0550	1720050	+400121	H	1	04852	L	84112103	000000 000000	035900 003000		G E=169,C=225,B=85
MLGTA	HD 159181	45	0290	1729181	+522015	H	1	04577	L	84101410	000000 000000	105500 000500		G E=250,C=2.0X,B=198
MLGTA	HD 159181	45	0290	1729181	+522015	L	1	04587	L	84101511	000000 000000	110700 000020		G C=2.0X,B=42
MLGTA	HD 159181	45	0290	1729181	+522015	L	1	04586	L	84101510	000000 000000	103300 000010		G C=1.5X,B=40
MLGTA	HD 159181	45	0290	1729181	+522015	H	1	04589	L	84101512	000000 000000	122500 001000		G E=255,C=1.5X,B=72
MLGTA	HD 159181	45	0290	1729181	+522015	H	1	04579	L	84101412	000000 000000	121300 001000		G E=1.5X,C=2.0X,B=108
MLGTA	HD 159181	45	0290	1729181	+522015	H	1	04588	L	84101511	000000 000000	114300 000500		G E=207,C=250,B=100
MLGTA	HD 159181	45	0290	1729181	+522015	H	1	04585	L	84101509	000000 000000	095100 001000		G E=2.0X,C=2.0X,B=2.0X
MLGTA	OO WAVCAL	98	9999	1729181	+522015	H	3	24177	S	84101505	051400 000018	000000 000000		G E=5X,B=105
MLGTA	HD 159181	45	0290	1729181	+522015	H	1	04581	L	84101504	000000 000000	044300 002500		G E=3.0X,C=2.0X,B=85
MLGTA	HD 159181	45	0290	1729181	+522015	H	3	24176	L	84101501	000000 000000	015700 015000		G E=216,C=190,B=102
MLGTA	HD 159181	45	0290	1729181	+522015	H	3	24175	L	84101419	000000 000000	195300 030000		G E=252,C=160,B=71
MLGTA	HD 159181	45	0290	1729181	+522015	H	1	04576	L	84101410	000000 000000	101700 000500		G E=1.5X,C=2.0X,B=200
GC090	BETA DRA	45	0311	1729181	522015	H	1	04590	L	84101513	000000 000000	133150 004000	774	V
MLGTA	HD 159181	45	0290	1729181	+522015	H	1	04578	L	84101411	000000 000000	113400 000500		G E=247,C=245,B=137
GC090	BETA DRA	45	0315	1729181	522015	H	3	24180	L	84101514	000000 000000	141802 032700	463	V
GC090	WAVECAL	99	9999	1729181	522015	H	3	24181		84101500	204507 000005	204345 000018	075	V BETA DRA OBS
GC090	BETA DRA	45	0313	1729181	522015	H	1	04580	L	84101413	000000 000000	130701 006000	705	V
GC090	BETA DRA	45	0315	1729181	522015	H	3	24174	L	84101414	000000 000000	141314 030000	463	V
MLGTA	HD 159181	45	0290	1729181	+522015	H	3	24126	L	84100605	000000 000000	055000 018000		G E=169,C=110,B=53

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL	(cont.)	EXP.LARGE	(cont.)	ECC	COMMENT
CCGJL	HD 160371	47	0590	1737428	-321121	L	1	04550	L	84101112	000000	000000	124100	000300		G E=116,C=80,B=40
CCGJL	HD 160371	47	0590	1737428	-321121	L	1	04545	L	84101107	000000	000000	074100	003000		G E=5.0X,C=2.0X,B=95
HYGLH	HD 163770	47	0380	1754322	+371522	H	1	04711	L	84110304	000000	000000	043300	007000		G E=1.5X,C=160,B=50
MLGBS	SA 186209	20	0830	1800558	-223133	L	1	04519	SL	84100711	112900	000145	113500	000030		G C=3X,B=35
MLGBS	HD 164883	20	0730	1801111	-223015	L	3	24139	SL	84100709	100300	000030	095700	000012		G C=240,B=20
MLGBS	HD 164883	20	0730	1801111	-223015	L	1	04518	SL	84100710	100700	000030	100700	000010		G C=1.5X,B=35
MLGBS	00 W 76	20	0956	1801249	-242212	L	1	04516	SL	84100706	064300	000630	063400	000210		G C=1.5X,B=37
MLGBS	00 W 76	20	0956	1801249	-242212	L	3	24137	SL	84100706	061700	000900	060500	000430		G C=2X,B=20
MLGBS	00 W80	20	0940	1801289	-242321	L	3	24134	L	84100701	000000	000000	012000	000245		G C=1.1X,B=17
MLGBS	00 W 80	20	0940	1801289	-242321	L	1	04513	L	84100701	000000	000000	012700	000210		G C=2X,B=34
MLGBS	00 W 86	20	0975	1801300	-242213	L	3	24135	L	84100702	000000	000000	024100	000415		G C=130,B=17
MLGBS	00 W 86	20	0975	1801300	-242213	L	1	04514	SL	84100702	030000	001000	025100	000300		G C=190,B=36
MLGBS	00 W 93	20	0863	1801319	-242004	L	3	24136	SL	84100704	041400	000300	040800	000130		G C=2X,B=20
MLGBS	00 W 93	20	0863	1801319	-242004	L	1	04515	SL	84100704	042700	000230	042200	000045		G C=1.5X,B=35
MLGBS	00 W 117	20	1080	1801549	-242737	L	3	24138	L	84100708	000000	000000	082700	003000		G C=230,B=20
MLGBS	SA 186209	20	0830	1801549	-242737	L	3	24140	SL	84100711	111800	000130	112400	000035		G C=2X,B=20
MLGBS	00 W 117	20	1080	1801549	-242737	L	1	04517	L	84100708	000000	000000	080700	001130		G C=240,B=35
NPGLA	NG 6537	70	1250	1802154	-195029	L	3	24281	L	84102322	000000	000000	221500	021000		G E=80,C=85,B=50
CCGFF	HD 166181	44	0760	1806199	+294056	L	3	24500	L	84111819	000000	000000	193800	015000		G E=149,C=90,B=30
CCGFF	HD 166181	44	0760	1806200	+294057	L	3	24496	L	84111723	000000	000000	233400	013500		G E=152,C=120,B=70
NPGLA	NG 6565	70	1320	1808432	-281122	L	1	04611	L	84102223	000000	000000	230600	006000		G E=110,C=87,B=42
NPGLA	NG 6565	70	1320	1808432	-281122	L	3	24266	L	84102221	000000	000000	215800	006000		G E=185,C=53,B=25
IBGBB	HD 166612	39	0090	1809279	-281459	L	3	24111	L	84100408	000000	000000	082400	000055		G C=200,B=19
MLGCW	HD 167264	14	0540	1812138	-204441	H	3	24190	L	84101710	000000	000000	104300	000340		G C=220,B=59
XBGJR	00 AM HER	54	1250	1814587	+495054	L	3	24774	L	84122907	000000	000000	070400	004000		G E=245,C=85,B=40
XBGJR	00 AM HER	54	1250	1814587	+495054	L	3	24775	L	84122908	000000	000000	081800	003000		G E=200,C=60,B=20
GI235	AM HER	59	1490	1814588	495054	L	1	04663	L	84102716	000000	000000	162646	003000	352	V
GI235	AM HER	59	1431	1814588	495054	L	3	24319	L	84102715	000000	000000	154546	003000	351	V
GI235	AM HER	59	1407	1814588	495054	L	1	04662	L	84102715	000000	000000	150635	003000	352	V
GI235	AM HER	59	1402	1814588	495054	L	3	24318	L	84102714	000000	000000	142521	003500	351	V
GI235	AM HER	59	1400	1814589	495055	L	1	04664	L	84102717	000000	000000	173529	003000	352	V
GI235	AM HER	59	1400	1814589	495055	L	3	24320	L	84102717	000000	000000	170201	002600	341	V
MLGBS	BD-13 4920	20	1010	1815370	-135130	L	1	04512	SL	84100623	000000	002000	234800	000500		G C=190,B=40
MLGBS	BD-13 4920	20	1010	1815370	-135130	L	3	24133	L	84100623	000000	000000	231600	002500		G C=205,B=19
MLGBS	BD-13 4934	20	0950	1816150	-135619	L	3	24132	L	84100622	000000	000000	220800	000740		G C=1.1.X,B=18
MLGBS	BD-13 4934	20	0950	1816150	-135619	L	1	04511	L	84100622	000000	000000	223600	000350		G C=1.5X-2X,B=35
GS227	LEVY-RUDEN	06	1238	1821542	354030	L	1	05103	L	84123016	000000	000000	161850	002500	042	V
GS227	LEVY RUDEN	06	1424	1821542	354030	E	9	01622	2	84123000	000000	000000	000000	004000		V
LGGDD	00 AC HER	52	0780	1828090	+214948	L	1	04623	SL	84102406	070700	000400	065600	000400		G C=160,B=55
LGGDD	00 AC HER	52	0780	1828090	+214948	L	1	04622	L	84102405	000000	000000	054800	002300		G C=4X,B=80
GQ186	3C 382	86	1500	1833119	323918	L	1	04900	L	84112811	000000	000000	115857	013000	413	V
GQ186	3C382	86	1500	1833119	323918	L	3	24577	L	84112814	000000	000000	142027	026700	343	V
AFGJL	HD 171802	40	0540	1834046	+090454	L	3	24323	L	84102802	000000	000000	020800	016500		G E=222.C=10X,B=130
CMGDH	HD 172167	30	0000	1835146	+384402	L	3	24528	S	84112121	213700	000315	000000	000000		G C=225,B=20
CMGDH	HD 172167	30	0000	1835146	+384402	L	1	04858	S	84112120	205400	000300	000000	000000		G C=250,B=30

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
CMGDH	HD 172167	30	0000	1835146	+384402	L	3	24527	S	84112120	200800	000630	000000	000000		G C=150,B=20
CMGDH	HD 172167	30	0000	1835146	+384402	H	1	04861	S	84112201	011300	001500	000000	000000		G C=92,B=45
CMGDH	HD 172167	30	0000	1835146	+384402	L	3	24531	S	84112202	020000	001500	000000	000000		G C=125,B=28
CMGDH	HD 172167	30	0000	1835146	+384402	L	1	04859	S	84112122	222100	000130	000000	000000		G C=210,B=30
CMGDH	HD 172167	30	0000	1835146	+384402	L	3	24529	S	84112123	230100	001000	000000	000000		G C=127,B=20
CMGDH	HD 172167	30	0000	1835146	+384402	H	3	24507	S	84111910	102800	002000	000000	000000		G C=90,B=50
CMGDH	HD 172167	30	0000	1835146	+384402	L	1	04860	S	84112123	234600	000500	000000	000000		G C=120,B=37
CMGDH	HD 172167	30	0000	1835146	+384402	H	3	24530	S	84112200	003300	003000	000000	000000		G C=65,B=32
CMGDH	HD 172167	30	0000	1835147	+384409	H	3	24503	S	84111904	040700	000006	000000	000000		G C=110,B=25
CMGDH	HD 172167	30	0000	1835147	+384409	H	1	04836	S	84111903	033200	000004	000000	000000		G C=145,B=40
CMGDH	HD 172167	30	0000	1835147	+384359	H	1	04840	S	84111910	100300	002000	000000	000000		G C=200,B=140
CMGDH	HD 172167	30	0000	1835147	+384409	L	1	04838	SL	84111905	055100	000800	055000	000800		G C=1.5X,B=50
CMGDH	HD 172167	30	0000	1835147	+384409	H	1	04837	L	84111904	000000	000000	043600	000002		G C=140,B=40
CMGDH	HD 172167	30	0000	1835147	+384409	H	3	24539	S	84112220	200300	038500	000000	000000		G C=180,B=105
CMGDH	HD 172167	30	0000	1835147	+384409	L	1	04871	S	84112302	023500	001500	000000	000000		G C=165,B=40
CMGDH	HD 172167	30	0000	1835147	+384409	H	3	24504	L	84111905	000000	000000	050900	000003		G C=95,B=25
LGGDD	00 R SCT	52	0560	1844490	-054545	L	1	04628	L	84102411	000000	000000	115300	000700		G E=177,C=95,B=48
LGGDD	00 R SCT	52	0560	1844490	-054545	L	1	04626	L	84102410	000000	000000	101500	000400		G C=1.5X,B=220
PHCAL	00 TFLOOD	99	9999	1846402	+161153	H	2	17545	S	84111523	232300	000007	000000	000000		G B=125
PHCAL	00 HI READ	99	9999	1846402	+161153	H	1	04825	L	84111520	000000	000000	205600	000000		G B=110
PHCAL	00 WAVECAL	98	9999	1846402	+161153	H	2	17544	S	84111522	225500	000016	000000	000000		G E=50X,B=30
PHCAL	00 WAVCAL	98	9999	1846402	+161153	L	3	24488	S	84111521	214900	000002	000000	000000		G E=10X,B=100
PHCAL	00 WAVCAL	98	9999	1846402	+161153	H	3	24489	S	84111522	221300	000200	000000	000000		G E=50X,B=120
PHCAL	002ND READ	99	9999	1846402	+161153	H	1	04824	L	84111520	000000	000000	202300	000000		G B=24
PHCAL	00 WAVECAL	98	9999	1846402	+161153	L	2	17543	S	84111522	223000	000001	000000	000000		G
PHCAL	00 NULL	99	9999	1846402	+161153	H	1	04826	L	84111521	000000	000000	211500	000000		G B=40
PHCAL	00 160% UV	99	9999	1846402	+161153	H	1	04823	L	84111520	000000	000000	200700	000531		G B=27
CBGMP	HD 174638	66	0340	1848139	+331759	H	1	04685	L	84103110	000000	000000	105300	000120		G C=2X,B=53
CBGMP	HD 174638	66	0340	1848139	+331759	H	3	24317	L	84102712	000000	000000	121800	000120		G E=3X,C=196,B=37
CBGMP	HD 174638	66	0340	1848139	+331759	H	3	24359	L	84103110	000000	000000	104700	000140		G E=2-3X,C=210,B=48
CBGMP	HD 174638	66	0340	1848139	+331759	H	1	04661	L	84102712	000000	000000	122400	000100		G E=1.5X,C=240,B=42
CCGJL	HD 175588	49	0430	1852452	+365003	L	1	04549	L	84101111	000000	000000	115200	000200		G E=254,C=95,B=52
CBGMP	HD 176437	25	0324	1857042	+323710	H	3	24358	L	84103109	000000	000000	093100	000300		G C=238,B=65
CBGMP	HD 176437	25	0324	1857042	+323710	H	1	04684	L	84103109	000000	000000	092200	000220		G C=2X,B=70
GM248	HD177241	44	0412	1901412	-214900	H	1	04723	L	84110418	000000	000000	183349	001500	433	V
OD51K	00 MARS	03	0050	1903213	-243349	L	3	24297	S	84102607	075700	004500	000000	000000		G C=2.5X,B=78
OD51K	00 MARS	03	0050	1903213	-243349	H	3	24298	S	84102610	105700	007500	000000	000000		G C=110,B=60
OD51K	00 MARS	03	0050	1903213	-243349	L	1	04644	SL	84102608	085600	000010	090100	000007		G C=230,B=32
OD51K	00 MARS	03	0050	1903213	-243349	L	1	04647	SL	84102611	113500	000020	114000	000045		G C=2X,B=45
OD51K	00 MARS	03	0050	1903213	-243349	L	1	04646	SL	84102610	104600	000040	105000	000020		G E=5X,C=3.5X,B=42
OD51K	00 MARS	03	0050	1903213	-243349	L	1	04643	SL	84102607	070900	000010	071400	000003		G E=196,C=228,B=35
OD51K	00 MARS	03	0050	1903213	-243349	L	3	24296	S	84102606	060200	006000	000000	000000		G C=3X,B=31
OD51K	00 MARS	03	0050	1903213	-243349	L	1	04642	SL	84102605	054700	000008	055300	000002		G E=129,C=183,B=32
OD51K	00 MARS	03	0050	1903213	-243349	L	1	04645	SL	84102610	100700	000020	101100	000011		G E=3X,C=2X,B=41
CCGFF	HD 178450	44	0810	1905355	+301024	L	3	24501	L	84111822	000000	000000	225800	018000		G E=200,C=208,B=170

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
CCGFF	HD 178450	44	0810	1905355	+301024	L	3	24495	L	84111719	000000	000000	193700	018000		G E=87,C=85,B=37
DBGGS	HD 181454	22	0400	1919028	-443318	H	3	24453	L	84111207	000000	000000	074100	000300		G C=2.0X,B=50
FEGMP	BD+14 3887	60	0960	1919169	+144729	L	1	04682	L	84103104	000000	000000	043400	004000		G C=110,B=45
FEGMP	BD+14 3887	60	0960	1919169	+144729	L	3	24355	L	84103101	000000	000000	012800	018000		G C=85,B=45
GITOO	NOV VUL	55	0973	1924034	271552	L	1	04797	LS	84111317	174644	000200	173603	000400	572	V 342$
GITOO	NOV VUL	55	0966	1924034	271552	L	3	24473	L	84111316	000000	000000	162110	001000	360	V
GITOO	NOV VUL	55	0964	1924034	271552	H	1	04798	L	84111318	000000	000000	182412	002300	341	V
GITOO	NOV VUL	55	0975	1924034	271552	H	1	04796	L	84111311	000000	000000	115600	015000	453	V
FITOO	N VUL	55	0909	1924034	271552	L	3	24280	L	84102320	000000	000000	203950	001000	561	V
GITOO	NOV VUL	55	0931	1924034	271552	H	3	24457	L	84111213	000000	000000	134656	029300	352	V LO GAIN READ
LEGCS	HD 183492	47	0560	1927043	+142930	H	1	04741	L	84110623	000000	000000	234300	018500		G C=210,B=73
CCGDS	HD 184960	41	0570	1933020	+510743	H	1	05078	L	84122705	000000	000000	054400	006000		G E=143,C=3X,B=90
WDGFW	OO G185-32	37	1300	1935110	+273630	L	3	24552	L	84112409	000000	000000	093900	007000		G C=185,B=72
HYGLH	HD 186791	47	0260	1943529	+102924	H	1	04710	L	84110303	000000	000000	031900	002000		G E=1.5X,C=80,B=38
WRGLA	HD 186943	11	1040	1944143	+280856	L	3	24646	L	84120908	000000	000000	082300	001000		G E=255,C=165,B=60
HCGTA	HD 187321	39	0700	1946301	+184428	L	3	24275	L	84102312	000000	000000	121300	000400		G C=180,B=24
ZAGNO	OO CI CYG	57	1050	1948210	+353327	L	1	04943	L	84120808	000000	000000	083800	000800		G E=161,C=99,B=60
ZAGNO	OO CI CYG	57	1050	1948210	+353327	L	3	24636	L	84120808	000000	000000	082200	001000		G E=132,C=68,B=37
LEGCS	HD 188376	44	0470	1952467	-262601	H	1	04728	L	84110506	000000	000000	060600	005000		G C=2X,B=53
LEGCS	HD 188376	44	0470	1952467	-262601	H	1	04727	L	84110504	000000	000000	045000	004000		G C=1.5X,B=45
PMGJL	HD 188512	44	0370	1952514	+061650	H	1	04749	L	84110803	000000	000000	033900	002400		G E=186,C=1.5X,B=42
PMGJL	HD 188512	44	0370	1952514	+061650	L	3	24413	L	84110804	000000	000000	041000	016100		G C=180,B=55,
LEGCS	HD 188650	45	0580	1952586	+365147	H	1	04967	L	84121123	000000	000000	231600	009500		G E=173,C=2X,B=53
LEGCS	HD 188650	45	0580	1952586	+365147	H	1	04976	L	84121223	000000	000000	233600	007500		G E=145,C=240,B=72
GI007	V1016 CYG	57	1098	1955199	394139	L	3	24655	LS	84121009	101117	000200	095836	000630	270	V 130$
GI007	V1016CYG	57	1096	1955199	394139	H	3	24657	L	84121011	000000	000000	115416	001500	141	V
GI007	V1016 CYG	57	1091	1955199	394139	H	1	04961	L	84121012	000000	000000	122657	019000	375	V
GI007	V1016 CYG	57	1097	1955199	394139	L	3	24656	L	84121010	000000	000000	185034	002500	370	V
GI007	V1016 CYG	57	1096	1955199	394139	L	1	04959	L	84121010	000000	000000	101903	002500	573	V
GI007	V1016 CYG	57	1094	1955199	394139	H	3	24658	L	84121015	000000	000000	154304	006000	161	V
GI007	V1016 CYG	57	1089	1955199	394139	L	1	04960	L	84121011	000000	000000	112250	000140	252	V
GC024	HD192713	45	0556	2013205	232117	H	3	24283	L	84102417	000000	000000	172555	013500	501	V
GA146	HD193237	23	0504	2015565	375236	L	3	24570	L	84112711	000000	000000	115219	000018	500	V
GA146	HD193237	23	0507	2015565	375236	L	1	04894	LS	84112713	130820	000020	130351	000004	503	V 703$
GA146	HD193237	23	0494	2015565	375236	H	1	04483	L	84100215	000000	000000	153402	000500	561	V
GA146	HD193237	23	0506	2015565	375236	H	1	04893	L	84112711	000000	000000	115844	000500	561	V
GA146	HD193237	23	0495	2015565	375236	L	3	24102	L	84100214	000000	000000	143159	000018	501	V
GA146	HD193237	23	0504	2015565	375236	H	3	24571	L	84112712	000000	000000	123022	002800	561	V
GA146	HD193237	23	0482	2015565	375236	H	3	24103	L	84100214	000000	000000	145929	002500	561	V
MLGCW	HD 193322	12	0580	2016205	+403430	H	3	24199	L	84101808	000000	000000	082000	000930		G C=205,B=50
WRGAU	HD 193576	11	0820	2017426	+383424	H	3	24734	L	84122300	000000	000000	002300	018000		G E=150,C=120,B=51
WRGAU	HD 193576	11	0820	2017426	+383424	L	3	24725	L	84122105	000000	000000	055900	000500		G E=255,C=180,B=77
WRGAU	HD 193576	11	0820	2017426	+383424	H	3	24721	L	84122003	000000	000000	030000	007500		G E=208,C=250,B=193
WRGAU	HD 193576	11	0820	2017426	+383424	H	3	24720	L	84122000	000000	000000	003500	009000		G E=195,C=240,B=180
WRGAU	HD 193576	11	0820	2017426	+383424	H	3	24726	L	84122107	000000	000000	073300	007500		G E=192,C=210,B=155

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
WRGAU	HD 193576	11	0820	2017426	+383424	H	3	24740	L	84122400	000000	000000	002800	019500		G E=185,C=140,B=72
WRGAU	HD 193576	11	0820	2017426	+383424	H	3	24769	L	84122817	000000	000000	173100	020200		G E=160,C=120,B=55
WRGAU	HD 193576	11	0820	2017426	+383424	L	1	05050	L	84122106	000000	000000	061000	000230		G C=3X,B=72
WRGAU	HD 193576	11	0820	2017426	+383424	H	3	24745	L	84122500	000000	000000	001900	020000		G E=168,C=140,B=60
WRGAU	HD 193576	11	0820	2017426	+383424	H	3	24731	L	84122200	000000	000000	003000	017000		G E=165,C=120,B=55
GE136	E462-IG20	88	1424	2023530	-291702	L	3	24490	L	84111612	000000	000000	120353	040300	333	V
CVGCW	OON COLLIN	55	1590	2024406	+274040	L	1	05105	SL	84123101	020600	000800	015500	000105		G E=1.2X,C=1.5X,B=40
CVGCW	OON COLLIN	55	0636	2024406	+274040	L	3	24787	L	84123102	000000	000000	021800	005500		G E=76,C=2X,B=40
CVGCW	OON COLLIN	55	0640	2024479	+273959	L	3	24765	L	84122808	000000	000000	082400	001300		G C=48,B=20
CVGCW	OON COLLIN	55	0640	2024479	+273959	L	1	05091	SL	84122808	081400	000300	080700	000030		G E=249,C=115,B=30
FI217	BD +40 422	13	0917	2031273	410831	L	3	24777	L	84122912	000000	000000	124941	023800	443	V
FI217	BD+40 4227	13	0914	2031273	410831	L	1	05099	L	84122912	000000	000000	121028	003500	601	V
LGGDD	00 V VUL	52	0888	2034250	+262542	L	1	04627	L	84102411	000000	000000	110100	000500		G C=194,B=145
OBGGS	HD 196867	22	0380	2037189	+154404	H	3	24451	L	84111205	000000	000000	055800	000310		G C=250,B=40
LEGTS	HD 198084	41	0463	2044066	+572358	L	3	24566	L	84112705	000000	000000	053100	006000		G C=2X,B=82
LEGTS	HD 198084	41	0460	2044067	+572359	L	3	24584	L	84113008	000000	000000	081700	006000		G E=49,C=3X,B=27
GI013	HBV 475	57	1293	2049026	352337	L	3	24662	L	84121109	000000	000000	095127	006500	241	V
GI013	HBV 475	57	1290	2049026	352337	H	3	24663	L	84121111	000000	000000	115114	029600	233	V
GI013	HBV 475	57	1301	2049026	352337	L	1	04965	L	84121111	000000	000000	110335	004000	343	V
OD49K	HD 198846	20	0760	2050036	+342808	H	3	24186	L	84101706	000000	000000	060000	007000		G E=2-3X,B=86
NSGJR	OOCYG LOOP	75	0000	2054520	+305515	L	3	24612	L	84120417	000000	000000	173800	043100		G E=221,C=130,B=104
NSGJR	OOSKY BKGD	07	9999	2054520	+305515	L	1	04919	L	84120417	000000	000000	174400	037000		G E=186,C=120,B=94
GM015	HD201254	74	0707	2105354	142814	H	1	04672	L	84102820	000000	000000	203948	000800	402	V
CSGHJ	HD 201626	50	0820	2107483	+262438	L	1	04897	L	84112802	000000	000000	022700	001200		G C=230,B=35
MLGCW	HD 203467	26	0520	2118200	+643933	H	3	24189	L	84101709	000000	000000	095300	000600		G C=1.1X,B=90
GC210	HD203387	45	0464	2119278	-170254	H	1	04739	L	84110618	000000	000000	182021	002700	551	V
GQ113	PKS2128-12	85	1600	2128526	-122022	L	3	24611	L	84120410	000000	000000	100317	040400	363	V
CCGJL	HD 205730	49	0550	2134082	+450900	L	1	04548	L	84101111	000000	000000	110800	000500		G E=185,C=167,B=139
PMGJL	HD 205478	47	0376	2135598	-773649	H	1	04899	L	84112808	000000	000000	080500	004500		G E=1.2X,C=3X,B=153
GM015	HD206672	74	0481	2140189	505738	H	3	24332	L	84102820	000000	000000	200517	000400	601	V
GM015	HD206672	74	0482	2140189	505738	H	1	04671	L	84102819	000000	000000	192853	000150	601	V
CVGRP	OOSS CYGNI	54	0886	2140450	+432122	L	1	04602	SL	84102111	114500	000100	114100	000028		G C=206,B=43
CVGRP	OOSS CYGNI	54	0910	2140450	+432122	L	3	24204	L	84101812	000000	000000	125300	000045		G C=190,B=15
CVGRP	OO SS CYG	54	0886	2140450	+432122	L	3	24252	SL	84102111	115400	000100	115000	000030		G E=129,C=185,B=20
CVGRP	OOSS CYGNI	54	0910	2140450	+432122	L	3	24203	SL	84101812	120900	000130	120200	000130		G E=168,C=2X,B=16
CVGRP	OO SS CYG	54	1230	2140450	+432122	L	3	24533	L	84112204	000000	000000	044300	002200		G E=144,C=72,B=35
CVGRP	OOSS CYGNI	54	1060	2140450	+432122	L	3	24191	SL	84101712	121100	000500	121100	001600		G E=144,C=100,B=27
CVGRP	OOSS CYGNI	54	1060	2140450	+432122	L	1	04594	SL	84101711	115900	000600	113300	000700		G E=253,C=180,B=69
CVGRP	OOSS CYGNI	54	0910	2140450	+432122	L	1	04595	SL	84101811	115100	000300	114400	000045		G C=1.5X,B=40
CVGRP	OO SS CYG	54	1230	2140450	+432122	L	3	24532	S	84112203	032700	004000	000000	000000		G E=173,C=83,B=45
CVGRP	OO SS CYG	54	1230	2140450	+432122	L	1	04862	L	84112204	000000	000000	041300	001600		G C=150,B=47
CVGRP	OO SS CYG	54	1230	2140450	+432122	L	1	04863	L	84112205	000000	000000	051600	001200		G E=255,C=130,B=47
GM248	HD206952	46	0491	2141117	710452	H	1	04720	L	84110412	000000	000000	120014	012000	534	V
GC026	HD206778	47	0271	2141437	093841	L	3	24263	L	84102214	000000	000000	140346	012000	472	V
LEGTS	HD 206826	41	0470	2141542	+283058	L	3	24583	L	84113005	000000	000000	053700	010500		G E=90,C=10X,B=30

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
GQ114	PKS2145+06	85	1650	2145361	064341	L	1	04944	L	84120809	000000	000000	095206	041500	456	V
GQ114	PKS2145+06	85	1650	2145361	064341	L	1	04922	L	84120509	000000	000000	093800	042900	335	V
IBGBB	HD 207739	39	0010	2147598	+434354	H	1	04877	L	84112309	000000	000000	094400	006500		G E=150,C=150,B=83
IBGBB	HD 207739	39	0010	2147598	+434354	L	3	24544	L	84112309	000000	000000	090900	001400		G C=200,B=79
IBGBB	HD 207739	39	0010	2147598	+434354	L	1	04876	L	84112308	000000	000000	083800	000500		G E=1.5X,C=1.2X,B=85
IBGBB	HD 207739	39	0010	2147598	+434354	L	1	04607	L	84102207	000000	000000	075000	000310		G E=233,C=180,B=36
IBGBB	HD 207739	39	0010	2147598	+434354	L	1	04742	L	84110703	000000	000000	033100	000300		G C=180,B=33
IBGBB	HD 207739	39	0010	2147598	+434354	L	3	24258	L	84102208	000000	000000	080000	001400		G C=235,B=99
IBGBB	HD 207739	39	0010	2147598	+434354	L	3	24407	L	84110703	000000	000000	034000	001300		G C=165,B=19
IBGBB	HD 207739	39	0010	2147598	+434354	L	1	04498	L	84100407	000000	000000	070500	000300		G E=224,C=170,B=35
IBGBB	HD 207739	39	0010	2147598	+434354	H	1	04743	L	84110704	000000	000000	041800	005000		G E=124,C=110,B=50
IBGBB	HD 207739	39	0010	2147598	+434354	L	3	24259	L	84102208	000000	000000	084200	001000		G C=2X,B=210
IBGBB	HD 207739	39	0010	2147598	+434354	L	3	24110	L	84100407	000000	000000	071400	001200		G C=138,B=18
IBGBB	HD 207739	39	0010	2147598	+434354	L	3	24543	L	84112308	000000	000000	080300	001000		G C=208,B=125
IBGBB	HD 207739	39	0010	2147598	+434354	L	1	04875	L	84112307	000000	000000	075300	000300		G E=214,C=182,B=75
PHCAL	BD +28 421	16	1061	2148560	283735	L	1	05081	L	84122711	000000	000000	110212	000300	801	V
PHCAL	BD+28 4211	16	1064	2148560	283735	L	1	05053	LS	84122116	163743	000300	163101	000050	503	V 303$
PHCAL	BD+28 4211	16	1068	2148560	283735	L	3	24727	LS	84122110	102846	000118	102214	000026	500	V 700$
PHCAL	BD +28 421	16	1063	2148560	283735	L	1	05080	L	84122709	000000	000000	095625	000050	501	V
PHCAL	BD +28 421	16	1059	2148560	283735	L	3	24755	L	84122709	000000	000000	095232	000026	500	V
PHCAL	BD+28 4211	16	1057	2148560	283735	L	2	17526	L	84103114	000000	000000	141335	000122	401	V 4.5 KV UVC EHT
PHCAL	BD+28 4211	16	1075	2148560	283735	L	2	17527	L	84103114	000000	000000	144252	000122	401	V 4.5 KV UVC EHT
PHCAL	BD+28 4211	16	1063	2148560	283735	L	2	17528	L	84103115	000000	000000	151552	000100	501	V
PHCAL	BD+28 4211	16	1058	2148560	283735	L	2	17529	L	84103115	000000	000000	154437	000100	501	V
PHCAL	BD+28 4211	16	1064	2148560	283735	L	2	17564	LS	84122110	103747	000300	103306	000100	501	V 501$
PHCAL	BD +28 421	16	1066	2148560	283735	L	3	24756	L	84122710	000000	000000	105700	000118	500	V TRAIL R=0.256 I=1
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	3	24187	L	84101708	000000	000000	081500	000026		G C=200,B=13
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	1	04593	L	84101708	000000	000000	081900	000050		G C=205,B=34
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	2	17569	L	84122604	000000	000000	042600	000824		G C=2X,B=30
PHCAL	BD+28 4211	16	1050	2148574	+283734	L	2	17568	L	84122603	000000	000000	033700	000350		G C=175,B=28
HCGTA	HD 208606	39	0613	2153506	+611814	L	3	24514	L	84112008	000000	000000	083700	000500		G C=180,B=142
HCGTA	HD 208606	39	0613	2153506	+611814	L	1	04846	L	84112008	000000	000000	084900	000200		G E=121,C=125,B=100
OD55K	OO VV CEP	39	0490	2155144	+632313	H	3	24770	L	84122823	000000	000000	230500	010000		G C=160,B=65
OD55K	OO VV CEP	39	0490	2155144	+632313	H	1	05095	L	84122822	000000	000000	220500	005500		G E=3X,C=2.0X,B=70
GQ226	PKS2155-30	87	1310	2155583	-302754	L	1	04738	L	84110614	000000	000000	145715	007000	601	V
GQ226	PKS2155-30	87	1300	2155583	-302754	L	1	04783	L	84111114	000000	000000	141738	002000	301	V
GQ226	PKS2155-30	87	1300	2155583	-302754	L	1	04782	L	84111111	000000	000000	114537	004000	502	V
GQ226	PKS2155-30	87	1301	2155583	-302754	L	3	24410	L	84110714	000000	000000	140758	007000	400	V
GQ226	PKS2155-30	87	1301	2155583	-302754	L	1	04746	L	84110715	000000	000000	152325	003700	501	V
GQ226	PKS2155-30	87	1300	2155583	-302754	L	3	24445	L	84111112	000000	000000	123300	010000	501	V
GQ226	PKS2155-30	87	1314	2155583	-302754	L	3	24406	L	84110616	000000	000000	161422	010500	501	V
CCGSB	BD-03 5357	45	0940	2158009	-025852	L	3	24493	L	84111623	000000	000000	233200	018000		G E=138,B=105
CCGSB	BD-03 5357	45	0940	2158009	-025852	L	1	04828	SL	84111622	223400	000800	222500	000900		G C=220,B=35
CCGSB	BD-03 5357	45	0940	2158009	-025852	L	3	24492	SL	84111621	214800	000640	213000	000720		G C=220,B=20
CCGSB	BD-03 5357	45	0940	2158009	-025852	L	1	04827	SL	84111620	204400	000800	203400	000900		G C=227,B=40

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC		COMMENT
CCGSB	BD-03 5357	45	0940	2158009	-025852	L	3	24491	SL	84111619	200500	000640	195500	000720		G	C=225,B=20
AFGJL	HD 209369	41	0500	2158325	+725630	L	3	24287	L	84102504	000000	000000	044400	006000		G	E=221,C=10X,B=175
RSGDH	HD 209318	66	0985	2159286	+433855	L	1	04527	L	84100812	000000	000000	121300	001500		G	E=174,C=100,B=70
RSGDH	HD 209318	66	0985	2159286	+433855	L	1	04525	L	84100810	000000	000000	103800	001500		G	E=228,C=158,B=125
RSGDH	HD 209318	66	0985	2159286	+433855	L	1	04524	L	84100809	000000	000000	094200	002000		G	E=1.5X,C=150,B=115
RSGDH	HD 209318	66	0985	2159286	+433855	L	1	04526	L	84100811	000000	000000	112600	001500		G	E=239,C=153,B=125
GC025	HD209100	46	0490	2159484	-570111	H	1	04916	L	84120315	000000	000000	151947	006000	461	V	
GC025	HD209100	46	0490	2159484	-570111	L	3	24604	L	84120316	000000	000000	162404	002211	030	V	
GC025	HD209100	46	0484	2159484	-570111	H	1	04913	L	84120311	000000	000000	112211	006000	461	V	EPS INDI
CCGJL	HD 209598	49	0700	2201432	+280620	L	1	04535	L	84100921	000000	000000	214800	042000		G	E=6X,C=200,B=128
CCGJL	HD 209598	49	0510	2201432	+280620	D	9	01588	L	84100919	000000	000000	193300	016000		G	NO COMMENTS
CCGJL	HD 209598	49	0700	2201432	+280620	L	1	04544	L	84101106	000000	000000	061000	004000		G	E=170,C=85,B=50
MLGCW	HD 209975	14	0520	2203361	+620209	H	3	24211	L	84101910	000000	000000	104200	000500		G	C=243,B=49
MLGCW	HD 209975	14	0520	2203361	+620209	H	3	24205	L	84101905	000000	000000	052200	000500		G	C=235,B=40
MLGCW	HD 209975	14	0520	2203361	+620209	H	3	24200	L	84101809	000000	000000	090100	000500		G	C=240,B=57
MLGCW	HD 209975	14	0520	2203361	+620209	H	3	24236	L	84102011	000000	000000	114600	000500		G	C=243,B=51
MLGCW	HD 209975	14	0520	2203361	+620209	H	3	24188	L	84101709	000000	000000	091100	000500		G	C=245,B=62
MLGCW	HD 209975	14	0520	2203361	+620209	H	3	24227	L	84102005	000000	000000	053700	000500		G	C=235,B=40
GA039	HD209975	13	0529	2203362	620210	H	3	24224	L	84101919	000000	000000	194451	000500	551	V	
GA039	HD209975	13	0529	2203362	620210	H	3	24220	L	84101917	000000	000000	171230	000500	551	V	
GA039	HD209975	13	0528	2203362	620210	H	3	24244	L	84102018	000000	000000	182125	000500	501	V	
GA039	HD209975	13	0519	2203362	620210	H	3	24225	L	84101920	000000	000000	201611	000500	551	V	
GA039	HD209975	13	0527	2203362	620210	H	3	24247	L	84102020	000000	000000	202016	000500	501	V	
GHGLH	BD+07 4795	20	1070	2204349	+080001	H	3	24448	L	84111120	000000	000000	201200	028000		G	C=200,B=80
GHGLH	BD+07 4795	20	1070	2204349	+080001	H	1	04787	L	84111200	000000	000000	005800	011500		G	C=180,B=82
GHGLH	BD+16 4689	21	1040	2210180	+170236	H	3	24459	L	84111300	000000	000000	000300	017000		G	C=180,B=65
WRGLA	HD 211853	11	0920	2216545	+555230	L	3	24645	L	84120907	000000	000000	071900	000636		G	E=1.5X,C=220,B=105
BLGAG	Q 2223-056	85	1650	2223110	-051217	L	1	04641	L	84102522	000000	000000	224500	036500		G	E=167,C=140,B=102
GM015	HD212712	74	0752	2223229	500849	H	1	04668	L	84102814	000000	000000	144851	004000	502	V	
OBGGS	HD 212581	22	0450	2223480	-651318	H	3	24452	L	84111206	000000	000000	064700	001000		G	C=2.0X,B=50
HCGTA	HD 213310	39	0436	2227263	+472700	H	1	04616	L	84102312	000000	000000	123800	001100		G	E=152,C=140,B=47
GM015	HD213389	74	0670	2228027	490559	H	1	04670	L	84102818	000000	000000	180249	004000	232	V	
GM015	HD213389	74	0672	2228028	490559	H	1	04667	L	84102813	000000	000000	134434	002000	231	V	
FSGBH	OO GL867	52	0910	2236009	-205247	L	3	24498	L	84111806	000000	000000	062400	002000		G	C=100,B=90
FSGBH	OO GL867	52	0910	2236009	-205247	L	3	24497	L	84111804	000000	000000	040200	006000		G	E=76,C=75,B=58
FSGBH	OO GL867	52	0910	2236009	-205247	L	1	04830	L	84111805	000000	000000	051600	003000		G	E=246,C=95,B=65
PHCAL	HD 214680	12	0490	2237008	+384722	L	1	05040	SL	84121923	000600	000001	235800	000001		G	C=155,B=37
PHCAL	HD 214680	12	0490	2237008	+384722	L	1	05045	SL	84122007	074200	000001	073700	000001		G	C=150,B=32
PHCAL	HD 214680	12	0490	2237008	+384722	L	1	05044	SL	84122007	070500	000001	070100	000001		G	C=2X,B=35
PHCAL	HD 214680	12	0490	2237008	+384722	L	1	05043	SL	84122006	062700	000001	062300	000001		G	C=160,B=35
LEGCS	HD 214714	45	0600	2237183	+371955	H	1	04740	L	84110619	000000	000000	193300	021000		G	C=1.5X,B=72
OD52K	Q 2237+305	85	1620	2237572	+030549	L	1	04954	L	84120918	000000	000000	183300	037500		G	B=150
OBGGS	HD 214923	22	0340	2238580	+103411	H	1	04788	L	84111203	000000	000000	032600	000046		G	C=196,B=40
OBGGS	HD 214923	22	0340	2238580	+103411	H	3	24449	L	84111203	000000	000000	033000	000210		G	C=1.1X,B=40
HCGTA	HD 215318	39	0690	2239202	+810750	L	3	24524	L	84112109	000000	000000	091500	000400		G	C=168,B=92

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
EGGJH	00 MK 309	88	1500	2250099	+242751	L	3	24383	L	84110212	000000	000000	124200	084000		G C=183,B=125
GE038	MK309	88	1500	2250100	242752	E	9	01593	2	84110212	000000	000000	120900	004000		V COLLABO. SWP24383
HCGTA	HD 216946	39	0495	2254140	+492757	L	1	04845	L	84112007	000000	000000	075200	000400		G E=228,C=195,B=150
CVGJR	PG2300+166	54	1250	2300518	+163329	L	3	24779	L	84123002	000000	000000	020700	005500		G E=116,C=155,B=55
CVGJR	PG2300+166	54	1310	2300519	+163330	L	1	05101	L	84123003	000000	000000	030800	005000		G HISTORY TAPE ONLY
CSGJL	HD 217906	49	0260	2301208	+274840	L	3	24170	L	84101403	000000	000000	035700	002500		G E=102,C=81,B=52
CSGJL	00 WAVCAL	98	9999	2301208	+274840	H	1	04572	S	84101404	043100	000016	000000	000000		G E=50X,B=115
CSGJL	HD 217906	49	0260	2301208	+274840	H	1	04571	L	84101321	000000	000000	215600	033500		G E=30X,C=3X,B=165
PHCAL	00 WAVCAL	98	0000	2305409	-154047	L	3	24161	S	84101210	102000	000002	000000	000000		G E=20X,B=103
PHCAL	00 WAVCAL	98	0000	2305409	-154047	H	3	24162	S	84101210	105300	000200	000000	000000		G B=160
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04562	L	84101301	000000	000000	011700	006000		G E=211,C=73,B=48
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04563	L	84101303	000000	000000	030000	006000		G E=215,C=108,B=80
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04564	L	84101305	000000	000000	051200	005000		G E=172,C=130,B=105
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04555	L	84101206	000000	000000	061200	006000		G E=229,C=118,B=90
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04554	L	84101204	000000	000000	044800	005000		G E=214,C=142,B=105
CCGAS	00 GLS890	48	1060	2305410	-154048	L	3	24167	L	84101222	000000	000000	225900	015000		G B=74
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04561	L	84101223	000000	000000	233500	006000		G E=195,C=70,B=43
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04557	L	84101209	000000	000000	090300	002500		G B=1.2X
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04565	L	84101306	000000	000000	064400	006000		G E=192,C=110,B=90
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04566	L	84101308	000000	000000	082100	004000		G B=1.5X
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04567	L	84101309	000000	000000	093600	000600		G B=137
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04560	L	84101221	000000	000000	215300	006000		G E=215,C=70,B=42
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04556	L	84101207	000000	000000	074600	004000		G E=168,C=115,B=90
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04553	L	84101203	000000	000000	031200	006000		G E=202,C=125,B=85
CCGAS	00 GLS890	48	1060	2305410	-154048	L	3	24160	L	84101200	000000	000000	003600	015000		G B=42
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04552	L	84101123	000000	000000	232900	006000		G E=215,C=75,B=43
CCGAS	00 GLS890	48	1060	2305410	-154048	L	1	04551	L	84101122	000000	000000	222900	002500		G E=88,C=68,B=38
PMGJL	HD 219449	47	0421	2313162	-092137	H	1	04898	L	84112806	000000	000000	063100	003500		G E=182,C=207,B=119
PMGJL	HD 219449	47	0420	2313163	-092138	L	3	24441	L	84111103	000000	000000	035200	017500		G E=99,C=115,B=95
AFGJL	HD 219487	40	0660	2313298	+242953	H	1	04634	L	84102506	000000	000000	061600	003000		G E=172,C=250,B=145
AFGJL	HD 220117	41	0580	2318281	+375433	L	3	24322	L	84102721	000000	000000	215600	018000		G C=10X,B=33
AFGJL	HD 220117	41	0580	2318281	+375433	H	1	04665	L	84102801	000000	000000	010300	003000		G E=87,C=225,B=40
NEGRD	00 TAU OCT	72	0010	2321218	-874527	D	9	01615	L	84121606	000000	000000	060300	016000		G NO COMMENTS
NEGRD	00 TAU OCT	72	0010	2321218	-874527	D	9	01614	L	84121606	000000	000000	060400	016000		G NO COMMENTS
QSGRC	PK2322-123	86	1550	2322435	-122356	L	3	24226	L	84101921	000000	000000	215800	041000		G E=189,B=105
GC243	EQ PEG	48	1013	2329200	193942	L	3	24631	L	84120713	000000	000000	135731	004000	131	V 2X20MIN RP(2,-208)13
GC243	EQ PEG	48	1009	2329200	193942	L	3	24630	L	84120712	000000	000000	121310	004000	130	V 2X20 MIN/RP(2,-208)1
GC243	EQ PEG	48	1012	2329200	193942	L	1	04936	L	84120714	000000	000000	144940	002500	231	V 10M RP(2,-208)14:49:
GC243	EQ PEG	48	1010	2329200	193942	L	3	24632	L	84120715	000000	000000	153320	004000	130	V 2X20 MIN RP(2,-208)1
GC243	EQ PEG	48	1013	2329200	193942	L	1	04935	L	84120713	000000	000000	131458	002500	231	V 10M RP(2,-208)13:14:
GC243	EQ PEG	48	1010	2329200	193942	L	1	04934	L	84120711	000000	000000	114345	002000	231	V 2 EXP 10M EACH/RP(2,
GC243	EQ PEG	48	1011	2329200	193942	L	1	04937	L	84120716	000000	000000	162551	001000	231	V RP(2,-208)P(2,-208)1
FSGBH	00 GL896AB	52	1040	2329213	+193942	L	1	04931	L	84120706	000000	000000	061200	001000		G B=118
FSGBH	00 GL896AB	52	1040	2329213	+193942	L	3	24627	L	84120706	000000	000000	064700	001000		G B=100
FSGBH	00 GL896AB	52	1040	2329213	+193942	L	3	24628	L	84120707	000000	000000	075800	001500		G B=90

PRO	OBJECT	CL	MAG	R.A.	DEC	D	C	IMAGE	A	DATE	EXP.SMALL		EXP.LARGE		ECC	COMMENT
FSGBH	00 GL896AB	52	1040	2329213	+193942	L	3	24626	L	84120705	000000	000000	053300	001500		G B=60
FSGBH	00 GL896AB	52	1040	2329213	+193942	L	1	04930	L	84120704	000000	000000	043300	003000		G E=233,C=120,B=90
FSGBH	00 GL896AB	52	1040	2329213	+193942	L	3	24625	L	84120703	000000	000000	031600	006000		G B=30
FSGBH	00 GL896AB	52	1040	2329213	+193942	L	1	04932	L	84120707	000000	000000	072200	001000		G B=105
GI110	Z AND	57	1025	2331150	483230	L	3	24277	LS	84102315	155409	000500	151708	003000	380	V 250$
GI110	Z AND	57	1025	2331150	483230	L	1	04618	LS	84102316	163040	000500	160707	001000	571	V 351$
LEGCS	HD 222368	41	0413	2337225	+052118	H	1	04729	L	84110507	000000	000000	074500	001000		G C=1.5X,B=36
AFGJL	HD 222451	41	0620	2338103	+362636	L	3	24286	L	84102502	000000	000000	021100	009000		G C=10X,B=130
AFGJL	HD 222451	41	0620	2338103	+362636	H	1	04633	L	84102503	000000	000000	034700	003000		G E=155,C=250,B=120
OBGGS	HD 222661	22	0450	2340078	-144918	H	3	24450	L	84111204	000000	000000	045300	000700		G C=250,B=40
PHCAL	00 WAVCAL	98	9999	2346438	+584107	L	3	24288	S	84102509	091800	000002	000000	000000		G E=10X,B=107
PHCAL	00 WAVCAL	98	9999	2346438	+584107	L	1	04636	S	84102508	082500	000001	000000	000000		G E=10X,B=110
PHCAL	00 WAVCAL	98	9999	2346438	+584107	H	3	24289	S	84102509	094400	000200	000000	000000		G E=50X,B=250
AFGJL	HD 223421	41	0630	2346438	+584107	H	1	04635	L	84102507	000000	000000	073500	001500		G C=250,B=175
PHCAL	00 WAVCAL	98	9999	2346438	+584107	H	1	04637	S	84102509	090500	000016	000000	000000		G E=50X,B=140
OBGGS	HD 224686	22	0450	2357199	-655119	H	3	24454	L	84111208	000000	000000	083700	000700		G C=2.0X,B=72
OBGGS	HD 224686	22	0450	2357199	-655119	H	3	24588	L	84113017	000000	000000	173800	000730		G C=1.5X,B=46

Errors in Foregoing VILSPA Log

Please inform us by post of all errors or omissions in the log reproduced in this issue. Detach this page, fold and staple it leaving the mailing address (verso) visible.

CAMERA & IMAGE	DISPERSION	APERTURE	TARGET	DATE OF OBSERVATION	WRONG FIELD CONTENTS	CORRECT INFORMATION

Dr. A.W. Harris
UK Resident Astronomer
Villafranca Satellite Tracking Station
Apartado 54065
Madrid, Spain

QUESTIONNAIRE FOR NEWSLETTER CIRCULATION

☐ Please note my change of address as below. (I attach the current mailing label for cancellation.)

☐ Having become acquainted with the ESA IUE Newsletter through a colleague/library, I would like to be placed on the regular mailing list. My name and address, including the post code, are given below.

☐ Please delete my name and address (printed below) from the Newsletter distribution list.

NAME:

ADDRESS:

Now tear off this last page and return it to ESA, Paris, in the convenient posting format provided. Simply fold and staple leaving the mailing address (verso) visible.

Mrs. S. Babayan
European Space Agency
8-10 rue Mario Nikis
75738 Paris Cedex 15
<u>France</u>

T A P E   A R C H I V E   R E T R I E V A L

DATA TAPE:

TAPE DENSITY ○ 1600 bpi (default) ○ 800 bpi

REQUESTED DATA
○ Raw Data Only
○ Complete: Raw image + Extracted Spectra
○ Extracted Spectra Only

CAM #	IMAGE #	CAM #	IMAGE #	CAM #	IMAGE #	CAM #	IMAGE #

CAMERA NUMBERS: 1 = LWP / 2 = LWR / 3 = SWP / 4 = SWR

REASON DATA IS ACCESSIBLE:

○ Normal Release (6 month rule)

○ Special Release
- ○ data from my programme ....
- ○ maintenance data
- ○ others (give details) ....

....

REQUESTED BY: .... DATE OF REQUEST: ....

MAILING ADDRESS: ....

....

.... DATA BANK R.A.

....

Dr. A. Cassatella,
Data Bank Resident Astronomer,
Villafranca Satellite Tracking Station
Apartado 54065
Madrid,
SPAIN