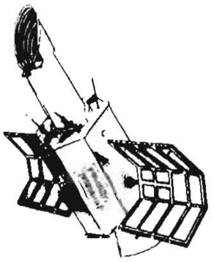

IUE esa NEWSLETTER

NO. 9 JANUARY 1980

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ESA IUE Newsletter:

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Observatory Controller's Message

Changes are still taking place in the Observatory personnel. After the departure of Michael Penston and Jon Darius in November, the Observatory stayed temporarily seriously understaffed. Mike has left a large void and I want to thank him here in the name of the IUE UV-community for his most valuable contribution to the project and in the name of VILSPA staff for his dynamism and the pleasant working atmosphere he set up in the Observatory. This issue of the IUE ESA Newsletter is the first under a new Editor, Willem Wamsteker, who took this task from Jon Darius. The present understaffing of the Observatory is putting more load on everybody and the new distribution of responsibilities is given in this issue. At the beginning of this year, we welcomed a new resident astronomer Patrizio Patriarchi, presently under intense training.

Another three-Agency meeting has been held at VILSPA last November and it has been then agreed to prepare for the use of the LWP camera, which represents good news for observers of faint targets. Further actions involve the implementation of partial reads and preps in the camera operations, investigations on the FES reference frame problem, implementation of a new low-dispersion software and the inclusion of a couple of VILSPA-developed software improvements. Details on these points will be given in future issues of the Newsletter.

The ESA IUE Observation Programme Selection Committee met in Paris late November 1980. Of 165 applications asking for about four times the available observing time, 115 have been approved. Most of the applicants have been informed, except those involved in inter-agency proposals where a final settlement from the concerned agencies is waited for.

As highlights of recent IUE activity, we note the identification of the molecular C_2 dissociation bands in a white dwarf star and the successful observation of a quasar with m_V=17.8. Additionally the analysis of IUE and visual spectra has shown that faint galaxy surveys are biased in favor of tightly wound spirals, due to a larger population of hot stars as compared to more loosely wound systems. IUE observed TT Ari just after its dramatic drop of brightness and reacted quickly to the appearance of Supernovae Wild in NGC 6946 and Wijschnjewsky-Maza in NGC 1316 (Fornax A).

To date, there have been 168 papers using IUE data published in the main journals. Of these 83 have relied solely on data obtained and processed at VILSPA. In last October, an international workshop was held at VILSPA, on which more can be found in this Newsletter as well as on the data reduction workshop in Vienna.

Let me terminate this message by echoing sad news on the shutting down of Copernicus at the end of 1980, putting an end to more than eight years of very successful operations and leaving IUE as the only major available ultraviolet astronomy facility.

A. Heck
Acting IUE Observatory Controller

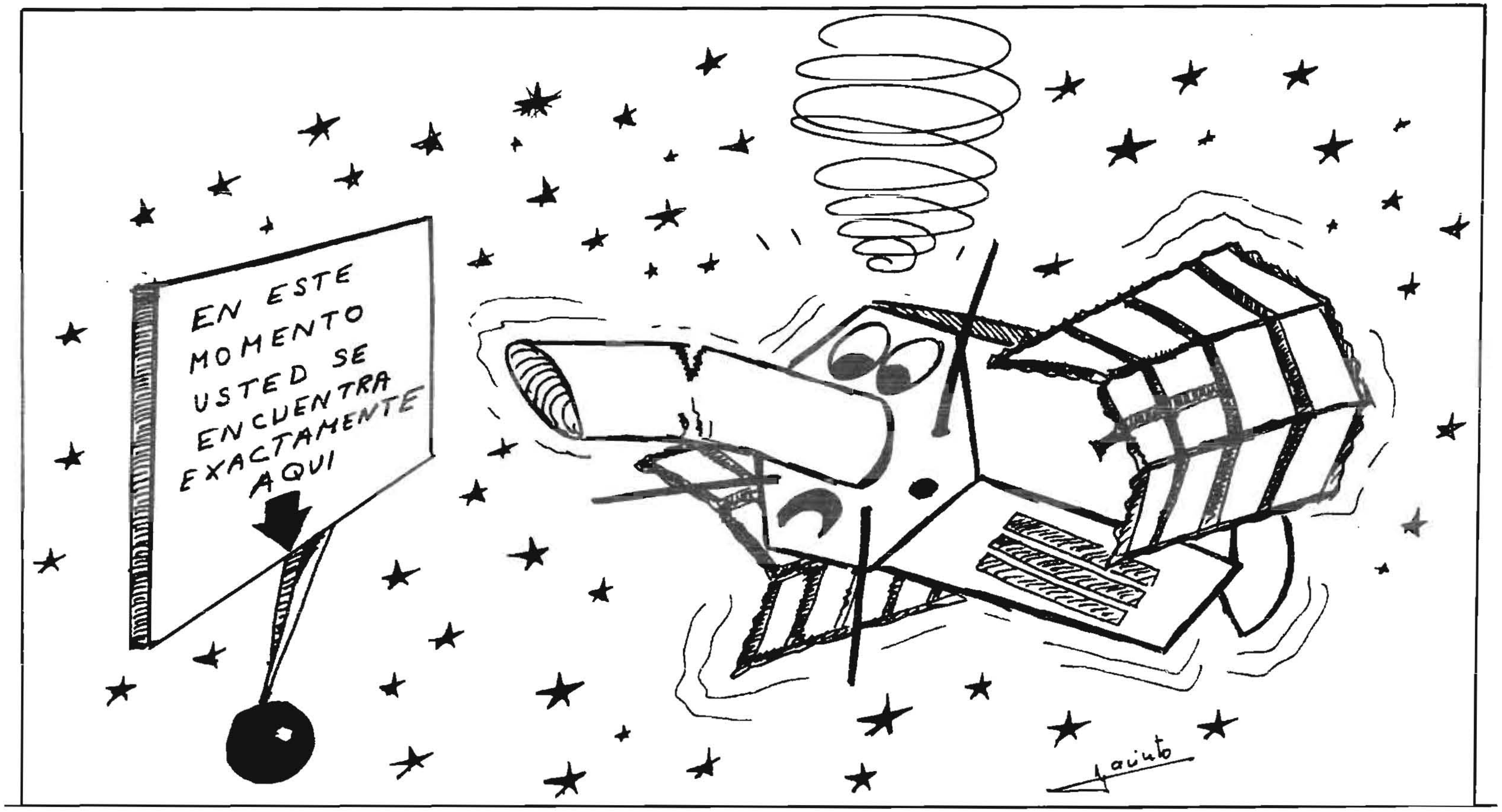
NEW RESIDENT ASTRONOMER

Since January 1st 1981, PATRIZIO PATRIARCHI (32) has joined the astronomical staff at VILSPA. After finishing his studies at the University of Florence with the highest honors, he joined the Arcetri Astrophysical Observatory in 1971 where he has worked until now. His early work has been in radio studies of the Sun. This involved interferometry with the North Cross Radiotelescope in Bologna and is of importance for the understanding of coronal holes. He has, from the launch of IUE, been involved in various investigations in the Ultraviolet. These concern abundance determinations in HII regions and the UV scattering properties of interstellar dust. He speaks Italian and English and is rapidly learning Spanish.

Successful IUE shifts in 1981 to all of you.

(R.A.'s)

Adventures of AIYOUEEE at apogee



If you get lost among the stars, don't worry: recovering attitude is easy!

ESA Workshop on Interstellar Matter

In October, VILSPA was, once again, host to the participants of a small astronomical Workshop on a subject of particular relevance to IUE observations. This time the topic was: Interstellar Media (with particular emphasis on other galaxies). There were 15 participants, from European countries as well as from Chile and the United States.

The Workshop divided into several sections, the first concerning the interstellar medium in the disk of our own galaxy, mainly concentrating on abundance anomalies (depletion) along the lines of sight towards well studied stars. The kinematics of the interstellar medium in particularly disturbed regions, as e.g. η Carina, was discussed. The extent out of the plane of the material giving rise to the OVI lines was found to be considerably smaller than that causing the CIV lines.

The second main topic was the exciting results on the galactic halo in the direction of the Magellanic Clouds. An important question, remaining open after much discussion, was how typical this line of sight is for our galaxy as a whole.

Data were shown of interstellar lines in other galaxies using Seyfert Galaxies, QSO's and Supernovae as background probes.

Also the current status of QSO's absorption lines was reviewed.

Finally theoretical aspects of intergalactic clouds were discussed including the "galactic fountain" models, in which the hot gas at the base of the galactic corona rises upward and falls back as discrete clouds into the plane

Participants felt that this workshop performed a useful function in bringing together those studying the interstellar medium in our own galaxy and those concerned with extragalactic problems, in particular the quasar absorption lines. With the demise of Copernicus at the end of last year, it was agreed that IUE is now the prime instrument for interstellar studies until the launch of Space Telescope. It was also clear, however, that, in addition to data, a theoretical systhesis is urgently needed to improve the understanding of the diverse results already available on the interstellar medium in our own galaxy.

M.V. Penston

REPORT ON THE "WORKSHOP ON IUE DATA REDUCTION"

The "Workshop on IUE Data Reduction" was held in Vienna, Austria, from Nov. 17 to 19, 1980. The meeting took place in the main building of the Austrian Academy of Sciences and was sponsored by the Austrian Solar and Space Agency (ASSA). There were about 60 participants.

After the brief opening statements by the representatives of the host organisations, the workshop started with a session on the current status of IUE data reduction: available software systems and techniques used in the analysis of IUE data. The session was chaired by A. Boksenberg and resulted in a very constructive discussion.

On Tuesday, individual problems were discussed: user-developed extraction routines, better background determination, correction of microphonics, etc. A large amount of technical information was exchanged during this session, which was chaired by R. Bohlin.

The last day was devoted to applications and user problems. After a brief session (Chairman: R. Allen) with contributed papers, there was a panel discussion (Chairman: A. Boksenberg). Although there were a number of problems to be addressed, the discussion very soon concentrated on the issue of software availability and accessibility: more user facilities at the ground stations, availability of ground station software (especially reprocessing software) for the users, and software exchange in general. An ad-hoc IUE Software Coordination Group was formed to improve especially the last point (R. Albrecht, Vienna; L. Bianchi, Vilspa; Ch. Blades, Starlink; R. Bohlin, Goddard; M. Capaccioli, Padova; C. Laurent, France; M. Tarenghi, ESO).

During the three days of the meeting Vienna presented itself with nice weather and many participants enjoyed the standard Viennese attractions: Opera, museums, wine at the "Heuriser", and good food. About 40 persons followed our invitation to visit the observatory and to look at and play with the Tololo-Vienna Interactive Image Processing System.

A first analysis of the results of the meeting shows some important points: with some very few exceptions, IUE-specific software development is restricted to the ground stations. In fact, it is evident that the majority of IUE observers work only with the quick-look plots. There was a strong feeling that more services should be provided for the analysis and interpretation of the data.

This situation is also characterized by a somewhat disappointing aspect of the meeting: although we asked all participants to submit their software to the "Collection of Astronomical Software", which is maintained in Vienna, and thus make it available to the community, there was only one such contribution (G. Sedmak, Multipurpose plot package for IUE data). By contrast, we received 12 requests (along with empty tapes) for the "Collection", which shows that the need for software sharing exists, however, that the approach is too unilateral.

Proceedings are being prepared and will be distributed to the participants free of charge. Other persons interested in receiving a copy should let us know, so we can estimate the number required and calculate a favourable price.

R. Albrecht
Inst. for Astronomy, Vienna, Austria

A Supernova a day,
Keeps the other observers away.

(heard at the last Selection Committee Meeting)

Distribution of Responsibilities

As a consequence of the changes in the R.A. population at VILSPA it has become necessary to redistribute the responsibilities for the various tasks. Below is indicated the present distribution. Anybody interested in or having questions about any aspect of the IUE observing or the VILSPA facilities is kindly requested to communicate directly with the indicated Resident Astronomer.

R.A.	Responsibilities
A. Heck	Administration CDS link IUESIPS modifications Operations
A. Cassatella	Photometric Calibration Polaroid Camera Seminars
C. Cacciari	Data Bank Scheduling
L. Bianchi	IUESIPS routine Library and Catalogues Users Guide
P. Gondhalekar	Camera Operations Logs
W. Wamsteker	EDS-2 improvements Newsletter X-Y measuring machine

MORE ABOUT TRAILED SPECTRA

This note is to clarify the text published in ESA IUE Newsletter N° 6, page 39.

The TRAIL procedure provides an exposure to be automatically trailed over an aperture. Obviously, this is only relevant for the large apertures (major axis: 20"), which will be considered here.

Taking into account that the trail rate, R, must be between 0.03" sec^{-1} and 60" sec^{-1}, the maximum duration of a scan accross the large aperture is 11 m 06 s. Since the exposure time for a well exposed trailed spectrum is 3.2 × that for an untrailed one, the desired trail rate can be found from:

$$R = \frac{n \times 20}{3.2\ t} \quad \text{, with}$$

n = the number of passes over the aperture and,
t = the untrailed exposure time.

One should be aware that the overhead for the TRAIL procedure is quite large: the total time is at least 2 × the trailed exposure.

A. Heck

*

SHORT EXPOSURE TIMES

A detailed analysis by F.H. Schiffer III (NASA-IUE Newsletter N° 11, 33) gives the following recipe to calculate the time of actual exposure for short exposures.

The time the camera was exposed is: the requested time in seconds truncated to the next lowest multiple of 0.4096 seconds minus 0.12 seconds. This result is valid for both the SWP and LWR camera. The result has an uncertainty of ±15 milliseconds.

Q & A Column

Q. How do I know if my targets fall within the hot OBC constraint ?

M. Veron

A. At the IUE Observatory we like a Guest Astronomer to observe his/her prime targets and not make an eleventh hour decision to go to a secondary target because the on-board computer (OBC) is too hot, or because the on-board batteries will not recharge at the spacecraft orientation required by the astronomer's target. These two situations arise in the winter season (September to March) and during the earth shadow season (March-April and September-October), respectively. To check if your primary target(s) is going to be constrained during these two periods, you need to know the spacecraft β angle. The β angle is defined as the angle between the antisun position and the spacecraft Roll axis, and is given by:

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

where: α, δ are RA and DEC of the target

$\alpha_{\odot}$ $\delta_{\odot}$ are RA and DEC of the Sun

The coordinates should be for 1950 epoch. The availibility of a target can now be checked; the accompanying table gives the shadow history of IUE for next five years. During the shadow period the β angle should be greater than 15° and less than 120° ($<15<\beta<120$). This is to allow the batteries to recharge. It should also be realized that during the shadow period a shift is shorter than the normal eight hours.

The winter season (the so called hot OBC period) is normally from September to March and during this period targets at β greater than 55° and less than 95° can be constrained if the handover is with a hot OBC. The constraint only applies if you want to stay at such β for any length of time. So if one is considering long exposures, it is advisable to have at least one back-up target in the area of the sky which allows for OBC cooling ($50°<\beta<20°$ is more efficient for cooling then $95°<\beta<120°$). If you have a number of targets, some in the "hot" region and others in the "cold" region then one can normally plan the observing session such that "cool" targets are observed when the OBC is hot and "hot" targets are observed when the OBC is cool. To facilitate the inclusion of these considerations in an observing plan, ESA has indicated the hot OBC constraint in the skymaps supplied to the observers.

P. Gondhalekar

VALID WAVELENGTHS RANGES FOR RIPPLE CORRECTED HIGH RESOLUTION SPECTRA

At the long and short wavelength extremes of the echelle orders in high dispersion, a large increase in the noise level is present in the extracted spectra. This occurs for two reasons: the camera noise increases towards the edge of the target and the ripple correction itself is large and thus amplifies the noise. The presence of these noise spikes reduces the clarity and usefulness of the calcomp plots of the net spectra. Therefore the project has applied various methods, briefly described here, to improve this.

One algorithm, used in the past, was to plot only those wavelengths in each order (M) which satisfy the following condition:

$$2K/(2M + 1) < \lambda < 2K(2M - 1) \quad \text{with}$$

K = echelle grating constant. This program, CUTMERGE (see also NASA IUE Newsletter N° 5), ensures that the plotted orders never overlap. It was used at GSFC from 30 June 1979 and at VILSPA from 1 February 1980 till 16 April 1980. The disadvantage of this algorithm is that it also removes useful data in the order overlap regions. In particular, at the long wavelength end (λ>1700 A) of the SWP camera unecessary gaps were introduced between orders. This occurs when the shortest extracted wavelength in one order is greater then the cutting wavelength in CUTMERGE.

To remedy this, VILSPA has used since 17 April 1980 a new program CORTAME. In this routine the shortest and longest wavelength to be plotted in an order are taken from look-up tables. These tables, which have been determined by L. Bianchi are given below for both the large and small aperture of the SWP and LWR camera. If users want to replot their high resolution spectra they should include these tables in their plot algorithms.

It should be emphasized that these programs represent a modification in the plot routines only. The data on the G.O. tape contain the complete standard ripple corrected net spectrum.

K. Northover
D. Ponz
L. Bianchi

Updated Prediction of IUE 5 Year Shadow History

Shadow Period Number	Date of First Shadow	Date of Last Shadow	Number of Days Shadow Occurs (Days)	Date of Maximum Penumbra	Duration of Maximum Penumbra (Min)	Date of Maximum Umbra	Duration of Maximum Umbra (Min)
7	3/10/81	4/03/81	25	3/23/81	66.20	3/23/81	62.58
8	9/12/81	10/04/81	23	9/22/81	74.35	9/22/81	69.35
9	3/05/82	3/30/82	26	3/18/82	65.38	3/18/82	61.87
10	9/07/82	9/28/82	22	9/18/82	74.35	3/18/82	70.73
11	3/01/83	3/26/83	26	3/14/83	64.83	3/14/83	61.35
12	9/03/83	9/25/83	23	9/14/83	76.35	9/14/83	71.60
13	2/26/84	3/21/84	25	3/09/84	64.40	3/09/84	60.95
14	8/29/84	9/19/84	22	9/08/84	77.33	9/08/84	72.42
15	2/19/85	3/16/85	26	3/05/85	63.94	3/04/85	60.53
16	8/25/85	9/15/85	22	9/04/85	78.05	9/04/85	73.08

NOTE: The start/end days and the daily eclipse window might be changing slightly after each orbital velocity burn (Delta-V burn).

J. Fälker

Appendix

Upon extraction, high resolution spectra are assigned vacuum wavelengths. These wavelengths are used for the photowrites and the ripple correction, which is done on the basis of the constants (A & K) given in table I (see also: Ripple correction revised). However after these manipulations the data for the LWR camera at λ>2000 A are reconverted to air wavelengths. This causes a shift in wavelength given by:

$$\lambda_{air} = \lambda_{vac} \left(1.0+2.735182\times10^{-4} + \frac{131.4182}{\lambda_{vac}^{2}} + \frac{2.76249\times10^{8}}{\lambda_{vac}^{4}} \right)^{-1}$$

Typically this gives a shift of less than 1.0 A. Differential over a single order this causes no change larger than 10^{-2} A. One thing which is not easy to evaluate is the effect this will have on the ripple correction, it is likely to slightly shift the optimum value of K, and users attempting to do their own ripple correction should allow for this.

TABLE 1 - Values of the Constants for Ripple Correction in IUESIPS

CAMERA	A	K	VALIDITY DATE
	0.09	231075	VILSPA 17-4-78 till 14-6-78
LWR	0.08	231300	GSFC 17-4-78 till 6-7-78
	0.09	231150	VILSPA 14-6-78 till now
			GSFC 6-7-78 till now
SWP	0.10	137725	VILSPA + GSFC

*** LWR CAMERA ***

ORDER	LARGE	APERTURE	SMALL	APERTURE
72	3193.0	3228.0	3195.0	3230.0
73	3147.0	3185.5	3149.5	3186.0
74	3104.5	3144.0	3105.2	3145.0
75	3061.5	3103.0	3063.5	3105.2
76	3021.0	3062.5	3023.0	3064.5
77	2981.0	3023.5	2982.5	3025.0
78	2943.0	2985.0	2945.0	2986.0
79	2905.0	2948.0	2907.0	2949.0
80	2868.0	2911.0	2871.0	2912.0
81	2833.0	2875.0	2835.0	2876.0
82	2797.0	2840.0	2800.0	2842.0
83	2765.0	2805.0	2767.0	2806.0
84	2733.0	2772.0	2735.0	2772.0
85	2700.0	2740.0	2701.0	2741.0
86	2670.0	2708.0	2671.0	2707.0
87	2639.0	2675.0	2640.0	2676.0
88	2609.0	2644.0	2609.0	2645.0
89	2580.0	2615.0	2580.0	2615.0
90	2551.0	2587.0	2552.0	2587.0
91	2524.0	2556.0	2524.0	2557.0
92	2496.0	2529.0	2496.0	2528.0
93	2470.0	2501.0	2470.0	2501.0
94	2443.0	2475.0	2443.0	2475.0
95	2418.0	2448.0	2419.0	2448.0
96	2393.0	2424.0	2393.0	2423.0
97	2368.0	2399.0	2368.0	2399.0
98	2345.0	2375.0	2343.0	2374.0
99	2321.0	2350.0	2322.0	2351.0
100	2298.0	2326.0	2298.0	2327.0
101	2276.0	2304.0	2276.0	2304.0
102	2254.0	2282.0	2254.0	2282.0
103	2231.0	2260.0	2231.0	2260.0
104	2210.0	2238.0	2210.0	2238.0
105	2186.0	2215.0	2188.0	2217.0
106	2169.0	2195.0	2168.0	2194.0
107	2146.0	2174.0	2148.0	2175.0
108	2129.0	2154.0	2128.0	2154.0
109	2108.0	2134.0	2108.0	2135.0
110	2090.0	2115.0	2090.0	2115.0
111	2070.0	2095.0	2070.0	2095.0
112	2052.0	2076.0	2052.0	2076.0
113	2035.0	2058.0	2034.0	2059.0
114	2016.0	2040.0	2016.0	2040.0
115	1999.0	2021.0	1999.0	2021.0
116	1982.0	2004.0	1982.0	2004.0
117	1966.0	1986.0	1966.0	1987.0
118	1949.0	1971.0	1949.0	1971.0
119	1932.0	1954.0	1932.0	1954.0
120	1916.0	1937.0	1917.0	1937.0
121	1901.0	1921.0	1901.0	1922.0
122	1885.0	1905.0	1885.0	1905.0
123	1870.0	1890.0	1871.0	1890.0
124	1855.0	1875.0	1856.0	1875.0
125	1840.0	1860.0	1841.0	1861.0

*** SWP CAMERA ***

ORDER	LARGE	APERTURE	SMALL	APERTURE
65	.0	.0	2122.0	2125.0
66	2087.0	2098.0	2086.0	2097.5
67	2053.5	2069.0	2052.0	2068.5
68	2021.5	2040.0	2020.5	2039.5
69	1991.5	2012.0	1990.0	2011.0
70	1961.5	1984.5	1960.5	1983.5
71	1932.5	1957.5	1932.0	1957.0
72	1905.5	1931.0	1904.5	1930.0
73	1879.2	1905.5	1878.0	1904.5
74	1853.5	1880.0	1852.0	1879.0
75	1828.0	1855.0	1827.0	1854.0
76	1804.0	1830.0	1803.0	1829.5
77	1780.0	1807.0	1780.0	1805.0
78	1757.0	1783.0	1757.0	1783.0
79	1735.0	1760.0	1734.0	1760.5
80	1713.0	1738.0	1712.0	1738.0
81	1691.5	1716.0	1691.0	1716.0
82	1671.0	1695.0	1670.0	1695.0
83	1651.0	1674.0	1650.0	1674.0
84	1630.5	1654.0	1630.0	1654.5
85	1611.5	1634.0	1611.0	1634.0
86	1592.5	1615.0	1594.0	1615.0
87	1574.5	1595.5	1574.0	1597.0
88	1556.5	1578.0	1557.0	1578.0
89	1539.0	1559.5	1539.0	1560.0
90	1522.5	1542.0	1522.5	1542.0
91	1505.0	1525.5	1506.0	1525.5
92	1489.0	1508.0	1489.0	1509.0
93	1472.5	1492.0	1472.5	1492.0
94	1457.0	1475.5	1457.5	1475.5
95	1442.0	1460.0	1443.0	1460.5
96	1427.0	1444.0	1427.0	1445.0
97	1412.5	1429.5	1413.0	1429.5
98	1398.0	1415.5	1398.0	1415.5
99	1383.5	1400.5	1383.2	1400.5
100	1370.0	1386.5	1369.5	1386.5
101	1356.5	1372.0	1356.0	1372.0
102	1343.5	1358.5	1342.5	1358.0
103	1330.5	1345.5	1329.5	1345.0
104	1317.5	1332.0	1317.0	1332.0
105	1305.5	1319.0	1304.5	1319.0
106	1293.0	1307.0	1292.0	1306.5
107	1281.0	1295.0	1280.0	1294.0
108	1269.0	1283.0	1268.5	1282.0
109	1257.5	1270.5	1257.0	1270.5
110	1246.5	1260.0	1246.5	1259.0
111	1235.5	1247.5	1234.5	1247.5
112	1224.5	1237.5	1224.0	1236.5
113	1213.5	1226.5	1213.0	1226.0
114	1203.0	1215.0	1202.5	1215.0
115	1193.0	1205.0	1192.0	1204.5
116	1182.5	1194.5	1182.5	1194.0
117	1173.0	1184.0	1172.5	1184.0
118	1163.0	1174.0	1162.5	1174.0
119	1153.5	1164.5	1153.0	1164.0
120	1143.5	1154.5	1143.5	1154.5
121	1134.5	1145.0	1134.5	1145.0
122	1125.0	1136.0	1125.0	1136.0
123	1116.0	1126.0	1116.0	1126.0
124	1107.5	1117.5	1107.5	1117.5
125	1100.0	1108.5	1100.0	1108.5

THE RIPPLE CORRECTION REVISITED

Several users have pointed out that the ripple correction, applied to their high resolution spectra is not adequate, i.e. the ripple effect is not completely removed from the net spectrum.

The ripple correction that is applied in the IUESIPS package makes use of standard values, while deviations from standard behaviour are expected.

Having faced this problem some time ago I will describe here the procedure I followed.

The echelle ripple is corrected by dividing the observed net flux by:

$$F(x) = \left(\frac{\sin x}{x}\right)^2 (1+Ax^2)$$

where:

$$x = \pi \frac{\lambda - \lambda_c}{\Delta\lambda} = \frac{\pi m}{K} (m\lambda - K)$$

and:

m = order number
λ = wavelength
K = echelle constant

$\lambda_c = \frac{K}{m}$ = central wavelengths of order m
$\Delta\lambda = \frac{K}{m^2}$ = wavelength range of order m

'A' is an empirically adjusted constant (the theoretical ripple is just a sinc^2).

The most straightforward method to determine K is to find the central wavelength of each order (λ_c, see Fig 1), i.e. the wavelength at which the flux is not affected by the ripple. However, since the actual profile of each order is not only a convolution of the real spectrum with the ripple, but also includes other instrumental effects, the above mentioned approach may introduce considerable errors.

I preferred to determine the wavelength λ_x at which two adjacent orders intersect (see Fig 1). At that wavelength the function F(x) (the ripple correction) should be equal for the two orders, hence:

$$m(m\lambda_x - K) = (m+1) \left[(m+1)\ \lambda_x - K)\right]$$

from which:

$$K = \lambda_x \left[\frac{2m^2}{2m^2+1} + 1\right]$$

In this way the constant K, can be determined in an impersonal way from several orders' intersections. A computer program which finds and averages K from all order intersections has been written and tested. In this way possible trends of K as a function of the order's number can be brought out and, corrected for (e.g. an error in the wavelength calibration would generate such a trend).

Anybody who would like to have a copy of the experimental version of the program (written for the Σ9 Computer) should request this from the author.

P. Benvenuti
Astrophysical Observatory
I-36012 Asiago (Italy)

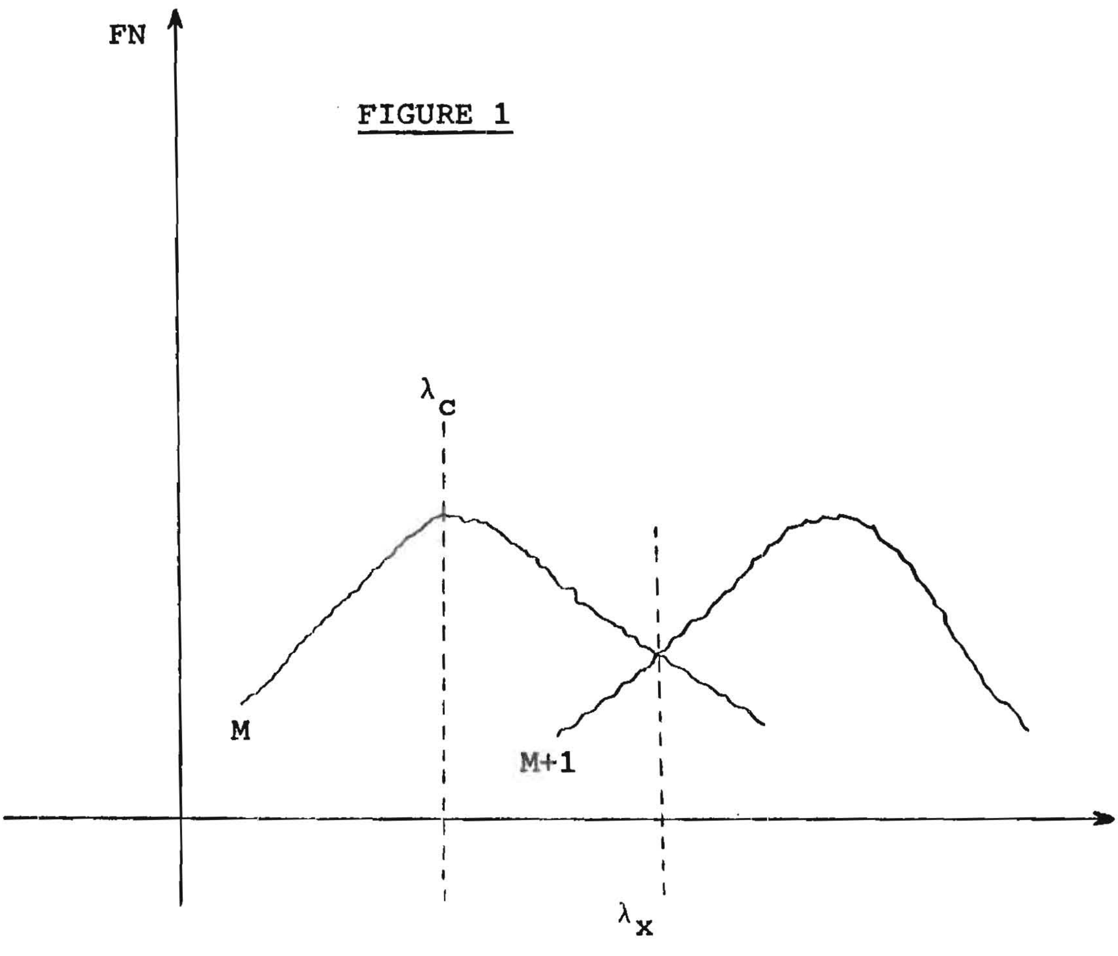


FIGURE 1

Ly-α Removal in Low Dispersion SWP Spectra

Various users have expressed the desire to have the Ly-α geocoronal line removed from their spectra, since this sometimes hides astrophysically important information which would otherwise be present. We describe here a program which does this using the data available on the G.O. tape.

From a survey of sky-only SWP spectra we have made a model that allows the correction of this emission in long exposure, low dispersion images using least squares techniques. The correction is made on the fourth file of the G.O. tape. The sample of sky-only spectra used for modelling was collected between June 79 and February 80 with exposure times ranging from 30 to 190 minutes. The data were taken with different orientations of the telescope, but assuming the large and small aperture profiles to be constant a Ly-α model was constructed by averaging over the sample. The analysis of the data shows no evidence of variations in the aperture ratio, which is found to be 31.45 ± 1.66, 25% larger than the measured value of 25.6. This difference is probably a consequence of the spatial extent of the geocoronal Ly-α.

The model of sky-Lα emission is generated by averaging, after background subtraction, all spectra in the sample prior to averaging, each single image was shifted in line and sample to match the centroid of the large aperture component; fractional pixel shifts are performed by interpolation and improve the accuracy considerably.

In the decontamination procedure, the contribution of sky-Lα in the actual spectrum is estimated using the area without data from the observed target; from the large aperture for spectra collected through the small aperture, and from the small aperture and part of the large aperture for spectra collected through the large aperture.

The observed spectrum is corrected by the subtraction of the geocoronal Ly-α model which has the form:

$$A \cdot h_{ij}$$

where h_{ij} = the Ly-α model and A is a scaling factor, determined from:

$$A = \frac{\sum\limits_{i,j} w_{ij}\, f_{ij}\, h_{ij}}{\sum\limits_{ij} w_{ij}\, h^2{}_{ij}} ,$$

w_{ij} = weighting function (0 or 1), defining the area where only sky-Ly is present, and f_{ij} = the observed spectrum.

f_{ij} = the observed spectrum

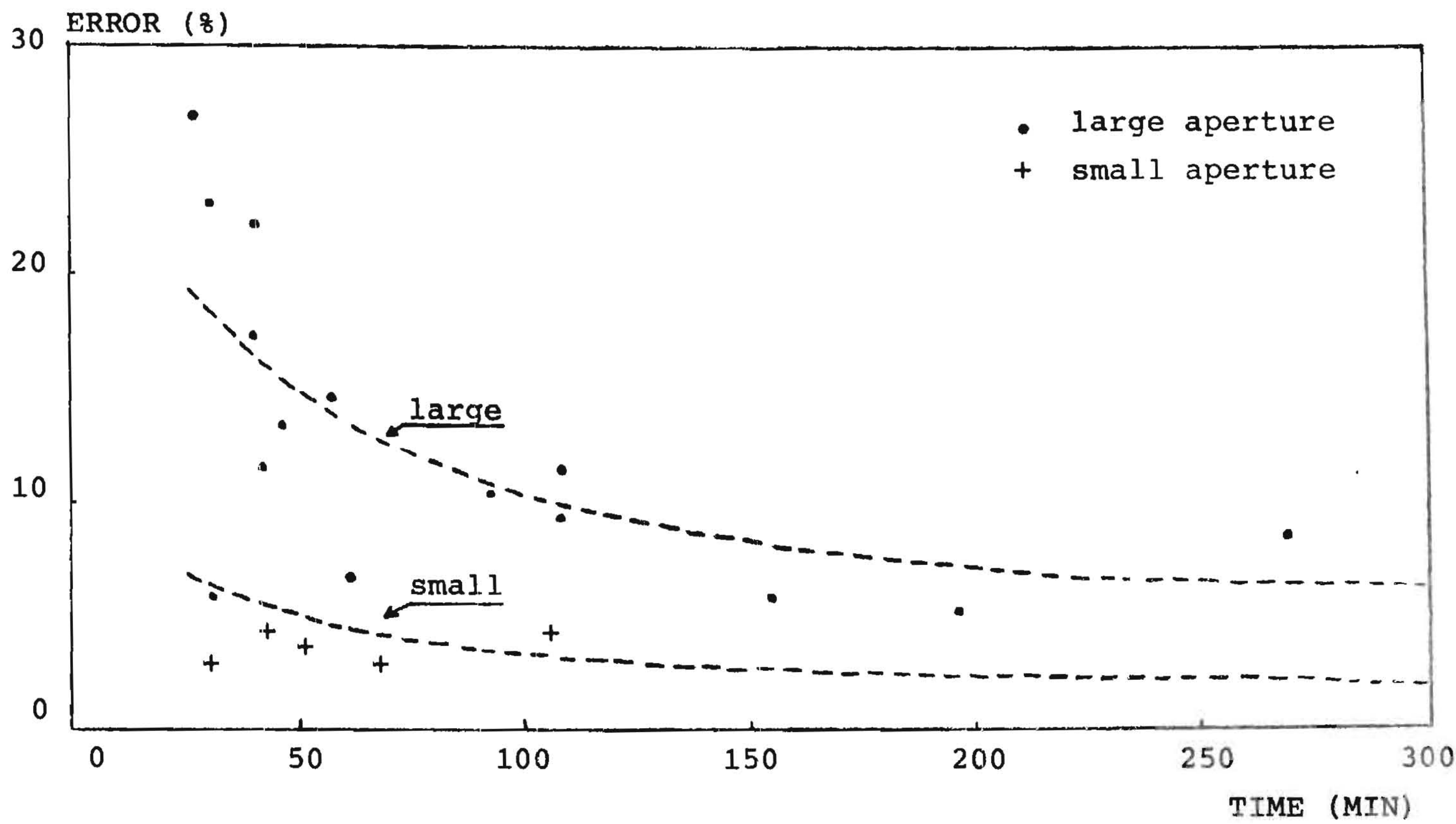
The success of the method is obviously strongly dependent on the exposure time. The errors are shown in figure 1 as a function of exposure time for both large and small aperture.

Although at the time of writing no general code is available, we expect to have this by the end of January 1981. Users wishing to obtain this code are requested to write directly to the first author (J.D.P.).

A more detailed description is included in the Proceedings of the Workshop on IUE Data Reduction held at Vienna, November 17-19, 1980 (see elswhere in this Newsletter).

J.D. Ponz
M.V. Penston

FIGURE 1



Errors in the correction method as a function of the exposure time for typical exposures. This mainly represents the variation in S/N with exposure time, shown as dotted lines.

Information for Undernourished Epicures

The poor cousin of the Spanish cuisine is the cocina andaluza. While it may be true that there is an overemphasis on fried food, it would be quite unfair to ignore the excellent dishes which it has bequeathed to the world. Madrid abounds in tabernas andaluzas whose tapas constitute a good sampling of Andalusian food without sacrifycing the colourfully and even boisterous atmosphere less readily evoked in a restaurant. The best known include Bodega Espinosa, Santiago 1; Los Gabrieles, Echegaray 17; La Giralda, Hartzenbusch 15; Los Pepinillos, Hortaleza 59; and Taberna Andaluza Sierpes, Profesor Waksman 12. To these one could add Los Tres Reyes, conveniently situated for Principe Pio inhabitants facing the southeast corner of the Plaza de España.

Undoubtedly the highest spirits are present in the tabernas, but for the highest quality food one must turn to the restaurants.

The two which I recommend, successfully combine culinary quality and attractive atmosphere, Las Cumbres (literally peaks or pinnacles) at the corner of Condes del Val and Avenida de Alberto Alcocer is still more a taverna than a formal restaurant. It is easily reached by travelling north on Paseo de la Castellana (formerly Generalísimo) and turning right at Plaza de Cuzco. Parking is seldom a problem. As a summer starter, the gazpacho is unbeatable but at other seasons try the champoñones al oloroso (mushrooms in dark aromatic sherry). The superb Andalusian soup ajo blanco (a cold almond soup made with garlic and served with grapes) is not in evidence here, nor in other Madrid restaurants, save for that remarkable little restaurant Mi Pueblo (Costanilla de Santiago 2). As a main course, the dish of the day should be considered first. One dish available any day and a crown jewel in Andalusian cookery is bienmesabe, also known as adobo: morsels of a tender white fish called palometa (the choice varies with the restaurant) soused in wine, cumin and other spices, coated with a light batter and fried. Other dishes worth sampling are frog's legs (ancas de rana) made with a dry Cádiz sherry, and various fried fish - above all chanquetes when available, a tasty variety of whitebait.

For desert, it is worth asking for chirimoya (custard apple). Another good postre is málaga-soaked torrijas, and eggy "French toast" or "pain perdu" or "croute dorée". Las Cumbres is open the entire week including Sunday evenings, but it is best to check first: telephone 458-7692; price including wine is ∿900 ptas.

The other Andalusian restaurant, Barrio off Hortaleza at San Marcos 8, is recommended with equal enthusiasm. It is quicker to reach by car, but street parking is difficult. If space remains, use the nearby aparcamiento in Plaza Vázquez de Mella. In a stucco cave, Berrio presents an elegant decor and an attractive menu. Do not miss the opportunity to start with pipirrana, a tasty salad of tomatoes, cucumbers, and peppers, although the habas con jamón (a slightly bitter bean fried with ham) is also a local dish. "Local" in the case of Berrio means more than Andalusian: it is the cuisine of Granada, whence its jamón serrano granadino, its tortilla Berrio with ham and asparagus (a distant reflection of the rich tortilla al Sacromonte), its puchero andaluz. Complete meal with house wine (vino de la Alpujarra) ∿1000 Ptas; telephone 221-2035 closed Sundays.

Jon Darius

I thought I was coming down here for boring observing and it turns out to be the most exciting day I ever spent at an Observatory; Amazing!

(J.H. Krautter, G.O.)

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The two foregoing lists update those published in previous issues of the Newsletter. Both contain papers based on IUE observations from VILSPA, but the first list specifically involves IUE Observatory astronomers, their names being underlined. We exhort IUE users to continue to send us (p)reprints of their papers.

CONTENTS OF NASA IUE NEWSLETTER Nº 11

VILSPA IMAGES FOR RELEASE TO SCIENTIFIC COMMUNITY

1981 May 1st (despatched 1980 October)

Camera 2 LWR			Camera 3 SWP		
8923	8989	9088	10257	10367	10460
8924	8990	9096	10258	10369	10461
8925	8991	9097	10259	10380	10466
8926	8992	9098	10260	10381	10467
8927	9002	9099	10261	10391	10468
8928	9003	9100	10262	10401	10469
8929	9004	9101	10263	10402	10474
8934	9005	9102	10268	10403	10482
8939	9006	9109	10269	10404	10487
8940	9007	9110	10270	10405	10493
8941	9008	9111	10280	10416	10494
8954	9009	9112	10288	10417	10500
8955	9010	9113	10302	10418	10501
8956	9021	9114	10309	10419	
8957	9022	9115	10310	10420	
8958	9023	9121	10311	10421	
8961	9035	9126	10314	10422	
8964	9036	9127	10328	10428	
8965	9037	9133	10329	10429	
8972	9038	9137	10330	10430	
8973	9048	9138	10331	10431	
8974	9049	9139	10332	10432	
8975	9062	9141	10351	10433	
8976	9063	9155	10352	10434	
8977	9064	9163	10354	10442	
8978	9084	9164	10355	10443	
8979	9085	9174	10356	10444	
8982	9086	9175	10365	10451	
8988	9087	9185	10366	10452	

VILSPA IMAGES FOR RELEASE TO SCIENTIFIC COMMUNITY

1981 June 1st (despatched 1980 November)

Camera 2 LWR			Camera 3 SWP		
1516	9265	9319	5471	10572	10601
9197	9271	9320	10506	10573	10607
9198	9272	9329	10507	10579	10610
9204	9273	9330	10508	10580	10611
9208	9274	9331	10509	10581	10612
9213	9275	9332	10526	10582	10614
9214	9276	9333	10530	10583	10626
9220	9283	9352	10531	10584	10627
9221	9284	9361	10532	10588	10628
9230	9285	9372	10533	10589	10629
9236	9286	9373	10534	10592	10636
9237	9287	9374	10543	10593	10643
9238	9302	9380	10552	10594	10644
9239	9315	9384	10553	10595	10660
9253	9316	9385	10554	10596	10664
9254	9317	9398	10556	10597	10665
9260	9318		10562	10599	10683
6940*			3826*		

* Missing from list 1 September 1980

Vilspa Images for Release to Scientific Community

1981 July 1st (despatched 1980 December)

Camera 2 LWR			Camera 3 SWP		
9399	9465	9582	10695	10788	10827
9400	9466	9583	10696	10789	10831
9404	9476	9589	10697	10794	10834
9408	9477	9590	10705	10795	10846
9409	9489	9593	10706	10799	10854
9410	9492	9594	10707	10800	10855
9424	9504	9609	10715	10801	10879
9425	9505	9610	10716	10804	10885
9426	9506	9611	10723	10805	10889
9435	9515		10731	10806	10893
9440	9516		10740	10807	10894
9441	9517		10741	10808	10895
9442	9518		10742	10811	10896
9444	9547		10753	10812	10905
9445	9557		10759	10813	10906
9451	9558		10760	10814	10910
9452	9559		10761	10815	10911
9453	9572		10762	10816	10919
9457	9579		10766	10818	10926
9458	9580		10777	10819	10927
9464	9581		10778	10820	10928
			10783	10826	

GUEST OBSERVER PROGRAMMES APPROVED BY THE EUROPEAN SPACE AGENCY FOR IUE IN 1981-1982

CODE	PRINCIPAL APPLICANT	INSTITUTE	PROPOSAL TITLE
MA 501	Auvergne, M.	Observatoire de Nice, France	Study of the Mg II line emission in the short period variable star ρ Puppis
CZ 502	Zwaan, C.	Observatory of the Astronomical Institute, Utrecht, Holland	Magnetic structure of F, G and K type Stars
MR 503	Rosa, M.	Landesternwarte-Heidelberg, Germany	The Exciting Stars of Extragalactic HII Regions
JH 505	Heidmann, J.	Observatoire de Meudon, Paris, France	Observations of clumpy irregular galaxies
GH 506	Hammerschlag, G.	Astronomical Institute of Amsterdam, Holland	Short time variations in the mass-loss rate of early type stars: the case of γ Cas
MH 507	Hack, M.	Astronomical Observatory of Trieste, Italy	Bp and He-poor stars belonging to the galactic disk and halo
RW 508	Weinberger, R.	University of Innsbruck, Austria	Observations of the Central Star of a Huge New Nearby PN
SD 509	D'Odorico, S.	ESO, Garching, Germany	Carbon abundance in the gaseous phase of M 33
AH 510	Heck, A.	VILSPA, Madrid, Spain	Spectral Classification in the Ultraviolet
RK 511	Kudritzki, R.P.	University of Kiel, Germany	Non-LTE Analysis of Subdwarf O-stars
MD 512	Dennefeld, M.	Observatoire de Paris, France	Hydrogen line ratios in intermediate redshift quasars
JB 513	Bergeron, J.	Institut d'Astrophysique, Paris, France	Spectrophotometry of intermediate redshift quasars

CODE	PRINCIPLE APPLICANT	INSTITUTE	PROPOSAL TITLE
JC 514	Clavel, J.	Observatoire de Meudon, Paris, France	A Study of the Variability of Bright Seyfert I galaxies by means of simultaneous observations in the UV, visible and X-ray range
CB 515	Bertout, C.	Landessternwarte-Heidelberg Germany	Spectroscopy of Selected T Tauri Stars
KF 516	Fredga, K.	Stockholm Observatory, Sweden	Stellar Mg II lines
DK 518	Koester, D.	Institut fur Theor. Physik und Sternwarte, Kiel, Germany	Spectroscopy of White Dwarfs with Helium-rich atmospheres
WE 519	Eichendorf, W.	ESO, Garching, Germany	Classical Cepheids
JF 520	Feitzinger, J.V.	Astronomisches Institut, Bochum, Germany	Warping and Halo of the Large Magellanic Cloud
KF 521	Fricke, K.H.	Physikalisches Institut der Universitat Bonn, Germany	The long-term variability of the Lyman alpha emission from Jupiter, Saturn and Uranus
RK 522	Kudritzki, R.P.	Institut fur Theor. Physik und Sternwarte, Kiel, Germany	Non-LTE Analysis of Central Stars of Planetary Nebula
RK 523	Kudritzki, R.P.	Institut fur Theor. Physik und Sternwarte, Kiel, Germany	Non-LTE Analysis of Nitrogen-Rich Main Sequence 0-stars
DS 524	Schoenberner, D.	Institut fur Theor. Physik und Sternwarte, Kiel, Germany	Ultraviolet Spectroscopy of Extreme Helium Stars
WE 525	Eichendorf, W.	ESO, Garching, Germany	Shell structures around classical cepheids
JB 526	Bergeron, J.	Institut d'Astrophysique, Paris, France	Spectrophotometry of narrow line active nuclei with high excitation lines and/or radio emission

CODE	PRINCIPLE APPLICANT	INSTITUTE	PROPOSAL TITLE
HD 527	Drechsel, H.	Remeis-Sternwarte Bamberg, Germany	Interacting Contact Binaries
JR 528	Rahe, J.	Remeis-Sternwarte Bamberg, Germany	UV Observations of Comets brighter than 9th Magnitude as Target of Opportunity
LM 529	Maraschi, L.	Istituto di Fisica Cosmica, Milano, Italy	Observations of X-ray emitting QSOs and BL Lac objects
HN 530	Nussbaumer, H.	Institut fur Astronomie, Zurich, Switzerland	Galactic Wolf-Rayet Stars
CC 533	Cacciari, C.	VILSPA, Madrid, Spain	"Blue"globular clusters in the Large Magellanic Cloud
FP 534	Praderie, F.	Observatoire de Meudon, Paris, France	Emission, mass loss and chromospheres in Herbig Ae stars II
HT 535	Tjin A Djie, H.R.E.	Astronomical Institute, Amsterdam, Holland	Ultraviolet Studies of the Shells of Herbig Ae and Be Stars
FF 536	Fusi-Pecci, F.	Osservatorio Astronomico, Bologna, Italy	UV-bright stars in globular clusters
SC 537	Catalano, S.	Osservatorio Astrofisico di Catania, Italy	Stellar Chromospheres
MG 539	Gerbaldi, M.	Institut d'Astrophysique, Paris, France	Ultraviolet observations of high velocity A type stars
MG 540	Gerbaldi, M.	Institut d'Astrophysique, Paris, France	Ultraviolet observations of candidate runaway B type stars
MG 541	Gerbaldi, M.	Institut d'Astrophysique, Paris, France	Ultraviolet observations of blue-stragglers in open clusters
JL 542	Lequeux, J.	Observatoire de Meudon, Paris, France	Extragalactic H II regions

CODE	PRINCIPAL APPLICANT	INSTITUTE	PROPOSAL TITLE
FP 543	Praderie, F.	Observatoire de Meudon, Paris, France	Study of the transition zone in late A-type stars
BB 544	Baschek, B.	Institut fur Theoretische Astrophysik, Heidelberg, Germany	High Resolution Spectroscopy of Blue Halo Stars
AA 545	Altamore, A.	Istituto Osservatorio Astronomico, Rome, Italy	IUE Observations of Symbiotic Stars during minimum
EG 546	Geyer, E.	Observatorium Hoher List, Bonn, Germany	UV Observations of old and young populous clusters in the Magellanic Clouds
RV 547	Viotti, R.	Istituto di Astrofisica Spaziale, Frascati, Italy	Coordinated ultraviolet (IUE), optical and infra-red observations of the P Cygni star AG Carinae and its ring nebula
VC 548	Caloi, V.	Istituto di Astrofisica Spaziale, Frascati, Italy	Evolved Globular Cluster Stars
VC 549	Caloi, V.	Istituto di Astrofisica Spaziale, Frascati, Italy	Integrated Spectra of Globular Clusters
AH 550	Heck, A.	VILSPA, Madrid, Spain	Ultraviolet Observations of WC 10 stars
CE 551	Eiroa, C.	Max-Planck-Institut, Heidelberg, Germany	UV Observations of the bipolar nebula S106
DP 552	Ponz, D.	VILSPA, Madrid, Spain	Symbiotic stars during activity phases
AH 553	Heck, A.	VILSPA, Madrid, Spain	Ap stars classification criteria
CC 554	Cacciari, C.	VILSPA, Madrid, Spain	UV Observations of globular clusters in the Magellanic Clouds
GV 555	Vauclair, G.	Observatoire de Meudon Paris, France	Chemical composition and diffusion in high gravity stars
AE 556	Elvius, A.	Stockholm Observatory, Sweden	Observations of Seyfert 1 galaxies

CODE	PRINCIPAL APPLICANT	INSTITUTE	PROPOSAL TITLE
IB 557	Bues, I.	Dr. Remeis-Sternwarte, Bamberg, Germany	Intermediate White Dwarfs
SP 558	Pottasch, S.R.	Kapteyn Astronomical Institute, Groningen, Holland	Extinction to planetary nebulae
JK 559	Koppen, J.	Institut fur Theoretische Astrophysik, Heidelberg, Germany	High Dispersion Observations of Planetary Nebulae
CC 560	Casini, C.	Istituto di Astronomia, Milano, Italy	Observations of Interacting Galaxies
FG 561	Giovannelli, F.	Istituto di Astrofisica Spaziale, Frascati, Italy	UV spectra of HDE 245770/A 0535+26
JC 562	Clavel, J.	Observatoire de Meudon, Paris, France	Investigation of the stellar content of the dwarfs blue emission line galaxies
PP 563	Patriarchi, P.	VILSPA, Madrid, Spain	The Orion Nebula
RS 564	Stalio, R.	Astronomical Observatory of Trieste, Italy	Monitoring UV-variability in four O-stars
LA 565	Angeletti, L.	Osservatorio Astronomico, Rome, Italy	Ultraviolet spectrophotometry of galactic globular clusters II
DG 566	Gilra, D.P.	Kapteyn Astronomical Institute, Groningen, Holland	Study of peculiar Be stars
DG 567	Gilra, D.P.	Kapteyn Astronomical Institute, Groningen, Holland	UV Observations of stars in dusty HII regions and reflection nebulae
HN 568	Noorgaard-Nielsen, H.U.	University Observatory,	UV spectra of elliptical galaxies
WK 569	Kollatschny, W.	Universitatssternwarte, Gottingen, Germany	$L_\alpha/H_\alpha/H_\beta/P_\alpha$ ratios in active galaxies
GK 570	Klare, G.	Landessternwarte Heidelberg, Germany	Orbital Phase Dependent UV Spectroscopy of Cataclysmic Variables

CODE	PRINCIPAL APPLICANT	INSTITUTE	PROPOSAL TITLE
LP 572	Prevot, L.	Observatoire de Marseille France	A far UV study of interstellar matter in the small Magellanic Cloud
SP 573	Pottasch, S.R.	Kapteyn Astronomical Institute, Groningen, Holland	Mass-Loss of Wolf-Rayet-type central stars of Planetary Nebulae
MG 574	Grewing, M.	Astronomisches Institut, Tubingen, Germany	K-correction for brightest galaxies in clusters
JK 575	Krautter, J.	Landessternwarte Heidelberg, Germany	Structure and Evolutionary Status of Cataclysmic Variables
PS 576	Selvelli, P.L.	Osservatorio Astronomico, Trieste, Italy	Continous Monitoring of Novae at Minimum During One Complete Orbital Cycle
PS 577	Selvelli, P.L.	Osservatorio Astronomico Trieste, Italy	Low and High Resolution Observations of Nova Aql 1918 in the LWR Region
DR 578	Reimers, D.	Hamburger Sternwarte, Hamburg, Germany	Winds and Coronae in Red Giants with Variable Circumstellar Lines
HR 579	Ritter, H.	Max-Planck-Institut, Garching, Germany	Ultraviolet Spectroscopy of HZ Her near X-Ray Eclipse
DR 580	Reimers, D.	Hamburger Sternwarte, Hamburg, Germany	Mass-Loss of Red Giants with Hot Companions and Mass Loss from Carbon Stars
JP 581	Paul, J.A.	CENS, Gif sur Yvette, France	CO Column Densities and Elemental Depletions in nearby Interstellar Clouds
FB 582	Bertola, F.	Istituto di Astronomia Padova, Italy	UV continuum energy distribution in the Nuclei of Elliptical Galaxies
MC 583	Capaccioli, M.	Istituto di Astronomia, Padova, Italy	Continuum Energy Distribution in SO Galaxies
HM 585	Maitzen, H.	Institut fuer Astronomie, Wien, Austria	Silicon Autoionization Features and Spectral Variability in Ap-stars

PROPOSAL TITLE

rvations of Supernovae

ing of the Nuclear Region of M 100

rvations of the Old-Nova GK PER = AO327+43

on Disks around White Dwarfs in Non-Close
Systems

f structure and evolution of Population
s

ure and Origin of OBN and OBC stars

gation on the Binary Nature of the Radio
ay Star LSI+61°303, associated with a
amma Ray Source

optical observations of active nuclei: A
f the non-stellar continuous radiation

ss and analysis of the spectrum of the
component of the pulsating X-ray Nova
62

73 and other peculiar shell stars

lanetary Nebulae

olet Observations of X-ray Sources with

ations of low-redshift radio quiet QSOs

CODE	PRINCIPAL APPLICANT	INSTITUTE	PROPOSAL TITLE
MG 604	Grewing, M.	Astronomisches Institut, Tubingen, Germany	Dynamical Properties of Nearby Interstellar Gas
MG 605	Grewing, M.	Astronomisches Institut, Tubingen, Germany	Study of Two Early-Type Stars in the Large Magellanic Cloud (LMC) Embedded in the Nebulosity N 144
FQ 606	Querci, F.	Observatoire de Meudon, Paris, France	Carbon Stars Sequence: R to N stars
BW 607	Wolf, B.	Landessternwarte, Heidelberg, Germany	High Dispersion Spectroscopy of the P Cyg Star R 81 of the LMC
PB 608	Bruston, P.	Laboratoire de Physique Stellaire et Planétaire, Verrieres-le-Buisson, France	The Nearby Interstellar Medium
CL 609	Laurent, C.	Laboratoire de Physique, Stellaire et Planétaire Verrieres-le-Buisson France	Investigation of the high-velocity components in the great Carina Nebula
MD 610	Dopita, M.A.	Mt. Stromlo and Siding Spring Observatory, Australia	UV Spectroscopy of an extremely metal poor extra-galactic supernova remnant
SD 611	D'Odorico, S.	ESO, Garching, Germany	Active and Quiescent Nuclei of Spiral Galaxies
PB 612	Benvenuti, P.	Astrophysical Observatory, Asiago, Italy	Measurement of the dust albedo in the 2200 A region
GP 613	Palumbo, G.G.C.	Istituto TE/S/R/E/C.N.R. Bologna, Italy	UV emission from normal bright spiral galaxies
PS 614	Shaver, P.	ESO, Garching, Germany	Jets in active galactic nuclei
PS 615	Selvelli, P.L.	Osservatorio Astronomico, Trieste, Italy	Observations of the peculiar emission line star HD 45667

NOTE: The list of approved proposals in collaboration with NASA and/or SRC will appear in the next issue

CHRONOLOGY OF MODIFICATIONS TO IUESIPS OUTPUT PRODUCTS

The following table lists those modifications to the IUESIPS data reduction system which have had an effect on the output products delivered to the Guest Observer (G.O.). The changes made are listed in strict chronological order for GSFC and approximate chronological order for VILSPA. The table covers the period 7th April 1978 to 5th November 1980 and gives the effective dates at GSFC and VILSPA of each modification, along with a brief explanation of its nature. Those modifications that are not applicable to, or were not made at, an installation are indicated by a dash in the date column. A date entry may be left blank for any of the following three reasons:

(i) the change has not been made, but may be made in the future;

(ii) the modification concerns reduction of calibration images, which are not processed by VILSPA;

(iii) for some changes prior to January 1979 the effective implementation data at VILSPA is not known.

Modifications made only at VILSPA are grouped together at the end of the table.

This table replaces an earlier version published in ESA IUE Newsletter N° 6 (April 1980). The ground stations have agreed that it will in future be updated at six month intervals with closing dates of March 31 and September 30 in each year. The updates will be published in the Newsletters.

B.E. Turnrose
K.J.E. Northover

CHRONOLOGY OF MODIFICATION TO IUESIPS

Output Products (1 of 7)

GSFC DATE		VILSPA DATE	MODIFICATION
07 Apr 78	-	17 Apr 78	Eliminate auto-scaling of net ripple-corrected Calcomp plot (set $F_{MAX}=10^5$).
————	-	17 Apr 78	LWR ripple parameters K=231 075 and A=0.09 used.
20 Apr 78	-	17 Apr 78	Extend SWP low dispersion extraction to $\lambda=2000$ Å.
25 Apr 78	-	17 Apr 78	Change F_{MAX} to 2×10^5 for net ripple-corrected plot.
04 May 78	-	14 Jun 78	Add processing dates to Calcomp plots.
08 May 78	-	14 Jun 78	Eliminate "CUTMERGE" step from high dispersion processing.
10 May 78	-	14 Jun 78	Eliminate plot of unsmoothed background in high dispersion.
15 May 78	-	14 Jun 78	Determine dispersion relations via new "WAVECAL2" (uses fractional pixel locations).
18 May 78	-	14 Jun 78	Correct 1-pixel error in "OSCRIBE" overlay program.
22 May 78	-	14 Jun 78	Use new averaged ITFs (contains SWP errors; see 7 July 1979).
22 May 78	-	14 Jun 78	Use "EXTLOW" for low dispersion extraction instead of "COMPARE".
22 May 78	-	14 Jun 78	Accomplish registration by shifting dispersion constants instead of image.
22 May 78	-	14 Jun 78	Correct 2-pixel error in reseau flagging.
22 May 78	-	14 Jun 78	Flag "saturated pixels" (DN=255) in plots, and change to plotting without lifting pen.
01 Jun 78	-		Improve reseau flagging in smoothed spectra.
09 Jun 78	-		Use reseaux measured on low dispersion image for both low and high dispersion wavelength calibrations (SWP).
16 Jun 78	-	25 Jan 79	Delete 55-line image segment from photowrites (low dispersion).

GSFC DATE	VILSPA DATE	MODIFICATION
20 Jun 78	25 Jan 79	Produce one doubly-oscribed photowrite image for the double-aperture case, instead of 2 singly-oscribed images.
20 Jun 78	25 Jan 79	Change LWR high dispersion oscribe overlay to pass through order 83 (Mg 2795, 2803).
01 Jul 78		Use reseaux measured on low dispersion image for both low and high dispersion wavelength calibrations (LWR).
06 Jul 78	25 Jan 79	Create all oscribes on "GEOM'D" images (not photometrically corrected images).
06 Jul 78	14 Jun 78	Change LWR ripple parameters to K=231,150 A=0.09 instead of K=231,300 A=0.08.
————	06 Jul 78	Change high dispersion Calcomp from 2 Å/inch to 1 Å/cm.
01 Aug 78	17 Apr 78	Create "extended source" reduction capability in low dispersion (HT=15, DIST=11).
04 Aug 78		Cahnge IUEPLOT to streamline x-axis and plot key to symbols used.
08 Aug 78		Correct bug in "ETOEM" to transmit image number to extracted spectrum files.
09 Aug 78	07 Sep 78	Begin using improved low dispersion wavelength calibration line libraries.
15 Aug 78		Change standard LWR pixel offsets to transfer dispersion relations from small-to-large aperture as follows: ΔS = -17.5 samples, ΔL = + 19.5 lines replaces ΔS = -21.1 samples, ΔL = +25.1 lines
17 Aug 78	01 Feb 79	For "extended source" reduction, change min and max plotted fluxes for "log net" to 3.0 and 6.0 (replacing 2.0 and 5.0).
09 Sep 78	25 Jan 79	Begin using automatic order-finding software (DSPCON), where possible, to determine thermal registration.

Output Products (3 of 7)

GSFC DATE	VILSPA DATE	MODIFICATION
25 Sep 78	25 Jan 79	Move background location to "DIST=11" for low dispersion "point-source" reductions in large aperture (e.g., suppress geocoronal Lyα).
09 Nov 78	———	2 Å/inch high dispersion Calcomp eliminated except by special authorization.
10 Dec 78	07 Mar 79	Photometrically correct only a circular region of image ("FICOR5") in SWP high and low dispersion, LWR low dispersion.
13 Dec 78	25 Jan 79	Change "EXTLOW" and DATEXTH2 to write line and sample shifts into label in auto registration case.
13 Dec 78	05 Jun 79	Change "EXTLOW" to write "omega", "hback" and "distance" into the labels of extracted spectra.
19 Dec 78	14 Feb 79	Eliminate processing of order 65 in SWP high dispersion.
03 Jan 79	07 Mar 79	Photometrically correct only a circular region of image ("FICOR5") in LWR high dispersion (FICOR5 now used throughout).
30 Mar 79	———	10 Å/inch high dispersion Calcomp eliminated in cases where 2 Å/inch plot is authorized.
05 Apr 79	05 Jun 79	Correctly enter line & sample shifts into label for the case of MANUAL registration.
05 Apr 79	Sep 78	Suppress excess label-plotting on Calcomp plots.
25 May 79		Add plotter registration benchmark symbols at start and end of each plot.
02 Jun 79	———	Add tape contents summary log at end of G.O. tape labelprints.
08 Jun 79	12 Jul 79	Correct error in integer-scaling routine ("ITOE") for extracted-spectrum files, so that all negative fluxes are converted properly.
15 Jun 79	10 Jan 80	Create "extended source" reduction capability in high dispersion (HT=7).

Output Products (4 of 7)

GSFC DATE	VILSPA DATE	MODIFICATION
19 Jun 79 -		Eliminate redundant tape files in the case of calibration-image reduction.
30 Jun 79 -	01 Feb 80	Begin plotting high dispersion net ripple-corrected spectra with "CUTMERGE" to suppress noise at ends of orders and allow auto-scaling of flux axis (applies ONLY to Calcomp plots; G.O. tapes unchanged).
02 Jul 79 -	————	Begin writing identifying header file on G.O. tapes (for data management accounting purposes).
07 Jul 79 -	07 Aug 79	Correct error in SWP ITF.
08 Jul 79 -		Change ΔS and ΔL pixel offsets for large aperture dispersion relations to correspond to actual object placement point. (See NASA IUE Newsletter N° 5).
27 Jul 79 -	————	Begin use of new Calcomp plotter hardware. Plots are more precise and on wider paper, but still 10-inch full scale grid.
06 Aug 79 -		Change ΔS and ΔL pixel offsets for large aperture dispersion relations to correspond to physical center of large aperture. (In coordination with telescope operations change, so that offsets still correspond to object placement. Change refers to all data acquired as of 1 August 1979. See NASA IUE Newsletter N° 5).
28 Sep 79 -	01 Feb 80	Modify the program "OSCRIBE" to generate overlay more efficiently and suppress overlay entirely outside of tube face. (see 11 November 1979 entry).
08 Oct 79 -	————	Begin producing computer-generated GO data product receipts.
11 Oct 79 -	————	Upgrade tape contents summary log at end of GO tape labelprints to include additional information.
30 Oct 79 -	————	Begin use of mean dispersion constants for low dispersion spectra. (See NASA IUE Newsletter N° 7).

GSFC	VILSPA	MODIFICATION
DATE		
11 Nov 79	01 Feb 80	Correct problem in version of OSCRIBE implemented 28 Sept 79 in order to place overlay over entire image for large aperture spectra.
23 Nov 79		Begin using improved high dispersion wavelength calibration line libraries.
————	12 Jul 79	Begin producing absolutely calibrated net spectra in low dispersion (using original A & A calibration).
08 Jan 80	02 Apr 80	Begin producing absolutely calibrated net spectra in low dispersion (see NASA IUE Newsletter N° 8). Using LWR calibration revised at 1900 Å.
08 Jan 80	01 Sep 78	Eliminate 10 Å/inch plot of net ripple corrected spectrum in high dispersion and make 2 Å/inch plot of same the standard.
08 Jan 80	01 Feb 80	Begin using FICOR6 photometric correction program which extrapolates the ITF at or near the upper limit. (See NASA IUE Newsletter N° 8).
08 Jan 80		Change symbol key on Calcomp plots to allow "+" to mean either "saturated, or limited extrapolation".
01 Mar 80	06 Mar 80	Begin using EXTLOW2 to place background extraction further from center of order by a factor of √2. (See NASA IUE Newsletter N° 9).
05 Apr 80		Begin using further improved high dispersion wavelength calibration line libraries.
18 Apr 80		Begin using improved cross-correlation template for large reseau in FNDRES and add 2 more reseaux in LWR and 3 more reseaux in SWP.
31 May 80		Begin finding reseaux on TFLOOD images instead of low dispersion platinum-plus-TFLOOD images.
18 Jul 80		Begin use of mean reseau sets and mean high and low dispersion constants. (See NASA IUE Newsletter N° 11).

GSFC DATE	VILSPA DATE	MODIFICATION
18 Aug 80 -		Correct two minor errors in automatic registration programs DSPCON and DCSHIFT: properly convert integer pixel values to real values, and properly generate a perpendicular shift.
28 Aug 80 -		Begin use of mean positions of lines to stars preliminary wavelength solutions.
28 Aug 80 -	————	Correct the OSCRIBE problem for large aperture spectra (see 11 November 1979 entry) which inadvertantly infiltrated production system on 30 July 1980 when program was recompiled for system reasons.
29 Aug 80 -		Begin using final improved versions of high dispersion wavelength calibration line libraries.
18 Sep 80 -	30 Sep 80	Change program ETOEM to correctly write 5-digit image sequence numbers in scale-factor record ("record zero") of extracted spectra.
03 Nov 80 -		Begin use of new low dispersion software (See NASA IUE Newsletter N° 12).
03 Nov 80 -		Modify manual registration program REGISTER (new name = REG) to calculate shifts which are exactly perpendicular to the dispersion from operator inputs.
03 Nov 80 -		Flag shifts as either "manual" or "auto" in image headers in new low dispersion software.
03 Nov 80 -	————	Change labelprinting program to use new low-dispersion file nomemclature; use "PI" instead of "GPI" even for high dispersion photometrically corrected image (still old software).
03 Nov 80 -		Put scheme name in output file labels in high and low dispersion.
05 Nov 80 -		Flag shifts as either "manual" or "auto" in image headers in current high dispersion software.
	- 12 Jul 79	Begin plotting all spectra in histogram style.

GSFC	VILSPA	MODIFICATION
	- 11 Oct 79	Provide an option to ignore Geocoronal Lyman α in scaling SWP low dispersion net plots.
	- 16 Nov 79	Correct error in printer output from "EXTLOW" so gross-background given with correct sign.
	- 10 Jan 80	Write camera, image and aperture identifier on all plots.
	- 28 Feb 80	Produce plots on narrow paper as standard, wide paper available by special request.
	- 17 Apr 80	Replace program "CUTMERGE" by program 'CORTAME' which only cuts bad data from orders and leaves some order overlap on plots.
	- 17 Apr 80	Install restructed plot program 'NEWPLOT'. No change to plots but printer output messages now clearer and correct.

INTERNATIONAL ULTRAVIOLET EXPLORER

LOG OF IMAGES OBTAINED

AT THE EUROPEAN OBSERVATORY

01SEP80 - 30NOV80

SORTED BY STELLAR COORDINATES

G.D. PROGRAMMES APPROVED BY THE SCIENCE RESEARCH COUNCIL FOR IUE IN 1980-1981
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UK301 INTERSTELLAR ABSORPTION LINES IN THE SPECTRUM OF HD 200775
G.A.H. WALKER/BR COLUMBIA
UK302 ULTRAVIOLET OBSERVATIONS OF EXTRAGALACTIC H II REGIONS
R.F. CARSWELL/CAMBRIDGE
UK303 MOLECULES IN CELESTIAL OBJECTS
S.P. TARAFDAR/TATA INSTITUTE
UK304 UV SPECTRA OF ACTIVE GALAXIES NEWLY DISCOVERED AS X-RAY SOURCES
M.J. WARD/CAMBRIDGE
UK305 ABSORPTION MEASURES OF GALACTIC HALO GAS
D.C. MORTON/AAO
UK306 RADIO STARS
D.J. STICKLAND/RGO
UK307 ANOMALOUS WOLF-RAYET STARS
D.J. STICKLAND/RGO
UK308 UV OBSERVATIONS OF THE WHITE DWARF 2A 0311-227
M. COE/SOUTHAMPTON
UK309 HIGH-RESOLUTION OBSERVATIONS OF THE HOT SUBDWARF IN THE ECLIPSING BINARY
M.M. DWORETSKY/UCL
UK310 ULTRAVIOLET OBSERVATIONS OF PECULIAR A AND B STARS
M.M. DWORETSKY/UCL
UK311 OBSERVATIONS OF THE VARIABLE SOURCE 3C120
R.F. CARSWELL/CAMBRIDGE
UK313 NOVA-LIKE VARIABLES, DISK STARS
G.T. BATH/OXFORD
UK314 DWARF NOVAE
J.E. PRINGLE/CAMBRIDGE
UK315 W UMA CONTACT BINARIES
J.A.J WHELAN/CAMBRIDGE
UK316 INVESTIGATION OF CHROMOSPHERIC EMISSION IN THE SHORT-PERIOD SUBGROUP OF
RS CVN STARS
E. BUDDING/MANCHESTER
UK317 CORONAS AND CHROMOSPHERES IN W UMA STARS
O. VILHU/FINLAND
UK319 OBSERVATIONS OF SELECTED PLANETARY NEVULAE
M.J. SEATON/UCL
UK320 ULTRAVIOLET SPECTROSCOPY OF THE NUCLEI OF HOT-SPOT AND RELATED GALAXIES
D.J. AXON/SUSSEX
UK321 ULTRAVIOLET SPECTROSCOPY OF VV PUPPIS AND 2A 0311-227
D.T. WICKRAMASINGHE/ROE
UK322 ABUNDANCE PECULIARITIES IN WHITE DWARFS
D.T. WICKRAMASINGHE/ROE
UK323 INTERSTELLAR EXTINCTION IN THE PERSEUS ARM
D.H. MORGAN/ROE
UK324 K-CORRECTIONS AND STELLAR POPULATION ANALYSES FOR NORMAL GALAXIES OF
VARIOUS MORPHOLOGICAL TYPES
R.S. ELLIS/DURHAM
UK326 MASS LOSS FROM HOT SUBDWARFS
R. WILSON/UCL
UK327 AN INVESTIGATION OF X-RAY BINARY SOURCES
R. WILSON/UCL
UK328 AN INVESTIGATION OF THE ULTRAVIOLET EMISSION OF SEYFERT GALAXIES
R. WILSON/UCL
UK330 A STUDY OF THE ULTRAVIOLET SPECTRA OF QUASARS
R. WILSON/UCL
UK331 AN INVESTIGATION OF STARS INTERMEDIATELY EVOLVED BETWEEN OF AND WR
A.J. WILLIS/UCL

UK332 AN INVESTIGATION OF WOLF-RAYET STARS IN THE MAGELLANIC CLOUDS
A.J. WILLIS/UCL
UK333 A STUDY OF MAIN-SEQUENCE STARS IN THE LMC
K. NANDY/ROE
UK335 INTERSTELLAR EXTINCTION AND A STUDY OF EARLY-TYPE SUPERGIANTS IN THE LMC
K. NANDY/ROE
UK336 MONITORING OF THE CONTINUUM AND THE LINE STRENGTHS OF SEYFERT GALAXY NGC 4151
A. BOKSENBERG/UCL
UK337 HIGH VELOCITIES IN THE WIND-DRIVEN NEBULA NGC 6302
J. MEABURN/MANCHESTER
UK339 INTERSTELLAR EXTINCTION AND ABUNDANCES IN CANIS MAJORIS R1
D. MCNALLY/UCL
UK340 INTERSTELLAR EXTINCTION IN SOUTHERN DARK CLOUDS
W.B. SOMERVILLE/UCL
UK341 INTERSTELLAR ATOMIC ABUNDANCES IN THE SOUTHERN MILKY WAY
W.B. SOMERVILLE/UCL
UK342 OBSERVATIONS OF INTERSTELLAR CO
D. MCNALLY/UCL
UK343 THE UV SPECTRUM OF SELECTED HERBIG-HARO OBJECTS
D.J. AXON/SUSSEX
UK344 UV SPECTRA OF OBJECTS STUDIED AT IR WAVELENGTHS
UK344 UV SPECTRA OF OBJECTS STUDIED AT IR WAVELENGTHS
R.F. JAMESON/LEICESTER
UK345 UV SPECTROPHOTOMETRY OF MAGELLANIC CLOUD PLANETARY NEBULAE
M.J. BARLOW/UCL
UK346 A STUDY OF ULTRA-HIGH-EXCITATION O VI STARS
M.J. BARLOW/UCL
UK347 EVOLUTION AND ULTRAVIOLET VARIABILITY OF EXTREME HELIUM STARS
P.W. HILL/ST AND
UK348 OBSERVATIONS ON H II REGIONS IN THE NEARBY SPIRAL AND IRREGULAR GALAXIES
P.M. GONDHALEKAR/VILSPA
UK350 A STUDY OF INTERSTELLAR GAS ASSOCIATED WITH SUPERNOVA REMNANTS
P.M. GONDHALEKAR/VILSPA
UK352 HIGH-VELOCITY EARLY-TYPE STARS
D. KILKENNY/ST AND
UK353 COLLABORATIVE MONITORING OF A BY DRACONIS FLARE STAR
A.D. ANDREWS/ARMAGH
UK354 UV SPECTROSCOPY OF THE VELA SUPERNOVA REMNANT
R. WOOD/RGO
UK355 UV SPECTROSCOPY OF FLARE/SPOTTY STARS
P.B. BYRNE/ARMAGH
UK356 STUDIES OF STELLAR CHROMOSPHERES AND CORONAE
C. JORDAN/OXFORD
UK357 ULTRAVIOLET STUDIES OF PRE-MAIN-SEQUENCE STARS
C. JORDAN/OXFORD
UK358 UV OBSERVATIONS OF EXTENDED ENVELOPES SURROUNDING DQ HER AND GK PER
G.J. FERLAND/CAMBRIDGE
UK359 IUE OBSERVATIONS OF SOLAR-SYSTEM OBJECTS
G.E. HUNT/UCL
UK361 A LARGE-SCALE SURVEY OF INTERSTELLAR ABSORPTION IN THE HALO OF OUR GALAXY
A. BOKSENBERG/UCL
UK362 MASS LOSS AND ATMOSPHERIC STRUCTURE OF HIGHLY LUMINOUS STARS
A. BOKSENBERG/UCL
UK363 OBSERVATIONS OF NOVA CYGNI 1978 IN THE FINAL NEBULAR STAGE
D.J. STICKLAND/RGO
UK364 VARIABILITY IN BE-TYPE STARS
A. BOKSENBERG/UCL
UK365 FURHTER LONG OBSERVATIONS OF EXTRAGALACTIC OBJECTS WITH IUE
A. BOKSENBERG/UCL
UK366 ULTRAVIOLET OBSERVATIONS OF XX CAM AND SU TAU
K. NANDY/ROE
UK367 STUDIES OF INTERSTELLAR GAS AND DUST IN THE PLANE OF THE GALAXY
A. BOCKSENBERG/UCL

UK368 THE INTERACTION OF SUPERNOVA REMNANTS WITH THE CLOUDY INTERSTELLAR MEDIUM
AT SUCCESSIVE EVOLUTIONARY STAGES.
A. BOKSENBERG/UCL
UK369 THE EXTENT OF A GASEOUS GALACTIC HALO
A. BOKSENBERG/UCL
UK370 EXTRAGALACTIC ASTRONOMY
A. BOKSENBERG/UCL
UK371 HIGH-RESOLUTION SPECTROSCOPY OF ULTRAVIOLET-BRIGHT GALAXIES
K.J.E. NORTHOVER/LOGICA
UK372 THE ECLIPSING BINARY STAR CQ CEPHEI
D.J. STICKLAND/RGO
UK373 VARIABILITY IN WOLF-RAYET STARS
W.M. BURTON/ARD
UK374 FURTHER OBSERVATIONS OF MARKARIAN 59
W.M. BURTON/ARD
UK375 STELLAR FLARES IN RED DWARFS AND BINARIES
G.E. BROMAGE/ARD
UK376 ULTRAVIOLET OBSERVATIONS OF EXTRAGALACTIC OBJECTS WITH COSMOLOGICAL
RELEVANCE
M.S. LONGAIR/CAMBRIDGE
UK381 STUDIES OF THE INTERSTELLAR GAS AND MASS LOSS FROM SUPERGIANT STARS
B. BATES/BELFAST

G.O. PROGRAMMES APPROVED BY THE EUROPEAN SPACE AGENCY FOR IUE IN 1980-1981
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PV301	P VERON/MEUDON	LOOKING FOR DWARF SEYFERT 1 NUCLEI
HS302	H SCHLEICHER/GOTTINGEN	UV SPECTROSCOPY OF VERY BRIGHT SUSPECTED BL LAC OBJECTS
JP303	JA VAN PARADIJS/AMSTERDAM	IUE OBSERVATIONS OF X-RAY BURSTERS
LB304	L BIANCHI/VILSPA	COLLIDING STELLAR WINDS IN THE ORION TRAPEZIUM
MM305	M HACK/TRIESTE	PECULIAR BINARIES
RS306	R STALIO/TRIESTE	HIGH-LUMINOSITY BLUE HALO STARS
AG307	A GREVE/BONN	UV OPACITIES OF SOLAR-TYPE STARS
GV308	G VETTOLANI/BOLOGNA	ULTRAVIOLET STUDY OF TWO NEW EMISSION-LINE GALAXIES: UGC 3829 AND NGC 1106
GH309	G HAMMERSCHLAG/AMSTERDAM	IUE OBSERVATIONS OF X-RAY BINARIES
AG310	A GREVE/BONN	SUPERNOVA REMNANTS IN THE LMC AND SMC
BW311	B WOLF/HEIDELBERG	HIGH-RESOLUTION UV SPECTROSCOPY OF THE S DOR TYPE STAR HDE 269006 OF THE LMC
CB312	C BERTOUT/HEIDELBERG	UV SPECTROSCOPY OF T TAURI AND YY ORIONIS STAR
LA313	L ANGELETTI/ROMA	ULTRAVIOLET SPECTROPHOTOMETRY OF GALACTIC GLOBULAR CLUSTERS
NP314	N PANAGIA/BOLOGNA	UV OBSERVATIONS OF SUPERNOVAE
NP315	N PANAGIA/BOLOGNA	UV SPECTRUM OF THE NUCLEUS OF M100=NGC 4321
MF316	M FRACASSINI/MILANO	UV OBSERVATIONS OF DELTA SCUTI VARIABLES
KS317	K SEIDENSTICKER/BOCHUM	EXTINCTION LAW IN SELECTED SOUTHERN DUST CLOUDS
BB318	B BASCHEK/HEIDELBERG	HIGH-RESOLUTION SPECTROSCOPY OF BLUE HALO STARS
RW319	R WEHRSE/HEIDELBERG	A STUDY OF CIV 1550 LINE PROFILES IN PLANETARY NEBULAE
MC320	M COMBES/MEUDON	UV OBSERVATIONS OF GIANT PLANETS AND THEIR SATELLITES
MR321	M REGO/MADRID	CHROMOSPHERIC ACTIVITY IN DWARF STARS
WS322	WC SEITTER/MUENSTER	DWARF NOVAE - A KEY TO CATACLYSMIC VARIABLES?
FP323	F PRADERIE/MEUDON	STUDY OF THE TRANSITION ZONE IN LATE A-TYPE STARS
PB324	P BENVENUTI/VILSPA	MEASUREMENT OF THE DUST ALBEDO IN THE 2200 AMGSTRON REGION
JH325	J HEIDMANN/MEUDON	OBSERVATION OF CLUMPY IRREGULAR GALAXIES
JA326	J AUDOUZE/PARIS	STUDIES OF NOVAE
LB327	L BIANCHI/VILSPA	THE BINARY SYSTEM X PERSEI
HM328	HM MAITZEN/VIENNA	SILICON AUTOIONIZATION FEATURES AND SPECTRAL VARIABILITY IN AP STARS
BF329	B FITTON/ESTEC	UV OBSERVATIONS OF THE UPPER ATMOSPHERE AND NEAR EARTH ENVIRONMENT
MU330	MH ULRICH/ESO	SIMULTANEOUS UV, OPTICAL AND X-RAY OBSERVATIONS OF ACTIVE NUCLEI: A STUDY OF THE NON-STELLAR CONTINUOUS RADIATION
CL331	C DE LOORE/BRUSSELS	MASS LOSS AND VARIABILITY OF THE HOT COMPONENTS OF BE-X RAY BINARIES
FG332	F GIOVANNELLI/FRASCATI	UV SPECTRA OF HDE 245770/A0535+26
CL333	C DE LOORE/BRUSSELS	COMPARISON OF THE MASS-LOSS RATE OF MASSIVE CLOSE BINARIES WITH THAT OF SINGLE STARS; MASS TRANSFER IN CLOSE BINARIES; EVIDENCE OF DUPLICITY OF OB RUNAWAYS
HM334	H MAUDER/TUBINGEN	MASS EXHANGE IN CONTACT BINARIES
HZ335	H ZELK/HEIDELBERG	LOW-DISPERSION OBSERVATIONS OF ABSOLUTELY VERY BRIGHT SUPERGIANTS OF INTERMEDIATE SPECTRAL CLASS (F,G)
RF336	R FARAGGIANA/TRIESTE	AP AND AM STARS

JK337	J KRAUTTER/HEIDELBERG	SPECTROSCOPIC UV OBSERVATIONS OF CATACLYSMIC VARIABLES AT MINIMUM STAGE
MG338	M GERBALDI/PARIS	ULTRAVIOLET OBSERVATIONS OF BP, AP STARS AT HIGH GALACTIC LATITUDE
MG339	M GERBALDI/PARIS	ULTRAVIOLET OBSERVATIONS OF BLUE STRAGGLERS STARS IN OPEN CLUSTERS
MG340	M GREWING/TUBINGEN	INTERSTELLAR ABSORPTION AND EMISSION LINES FROM ATOMS AND MOLECULES
MG341	M GREWING/TUBINGEN	SEARCH FOR LYMAN-ALPHA RESONANCE-LINE SCATTERING IN THE NEARBY LATE-TYPE STARS
CJ342	C DE JAGER/UTRECHT	OBSERVATION OF THE DYNAMICAL STATE OF THE OUTER ATMOSPHERES OF BETA CEPHEI STARS
ET343	EG TANZI/MILANO	OBSERVATIONS OF X-RAY EMITTING CATACLYSMIC VARIABLES
LM344	L MARASCHI/MILANO	OBSERVATION OF X-RAY EMITTING QSOS AND BL LAC OBJECTS
MP345	M PERINOTTO/FLORENCE	ULTRAVIOLET OBSERVATION OF CANDIDATE CARBON-RICH PLANETARY NEBULAE
GV346	G VAUCLAIR/MEUDON	CHEMICAL COMPOSITION AND DIFFUSION IN HOT HIGH-GRAVITY STARS
PC347	P CRANE/ESO	ENERGY DISTRIBUTION IN THE ULTRAVIOLET OF NORMAL GIANT ELLIPTICAL GALAXIES
MP348	M PERINOTTO/FLORENCE	IUE OBSERVATIONS OF PLANETARY NEBULAE PREDICTED TO HAVE THE HIGHEST CARBON ABUNDANCES
AH349	A HECK/VILSPA	SPECTRAL CLASSIFICATION IN THE ULTRAVIOLET AP STAR CLASSIFICATION CRITERIA
WE350	W EICHENDORF/BOCHUM	CLASSICAL CEPHEIDS
AH351	A HECK	ULTRAVIOLET OBSERVATIONS OF COOL WOLF-RAYET STARS
AH352	A HECK/VILSPA	ULTRAVIOLET OBSERVATIONS OF THE YOUNG EVOLVING PLANETARY NEBULA HD 138403
HN353	H NUSSBAUMER/ZURICH	PROTO PLANETARY NEBULAE
GG354	G GAIDA/HEIDELBERG	ULTRAVIOLET CONTINUUM STUDY OF BL LACERTAE OBJECTS
MR355	M ROSA/HEIDELBERG	UV SPECTRA OF GIANT EXTRAGALACTIC HII REGIONS
JF356	JV FEITZINGER/BOCHUM	OBSERVATIONS OF THE CENTRAL PART OF THE 30 DORADUS NEBULA
CS357	C SOLLAZZO/NAPOLI	STUDY OF CHROMOSPHERES IN CEPHEID VARIABLES
JB358	J BERGERON/ESO	UV-OPTICAL SPECTROPHOTOMETRY OF INTERMEDIATE REDSHIFT QUASARS
JB359	J BERGERON/ESO	SPECTROPHOTOMETRY OF NARROW-LINE ACTIVE NUCLEI WITH X-RAY EMISSION AND HIGH-EXCITATION LINES
DK360	D KUNTH/ESO	ULTRAVIOLET OBSERVATIONS OF LOW-REDSHIFT RADIO QUIET QSOS
PT361	PS THE/AMSTERDAM	UV SPECTRA OF THE PRE-MAIN SEQUENCE SHELL STAR HR 5999
JK362	J KOPPEN/HEILDELBERG	HIGH-DISPERSION OBSERVATIONS OF PLANETARY NEBULAE
JD363	JM DEHARVENG/MARSEILLE	UV OBSERVATIONS OF EXCITING STAR CLUSTERS OF EXTRAGALACTIC HII REGIONS
FP364	F PRADERIE/MEUDON	EMISSION, MASS LOSS AND CHROMOSPHERES IN HERBIG AE STARS
GG365	G GAHM/STOCKHOLM	EXPLORATION OF THE ULTRAVIOLET SPECTRUM OF T TAURI STARS
JB366	J BONNET-BIAUD/GIF-YVETTE	ULTRAVIOLET OBSERVATIONS OF X-RAY SOURCES IN THE MAGELLANIC CLOUDS WITH IUE
KF367	K FREDGA/STOCKHOLM	STELLAR MG II LINES
MC368	M CAPACCIOLI/PADOVA	CONTINUUM ENERGY DISTRIBUTION IN THE DISK OF NGC 4762
CL369	C LAURENT/VERRIERES-BUISSON	THE EXTENT OF A GASEOUS GALACTIC HALO
DR370	D REIMERS/KIEL	MASS-LOSS OF K AND G SUPERGIANTS/RED GIANTS WITH VARIABLE CIRCUMSTELLAR LINES/MASS LOSS

		OF RED GIANTS WITH HOT COMPANIONS
LP371	L PREVOT/MARSEILLE	A FAR UV STUDY OF INTERSTELLAR MATTER IN THE SMALL MAGELLANIC CLOUD
JP372	J PAUL/SACLAY	ELEMENTAL DEPLETION IN THE CORE AND THE FRINGE OF THE RHO OPHIUCHI CLOUD COMPLEX
MU373	MH ULRICH/ESO	MONITORING OF THE CONTINUUM AND LINE STRENGTHS OF SEYFERT GALAXY NGC 4151
SP374	SR POTTASCH/GRONINGEN	THE NEBULAR CONTINUUM FROM PLANETARY NEBULAE
VD375	V DOAZAN/PARIS	VARIABLE MASS LOSS IN BE STARS
CB376	C BARBIERI/PADOVA	BLUE DWARF GALAXIES
KH377	K HUNGER/KIEL	ULTRAVIOLET SPECTROSCOPY OF EXTREME HELIUM STARS
BW378	B WESTERLUND/UPPSALA	DUST AND GAS CONTENT OF THE REGION OF THE PUPPIS OB 3 ASSOCIATION
MR379	M RODONO/CATANIA	SOLAR-TYPE STELLAR ACTIVITY IN BY DRA FLARE
SC380	S CATALANO/CATANIA	SELECTED RS CVN BINARIES
MR381	M RODONO/CATANIA	COLLABORATIVE MONITORING OF BY DRA-TYPE FLARE STAR
SP382	SR POTTASCH/GRONINGEN	HIGH-RESOLUTION OBSERVATIONS OF PLANETARY NEBULAE
RK383	RP KUDRITZKI/FIEL	NON-LTE ANALYSIS OF NITROGEN-RICH MAIN-SEQUENCE O STARS
MT384	M TARENGHI/ESO	UV OBSERVATIONS OF DOUBLE ACTIVE GALAXIES
RK385	RP KUDRITZKI/KIEL	NON-LTE ANALYSIS OF SUBDWARF O STARS
VW386	V WEIDEMANN/KIEL	ULTRAVIOLET SPECTROSCOPY OF WHITE DWARFS
JD387	J DARIUS/VILSPA	MASS LOSS IN HOT SUBDWARFS
DG388	DP GILRA/GRONINGEN	UV OBSERVATIONS OF HII REGIONS AND REFLECTION NEBULAE
DG389	DP GILRA/GRONINGEN	UV OBSERVATIONS OF THE HOT COMPANIONS OF LATE-TYPE STARS
SP390	SR POTTASCH/GRONINGEN	THE PECULIAR SLOW NOVA HD 87643
SP391	SR POTTASCH/GRONINGEN	INTERSTELLAR LINE MEASUREMENTS OF HIGH-VELOCITY CLOUDS
CC392	C CASSINI/MILANO	OBSERVATIONS OF INTERACTING GALAXIES
SD393	S D'ODORICO/PADOVA	ACTIVE NUCLEI OF SPIRAL GALAXIES
PB394	P BENVENUTI/VILSPA	MASS LOSS FROM O STARS IN THE MAGELLANIC CLOUDS
JC395	J CLAVEL/VILSPA	A SEARCH FOR CO ABSORPTION LINES IN THE SPECTRA OF PLANETARY NEBULAE WITH THE IUE
JC396	J CLAVEL/VILSPA	IUE OBSERVATIONS OF SEYFERT GALAXIES AND LOW REDSHIFT QUASARS
MP397	MV PENSTON/VILSPA	OBSERVATION OF SEYFERT TYPE 2 GALAXIES
MP398	MV PENSTON/VILSPA	LONG-EXPOSURE OBSERVATIONS OF EXTRAGALATIC
MP398	MV PENSTON/VILSPA	LONG-EXPOSURE OBSERVATIONS OF EXTRAGALACTIC OBJECTS WITH IUE
MK399	M KLUTZ/LIEGE	SPECTROSCOPY OF THE BE STAR GG CARINAE
AT400	A TREVES/MILANO	OBSERVATION OF THE X-RAY SOURCE CYG X-2
CB401	C BLANCO/CATANIA	STELLAR CHROMOSPHERES
FS402	F SPITE/MEUDON	CHECK OF MODELS OF POPULATION II STARS
JR403	J RAHE/BAMBERG	STUDY OF MASS FLOW IN CLOSE BINARY SYSTEMS
PR404	PK RASMUSSEN/COPENHAGEN	ULTRAVIOLET SPECTROSCOPY OF LATE-TYPE STARS COVERING A WIDE RANGE IN THE THREE BASIC ATMOSPHERIC PARAMETERS
HN405	H NORGAARD-NIELSEN/COPENHAGEN	UV SPECTRA OF NORMAL ELLIPTICAL GALAXIES AND GLOBULAR CLUSTERS
HR406	H RITTER/GARCHING	ULTRAVIOLET SPECTROSCOPY OF HZ HERCULIS DURING X-RAY ECLIPSE
SD407	S D'ODORICO/PADOVA	ULTRAVIOLET OBSERVATIONS OF SHOCK-IONIZED GAS
PR408	P RAFANELLI/PADOVA	IUE OBSERVATIONS OF U GEM STARS
FQ409	F QUECI/MEUDON	CARBON STARS SEQUENCE: R TO N STARS
AA410	A ALTAMORE/ROMA	PROPOSAL FOR IUE OBSERVATIONS OF SYMBIOTIC STARS DURING MINIMUM
VC411	V CALOI/FRASCATI	INTEGRATED SPECTRA OF GLOBULAR CLUSTERS
MF412	M FRIEDJUNG/PARIS	SYMBIOTIC AND RELATED OBJECTS DURING

		ACTIVITY PHASES
RV413	R VIOTTI/FRASCATI	IUE OBSERVATION OF THE ETA CARIANE REGION
AC414	A CASSATELLA/VILSPA	UV IBSERVATIONS OF R CRB STARS
AC414	A CASSATELLA/VILSPA	UV OBSERVATIONS OF R CRB STARS
MF415	M FRIEDJUNG/PARIS	ULTRAVIOLET STUDIES OF PECULIAR EMISSION-LINE SUPERGIANT STARS OF THE MAGELLANIC CLOUDS
HK416	HU KELLER/LINDAU	ULTRAVIOLET OBSERVATION OF COMETS
JD417	J DARIUS/VILSPA	ULTRAVIOLET OBJECTS OF ANOMALOUSLY LATE SPECTRAL TYPE
FB418	F BERTOLA/PADOVA	UV CONTINUUM ENERGY DISTRIBUTION IN THE NUCLEAR REGION OF DWARF ELLIPTICAL GALAXIES
HS419	H SCHEICHER/GOTTIGEN	INTERMEDIATE EMISSION LINE GALAXIES
DG420	DF GILRA/GRONINGEN	HII REGIONS IN THE MAGELLANIC CLOUDS
FB421	F BERTOLA/PADOVA	UV CONTINUUM ENERGY DISTRIBUTION IN THE NUCLEI OF GIANT ELLIPTICAL GALAXIES
KH422	KA VAN DER HUCHT/UTRECHT	VARIABILITY IN WOLF-RAYET STARS

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

****

00	SUN
01	EARTH
02	MOON
03	PLANET
04	PLANETARY SATELLITE
05	MINOR PLANET
06	COMET
07	INTERPLANETARY MEDIUM
08	
09	
10	W C
11	W N
12	MAIN SEQUENCE O
13	SUPERGIANT O
14	OE
15	OF
16	SD O
17	WD O
18	
19	UV-STRONG
20	B0-B2 V-IV
21	B3-B5 V-IV
22	B6-B9.5 V-IV
23	B0-B2 III-I
24	B3-B5 III-I
25	B6-B9.5 III-I
26	BE
27	BP
28	SDB
29	WDB
30	A0-A3 V-IV
31	A4-A9 V-IV
32	A0-A3 III-I
33	A4-A9 III-I
34	AE
35	AM
36	AP
37	WDA
38	
39	COMPOSITE
40	F0-F2
41	F3-F9
42	FP
43	LATE TYPE DEGENERATE STARS
44	G (TO 1FEB79); GIV-VI (FROM 1FEB79)
45	G I-II (FROM 1FEB79)
46	K (TO 1FEB79); K IV-VI (FROM 1FEB79)
47	K I-III (FROM 1FEB79)
48	M (TO 1FEB79); M DWARFS (FM 1FEB79)
49	M I-III (FROM 1FEB79)
50	R,N OR S TYPES
51	LONG PERIOD VARIABLE STARS
52	IRREGULAR VARIABLES
53	REGULAR VARIABLES
54	DWARF NOVAE
55	CLASSICAL NOVAE
56	SUPERNOVAE
57	SYMBIOTIC STARS
58	T TAURI
59	X-RAY
60	SHELL STAR
61	ETA CARINAE
62	PULSAR
63	NOVA-LIKE
64	STELLAR OBJECT NOT INCLUDED ABOVE
65	
66	
67	
68	
69	
70	PLANETARY NEBULA + CENTRAL STAR
71	PLANETARY NEBULA - CENTRAL STAR
72	H II REGION
73	REFLECTION NEBULA
74	DARK CLOUD (ABSORTION 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
****

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

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

THE CLASSIFICATIONS BELOW APPLY TO BOTH:

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

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

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

HAS BEEN CODED AS FOLLOWS: (LIMITS INCLUSIVE)

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

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OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP +CAM	IMAGE	APERT OB LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
H 225160	15	8.2	00 01 28	+61 56	H 2	9318	L 0	16NOV80	16 50 13	070 00	UK381	503
H 432	31	2.3	00 06 30	+58 52	H 2	8974	L 0	08OCT80	16 13 19	002 19	MF316	602
WWGCET	54	12.4	00 08 52	-11 45	L 2	9373	L 0	23NOV80	16 55 07	020 00	JK337	403
WWGCET	54	12.4	00 08 52	-11 45	L 3	10664	L 0	23NOV80	16 21 47	030 00	JK337	342
H 905	31	5.6	00 10 54	+40 45	H 2	8992	L 0	10OCT80	21 03 26	045 00	MR379	603
H 905	31	5.6	00 10 54	+40 45	L 3	10366	L 0	14OCT80	17 45 47	070 00	CB401	741
ZETA CAS	20	3.7	00 34 10	+53 37	H 2	8925	L 0	30SEP80	16 25 04	000 35	PHCAL	602
H 3360	20	3.9	00 34 10	+53 37	H 2	9109	L 0	20OCT80	14 35 53	000 30	PHCAL	602
H 3360	20	3.9	00 34 10	+53 37	H 2	9110	L 0	20OCT80	15 30 18	000 25	PHCAL	502
H 3360	20	3.9	00 34 10	+53 37	H 3	10428	L 0	20OCT80	14 38 35	000 30	PHCAL	501
N 205	81	13.5	00 37 38	+41 26	L 2	8982	L 0	09OCT80	14 47 40	400 00	FB418	109 SERENDIPITY IMAGE
N 205	81	13.5	00 37 38	+41 26	L 3	10314	L 0	09OCT80	14 46 33	420 00	FB418	303
ESO12G21	84	14.5	00 39 13	-79 31	L 2	8854	L 0	20SEP80	16 56 43	360 00	JC395	345
ES0:232'	84	14.5	00 39 13	-79 31	L 3	10217	' 0	24SEP80	16 52 40	385 00	JC396	2?4
M 31	83	14.5	00 40 30	+40 51	L 2	8699	L 0	02SEP80	18 37 19	310 00	VILSP	204
M3: 1^8	83	14.5	00 40 30	+40 51	L 3	10260	L 0	04OCT80	14 51 34	365 00	VILSP	103
CP-56154	20	10.2	00 46 48	-56 22	L 2	9163	L 0	27OCT80	14 49 20	001 40	UK370	401
CP-56154	20	10.2	00 46 48	-56 22	L 2	9163	S 0	27OCT80	14 41 56	004 40	UK370	301
CP-56154	20	10.2	00 46 48	-56 22	H 3	10487	L 0	27OCT80	14 53 44	279 00	UK370	502
H 6680	41	6.2	01 05 14	+31 44	H 2	9139	L 0	24OCT80	19 49 40	055 00	CB401	603
H 6680	41	6.2	01 05 14	+31 44	L 3	10469	L 0	24OCT80	20 47 45	059 00	CB401	702
G 33-49	43	13.8	01 15 19	+15 54	L 3	10607	L 0	15NOV80	13 42 20	365 00	VA386	403
UV CET	48	11.0	01 36 31	-18 13	L 2	8835	L 0	17SEP80	23 00 12	017 00	UK373	132
UV CET	48	11.9	01 36 31	-18 12	L 2	8848	L 0	19SEP80	20 46 00	020 00	UK375	123
UV CET	48	11.0	01 36 31	-18 13	L 3	10169	S 0	17SEP80	21 55 17	055 00	UK373	122
UV CET	48	11.0	01 36 31	-18 13	L 3	10169	L 0	17SEP80	21 04 55	045 00	UK373	122
UV CET	48	11.9	01 36 31	-18 12	L 3	10183	L 0	19SEP80	19 41 59	060 00	UK375	121
UV CET	48	11.9	01 36 31	-18 12	L 3	10183	L 0	19SEP80	18 35 24	060 00	UK375	121
UV CET	48	11.9	01 36 31	-18 12	L 3	10184	L 0	19SEP80	22 17 52	060 00	UK375	121
UV CET	48	11.9	01 36 31	-18 12	L 3	10184	L 0	19SEP80	21 14 46	060 00	UK375	121
H 10125	12	8.2	01 37 21	+63 55	H 2	9330	L 0	18NOV80	13 52 00	080 00	UK381	504
H 11636	31	2.6	01 51 52	+20 34	H 2	8712	L 0	04SEP80	17 02 35	001 50	CL333	701
H 11636	31	2.6	01 51 52	+20 34	H 3	10004	L 0	04SEP80	16 57 12	003 30	CL333	500
H 11636	31	2.6	01 51 52	+20 34	H 3	10005	L 0	04SEP80	17 28 45	015 00	CL333	701
H 11636	31	2.6	01 51 52	+20 34	H 3	10022	L 0	05SEP80	19 17 21	003 00	CL333	500
H 11636	31	2.6	01 51 52	+20 34	H 3	10023	L 0	05SEP80	19 59 15	003 00	CL333	500
TT ARI	54	11.0	02 04 09	+15 02	L 3	10131	L 0	14SEP80	23 38 56	008 00	UK344	301
TT ARI	54	14.0	02 04 10	+15 02	L 2	9372	L 0	23NOV80	13 23 07	150 00	JK337	565
TT ARI	63	14.4	02 04 10	+15 02	L 3	10614	L 0	17NOV80	15 25 37	261 00	JK337	762
GT 0236	59	15.0	02 36 41	+61 01	L 2	8901	L 0	27SEP80	22 41 49	035 00	LM344	503
GT 0236	59	11.0	02 36 41	+61 01	L 2	8914	L 0	29SEP80	21 30 29	067 00	LM344	602
GT 0236	59	15.0	02 36 41	+6_ 01	L 3	10234	L 0	27SEP80	20 52 45	090 00	LM344	202
GT 0236	59	11.0	02 36 41	+61 01	L 3	10249	L 0	29SEP80	19 26 52	120 00	LM344	402
TW HOR	50	5.5	03 11 17	-57 30	L 2	9049	S 0	15OCT80	20 35 49	020 00	FG409	223
TW HOR	50	5.5	03 11 17	-57 30	L 2	9049	L 0	15OCT80	18 45 40	105 00	FG409	453
TW HOR	50	5.5	03 11 17	-57 30	L 3	10369	L 0	15OCT80	20 58 46	050 00	FG409	101
H 21291	25	4.2	03 25 00	+59 46	H 2	9317	L 0	16NOV80	14 48 56	006 30	UK381	502
H 21291	25	4.2	03 25 00	+59 46	H 2	10612	L 0	16NOV80	14 56 56	090 00	UK381	701

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP	+CAM	IMAGE	APERT OB	APERT LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
H 23552	25	6.1	03 44 36	+50 35	H	2	8744	L	0	07SEP80	16 20 47	017 00	UK303	603
H 23552	25	6.1	03 44 36	+50 35	H	3	10046	L	0	07SEP80	16 58 30	045 00	UK303	601
XXCAM	44	7.3	04 04 46	+58 14	L	2	8956	S	0	05OCT80	18 13 08	010 00	UK366	402
XXCAM	44	7.3	04 04 46	+ 8 14	L	2	8956	L	0	05OCT80	18 02 00	007 00	UK366	502
XXCAM	44	7.3	04 04 46	+58 14	L	2	8957	L	0	05OCT80	18 51 06	020 00	UK366	702
H 26574	40	4.0	04 09 25	-06 58	H	2	8973	L	0	08OCT80	15 04 53	010 57	MF316	602
H 284419	58	10.2	04 19 03	+19 25	H	2	9214	L	0	02NOV80	16 52 43	176 00	OKTOP	264
H 284419	58	10.0	04 19 03	+19 25	L	2	9254	L	0	07NOV80	15 29 56	240 00	UK356	769
H 284419	58	11.5	04 19 03	+19 25	L	3	10543	L	0	04NOV80	13 35 29	372 00	UK356	343 LY ALPHA SAT
H 29138	23	7.2	04 21 45	-84 36	H	3	10051	L	0	07SEP80	23 24 51	030 00	UK303	601
DG TAU	58	12.0	04 24 01	+25 59	L	2	9260	L	0	08NOV80	13 12 28	120 00	GG365	464
3C 120	64	14.1	04 30 31	+05 15	L	2	9102	L	0	19OCT80	16 30 00	183 00	OK311	466
3C 120	84	14.1	04 30 31	+05 15	L	3	10416	L	0	19OCT80	15 17 27	180 00	UK311	342
3C 120	84	14.1	04 30 32	+05 15	L	3	10501	L	0	29OCT80	19 11 00	157 00	UK311	331
3C 120	84	14.0	04 30 32	+05 15	L	3	10589	L	0	11NOV80	16 59 00	167 00	UK324	241
H 29866	26	6.1	04 40 45	+40 41	H	2	8745	L	0	07SEP80	18 02 37	015 00	UK303	503
H 29866	26	6.1	04 40 45	+40 41	H	3	10047	L	0	07SEP80	18 29 22	030 00	UK303	501
TU MEN	54	12.0	04 43 29	-76 42	L	2	9374	L	0	23NOV80	18 31 33	020 00	JK337	503
TU MEN	54	12.0	04 43 29	-76 42	L	3	10665	L	0	23NOV80	17 58 56	030 00	JK337	561
N 1672	88	12.5	04 44 55	-59 20	L	3	10707	L	0	29NOV80	18 03 07	103 00	UK304	311
CL 182	48	9.6	04 56 59	+01 43	L	2	9022	L	0	13OCT80	18 13 28	025 00	UK355	243
CL 182	48	9.6	04 56 59	+01 43	L	2	9023	S	0	13OCT80	21 03 31	035 00	UK355	244
CL 182	48	9.6	04 56 59	+01 43	L	2	9023	L	0	13OCT80	20 25 31	035 00	UK355	244
CL 182	48	9.6	04 56 59	+01 43	L	3	10355	L	0	13OCT80	17 29 52	040 00	UK355	111
CL 182	48	9.6	04 56 59	+01 43	L	3	10356	L	0	13OCT80	18 42 14	100 00	UK355	021
H 32068	39	3.9	04 58 59	+41 08	H	3	9985	L	0	01SEP80	23 35 11	013 00	MH305	501
H 34085	25	0.2	05 12 08	-08 15	H	2	9315	S	0	16NOV80	12 49 20	000 07	UK381	602
H 34085	25	0.2	05 12 08	-08 15	H	2	9329	S	0	18NOV80	12 35 48	000 06	UK381	401
H 34085	25	0.2	05 12 08	-08 15	H	2	9332	S	0	18NOV80	19 15 16	000 07	UK381	601
H 34085	25	0.2	05 12 08	-08 15	H	2	9333	S	0	18NOV80	19 42 54	000 07	UK381	602
H 34085	25	0.2	05 12 08	-08 15	H	3	10610	S	0	16NOV80	13 03 55	000 16	UK381	601
H 34085	25	0.2	05 12 08	-08 15	H	3	10626	S	0	18NOV80	12 39 45	000 16	UK381	601
H 34085	25	0.2	05 12 08	-08 15	H	3	10629	S	0	18NOV80	19 40 03	000 16	UK381	601
AKN 120	84	14.0	05 13 38	-00 12	L	2	9126	L	0	22OCT80	14 47 48	070 00	HS419	452
AKN 120	84	14.0	05 13 38	-00 12	L	2	9127	L	0	22OCT80	17 53 38	140 00	HS419	364
AKN 120	84	14.0	05 13 38	-00 12	L	3	10451	L	0	22OCT80	16 09 39	100 00	HS419	341
AKN 120	84	14.0	05 13 38	-00 12	L	3	10452	L	0	22OCT80	20 26 31	080 00	HS419	231
PKS 0521	87	15.0	05 21 13	-36 30	L	2	8913	L	0	29SEP80	16 43 34	110 00	LM344	203
IC 418	70	9.7	05 25 09	-12 44	H	3	10243	L	0	28SEP80	16 59 14	090 00	JC395	462
H 36629	20	7.7	05 30 29	-04 36	H	2	9274	L	0	10NOV80	16 43 03	024 32	UK339	503
H 36629	20	7.7	05 30 29	-04 36	L	2	9275	L	0	10NOV80	18 02 26	000 42	UK339	702
H 36629	20	7.7	05 30 29	-04 36	L	2	9275	S	0	10NOV80	17 58 09	000 44	UK339	502
H 36629	20	7.7	05 30 29	-04 36	H	3	10583	L	0	10NOV80	17 13 08	037 56	UK339	501
H 36629	20	7.7	05 30 29	-04 36	L	3	10584	L	0	10NOV80	18 47 44	000 35	UK339	601
H 36629	20	7.7	05 30 29	-04 36	L	3	10584	S	0	10NOV80	18 44 48	000 38	UK339	401
H 36861	15	3.5	05 32 29	+09 54	H	2	9316	S	0	16NOV80	13 53 16	000 55	UK381	502
H 36861	15	3.5	05 32 29	+09 54	H	3	10611	S	0	16NOV80	13 56 37	001 10	UK381	501
H 37022	12	5.1	05 32 49	-05 25	H	2	8698	S	0	02SEP80	17 10 37	010 00	VILSP	703

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP +CAM	IMAGE	APERT OB LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
H 37022	12	5.1	05 32 49	-05 25	H 2	8714	S 0	04SEP80	21 31 11	004 30	LB327	702
H 37022	12	5.1	05 32 49	-05 25	H 3	9991	S 0	02SEP80	16 50 07	003 20	VILSP	501
H 37023	20	6.7	05 32 50	-05 25	H 2	8713	S 0	04SEP80	19 13 01	030 00	LB327	302
H 37023	20	6.7	05 32 50	-05 25	H 3	10006	S 0	04SEP80	18 48 56	015 00	LB327	111
H 37023	20	6.7	05 32 50	-05 25	H 3	10007	S 0	04SEP80	20 59 51	080 00	LB327	341
H 245770	23	8.8	05 34 58	+26 17	L 2	9174	S 0	28OCT80	14 43 30	006 00	FG332	501
H 245770	23	8.8	05 34 58	+26 17	L 2	9174	L 0	28OCT80	14 38 00	002 40	FG332	501
H 245770	23	8.8	05 34 58	+26 17	H 2	9175	L 0	28OCT80	15 18 09	162 00	FG332	406
H 245770	23	8.8	05 34 58	+26 17	L 3	10493	L 0	28OCT80	14 52 00	013 00	FG332	501
HE245770	59	8.8	05 35 48	+26 17	L 2	9155	L 0	26OCT80	14 58 52	002 40	FG332	502
HE245770	59	8.8	05 35 48	+26 17	L 2	9155	S 0	26OCT80	14 44 44	010 00	FG332	602
HE245770	59	8.8	05 35 48	+26 17	H 3	10482	L 0	26OCT80	15 05 45	400 00	FG332	301
PKS 0537	87	15.0	05 37 21	-44 06	L 2	8900	L 0	27SEP80	17 10 05	170 00	LM344	304
H 38087	21	8.3	05 40 24	-02 20	H 2	9287	L 0	12NOV80	18 19 30	061 30	UK339	403
H 38087	21	8.3	05 40 24	-02 20	L 3	10596	L 0	12NOV80	18 11 52	001 16	UK339	500
H 38087	21	8.3	05 40 24	-02 20	L 3	10596	S 0	12NOV80	18 07 50	001 37	UK339	400
H 38087	21	8.3	05 40 24	-02 20	H 3	10597	L 0	12NOV80	19 23 52	024 00	UK339	301
H 38087	21	8.3	05 40 29	-02 20	L 2	9276	L 0	10NOV80	19 26 19	001 44	UK339	502
H 38087	21	8.3	05 40 29	-02 20	L 2	9276	S 0	10NOV80	19 22 15	001 50	UK339	402
IC 2149	70	10.5	05 52 41	+46 06	H 2	9384	L 0	25NOV80	13 01 22	120 00	VILSP	444
H 41534	21	5.6	06 02 28	-32 10	H 2	8725	L 0	05SEP80	17 15 54	024 00	CL333	502H11636SPCT SIMP1M15S
H 41534	21	5.6	06 02 28	-32 10	H 3	10020	L 0	05SEP80	16 38 19	033 00	CL333	903
H 41534	21	5.6	06 02 28	-32 10	H 3	10021	L 0	05SEP80	18 04 35	003 20	CL333	501
H 44007	44	8.1	06 16 32	-14 49	L 2	8988	L 0	10OCT80	14 23 00	010 00	FS402	503
H 47129	13	6.1	06 34 43	+06 10	H 2	8746	L 0	07SEP80	19 37 01	006 00	UK303	502
H 47129	13	6.1	06 34 43	+06 10	H 3	10048	L 0	07SEP80	19 46 50	012 00	UK303	601
H 50896	11	6.8	06 52 08	-23 52	H 2	8774	L 0	11SEP80	17 06 22	003 00	KH422	343
H 50896	11	6.9	06 52 08	-23 52	H 2	8782	L 0	12SEP80	16 44 49	008 00	UK373	562
H 50896	11	6.9	06 52 08	-23 52	H 2	8783	L 0	12SEP80	17 55 08	004 00	UK373	352
H 50896	11	6.8	06 52 08	-23 52	H 2	8790	L 0	13SEP80	19 48 09	003 30	UK373	452
H 50896	11	6.8	06 52 08	-23 52	H 2	8791	L 0	13SEP80	20 48 07	010 00	UK373	562
H 50896	11	6.8	06 52 08	-23 52	H 3	10086	L 0	11SEP80	16 58 09	005 00	KH422	562
H 50896	11	6.9	06 52 08	-23 52	H 3	10096	L 0	12SEP80	16 27 00	005 00	UK373	502
H 50896	11	6.9	06 52 08	-23 52	H 3	10097	L 0	12SEP80	17 20 02	001 00	UK373	354
H 50896	11	6.8	06 52 08	-23 52	H 3	10114	L 0	13SEP80	19 39 37	001 10	UK373	452
H 50896	11	6.8	06 52 08	-23 52	H 3	10115	L 0	13SEP80	20 39 41	002 10	UK373	461
H 50896	11	6.8	06 52 08	-23 52	H 3	10116	L 0	13SEP80	21 15 51	004 00	UK373	000 NO SPECTRUM
H 52721	36	6.6	06 59 29	-11 14	H 2	8747	L 0	07SEP80	20 27 28	010 00	UK303	503
H 52721	20	6.6	06 59 29	-11 14	H 2	9283	L 0	12NOV80	12 37 43	008 38	UK339	502
H 52721	36	6.6	06 59 29	-11 14	H 3	10049	L 0	07SEP80	20 55 04	020 00	UK303	601
H 52721	20	6.6	06 59 29	-11 14	H 3	10592	L 0	12NOV80	12 49 58	016 50	UK339	501
H 52942	20	8.1	07 00 22	-11 23	L 2	9271	L 0	10NOV80	12 38 55	001 16	UK339	602
H 52942	20	8.1	07 00 22	-11 23	L 2	9271	S 0	10NOV80	12 35 38	001 22	UK339	502
H 52942	20	8.1	07 00 22	-11 23	L 3	10579	L 0	10NOV80	12 47 05	001 12	UK339	501
H 52942	20	8.1	07 00 22	-11 23	L 3	10579	S 0	10NOV80	12 43 33	001 25	UK339	301
H 53367	20	7.0	07 02 02	-10 23	H 2	9286	L 0	12NOV80	15 40 26	030 00	UK339	403
H 53367	20	7.0	07 02 02	-10 23	H 3	10595	L 0	12NOV80	16 13 58	074 00	UK339	401
H 53623	20	8.0	07 02 57	-12 15	L 2	9285	L 0	12NOV80	15 07 26	000 25	UK339	501

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP +CAM	IMAGE	APERT OB LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
H 53623	20	8.0	07 02 57	-12 15	L 2	9285	S 0	12NOV80	15 04 10	000 33	UK339	401
H 53623	20	6.0	07 02 57	-12 15	L 3	10594	L 0	12NOV80	14 58 12	000 21	UK339	501
H 53623	20	8.0	07 02 57	-12 15	L 3	10594	S 0	12NOV80	14 55 51	000 25	UK339	401
H 53974	23	5.4	07 04 20	-.1 13	H 2	9272	L 0	10NOV80	13 49 26	002 41	UK339	502
H 53974	23	5.4	07 04 20	-11 13	H 3	10580	L 0	10NOV80	14 04 14	007 24	UK339	501
H 54306	20	8.8	07 05 33	-11 50	L 2	9284	S 0	12NOV80	13 46 41	001 58	UK339	501
H 54306	20	8.8	07 05 33	-11 50	L 2	9284	L 0	12NOV80	13 51 14	001 58	UK339	601
H 54300	20	8.8	07 05 33	-11 50	L 3	10582	S 0	10NOV80	16 11 50	001 59	UK339	301
H 54306	20	6.8	07 05 33	-11 50	L 3	10593	S 0	12NOV80	13 58 00	001 59	UK339	501
H 54306	20	6.8	07 05 33	-11 50	L 3	10593	L 0	12NOV80	14 02 22	002 09	UK339	601
H 54439	20	7.7	07 06 03	-11 46	L 2	9273	L 0	10NOV80	15 06 26	000 49	UK339	702
H 54439	20	7.7	07 06 03	-11 46	L 2	9273	S 0	10NOV80	15 03 36	000 44	UK339	502
H 54439	20	7.7	07 06 03	-11 46	L 3	10581	L 0	10NOV80	15 13 38	000 45	UK339	600
H 54439	20	7.7	07 06 03	-11 46	L 3	10581	S 0	10NOV80	15 09 39	000 48	UK339	500
H 60414	46	5.0	07 31 30	-14 24	H 2	8748	L 0	07SEP80	21 43 47	020 00	UK?03	573
H 60414	46	5.0	07 31 30	-14 24	H 3	10050	L 0	07SEP80	22 12 39	030 00	UK303	551
H 60753	21	6.7	07 32 08	-50 28	L 2	8923	S 0	30SEP80	14 16 24	000 14	PHCAL	501
H 60753	21	6.7	07 32 08	-50 28	L 2	8923	L 0	30SEP80	14 12 59	000 07	PHCAL	501
H 60753	21	6.7	07 32 08	-50 28	L 2	9115	L 0	20OCT80	19 56 00	000 07	PHCAL	502
H 60753	21	6.7	07 32 08	-50 28	L 2	9115	S 0	20OCT80	19 53 37	000 14	PHCAL	502
H 60753	21	6.7	07 32 08	-50 28	L 3	10257	S 0	30SEP80	13 54 56	000 20	PHCAL	501 PARTIAL READ
H 60753	21	6.7	07 32 08	-50 28	L 3	10257	L 0	30SEP80	13 52 06	000 10	PHCAL	501 PARTIAL READ
H 60753	21	6.7	07 32 08	-50 28	L 3	10433	S 0	20OCT80	19 56 00	000 07	PHCAL	502
H 60753	21	6.7	07 32 08	-50 28	L 3	10433	L 0	20OCT80	19 48 10	000 20	PHCAL	500
P0735+18	87	14.0	07 35 14	+17 49	L 2	9380	L 0	24NOV80	13 03 12	398 00	UK370	309
P0735+17	87	14.8	07 35 14	+17 49	L 3	10660	L 0	22NOV80	12 58 44	386 00	UK370	302
H 62001	30	8.2	07 39 01	-18 52	L 2	8954	S 0	05OCT80	14 37 07	003 00	UK366	402
H 62001	30	8.2	07 39 01	-18 52	L 2	6954	L 0	05OCT80	14 28 41	002 00	UK366	502
H 62001	30	8.2	07 39 01	-1? 52	H 2	8955	L 0	05OCT80	15 20 15	120 00	UK366	405
H 62001	30	8.2	07 39 01	-18 52	L 3	10288	S 0	05OCT80	15 00 21	006 00	UK366	502
H 62001	30	8.2	07 39 01	-18 52	L 3	10288	L 0	05OCT80	14 44 46	015 00	UK366	502
H 62509	47	1.2	07 42 16	+28 09	H 2	9230	L 0	04NOV80	12 23 45	045 00	UK356	803
H ?2509	47	1.2	07 42 16	+28 09	H 2	9253	L 0	07NOV80	12 31 53	130 00	UK356	766
BD+75?25	16	9.5	08 04 43	+75 05	L 2	8924	L 0	30SEP80	15 50 32	000 48	PHCAL	501
BD+75325	16	9.5	06 04 43	+75 05	L 2	8924	L 0	30SEP80	15 47 22	000 24	PHCAL	501
BD+75325	1?	9.5	06 04 43	+75 05	L 3	10259	S 0	30SEP80	15 22 00	000 28	PHCAL	501
BD+75325	16	9.5	08 04 43	+75 05	L 3	10259	L 0	30SEP80	15 20 44	000 14	PHCAL	501
H 67621	20	6.3	08 05 12	-48 21	H 3	10008	L 0	04SEP80	22 05 00	005 30	CL333	501
H 67523	41	2.9	08 05 25	-24 09	H 2	8972	L 0	08OCT80	14 20 17	005 33	MF316	702
L97-3	43	13.9	08 06 28	-66 10	L 3	10599	L 0	13NOV80	13 23 06	384 00	VW386	503
H 69081	23	5.1	08 12 05	-36 10	H 2	8824	I 0	16SEP80	21 11 30	000 45	BW278	402
H 69081	23	5.1	08 12 05	-36 10	H 3	10159	L 0	16SEP80	21 37 23	001 15	BW278	502
H 69106	20	7.1	08 12 12	-36 48	L 2	8825	L 0	16SEP80	21 53 02	000 08	BW278	502
H 69106	20	7.1	08 12 12	-36 48	H 2	8826	L 0	16SEP80	22 17 48	007 30	BW278	503
H 69464	15	8.8	08 13 54	-35 28	L 2	8823	L 0	16SEP80	17 26 37	002 30	BW278	702
H 69464	15	8.8	08 13 54	-35 28	L 3	10157	L 0	16SEP80	16 51 46	005 00	BW278	501
H 69464	15	8.8	08 13 54	-35 28	H 3	10158	L 0	16SEP80	17 38 04	160 00	BW278	.02
D+53 105	20	3.6	08 32 30	+53 37	H 3	10057	L 0	08SEP80	23 33 36	000 40	VILSP	601

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP +CAM	IMAGE	APERT OB LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
H 73666	30	6.6	08 37 19	+20 09	H 2	9086	L 0	18OCT80	18 36 45	060 00	MG339	604
H 73666	30	6.6	08 37 19	+20 09	H 3	10403	L 0	18OCT80	17 03 39	090 00	MG339	601
F81	22	10.0	08 46 26	+11 57	L 2	9087	L 0	18OCT80	20 19 33	006 00	MG339	501
F81	22	10.0	08 48 26	+1 57	L 2	9088	L 0	18OCT80	21 10 50	010 00	MG339	702
F81	22	10.0	08 48 26	+11 57	L 3	10404	L 0	18OCT80	19 53 41	020 00	MG339	801
F81	22	10.0	08 48 26	+11 57	L 3	10405	L 0	18OCT80	20 44 41	008 00	MG339	501
H 76536	10	9.4	08 53 18	-47 24	L 3	10087	L 0	11SEP80	18 04 19	003 00	KH422	342
H 76536	10	9.4	08 53 18	-47 24	H 3	10088	L 0	11SEP80	18 33 40	225 00	KH422	355
H 76563	10	9.4	08 53 18	-47 24	H 3	10098	L 0	12SEP80	18 24 45	240 00	UK373	352
H 76536	10	9.4	08 53 18	-47 24	H 3	10113	L 0	13SEP80	14 57 23	240 00	UK373	452
I 2448	70	9.0	09 06 37	-69 44	L 2	8733	L 0	06SEP80	17 54 09	045 00	UK319	552
I 2448	70	9.0	09 06 37	-69 44	L 3	10033	L 0	06SEP80	17 26 32	015 00	UK319	450
H 237844	21	9.0	09 48 31	+55 57	L 2	8878	L 0	23SEP80	23 09 22	002 00	UK330	601
H 237844	21	9.4	09 48 31	+55 57	L 2	8891	L 0	25SEP80	23 21 48	002 00	UK330	501
H 237844	21	9.4	09 48 31	+55 57	L 2	8897	L 0	26SEP80	23 15 26	002 00	UK330	501
N 3031	80	11.0	09 51 30	+69 11	L 2	10588	L 0	11NOV80	13 01 33	165 00	UK324	001
Q0957+56	85	16.5	09 57 57	+56 08	L 2	8877	L 0	23SEP80	16 45 21	350 00	UK330	348
Q0957+56	85	16.5	09 57 57	+56 08	L 2	8890	L 0	25SEP80	17 06 44	340 00	UK330	336
Q0957+56	85	16.5	09 57 57	+56 08	L 2	8896	L 0	26SEP80	17 34 09	310 00	UK330	340
H 93521	12	6.9	10 45 34	+37 50	L 2	9112	L 0	20OCT80	17 04 47	000 03	PHCAL	502
H 93521	12	6.9	10 45 34	+37 50	L 2	9112	S 0	20OCT80	17 01 55	000 06	PHCAL	502
H 93521	12	6.9	10 45 34	+37 50	H 2	9113	L 0	20OCT80	17 54 58	004 30	PHCAL	502
H 93521	12	6.9	10 45 34	+37 50	H 2	9114	L 0	20OCT80	18 25 40	002 00	PHCAL	402
H 93521	12	6.9	10 45 34	+37 50	L 3	10430	L 0	20OCT80	17 09 46	000 03	PHCAL	500
H 93521	12	6.9	10 45 34	+37 50	L 3	10430	S 0	20OCT80	17 07 22	000 06	PHCAL	500
H 93521	12	6.9	10 45 34	+37 50	H 3	10431	L 0	20OCT80	18 02 01	004 30	PHCAL	501
H 93521	12	6.9	10 45 34	+37 50	H 3	10432	L 0	20OCT80	19 12 21	002 00	PHCAL	301
N 7008	70	13.3	10 59 05	+54 21	L 2	8908	L 0	28SEP80	20 39 17	030 00	JC395	303
N 7008	70	13.3	10 59 05	+54 21	L 3	10244	L 0	28SEP80	19 24 13	070 00	JC395	401
H 96548	11	7.8	11 04 18	-65 14	H 3	10089	L 0	11SEP80	23 00 28	048 00	KH422	563
H 96548	11	7.8	11 04 18	-65 14	H 3	10099	L 0	12SEP80	23 10 43	045 00	UK373	562
N 3918	70	8.5	11 47 50	-56 54	L 2	8732	L 0	06SEP80	16 20 58	035 00	UK319	
N 3998	86	12.0	11 55 20	+55 44	L 2	9399	L 0	28NOV80	13 21 31	040 00	UK304	203
N 39?8	86	12.0	11 55 20	+55 44	L 3	10695	L 0	28NOV80	12 47 43	030 00	UK304	121
N 4236	72	16.0	12 14 47	+69 40	L 2	9165	L 0	29OCT80	14 31 21	225 00	UK348	036 HII REGION
N 4236	72	15.0	12 14 47	+69 40	L 3	10474	L 0	25OCT80	20 40 38	066 00	UK348	201 HII REGION
N 4236	72	16.0	12 14 47	+69 40	L 3	10500	L 0	29OCT80	14 35 33	066 00	UK348	301 OFF TARGET
H 110715	22	8.6	12 41 48	-64 41	L 2	9006	L 0	11OCT80	20 33 00	006 15	KS317	501
H 110715	22	8.6	12 41 48	-64 41	L 3	10332	L 0	11OCT80	20 58 21	030 00	KS317	501
H 111409	22	7.6	12 46 52	-64 20	L 2	9007	L 0	11OCT80	21 35 02	001 25	KS317	501
MKN 54	72	15.0	12 57 32	+32 43	L 2	9141	L 0	25OCT80	14 39 13	300 00	UK348	306
H 112607	25	8.1	12 55 54	-63 22	L 2	9004	L 0	11OCT80	18 38 58	001 35	KS317	501
H 112607	25	8.1	12 55 54	-63 22	L 3	10330	L 0	11OCT80	18 43 13	004 25	KS317	502
CMT ENKE	6	12.8	12 56 55	+31 51	L 2	9220	L 0	03NOV80	12 16 06	240 00	HK416	174
CMT ENKE	6	12.8	12 56 55	+31 51	H 2	9221	L 0	03NOV80	16 52 23	140 00	HK416	056 NUCLEUS IN LWLA
CMT ENKE	6	12.8	12 56 55	+31 51	L 3	10530	L 0	03NOV80	12 22 40	200 00	HK416	082 NUCLEUS IN LWLA
CMT ENKE	6	12.8	12 56 55	+31 51	L 3	10531	L 0	03NOV80	16 08 41	040 00	HK416	1?0 NUCLEUS IN SWLA
CMT ENKE	6	12.8	12 56 55	+31 51	L 3	10532	L 0	03NOV80	17 22 52	15 00	HK416	050 NUCLEUS IN LWLA

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP +CAM	IMAGE	APERT OB LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
CMT ENKE	0	12.8	12 56 55	+31 51	L 3	10533	L 0	03NOV80	16 18 00	15 00	HK416	050 NUCLEUS IN LWLA
H 112954	22	8.4	12 58 16	-62 39	L 2	9005	L 0	11OCT80	19 28 09	006 00	KS317	501
H 112954	22	8.4	12 58 16	-62 39	L 3	10331	L 0	11OCT80	19 49 16	027 00	KS317	401
GEO CORN	6	12.8	13 03 47	+2 18	L 3	10534	L 0	03NOV80	19 25 30	20 00	HK416	020 LY ALPHA ONLY
H 115071	12	6.2	13 12 50	-62 19	H 3	10009	L 0	04SEP80	22 48 59	067 00	CL333	301
UX UMA	54	12.7	13 34 42	+52 10	L 2	8797	L 0	14SEP80	17 25 29	010 00	UK344	302
UX UMA	54	12.7	13 34 42	+52 10	L 2	8798	L 0	14SEP80	18 49 49	020 00	UK344	502
UX UMA	54	12.7	13 34 42	+52 10	L 2	8799	L 0	14SEP80	19 48 45	030 00	UK344	503
UX UMA	54	12.7	13 34 42	+52 10	L 2	8800	L 0	14SEP80	21 00 36	030 00	UK344	503
UX UMA	54	12.7	13 34 42	+52 10	L 2	8801	L 0	14SEP80	22 42 00	010 00	UK344	303
UX UMA	54	12.7	13 34 42	+52 10	L 3	10126	L 0	14SEP80	16 57 57	007 00	UK344	331
UX UMA	54	12.7	13 34 42	+52 10	L 3	10127	S 0	14SEP80	18 11 35	010 00	UK344	321
UX UMA	54	12.7	13 34 42	+52 10	L 3	10127	L 0	14SEP80	18 02 39	005 00	UK344	221
UX UMA	54	12.7	13 34 42	+52 10	L 3	10128	L 0	14SEP80	19 16 17	028 00	UK344	441
UX UMA	54	12.7	13 34 42	+52 10	L 3	10129	L 0	14SEP80	20 24 36	028 00	UK344	331
UX UMA	54	12.7	13 34 42	+52 10	L 3	10130	L 0	14SEP80	21 34 40	035 00	UK344	341
H 18643	21	1.8	13 45 34	+49 34	H 2	9111	L 0	20OCT80	16 04 11	000 09	PHCAL	702
H 18643	21	1.8	13 45 34	+49 34	H 3	10429	L 0	20OCT80	16 06 59	000 10	PHCAL	701
H 124674	31	4.5	14 11 41	+52 01	H 2	8978	L 0	08OCT80	19 33 04	012 27	MF316	602
Q1512+37	85	15.5	15 12 47	+37 02	L 2	9133	L 0	23OCT80	14 51 24	416 00	UK330	458
Q1512+37	85	15.5	15 12 47	+37 02	L 3	10460	L 0	23OCT80	14 54 33	270 00	UK330	063 GEOCORONA ONLY
Q1512+37	85	15.5	15 12 47	+37 02	L 3	10460	S 0	23OCT80	14 54 33	270 00	UK330	033 GEOCORONA ONLY
Q1512+37	85	15.5	15 12 47	+37 02	L 3	10461	L 0	23OCT80	19 47 02	105 00	UK330	041 GEOCORONA ONLY
C-751197	20	9.5	15 28 53	-75 30	H 2	9164	L 0	27OCT80	19 58 39	108 00	UK370	504
H 140436	30	3.8	15 40 38	+26 27	H 2	8979	L 0	08OCT80	20 25 09	003 12	MF316	502
H 140436	30	3.8	15 40 38	+26 27	H 2	10311	L 0	08OCT80	21 20 31	015 49	MF316	701
H 140436	30	3.8	15 40 38	+26 27	L 3	10310	L 0	08OCT80	20 30 53	015 49	MF316	901
R CRB	41	5.8	15 46 31	+28 18	H 2	8958	L 0	05OCT80	19 58 05	079 00	UK366	502
R CB	4	6.5	15 46 31	+28 18	H 2	8964	L 0	07OCT80	16 44 27	232 00	UK366	702
B+332642	20	10.8	15 50 02	+33 05	L 2	9409	L 0	30NOV80	13 50 05	003 10	UKCAL	501
B+332642	20	10.8	15 50 02	+33 05	L 3	10716	L 0	30NOV80	14 10 00	004 00	UKCAL	501
H 146361	41	5.8	16 12 49	+33 59	L 2	8761	L 0	09SEP80	19 08 25	001 30	UK303	702
H 146361	41	5.8	16 12 49	+33 59	H 2	8762	L 0	09SEP80	19 59 28	035 00	UK303	553
H 146361	41	5.8	16 12 49	+33 59	L 3	10067	L 0	09SEP80	19 44 00	012 30	UK303	321
H 146361	41	5.8	16 12 49	+33 59	L 3	10067	S 0	09SEP80	19 12 38	025 00	UK303	321
H 147889	20	7.9	16 22 23	-24 21	L 2	8842	L 0	18SEP80	16 41 25	004 00	JP372	602
H 147889	20	7.9	16 22 23	-24 21	L 3	10176	L 0	18SEP80	16 31 42	006 00	JP372	501
H 147889	20	7.9	16 22 23	-24 21	H 3	10177	L 0	18SEP80	17 13 17	364 00	JP372	304
IC 4642	70	16.0	17 07 36	-55 20	L 2	9197	L 0	30OCT80	17 30 03	030 00	MP345	000 NO QUALITY CODE
IC 4642	70	16.0	17 07 36	-55 20	L 3	10507	L 0	30OCT80	16 01 35	080 00	MP345	452
IC 4642	70	16.0	17 07 36	-55 20	H 3	10508	L 0	30OCT80	18 05 15	006 00	MP345	111
N 6302	77	16.0	17 10 21	-37 03	H 2	9062	S C	16OCT80	15 13 05	060 00	UK337	102
N 6302	77	16.0	17 10 21	-37 03	L 2	9063	L 0	16OCT80	17 06 45	060 00	UK337	233
N 6302	77	16.0	17 10 21	-37 03	L 2	9064	L 0	16OCT80	19 22 55	144 00	UK337	344
N 6302	77	16.0	17 10 21	-37 03	H 3	10380	S C	16OCT80	16 16 59	029 00	UK337	120
N 6302	77	16.0	17 10 21	-37 03	L 3	10381	L 0	16OCT80	18 11 00	060 00	UK337	131
N 6302	77	16.0	17 10 21	-37 03	H 3	10391	L 0	17OCT80	15 02 44	405 00	UK337	743
H 157857	15	7.6	17 23 31	-10 57	H 3	10026	L 0	05SEP80	22 52 56	055 00	CL333	501

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP	+CAM	IMAGE	APERT OB	LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
H 162374	22	5.9	17 48 53	-34 47	H	2	9084	L	0	18OCT80	14 57 07	006 00	MG339	502
H 162374	22	5.9	17 48 53	-34 47	H	2	9085	L	0	18OCT80	15 48 39	013 00	MG339	703
H 162374	22	5.9	17 48 53	-34 47	H	3	10401	L	0	18OCT80	14 46 47	007 00	MG339	501
H 162374	22	5.9	17 48 53	-34 47	H	3	10402	L	0	18OCT80	15 23 06	015 00	MG339	701
A 43	70	14.5	17 51 11	+10 38	L	2	8735	L	0	06SEP80	21 45 21	060 00	UK319	302
A 43	70	14.5	17 51 11	+10 38	L	3	10036	L	0	06SEP80	23 03 05	044 00	UK319	300
A 43	70	14.7	17 51 11	+10 38	L	3	10245	L	0	28SEP80	21 50 02	008 00	JC395	502
H 166161	45	8.2	18 06 57	-08 47	L	2	8990	L	0	10OCT80	17 42 09	020 00	FS402	502
N 6572	70	9.0	18 09 42	+06 50	L	3	10001	L	0	03SEP80	23 28 17	025 00	UK319	570
SWST 1	70	11.0	18 12 58	-30 53	L	2	8734	S	0	06SEP80	20 22 53	020 00	UK319	362
SWST 1	70	11.0	18 12 58	-30 53	L	2	8734	L	0	06SEP80	19 55 53	020 00	UK319	562
SWST 1	70	11.0	18 12 58	-30 53	L	3	10034	S	0	06SEP80	19 41 36	010 00	UK319	460
SWST 1	70	11.0	18 12 58	-30 53	L	3	10034	L	0	06SEP80	19 25 20	010 00	UK319	330
SWST 1	70	11.0	18 12 58	-30 53	L	3	10035	L	0	06SEP80	20 47 00	020 00	UK319	461
H 167263	13	6.0	18 14 43	-20 24	H	3	10024	L	0	05SEP80	21 12 02	006 46	CL333	501
N 6624	53	8.5	18 20 28	-30 23	L	3	10556	L	0	06NOV80	12 42 52	425 00	NB423	213
H 234677	48	8.2	18 32 45	+51 41	L	2	9021	L	0	13OCT80	16 27 15	010 00	UK355	352
H 234677	48	8.2	18 32 45	+51 41	L	3	10354	L	0	13OCT80	14 15 11	040 00	UK355	031 3 SPECTRA
V348 SCR	52	15.0	18 37 18	-22 57	L	2	8773	L	0	10SEP80	22 59 04	048 00	VILSP	304
V348 SCR	52	15.0	18 37 18	-22 57	L	3	10078	L	0	10SEP80	21 46 27	070 00	VILSP	301
S0114+65	59	11.2	18 40 30	+65 01	L	2	8770	L	0	10SEP80	16 43 29	180 00	VILSP	707
S0114+65	59	11.2	18 40 30	+65 01	L	2	8771	L	0	10SEP80	20 15 52	025 00	VILSP	302 PARTIAL READ
MV SCR	50	11.2	18 41 33	-21 01	L	2	9008	L	0	12OCT80	15 05 05	060 00	AC414	501
MV SCR	27	11.5	18 41 33	-21 00	L	3	10302	L	0	07OCT80	14 30 40	100 00	UK366	302
MV SCR	50	11.2	18 41 33	-21 01	L	3	10351	L	0	12OCT80	16 08 52	108 00	AC414	301
H 174237	26	5.9	18 45 33	+52 56	H	2	8763	L	0	09SEP80	21 06 14	003 30	UK303	402
H 174237	26	5.9	18 45 33	+52 56	H	3	10068	L	0	09SEP80	21 12 07	005 00	UK303	501
N 6720	76	15.0	18 51 43	+32 58	L	2	8710	L	0	03SEP80	21 30 24	090 00	UK319	352
H 175876	13	7.0	18 55 13	-20 29	H	2	8726	L	0	05SEP80	21 37 17	009 00	CL353	602
H 175876	13	7.0	18 55 13	-20 29	H	3	10025	L	0	05SEP80	22 04 53	009 00	CL333	501
H 176386	30	6.9	18 58 17	-36 58	L	2	8928	L	0	30SEP80	19 46 51	001 00	PT361	501
H 176386	30	6.9	18 58 17	-36 58	L	3	10262	L	0	30SEP80	19 52 10	001 00	PT361	401
-3713024	29	6.7	18 58 18	-36 57	L	2	8929	L	0	30SEP80	20 59 31	015 00	PT361	501
-3713024	29	6.7	18 58 18	-36 57	L	3	10263	L	0	30SEP80	20 44 23	015 00	PT361	501
-3713024	29	8.7	18 58 18	-36 57	L	3	10263	L	0	30SEP80	20 20 06	015 00	PT361	401
P1912-55	85	16.0	19 12 35	-55 00	L	2	9361	L	0	21NOV80	12 51 30	416 00	JB358	236
P1912-55	85	16.0	19 12 35	-55 00	L	3	10636	L	0	19NOV80	13 07 01	400 00	JB358	343
E141-C55	84	14.1	19 16 57	-58 46	L	2	8939	L	0	02OCT80	14 44 05	060 00	UK327	102
E141-C55	84	14.1	19 16 57	-58 46	L	2	8940	L	0	02OCT80	16 55 35	060 00	UK327	564
E141-C55	84	14.1	19 16 57	-58 46	L	2	8941	L	0	02OCT80	19 07 03	045 00	UK327	453
E141-G55	84	13.6	19 16 57	-58 46	L	2	9352	L	0	20NOV80	16 56 29	050 00	UK370	353
E141-C55	84	14.1	19 16 57	-58 46	L	3	10268	L	0	02OCT80	15 50 34	040 30	UK327	102
E141-C55	84	14.1	19 16 57	-58 46	L	3	10269	L	0	02OCT80	18 00 40	060 00	UK327	261
E141-C55	84	14.1	19 16 57	-58 46	L	3	10270	L	0	02OCT80	19 58 18	080 00	UK327	362
E141-G55	84	13.6	19 16 57	-58 46	L	3	10643	L	0	20NOV80	17 51 44	050 00	UK370	351
E141-G55	84	13.6	19 16 57	-58 46	L	3	10644	L	0	20NOV80	19 08 49	038 00	UK370	341
N 6990	70	11.0	19 20 24	+01 25	L	2	8709	L	0	03SEP80	20 10 15	020 00	UK319	202
N 6990	70	11.0	19 20 24	+01 25	L	3	10000	L	0	03SEP80	19 25 16	010 00	UK319	1.0

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP +CAM	IMAGE	APERT OB LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
N 6790	70	16.0	19 20 42	+01 25	L 3	10506	L 0	30OCT80	14 54 06	010 00	MP345	111
H 182917	39	7.9	19 23 14	+50 08	L 3	9983	S 0	01SEP80	16 56 52	003 00	MH305	440
H 182917	39	7.9	19 23 14	+50 08	L 3	9983	L 0	01SEP80	16 40 21	010 00	MH305	770
H 182917	39	7.9	19 23 14	+50 08	H 3	9984	L 0	01SEP80	17 30 07	325 00	MH305	773
H 184006	31	3.9	19 28 27	+51 37	H 2	8977	L 0	08OCT80	18 26 00	005 33	MF316	602
H 184006	31	3.9	19 28 27	+51 37	L 3	10309	L 0	08OCT80	18 44 03	003 32	MF316	802
H 184711	47	8.0	19 33 47	-39 51	L 2	8989	L 0	10OCT80	15 33 54	090 00	FS402	405
N 6814	80	14.0	19 39 55	-10 26	L 2	8961	L 0	06OCT80	15 25 54	352 00	UK370	108
SAI62956	45	9.2	19 42 47	-14 35	L 2	8760	L 0	09SEP80	18 00 44	030 00	UK303	403
SAI62956	45	9.2	19 42 47	-14 35	L 3	10066	L 0	09SEP80	17 30 20	025 00	UK303	101
RR TEL	63	10.5	20 00 20	-55 52	H 2	9238	L 0	05NOV80	18 36 21	030 00	PHCAL	262
RR TEL	63	10.5	20 00 20	-55 52	L 2	9239	L 0	05NOV80	19 37 11	003 00	PHCAL	362
RR TEL	63	10.5	20 00 20	-55 52	H 3	10434	L 0	20OCT80	20 32 46	060 00	PHCAL	271
RR TEL	63	10.5	20 00 20	-55 52	L 3	10553	L 0	05NOV80	18 31 18	000 30	PHCAL	250
RR TEL	63	10.5	20 00 20	-55 52	H 3	10554	L 0	05NOV80	19 11 52	020 00	PHCAL	261
H 192518	31	5.2	20 12 11	+28 32	H 2	9037	L 0	14OCT80	19 25 02	035 00	CB401	703
H 192518	33	5.2	20 12 11	+28 32	L 3	10467	L 0	24OCT80	16 28 18	050 00	CB401	
N 6891	70	11.0	20 12 48	+12 33	L 2	8708	L 0	03SEP80	18 34 57	009 00	UK319	541
GAMMACYG	41	2.2	20 20 26	+40 06	H 2	8965	L 0	07OCT80	21 07 29	010 00	UK366	601
SN WILD	56	11.6	20 34 26	+59 56	L 2	9208	L 0	01NOV80	12 52 31	020 00	VILSP	341
SN WILD	56	11.6	20 34 26	+59 56	L 2	9213	L 0	02NOV80	12 40 36	040 00	UKTOP	602
SN WILD	56	12.0	20 34 26	+59 56	L 2	9265	L 0	09NOV80	15 12 36	45 00	UKTOP	503
SN WILD	56	11.5	20 34 26	+59 56	L 2	9302	L 0	14NOV80	12 56 44	090 00	VILSP	504
SN WILD	56	14.2	20 34 26	+59 56	L 2	9365	L 0	25NOV80	16 09 39	162 00	VILSP	406
SN WILD	56	14.0	20 34 26	+59 56	L 2	9410	L 0	30NOV80	15 59 42	190 00	UKTOP	304
SN WILD	56	11.6	20 34 26	+59 56	H 3	10520	L 0	01NOV80	13 42 38	700 00	VILSP	341 READ AT GSFC
SN WILD	56	11.6	20 34 26	+59 56	L 3	10526	L 0	02NOV80	13 24 03	150 00	UKTOP	501
SN WILD	56	12.0	20 34 26	+59 56	L 3	10572	L 0	09NOV80	12 41 21	148 00	UKTOP	302
SN WILD	56	11.5	20 34 26	+59 56	L 3	10601	L 0	14NOV80	14 30 43	317 00	VILSP	312
SN WILD	56	11.6	20 34 27	+59 56	L 2	9236	L 0	05NOV80	12 49 37	030 00	VILSP	503
SN WILD	56	11.6	20 34 27	+59 56	L 2	9237	L 0	05NOV80	16 44 28	060 00	UKTOP	703
SN WILD	56	11.6	20 34 27	+59 56	L 3	10552	L 0	05NOV80	13 31 08	180 00	UKTOP	502
SN WILD	56	11.6	20 34 31	+59 55	L 2	9198	S 0	30OCT80	19 55 31	010 00	VILSP	302
SN WILD	56	11.6	20 34 31	+59 55	L 2	9198	L 0	30OCT80	19 30 56	020 00	VILSP	502 SN IN N 6946
SN WILD	56	11.6	20 34 31	+59 55	H 2	9204	L 0	31OCT80	15 07 29	360 00	UKTOP	409 ERRIMAGENO 9203(?)
SN WILD	56	11.6	20 34 31	+59 55	L 3	10509	L 0	30OCT80	20 08 33	099 00	VILSP	511
H 196629	40	6.4	20 35 31	+31 21	H 2	9138	L 0	24OCT80	17 29 04	055 00	CB401	502
H 196629	40	6.4	20 35 31	+31 21	L 3	10468	L 0	24OCT80	18 27 01	055 00	CB401	821
H 196753	47	6.0	20 36 24	+23 30	H 2	8759	L 0	09SEP80	16 19 30	030 00	UK303	403
H 196753	47	6.0	20 36 24	+23 30	L 3	10065	L 0	09SEP80	16 14 46	001 30	UK303	501
H 196982	48	10.3	20 38 44	-32 36	L 2	8834	L 0	17SEP80	18 22 09	020 00	UK373	263
H 196982	48	10.3	20 38 44	-32 36	L 3	10167	S 0	17SEP80	17 45 03	030 00	UK373	121
H 196982	48	10.3	20 38 44	-32 36	L 3	10167	L 0	17SEP80	17 08 44	030 00	UK373	121
H 196982	48	10.3	20 38 44	-32 36	L 3	10168	S 0	17SEP80	19 28 03	030 00	UK373	121
H 196982	48	10.3	20 38 44	-32 36	L 3	10168	L 0	17SEP80	18 52 15	030 00	UK373	121
H 196982	48	10.3	20 38 44	-32 36	L 3	10182	L 0	19SEP80	16 59 43	030 00	UK375	231
H 196982	48	10.3	20 38 44	-32 36	L 3	10182	L 0	19SEP80	16 26 04	030 00	UK375	121
H 198084	41	4.7	20 44 07	+57 24	L 3	10466	L 0	24OCT80	14 43 00	030 00	CB401	531

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP +CAM	IMAGE	APERT OB LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
H 199478	25	5.7	20 54 08	+47 13	H 2	9319	L 0	16NOV80	18 39 40	025 00	UK381	502
H 199478	25	5.7	20 54 08	+47 13	H 2	9320	L 0	16NOV80	19 28 24	019 30	UK381	502
H 202444	40	3.7	21 12 48	+37 50	H 2	8976	L 0	08OCT80	17 43 10	007 41	MF316	602
H 203604	12	5.0	21 16 35	+43 43	H 2	8765	L 0	09SEP80	23 23 52	001 45	UK303	502
H 203604	12	5.0	21 16 35	+43 43	H 3	10070	L 0	09SEP80	23 29 17	002 30	UK303	501
H 203664	47	8.2	21 21 02	+09 43	H 2	8764	L 0	09SEP80	21 49 14	025 00	UK303	503
H 203664	47	8.2	21 21 02	+09 43	H 3	10069	L 0	09SEP80	22 17 01	030 00	UK303	501
P2128-12	85	16.0	21 28 53	-12 20	L 2	9398	L 0	27NOV80	13 00 56	406 00	DK360	408
P2128-12	85	16.0	21 28 53	-12 20	L 3	10683	L 0	26NOV80	12 59 21	408 00	DK360	253
H 204867	45	3.1	21 28 56	-05 47	H 2	8934	L 0	01OCT80	14 49 04	015 00	UK356	642
H 204867	45	3.1	21 28 56	-05 47	H 3	10265	L 0	01OCT80	15 25 24	791 00	UK356	777
A 78	71	12.0	21 33 20	+31 28	L 2	8707	L 0	03SEP80	17 24 18	015 00	UK319	501
A 78	71	12.0	21 33 20	+31 28	L 3	9999	L 0	03SEP80	17 53 55	010 00	UK319	550
B+284211	13	10.5	21 48 56	+28 37	L 1	1256	S 0	08SEP80	21 45 09	001 40	VILSP	503
B+284211	13	10.5	21 48 56	+28 37	L 1	1256	L 0	08SEP80	21 41 08	000 50	VILSP	503
BD+75325	13	10.5	21 48 56	+28 37	L 1	1257	S 0	08SEP80	22 21 43	001 40	PHCAL	503
BD+75325	13	10.5	21 48 56	+28 37	L 1	1257	L 0	08SEP80	22 17 39	000 50	PHCAL	503
B+284211	13	10.5	21 48 56	+28 37	L 2	8758	S 0	08SEP80	20 39 41	002 00	VILSP	502
B+284211	13	10.5	21 48 56	+28 37	L 2	8758	L 0	08SEP80	20 34 42	001 00	VILSP	502
B+224211	16	10.5	21 48 56	+28 37	L 2	9408	L 0	30NOV80	12 43 15	001 00	UKCAL	501
B+284211	13	10.5	21 48 56	+28 37	L 3	10056	S 0	08SEP80	20 01 37	000 52	VILSP	601
B+284211	13	10.5	21 48 56	+28 37	L 3	10056	L 0	08SEP80	19 56 18	000 26	VILSP	501
B+224211	16	10.5	21 48 56	+28 37	L 3	10715	L 0	30NOV80	13 07 34	000 26	UKCAL	501
H 209813	47	6.9	22 02 57	+46 59	L 2	9035	L 0	14OCT80	14 57 21	004 00	SC380	242
H 209813	47	6.9	22 02 57	+46 59	L 2	9035	L C	14OCT80	14 48 48	004 00	SC380	362
H 209813	47	6.9	22 02 57	+46 59	L 2	9137	S 0	24OCT80	15 52 05	004 00	SC380	341
H 209813	47	6.9	22 02 57	+46 59	L 2	9137	L 0	24OCT80	15 42 50	004 00	SC380	461
H 209813	47	6.9	22 02 57	+46 59	L 3	10365	L 0	14OCT80	15 05 35	100 00	SC380	231
H 210027	41	3.9	22 04 41	+25 06	H 2	9038	L 0	14OCT80	21 31 21	010 00	CB401	702
H 210027	41	3.9	22 04 41	+25 06	L 3	10367	S 0	14OCT80	20 58 02	030 00	CB401	721
H 210027	41	3.9	22 04 41	+25 06	L 3	10367	L 0	14OCT80	20 21 19	030 00	CB401	741
H 210334	44	6.1	22 06 39	+45 30	H 2	9003	L 0	11OCT80	16 58 37	050 00	SC380	442
H 210334	44	6.1	22 06 39	+45 30	H 2	9010	L 0	12OCT80	20 59 07	050 00	SC380	531
H 210334	44	6.1	22 06 39	+45 30	L 3	10329	L 0	11OCT80	14 59 03	115 00	SC380	451
H 210334	44	6.1	22 06 39	+45 30	L 3	10352	L 0	12OCT80	19 15 21	097 00	SC380	451
H 210809	20	7.6	22 09 44	+52 11	H 3	10628	L 0	18NOV80	17 05 11	060 00	UK381	701
H 212593	25	4.6	22 22 29	+49 13	H 2	9331	L 0	18NOV80	15 51 39	005 30	UK381	605
H 212593	25	4.6	22 22 29	+49 13	H 3	10627	L 0	18NOV80	16 01 20	030 00	UK381	701
H 214419	11	9.0	22 34 57	+56 39	L 2	8802	L 0	15SEP80	16 40 51	002 00	UK372	502
H 214419	11	9.0	22 34 57	+56 39	L 2	8803	L 0	15SEP80	17 13 38	002 00	UK372	502
H 214419	11	9.0	22 34 57	+56 39	L 2	8804	L 0	15SEP80	18 18 05	002 00	UK372	502
H 214419	11	9.0	22 34 57	+56 39	L 2	8805	L 0	15SEP80	19 10 07	002 00	UK372	502
H 214419	11	9.0	22 34 57	+56 39	L 2	8806	L 0	15SEP80	20 05 32	002 00	UK372	502
H 214419	11	9.0	22 34 57	+56 39	L 2	8807	L 0	15SEP80	21 00 17	002 00	UK372	402
H 214419	11	9.0	22 34 57	+56 39	L 2	8808	L 0	15SEP80	21 54 04	002 30	UK372	402
H 214419	11	9.0	22 34 57	+56 39	L 2	8809	L 0	15SEP80	22 51 55	002 30	UK372	502
H 214419	11	9.0	22 34 57	+56 39	L 3	10136	L 0	15SEP80	16 46 20	006 00	UK372	551
H 214419	11	9.0	22 34 57	+56 39	L 3	10137	L 0	15SEP80	17 42 07	006 00	UK372	551

OBJECT	CL	MAG	RT ASCN HR MN SC	DECLN DEG MN	DISP +CAM	IMAGE	APERT OB LG	DATE	START HR MN SC	LENGTH MIN SC	PROG	COMMENT
H 214419	11	9.0	22 34 57	+56 39	L 3	10138	L 0	15SEP80	18 43 40	006 00	UK372	551
H 214419	11	9.0	22 34 57	+56 39	L 3	10139	L 0	15SEP80	19 38 47	006 00	UK372	451
H 214419	11	9.0	22 34 57	+56 39	L 3	10140	L 0	15SEP80	20 33 20	006 00	UK372	451
H 214419	11	9.0	22 34 57	+56 39	L 3	10141	L 0	15SEP80	21 27 20	008 00	UK372	551
H 214419	11	9.0	22 34 57	+56 39	L 3	10142	L 0	15SEP80	22 32 52	008 00	UK372	451
H 214419	11	9.0	22 34 57	+56 39	L 3	10143	L 0	15SEP80	23 25 43	008 00	UK372	451
H 216701	33	6.1	22 52 26	+00 48	L 2	8926	L 0	30SEP80	17 39 08	002 30	PT361	701
H 216701	33	6.1	22 52 26	+00 48	L 2	8927	L 0	30SEP80	18 38 04	000 30	PT361	501
H 216701	33	6.1	22 52 26	+00 48	L 3	10260	L 0	30SEP80	17 44 08	005 00	PT361	700
H 216701	33	6.1	22 52 26	+00 48	L 3	10261	L 0	30SEP80	18 51 20	001 00	PT361	501
DI CEP	53	11.5	22 54 09	+58 27	L 3	10573	L 0	09NOV80	16 30 30	197 00	UKTOP	233
DI SEP	58	11.0	22 54 09	+53 24	L 3	10562	L 0	08NOV80	16 10 29	217 00	GG365	232
DI CEP	58	10.0	22 59 09	+58 24	L 3	10494	L 0	28OCT80	19 25 07	142 00	FG332	231
MCC2-58	84	13.8	23 02 07	-08 57	L 3	10697	L 0	28NOV80	19 18 26	028 00	UK304	231
M -25622	84	13.0	23 02 07	-08 57	L 3	10706	L 0	29NOV80	15 56 28	060 00	UK304	341
N 7552	88	12.6	23 13 25	-42 51	L 2	9400	L 0	28NOV80	14 58 16	060 00	UK304	303
N 7552	88	12.6	23 13 25	-42 51	L 3	10696	L 0	28NOV80	16 01 49	130 00	UK304	301
H 220061	31	4.6	23 18 09	+23 28	H 2	8975	L 0	08OCT80	16 52 28	011 06	MF316	602
N 7662	70	11.8	23 23 29	+42 15	H 3	9998	L 0	03SEP80	16 25 51	025 00	UK319	150
N 7674	88	13.0	23 25 24	+08 30	L 2	9304	L 0	29NOV80	14 58 00	022 00	UK304	112
N 7674	88	13.0	23 25 24	+08 30	L 3	10705	L 0	29NOV80	12 48 00	120 00	UK304	114
ST AND	50	8.2	23 36 16	+35 30	L 2	9048	L 0	15OCT80	14 51 41	160 00	FQ409	104
Q2344+09	85	16.0	23 44 04	+09 14	L 2	9121	L 0	21OCT80	14 37 38	430 00	UK330	469
Q2344+09	85	16.0	23 44 04	+09 14	L 3	10442	S 0	21OCT80	15 04 37	240 00	UK330	043 GEOCORONA ONLY
Q2344+09	85	16.0	23 44 04	+09 14	L 3	10442	L 0	21OCT80	15 04 37	240 00	UK330	083 GEOCORONA ONLY
Q2344+09	85	16.0	23 44 04	+09 14	L 3	10443	L 0	21OCT80	19 34 12	040 00	UK330	031 GEOCORONA ONLY
Q2344+09	85	16.0	23 44 04	+09 14	L 3	10444	L 0	21OCT80	20 37 36	040 00	UK330	031
H 224085	46	7.4	23 52 29	+28 21	L 2	8991	S 0	10OCT80	18 57 19	004 00	MR379	353
H 224085	46	7.4	23 52 29	+28 21	L 2	8991	L 0	10OCT80	18 47 45	004 00	MR379	363
H 224085	47	7.4	23 52 29	+28 21	L 2	9002	S 0	11OCT80	14 29 48	004 00	SC380	351
H 224085	47	7.4	23 52 29	+28 21	L 2	9002	L 0	11OCT80	14 36 48	004 00	MR379	351
H 224085	47	7.4	23 52 29	+28 21	L 2	9009	S 0	12OCT80	18 49 53	004 00	MR379	341
H 224085	47	7.4	23 52 29	+28 21	L 2	9009	L 0	12OCT80	18 41 31	004 00	MR379	351
H 224085	46	7.4	23 52 29	+28 21	L 2	9036	S 0	14OCT80	17 16 50	004 00	MR379	242
H 224085	46	7.4	23 52 29	+28 21	L 2	9036	L 0	14OCT80	17 08 10	004 00	MR379	262
H 224085	46	7.4	23 52 29	+28 21	L 3	10328	L 0	10OCT80	19 04 35	100 00	MR379	262
N 7793	80	12.0	23 55 16	-32 52	L 2	8867	L 0	22SEP80	17 12 18	365 00	UK324	304
N 7793	80	12.0	23 55 16	-32 52	L 3	10203	L 0	22SEP80	17 24 12	335 00	UK324	204 SERENDIPITY

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