#282

APOLLO 17

U.V. SPECTROMETER

72-096A-02A

APOLLO 17

UV SPECTROMETER DATA ON TAPE

72-096A-02A

This data set has been restored. There were originally five 7-track, 800 BPI tapes written in Binary. There is one restored tape. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The original tapes were created on a 7094 computer and the restored tapes were created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D numbers are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR005314	DS005314	D016633	1	12/10/72 - 12/10/72
		D016634	2	12/11/72 - 12/14/73
		D016635	3	12/14/72 - 12/16/74
		D016636	4	12/16/72 - 12/18/74
		D016637	5	12/18/72 - 12/19/75

REQ. AGENT	RAND NO.	ACQ. AGENT
VJP	RC1882	RNH

APOLLO 17

U.V. SPECTROMETER

72-096A-02A

This data set contains 5 Apollo 17 U. V. Spectrometer tapes. They are 556 BPI, 7 track, Binary, 1 file, made on the IBM 7094. Each 12 second spectrometer scan is represented by one physical record containing 125 36-bit integer words.

D#	C#	TIME SPAN
D-16633	C-12813	12/14/72 - 12/16/72
D-16634	C-12814	12/18/72 - 12/19/72
D-16635	C-12815	12/16/72 - 12/18/72
D-16636	C-12816	12/11/72 - 12/14/72
D-16637	C-12817	12/10/72 - 12/10/72

92-096A-02A

APOLLO 17 ULTRAVIOLET SPECTROMETER EXPERIMENT (S-169)

DATA TAPES

TAPE NUMBER	ACTUAL ELAPSED TIME	NUMBER OF RECORDS
H11173	81:22 - 95:27	2804
H11810	110:51 - 188:55	12371
H10980	188:55 -234:53	8871
H11519	235:04 - 273:08	8303
H11467	273:09 - 299:31	5837

72-096A-02A

7 Track
556 BPI
1 file per TAPE
written on
IBM 7094

(1)

Apollo 17 Ultraviolet Spectrometer Experiment

Data Format

The data from the Apollo 17 Ultraviolet Spectrometer Experiment (S-169) are contained on five magnetic tapes covering the following time periods:

Tape 1:	81:22 - 95:27 (~~81:37:30 - 94:58:21~~)	CTE
Tape 2:	110:51:[illegible] - 188:55:[illegible]	CTE
Tape 3:	188:55:[illegible] - 234:5[illegible]:00	CTE
Tape 4:	235:04:[illegible] - 273:08:[illegible]	CTE
Tape 5:	273:09:[illegible] - 299:31:[illegible]	CTE

Each 12 second spectrometer scan is represented by one physical record containing 125 36-bit integer words. The record format is given in Table I. The data words represent the number of photoelectrons per 0.1 second, and the wavelengths corresponding to each data word are given in Table II. Note that at large counting rates, the data words must be corrected for counter dead-time according to the following expression:

$$C_{actual} = \frac{C_{obs}}{1 - C_{obs}\tau} \qquad (1)$$

Where C_{actual} is the real count rate per 0.1 second

C_{obs} is the observed count rate per 0.1 second

and $\tau = 1.83 \times 10^{-5}$

[illegible] records that have flagged data dropouts or do not match the synch [illegible]rds have been eliminated from the final tape.

To convert the actual count rate to brightness, we use the expression

$$S = B \cdot \frac{10^{-6}}{4\pi} \quad \frac{A_s A_g (QTPG)}{F^2}$$

where S is the signal in counts per second
B is the brightness in Rayleighs
A_s is the slit area = 1.14 cm^2
A_g is the grating area = 104 cm^2
F is the focal length = 50 cm

The product of quantum efficiency and transmission, QTPG, is given in Table III at 11 wavelengths, along with the instrument sensitivity in photoelectrons/ second/ Rayleigh.

During the mission, the sensitivity of the instrument deteriorated due to continuous exposure to solar Lyman-α radiation reflected by the moon. During Trans-Earth-Coast the sensitivity was reduced to 83% of the value given in the calibration table.

A detailed description of the instrument is given in Fastie, The Moon, 7, 49 (1973) Preliminary results are given in the Apollo 17 Preliminary Science Report, NASA SP-330, p. 23-1 (1973) and by Fastie et al, Science 182, 710 (1973).

3

Table I. Record Format (S-169)

Word	
0	Johns Hopkins "green" word - ignore
1	synch word = 65514
2	synch word = 21
3	motor step count (typically 4800)
4	synch word = 21
5	synch word = 65514
6-120	data words
121	original tape number
122	record and word location on original
123	tape of first synch word.
124	time (CTE) in integer milliseconds of word one.

Table II

BIN NO.	WAVELENGTH INTERVAL (A)		
6	1184.00	TO	1184.09
7	1184.09	TO	1189.05
8	1189.05	TO	1194.50
9	1194.50	TO	1197.67
10	1197.67	TO	1199.46
11	1199.46	TO	1201.33
12	1201.33	TO	1202.99
13	1202.99	TO	1205.22
14	1205.22	TO	1207.38
15	1207.38	TO	1209.35
16	1209.35	TO	1211.14
17	1211.14	TO	1212.85
18	1212.85	TO	1214.61
19	1214.61	TO	1216.27
20	1216.27	TO	1217.88
21	1217.88	TO	1219.72
22	1219.72	TO	1221.48
23	1221.48	TO	1223.12
24	1223.12	TO	1224.80
25	1224.80	TO	1226.38
26	1226.38	TO	1227.76
27	1227.76	TO	1229.16
28	1229.16	TO	1230.40
29	1230.40	TO	1232.11
30	1232.11	TO	1234.03
31	1234.03	TO	1235.71
32	1235.71	TO	1237.11
33	1237.11	TO	1238.67
34	1238.67	TO	1240.17
35	1240.17	TO	1241.31
36	1241.31	TO	1242.24
37	1242.24	TO	1243.15
38	1243.15	TO	1246.83
39	1246.83	TO	1254.10
40	1254.10	TO	1261.82
41	1261.82	TO	1269.87
42	1269.87	TO	1277.11
43	1277.11	TO	1283.99
44	1283.99	TO	1291.64
45	1291.64	TO	1298.70
46	1298.70	TO	1306.16
47	1306.16	TO	1313.83
48	1313.83	TO	1321.09
49	1321.09	TO	1328.26
50	1328.26	TO	1335.43
51	1335.43	TO	1342.09
52	1342.09	TO	1349.98
53	1349.98	TO	1357.22
54	1357.22	TO	1363.76
55	1363.76	TO	1370.59
56	1370.59	TO	1377.90
57	1377.90	TO	1385.13
58	1385.13	TO	1392.16
59	1392.16	TO	1399.08
60	1399.08	TO	1406.43

5

61	1406.43	TO	1413.63
62	1413.63	TO	1420.87
63	1420.87	TO	1427.93
64	1427.93	TO	1434.84
65	1434.84	TO	1439.97
66	1439.97	TO	1443.57
67	1443.57	TO	1445.95
68	1445.95	TO	1448.08
69	1448.08	TO	1449.67
70	1449.67	TO	1451.44
71	1451.44	TO	1453.16
72	1453.16	TO	1454.54
73	1454.54	TO	1456.34
74	1456.34	TO	1458.08
75	1458.08	TO	1459.59
76	1459.59	TO	1461.41
77	1461.41	TO	1463.18
78	1463.18	TO	1464.64
79	1464.64	TO	1466.03
80	1466.03	TO	1467.44
81	1467.44	TO	1469.13
82	1469.13	TO	1470.54
83	1470.54	TO	1472.51
84	1472.51	TO	1473.87
85	1473.87	TO	1475.35
86	1475.35	TO	1476.94
87	1476.94	TO	1478.53
88	1478.53	TO	1480.22
89	1480.22	TO	1481.96
90	1481.96	TO	1483.78
91	1483.78	TO	1485.67
92	1485.67	TO	1487.42
93	1487.42	TO	1488.87
94	1488.87	TO	1490.15
95	1490.15	TO	1492.89
96	1492.89	TO	1498.83
97	1498.83	TO	1506.48
98	1506.48	TO	1514.48
99	1514.48	TO	1522.22
100	1522.22	TO	1529.78
101	1529.78	TO	1536.81
102	1536.81	TO	1544.02
103	1544.02	TO	1550.92
104	1550.92	TO	1558.21
105	1558.21	TO	1565.91
106	1565.91	TO	1573.71
107	1573.71	TO	1580.71
108	1580.71	TO	1587.84
109	1587.84	TO	1595.89
110	1595.89	TO	1603.34
111	1603.34	TO	1610.74
112	1610.74	TO	1617.78
113	1617.78	TO	1625.05
114	1625.05	TO	1632.87
115	1632.87	TO	1639.87
116	1639.87	TO	1647.64
117	1647.64	TO	1655.35
118	1655.35	TO	1662.47
119	1662.47	TO	1669.72
120	1669.72	TO	1671.57

6

Table III. Calibration Data

Wavelength (A)	QTPG	Photoelectrons/sec/R
1192	.0163	61.5
1216	.0196	74
1280	.0263	99
1336	.0251	95
1395	.0233	88
1463	.0200	75.5
1518	.0156	59
1582	.0093	35
1608	.0079	29.8
1639	.0070	26.4
1655	.0078	29.4

D-4637

188:55-231:53

DEC 14, 1972 -
DEC 16, 1972

A

FILE 0001 REC 0001 CH 0750

0001	000174000001	000000177752	000000000025	000000011276	000000000025	000000177752	000000000003	000000000003
0049	000000000001	000000000000	000000000002	000000000003	000000000000	000000000002	000000000003	000000000002
0097	000000000003	000000000002	000000000001	000000000003	000000000002	000000000002	000000000003	000000000003
0145	000000000000	000000000004	000000000003	000000000000	000000000003	000000000001	000000000002	000000000005
0193	000000000003	000000000001	000000000000	000000000002	000000000001	000000000003	000000000003	000000000002
0241	000000000000	000000000003	000000000004	000000000004	000000000002	000000000000	000000000000	000000000003
0289	000000000000	000000000000	000000000002	000000000001	000000000003	000000000005	000000000003	000000000002
0337	000000000002	000000000000	000000000002	000000000002	000000000001	000000000001	000000000000	000000000002
0385	000000000001	000000000002	000000000003	000000000001	000000000003	000000000001	000000000002	000000000003
0433	000000000000	000000000002	000000000002	000000000003	000000000002	000000000001	000000000001	000000000003
0481	000000000001	000000000003	000000000000	000000000003	000000000001	000000000005	000000000002	000000000000
0529	000000000002	000000000003	000000000002	000000000001	000000000004	000000000000	000000000003	000000000001
0577	000000000002	000000000003	000000000006	000000000001	000000000006	000000000001	000000000001	000000000002
0625	000000000005	000000000001	000000000005	000000000001	000000000000	000000000000	000000000000	000000000000
0673	000000000002	000000000001	000000000001	000000000001	000000000004	000000000001	000000000003	000000000000
0721	000000000002	000000025244	000000000077	000000000001	005042345010			

FILE 0001 REC 0002 CH 0750

0001	000174000001	000000177752	000000000025	000000011303	000000000025	000000177752	000000000001	000000000002
0049	000000000002	000000000003	000000000002	000000000002	000000000002	000000000001	000000000001	000000000002
0097	000000000003	000000000000	000000000001	000000000003	000000000000	000000000003	000000000003	000000000000
0145	000000000000	000000000002	000000000003	000000000003	000000000004	000000000001	000000000002	000000000000
0193	000000000002	000000000002	000000000000	000000000000	000000000003	000000000000	000000000000	000000000002
0241	000000000000	000000000001	000000000001	000000000000	000000000003	000000000003	000000000003	000000000005
0289	000000000001	000000000000	000000000004	000000000002	000000000002	000000000004	000000000002	000000000002
0337	000000000003	000000000001	000000000002	000000000002	000000000001	000000000002	000000000000	000000000003
0385	000000000000	000000000003	000000000001	000000000002	000000000002	000000000004	000000000001	000000000003
0433	000000000003	000000000004	000000000001	000000000001	000000000002	000000000003	000000000002	000000000005
0481	000000000001	000000000004	000000000000	000000000001	000000000001	000000000005	000000000002	000000000001
0529	000000000003	000000000002	000000000001	000000000002	000000000003	000000000001	000000000003	000000000002
0577	000000000004	000000000000	000000000001	000000000000	000000000002	000000000006	000000000004	000000000002
0625	000000000005	000000000004	000000000003	000000000001	000000000000	000000000002	000000000003	000000000003
0673	000000000001	000000000001	000000000001	000000000001	000000000003	000000000001	000000000001	000000000001
0721	000000000001	000000025244	000000000123	000000000002	005042423663			

FILE 0001 REC 0003 CH 0750

0001	000174000001	000000177752	000000000025	000000011277	000000000025	000000177752	000000000003	000000000004
0049	000000000002	000000000000	000000000002	000000000001	000000000004	000000000001	000000000004	000000000001
0097	000000000004	000000000001	000000000001	000000000003	000000000004	000000000004	000000000002	000000000004
0145	000000000001	000000000002	000000000001	000000000005	000000000003	000000000000	000000000001	000000000005
0193	000000000002	000000000000	000000000002	000000000002	000000000004	000000000003	000000000001	000000000003
0241	000000000001	000000000003	000000000003	000000000001	000000000002	000000000001	000000000005	000000000001
0289	000000000003	000000000002	000000000000	000000000001	000000000002	000000000001	000000000004	000000000002
0337	000000000004	000000000005	000000000001	000000000002	000000000002	000000000001	000000000001	000000000002
0385	000000000005	000000000002	000000000001	000000000005	000000000005	000000000003	000000000002	000000000000
0433	000000000001	000000000004	000000000001	000000000001	000000000000	000000000001	000000000002	000000000005
0481	000000000001	000000000002	000000000002	000000000003	000000000000	000000000003	000000000002	000000000002
0529	000000000003	000000000000	000000000001	000000000001	000000000004	000000000002	000000000001	000000000000
0577	000000000000	000000000003	000000000000	000000000001	000000000001	000000000006	000000000002	000000000006
0625	000000000001	000000000000	000000000001	000000000001	000000000004	000000000002	000000000002	000000000003
0673	000000000001	000000000003	000000000003	000000000002	000000000004	000000000000	000000000003	000000000003
0721	000000000003	000000025244	000000000313	000000000002	005042453210			

FILE 0001 REC 0004 CH 0750

0001	000174000001	000000177752	000000000025	000000011277	000000000025	000000177752	000000000004	000000000003
0049	000000000007	000000000003	000000000000	000000000001	000000000002	000000000003	000000000001	000000000002
0097	000000000002	000000000003	000000000002	000000000000	000000000001	000000000001	000000000000	000000000002
0145	000000000000	000000000002	000000000005	000000000002	000000000001	000000000001	000000000002	000000000003
0193	000000000005	000000000003	000000000002	000000000000	000000000000	000000000001	000000000001	000000000001
0241	000000000001	000000000002	000000000002	000000000000	000000000001	000000000005	000000000000	000000000003
0289	000000000005	000000000002	000000000001	000000000005	000000000004	000000000001	000000000003	000000000003
0337	000000000000	000000000003	000000000002	000000000003	000000000001	000000000001	000000000004	000000000001
0385	000000000003	000000000002	000000000002	000000000000	000000000001	000000000001	000000000002	000000000002
0433	000000000001	000000000003	000000000001	000000000002	000000000004	000000000000	000000000001	000000000001
0481	000000000004	000000000002	000000000003	000000000003	000000000001	000000000003	000000000001	000000000001

FILE 0001 REC 0022 CH 0750

0721	000000000650	000000026563	000000000500	000000000123	006231604242

FILE 0001 REC 0023 CH 0750

0001	000174000001	000000177752	000000000025	000000011300	000000000025	000000177752	000000000152	000000000154
0049	000000000205	000000000252	000000000310	000000000404	000000000526	000000001501	000000007055	000000014674
0097	000000021206	000000025775	000000032053	000000034736	000000034615	000000031406	000000025454	000000020636
0145	000000013750	000000006531	000000002352	000000000705	000000000420	000000000266	000000000214	000000000170
0193	000000000176	000000000227	000000000246	000000000210	000000000227	000000000226	000000000175	000000000176
0241	000000000175	000000000232	000000000134	000000000126	000000000137	000000000465	000000001023	000000000427
0289	000000000177	000000000367	000000001154	000000000603	000000000176	000000000246	000000000234	000000000216
0337	000000000207	000000000225	000000000367	000000000442	000000000321	000000000263	000000000241	000000000242
0385	000000000270	000000000237	000000000260	000000000233	000000000300	000000000244	000000000257	000000000223
0433	000000000265	000000000263	000000000271	000000000252	000000000302	000000000266	000000000250	000000000316
0481	000000000266	000000000322	000000000360	000000000320	000000000360	000000000350	000000000345	000000000360
0529	000000000344	000000000351	000000000310	000000000343	000000000352	000000000312	000000000344	000000000304
0577	000000000322	000000000317	000000000310	000000000347	000000000431	000000000363	000000000516	000000000705
0625	000000000533	000000000535	000000000414	000000000376	000000000353	000000000320	000000000346	000000000346
0673	000000000375	000000000405	000000000415	000000000500	000000000507	000000000602	000000000715	000000000536
0721	000000000602	000000026563	000000000670	000000000123	006231633570			