JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

15 September 1978

TO: VOYAGER PRINCIPAL INVESTIGATORS

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the monthly Science Data Product Report for your information and review.

Sincerely,

Harry Woo

Harry Woo

HW:jvc
Enclosure (1)

CRS	R.E. Vogt	MAG	N. Ness	PRA	J. Warwick
	T. Garrard		M. Acuna		J. Pearce
	N. Lal		R. Lepping		R. Peltzer
	J. Trainor		E. Choo		A. Riddle
			A. Silver		T. Root
IRIS	R. Hanel				
	D. Crosby	PLS	H. Bridge	PWS	F. Scarf
	L. Herath		A. Lazarus		W. Kurth
			J. Sullivan		
LECP	S. Krimigis			UVS	L. Broadfoot
	T. Armstrong	PPS	C. Lillie		D. Mosley
	G. Gloecker		C. Hord		P. Takacs
	E. Keath		K. Simmons		
	L. Lanzerotti				

cc:
J. Ajello
J. Bergstralh
H. Danley
E. Franzgrote
J. Long
D. Lynn
E. Miner
R. Poynter
C. Stembridge
E. Stone
J. Tupman

Telephone 354-4321 *Twx 910-588-3269* *Twx 910-588-3294*

SCIENCE DATA TEAM

SCIENCE DATA PRODUCT REPORT #2

15 September 1978

1) DATE OF SCIENCE DATA PRODUCT REPORT #1

Science Data Product Report #1 should have been dated 15 August 1978.

2) SCET IN EDR PROC

SCP A541 providing re-computation of SCET when FDSC correction occurs in EDR PROC will be implemented in the MDRS54 software build of 9/15/78 and will be waivered on-line in the MOSS 4.08 software delivery of 10/1/78.

3) FID MISIDENTIFICATION

CRS identified a problem in an engineering format identifier (FID) in some CR-2 data from Day 078 - 151 for Voyager 1. Further checking showed that MDR (from which EDR is strained) did indicate TC-72 mode while SDR continued normal CE-40 data. TTS is investigating possible errors in transmission of header information used in MDR generation. Reference FR #51522 (8/16/78) attached.

4) RESIDUAL DATA IN FDS MEMORY LOCATION

PRA reported that configuration commands for their instrument have frequently been incorrect during recent CR-6 and GS-3 operations. Investigation through DRS and TTS revealed no anomalous processing. Finally, it was discovered that the problem is due to constraints of the limited memory available in the FDS. The memory location used to store the configuration command (CONF CMD) in GS-3 is the same location used to contain MAG Status Word 2 in CR-6. Upon changing telemetry modes, the memory location still contains the residual data from the previous mode until it is updated by sending CONF CMD. If no CONF CMD is sent, the residual data is sampled as if it were a CONF CMD. Hence, erroneous data results. Similarly, the PRA CONF CMD memory location in CR-6 was in GS-3 used to contain IRIS data. Since IRIS was usually turned off (data = zeroes) prior to changing to CR-6, the PRA CONF CMD would appear as all zeroes after entering CR-6.

So far, no one else has reported problems that appear related to this phenomenon, but it should be noted as a possible source of confusion. Reference ISA #1638 (8/30/78).

5) IDR RECYCLE

Recyling of IDR tapes has been held up until now because of delays in delivery of corresponding MDR tapes. The first shipments of MDRs are coming in and IDRs previously approved for release will be released on 1 October 1978. It is expected that IDRs from this point on will be released per original plans, i.e. 90 days after PI receipt of corresponding EDRs.

6) ERRATIC CR-6 DATA

For some time now, experimenters have been reporting sporadic cases of "ratty" CR-6 data. During those periods, there are many data outages, but of very short duration. Hence, normal QQC requirements are met (95% in any four contiguous hours), but yet the data is not as "clean" as it would be expected to be. No obvious reason has come to light that would account for these problems and the investigation is continuing but two highly suspect sources have been identified:

(a) Affecting primarily Voyager-2 because of its receiver problems, the first problem source develops from frequent determination of "best lock" frequencies for uplink transmissions. This is done by sweeping through the range of transmitted frequencies and observing the response of the spacecraft receiver as it goes in and out of lock. Unfortunately, the in lock and out of lock points are reflected in "glitches" or deltas in the downlink transmission frequency which, in turn, causes the DSS receiver to lose lock briefly, creating a short data outage. This problem also affects Voyager-1, but to a lesser degree as it is done much less frequently.

(b) Some of the erratic data periods are due to low tracking antenna anglesat the DSS stations. This problem occurs only a few times a month and affects both spacecraft.

HW:jvc

MCCC FAILURE ACCOUNTABILITY REPORT (FAR) [1]
MCCC FAILURE REPORT (FR) [2]

jpl

CALENDAR DATE MONTH	DAY	YEAR	FAR CONTROL #
8	16	78	N/A ☐

FAILURE OBSERVED BY	EXT.	FR WRITTEN BY (IF DIFFERENT)	EXT.	TIME OF FAILURE JULIAN DAY	UTC	MCCC FR NUMBER
N. WOO	7959			151	07:19	51522
	ADD.		ADD.			

MCCC OPERATIONS NOTIFIED NAME	JULIAN DAY	UTC TIME	ACTIVITY: TEST/TRNG ☐ REAL TIME FLT SUPPORT ☐ BATCH FLT SUPPORT ☒	DEVEL ☐	INTEG ☐	JOB SHOP ☐	OTHER ☐

DATA OUTAGE: NO ☒ YES ☐ FROM _____ TO _____ | PROJECT CRITICAL AUTHORIZATION #

DATA SYSTEMS AFFECTED: ALL ☐ | TRACKING [1] ☐ | COMMAND [2] ☐ | OPS CONTROL [3] ☐ | TELEMETRY ☒ | OP SYS [5] ☐ | SIM [6] ☐ | NONE ☐

SUSPECTED PROBLEM AREA (CHECK ONE): DATA QUAL ☐ | HARDWARE ☐ | SOFTWARE ☐ | PROCEDURAL ☐ | DOCUMENTATION ☐ | UNDETERMINED ☒ | OTHER ☐

NRTS ☐ OCS ☐

360/75	A ☐	B ☐	C ☐	
3100	A ☐	B ☐		
CP-RTR	1 ☐	2 ☐		
CP-TC	A ☐	B ☐	C ☐	
OPS-OCC	1 ☐	2 ☐		
OPS-RTR	A ☐	B ☐		
DEV/BATCH	1 ☐	2 ☐	/B ☐	

SYS DUMP/R-DUMP #

ATTACHMENTS:
- 1052 PRINTOUT ☐
- 00B PRINTOUT ☐
- I/O PRINTOUT ☒
- 050 PRINTOUT ☐

TLMS ☐ CMDS ☐ MTIS ☐ ONPS ☐

MACHINE ID
- 1218 ☐ _____
- 1219 ☐ _____
- 1530 ☐ _____
- 1616 ☐ _____
- MODCOMP ☐ _____
- CMD 1 ☐ 2 ☐
- OTHER: ☐ _____

ATTACHMENTS: FAULT DUMP ☐ I/O PRINTOUT ☐ OTHER ☐

HARDWARE MTPS ☐
- WBS ☐ _____
- DTV ☐ CHANNELS _____
- VIDS ☐ CHANNELS _____
- TVSA ☐ NO. _____
- VOCA ☐ NO. _____ EXT. _____
- OTHER: ☐ _____

EQUIP. NAME _____
ADDRESS OR ID _____

SOFTWARE
- OP SYS VERSION _____
- MISSION VERSION _____
- MOSS VERSION 4.6
- DEV. VERSION _____
- OTHER:
- DIAGNOSTICS YES ☐ NO ☐

FOR GPCF FARS ONLY
- 1108 A ☐ DR # _____
- 1108 B ☐
- EQUIP:

DESCRIPTION OF FAILURE/PROBLEMS (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE) PROJECT(S) AFFECTED _____

MDR CONTAINS TWO ENGINEERING RECORDS IDENTIFIED AS TC-72. SDR SHOWS NO SIGN OF TELEMETRY FORMAT CHANGE. IN CR-2, ONLY 40 BIT ENGINEERING IS PERMISSABLE. SUSPECT ERRONEOUS RECORDS ARE BEING GENERATED.
MDR AND SDR DUMPS ARE ATTACHED.

ACTION TAKEN TO RESTORE CAPABILITY	TIME CLEARED JULIAN DAY	UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

TIME CORRECTED JULIAN DAY	UTC	CORRECTED BY:	FAILURE DEFINED AS (CHECK ONE) DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☐ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐

FOR CONTROL USE ONLY

DATE RECEIVED	DATE CLOSED	ACTION TAKEN CODE
ASSIGNED TO	DATE	
REASSIGNED TO	DATE	

CLOSE OUT MANAGEMENT APPROVAL

TECHNICAL GROUP SUPERVISOR OR SE	DATE
OTHER APPROVAL – IF REQUIRED	DATE

JPL 1234 R 11/

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

17 October 1978

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SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the monthly Science Data Product Report for your information and review.

Sincerely,

Harry Woo

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HW:jvc
Enclosure (1)

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	T. Armstrong	PPS	C. Lillie		D. Mosley
	G. Gloecker		C. Hord		P. Takacs
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SCIENCE DATA TEAM

SCIENCE DATA PRODUCT REPORT #3

16 October 1978

1) SCIENCE SIGNIFICANT EVENTS

A listing of science related significant events will henceforth be included in the monthly SDPR per IOM Voyager-SDT-78-0253 (attached). This month's issue is a comprehensive listing containing all such events for each spacecraft since its launch. Subsequent issues will be updates to this document.

2) CR-4 TELEMETRY MODE

November 7 is the scheduled data for initiation of the CR-4 telemetry mode on Voyager 1. As was done with the CR-3 telemetry mode, the first six hours of CR-4 data will be considered a test and will be processed as QEDRs and expedited to each PI for evaluation. No further EDR tapes will be produced until word is received that the tapes are correct. Test EDRs with simulated CR-4 data have been shipped to all PIs accompanied by letters describing the upcoming test.

3) HIGH RATE PRA/PWS EDRs FROM CDT #1

PWS reported a problem in the MOD 2^{16} count in several frames of GS-4 following FDSC 11589.25 and 11589.26. This was attributed to an anomaly in the MTIS software by the ISDT Team Chief. PRA found no evidence of this problem in their GS-2 data although the frame start line count in the frame header was incorrect, showing 401 instead of 001. MTIS is investigating these problems and is in the process of writing FRs against their system.

4) PREDICT SEDRs

The originally scheduled generation of predict SEDRs is being delayed due to slips in the delivery of required files by the Sequence Team. A revised schedule is attached.

HW:jvc
Attachment (2)

PREDICT SEDR DETAIL

S/C 31

(E = 79-064/12:05:25) (S/C 32 TBD)

SEQ	FROM	TO	RATE	COMPLETE
N/A	78-349/00:00	79-145/00:00	1/2 HRS.	09/06/78
A325	79-052/11:09	79-056/07:09	1/192 SEC.	09/06/78
A326	79-056/07:09	79-058/16:09	1/192 SEC.	09/06/78
A327	79-058/16:09	79-060/12:09	1/192 SEC.	09/06/78
A328	79-060/12:09	79-061/12:09	1/192 SEC.	09/06/78
A329	79-061/12:09	79-062/11:36	1/192 SEC.	10/17/78
A330	79-062/11:36	79-063/12:02	1/192 SEC.	10/17/78
A351*	79-063/12:02	79-063/21:13	1/192 SEC.	10/17/78
A352*	79-063/21:13	79-064/14:36	1/48 SEC.	(11/01/78)
A353*	79-064/14:36	79-065/02:52	1/48 SEC.	(11/01/78)
A371*	79-065/02:52	79-067/17:20	1/192 SEC.	(11/15/78)
A372*	79-067/17:20	79-074/08:59	1/192 SEC.	(11/15/78)

* ( ) = DATE WHEN SEQUENCE FILES SCHEDULED.
ADD 2 WEEKS FOR SEDR COMPLETION.

SDPR #3
10/16/78

ADDENDUM TO SCIENCE DATA PRODUCT REPORT #3 10/17/78

5) There is a proposal to reset the FDS clocks aboard both spacecraft in order to correct for the slow drift incurred since launch. The accumulated values are approximately -13 seconds for Voyager 1 and +15 seconds for Voyager 2. Further details are available in IOM Voyager-SEQ-78-0332, "FDS/CCS Clock Reset", dated 6 October 1978 (attached). No schedule has been announced for the resets, but the early December time frame appears likely.

HW:jvc

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

October 6, 1978

Voyager-SEQ-78-0332

U. R. TUPMAN
OCT 16 1978

TO:

D. Hanks
A. Sacks
R. Koo
J. Schmidlin
H. Woo

Please provide comments if this presents a problem

TO: R. Laeser

FROM: D. Linick DL

SUBJECT: FDS/CCS Clock Reset

Since launch, the FDS clocks have exhibited a slow drift which, over time, has accumulated to a value of -13 seconds for Voyager 1 and +15 seconds for Voyager 2. The SEQ has been generating and continues to generate, sequences based upon a Spacecraft Times File (SCTF) which assumes no drift. As a result, the actual GMT of spacecraft event occurrence differs from SEQ generated analysis products (including the SOE) by the value of the accumulated drift. This causes the following potential problems.

1. Real-time analysts must mentally adjust to the discrepancy between the SEQ analysis products and the spacecraft telemetry.

2. Generation of time-critical real-time commands must consider this discrepancy if the SEQ analysis products are used to compute the required transmit times.

3. Sequence events which are planned for a specific GMT will be biased by the accumulated drift. This is not a problem for cruise sequences but may have ramifications at encounter (e.g., RASMA).

These problems would be alleviated if the SEQ were to use "drifted" SCTFs, that is, SCTFs for which an FDS frame is other than 48 seconds in duration. Implementation of this mechanism has the following disadvantages.

1. The MSS has not yet demonstrated the capability of using drifted SCTFs. Many algorithms in the MSS assume 48 second frames and it is not certain that the programs will properly generate sequences with drifted files. A test procedure is currently being executed to determine whether this is indeed a problem; however, it has been clearly demonstrated that there

is no way of defining a test program which is comprehensive enough to anticipate all possible problems which might occur.

2. All advanced planning encounter sequences have been generated using non-drifted SCTFs. If the SEQ were to suddenly use drifted files when making the final runs of these sequences, all inputs to the MSS would have to be manually changed, introducing numerous opportunities for making mistakes. More specifically, since many events must be timed relative to FDS frame starts and since all frame starts will occur at a GMT different from that which was assumed when using undrifted files, all events will occur at different GMTs than originally assumed. Since almost all SEQ inputs to the MSS are provided in GMT, all these inputs must be adjusted.

3. As described in item 2) above, the GMT of encounter events will, of necessity, have to be biased by the amount of the accumulated FDS drift. Thus, events will not occur at precisely the desired GMT. This presents a special problem for JST RASMA. The NAV estimate for delivery to the spacecraft entrance to occultation is approximately 21 seconds, one sigma (radio only). G. Wood states that this is within the Radio Science accuracy requirements by about 7 seconds. Since the FDS accumulated drift will be approximately 12 seconds at JST Jupiter encounter, the spacecraft events associated with RASMA will occur 12 seconds later than nominal. The one sigma delivery dispersion could then act to cause the RASMA events to occur later than is acceptable for Radio Science. Furthermore, the density of the sequence makes it impractical to move the RASMA events relative to FDS frame starts.

SOLUTION

Fortunately, a solution presents itself. An FDS/CCS clock reset procedure can be implemented which will cause the spacecraft clocks to match the undrifted SCTFs currently being used by the SEQ. (Actually, since the drift continues to accumulate, the match will be identical only at one point, presumably at planetary closest approach. However, the drift is small enough that the dispersion should not be large at any time). It may seem unorthodox to change the spacecraft to match the ground system data base, but the advantages appear to outweigh the problems.

The procedure used to accomplish a clock reset is established and was exercised at launch. I have talked to the CCS analysts on the SCT and they feel that the procedure, though non-standard, is not a difficult one to implement. I have also talked to Jack Tupman and the impact to the SDT appears to be minimal.

RECOMMENDATION

I, therefore, recommend the following:

1. An FDS/CCS clock reset be accomplished on Voyager 1 prior to the beginning of test and training. This implies that the procedure will be accomplished via real-time commands defined by the SCT and generated and simulated by the SEQ. (I should note that immediately after the reset the SEQ analysis products will match the actual GMT of spacecraft events - i.e., the discrepancy will be eliminated).

2. An identical procedure be performed for Voyager 2 prior to the start of the JSX Observatory phase.

3. The effort be continued to validate the MSS capability to use drifted SCTFs.

4. Drifted SCTFs be used for Jupiter-Saturn cruise. This eliminates the necessity for frequent clock resets.

5. An undrifted SCTF be used for generation of Saturn encounter sequences.

6. The clock reset procedure be used prior to Saturn encounter to match the FDS and CCS clocks with the undrifted SCTFs.

Would you please evaluate this recommendation in light of its impact on all elements of the MOS. Please contact me if you have any questions.

DL:dad

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17 November 1978

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SCIENCE DATA TEAM

SCIENCE DATA PRODUCT REPORT #4

17 November 1978

1) FDSC RESET SCHEDULE

The schedule for resetting of the FDSC aboard the spacecraft is as follows:

A)	VGR-1	November 28, 1978	0100 UTC
B)	VGR-2	December 2, 1978	2230 UTC

2) SCET IN EDR TAPES

SCP A541, the software change in EDR PROC to allow re-calculation of SCET during creation of EDR tapes went on line 1 October 1978 as scheduled.

3) MTIS GS-4 EDR PROBLEMS CORRECTED

The problems of erroneous MOD 2^{16} values observed in MAMEPX 410020 and the out of sequence records in MAMEPX 410030 have been solved by MTIS and the software has been modified to prevent future recurrences.

4) SEASAT MIXUP

Two tapes shipped as Voyager EDRs have been discovered to be Seasat tapes. The problem was found to be in Library labeling procedures and an FR has been written. Please return any suspicious tapes, i.e., those that are totally unreadable, and request re-generation.

5) JUPITER SATELLITE POSITIONS

UVS reported that the positions of Jupiter's satellites in SEDR 10004 (a predict tape containing navigation data only, no pointing) are in error. The problem is being investigated by the SEDR Group.

6) OUT OF SEQUENCE RECORDS

CRS reported that an out-of-sequence record would appear frequently when telemetry data modes changed from one mode to another, then back to the first mode. One example cited was from DOY 78-157 where the telemetry changed from CR-3 to GS-3 and back to CR-3. The last record prior to the GS-3 data contained CR-3 data from a time after the GS-3 period. Apparently, this is an artifact of the way EDR PROC builds EDR tapes when intervening records must be "filled" from a second MDR tape. In this case, the CR-3 records continued smoothly across a "gap" (wherein GS-3 data were contained), stopping one CR-3 record after the "gap". The data from the second MDR (containing GS-3) was then inserted in the "gap" followed by the resumption of CR-3 from the first MDR. This occurs each time a different MDR is introduced to fill "holes" of "gaps" and affects all instruments.

Out-of-sequence records of this nature were not expected and past policy was to release tapes containing them so long as they occurred infrequently. Unfortuantely, encounter activities will bring many data mode changes per day and will probably make the out-of-sequence records a significant problem for several PIs. The problem has been identified as a significant concern and possible solutions are being investigated by the Data Management Team (see ISA 1650 attached).

In the meantime, CVAL is continuing to note out-of-sequence records on the inventories shipped with EDR tapes. CRS tapes are being tagged externally with out-of-sequence record information and the same service can be provided for others who feel it would be helpful.

7) EDRVAL FOR ENCOUNTERING SPACECRAFT

All QEDRs and all final EDRs identified for critical periods will be validated before shipment. The non-encountering spacecraft EDRs will continue to be validated on a sample basis.

8) REPETITION OF GS-3 MINOR FRAMES

PRA continues to report apparent repetition of data in some GS-3 records. Particular example being investigated is from Voyager 1, DOY 78-139. ISA 1648 (attached) has resulted in a FR and the problem is being investigated by the Data Management Team.

9) RADIO SCIENCE EDR

Problems in SASFA software (ISA 1646, attached) delayed creation of the RSS EDR for the Capabilities Demonstration Test #2 on VGR-1 (DOY 78-283). A tape has been produced with re-delivered software and possible problems in it are being studied by RSS and the SDT.

10) ERRONEOUS MOD 2^{16} FDSC

TTS software contains an FDSC correction algorithm that is supposed to correct "bit hits" affecting FDSC when good ERT times are available on either side of the "hit". A problem in the algorithm software allows record headers to be built before correction, and the bad value is "locked" until the next out-of-sync occurs. The PRA CR-4 EDR tape #7199B was a prime example of this effect wherein 21 records contained the same incorrect, regressed MOD 2^{16} FDSC value. This is not a new problem, but has occurred infrequently in the past. FR #42187 has been written against TTS by the SDT (copy attached) and further FRs are being written by the FDS analysts. The problem is under investigation by the TCO staff.

11) SCIENCE SIGNIFICANT EVENTS

Attached are update pages of the Science Significant Events report.

HW:jvc
Attachment (5)

INCIDENT/SURPRISE/ANOMALY REPORT

ISA NO. 1650

JET PROPULSION LABORATORY
California Institute of Technology
4800 Oak Grove Dr. / Pasadena, Calif. 91103

PROJECT: VOYAGER

PAGE 1 OF 1

A. INITIATION

1. INITIATOR	ORGANIZATION	EXTENSION	IS A INITIATION CALENDAR DATE MO. / DAY / YEAR	2. INCIDENT REPORTED: TO: / BY:	AT: GMT (UTC) DAY / HR / MIN / SEC
N. Woo	5DT	7959		TO: N. Woo BY: N. Lal / CRS-GSFC	303 / 17 / 00 / 00

3. MISSION: VGR — S/C ID: 31 — NA. ☐

4. TIME OF INCIDENT GMT (UTC)

	DAY	HR	MIN	SEC
AT				
TO				

5. OBSERVATION:
LOCATION: ☐ JPL: 230 ☐ JPL: 264 ☐ JPL: SAF ☐ KSC ☒ OTHER _____
ORGANIZATION: GSFC
OBSERVER: Dr. N. Lal

6. DATA IDENTIFICATION: CR-3, GS-3

7. DATA SOURCE: ☐ GCF ☐ DSS ☐ NOCC ☐ MTIS ☐ MTPS ☐ MTTS ☒ MCCF ☐ GPCF

8. MISSION ACTIVITY: ☐ MOS TEST ☐ GDS TEST ☐ LAUNCH ☒ CRUISE ☐ ENCOUNTER ☐ OTHER

9. SUSPECT PROBLEM AREA: ☐ MTTS ☒ MCCF ☐ GPCF ☐ NOCC ☐ S/C ☐ MTIS ☐ MTPS ☐ DSS ☐ GCF ☐ OTHER

10. SUSPECT CAUSE CATEGORY: ☐ S/C HARDWARE ☐ GND HARDWARE ☐ PROCEDURES ☐ OTHER ☐ S/C SOFTWARE ☒ GND SOFTWARE ☐ DOCUMENTATION ☐ UNKNOWN

11. (a) DESCRIPTION OF INCIDENT; (b) REAL TIME CHECKS/ANALYSES; (c) REAL TIME CORRECTIVE ACTIONS:
IF IT'S NOT WORTH PROPER DOCUMENTATION – IS IT WORTH REPORTING?

CRS reported that an out of sequence record always occurs on EDR tapes just prior to switching data modes. The specific example cited was from Records 466–468 of tape 18183 where the telemetry mode went from CR-3 to GS-3 for about one hour, then switched back to CR-3. On the EDR, the last record prior to the mode change was data from the CR-3 period after the GS-3 period. This apparently is a general anomaly occurring on all EDR's for all instruments.

INITIATOR'S RECOMMENDATIONS: 11. (d) MISSION OPERATIONS IMPACT ASSESSMENT: MOIA LEVEL ☐ MAJOR ☒ SIGNIFICANT ☒ MINOR

11. (e) CORRECTION REQ'D BY – DATE OR ACTIVITY:

B. ACTION STATUS

12. MISSION OPERATIONS IMPACT ASSESSMENT (MOIA): ☐ MAJOR ☐ SIGNIFICANT ☐ MINOR

13. MISSION APPLICABILITY: ☐ LAUNCH ☐ ENC'R ☐ CRUISE

14. CORRECTION REQUIRED DATE:

15. ACTION ASSIGNMENT (a) ORGANIZATION ☐ MOT'S ☐ DSN ☐ MCCC ☐ OTHER
(b) INDIVIDUAL / ORGANIZATION / DATE

16. REASSIGNMENT: (a) ORGANIZATION ☐ MDT'S ☐ DSN ☐ MCCC ☐ OTHER
(b) INDIVIDUAL / ORGANIZATION / DATE

C. ACTION: ANALYSES/CORRECTION/VERIFICATION

17. (a) ANALYSES, (b) CORRECTIVE ACTIONS AND (c) CORRECTION VERIFICATION:
(EACH SEPARATE ENTRY MUST BE IDENTIFIED BY NAME AND DATE)

D. CLOSE OUT

18. FOLLOW-UP ACTIONS/DOCUMENTS: ☐ S/C PFR NO. _____ ☐ DSN DR NO. _____ ☐ MCCC FR NO. _____ ☐ MCCC FAR NO. _____ ☐ OTHER _____

APPROVALS/CONCURRENCES

19. ACTION RESPONSIBLE ORG'N: DATE:	20. PFAE CONCURRENCE: DATE:	21. PROJECT (CMO) DATE:

22. DISTRIBUTION:
(a) STANDARD NO. _____ (b) SPECIAL: _____

JPL 2811 1/77

JET PROPULSION LABORATORY
California Institute of Technology
4800 Oak Grove Dr. / Pasadena, Calif. 91103

INCIDENT/SURPRISE/ANOMALY REPORT

ISA NO. 1648

PROJECT: VOYAGER | PAGE 1 OF 1

A. INITIATION

1. INITIATOR: N. Woo | ORGANIZATION: SDT | EXTENSION: 7459
IS A INITIATION CALENDAR DATE: MO. 10 | DAY 25 | YEAR 78
2. INCIDENT REPORTED: TO: N. Woo BY: J. Pearce/U of C AT: GMT (UTC) DAY 296 HR 20 MIN 00 SEC 00

3. MISSION: VGR S/C ID: 31 NA: ☐
4. TIME OF INCIDENT GMT (UTC): AT DAY 139 HR ___ MIN ___ SEC ___ TO ___
5. OBSERVATION: LOCATION: ☐ JPL-230 ☐ JPL-264 ☐ JPL-SAF ☐ KSC ☒ OTHER U of Colo. ORGANIZATION: PRA OBSERVER: J. Pearce

6. DATA IDENTIFICATION: VGR-1 GS-3 EDR
7. DATA SOURCE: ☐ GCF ☐ DSS ☐ NOCC ☐ MTIS ☐ MTPS ☐ MTTS ☒ MCCF ☐ GPCF

8. MISSION ACTIVITY: ☐ MOS TEST ☐ GDS TEST ☐ LAUNCH ☒ CRUISE ☐ ENCOUNTER ☐ OTHER

9. SUSPECT PROBLEM AREA: ☐ MTTS ☐ MCCF ☐ GPCF ☐ NOCC ☐ S/C ☐ MTIS ☐ MTPS ☐ DSS ☐ GCF ☒ OTHER UNKNOWN

10. SUSPECT CAUSE CATEGORY: ☐ S/C HARDWARE ☐ GND HARDWARE ☐ PROCEDURES ☐ OTHER ☐ S/C SOFTWARE ☐ GND SOFTWARE ☐ DOCUMENTATION ☒ UNKNOWN

11. (a) DESCRIPTION OF INCIDENT; (b) REAL TIME CHECKS/ANALYSES, (c) REAL TIME CORRECTIVE ACTIONS:
IF IT'S NOT WORTH PROPER DOCUMENTATION – IS IT WORTH REPORTING?

Parts of PRA Minor frames are apparently being repeated in several locations of a particular data record. This does not occur constantly on all GS-3 tapes, only occasionally. Examples are
① 10477B Day 139 VGR-1 EDR
② 019460 Day 261 VGR-1 EDR
Dr. Pearce of PRA is sending dumps with marked anomalies. They will be transferred to the responsible party when received

INITIATOR'S RECOMMENDATIONS: 11. (d) MISSION OPERATIONS IMPACT ASSESSMENT: MOIA LEVEL ☐ MAJOR ☒ SIGNIFICANT ☐ MINOR | 11. (e) CORRECTION REQ'D BY – DATE OR ACTIVITY:

B. ACTION STATUS

12. MISSION OPERATIONS IMPACT ASSESSMENT (MOIA): ☐ MAJOR ☐ SIGNIFICANT ☐ MINOR
13. MISSION APPLICABILITY: ☐ LAUNCH ☐ ENC'R ☐ CRUISE
14. CORRECTION REQUIRED DATE:
15. ACTION ASSIGNMENT: (a) ORGANIZATION ☐ MOT'S ☐ DSN ☐ MCCC ☐ OTHER ___ (b) INDIVIDUAL ___ ORGANIZATION ___ DATE ___
16. REASSIGNMENT: (a) ORGANIZATION ☐ MDT'S ☐ DSN ☐ MCCC ☐ OTHER ___ (b) INDIVIDUAL ___ ORGANIZATION ___ DATE ___

C. ACTION: ANALYSES/CORRECTION/VERIFICATION

17. (a) ANALYSES, (b) CORRECTIVE ACTIONS AND (c) CORRECTION VERIFICATION:
(EACH SEPARATE ENTRY MUST BE IDENTIFIED BY NAME AND DATE)

D. CLOSE OUT

18. FOLLOW-UP ACTIONS/DOCUMENTS: ☐ S/C PFR NO. ___ ☐ DSN DR NO. ___ ☐ MCCC FR NO. ___ ☐ MCCC FAR NO. ___ ☐ OTHER ___

APPROVALS/CONCURRENCES
19. ACTION RESPONSIBLE ORG'N: DATE:
20. PFAE CONCURRENCE: DATE:
21. PROJECT (CMO) DATE:

22. DISTRIBUTION:
(a) STANDARD NO. ___ (b) SPECIAL: ___

JPL 2811 1/77

INCIDENT/SURPRIS[illegible]OMALY REPORT ISA NO. 1646

JET PROPULSION LABORATORY
California Institute of Technology
4800 Oak Grove Dr. / Pasadena, Calif. 91103

PROJECT: VOYAGER PAGE 1 OF 1

A. INITIATION

1. INITIATOR: H. Woo — ORGANIZATION: SDT — EXTENSION: 7459
ISA INITIATION CALENDAR DATE: MO. 10 DAY 24 YEAR 7[illegible]
2. INCIDENT REPORTED TO: [illegible] BY: D. Holmes — AT GMT (UTC): DAY 296 HR 14 MIN 0 SEC 0

3. MISSION: VGR S/C ID: 31 NA: ☐
4. TIME OF INCIDENT: CDT #2 — GMT (UTC) AT: DAY 2[illegible] HR 03 MIN 00 SEC 00; TO: DAY 2[illegible] HR 20 MIN 00 SEC 00

5. OBSERVATION: LOCATION: ☐ JPL-230 ☒ JPL-264 ☐ JPL-SAF ☐ KSC ☐ OTHER
ORGANIZATION: RSSDT
OBSERVER: D. Holmes x7359

6. DATA IDENTIFICATION: RSS EDR — GS-3/PB-1

7. DATA SOURCE: ☐ GCF ☐ DSS ☐ NOCC ☒ MTTS ☐ MTIS ☐ MCCF ☐ MTPS ☐ GPCF

8. MISSION ACTIVITY: ☒ MOS TEST ☐ GDS TEST ☐ LAUNCH ☐ CRUISE ☐ ENCOUNTER ☐ OTHER

9. SUSPECT PROBLEM AREA: ☐ MTTS ☐ MTIS ☐ MCCF ☐ MTPS ☐ GPCF ☐ DSS ☐ NOCC ☐ GCF ☐ S C ☐ OTHER

10. SUSPECT CAUSE CATEGORY: ☐ S/C HARDWARE ☐ S/C SOFTWARE ☐ GND HARDWARE ☒ GND SOFTWARE ☐ PROCEDURES ☐ DOCUMENTATION ☐ OTHER ☐ UNKNOWN

11. (a) DESCRIPTION OF INCIDENT; (b) REAL TIME CHECKS ANALYSES; (c) REAL TIME CORRECTIVE ACTIONS:
IF IT'S NOT WORTH PROPER DOCUMENTATION — IS IT WORTH REPORTING?

Illegal and/or non-sensible values appear in RSS EDR engineering data channels.
Examples: ① HS AGC (S-BAND) alternates between two fixed values all through EDR (E-1004)
② Receiver configuration status bits were not decodable — values outside allowable states (E-1010).
Suspect problem is in engineering data interfaces between TTS/DMT/SASDRS.
[signature]

INITIATOR'S RECOMMENDATIONS: 11. (d) MISSION OPERATIONS IMPACT ASSESSMENT: MOIA LEVEL ☐ MAJOR ☒ SIGNIFICANT ☐ MINOR
11. (e) CORRECTION REQ'D BY — DATE OR ACTIVITY:

B. ACTION STATUS

12. MISSION OPERATIONS IMPACT ASSESSMENT (MOIA): ☐ MAJOR ☐ SIGNIFICANT ☐ MINOR
13. MISSION APPLICABILITY: ☐ LAUNCH ☐ ENC'R ☐ CRUISE
14. CORRECTION REQUIRED DATE:
15. ACTION ASSIGNMENT: (a) ORGANIZATION ☐ MOT'S ☐ DSN ☐ MCCC ☐ OTHER; (b) INDIVIDUAL — ORGANIZATION — DATE
16. REASSIGNMENT: (a) ORGANIZATION ☐ MOT'S ☐ DSN ☐ MCCC ☐ OTHER; (b) INDIVIDUAL — ORGANIZATION — DATE

C. ACTION: ANALYSES/CORRECTION/VERIFICATION

17. (a) ANALYSES, (b) CORRECTIVE ACTIONS AND (c) CORRECTION VERIFICATION:
(EACH SEPARATE ENTRY MUST BE IDENTIFIED BY NAME AND DATE)

D. CLOSE OUT

18. [illegible] ACTIONS DOCUMENTS: ☐ [illegible] FR NO. ☐ DSN DR NO. ☐ MCCC FAR NO. ☐ MCCC FR NO. ☐ OTHER

APPROVALS/CONCURRENCES: 19. ACTION RESPONSIBLE ORG'N: DATE: — 20. PFAE CONCURRENCE: DATE: — 21. PROJECT (CMO) DATE

22. DISTRIBUTION: (a) STANDARD NO. (b) SPECIAL:

JPL 2811 [illegible]/77

jpl - **MCCC FAILURE ACCOUNTABILITY REPORT (FAR)** [1]
MCCC FAILURE REPORT (FR) [2]

CALENDAR DATE MONTH	DAY	YEAR	FAR CONTROL #
11	20	87	N/A ☐

FAILURE OBSERVED BY	EXT.	FR WRITTEN BY (IF DIFFERENT)	EXT.	TIME OF FAILURE JULIAN DAY	UTC	MCCF/MTCF FR NUMBER
D. Street	7491	N. Woo	7458	314	23:35P	42137

MCCC OPERATIONS NOTIFIED NAME	JULIAN DAY	UTC TIME	ACTIVITY: TEST/TRNG ☐ REAL TIME FLT SUPPORT ☒ BATCH FLT SUPPORT ☐ PROJECT(S)	DEVEL ☐	INTEG ☐	JOB SHOP ☐	OTHER ☐

DATA OUTAGE: NO ☒ YES ☐ FROM _____ TO _____ PROJECT CRITICAL - AUTHORIZATION -

DATA SYSTEMS AFFECTED	ALL ☐	TRACKING [1]	COMMAND [2]	OPS CONTROL [3]	SUSPECTED PROBLEM AREA (CHECK ONE)	DATA QUAL ☐	HARDWARE ☐	SOFTWARE ☐	PROCEDURAL ☐
		TELEMETRY ☒	OP SYS [4]	SIM [5] NONE ☐		DOCUMENTATION ☐	UNDETERMINED ☐	OTHER ☐	

MCCF

360/75 A ☐ B ☐ C ☐
3100 A ☐ B ☐
RTR 1 ☐ 2 ☐
TC A ☐ B ☐ C ☐

R-DUMP # _____

ATTACHMENTS:
1052 PRINTOUT ☐
00B PRINTOUT ☐
050 PRINTOUT ☐

MTTS ☐ MTIS ☐ MTPS ☐

MACHINE ID
1218 ☐ _____
1219 ☐ _____
1530 ☒ _____
1616 ☐ _____
MODCOMP ☐ _____
OTHER: ☐ _____

ATTACHMENTS:
FAULT DUMP ☐
I/O PRINTOUT ☐
OTHER ☐

HARDWARE

DTV ☐ CHANNELS _____
VIDS ☐ CHANNELS _____
TVSA ☐ NO. _____
VOCA ☐ NO. _____
EXT. _____
OTHER: ☐ _____

EQUIP. NAME _____
ADDRESS OR ID _____

SOFTWARE

OP SYS VERSION _____
MISSION VERSION 4.8
DEV. VERSION _____
OTHER:

FOR GPCF FARS ONLY
1108 A ☐ DR # _____
1108 B ☐
EQUIP:

DESCRIPTION OF FAILURE/PROBLEMS: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE)

An apparent problem in the FDSC correction algorithm is causing incorrect MOD 2^16 FDSC values to be held constant over long periods (until next occurrence of out-of-sync). PRA EDR tape 71998 (CR-4) contains 21 records with incorrectly regressed FDSC mod 2^16 of 13401 while 13428 is correct. This is not a new problem, having been seen off and on, but has now been identified by the FDS analysts as a TTS problem.

ACTION TAKEN TO RESTORE CAPABILITY	TIME CLEARED JULIAN DAY	UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

TIME CORRECTED JULIAN DAY	UTC	CORRECTED BY:	FAILURE DEFINED AS (CHECK ONE) DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☐ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐

FOR CONTROL USE ONLY			CLOSE OUT MANAGEMENT APPROVAL	
DATE RECEIVED	DATE CLOSED	ACTION TAKEN CODE	TECHNICAL GROUP SUPERVISOR OR SE	DATE
ASSIGNED TO	DATE			
REASSIGNED TO	DATE		OTHER APPROVAL – IF REQUIRED	DATE

ORIGINAL

SCIENCE DATA TEAM

SCIENCE SIGNIFICANT EVENTS

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start MAG F.C. Sequence	309/02:37:19	12776:48:565	1978-309/02:00:55.180	
End MAG F.C. Sequence	02:59:44	12777:16:583	02:23:00.254	
Start PLS CAL	03:02:56	12777:20:583	02:26:12.265	
End PLS CAL	04:32:31	12779:12:571	03:55:47.563	
Start PESCAL	310/21:17:59	12830:09:573	1978-310/20:41:23.719	
End PESCAL	22:13:59	12831:19:577	21:27:23.906	
Start MAG F.C. Sequence	316/02:36:46	12986:48:573	1978-316/02:00:35.801	
End MAG F.C. Sequence	02:59:10	12987:16:575	02:22:59.875	
Start PLS CAL	03:02:22	12987:20:575	02:26:11.886	
End PLS CAL	04:36:31.58	12989:12:580	03:55:43.124	
Start PESCAL	317/17:37:26	13035:34:569	1978-317/17:01:23.574	
End PESCAL	18:33:26	13036:44:572	17:57:23.759	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
IRIS Repl. Htr. ON (Ground Command)	297/19:15:00	12437:34:564	1978-197/18:37:22.978	
IRIS Power OFF Confirmed	20:29:46	12439:08:135	19:52:09.215	
IRIS Repl. Htr ON Confirmed	20:30:35	12439:09:152	19:52:58.217	
Start PLS Mini CAL	23:15:20	12442:35:111	22:37:43.740	
End PLS Mini CAL	299/00:53:48	12474:38:259	1978-299/00:16:16.641	
IRIS Flashoff Htr. OFF (Ground Command)	300/01:00:00	12504:46.136	1978-300/00:22:33.280	
Start MAG F.C. Sequence	302/02:37:53	12566:48:579	1978-302/02:00:35.918	
End MAG F.C. Sequence	03:00:17	12567:16:581	02:22:59.991	
Start PLS CAL	03:03:29	12567:20:581	02:26:12.002	
End PLS CAL	04:33:04	12569:12:569	03:55:47.293	
Start PESCAL	303/17:38:33	12615:34:573	1978-303/17:01:23.567	
End PESCAL	18:34:33	12616:44:576	17:57:23.750	
IRIS Repl. Htr. OFF (Ground Command)	305/20:30:00	12679:09:190	1978-305/19:53:00.617	
IRIS Prim Power ON (Ground Command)	20:31:00	12679:10:391	19:54:00.621	
IRIS Prim Power OFF (Ground Command)	306/02:05:00	12686:08:008	1978-306/01:28:01.724	
IRIS Repl. Htr. ON (Ground Command)	02:06:00	12686:09:208	01:29:01.728	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Turn Roll Axis	283/15:43:26	12013:08:795	1978-283/15:04:48.484	
Sun Search Enable	16:07:01	12013:38:379	15:28:23.549	
Star Acquisition	16:11:06	12013:43:463	15:32:28.560	
End Capability Demo Test #2	16:20:49	12013:55:580	15:42:11.586	
Start UVS Auto Gain Test	19:18:38	12017:38:005	18:40:01.073	
End UVS Auto Gain Test	20:33:37	12019:11:591	19:55:00.278	
Star Acquisition	184/16:50:39	12044:33:081	1978-284/16:12:05.633	
Start ASCAL	17:13:55	12045:02:148	16:35:21.697	
End ASCAL	17:42:16	12045:37:500	17:03:42.776	
IRIS Power OFF	18:51:09	12047:03:586	18:12:35.967	
IRIS Repl. Htr. ON	18:52:09	12047:04:786	18:13:35.970	
IRIS Repl. Htr OFF (Ground Command)	297/15:30:00	12432:53:352	1978-297/14:52:22.265	
IRIS Power ON (Ground Command)	15:31:00	12432:54:552	14:53:22.260	
IRIS Power ON confirmed	17:29:00	12435:22:159	16:51:22.642	
IRIS Flashoff Htr. ON (Ground Command)	18:45:00	12436:57:163	18:07:22.882	
IRIS Power OFF (Ground Command)	19:14:00	12437:33:364	18:36:22.974	

SCIENCE DATA TEAM

SCIENCE SIGNIFICANT EVENTS

S/C 32

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
PPS Power OFF (Ground Command)	310/15:32:06	13300:04:462	1978-310/14:57:43.878	
Uplink CCSL B213	312/17:34	13362:37:149	1978-312/16:59:49.001	
Start B213	313/17:16	13392:14:638	1978-313/16:41:54.284	
Start PLS CAL	315/17:34:33	13452:38:170	1978-315/17:00:33.070	
End PLS CAL	20:49:54	13456:42:332	20:15:59.798	
Start MAG F.C. Sequence	20:50:42	13456:43:332	20:16:47.801	
End MAG F.C. Sequence	20:58:42	13456:53:333	20:24:47.831	
Start MAG Range CAL	20:59:30	13456:54:333	20:25:35.834	
End MAG Range CAL	21:14:42	13457:13:334	20:40:47.890	
Start MAG BAM	21:15:30	13457:14:334	20:41:35.893	
End MAG BAM	21:21:06	13457:21:334	20:47:11.914	
Start PESCAL	318/03:40:54	13525:16:339	1978-318/03:07:12.055	
IRIS Repl. Htr. OFF	03:48:43	13525:26:156	03:15:01.084	
IRIS Power ON	03:48:43	13525:26:156	03:15:01.084	
End PESCAL	04:29:41	13526:17:326	03:55:59.236	
IRIS Power OFF	19:37:09	13545:11:647	19:03:30.614	
IRIS Repl. Htr. ON	19:38:09	13545:13:049	19:04:30.618	
Start MAG F.C. Sequence				

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start UVS Gain State Sequence	299/18:34:30	12973:51:303	1978-299/17:59:11.251	
End UVS Gain State Sequence	19:40:18	12975:13:507	19:04:59.481	
Start MAG F.C. Sequence	301/01:36:00	13012:38:314	1978-301/01:00:47.806	
End MAG F.C. Sequence	02:11:12	13013:22:316	01:35:59.981	
Start PLS CAL	02:39:12	13013:57:318	02:04:00.030	
End PLS CAL	09:09:34	13022:05:308	03:34:23.416	
To to .16° deadband for Scan Stop Test (Ground Command)	303/20:00:00	13095:38:554	1978-303/19:25:02.028	
PPS Power OFF (Ground Command)	22:06:00	13098:16:161	21:31:02.481	
PPS Power ON	23:14:58	13099:42:332	22:40:00.729	
PPS Power ON (Ground Command)	304/23:10:10	13129:36:420	1978-304/22:35:17.910	
Start PPS Power ON/OFF Seq. (Ground Command)	306/17:00:00	13181:54:009	1978-306/16:25:17.034	
End PPS Power ON/OFF Seq. (Ground Command)	22:50:48	13189:12:430	22:16:06.313	Last command is PPS ON
Start MAG F.C. Sequence	308/01:35:24	13222:38:330	1978-308/01:00:48.186	
End MAG F.C. Sequence	02:10:36	13223:22:332	01:36:00.316	
Start PLS CAL	02:38:36	13223:57:334	02:04:00.419	
End PLS CAL	09:08:58	13232:05:325	08:34:23.853	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start IRIS Target Plate CAL	289/17:56:11	12673:02:366	1978-289/17:20:03.730	
End IRIS Target Plate CAL	290/01:39:29	12682:41:491	1978-290/02:03:23.209	
Start IRIS Target Plate CAL	17:47:04	12702:51:127	17:11:01.329	
IRIS Power OFF	291/00:19:13	12711:01:299	23:43:11.593	
IRIS Repl. Htr. ON	00:20:01	12711:02:299	23:43:59.595	
End IRIS Target Plate CAL	00:33:08	12711:18:616	23:57:06.638	
Start MAG F.C. Sequence	294/01:39:47	12802:42:311	1978-294/01:04:00.086	
End MAG F.C. Sequence	02:11:47	12803:22:313	01:36:00.193	
Start PLS CAL Sequence	02:39:47	12803:57:315	02:04:00.287	
End PLS CAL Sequence	09:10:09	12812:05:303	08:34:23.598	
PPS Power ON (Ground Command)	299/13:30:00	12967:30:585	1978-299/12:54:40.185	
Start PPS Map Sequence	14:45:43	12969:05:307	14:10:23.450	
PPS Power OFF (Ground Command)	15:30:00	12970:00:592	14:54:40.605	
End PPS Map Sequence	16:42:31	12971:31:313	16:07:11.859	
Start Scan CAL Sequence	16:42:31	12971:31:313	16:07:11.859	
End Scan CAL Sequence	17:44:07	12972:48:317	17:08:48.074	
Start UVS OCC Stars Sequence	17:44:07	12972:48:317	17:08:48:074	
End UVS OCC Stars Sequence	18:34:30	12973:51:303	17:59:11.251	

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

19 December 1978

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: HARRY WOO

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the Monthly Science Data Product Report for your information and review.

HW:jvc
Enclosure (1)

CRS	R.E. Vogt	MAG	N. Ness	PRA	J. Warwick
	T. Garrard		M. Acuna		J. Pearce
	N. Lal		R. Lepping		R. Peltzer
	J. Trainor		E. Choo		A. Riddle
	T. Aufrantz		A. Silver		
IRIS	R. Hanel	PLS	H. Bridge	PWS	F. Scarf
	D. Crosby		A. Lazarus		W. Kurth
	L. Herath		J. Sullivan		
			K. Olgive	UVS	L. Broadfoot
LECP	S. Krimigis		G. Gordon		D. Mosley
	T. Armstrong				P. Takacs
	G. Gloecker	PPS	C. Lillie		
	E. Keath		C. Hord		
	L. Lanzerotti		K. Simmons		

cc:

J. Anderson	A. Lane
J. Bergstralh	J. Long
D. Collins	D. Lynn
S. Collins	R. Morris
H. Danley	R. Parker
O. Divers	R. Poynter
E. Franzgrote	C. Stembridge
S. Hanson	E. Stone
J. Holberg	T. Thompson
L. Horn	J. Tupman
S. Kumar	G. Wood

Telephone 354-4321 *Twx 910-588-3269* *Twx 910-588-3294*

SCIENCE DATA TEAM

SCIENCE DATA PRODUCT REPORT #5

19 December 1978

1) FDS CLOCK DRIFT UPDATES

The attempt to update the FDS clock in Voyager 1 on 28 November 1978 resulted in CCS processor A jumping one frame (48 seconds) ahead of the FDS and CCS processor B. The anomaly was discovered on 4 December 1978 by AACS analysts who noticed that scan platform slews were ending 48 seconds early (refer to ISA 2367 attached). Real time commands were transmitted at 2030 UTC on 6 December 1978 to correct the problem. The primary affect of the anomaly is that any commands in processor A designated to start at the beginning of a frame would have started 48 seconds early. This would include data mode changes, H-points (sun sensor bias updates, etc.), and scan platform slews. Early frame start dependent events will occur until the start of CCS load A213 on 10 December 1978 at 1343 UTC.

The FDS clock drift update was performed on Voyager 2 on 1 December 1978 with no anomalous occurrences.

2) REPEATED GS-3 MINOR FRAMES (FR #57403)

The PRA reports of repeated GS-3 data overlaying good data have been investigated by the Data Management Team and found to be a problem in TTS processing. The TTS believes the problem lies in the handling of buffer flushes due to poor quality data. Several likely areas contributing to this problem have been fixed in the TTS software load 4.9 that went on-line 30 November 1978. The problem cannot be replicated in testing, but it remains to be seen whether the problem is totally cured. A copy of the DMT conclusions after completion of their investigations is attached.

3) SHIFTED AND ZERO-FILLED DATA IN CR-4

UVS reported that two records in the data from Voyager 2 at the beginning of DOY 325 contained data that was shifted to one side with zeroes being placed in the vacated locations (see attached examples). DMT investigation reveals the source of the problem to be in EDRPROC and a vestige of a similar problem plaguing PPS data per FR #54541. DMT programmers are testing fixes for this problem and expect a cure to be completed by the end of December.

4) SCE TIME PROBLEMS IN VOYAGER 1

(i) CRS EDR 15361 (in particular, but all EDR tapes are affected) displayed a jump in the FDS count MOD 2^{16} from 12684 up to 20879. This jump was due to the now well known TTS correction algorithm problem. * However, the SCE times calculated by EDRPROC corresponding to the 20879 value incorrectly labels the year 1978 instead of 1979. The day, hours, minutes, and seconds are correct. FR 58461 (attached) has been written on the problem and the DMT is investigating.

(ii) EDR tapes covering DOY 78-210 through DOY 78-212 were found to contain approximately four hours of data labeled with zero values for SCE time. Apparently this was a procedural problem and replacement tapes for this day have been generated and shipped.

5) VOYAGER 2 MAG EDRs MISSING RECORDS

Several MAG EDR tapes for the period between DOY 314 and DOY 331 were found to be missing records due to a bug in the EDRPROC program. A list of the affected tapes that were shipped to MAG follows. All tapes in the list have been re-generated with the corrected software.

DATA FOR DOY	ORIGINAL EDR		REPLACEMENT EDR	
	#	Ship Date	#	Ship Date
78-315	17449	11/14/78	14572C	12/13/78
78-317	11982A	11/21/78	14090B	12/13/78
78-318 thru 319	10732A	11/29/78	20159	12/11/78

* Reference SDPR #4 - Item 10:

The TTS FDSC problem is a category I lien and is being worked. The present work-around is for the operators to force an out-of-sync whenever the software has locked onto a fixed FDSC value.

6) DSS IDENTIFICATION IN EDR RECORD HEADERS

The identification of DSN stations in EDR record headers (word 12, bits 31-24) is as follows:

Value (hex)	DSN Station	Value (hex)	DSN Station
29	11	D6	61
E9	12	76	62
19	14	7A	63
49	42	26	MIL 71
86	43	03	67 (Weilheim)
C2	44		

7) LISTING OF DELIVERED SEDR NORMAL PRODUCTION PACKAGES

Attached is a listing of completed and delivered (normal production) SEDR packages for both spacecraft covering the period from launch to the present.

8) SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events Report.

9) OUT OF SEQUENCE RECORDS AGAIN
Reference SDPR #4 - Item 6

DMT has been working on various solutions to the out of sequence record problem and has determined that better tape handling procedures now in effect should minimize the number of occurrences. The problem generally involves MDR fill tapes crossing data mode boundaries and careful monitoring of beginning and end times should allow appropriate manipulations to eliminate the erroneous record. The SDT DVAL Group will also endeavor to monitor problem areas and request re-processing for particularly troublesome EDR tapes. Refer to answer to FR 57402 attached.

10) TOLERANCES AND RATES OF BIT ERRORS

CRS has expressed some concern and confusion in the meaning of the Estimated Bit Error Counts and Bit Error Tolerances appearing in EDR record headers.

(i) The Estimated Bit Error Count is a sum of the bits found to be in error over a number of minor frames as shown in the following table. Only the first 64 bits of each minor frame are considered (PN or frame sync word of 32 bits and FDSC value of 32 bits), and the count is

reset on data mode or DSN station change. The value is placed in the header on an LAD basis.

DATA MODE	# FRAMES IN ACCUMULATION
GS, OC	15625
CR-1, CR-2, CR-3, CR-4	1562
CR-5, CR-6	156

(ii) There are two TTS controls over frame synchronization involving bit error tolerances.

a) BET - Bit error tolerance; the number of errors allowed in the 32 bit PN or frame sync word.

b) FLYWHEEL - Allowable number of sync words to be bad before losing frame sync, independent of BET.

Normally TTS is defaulted to BET = 0, FLYWHEEL = 1. This is the configuration for good to slightly noisy data. Moderately noisy data usually requires a configuration of FLYWHEEL = 2 with the BET still = 0. Poor quality data (below threshold) may require a BET = 4 and FLYWHEEL = 2. BET values can range from 1 to 7 and FLYWHEEL values from 1 to 3. Values set are determined by the spacecraft operations "ACE" in conference with the TTS operations personnel.

HW:jvc

(1)

jpl

INCIDENT/SURPRISE/ANOMALY REPORT

ISA NO. 2367

JET PROPULSION LABORATORY
California Institute of Technology
4800 Oak Grove Dr. / Pasadena, Calif. 91103

PROJECT: VGR

PAGE 1 OF 1

A. INITIATION

1. INITIATOR: T. B. HOGLE | ORGANIZATION: 34 | EXTENSION: 7858 | IS A INITIATION CALENDAR DATE: MO. 12 DAY 4 YEAR 78

2. INCIDENT REPORTED: TO: BUSS J.J.C. BY: T. B. HOGLE | AT: GMT (UTC) DAY 338 HR 21 MIN 56 SEC 19

3. MISSION: (31) S/C ID: NA: ☐ 31

4. TIME OF INCIDENT GMT (UTC): AT 338 16 43 52 | TO 338 22 22 31 (DAY HR MIN SEC)

5. OBSERVATION: LOCATION: ☐ JPL-230 ☒ JPL-264 ☐ JPL-SAF ☐ KSC ☐ OTHER ____ ORGANIZATION: OBSERVER: T. B. HOGLE

6. DATA IDENTIFICATION: TLM

7. DATA SOURCE: ☐ GCF ☐ DSS ☐ NOCC ☒ MTTS ☐ MTIS ☐ MCCF ☐ MTPS ☐ GPCF

8. MISSION ACTIVITY: ☐ MOS TEST ☐ GDS TEST ☐ LAUNCH ☒ CRUISE ☐ ENCOUNTER ☐ OTHER

9. SUSPECT PROBLEM AREA: ☐ MTTS ☐ MCCF ☐ GPCF ☐ NOCC ☐ S/C ☐ MTIS ☐ MTPS ☐ DSS ☐ GCF ☐ OTHER UK

10. SUSPECT CAUSE CATEGORY: ☒ S/C HARDWARE ☐ GND HARDWARE ☒ PROCEDURES ☐ OTHER ☐ S/C SOFTWARE ☐ GND SOFTWARE ☒ DOCUMENTATION ☐ UNKNOWN

11. (a) DESCRIPTION OF INCIDENT; (b) REAL TIME CHECKS/ANALYSES; (c) REAL TIME CORRECTIVE ACTIONS:
IF IT'S NOT WORTH PROPER DOCUMENTATION — IS IT WORTH REPORTING?

a) SOE A212 SCHEDULED SLEWS BEGINNING 338/1644+25 ERT IN AZIMUTH AND ELEVATION. ALL SLEWS WERE MONITORED BY COMPARING SOE TIMES WITH ACTUAL TIMES FOR START AND STOP FROM CHARACTER PRINTER. TIMES DISAGREED BY AS MUCH AS 2 MINUTES, WITH MOST OF THE ACTUAL TIMES BEING AHEAD OF SOE TIMES BY 50 SEC TO 1 MIN 20 SEC. END POSITIONS ALL PER PREDICTS.
b) CHECKED DTV INFORMATION WITH PRINTER - FOUND GOOD AGREEMENT
ENG RATE (40 bps)
c) NONE
CE-40

INITIATOR'S RECOMMENDATIONS: 11. (d) MISSION OPERATIONS IMPACT ASSESSMENT: MOIA LEVEL ☐ MAJOR ☒ SIGNIFICANT ☐ MINOR

11. (e) CORRECTION REQ'D BY — DATE OR ACTIVITY: IMMEDIATE ACTION

B. ACTION STATUS

12. MISSION OPERATIONS IMPACT ASSESSMENT (MOIA): ☐ MAJOR ☐ SIGNIFICANT ☐ MINOR

13. MISSION APPLICABILITY: ☐ LAUNCH ☐ ENC'R ☐ CRUISE

14. CORRECTION REQUIRED DATE:

15. ACTION ASSIGNMENT: (a) ORGANIZATION ☒ MOT'S ☐ DSN ☐ MCCC ☐ OTHER

	(b) INDIVIDUAL	ORGANIZATION	DATE
(1)	LINICK	SEQ	
(2)	CUNNINGHAM	SEQ	

16. REASSIGNMENT: (a) ORGANIZATION ☐ MOT'S ☐ DSN ☐ MCCC ☐ OTHER

	(b) INDIVIDUAL	ORGANIZATION	DATE

C. ACTION: ANALYSES/CORRECTION/VERIFICATION

17. (a) ANALYSES, (b) CORRECTIVE ACTIONS AND (c) CORRECTION VERIFICATION: (EACH SEPARATE ENTRY MUST BE IDENTIFIED BY NAME AND DATE)

D. CLOSE OUT

18. FOLLOW-UP ACTIONS/DOCUMENTS: ☐ S/C PFR NO. ____ ☐ DSN DR NO. ____ ☐ MCCC FR NO. ____ ☐ MCCC FAR NO. ____ ☐ OTHER ____

APPROVALS/CONCURRENCES | 19. ACTION RESPONSIBLE ORG'N: DATE: | 20. PFAE CONCURRENCE: DATE: | 21. PROJECT (CMO) DATE:

22. DISTRIBUTION: (a) STANDARD NO. ____ (b) SPECIAL: ____

JPL 2811 1/77

JOINT ASSIGNMENT ACTION COPY

[redacted]

11/28/78

(2)

Subject: FR 57403

Investigation of this problem shows that the duplication of PRA MF's occur on TCO's despool tape #141423 which was the input tape used to create EDR 019460 for day 261. EDRPROC has simply processed that which was being input to it.

Further, a check of the raw data for that time period, found on IDR # 78I 7430, shows that there are no PRA MF's duplicated. This anomaly, then, occurs during TCO processing. It may be a problem occurring when poor data quality causes a buffer flush.

I was unable to ascertain if this anomaly also occurs on the 1530 Log tape as it had been released. Day 139 could not be compared with SDR input because the SDR's and IDR's are gone (released?).

Harry Woo is asking Dr. Pearce for more recent examples of this problem, so that we can compare it against a 1530 log tape. These inputs will be passed along to TCO when they come in. Ben Toyoshima has been briefed on the problem.

I am availible to assist further in this investigation, if needed.

John Bailey, DMT.

DIRECTOR SSE 6.607

MCCC FAILURE ACCOUNTABILITY REPORT (FAR) 1
MCCC FAILURE REPORT (FR) 2

CALENDAR DATE MONTH	DAY	YEAR	FAR CONTROL #
11	7	78	N/A ☐

FAILURE OBSERVED BY	EXT.	FR WRITTEN BY (IF DIFFERENT)	EXT.	TIME OF FAILURE JULIAN DAY	UTC	MCCC FR NUMBER
W. Woo	7459	G. Nichols	5680			57403
	ADD.		ADD.			

MCCC OPERATIONS NOTIFIED

NAME	JULIAN DAY	UTC TIME

ACTIVITY: TEST/TRNG ☐ REAL TIME FLT SUPPORT ☐ BATCH FLT SUPPORT ☐ DEVEL ☐ INTEG ☐ JOB SHOP ☐ OTHER ☐

DATA OUTAGE: NO ☐ YES ☐ FROM _____ TO _____ PROJECT CRITICAL AUTHORIZATION #

DATA SYSTEMS AFFECTED: ALL ☐ TRACKING 1 ☐ COMMAND 2 ☐ OPS CONTROL 3 ☐ TELEMETRY 4 ☐ OP SYS 5 ☐ SIM 6 ☐ NONE ☐

SUSPECTED PROBLEM AREA (CHECK ONE): DATA QUAL ☐ HARDWARE ☐ SOFTWARE X PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐ OTHER ☐

NRTS ☐ OCS ☐

360/75	A ☐	B ☐	C ☐	
3100	A ☐	B ☐		
CP-RTR	1 ☐	2 ☐		
CP-TC	A ☐	B ☐	C ☐	
OPS-OCC	1 ☐	2 ☐		
OPS-RTR	A ☐	B ☐		
DEV/BATCH	1 ☐	2 ☐	/B ☐	

SYS DUMP/R-DUMP# _____

ATTACHMENTS:
- 1052 PRINTOUT ☐
- 008 PRINTOUT ☐
- I/O PRINTOUT ☐
- 050 PRINTOUT ☐

TLMS ☐ CMDS ☐ MTIS ☐ ONPS ☐

MACHINE ID
- 1218 ☐ _____
- 1219 ☐ _____
- 1530 ☐ _____
- 1616 ☐ _____
- MODCOMP ☐ _____
- CMD 1 ☐ 2 ☐
- OTHER: ☐ _____

ATTACHMENTS: FAULT DUMP ☐ I/O PRINTOUT ☐ OTHER ☐

HARDWARE MTPS ☐
- WBS ☐ _____
- DTV ☐ CHANNELS _____
- VIDS ☐ CHANNELS _____
- TVSA ☐ NO. _____
- VOCA ☐ NO. _____ EXT. _____
- OTHER: ☐ _____

EQUIP. NAME _____
ADDRESS OR ID _____

SOFTWARE
- OP SYS VERSION _____
- MISSION VERSION _____
- MOSS VERSION _____
- DEV. VERSION _____
- OTHER: EDR PROC ?
- DIAGNOSTICS YES ☐ NO ☐

FOR GPCF FARS ONLY
- 1108 A ☐ DR # _____
- 1108 B ☐
- EQUIP:

DESCRIPTION OF FAILURE/PROBLEMS (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE) PROJECT(S) AFFECTED VGR

Parts of PRA minor frames are apparently being repeated in several locations of a particular data record. This does not occur constantly on all GS-3 types, only occasionally. Examples are:

1) 10477B Day 139 VGR-1 EDR
2) 019460 Day 261 VGR-1 EDR

Dr. Pearce of PRA is sending dumps with marked anomalies. They will be transfered to the responsible party when received.

ELF 5A 1648

ACTION TAKEN TO RESTORE CAPABILITY

TIME CLEARED: JULIAN DAY | UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

Problem first appears on TCC [illegible] tape. FR transferred to TCC. See attached sheet. 93

TIME CORRECTED: JULIAN DAY | UTC

CORRECTED BY:

FAILURE DEFINED AS (CHECK ONE): DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☐ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐

FOR CONTROL USE ONLY

DATE RECEIVED	DATE CLOSED	ACTION TAKEN CODE

ASSIGNED TO DRS DATE 11/8/78

REASSIGNED TO MOSS DATE 11/28/78

CLOSE OUT MANAGEMENT APPROVAL

TECHNICAL GROUP SUPERVISOR OR SE	DATE
OTHER APPROVAL – IF REQUIRED	DATE

COPY DISTRIBUTION: WHITE – ORIGINAL; CANARY – CORRECTING AGENCY; PINK – PASO; GOLDENROD – OBSERVER; GREEN – FACILITY

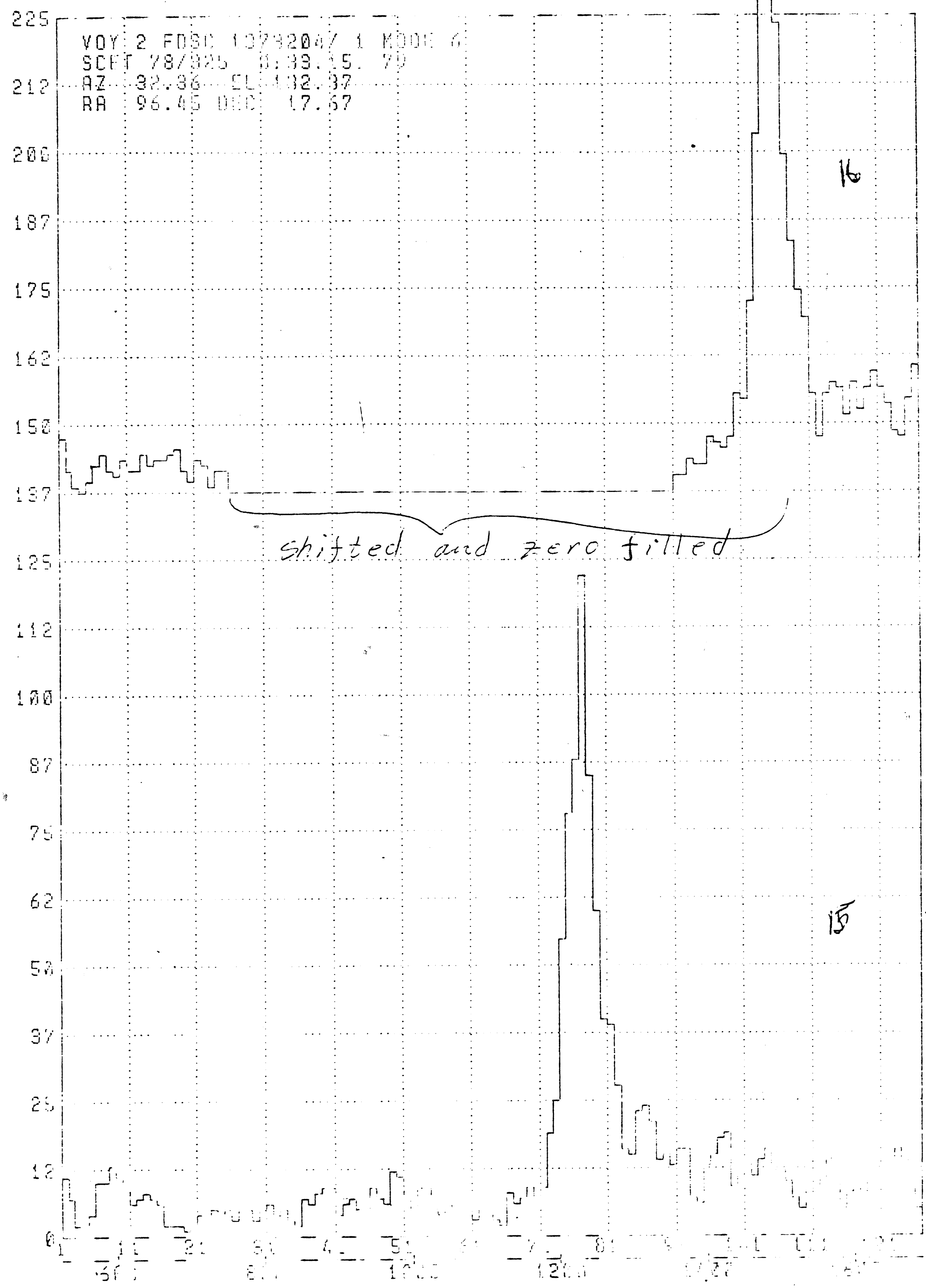
JPL 1284 5-77

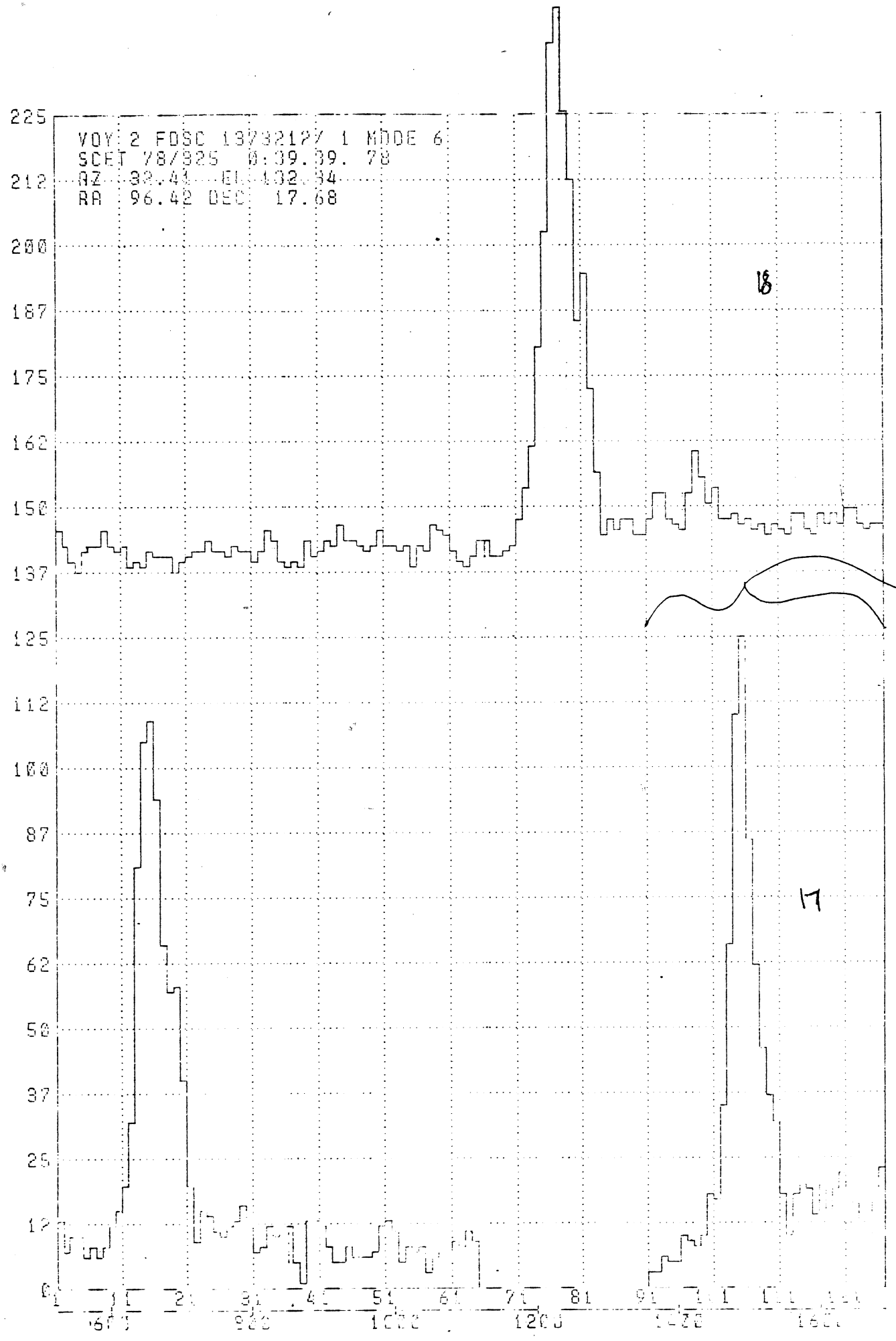
1978/331 15:20:12

EDR 9467A CR-4

FR54541 per B. Andersen PPS/UVS

same as in 17 page




1978/331 15:18:34
VOY 2 FDSC 19732127 1 MODE 6
SCET 78/325 0:39.39. 78
AZ 32.41 EL 102.84
RA 96.42 DEC 17.68
225
212
200
187
175
162
150
137
125
112
100
87
75
62
50
37
25
12
0
18
17

RECORD NUMBER 28 UVS SCIENCE

SEGMENT = 0 SPACECRAFT = VOY2 DATA MODE = CR-4
S/C EVENT TIME YEAR = 78 DAY = 325 HOUR = 0 MIN = 36 SEC = 27 MSEC = 79
EARTH RECEIVE TIME YEAR = 78 DAY = 325 HOUR = 1 MIN = 9 SEC = 37 MSEC = 254
FDS COUNT = 13732 8 1

SCIENCE SUBHEADER: 170737 000000 000000 000000 170737 000000 000000 000000
000000 000000 000000 000000 000000 000000 000000 000000

SCIENCE DATA:

644	532	10	4	1	0	3	5	7	4	3	6	4	4	7	5
0	3	7	8	4	3	6	5	1	4	4	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	3	3	1	5
8	13	5	8	12	13	17	35	63	110	125	96	62	45	37	22
13	12	13	20	15	14	20	15	19	22	19	16	11	10	17	[illegible]

16

shifted and zero filled

RECORD NUMBER 29 UVS SCIENCE

SEGMENT = 0 SPACECRAFT = VOY2 DATA MODE = CR-4
S/C EVENT TIME YEAR = 78 DAY = 325 HOUR = 0 MIN = 41 SEC = 10 MSEC = 278
EARTH RECEIVE TIME YEAR = 78 DAY = 325 HOUR = 1 MIN = 14 SEC = 20 MSEC = 437
FDS COUNT = 13732 13 721 — ?

17

SCIENCE SUBHEADER: 000000 000300 000003 000000 170737 000000 000000 000000
000000 000000 000000 000000 000000 000000 000000 000000

SCIENCE DATA:

2	0	13	7	10	10	5	8	6	8	12	15	20	32	81	105
105	54	66	57	58	49	22	5	15	14	11	10	12	13	16	13
7	8	10	16	13	12	6	1	13	13	12	8	5	5	8	6
8	8	7	12	13	11	[illegible]	[illegible]	7	8	3	6	7	7	9	8
11	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	3	2	3	0	0	0	0	3	3	6	[illegible]
5	12	5	8	10	18	17	33	63	110	125	86	62	46	37	[illegible]
15	10	16	23	15	14	11	15	19	22	19	16	11	10	17	[illegible]

← zeros, spectra have been shifted

this is same as data in #16, FDS 13732 8 1.

MCCC FAILURE ACCOUNTABILITY REPORT (FAR) [1]
MCCC FAILURE REPORT (FR) [2]

(4)

CALENDAR DATE MONTH	DAY	YEAR	FAR CONTROL #
12	1st	78	N/A ☐

FAILURE OBSERVED BY: H. Wood — EXT. 795-9 — ADD.

FR WRITTEN BY (IF DIFFERENT) — EXT. — ADD.

TIME OF FAILURE: JULIAN DAY 306 — UTC

MCCC FR NUMBER: 58461

MCCC OPERATIONS NOTIFIED: NAME | JULIAN DAY | UTC TIME

ACTIVITY: TEST/TRNG ☐ — REAL TIME FLT SUPPORT ☐ — BATCH FLT SUPPORT ☒ — DEVEL ☐ — INTEG ☐ — JOB SHOP ☐ — OTHER ☐

DATA OUTAGE: NO ☒ YES ☐ FROM _____ TO _____

PROJECT CRITICAL AUTHORIZATION:

DATA SYSTEMS AFFECTED: ALL ☐ — TRACKING [1] ☐ — COMMAND [2] ☐ — OPS CONTROL [3] ☐ — TELEMETRY ☒ — OP SYS [5] ☐ — SIM [6] ☐ — NONE ☐

SUSPECTED PROBLEM AREA (CHECK ONE): DATA QUAL ☐ — HARDWARE ☐ — SOFTWARE ☐ — PROCEDURAL ☐ — DOCUMENTATION ☐ — UNDETERMINED ☐ — OTHER ☐

NRTS ☐ — OCS ☐

360/75	A ☐	B ☐	C ☐			
3100	A ☐	B ☐				
CP-RTR	1 ☐	2 ☐				
CP-TC	A ☐	B ☐	C ☐			
OPS-OCC	1 ☐	2 ☐				
OPS-RTR	A ☐	B ☐				
DEV/BATCH	1 ☐	2 ☐	/B ☐			

SYS DUMP/R-DUMP# _____

ATTACHMENTS:
- 1052 PRINTOUT ☐
- 008 PRINTOUT ☐
- I/O PRINTOUT ☐
- 050 PRINTOUT ☐

TLMS ☐ CMDS ☐ MTIS ☐ ONPS ☐

MACHINE ID
- 1218 ☐ _____
- 1219 ☐ _____
- 1530 ☐ _____
- 1616 ☐ _____
- MODCOMP ☐ _____
- CMD 1 ☐ 2 ☐
- OTHER: ☐ _____

ATTACHMENTS: FAULT DUMP ☐ — I/O PRINTOUT ☐ — OTHER ☐

HARDWARE MTPS ☐
- WBS ☐ _____
- DTV ☐ CHANNELS _____
- VIDS ☐ CHANNELS _____
- TVSA ☐ NO. _____
- VOCA ☐ NO. _____ EXT. _____
- OTHER: ☐ _____
- EQUIP. NAME _____
- ADDRESS OR ID _____

SOFTWARE
- OP SYS VERSION _____
- MISSION VERSION _____
- MOSS VERSION _____
- DEV. VERSION _____
- OTHER:
- DIAGNOSTICS YES ☐ NO ☐

FOR GPCF FARS ONLY
- 1108 A ☐ — DR # _____
- 1108 B ☐
- EQUIP:

DESCRIPTION OF FAILURE/PROBLEMS: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE) PROJECT(S) AFFECTED: VOYAGER

The FDS count appearing on a portion of the EDR tapes for DOY 78-306 jumps forward approximately 8000 MOD2^{16} counts (this due to a known TTS problem). However, the SCE time corresponding to that value shows year 1978 when it should be 1979. Days, hours, minutes, and seconds are correct. Attached are copies of EDRVAL outputs for the LVS EDR for DOY 78-306 (#15361) and examples of correctly calculated past and future SCE times on a CRT EDR (#11968).

ACTION TAKEN TO RESTORE CAPABILITY:

TIME CLEARED: JULIAN DAY — UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

TIME CORRECTED: JULIAN DAY — UTC

CORRECTED BY:

FAILURE DEFINED AS (CHECK ONE): DATA QUAL ☐ — HARDWARE ☐ — SOFTWARE ☐ — PROCEDURAL ☐ — DOCUMENTATION ☐ — UNDETERMINED ☐

FOR CONTROL USE ONLY

DATE RECEIVED	DATE CLOSED	ACTION TAKEN CODE
ASSIGNED TO	DATE	
REASSIGNED TO	DATE	

CLOSE OUT MANAGEMENT APPROVAL

TECHNICAL GROUP SUPERVISOR OR SE	DATE
OTHER APPROVAL — IF REQUIRED	DATE

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			L A U N C H P H A S E		
**			LAUNCH TO TCM		**
11001A	12:00	13:08	77-248/14:09	77-248/15:03	01/24/78
11002A	13:11	15:19	77-248/15:06	77-248/16:48	01/24/78
11003A	15:35	34:18	77-248/17:01	77-249/07:59	01/30/78
11004A	34:19	45:59	77-249/08:00	77-249/17:20	01/25/78
11005A	46:00	178:00	77-249/17:21	77-254/02:57	01/31/78
11006A	187:00	245:00	77-254/10:09	77-256/08:33	01/30/78
			E A R T H T O J U P I T E R C R U I S E P H A S E		
**			TCM TO END OF 1977		**
12001A	253:05	650:35	77-256/15:01	77-269/21:01	01/16/78
12002A	654:20	961:50	77-270/00:01	77-280/06:01	01/25/78
12003A	965:35	1633:05	77-280/09:01	77-302/15:01	01/31/78
12004	1633:05	2026:50	77-302/15:01	77-315/18:01	01/31/78
12005	2030:35	2600:35	77-315/21:01	77-334/21:01	02/22/78
12006	2604:20	3530:35	77-335/00:01	77-365/21:01	02/22/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
13001	3534:20	4460:35	78-001/00:01	78-031/21:01	03/21/78
13002	4464:20	4925:35	78-032/00:01	78-047/09:01	04/10/78
13003	4929:20	5300:35	78-047/12:01	78-059/21:01	04/24/78
13004	4944:20	4974:20	78-048/00:01	78-049/00:01	04/25/78
	First 3 digits of above package numbers should be 121 instead of 130.				
**	PACKAGE ID CORRECTION TO NAV DATA FORMAT CHANGE				**
12105	4978:05	5750:35	78-049/03:01	78-074/21:01	05/12/78
12106	5154:20	6230:35	78-075/00:01	78-090/21:01	06/14/78
12107	6234:20	7130:35	78-091/00:01	78-120/21:01	06/14/78
**	NAV FORMAT CHANGE TO PRESENT				**
12201	9894:20	10813:05	78-213/00:01	78-243/15:01	11/28/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			L A U N C H P H A S E		
**			LAUNCH TO FDS POWER ON RESET		**
01001A	11:30	71:00	77-232/21:06	77-234/15:42	02/03/78
01002A	73:55	141:25	77-234/18:02	77-237/00:02	01/31/78
01003A	148:55	302:40	77-237/06:02	77-242/09:02	01/24/78
01004A	306:25	366:25	77-242/12:02	77-244/12:02	01/24/78
01005A	370:10	662:40	77-244/15:02	77-254/09:02	01/24/78
01006A	666:25	1322:40	77-254/12:02	77-276/09:02	01/30/78
01007A	1326:25	1540:10	77-276/12:02	77-283/15:02	01/25/78
**			FDS POWER ON RESET TO TCM A		**
01101	1543:55	1581:25	77-283/18:02	77-285/00:02	01/30/78
			E A R T H T O J U P I T E R C R U I S E P H A S E		
**			TCM A TO END OF 1977		**
02001A	1588:55	2027:40	77-285/06:02	77-299/21:02	01/24/78
02002	2031:25	2447:40	77-300/00:02	77-313/21:02	01/30/78
02003	2451:25	2867:40	77-314/00:02	77-327/21:02	02/13/78
02004	2871:25	3287:40	77-328/00:02	77-341/21:02	02/13/78
02005	3291:25	4007:40	77-342/00:02	77-365/21:02	03/22/78
02006	3891:25	3921:25	77-362/00:02	77-363/00:02	03/30/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
03001	4011:25	4427:40	78-001/00:02	78-014/21:02	04/26/78
03002	4431:25	5087:40	78-015/00:02	78-036/21:02	04/10/78
03003	5091:25	5357:40	78-037/00:02	78-045/21:02	04/10/78
	-	First 3 digits of above package numbers should be 021 instead of 030.			
**	PACKAGE ID CORRECTION TO TCM				**
02104	5361:25	5837:40	78-046/00:02	78-061/21:02	05/08/78
02105	5841:25	7127:40	78-062/00:02	78-104/21:01	06/07/78
02106	7131:25	7607:40	78-105/00:02	78-123/21:02	07/17/78
**	TCM TO NAV DATA FORMAT CHANGE				**
02001	7701:25	8027:40	78-124/00:02	78-134/21:02	07/11/78
02202	8031:25	8957:40	78-135/00:02	78-165/21:02	08/05/78
02203	8961:25	9857:40	78-166/00:02	78-195/21:02	08/30/78
02204	9861:25	10787:40	78-196/00:02	78-226/21:02	09/30/78
**	NAV DATA FORMAT CHANGE TO PRESENT				**
02301	10791:25	11710:10	78-227/00:02	78-257/15:02	11/28/78

IN ORDER NOT TO DISRUPT YOUR CHRISTMAS, WE HAVE DECIDED

NOT TO PROVIDE THE SIGNIFICANT EVENTS THIS MONTH.

HAPPY HOLIDAYS!!!!!!!!!!

Barwick SSE C-200

MCCC FAILURE ACCOUNTABILITY REPORT (FAR) [1]
MCCC FAILURE REPORT (FR) [2]

CALENDAR DATE MONTH	DAY	YEAR	FAR CONTROL #
11	7	78	N/A ☐

FAILURE OBSERVED BY	EXT	FR WRITTEN BY (IF DIFFERENT)	EXT.	TIME OF FAILURE	MCCC FR NUMBER
W. Woo	EXT 7954 ADD. 264/119	G. Nichols	EXT. 5680 ADD.	JULIAN DAY / UTC	57402 (9)

MCCC OPERATIONS NOTIFIED: NAME / JULIAN DAY / UTC TIME

ACTIVITY: TEST/TRNG ☐ REAL TIME FLT SUPPORT ☐ BATCH FLT SUPPORT ☐ DEVEL ☐ INTEG ☐ JOB SHOP ☐ OTHER ☐

DATA OUTAGE: NO ☐ YES ☐ FROM ______ TO ______

PROJECT CRITICAL · AUTHORIZATION ·

DATA SYSTEMS AFFECTED: ALL ☐ TRACKING [1] COMMAND [2] OPS CONTROL [3] TELEMETRY [4] OP SYS [5] SIM [6] NONE ☐

SUSPECTED PROBLEM AREA (CHECK ONE): DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☒ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐ OTHER ☐

NRTS ☐ OCS ☐

360/75 A ☐ B ☐ C ☐
3100 A ☐ B ☐
CP-RTR 1 ☐ 2 ☐
CP-TC A ☐ B ☐ C ☐
OPS-OCC 1 ☐ 2 ☐
OPS-RTR A ☐ B ☐
DEV/BATCH 1 ☐ 2 ☐ /B ☐
SYS DUMP/R-DUMP#
ATTACHMENTS:
1052 PRINTOUT ☐
008 PRINTOUT ☐
I/O PRINTOUT ☐
050 PRINTOUT ☐

TLMS ☐ CMDS ☐ MTIS ☐ ONPS ☐

MACHINE ID
1218 ☐
1219 ☐
1530 ☐
1616 ☐
MODCOMP ☐
CMD 1 ☐ 2 ☐
OTHER: ☐
ATTACHMENTS: FAULT DUMP ☐ I/O PRINTOUT ☐ OTHER ☐

HARDWARE MTPS ☐
WBS ☐
DTV ☐ CHANNELS
VIDS ☐ CHANNELS
TVSA ☐ NO.
VOCA ☐ NO.
EXT.
OTHER: ☐
EQUIP. NAME
ADDRESS OR ID

SOFTWARE
OP SYS VERSION
MISSION VERSION
MOSS VERSION
DEV. VERSION
OTHER: EDR PROC ?
DIAGNOSTICS YES ☐ NO ☐
FOR GPCF FARS ONLY
1108 A ☐ DR #
1108 B ☐
EQUIP:

DESCRIPTION OF FAILURE/PROBLEMS: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE) PROJECT(S) AFFECTED VGR

CRS reported that an out of sequence record always occurs on EDR tapes just prior to switching data modes. The specific example cited was from records 466-468 of tape 18183 where the telemetry mode went from CR-3 to GS-3 for about one hour, then switched back to CR-3. On the EDR, the last record prior to the mode change was data from the CR-3 period after the GS-3 period. This apparently is a general anomaly occurring on all EDR's for all instruments.

Ref ISA 1650

ACTION TAKEN TO RESTORE CAPABILITY

TIME CLEARED: JULIAN DAY / UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

See attached!

EDRPROC SOFTWARE WILL NOT BE CHANGED RATHER OPERATIONAL PROCEDURES WILL BE MODIFIED TO REDUCE THIS OCCURANCE.

TIME CORRECTED JULIAN DAY	UTC	CORRECTED BY:
318	2200	R. Kee

FAILURE DEFINED AS (CHECK ONE): DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☐ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐ (Actually software, procedural and data quality are applicable) CMK

FOR CONTROL USE ONLY

DATE RECEIVED	DATE CLOSED	ACTION TAKEN CODE
ASSIGNED TO DRS	DATE 11/8/78	53
REASSIGNED TO	DATE	

CLOSE OUT MANAGEMENT APPROVAL

TECHNICAL GROUP SUPERVISOR OR SE	DATE
[signature]	11/15/78
OTHER APPROVAL – IF REQUIRED MCCC/SSE [signature]	11/29/78

COPY DISTRIBUTION: WHITE–ORIGINAL, CANARY – CORRECTING AGENCY, PINK – FASO, GOLDENROD – OBSERVER, GREEN – FACILITY

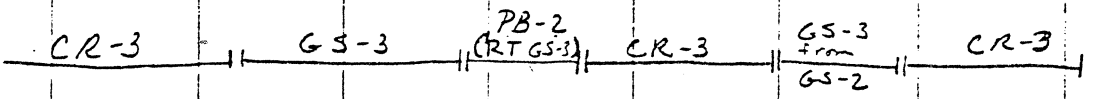
JPL 1234 R 1/78

57402

Subject: Response to FR # 57402 / ISA 1650 - Out of Sequence Records During DATA Mode Switches Between CR-3 and GS-3.

INVESTIGATION reveals that out of sequence records do not ALWAYS occur on CRS EDR's during data mode switches between CR-3 and GS-3. RATHER, CERTAIN CONDITIONS must exist for this ANOMALY to MANIFEST itself. The specific examples AS noted IN the subject FR is typical of such conditions.

ON DOY 177, SC31, went through the following sequence:



IN this CASE, the CR-3 DATA CAME in REALTIME while the GS-3 DATA WAS recorded AT DSS-14. The GS-3 DATA WAS then extracted from IDR's AT A later DATE. At this point we come to the crux of the problem. To produce final EDR's, Regular MDR's (Realtime CR-3) must be merged with Fill MDR's (Specially processed GS-3 data from IDR's). Merge processing is based upon major frame extraction in order to provide MAXIMUM, AVAILABLE DATA, with a MINIMUM of GAPS. What happens is that the CR-3 major frame seeks to complete itself by jumping across the GS-3 DATA to the CR-3 DATA ON the other side. Then the GS-3 is extracted and it also seeks to complete its major frame by jumping over the following CR-3. The result is ONE or two records ~~are~~ put IN out of sequence during such mode changes. This condition is VERTUALLY TRANSPARENT to MDMT unless we dumped every EDR generated. Likewise, fine tuning of Merge Processing to the minor frame level would require ALL MDR's be dumped prior to creating EDR's.

Both opinions are impractical. The feasible alternatives are:

1. modify Merge processing extraction FDS counts to ensure that a complete major frame is available within the subject data,

2. devise more precise Merge processing techniques which will preclude an excess of future occurances.

The first alternative would result in partial frames being discarded which would lead to an accordant increase in data outages. This would be unsatisfactory to the Science community. The second alternative represents the optimum approach. MDMT will then develop a more precise methodology for dealing with data mode configurations of the this type in the future. However, given the mass of complex variables associated with Voyager data modes, we can not totally guarantee that out of sequence records will never reoccur.

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

15 January 1979

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: J.F. SCHMIDLING

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the Monthly Science Data Product Report for your information and review.

HW:jvc
Enclosure (1)

CRS	R.E. Vogt	MAG	N. Ness	PRA	J. Warwick
	T. Garrard		M. Acuna		J. Pearce
	N. Lal		R. Lepping		R. Peltzer
	J. Trainor		E. Choo		A. Riddle
	T. Aufrantz		A. Silver		
IRIS	R. Hanel	PLS	H. Bridge	PWS	F. Scarf
	D. Crosby		A. Lazarus		W. Kurth
	L. Herath		J. Sullivan		
			K. Olgive		
			G. Gordon		
			E. Sittler		
LECP	S. Krimigis	PPS	C. Lillie	UVS	L. Broadfoot
	T. Armstrong		C. Hord		D. Mosley
	G. Gloecker		K. Simmons		P. Takacs
	E. Keath				
	L. Lanzerotti				

cc:	J. Anderson	R. Heacock	R. Parks
	J. Bergstralh	J. Holberg	R. Polansky
	C. Busse	L. Horn	R. Poynter
	D. Collins	S. Kumar	A. Sacks
	S. Collins	R. Laeser	M. Sander
	H. Danley	A. Lane	C. Stembridge
	M. Devirian	J. Long	E. Stone
	O. Divers	P. Lyman	G. Textor
	K. Erickson	D. Lynn	T. Thompson
	E. Franzgrote	R. Morris	B. Toyoshima
	S. Hanson	R. Parker	J. Tupman
			G. Wood

Telephone 354-4321 *Twx 910-588-3269* *Twx 910-588-3294*

SCIENCE DATA TEAM

SCIENCE DATA PRODUCTS REPORT #6

15 January 1979

1) EDRs - THE FIRST NINE HOURS

Data from DSS 61 for the first nine hours of 1979 DOY 001 was incorrectly tagged as 1979 DOY 366. The DMT was unable to alter the day number but were able to change the year back to 1978. No further time modifications for these data are planned.

2) EDRs END EARLY

A problem has been detected (FR 57591 attached) whereby the EDR processor software ends certain EDRs prematurely and continues to process data normally to completion for the other experiments. Currently, the problem seems to be intermitent and has only been observed on S/C 31 during both the GS-3 and CR-2 data modes. Investigation of the problem is currently underway.

3) SEDR NOTES

a. CORRECTION TO DELIVERED SEDR PACKAGE SUMMARY

Last month, a list of delivered SEDR production packages was included as an attachment to this report. Regretfully, two packages for S/C 31 were inadvertently omitted from the summary (namely packages 12108 and 12109). The summary has been corrected to include these packages and has again been attached to this report. This summary provides the PIs with a list of all production SEDRs for both spacecrafts which have been generated and delivered to date. The summary will be kept up to date and included as a standard attachment to this report.

b. UVS VLO SLEW ANOMALY

An anomaly with the scan platform pointing during the last minute of a UVS VLO slew has been discovered. A plot of an elevation axis VLO slew is attached to illustrate the anomaly. Notice that there appears to be two discontinuities in the elevation axis angle: One at the start of the VLO slew and one approximately 80 percent through the slew. The first discontinuity is valid and occurs due to an electrical imbalance

when the initial slew command signal is applied to the actuator. The second discontinuity, however, represents the anomaly and occurs when the actuator angle is obtained earlier than the predicted time (due to the first discontinuity). The anomaly occurs when predicted values are used instead of the actual telemetry because the software expects the platform to be in motion when, in fact, it has reached its rest position. The size of this discontinuity is somewhat less than .4 degrees and diminishes to zero after 5 or 6 points. Additional test cases of this anomaly are presently being analyzed such that a completely general characteristic of the expected discontinuity can be obtained. A decision will be forthcoming whether or not a software change will be incorporated to handle this anomaly depending upon the cost of implementing the fix and the impact of the anomaly on the affected PIs.

c. SEQUENCE A301 SCAN PLATFORM TWEAKS

Several ground commands are planned during Sequence A301 to gain better scan platform pointing accuracy. A decision has been made at the Project Directorate level not to update the input SEDR generation files to reflect these changes. The impact of this decision is that the final SEDR products will be incorrect during the time intervals when these tweaks occur. The SEDR group will publish the time periods when the pointing information is incorrect on the SEDR as the products are made available to the PIs.

d. FIXED INSTRUMENT SEDR JUPITER FORMAT

Beginning at the start of 1979 and continuing through to the end of the post encounter mission phase, all spacecraft 31 fixed instrument SEDRs will be in the Jupiter encounter format. This format is defined in Document SIS 4-7008-1 and contains detail information concerning the position of the Galilean satellites, geometry with respect to the Jupiter System I and III coordinates and the coordinate system of the Jovian magnetic field. Copies of the format are available from the Voyager Science Data Team upon request.

4) SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events Report.

JFS:jvc

(2)

jpl - **MCCC FAILURE ACCOUNTABILITY REPORT (FAR)** [1]
MCCC FAILURE REPORT (FR) [2]

CALENDAR DATE MONTH	DAY	YEAR	FAR CONTROL #
1	8	79	N/A ☐ B0836

FAILURE OBSERVED BY	EXT.	FR WRITTEN BY (IF DIFFERENT)	EXT.	TIME OF FAILURE JULIAN DAY	UTC	MCCC FR NUMBER
J. Bailey	7890			008	1900	57591
	ADD. 233/202		ADD.			

MCCC OPERATIONS NOTIFIED NAME	JULIAN DAY	UTC TIME	ACTIVITY: TEST/TRNG ☐ REAL TIME FLT SUPPORT ☐ BATCH FLT SUPPORT ☐	DEVEL ☐	INTEG ☐	JOB SHOP ☐
				OTHER ☒ DRS		

DATA OUTAGE: NO ☐ YES ☐ FROM _____ TO _____ | PROJECT CRITICAL AUTHORIZATION #

DATA SYSTEMS AFFECTED: ALL ☐ | TRACKING [1] | COMMAND [2] | OPS CONTROL [3] | TELEMETRY [4] | OP SYS [5] | SIM [6] | NONE ☐

SUSPECTED PROBLEM AREA (CHECK ONE): DATA QUAL ☐ | HARDWARE ☐ | SOFTWARE ☒ | PROCEDURAL ☐ | DOCUMENTATION ☐ | UNDETERMINED ☐ | OTHER ☐

NRTS ☐

360/75	A ☐	B ☐	C ☐	
3100	A ☐	B ☐		
CP-RTR	1 ☐	2 ☐		
CP-TC	A ☐	B ☐	C ☐	
OPS-OCC	1 ☐	2 ☐		
OPS-RTR	A ☐	B ☐		
DEV/BATCH	1 ☐	2 ☐	/B ☐	

SYS DUMP/R-DUMP# _____

ATTACHMENTS:
- 1052 PRINTOUT ☐
- 008 PRINTOUT ☐
- I/O PRINTOUT ☐
- 050 PRINTOUT ☐

OCS ☐

TLMS ☐ CMDS ☐ MTIS ☐ ONPS ☐

MACHINE ID
- 1218 ☐ _____
- 1219 ☐ _____
- 1530 ☐ _____
- 1616 ☐ _____
- MODCOMP ☐ _____
- CMD 1 ☐ 2 ☐
- OTHER: ☐ _____

ATTACHMENTS:
- FAULT DUMP ☐
- I/O PRINTOUT ☐
- OTHER ☒

HARDWARE MTPS ☐
- WBS ☐ _____
- DTV ☐ CHANNELS _____
- VIDS ☐ CHANNELS _____
- TVSA ☐ NO. _____
- VOCA ☐ NO. _____ EXT. _____
- OTHER: ☐ _____

EQUIP. NAME _____
ADDRESS OR ID _____

SOFTWARE
- OP SYS VERSION 21.8.35A
- MISSION VERSION MDRS
- MOSS VERSION 4.9
- DEV. VERSION 64.1
- OTHER:
- DIAGNOSTICS YES ☐ NO ☐

FOR GPCF FARS ONLY
- 1108 A ☐ DR# _____
- 1108 B ☐
- EQUIP:

DESCRIPTION OF FAILURE/PROBLEMS (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE) PROJECT(S) AFFECTED _____

At intermittent times EDRPROC will prematurely stop processing certain experiments while the rest will continue to be processed. This problem has been encountered in both GS-3 and CR-2 data modes. So far, problem has only occurred with slc 31 data.

List of times is attached. Sample dumps also attached.

ACTION TAKEN TO RESTORE CAPABILITY	TIME CLEARED JULIAN DAY	UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

TIME CORRECTED JULIAN DAY	UTC	CORRECTED BY:	FAILURE DEFINED AS (CHECK ONE) DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☐ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐

FOR CONTROL USE ONLY

DATE RECEIVED	DATE CLOSED	ACTION TAKEN CODE

ASSIGNED TO	DATE
DRS Software	1-8-79

REASSIGNED TO	DATE

CLOSE OUT MANAGEMENT APPROVAL

TECHNICAL GROUP SUPERVISOR OR SE	DATE

OTHER APPROVAL – IF REQUIRED	DATE

COPY DISTRIBUTION: WHITE – ORIGINAL, CANARY – CORRECTING AGENCY, PINK – FASO, GOLDENROD – OBSERVER, GREEN – BAOU, TY

FIR 5-7591

S/C 31

(1) 347/13.21 - 347/16.03
GS-3 MDR 04215A

PLS 257 vs. 272
PWS 255 vs. 272

(2) 345/06.51 - 345/2000
MDR 12683B

GS-3

IRIS 631 vs 674
Mag 644 vs 674
ARA 537 vs. 674
UVS 502 vs 674
PPS 101 vs. approx. 125.

(3) 347/16.11 - 347/2112
MDR 058463

PLS 337 vs. 348
PWS 340 vs 348

(4) 354/0000 - 354/17.43
MDR 00917 3

ARA 886 vs. 1100 CR-2 & GS-3

(5) 354/17.43 - 354/2135
MDR 05330A

ARA 211 vs. 262 CR-2 & GS-3

(6) 003/1809 - 004/1230
MDR 15665B

CRS 213 vs. 923 CR-2
Maybe IRIS. GS-3

(7) 005/1146 - 005/13.20
MDR 017551

LECP 17 vs. 114 GS-3
AWS 17 vs. 114

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			L A U N C H P H A S E		
**			LAUNCH TO TCM		**
11001A	12:00	13:08	77-248/14:09	77-248/15:03	01/24/78
11002A	13:11	15:19	77-248/15:06	77-248/16:48	01/24/78
11003A	15:35	34:18	77-248/17:01	77-249/07:59	01/30/78
11004A	34:19	45:59	77-249/08:00	77-249/17:20	01/25/78
11005A	46:00	178:00	77-249/17:21	77-254/02:57	01/31/78
11006A	187:00	245:00	77-254/10:09	77-256/08:33	01/30/78
			E A R T H T O J U P I T E R C R U I S E P H A S E		
**			TCM TO END OF 1977		**
12001A	253:05	650:35	77-256/15:01	77-269/21:01	01/16/78
12002A	654:20	961:50	77-270/00:01	77-280/06:01	01/25/78
12003A	965:35	1633:05	77-280/09:01	77-302/15:01	01/31/78
12004	1633:05	2026:50	77-302/15:01	77-315/18:01	01/31/78
12005	2030:35	2600:35	77-315/21:01	77-334/21:01	02/22/78
12006	2604:20	3530:35	77-335/00:01	77-365/21:01	02/22/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
13001	3534:20	4460:35	78-001/00:01	78-031/21:01	03/21/78
13002	4464:20	4925:35	78-032/00:01	78-047/09:01	04/10/78
13003	4929:20	5300:35	78-047/12:01	78-059/21:01	04/24/78
13004	4944:20	4974:20	78-048/00:01	78-049/00:01	04/25/78
	First 3 digits of above package numbers should have been 121 instead of 130				
**	PACKAGE ID CORRECTION TO NAV DATA FORMAT CHANGE				**
12105	4978:05	5750:35	78-049/03:01	78-074/21:01	05/12/78
12106	5154:20	6230:35	78-075/00:01	78-090/21:01	06/14/78
12107	6234:20	7130:35	78-091/00:01	78-120/21:01	06/14/78
12108	7134:20	8960:35	78-121/00:01	78-181/21:01	08/03/78
12109	8964:20	9890:35	78-182/00:01	78-212/21:01	09/12/78
**	NAV FORMAT CHANGE TO PRESENT				**
12201	9894:20	10813:05	78-213/00:01	78-243/15:01	11/28/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

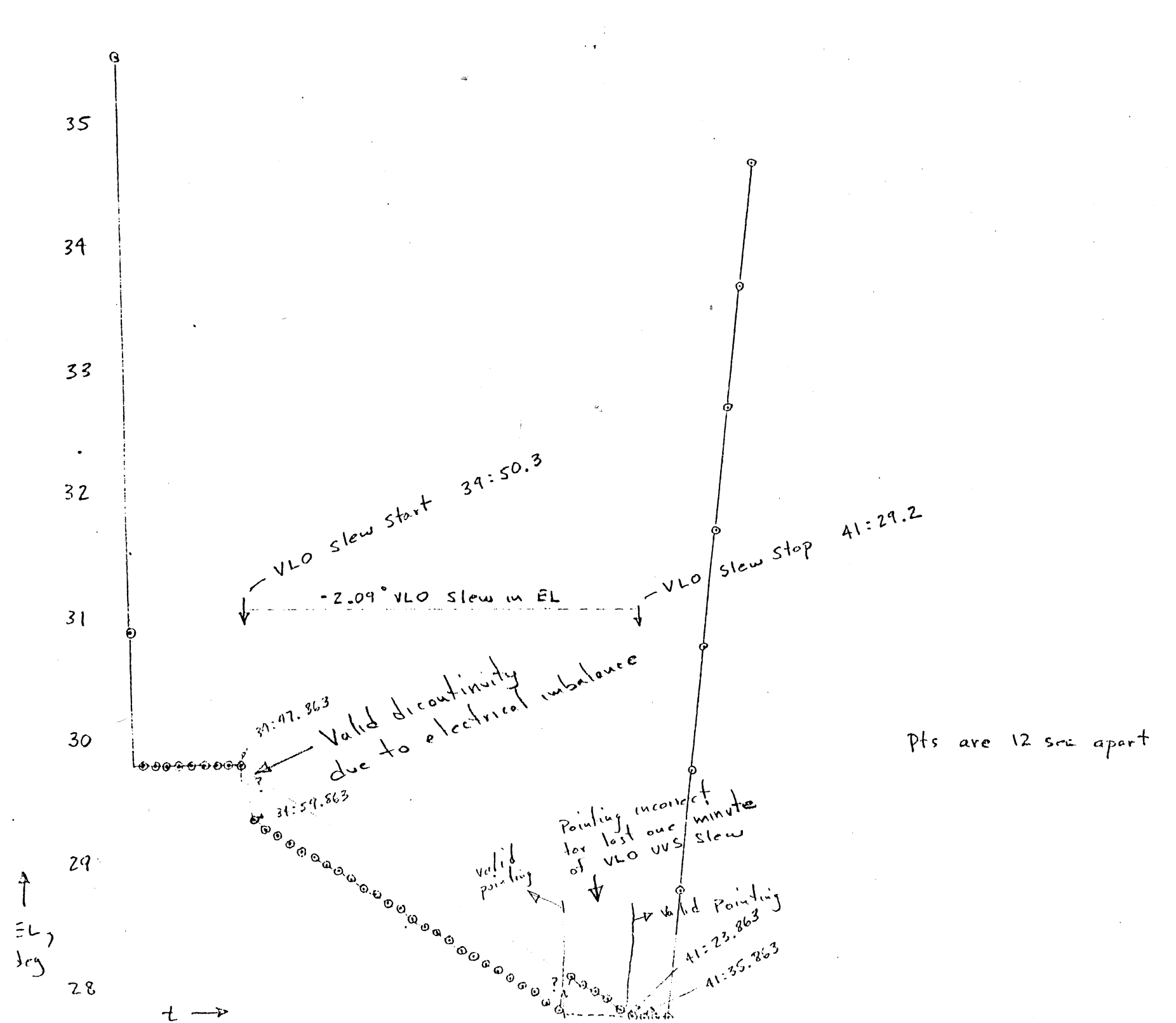
VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			L A U N C H P H A S E		
**			LAUNCH TO FDS POWER ON RESET		**
01001A	11:30	71:00	77-232/21:06	77-234/15:42	02/03/78
01002A	73:55	141:25	77-234/18:02	77-237/00:02	01/31/78
01003A	148:55	302:40	77-237/06:02	77-242/09:02	01/24/78
01004A	306:25	366:25	77-242/12:02	77-244/12:02	01/24/78
01005A	370:10	662:40	77-244/15:02	77-254/09:02	01/24/78
01006A	666:25	1322:40	77-254/12:02	77-276/09:02	01/30/78
01007A	1326:25	1540:10	77-276/12:02	77-283/15:02	01/25/78
**			FDS POWER ON RESET TO TCM A		**
01101	1543:55	1581:25	77-283/18:02	77-285/00:02	01/30/78
			E A R T H T O J U P I T E R C R U I S E P H A S E		
**			TCM A TO END OF 1977		**
02001A	1588:55	2027:40	77-285/06:02	77-299/21:02	01/24/78
02002	2031:25	2447:40	77-300/00:02	77-313/21:02	01/30/78
02003	2451:25	2867:40	77-314/00:02	77-327/21:02	02/13/78
02004	2871:25	3287:40	77-328/00:02	77-341/21:02	02/13/78
02005	3291:25	4007:40	77-342/00:02	77-365/21:02	03/22/78
02006	3891:25	3921:25	77-362/00:02	77-363/00:02	03/30/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
03001	4011:25	4427:40	78-001/00:02	78-014/21:02	04/26/78
03002	4431:25	5087:40	78-015/00:02	78-036/21:02	04/10/78
03003	5091:25	5357:40	78-037/00:02	78-045/21:02	04/10/78
	- First 3 digits of above package numbers should have been 021 instead of 030.				
**	PACKAGE ID CORRECTION TO TCM				**
02104	5361:25	5837:40	78-046/00:02	78-061/21:02	05/08/78
02105	5841:25	7127:40	78-062/00:02	78-104/21:01	06/07/78
02106	7131:25	7607:40	78-105/00:02	78-123/21:02	07/17/78
**	TCM TO NAV DATA FORMAT CHANGE				**
02001	7701:25	8027:40	78-124/00:02	78-134/21:02	07/11/78
02202	8031:25	8957:40	78-135/00:02	78-165/21:02	08/05/78
02203	8961:25	9857:40	78-166/00:02	78-195/21:02	08/30/78
02204	9861:25	10787:40	78-196/00:02	78-226/21:02	09/30/78
**	NAV DATA FORMAT CHANGE TO PRESENT				**
02301	10791:25	11710:10	78-227/00:02	78-257/15:02	11/28/78


35
34
33
32
31
30
29
28
EL, deg
t
VLO slew start 39:50.3
-2.09° VLO slew in EL
VLO slew stop 41:29.2
39:47.863
Valid discontinuity due to electrical imbalance
39:59.863
Pointing incorrect for last one minute of VLO UVS slew
valid pointing
valid Pointing
41:23.863
41:35.863
Pts are 12 sec apart

SCIENCE DATA TEAM

SCIENCE SIGNIFICANT EVENTS

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
IRIS Flashoff Htr. OFF (Ground Command)	361/16:00:00	14353:36:408	1978-361/15:26:36	
360^{o} Roll Turn Test Sequence (Ground Command)	363/17:26:33	14415:24:605	1978-363/16:53:11	
Start Roll Turn Test Sequence	20:58:00	14419:49:059	20:24:39	
Deadband to .05	22:40:00	14421:56:460	22:06:39	
Deadband to .5	22:42:00	14421:59:060	22:08:39	
End Roll Turn Test Sequence	23:43:00	14423:15:261	23:09:39	
OPNAV Ganymede	1979-005/00:22:39	14604:05:004	1979-004/23:49:23	
NAKCAL PPS SATNAK CAL	00:37:52	14604:24:021	1979-005/00:04:36	
IR Sun - IRIS Solar CAL	06:29:00	14611:42:756	05:55:44	
OPNAV Calisto	08:36:00	14614:21:556	08:02:44	
IR Sun - IRIS Solar CAL	08:46:39	14614:35:006	08:13:23	
NAKCAL - PPS SATNAK	09:57:03	14616:03:006	09:23:47	
ISS Beam Bending Test	15:44:18	14623:17:057	15:11:02	
OPNAV Ganymede	16:25:08	14624:08:091	15:51:52	
NAKCAL - PPS SATNAK	16:40:15	14624:27:007	16:06:59	
UVS Sun - UVS Solar Accultation	18:53:02	14627:12:791	18:19:46	
IR COMP	006/21:51	14660:55:300	1979-006/21:17:44	
OPNAV Calisto	009/17:12:15	14745:07:002	1979-009/16:38:59	
IR COMP	21:19:00	14750:15:350	20:45:44	
OPNAV Europa	23:09:51	14750:33:800	22:36:35	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start IOP CAL	346/07:06:13	13892:28:396	1978-346/06:32:11	
End IOP CAL	08:49:49	13894:37:800	08:15:47	
Deadband to .16	09:09:02	13895:02:018	08:35:00	
Deadband to .05	18:14	13906:23:205	17:39:59	
Start Io Flux	347/21:15	13940:09:465	1978-347/20:41:03	
End Io Flux	21:58	13941:03:266	21:24:03	
Start RASMA	21:58	13941:03:266	21:24:03	
Enter SIM Earth OCC	22:21	13941:32:067	23:47:03	
Exit SIM Earth OCC	348/00:18	13943:58:271	23:44:03	
End RASMA	00:31:00	13944:14:472	23:57:03	
IRIS Flashoff Heater ON (Ground Command)	22:20:00	13971:30:718	1978-348/21:46:06	
IRIS Primary Power OFF (Ground Command)	23:00:00	13972:20:719	22:26:06	
IRIS Repl. Heater ON (Ground Command)	23:01:00	13972:22:119	22:27:06	
Start CR-2 Data Mode	349/04:34:49	13979:19:347	1978-349/04:00:56	
Deadband to .16	17:43:00	13995:44:558	17:09:03	
Start PRA Command Sequence (Ground Command)	353/19:45:00	14118:17:343	1978-353/19:11:20	
End PRA Command Sequence (Ground Command)	20:04:00	14118:41:143	19:30:20	
Start PLS Command Sequence (Ground Command)	22:05:00	14121:12:347	21:31:20	
End PLS Command Sequence	22:10:00	14121:18:547	21:36:20	
Deadband to .16	354/15:30:00	14142:58:576	1978-354/14:56:22	
Deadband to .5	355/05:03:00	14159:54:799	1978-355/04:29:23	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
End IRIS Boresite CAL	341/06:06:00	13754:26:796	1978-341/16:06:59	
Start PESCAL	16:41:17	13754:26:796	16:41:17	
End PESCAL	17:30:06	13755:28:015	16:55:48	
Deadband to .16	342/00:34:00	13764:17:732	23:59:43	
Deadband to .5	03:54:00	13768:27:741	03:19:43	
CCS Clock CAL	22:00:00	13791:05:386	21:25:46	
Deadband to .16	344/15:24:00	13842:50:487	1978-344/14:49:52	
Start LECP/PLS Microphones Test	16:36:00	13844:20:490	16:01:52	
Deadband to .05	17:09:00	13845:01:691	16:34:52	
Start Jupiter 20 Hr. Movie	17:40:00	13845:40:493	17:05:52	
Start Cyclic IM-3, IM-7	345/00:07:27	13853:44:758	1978-345/00:38:41	
End Jupiter 20 Hr. Movie	12:45:00	13869:31:738	12:10:55	
Start IOP CAL	14:07	13871:14:341	13:32:55	
End IOP CAL	14:56	13872:15:543	14:21:55	
Deadband to .16	15:09:05	13872:32:026	14:35:00	
Start ASCAL	16:34:03	13874:18:196	15:59:59	
End ASCAL	18:44:07	13877:00:668	18:10:03	
Deadband to .5	19:09:04	13877:32:019	18:35:00	
Start Playback (PB-2)	19:14:05	13877:38:236	18:40:01	
End Playback (PS-2)	19:42:57	13878:14:304	19:08:53	
Start IOP CAL	22:44:14	13882:00:794	22:10:11	
End IOP CAL	346/01:07	13884:59:366	1978-346/00:32:57	
Start SCAN CAL	01:53:50	13885:58:001	01:19:47	
PPS Power ON	03:45:00	13888:16:772	03:10:57	
End SCAN CAL	06:59:25	13892:19:796	06:25:23	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
End MAG F.C. Sequence	337/02:57:35	13617:17:005	1978-337/02:22:59	
Start PLS CAL	03:00:47	13617:21:005	02:26:11	
End PLS CAL	04:30:23	13619:13:009	03:55:47	
Start UVS Gain States	338/15:19:55	13662:45:038	1978-338/14:45:25	
Deadband to .05	15:34:00	13663:02:522	14:59:30	
End UVS Gain States	16:39:54	13664:25:025	16:05:24	
Start UVS FOV Cycles	16:49:47	13664:37:309	16:15:17	
IRIS Repl. Heater OFF	18:55:05	13667:14:014	18:20:36	
IRIS Power ON	18:55:52	13667:14:798	18:21:23	
End UVS FOV Cycles	20:06:18	13668:43:034	19:31:49	
Deadband to .16	20:24:00	13669:05:135	19:49:31	
CCS Timing Anomaly Discovered on S/C 31	Day 339			
Target Maneuver Cancelled due to Timing Anomaly	339/18:45:00	13697:01:395	1978-339/18:10:34	
Deadband to .16 (Ground Command)	340/15:00:00	13772:20:248	1978-340/14:25:33	
Deadband to .05	15:34:00	13723:02:649	14:59:33	
Deadband to .05 (Ground Command)	21:00:00	13729:50:263	20:25:39	
PPS Power ON (Ground Command)	21:30:48	13730:28:664	20:56:27	
Start PPS $\frac{1}{2}^{o}$ FOV Test	22:20:37	13731:31:083	21:46:16	
Start IRIS Boresite CAL	22:20:37	13731:31:083	21:46:16	
PPS Power OFF	341/04:00:00	13738:35:280	1978-341/03:25:40	
Deadband to .16	05:34	13740:32:684	04:59:40	
End PPS $\frac{1}{4}^{o}$FOV Test	06:06:00	13741:12:686	05:31:40	

SCIENCE DATA TEAM

SCIENCE DATA PRODUCTS REPORT #7

16 February 1979

1) SEDR NOTES

a. UVS VLO Slew Anomaly Update

Further analysis into the occurrance of scan platform pointing discontinuities during UVS Very Low Rate (VLO) slews has indicated that the pointing is incorrect for a maximum of 80 seconds at both the beginning and ending of the slew. The problem occurs when a slew begins prior to its predicted start time, i.e., the telemetry starts moving before the predicted time and thus is rejected. The telemetry rejection continues until the predicted start time is reached. Likewise, at the tail end of the slew, the telemetry stops moving prior to the predicted stop time and again telemetry is rejected until the stop time is reached. Corrections for both of these discontinuities are presently being incorporated into the software but, however, will not be available for SEDR production until mid-April 1979. FR #57440 and SCP A-740 (attached) detail the problems and corrective action for the beginning and ending discontinuities, respectively.

b. Scan Platform Tweak Commands

In order to gain better pointing during encounter, occasional scan platform "tweak" ground commands are being transmitted to the spacecraft (VGR 1). The result of these commands is that the actual scan platform pointing will differ from the predicted pointing while the tweak command is in effect. Generally, the tweaks are small enough such that, as long as the spacecraft telemetry data is valid, the pointing data on the SEDR will be good. However, if the telemetry is bad or missing, the predict pointing will be used which will be in error by the amount of the tweak. The SEDR Group of the Voyager SDT will monitor closely the processing of tweak commands and will notify the PI of any time periods for which the spacecraft telemetry data is rejected (or missing) during a tweak period.

c. Status of Scan Platform SEDR Production

At present, production of scan platform SEDRs is being held pending resolution of PI reported problems with the data content of the SEDR and until all PIs have evaluated the

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start MAG F.C. Sequence	309/02:37:19	12776:48:565	1978-309/02:00:55.180	
End MAG F.C. Sequence	02:59:44	12777:16:583	02:23:00.254	
Start PLS CAL	03:02:56	12777:20:583	02:26:12.265	
End PLS CAL	04:32:31	12779:12:571	03:55:47.563	
Start PESCAL	310/21:17:59	12830:09:573	1978-310/20:41:23.719	
End PESCAL	22:13:59	12831:19:577	21:27:23.906	
Start MAG F.C. Sequence	316/02:36:46	12986:48:573	1978-316/02:00:35.801	
End MAG F.C. Sequence	02:59:10	12987:16:575	02:22:59.875	
Start PLS CAL	03:02:22	12987:20:575	02:26:11.886	
End PLS CAL	04:36:31.58	12989:12:580	03:55:43.124	
Start PESCAL	317/17:37:26	13035:34:569	1978-317/17:01:23.574	
End PESCAL	18:33:26	13036:44:572	17:57:23.759	
PPS Power ON (Ground Command)	321/01:00:00	13134:48:196	1978-321/00:24:13	
PPS Power OFF (Ground Command)	01:40:48	13135:39:199	01:05:01	
PPS Power ON (Ground Command)	01:40:55	13135:39:315	01:05:03	
PPS Power OFF (Ground Command)	01:42:31	13135:41:315	01:06:44	
PPS Power ON (Ground Command)	01:42:38	13135:41:432	01:06:51	

S C I E N C E D A T A T E A M

S C I E N C E S I G N I F I C A N T E V E N T S

S/C 32

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start MAG F.C. Range CAL	364/17:14	14922:16:383	1978-364/16:43:39	
End MAG F.C. Range CAL	17:38	14922:46:384	17:07:39	
Start MAG BAM	17:39	14922:47:584	17:08:39	
End MAG BAM	17:44	14922:53:784	17:13:39	
Deadband to .16	1979-006/01:10:00	15112:11:607	1979-006/00:39:51	
Deadband to .05	01:35:00	15112:43:007	01:04:51	
Start UVS FOV	04:30:00	15116:21:610	03:59:51	
End UVS FOV	10:11	151123:28:016	09:40:52	
Deadband to .16	10:50	15124:16:616	10:19:52	
IRIS Repl. Heater OFF	11:10	15124:41:617	10:39:52	
IRIS Power ON	11:11:00	15124:43:017	10:40:52	
Start PLS CAL	13:27	15127:33:019	12:56:52	
End PLS CAL	16:42	15131:36:622	16:11:52	
Start MAG F.C. Range CAL	16:43	15131:38:022	16:12:52	
End MAG F.C. Range CAL	17:07	15132:08:023	16:36:52	
Start MAG BAM	17:08	15132:09:223	16:37:52	
End MAG BAM	17:14	15132:16:623	16:43:52	
Start SCAN CAL	008/04:30:00	15176:21:655	1979-008/03:59:54	
IRIS Flashoff Htr. ON (Ground Command)	08:08:00	15180:54:258	07:37:54	
End SCAN CAL	09:06:53	15182:07:742	08:36:47	
IRIS Power OFF	09:27:41	15182:33:742	08:57:35	
IRIS Repl. Heater ON	09:28:29	15182:34:742	08:28:29	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start PLS Mode Cmd Sequence (Ground Command)	350/02:00:00	14483:12:792	1978-350/01:28:53	
End PLS Mode Cmd Sequence (Ground Command)	02:01:00	14483:14:192	01:29:53	
Start PLS CAL	14:59:52	14499:27:694	14:28:47	
End PLS CAL	18:15:03	14503:31:686	17:43:59	
Start MAG Flipper CAL	18:15:51	14503:32:686	17:44:47	
End MAG Flipper CAL	18:39:51	14504:02:687	18:08:47	
Start MAG BAM	18:40:39	14504:03:687	18:09:35	
End MAG BAM	18:46:15	14504:10:688	18:15:11	
Deadband to .16 (Ground Command)	353/03:01:50	14574:30:421	1978-353/02:30:55	
Deadband to .05 (Ground Command)	03:06:50	14574:49:221	02:45:55	
Deadband to .5	16:31:46	14591:22:789	16:00:53	
Start PLS CAL	357/14:29:03	14708:49:697	1978-357/13:58:23	
End PLS CAL	17:44:15	14712:53:705	17:13:35	
Start MAG F.C. Range CAL	17:45:03	14712:54:705	17:14:23	
End MAG F.C. Range CAL	18:09:03	14713:24:706	17:38:23	
Start MAG BAM	18:09:51	14713:25:706	17:39:11	
End MAG BAM	18:15:27	14713:32:706	17:44:47	
Deadband to .16	361/03:30:00	14815:06:227	1978-361/02:59:30	
Deadband to .05	362/21:00:00	14866:58:706	1978-362/20:29:35	
Start PESCAL	363/23:31	14900:07:553	1978-363/23:00:38	
End PESCAL	364/00:27:00	14901:17:555	23:56:38	
Start PLS CAL	13:58:00	14918:11:378	1978-364/13:27:39	
End PLS CAL	17:13	14922:15:183	16:42:39	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start MAG Range CAL	329/19:57:28	13875:38:354	1978-329/19:24:47	
End MAG Range CAL	20:12:40	13875:57:355	19:39:59	
Start MAG BAM	20:13:28	13875:58:355	19:40:47	
End MAG BAM	20:19:04	13876:05:356	19:46:23	
Start PESCAL	332/02:24:00	13943:41:685	1978-332/01:51:31	
End PESCAL	03:30:00	13945:04:289	02:57:31	
FDS Clock Drift Update (Ground Command	336/01:20:00	14062:22:220	1978-336/00:47:51	
FDS Clock Update Confirmed	03:14:10	14064:44:794	02:42:01	
Start PLS CAL	16:01:41	14080:43:663	15:29:35	
End PLS CAL	19:16:53	14084:47:674	18:44:47	
Start MAG F.C. Sequence	19:17:40	14084:48:658	18:45:34	
End MAG F.C. Sequence	19:41:41	14085:18:676	19:09:35	
Start MAG BAM	19:42:28	14085:19:659	19:10:22	
End MAG BAM	19:48:05	14085:26:676	19:15:59	
Start PESCAL	338/16:33:00	14141:23:145	1978-338/16:01:03	
End PESCAL	17:29:00	14142:33:148	16:57:04	
Start PLS CAL	343/15:30:45	14290:05:683	1978-343/14:59:11	
End PLS CAL	18:45:57	14294:09:693	18:14:24	
Start MAG Flipper CAL	18:46:44	14294:10:676	18:15:11	
End MAG Flipper CAL	19:10:45	14294:40:694	18:39:12	
Start PESCAL	345/16:33	14351:23:684	1978-345/16:01:35	
End PESCAL	17:29	14352:33:687	16:57:35	
Start PRA Command Sequence (Ground Command)	350/01:00:00	14481:57:789	1978-350/00:28:53	
End PRA Command Sequence (Ground Command)	01:43:00	14482:51:591	01:11:53	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
IRIS Repl. Htr. OFF (Ground Command)	322/10:55:00	13654:19:430	1978-322/10:21:41	
IRIS Power ON (Ground Command)	10:56:00	13654:20:630	10:22:41	
Start PRA Stanford Test	11:52:00	13655:30:633	11:18:41	
IRIS Power OFF (Ground Command)	16:10:00	13660:53:250	15:36:42	
IRIS Repl. Htr. ON (Ground Command)	16:11:00	13660:54:450	15:37:42	
Start PLS CAL	17:04:00	13662:00:653	16:30:42	
End PRA Stanford Test	17:22:00	13662:23:254	16:48:42	
End PLS CAL	20:19:00	13666:04:465	19:45:43	
Start MAG F.C. Sequence	10:19:40	13666:05:332	19:46:23	
End MAG F.C. Sequence	20:43:40	13666:35:334	20:10:23	
Start MAG BAM	20:44:28	13666:36:334	20:11:11	
End MAG BAM	20:50:04	13666:43:334	20:16:47	
Start PESCAL	325/02:34	13733:53:469	1978-325/02:00:55	
End PESCAL	03:29	13735:02:272	02:55:55	
Start PLS CAL	329/16:38:41	13871:22:358	1978-329/16:00:00	
End PLS CAL	19:47:52	13875:26:354	19:15:11	
Start MAG F.C. Sequence	19:48:40	13875:27:354	19:15:59	

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

16 February 1979

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: J.F. SCHMIDLING

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the Monthly Science Data Product Report for your information and review.

JFS:jvc
Enclosure (1)

CRS	R.E. Vogt	MAG	N. Ness	PRA	J. Warwick
	T. Garrard		M. Acuna		J. Pearce
	N. Lal		R. Lepping		A. Riddle
	J. Trainor		E. Choo		
	T. Aufrantz		A. Silver		
IRIS	R. Hanel	PLS	H. Bridge	PWS	F. Scarf
	D. Crosby		A. Lazarus		W. Kurth
	L. Herath		J. Sullivan		
			K. Ogilive		
			G. Gordon		
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cc:	J. Anderson		R. Heacock		R. Parks
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	D. Collins		S. Kumar		A. Sacks
	S. Collins		R. Laeser		M. Sander
	H. Danley		A. Lane		C. Stembridge
	M. Devirian		J. Long		E. Stone
	O. Divers		P. Lyman		G. Textor
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SCIENCE DATA TEAM

SCIENCE DATA PRODUCTS REPORT #7

16 February 1979

1) SEDR NOTES

a. UVS VLO Slew Anomaly Update

Further analysis into the occurrance of scan platform pointing discontinuities during UVS Very Low Rate (VLO) slews has indicated that the pointing is incorrect for a maximum of 80 seconds at both the beginning and ending of the slew. The problem occurs when a slew begins prior to its predicted start time, i.e., the telemetry starts moving before the predicted time and thus is rejected. The telemetry rejection continues until the predicted start time is reached. Likewise, at the tail end of the slew, the telemetry stops moving prior to the predicted stop time and again telemetry is rejected until the stop time is reached. Corrections for both of these discontinuities are presently being incorporated into the software but, however, will not be available for SEDR production until mid-April 1979. FR #57440 and SCP A-740 (attached) detail the problems and corrective action for the beginning and ending discontinuities, respectively.

b. Scan Platform Tweak Commands

In order to gain better pointing during encounter, occasional scan platform "tweak" ground commands are being transmitted to the spacecraft (VGR 1). The result of these commands is that the actual scan platform pointing will differ from the predicted pointing while the tweak command is in effect. Generally, the tweaks are small enough such that, as long as the spacecraft telemetry data is valid, the pointing data on the SEDR will be good. However, if the telemetry is bad or missing, the predict pointing will be used which will be in error by the amount of the tweak. The SEDR Group of the Voyager SDT will monitor closely the processing of tweak commands and will notify the PI of any time periods for which the spacecraft telemetry data is rejected (or missing) during a tweak period.

c. Status of Scan Platform SEDR Production

At present, production of scan platform SEDRs is being held pending resolution of PI reported problems with the data content of the SEDR and until all PIs have evaluated the

sample SEDRs which were sent to them during mid-December of 1978. The incorrect SEDR words noted to date are the following:

Optic axis intercept/tangency point phase angle (word 76, common block)

Satellite shadow latitude and longitudes (words 99 - 106, common block)

Apparent satellite position latitude and longitude (words 42 - 49, ISS peculiar).

These known problems are currently being analyzed and resolved.

d. Jupiter Format Fixed Instrument SEDR Errors

During the last several months, sample and predict Jupiter Format Fixed Instrument SEDRs have been sent to the PIs for their analysis and for encounter planning. As a result of these analyses, several errors in the navigation block of these products were discovered.

i) Celestial latitude and longitude of Jupiter (words 219 and 220) were reversed.

ii) Cartesian State of Io in Jovian Magnetic Coordinates (words 277 - 232) were incorrect.

iii) Magnetic latitude and longitude of S/C (words 235 and 236) were reversed.

iv) Magnetic latitude and longitude of Io (words 237 and 238) were reversed and incorrect.

All SEDRs which contain a SEDR generation date (word 6, SEDR header) prior to 021279 (MMDDYY in integer) contain the above errors.

2) DATA GAPS IN EDRs

During two notable time periods for Voyager 1, non-standard data gaps in the EDR were incurred. The following provides the details for each period.

a. Station and line problems caused the loss of all digital (DODR) data at stations 43 and 14 during DOYs 033 and 034.

i) DOY 033/1430 to 1435 over DSS 43
ii) DOY 033/1659 to 1707 over DSS 43
iii) DOY 034/0251 to 0329 over DSS 14

Although the analog data (AODR) is available for these time periods, there are no plans to fill these gaps at the present time.

b. A power outage on DOY 045 at Madrid, Spain cause a loss of science data at DSS 63 from 1711 on DOY 045 to 0002 on DOY 046. This is a non-recoverable data gap.

3. REMOTE NORT STATUS

Two problems continue to plague the users of the Remote NORT data transmission/reception capability. The first problem (see attached FR 60351) is that occasionally no decom map is sent at the start of a transmission session making it very difficult for the PI to interpret any engineering data. This problem is presently understood and is being corrected in the software. The second problem has to do with periods of regressed data, usually outside his requested time interval, being sent to the PI. The impact of this problem is twofold: First, the PI must edit the regressed data from his normally received data before he can begin processing and, second, the amount of transmission time is increased due to the transmission of the regressed data. JPL is presently trying to understand the problem and have discovered that the regressions seem to occur whenever the NORT or RAM files are updated while Remote NORT transmission is in progress. One possible operational workaround is being investigated whereby the EDRPROC software is prohibited from sending regressed records to TCAM. While this might cause a delay in transmission or even a possible line drop for the dial-up users, it might be preferable to receiving the regressed data.

In any case, at the present time, the Project has classified all Remote NORT problems at a maximum of Category 2 which means that the present system, with respect to software, must remain on line until after the Voyager 1 encounter.

4. GOLAY FLAGS INCORRECT

An isolated case, documented on FAR B1138, has been discovered whereby the golay flags for extracted GS-3 data for Voyager 1 from DOY 018/2356 to DOY 019/0002 were incorrectly set. Analysis of the anomaly indicated that the golay correction was being done correctly and that only the flags were incorrect. Further incidences of this problem are now being sought to further analyze the problem.

5. SEDR SUMMARY

Attached is the latest update of the SEDR Summary.

6. SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events Report.

JFS:jvc

C-813

MCCC FAILURE ACCOUNTABILITY REPORT (FAR) [1]
MCCC FAILURE REPORT (FR) [2]

CALENDAR DATE: MONTH 01 DAY 24 YEAR 79 | FAR CONTROL #: N/A ☐

FAILURE OBSERVED BY	EXT.	FR WRITTEN BY (IF DIFFERENT)	EXT.	TIME OF FAILURE: JULIAN DAY	UTC	MCCC FR NUMBER
T SCHMIDLING	5996	F. ROSENBLATT	7766			57440
ADD.		ADD.				

MCCC OPERATIONS NOTIFIED: NAME | JULIAN DAY | UTC TIME

ACTIVITY: TEST/TRNG ☐ REAL TIME FLT SUPPORT ☐ BATCH FLT SUPPORT ☐ | DEVEL ☐ | INTEG ☐ | JOB SHOP ☐ | OTHER ☐

DATA OUTAGE: NO ☐ YES ☐ FROM _____ TO _____

PROJECT CRITICAL · AUTHORIZATION ·

DATA SYSTEMS AFFECTED: ALL ☐ | TRACKING [1] | COMMAND [2] | OPS CONTROL [3] | TELEMETRY [4] | OP SYS [5] | SIM [6] | NONE ☐

SUSPECTED PROBLEM AREA (CHECK ONE): DATA QUAL ☐ | HARDWARE ☐ | SOFTWARE ☒ | PROCEDURAL ☐ | DOCUMENTATION ☐ | UNDETERMINED ☐ | OTHER ☐

NRTS ☐ OCS ☐

360/75	A ☐	B ☐	C ☐			
3100	A ☐	B ☐				
CP-RTR	1 ☐	2 ☐				
CP-TC	A ☐	B ☐	C ☐			
OPS-OCC	1 ☐	2 ☐				
OPS-RTR	A ☐	B ☐				
DEV/BATCH	1 ☐	2 ☐	/B ☐			

SYS DUMP/R-DUMP# _____

ATTACHMENTS:
- 1052 PRINTOUT ☐
- 008 PRINTOUT ☐
- I/O PRINTOUT ☐
- 050 PRINTOUT ☐

TLMS ☐ CMDS ☐ MTIS ☐ ONPS ☐

MACHINE ID

- 1218 ☐ _____
- 1219 ☐ _____
- 1530 ☐ _____
- 1616 ☐ _____
- MODCOMP ☐ _____
- CMD 1 ☐ 2 ☐
- OTHER: ☐ _____

ATTACHMENTS: FAULT DUMP ☐ I/O PRINTOUT ☐ OTHER ☐

HARDWARE MTPS ☐

- WBS ☐ _____
- DTV ☐ CHANNELS _____
- VIDS ☐ CHANNELS _____
- TVSA ☐ NO. _____
- VOCA ☐ NO. _____ EXT. _____
- OTHER: ☐ _____

EQUIP. NAME _____

ADDRESS OR ID _____

SOFTWARE

- OP SYS VERSION _____
- MISSION VERSION _____
- MOSS VERSION 7.9
- DEV. VERSION _____
- OTHER: IPPS
- DIAGNOSTICS YES ☐ NO ☒

FOR GPCF FARS ONLY

1108 A ☐ DR # _____

1108 B ☐

EQUIP:

DESCRIPTION OF FAILURE/PROBLEMS: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE) PROJECT(S) AFFECTED _____

IPPS must determine the actual start time of a UVS slew from telemetry. If a request time falls exactly on the predicted slew start time, the program wrongly uses predicts which indicate that the slew has started, when in fact it started later than the predicted time. This causes a 1 TF long discontinuity.

ACTION TAKEN TO RESTORE CAPABILITY: | TIME CLEARED: JULIAN DAY | UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

Program modified to use corrected TM value for request time.

TIME CORRECTED: JULIAN DAY | UTC | CORRECTED BY: | FAILURE DEFINED AS (CHECK ONE): DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☐ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐

FOR CONTROL USE ONLY

DATE RECEIVED | DATE CLOSED | ACTION TAKEN CODE: 51

ASSIGNED TO DRS | DATE

REASSIGNED TO | DATE

CLOSE OUT MANAGEMENT APPROVAL

TECHNICAL GROUP SUPERVISOR OR SE: R. Hill | DATE: 1/23/79

OTHER APPROVAL – IF REQUIRED | DATE

COPY DISTRIBUTION: WHITE – ORIGINAL, CANARY – CORRECTING AGENCY, PINK – FASO, GOLDENROD – OBSERVER, GREEN – FACILITY

VOYAGER SOFTWARE CHANGE PROPOSAL/ SOFTWARE CHANGE AUTHORIZATION (SCP/SCA)

SCP NO. A-740

PROGRAM NAME	ORIGINATOR	SECT. NO.	PHONE	ISSUE DATE
IPPS	F. ROSENBLATT	343	7766	2/12/79

TITLE OF CHANGE: DETERMINE UVS SLEW END TIMES FROM TELEMETRY RATHER THAN PREDICTS

PAGE 1 OF 1

FAR/FR NO.

OTHER PROGRAMS AFFECTED:	PRGM NAME	PRGM NAME	PRGM NAME	PRGM NAME	ISA/ECR NO.

DESCRIPTION OF CHANGE

The program currently uses predicted slew end times. The actual slew end of a very lo rate UVS slew is unpredictable, however. If a slew ends early, TM is rejected and the output is the tail end of the predicted slew. If the slew ends late, the switch to predicts causes loss of the tail end of the slew.

The change would cause IPPS to determine the end of the slew via the TM directly by searching for an end to the change in TM.

REASON FOR CHANGE

The change would improve SEDR's over the period of a UVS slew and provide capability to provide accurate pointing knowledge over the whole slew. Currently the last 80 seconds of the slew are lost to SEDR's

SOFTWARE DOCUMENTATION AFFECTED:

Check items affected & indicate Doc. No.

- ☐ SRD _____
- ☐ SPD part 1 _____
- ☐ SIS _____
- ☐ PDD _____
- ☐ USERS GUIDE _____
- ☐ CODING ☐ ATP _____

THIS CHANGE IS DEEMED (check one)

- ☐ EMERGENCY, need immediately
- ☐ CRITICAL, need on a rush basis
- ☑ REQUIRED, deliverable on MOSS# _____

ESTIMATE OF REQUIRED RESOURCES:

1) _____ Man/days Cog. Eng. required for coding, documentation and acceptance testing.
2) 20 Man/days Cog. Prog. required for coding, documentation and acceptance testing.
3) 1200 Computer dollars required for program checkout and acceptance testing.
4) Are there sufficient funds in SRM to cover proposed change? ☑ YES ☐ NO
5) Does this change affect interfaces with DSN or MCCC Institutional software? ☐ YES ☑ NO
6) Will cost of this change exceed 25% of SRM allocation for update/maintenance of this program? ☐ YES ☑ NO

COGNIZANT ENGINEER	DATE	COGNIZANT PROGRAMMER	DATE
Fred Rosenblatt	2/8/79		
MISSION OPERATIONS SYSTEM ENGINEER	DATE	COMMENTS:	

ICA When approval signature, status, scheduled delivery dates and MOSS number are filled in below, you are authorized to proceed with the implementation of this SCP

CLASS / PRIORITY	APPROVAL	DATE	STATUS	RCV
3/S				1

SCHEDULED DELIVERY:	MS 10	MS 11	MOSS NO.	PRGM VER.	ICA NO.	IMPLD	DCN'D	C/P	

jpl → **MCCC FAILURE ACCOUNTABILITY REPORT (FAR)** [1]
MCCC FAILURE REPORT (FR) [2]

CALENDAR DATE MONTH	DAY	YEAR	FAR CONTROL #
MAY	9	79	N/A ☐ 1124

FAILURE OBSERVED BY	EXT.	FR WRITTEN BY (IF DIFFERENT)	EXT.	TIME OF FAILURE JULIAN DAY	UTC	MCCC FR NUMBER
S.P.DROP	7969					60351
	ADD. 230/2002		ADD.			

MCCC OPERATIONS NOTIFIED NAME	JULIAN DAY	UTC TIME	ACTIVITY: TEST/TRNG ☐ REAL TIME FLT SUPPORT ☐ BATCH FLT SUPPORT ☐	DE'EL ☐	INTEG ☐	JOB SHOP ☐	OTHER ☐ DRS

DATA OUTAGE: NO ☐ YES ☐ FROM _____ TO _____

PROJECT CRITICAL · AUTHORIZATION ·

DATA SYSTEMS AFFECTED	ALL ☐	TRACKING [1]	COMMAND [2]	OPS CONTROL [3]	TELEMETRY [4]	OP SYS [5]	SIM [6]	NONE ☐

SUSPECTED PROBLEM AREA (CHECK ONE)	DATA QUAL ☐	HARDWARE ☐	SOFTWARE ☐	PROCEDURAL ☐	DOCUMENTATION ☐	UNDETERMINED ☐	OTHER ☐

NRTS ☐

360/75	A ☐	B ☐	C ☐			
3100	A ☐	B ☐				
CP-RTR	1 ☐	2 ☐				
CP-TC	A ☐	B ☐	C ☐			
OPS-OCC	1 ☐	2 ☐				
OPS-RTR	A ☐	B ☐				
DEV/BATCH	1 ☐	2 ☐	/B ☐			

SYS DUMP/R-DUMP# _____

ATTACHMENTS:
- 1052 PRINTOUT ☐
- 00B PRINTOUT ☐
- I/O PRINTOUT ☐
- 050 PRINTOUT ☐

OCS ☐

TLMS ☐ CMDS ☐ MTIS ☐ ONPS ☐

MACHINE ID

1218	☐	
1219	☐	
1530	☐	
1616	☐	
MODCOMP	☐	

CMD 1 ☐ 2 ☐

OTHER: ☐ _____

ATTACHMENTS:
- FAULT DUMP ☐
- I/O PRINTOUT ☐
- OTHER ☐

HARDWARE MTPS ☐

WBS	☐		
DTV	☐	CHANNELS	
VIDS	☐	CHANNELS	
TVSA	☐	NO.	
VOCA	☐	NO.	
		EXT.	
OTHER:	☐		

EQUIP. NAME _____

ADDRESS OR ID _____

SOFTWARE

OP SYS VERSION	21.9.35A
MISSION VERSION	4.9C
MOSS VERSION	64.3
DEV. VERSION	
OTHER:	

DIAGNOSTICS YES ☐ NO ☐

FOR GPCF FARS ONLY

1108 A ☐ DR# _____

1108 B ☐

EQUIP: ~~TGR~~

DESCRIPTION OF FAILURE/PROBLEMS: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE) PROJECT(S) AFFECTED _____

The DCCM maps sent with the FPS data on the Remote Nort lines for DOY 38-39 were not usable. It appears that instead of sending the valid DCCM map on the BAD file the program sent a record that was not readable by a EDR dump program.

ACTION TAKEN TO RESTORE CAPABILITY	TIME CLEARED JULIAN DAY	UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

TIME CORRECTED JULIAN DAY	UTC	CORRECTED BY:	FAILURE DEFINED AS (CHECK ONE) DATA QUAL ☐	HARDWARE ☐	SOFTWARE ☐	PROCEDURAL ☐	DOCUMENTATION ☐	UNDETERMINED ☐

FOR CONTROL USE ONLY

DATE RECEIVED	DATE CLOSED	ACTION TAKEN CODE
ASSIGNED TO	DATE	
REASSIGNED TO	DATE	

CLOSE OUT MANAGEMENT APPROVAL

TECHNICAL GROUP SUPERVISOR OR SE	DATE
OTHER APPROVAL – IF REQUIRED	DATE

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			LAUNCH PHASE		
**			LAUNCH TO TCM		**
11001A	12:00	13:08	77-248/14:09	77-248/15:03	01/24/78
11002A	13:11	15:19	77-248/15:06	77-248/16:48	01/24/78
11003A	15:35	34:18	77-248/17:01	77-249/07:59	01/30/78
11004A	34:19	45:59	77-249/08:00	77-249/17:20	01/25/78
11005A	46:00	178:00	77-249/17:21	77-254/02:57	01/31/78
11006A	187:00	245:00	77-254/10:09	77-256/08:33	01/30/78
			EARTH TO JUPITER CRUISE PHASE		
**			TCM TO END OF 1977		**
12001A	253:05	650:35	77-256/15:01	77-269/21:01	01/16/78
12002A	654:20	961:50	77-270/00:01	77-280/06:01	01/25/78
12003A	965:35	1633:05	77-280/09:01	77-302/15:01	01/31/78
12004	1633:05	2026:50	77-302/15:01	77-315/18:01	01/31/78
12005	2030:35	2600:35	77-315/21:01	77-334/21:01	02/22/78
12006	2604:20	3530:35	77-335/00:01	77-365/21:01	02/22/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
13001	3534:20	4460:35	78-001/00:01	78-031/21:01	03/21/78
13002	4464:20	4925:35	78-032/00:01	78-047/09:01	04/10/78
13003	4929:20	5300:35	78-047/12:01	78-059/21:01	04/24/78
13004	4944:20	4974:20	78-048/00:01	78-049/00:01	04/25/78
	First 3 digits of above package numbers should have been 121 instead of 130				
**	PACKAGE ID CORRECTION TO NAV DATA FORMAT CHANGE				**
12105	4978:05	5750:35	78-049/03:01	78-074/21:01	05/12/78
12106	5154:20	6230:35	78-075/00:01	78-090/21:01	06/14/78
12107	6234:20	7130:35	78-091/00:01	78-120/21:01	06/14/78
12108	7134:20	8960:35	78-121/00:01	78-181/21:01	08/03/78
12109	8964:20	9890:35	78-182/00:01	78-212/21:01	09/12/78
**	NAV FORMAT CHANGE TO PRESENT				**
12201	9894:20	10813:05	78-213/00:01	78-243/15:01	11/28/78
12202	10816:50	12050:35	78-243/18:01	78-284/21:01	01/31/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			L A U N C H P H A S E		
**			LAUNCH TO FDS POWER ON RESET		**
01001A	11:30	71:00	77-232/21:06	77-234/15:42	02/03/78
01002A	73:55	141:25	77-234/18:02	77-237/00:02	01/31/78
01003A	148:55	302:40	77-237/06:02	77-242/09:02	01/24/78
01004A	306:25	366:25	77-242/12:02	77-244/12:02	01/24/78
01005A	370:10	662:40	77-244/15:02	77-254/09:02	01/24/78
01006A	666:25	1322:40	77-254/12:02	77-276/09:02	01/30/78
01007A	1326:25	1540:10	77-276/12:02	77-283/15:02	01/25/78
**			FDS POWER ON RESET TO TCM A		**
01101	1543:55	1581:25	77-283/18:02	77-285/00:02	01/30/78
			E A R T H T O J U P I T E R C R U I S E P H A S E		
**			TCM A TO END OF 1977		**
02001A	1588:55	2027:40	77-285/06:02	77-299/21:02	01/24/78
02002	2031:25	2447:40	77-300/00:02	77-313/21:02	01/30/78
02003	2451:25	2867:40	77-314/00:02	77-327/21:02	02/13/78
02004	2871:25	3287:40	77-328/00:02	77-341/21:02	02/13/78
02005	3291:25	4007:40	77-342/00:02	77-365/21:02	03/22/78
02006	3891:25	3921:25	77-362/00:02	77-363/00:02	03/30/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
03001	4011:25	4427:40	78-001/00:02	78-014/21:02	04/26/78
03002	4431:25	5087:40	78-015/00:02	78-036/21:02	04/10/78
03003	5091:25	5357:40	78-037/00:02	78-045/21:02	04/10/78
	-	First 3 digits of above package numbers should have been 021 instead of 030.			
**	PACKAGE ID CORRECTION TO TCM				**
02104	5361:25	5837:40	78-046/00:02	78-061/21:02	05/08/78
02105	5841:25	7127:40	78-062/00:02	78-104/21:01	06/07/78
02106	7131:25	7607:40	78-105/00:02	78-123/21:02	07/17/78
**	TCM TO NAV DATA FORMAT CHANGE				**
02001	7701:25	8027:40	78-124/00:02	78-134/21:02	07/11/78
02202	8031:25	8957:40	78-135/00:02	78-165/21:02	08/05/78
02203	8961:25	9857:40	78-166/00:02	78-195/21:02	08/30/78
02204	9861:25	10787:40	78-196/00:02	78-226/21:02	09/30/78
**	NAV DATA FORMAT CHANGE TO PRESENT				**
02301	10791:25	11710:10	78-227/00:02	78-257/15:02	11/28/78

SCIENCE DATA TEAM

SCIENCE SIGNIFICANT EVENTS

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
CTR SYSCAN	041/13:17:00	15700:10:751	1979-041/12:42:04	
IRIS SUNCAL	15:16:00	15702:39:543	14:41:03	
IRIS SUNCAL	19:14:00	15707:37:128	18:39:07	
IM-3 to IM-6 (Ground Command)	19:30:00	15707:57:127	18:55:07	
CTR SYSCAN	21:13:00	15710:05:720	20:38:07	
CTR SYSCAN	23:12	15712:34:512	22:37:06	
OPNAV	042/02:30	15716:42:099	1979-042/01:55:06	
CTR SYSCAN	03:11	15717:33:296	02:36:05	
CTR SYSCAN	13:07	15729:58:256	12:32:03	
J2 SAT DRIFT	17:09	15735:00:640	16:34:02	
OPNAV	19:58	15738:32:028	19:23:01	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Enable Target Maneuver (Ground Command)	039/21:15:00	15650:08:504	1979-039/20:40:18	
CTR SYSCAN	21:36:43	15650:35:620	21:02:01	
CTR SYSCAN	23:35:57	15653:04:656	23:01:14	
Start MAG CAL	040/00:04:54	15653:40:794	1979-039/23:30:11	
End MAG CAL	00:10:30	15653:47:794	23:35:47	
Start Target Maneuver	01:00:00	15654:49:690	1979-040/00:25:17	
Deadband to .05	01:10:00	15655:02:290	00:35:17	
All Axes Inertial	01:10:39	15655:03:140	00:35:56	
Enable Sun Search	04:42:38	15659:28:110	04:07:54	
Star Acquisition	04:46:43	15659:33:197	04:11:59	
End Target Maneuver	05:06:00	15659:57:275	04:31:16	
OPNAV	05:38:32	15660:38:006	05:03:48	
OPNAV	08:38:32	15664:22:795	08:03:47	
IRIS SUNCAL	09:30	15665:27:258	08:55:15	
J8 SAT DRIFT	11:29	15667:56:051	10:54:15	
CTR SYSCAN	13:28	15670:24:643	12:53:14	
CTR SYSCAN	15:28	15672:54:636	14:53:14	
CTR SYSCAN	17:29	15675:27:228	16:55:13	
CTR SYSCAN	19:24	15677:49:621	18:49:13	
CTR SYSCAN	21:30	15680:27:212	20:55:12	
CTR SYSCAN	041/03:21:00	15687:45:790	1979-041/02:46:11	
CTR SYSCAN	05:20:00	15690:14:582	04:45:11	
CTR SYSCAN	07:20:00	15692:44:574	06:45:10	
J4 SAT DRIFT	09:19:00	15695:13:367	08:44:10	
IRIS SUNCAL	11:18	15697:42:159	10:43:09	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
CTR SYSCAN	037/02:07:58	15566:15:112	1979-037/01:33:30	
CTR SYSCAN	04:06	15568:42:538	03:31:31	
OPNAV	06:38:16	15571:52:796	06:03:47	
CTR SYSCAN	10:03:43	15576:09:634	09:29:13	
OPNAV	13:17:30	15580:12:007	12:42:59	
CTR SYSCAN	19:57	15588:31:283	19:22:23	
Uplink Window A322 (Ground Command)	20:21	15589:01:282	19:46:23	
CTR SYSCAN	038/03:55:04	15598:28:722	1979-038/03:20:30	
CTR SYSCAN	05:54:16	15600:57:715	05:19:42	
CTR SYSCAN	09:03:34	15604:54:403	08:28:60	
OPNAV	16:38:23	15614:22:793	16:03:47	
Begin Load A322	18:43:00	15616:58:602	18:08:24	
IRIS SUNCAL	19:49:45	15618:22:148	19:15:03	
CTR SYSCAN	21:48:25	15620:50:408	21:13:43	
CTR SYSCAN	039/01:47:03	15625:48:626	1979-039/01:12:25	
OPNAV	04:38:26	15629:22:799	04:03:48	
CTR SYSCAN	05:45:29	15630:46:645	05:10:50	
OPNAV	07:50:27	15633:23:004	07:15:48	
IRIS SUNCAL	09:43:52	15635:44:614	09:09:12	
CTR SYSCAN	11:43:08	15638:13:673	11:08:23	
J3 SAT DRIFT	13:42:17	15640:42:616	13:07:37	
J3 SAT DRIFT	15:41:29	15643:11:609	15:06:43	
IRIS SUNCAL	17:42:24	15645:42:718	17:07:43	
CTR SYSCAN	19:37:30	15648:06:611	19:02:43	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start Cruise Maneuver	034/21:22	15500:17:719	1979-034/20:47:42	
End Cruise Maneuver	035/02:39	15506:54:102	1979-035/02:04:41	
CTR SYSCAN	04:27:30	15509:09:597	03:53:11	
CTR SYSCAN	06:26:50	15511:38:724	05:52:30	
CTR SYSCAN	08:26:57	15514:09:034	07:52:37	
UVS, PPS Star CAL	12:24:45	15519:06:221	11:50:25	
UVS, PPS Star CAL	14:23:15	15521:34:34	13:48:54	
CTR SYSCAN	16:22:27	15524:03:308	15:48:06	
CTR SYSCAN	18:25:40	15526:37:318	17:51:18	
CTR SYSCAN	20:02:26	15528:38:279	19:28:04	
OPNAV	22:20:30	15531:30:738	21:46:08	
OPNAV	23:38:10	15533:08:001	23:03:47	
SUNCAL	036/00:21:22	15534:01:798	1979-035/23:46:59	
IRIS Star CAL	02:20:34	15536:30:792	1979-036/01:46:11	
SUNCAL	04:19:47	15539:00:002	03:45:23	
IRIS SUNCAL	06:18:59	15541:28:795	05:44:35	
SUNCAL	08:18:12	15543:58:005	07:43:47	
CTR SYSCAN	14:12	15551:20:186	13:37:34	
OPNAV	19:31:02	15557:59:001	18:56:35	
UVS High Voltage OFF (Ground Command)	19:32	15558:00:168	18:57:83	
UVS/IRIS SUNCAL	20:09:08	15558:46:499	19:34:41	
Start PLS CAL	20:24:38	15559:05:798	19:50:11	
End PLS CAL	22:02	15561:07:559	21:27:83	
UVS, PPS Star CAL	22:07	15561:13:759	21:32:33	
CTR SYSCAN	037/00:07:44	15563:44:685	1979-036/23:33:16	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
IRIS Flashoff Htr. OFF (Ground Command)	029/10:30	15336:43:293	1979-029/09:56:05	
OPNAV Europa	15:36:07	15343:05:797	15:02:11	
Uplink A302 (Ground Command)	17:02	15344:53:277	16:28:04	
Start Sequence A302	030/00:33	15354:17:057	1979-029/23:59:03	
Start TCM	05:51	15359:39:446	1979-030/04:17:02	
Deadband to .16	04:53	15359:42:046	04:19:02	
Deadband to .05	06:40	15361:55:641	06:06:02	
IRIS Repl. Htr OFF (Ground Command)	10:00	15366:05:632	09:27:01	
IRIS Power ON (Ground Command)	10:01	15366:07:032	09:27:01	
Uplink Window for A321	10:30	15366:43:231	09:56:01	
IRIS Repl. Htr. OFF Confirmed	11:08:55	15367:31:746	10:34:56	
IRIS Power ON Confirmed	11:09:35	15367:32:613	10:35:36	
Start Sequence A321	18:43	15376:59:409	18:08:60	
Start PLS CAL	031/00:43	15384:29:393	1979-031/00:08:59	
End PLS CAL	02:14	15386:23:189	01:39:59	
PRA CAL (Ground Command)	033/04:01	15448:36:646	1979-033/03:26:50	
PRA CAL (Ground Command)	08:01	15453:36:634	07:26:43	
PRA CAL (Ground Command)	12:01	15458:36:622	11:26:49	
Start PESCAL	18:56	15467:15:401	18:21:47	
End PESCAL	19:44	15468:15:399	19:09:47	
Enable Cruise Maneuver (Ground Command)	034/18:30	15496:42:728	1979-034/17:55:43	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
PPS Star CAL	019/20:45	15049:32:548	1979-019/20:11:33	
PPS Star CAL	022/01:24:32	15115:21:800	1979-022/00:50:59	
End IR COMP	023/18:47	15167:04:793	1979-023/18:13:22	
PPS Stellar CAL	024/01:03	15174:54:781	1979-024/00:29:22	
AACS Mod. All Axes Inertial	19:16	15197:41:146	18:42:20	
Start ASCAL	19:16	15197:41:146	18:42:20	
Field & Particles Comb. CAL	20:13:00	15199:13:543	19:56:20	
Sun Search Enabled	20:20	15199:01:144	19:46:20	
End ASCAL	20:22	15199:03:543	19:48:20	
Star Acquisition	20:24	15199:06:143	19:50:20	
IR COMP	025/18:27	15226:39:698	1979-025/17:53:17	
IR COMP	20:48	15229:36:093	20:14:17	
PPS Stellar CAL	026/00:41	15234:27:285	1979-026/00:07:16	
IR COMP	04:21	15239:02:277	03:47:16	
OPNAV Ganymede	027/00:23	15264:04:633	23:49:13	
IR COMP	04:11	15268:49:624	03:37:13	
IRIS Flashoff Htr. ON (Ground Command)	05:00	15269:51:022	04:26:13	
IRIS Power OFF (Ground Command)	05:29	15270:27:221	04:55:13	
IRIS Repl. Htr. ON (Ground Command)	05:30	15270:28:421	04:56:13	
OPNAV Calisto	08:19	15273:59:615	07:45:12	
OPNAV Io	028/00:12	15293:50:778	1979-027/23:38:10	
IR COMP Jupiter	04:01	15298:37:169	1979-028/03:27:09	
OPNAV Io	029/00:03:16	15323:39:786	23:29:22	
IR COMP Jupiter	03:49	15328:22:110	1979-029/03:15:06	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
OPNAV Io	010/09:04:15	14764:56:797	1979-010/08:30:53	
Start IR COMP	21:08:00	14780:01:542	20:34:43	
Start Com. for Field & Particles (Ground Command)	22:37:00	14781:52:741	22:03:43	
End IR COMP	23:24	14782:51:541	22:50:43	
End Com. for Field & Particles (Ground Command)	23:29:00	14782:57:741	22:55:43	
OPNAV Ganymede	011/00:57	14784:47:740	1979-011/00:23:43	
Start IR COMP	20:57	14809:47:731	20:23:42	
End IR COMP	23:13	14812:37:730	22:39:43	
Start IR COMP	012/20:45	14839:32:719	1979-012/20:11:43	
PPS Steller CAL	21:53:54	14840:59:018	21:20:35	
PRA Conf. Cmd. (Ground Command)	013/18:30	14866:44:104	1979-013/17:56:41	
Start IR COMP	20:36	14869:21:503	20:02:41	
PPS Conf. Cmd. (Ground Command)	014/20:24	14899:06:484	1979-014/19:50:40	
Start IR COMP	20:25	14899:07:684	19:51:40	
PPS Stellar CAL	21:33	14900:32:683	20:59:40	
End IR COMP	015/20:13	14928:52:662	1979-015/19:39:38	
LECP Stepping Mic. (Ground Command)	016/20:17	14958:57:638	1979-016/19:43:37	
Start LECP/PLS Mic.	20:17:00	14958:57:638	19:43:37	
Field & Particles Comb. CAL (Ground Command)	017/21:28:00	14990:26:410	1979-017/20:54:35	
OPNAV Ganymede	018/15:54	15013:28:787	1979-018/15:20:34	
OPNAV Calisto	23:31	15023:00:177	22:57:33	
Start IR COMP	019/19:30	15047:58:750	1979-019/18:56:32	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
IRIS Flashoff Htr. OFF (Ground Command)	361/16:00:00	14353:36:408	1978-361/15:26:36	
360° Roll Turn Test Sequence (Ground Command)	363/17:26:33	14415:24:605	1978-363/16:53:11	
Start Roll Turn Test Sequence	20:58:00	14419:49:059	20:24:39	
Deadband to .05	22:40:00	14421:56:460	22:06:39	
Deadband to .5	22:42:00	14421:59:060	22:08:39	
End Roll Turn Test Sequence	23:43:00	14423:15:261	23:09:39	
Deadband to .16 (Ground Command)	1979-004/07:00:00	14582:21:550	1979-004/06:41:43	
IRIS Repl. Htr. OFF (Ground Command)	07:15:00	14582:40:350	06:41:43	
IRIS Power ON (Ground Command)	07:16:00	14582:41:550	06:42:43	
OPNAV Ganymede	005/00:22:39	14604:05:004	004/23:49:23	
NAKCAL PPS SATNAK CAL	00:37:52	14604:24:021	1979-005/00:04:36	
IR Sun - IRIS Solar CAL	06:29:00	14611:42:756	05:55:44	
OPNAV Calisto	08:36:00	14614:21:556	08:02:44	
IR Sun - IRIS Solar CAL	08:46:39	14614:35:006	08:13:23	
NAKCAL - PPS SATNAK	09:57:03	14616:03:006	09:23:47	
ISS Beam Bending Test	15:44:18	14623:17:057	15:11:02	
OPNAV Ganymede	16:25:08	14624:08:091	15:51:52	
NAKCAL - PPS SATNAK	16:40:15	14624:27:007	16:06:59	
UVS Sun - UVS Solar Accultation	18:53:02	14627:12:791	18:19:46	
IR COMP	006/21:51	14660:55:300	1979-006/21:17:44	
OPNAV Calisto	009/17:12:15	14745:07:002	1979-009/16:38:59	
IR COMP	21:19:00	14750:15:350	20:45:44	
OPNAV Europa	23:09:51	14750:33:800	22:36:35	

SCIENCE DATA TEAM

SCIENCE SIGNIFICANT EVENTS

S/C 32

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Deadband to .5 (Ground Command)	041/08:12	16170:58:243	1979-041/07:41:03	
IRIS Power OFF confirmed	08:57	16171:54:441	08:26:03	
IRIS Repl. Htr. ON confirmed	08:58	16171:55:641	08:27:03	
Start PESCAL	20:32	16186:23:207	20:01:01	
End PESCAL	21:28	16187:33:204	20:57:00	
PPS Step (Ground Command)	22:00	16188:13:203	21:29:00	
Start PLS CAL	23:30	16190:55:598	22:59:00	
End PLS CAL	042/02:42	16194:05:598	1979-042/02:10:59	
Start MAG F.C. Range CAL	02:42:12	16194:05:789	02:11:11	
End MAG F.C. Range CAL	03:03:48	16194:32:788	02:32:47	
Start MAG BAM	03:04	16194:33:187	02:32:59	
End MAG BAM	03:10	16194:40:587	02:38:59	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
End MAG F.C. Range CAL	035/03:95	15985:12:424	1979-035/03:04:26	
Start MAG BAM	03:35	15985:12:424	03:04:26	
End MAG BAM	03:40	15985:18:624	03:09:25	
PPS Step (Ground Command)	036/04:00	16015:43:569	1979-036/03:29:23	
PPS Step (Ground Command)	16:00	16030:43:540	15:29:21	
PPS Step (Ground Command)	037/05:00	16046:58:509	1979-037/04:29:19	
PPS Step (Ground Command)	038/03:00	16074:28:454	1979-038/02:29:16	
PPS Step (Ground Command)	14:10	16088:26:025	13:39:14	
PPS Step (Ground Command)	039/05:00	16106:58:386	1979-039/04:29:11	
PPS Step (Ground Command)	040/03:00	16134:28:326	1979-040/02:29:08	
PPS Step (Ground Command)	16:00	16150:43:290	15:29:06	
Deadband to .16 (Ground Command)	041/03:30	16165:05:657	1979-041/02:59:04	
IRIS Repl. Htr. OFF (Ground Command)	03:50	16165:30:656	03:19:03	
IRIS Power ON (Ground Command)	03:51	16165:32:056	03:20:03	
PPS Step (Ground Command)	06:00	16168:13:250	05:29:03	
IRIS Power OFF (Ground Command)	07:55	16170:37:044	07:24:03	
IRIS Repl. Htr. ON	07:56	16170:38:244	07:25:03	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Deadband to .5	023/11:00:00	15634:29:256	1979-023/10:29:53	
IRIS CAL/PPS Check/PRA Test	11:01:00	15634:30:456	10:30:53	
PRA Post Stan. Test (Ground Command)	21:00:00	15646:59:247	20:29:52	
Start PESCAL	027/22:01	15768:15:336	1979-027/21:30:45	
End PESCAL	22:56	15769:24:135	22:25:45	
Start PLS CAL	028/00:28	15771:19:133	23:57:45	
Start MAG F.C. Range CAL	03:43	15775:22:728	1979-028/03:12:45	
End PLS CAL	03:43	15775:22:728	03:12:45	
End MAG F.C. Range CAL	04:05	15775:50:328	03:34:45	
Start MAG BAM	04:06	15775:51:528	03:35:45	
End MAG BAM	04:11	15775:57:727	03:40:45	
PPS Power ON (Ground Command)	032/22:55	15919:22:534	1979-032/22:24:33	
$3\frac{1}{2}^{o}$ FOV/J Mode ON (Ground Command)	22:55	15919:22:534	22:24:33	
PPS Step (Ground Command)	033/14:00	15938:13:704	1979-033/13:29:31	
PPS Step (Ground Command)	034/05:00	15956:58:673	1979-034/04:29:23	
Start PESCAL	22:37	15978:53:636	22:01:27	
PPS Step (Ground Command)	23:00	15979:28:635	22:29:27	
End PESCAL	23:28	15980:03:634	22:57:27	
Start PLS CAL	23:57	15980:40:032	23:26:27	
End PLS CAL	035/03:12	15984:43:625	1979-035/02:41:26	
Start MAG F.C. Range CAL	03:12	15984:43:625	02:41:26	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
IRIS Power ON	019/16:31	15521:23:113	1979-019/16:00:56	
PPS FOV	16:31	15521:23:113	16:00:56	
IRIS Power OFF confirmed	16:36	15521:29:313	16:05:56	
IRIS Repl. Htr. ON confirmed	16:37	15521:30:513	16:06:56	
Deadband to .5	19:30	15525:06:712	18:59:56	
Start PESCAL	020/22:31	15558:53:099	1979-020/22:00:55	
PRA Fix (Ground Command)	22:35	15558:58:099	22:04:55	
End PESCAL	23:27	15560:03:099	22:56:55	
Start PLS CAL	021/00:59	15561:58:097	1979-021/00:28:55	
IRIS Flashoff Htr. OFF (Ground Command)	05:15	15564:48:096	02:44:55	
End PLS CAL	04:14	15566:01:695	03:43:55	
Start MAG Range CAL	04:14	15566:01:695	03:43:55	
End MAG Range CAL	04:36	15566:29:295	04:05:55	
Start MAG BAM	04:37	15566:30:495	04:06:55	
End MAG BAM	04:42	15566:36:695	04:11:55	
IRIS Repl. Htr. OFF (Ground Command)	023/01:29:00	15622:35:464	1979-023/00:58:53	
IRIS Power ON (Ground Command)	01:30:00	15622:36:664	00:59:53	
Deadband to .16	02:00:00	15623:14:264	01:29:53	
IRIS Boresight CAL/PPS Check/ PRA Test	02:20:00	15623:39:263	01:49:53	
Deadband to .05	03:20:00	15624:54:263	02:49:53	
IRIS Power OFF	10:42:07	15634:06:773	10:12:00	
IRIS Repl. Htr. ON	10:43:06	15634:08:156	10:12:59	
PPS Power OFF	10:47:07	15634:13:173	10:17:00	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start CCSL B214 (Ground Command)	011/21:45:00	15287:55:510	1979-011/21:14:57	
Start PRA Fix (Ground Command)	22:45:00	15289:10:511	22:14:57	
PPS DOR (Ground Command)	012/04:00:00	15295:44:313	1979-012/16:11:57	
Start CCSL B214	16:42	15311:36:718	16:11:57	
Start PESCAL	013/00:31	15321:23:121	1979-013/00:00:57	
End PESCAL	01:27	15322:33:121	00:56:57	
Start PLS CAL	014/01:30:00	15352:36:727	1979-014/00:59:53	
Dead Band to .16	03:00:00	15354:41:728	02:39:53	
End PLS CAL	04:36	15356:29:328	04:05:53	
MAG Range CAL	04:46	15356:41:728	04:15:53	
Start MAG BAM	05:08	15357:09:328	04:37:53	
Dead Band to .05	06:36	15358:59:328	06:05:53	
Deadband to .5	07:25	15360:00:528	06:54:53	
All Axes Inertial	015/04:10:02	15385:56:731	1979-015/03:39:53	
Sun Search Enabled	06:18:33	15388:37:481	05:48:31	
Star Acquisition	06:22:37	15388:42:548	05:52:35	
Deadband to 116	018/02:45	15474:10:526	1979-018/02:14:57	
PPS Power ON (Ground Command)	019/15:18	15519:51:714	1979-019/14:47:56	
IRIS Power OFF (Ground Command)	15:36	15520:14:314	15:05:56	
IRIS Repl. Htr. ON (Ground Command)	15:37	15520:15:514	15:06:56	
IRIS Repl. Htr. OFF	16:30	15521:21:713	15:59:56	

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

21 March 1979

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: J.F. SCHMIDLING

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the Monthly Science Data Product Report for your information and review.

JFS:jvc
Enclosure (1)

CRS	R.E. Vogt	MAG	N. Ness	PRA	J. Warwick
	T. Garrard		M. Acuna		J. Pearce
	N. Lal		R. Lepping		A. Riddle
	J. Trainor		E. Choo		
	T. Aufrantz		A. Silver		
IRIS	R. Hanel	PLS	H. Bridge	PWS	F. Scarf
	D. Crosby		A. Lazarus		W. Kurth
	L. Herath		J. Sullivan		
			K. Ogilive		
			G. Gordon		
			E. Sittler		
LECP	S. Krimigis	PPS	C. Lillie	UVS	L. Broadfoot
	T. Armstrong		C. Hord		D. Mosley
	G. Gloecker		K. Simmons		
	E. Keath				
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cc:	J. Anderson		R. Heacock		R. Parks
	J. Bergstralh		J. Holberg		R. Polansky
	C. Busse		L. Horn		R. Poynter
	D. Collins		S. Kumar		A. Sacks
	S. Collins		R. Laeser		M. Sander
	H. Danley		A. Lane		C. Stembridge
	M. Devirian		J. Long		E. Stone
	O. Divers		P. Lyman		G. Textor
	K. Erickson		D. Lynn		T. Thompson
	E. Franzgrote		R. Morris		B. Toyoshima
	S. Hanson		R. Parker		J. Tupman
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SCIENCE DATA TEAM

SCIENCE DATA PRODUCTS REPORT #8

21 March 1979

1) CORRECTION TO LAST MONTH'S REPORT

Last month's report indicated that a non-recoverable data gap occurred due to a power outage on DOY 045 at Madrid, Spain. The reported gap was from DOY 045/1711 to DOY 046/0002. In actuality, however, mission controllers managed to radiate a command to the spacecraft to cause the science data to be placed on the spacecraft tape recorder. This command went into affect on 045/2020 and the data will be recoverable from that point in time.

2) SCAN PLATFORM SEDR STATUS

The software which computes the footprint and viewing geometry parameters for the scan platform SEDRs was modified to provide corrections for the problems detailed in last month's report. In addition, a problem with the Point of Closest Approach (PCA) altitude (see attached FR #59513) for an intercept point was discovered and corrected. The software was made available for operational use on March 6 and was used to generate all scan platform SEDRs except for the following:

1. FIR 13201 & FIR 13202 IRIS SEDR
2. FPP 13201 & FPP 13202 PPS SEDR
3. FUV 13201 & FUV 13202 UVS SEDR

These SEDRs contain the following errors:

1. Word 76 Common Block, Phase Angle, Incorrect
2. Word 83, Common Block, PCA Altitude of Optic Axis, Magnitude incorrect for intercept point incorrect.
3. Words 9 and 18, UVS Peculiar Block, PCA altitude of P2 and P8 points, same error as #2.

In addition, caution must be taken when interpreting the satellite shadow latitudes and longitudes (Common block words 99 - 106) and the apparent satellite latitudes and longitudes (ISS peculiar block words 42 - 49). These values are only correct when the picture body is Jupiter, i.e., common block word 2 is an integer value of 5.

3) FDS COUNT DRIFT AT ENCOUNTER

During the few hours of closest approach to Jupiter and the Io Flux Tube passage for Voyager 1, the FDS clock drifted in a non-linear fashion apparently due to the high radiation environment. The nominal MOD60 rate for the clock had been approximately 10 microseconds greater than the nominal 48 second value and began to slow down at about 0900 ERT on DOY 064. The clock continued to slow down until about 064/1300 ERT where the MOD60 rate was about 27 milliseconds greater than 48 seconds. The rate then began to increase back to its original value and achieved that rate sometime between 2100 and 2300 ERT on DOY 064. The overall affect of the varying clock rate was to cause an approximate 8.4 second delay for events occurring on board the spacecraft in the FDS. Subsequent analysis of this problem by the Spacecraft Team (SCT) revealed that both the FDS and the CCS clocks were drifting abnormally during the near encounter period and syncronization between the clocks had been lost. The result of this loss of timing was that many events were occurring not in accordance with the planned SOE. Attachment 1 presents a more detailed report of these occurrences and the immediate remedial action, if any, that was taken. The affect of the clock drift on the science processing was that a delay in the production of EDRs was incurred until a set of cards could be generated which reflected the FDSC/SCET relationship through the non-linear period. Attachment 2 provides a plot of the cards that were used to create the time values (SCET) which will be reflected on final data records products.

4) SEDR SUMMARY

Attached is the latest update of the SEDR Summary.

5) SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events Report.

JFS:jvc

ATTACHMENT 1

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

9 March 1979

Voyager-SCT-79-1125

To: R. Amorose

From: G. Lau

Subject: Spacecraft Team Weekly Status Report for Week Ending DOY 067

S/C 31

Voyager 1 executed a week of extremely active sequence in the past 7 days. All of the anomalies will be briefly described in this report. Detail analysis of these anomalies will be forthcoming from the technical divisions and science areas. In addition, numerous "EXPRESS" type commands have been transmitted to different science instruments. The EXPRESS category commands do not require Spacecraft Team processing, hence the purpose and objective of each "EXPRESS" command will not be covered by this report.

On Day 061, A329 was radiated. Both FDS and CCS checksums indicated the load has been nominally received. At 05:00, an immediate execute block was transmitted to modify the FCP swap table. The objective of the modification was to change the gyro usage pattern in the FCP swap table such that if FCP swap should occur, a new set of gyros would be selected. The objective was to eliminate one possible single point failure path. A329 became effective on 061/12:46:00.

At 20:00:00 on the same day, 4 real time commands were transmitted to modify the FDS 0804 encounter commutator. The change placed the DTR mode status up on the 100 deck and placed the PPS analyzer position on the 300 deck. Since PPS was not intended to be stepped during JST Jupiter encounter, the placement of DTR status on a higher deck greatly enhanced visability into the DTR response.

On Day 062, A330 load was radiated at 01:23:00. All the blocks were received and checksums indicated nominal loading. At 12:10:00, due to bad weather forecast, a weather contingency command was transmitted to go from IM-3 to IM-6. The change was confirmed and 3 hours later, FDS was returned to load state after clear weather was declared.

On 062/15:00:00, the Spacecraft Team conducted a detail status check and recommended PLOMAN enable. The maneuver was executed successfully. After acquisition of data, station dropped spacecraft lock for approximately 30 minutes due to a hardware problem. For a quick look report on PLOMAN, refer to ICM VGR-SCT-79-1120.

On Day 063, A351 load was being uplinked. Due to DSS 14 transmitter spiking, several CCS blocks were not received. Real time decision was made to re-transmit the complete load. After load verification, two failure protection algorithms were changed. (The objective of the modification was to remove TMU select command from RFLOSS and AACSIN routine such that in case of entry into the automatics high value science data could be preserved. CCS readout indicated the modification was successful.) In addition, a FDS memory copy was executed via real time command. The copy command copied the entire primary memory content into the secondary memory. The intent was to keep the secondary memory current with that of the primary, so that if it were necessary to do an FDS swap, the science instruments would retain a configuration as close to the optimum encounter configuration as possible. The same action was taken after every successful encounter load.

On the same day, it was observed that AACS executed an extra elevation slew and one other slew was reported to have gone in the opposite direction. ISA #2774 has been generated. The opposite direction slew was thought to be due to the problem in precisely modeling the fine and coarse pot transition. Detail analysis will be forthcoming from the technical division.

At 19:00:00, gyro drift compensation commands were transmitted in preparation from RASMA on close encounter day. Best estimate compensations for all three gyros were received by the spacecraft and verified.

It was also noticed on Day 063 that the FDS power converter current had reached 61 dn. The nominal value was about 56 dn. FDS power converter current measurement was put in the encounter format specifically for the measurement of the presence of radiation on the FDS circuitry. ISA #2728 has been generated.

At 13:15:00 on Day 063, real time analyst reported that several of the general science multiplex channels started to toggle about 1 dn. It was thought that the problem was done to the electrostatic environment. No action was taken. On the same day, A352 and A353 were loaded successfully.

On Day 064, at 06:53:06, it was discovered that PPS optic temperature was increasing and that the instrument was drawing 2½ times more power than it should. Real time decision was made to turn off the instrument. Later on in the sequence. an onboard command turned PPS back on, and the same signature was observed. The instrument was again turned off by real time commands and, in addition, real time command was transmitted to zero out locations in the CCS memory that issued PPS off/on in a cyclical manner. ISA #2568 has been generated.

At 05:00:00, both the VCO Fine and Coarse voltage began to diverge from the predicted values. Preliminary indications were that the receiver oscillator crystal has changed frequency due to the radiation environment. It was estimated that the VCO frequency has changed approximately 1800 Hz (S-band) before occultation. ISA #2738 has been generated.

At 12:10:00, it was apparent that an FDS data mode change occurred early. Subsequent real time analysis indicated that both CCS and FDS clock were drifting. At one point, FDS was drifting by as much as 0.15 sec. per hour. ISA #2727 has been generated.

Also, CCS events appeared to be 48 seconds early. Real time decision was made to send an immediate execute block to resync the CCS processers. It was afraid that if this was not done, high value science data may be lost due to out of sync recording strategy. Due to the limited telemetry resolution, the Spacecraft Team was unable to verify the effect of the real time execute block. ISA #2725 was generated. Subsequent timing offset test at 065/06:33:15 indicated a seven second offset for processor A despite the aforementioned clock reset. ISA #2737 has been generated.

On 064/12:40:00, it was noticed that shunt current signature did not follow the corresponding change in 2.4 output current. ISA #2779 has been generated.

Due to exceptional clear weather conditions throughout the 64m passes, a decision was made to transmit weather contingency command to go to 115.2 kbps. The data mode change was confirmed real time.

At 15:10, it was noticed that IRIS status was in constant alarm due to phase lock loop out of lock, probably due to microphonic interference from the imaging subsystem. Also, the motor positioning override was not functioning properly. Later on in the same day, it was further noticed that the neon signal had dropped by approximately 7 dn. ISA #2420 and #2403 have been generated.

At 15:14, Radio Science indicated that the DSS 62 noticed a subcarrier frequency shift of 1.25 Hz and contributed the effect to the radiation environment that the spacecraft was in. ISA #2735 has been generated. At 15:35, it was noted that from the real time MTIS display, smearing of imaging picture was noted. ISA #2732 was generated. The problem may be due to the timing offset in the computer such that the platform was slewing while ISS was shuttering.

At 15:40, analyst indicated all LECP detectors were in a saturation state.

At 15:43, information from the non-real time area indicated that the previous rapid FDS drift has ceased and the drift appeared to have flattened out at 6.33 seconds. Analysis later on indicated that the rate of the FDS drift mapped that of the radiation flux.

At approximately 16:20:00, RASMA sequence began. Engineering data were dropped due to S and X band drivers off. Although the drivers were off, from the station receiver AGC, it was observed that the spacecraft was executing the RASMA sequence nominally. A more complete analysis of the RASMA sequence will be forthcoming from technical divisions.

The spacecraft was reacquired at 18:25:00. All subsystems reported nominal performance. DSE reported 12 extra event counts but was able to resolve the discrepancy by factoring in the two real time commands sent earlier to PPS. All subsystem configurations remained unchanged.

At 19:20:00, following the roll turn to align the UVS slit for sun occultation, the S band AGC dropped 6db and exhibited 3db variation with limit cycle motion despite the offset compensation drift turns. The variation corresponded to approximately a 0.4 degree pointing error. Since the data rate was 7.2 kbps, no data were lost. ISA #2730 has been generated. After Canopus acquisition, the deviation ceased.

A371 CCS load was radiated at 064/20:04:00, all blocks were received and check-sums were per predicts. Real time commands were sent later in the day to change the tandem Arcturus turn to a parallel event not involving TRNSUP timing check. This was done because a 900ms difference in CCS processors would cause a tandem abort. Arcturus was rolled to and acquired as reference on 065/03:33. It was determined later on that CCS processors were offset by at least 7 seconds. Therefore, correct decision was made to change the turn.

On Day 066, it was determined after several CCS timing offset test that CCS processor A was off by 55 seconds and Processor B was off by 45 seconds. A patch was generated to resync the CCS hourly pulse with FDS frame start. Single ID CCS memory readout and CCS timing offset test indicated that both processors were reset.

A372 was uplinked on Day 066. The load was received nominally. At 14:15:00, the Spacecraft team conducted the detail status check for FLOMAP 1 and recommended FLOMAP 1 enable at 14:30:00. The enable command was transmitted at 15:00:00. The spacecraft executed the 3 turns nominally and all subsystems reported normal performance. Refer to IOM VGR-SCT-1120 for FLOMAP 1 quick look report.

Shortly after the FLOMAP 1 data acquisition, another detail status check was conducted, leading to real time enable at 20:25:00. Again all events were per predict and subsystem performances nominal. Refer to IOM VGR-SCT-1126 for FLOMAP 2 quick look report.

Propulsion reported 600 gm of hydrazine was consumed in the past 7 days. This leaves 86.6±0.5 kg on board the spacecraft for future use. Power reported that the total RTG output was 449 watts with a weekly minimum power margin of 41 watts.

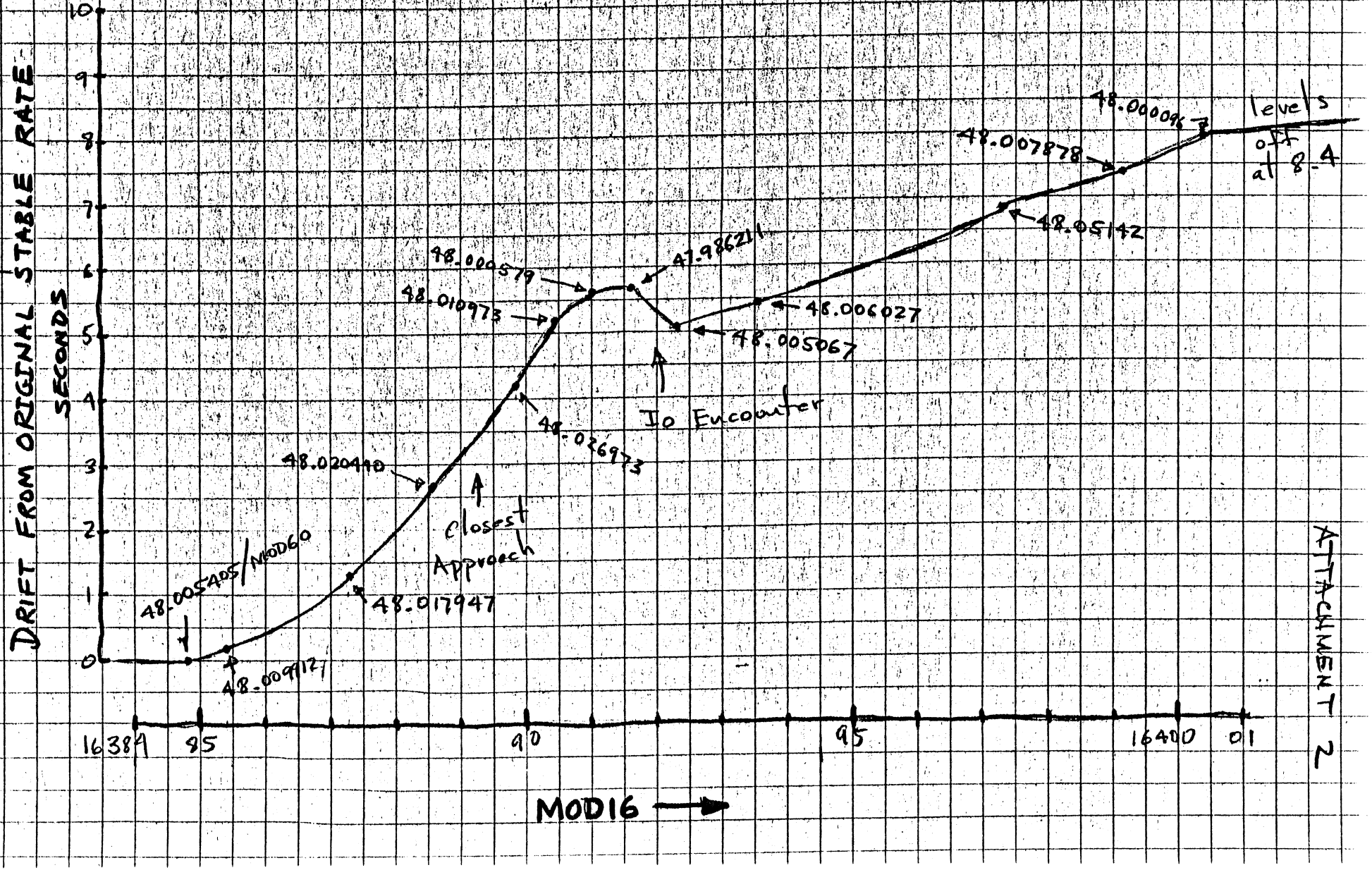
S/C 32

Voyager 2, during Voyager 1 encounter, remained quiet. Routine activities included USO frequency test, PESCAL, PLSCAL, DTR maintenance and magnetometer calibration.

Propulsion reported that 7.6 gm of hydrazine was consumed in the past 7 days. This leaves 92.3± 2,5 kg on board the spacecraft for future use. Power reported a total RTG output of 453 watts with a weekly minimum power margin of 50 watts.

GL:tld

cc: Spacecraft Team Weekly Status Report Dist. List



ATTACHMENT 2

C-RUX

MCCC FAILURE ACCOUNTABILITY REPORT (FAR) [1]
MCCC FAILURE REPORT (FR) [2]

CALENDAR DATE: MONTH 3 | DAY 3 | YEAR 79

FAR CONTROL #: N/A ☐

FAILURE OBSERVED BY: F. Schmidling EXT. 5996 ADD. 264-119

FR WRITTEN BY (IF DIFFERENT): EXT. ADD.

TIME OF FAILURE: JULIAN DAY | UTC

MCCC FR NUMBER: 59513

MCCC OPERATIONS NOTIFIED: NAME | JULIAN DAY | UTC TIME

ACTIVITY: TEST/TRNG ☐ REAL TIME FLT SUPPORT ☐ BATCH FLT SUPPORT ☐ DEVEL ☐ INTEG ☐ JOB SHOP ☐ OTHER ☐

DATA OUTAGE: NO ☐ YES ☐ FROM _____ TO _____

PROJECT CRITICAL AUTHORIZATION:

DATA SYSTEMS AFFECTED: ALL ☐ TRACKING [1] COMMAND [2] OPS CONTROL [3] TELEMETRY [4] OP SYS [5] SIM [6] NONE ☐

SUSPECTED PROBLEM AREA (CHECK ONE): DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☒ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐ OTHER ☐

NRTS ☐ OCS ☐

360/75	A ☐	B ☐	C ☐			
3100	A ☐	B ☐				
CP-RTR	1 ☐	2 ☐				
CP-TC	A ☐	B ☐	C ☐			
OPS-OCC	1 ☐	2 ☐				
OPS-RTR	A ☐	B ☐				
DEV/BATCH	1 ☐	2 ☐	/B ☐			

SYS DUMP/R-DUMP #: _____

ATTACHMENTS:
- 1052 PRINTOUT ☐
- 008 PRINTOUT ☐
- I/O PRINTOUT ☐
- 050 PRINTOUT ☐

TLMS ☐ CMDS ☐ MTIS ☐ ONPS ☐

MACHINE ID
- 1218 ☐ _____
- 1219 ☐ _____
- 1530 ☐ _____
- 1616 ☐ _____
- MODCOMP ☐ _____
- CMD 1 ☐ 2 ☐
- OTHER: ☐ _____

ATTACHMENTS: FAULT DUMP ☐ I/O PRINTOUT ☐ OTHER ☐

HARDWARE MTPS ☐

- WBS ☐ _____
- DTV ☐ CHANNELS _____
- VIDS ☐ CHANNELS _____
- TVSA ☐ NO. _____
- VOCA ☐ NO. _____ EXT. _____
- OTHER: ☐ _____

EQUIP. NAME _____

ADDRESS OR ID _____

SOFTWARE

- OP SYS VERSION _____
- MISSION VERSION _____
- MOSS VERSION 4.9W
- DEV. VERSION _____
- OTHER: LIBPOG
- DIAGNOSTICS YES ☐ NO ☐

FOR GPCF FARS ONLY

1108 A ☐ DR # _____

1108 B ☐

EQUIP:

DESCRIPTION OF FAILURE/PROBLEMS: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE) PROJECT(S) AFFECTED _____

The common block parameter, PCA Attitude (word 83, LIBPOG to SEDRGEN file), is incorrect for an intercept point. This parameter should indicate the negative distance from the limb to the intercept point when viewed by the s/c. Words 9 & 18 of UVS peculiar block also contain this error.

ACTION TAKEN TO RESTORE CAPABILITY: Software Change <CAT 2>

TIME CLEARED: JULIAN DAY | UTC

DESCRIPTION OF FINAL CORRECTIVE ACTION: (DESCRIBE IN AS MUCH DETAIL AS POSSIBLE, INCLUDE SOFTWARE VERSION)

Algorithm on code modified

Closed with delivery to MOSS 4.9W 3/5/79

TIME CORRECTED: JULIAN DAY | UTC

CORRECTED BY:

FAILURE DEFINED AS (CHECK ONE): DATA QUAL ☐ HARDWARE ☐ SOFTWARE ☐ PROCEDURAL ☐ DOCUMENTATION ☐ UNDETERMINED ☐

FOR CONTROL USE ONLY

E RECEIVED	DATE CLOSED	ACTION TAKEN CODE
ASSIGNED TO [redacted] DCS	DATE	S1
REASSIGNED TO	DATE	

CLOSE OUT MANAGEMENT APPROVAL

TECHNICAL GROUP SUPERVISOR OR SE	DATE
OTHER APPROVAL – IF REQUIRED [redacted]	DATE 3/5/79

COPY DISTRIBUTION: WHITE–ORIGINAL, CANARY–CORRECTING AGENCY, PINK–FASO, GOLDENROD–OBSERVER, GREEN–FACILITY

JPL 1234 R 1/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			LAUNCH PHASE		
**			LAUNCH TO TCM		**
11001A	12:00	13:08	77-248/14:09	77-248/15:03	01/24/78
11002A	13:11	15:19	77-248/15:06	77-248/16:48	01/24/78
11003A	15:35	34:18	77-248/17:01	77-249/07:59	01/30/78
11004A	34:19	45:59	77-249/08:00	77-249/17:20	01/25/78
11005A	46:00	178:00	77-249/17:21	77-254/02:57	01/31/78
11006A	187:00	245:00	77-254/10:09	77-256/08:33	01/30/78
			EARTH TO JUPITER CRUISE PHASE		
**			TCM TO END OF 1977		**
12001A	253:05	650:35	77-256/15:01	77-269/21:01	01/16/78
12002A	654:20	961:50	77-270/00:01	77-280/06:01	01/25/78
12003A	965:35	1633:05	77-280/09:01	77-302/15:01	01/31/78
12004	1633:05	2026:50	77-302/15:01	77-315/18:01	01/31/78
12005	2030:35	2600:35	77-315/21:01	77-334/21:01	02/22/78
12006	2604:20	3530:35	77-335/00:01	77-365/21:01	02/22/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
13001	3534:20	4460:35	78-001/00:01	78-031/21:01	03/21/78
13002	4464:20	4925:35	78-032/00:01	78-047/09:01	04/10/78
13003	4929:20	5300:35	78-047/12:01	78-059/21:01	04/24/78
13004	4944:20	4974:20	78-048/00:01	78-049/00:01	04/25/78
	First 3 digits of above package numbers should have been 121 instead of 130				
**	PACKAGE ID CORRECTION TO NAV DATA FORMAT CHANGE				**
12105	4978:05	5750:35	78-049/03:01	78-074/21:01	05/12/78
12106	5154:20	6230:35	78-075/00:01	78-090/21:01	06/14/78
12107	6234:20	7130:35	78-091/00:01	78-120/21:01	06/14/78
12108	7134:20	8960:35	78-121/00:01	78-181/21:01	08/03/78
12109	8964:20	9890:35	78-182/00:01	78-212/21:01	09/12/78
**	NAV FORMAT CHANGE TO FDS RESET				**
12201	9894:20	10813:05	78-213/00:01	78-243/15:01	11/28/78
12202	10816:50	12050:35	78-243/18:01	78-284/21:01	01/31/79
12203	12054:20	13498:05	78-285/00:01	78-333/03:01	02/18/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	FDS RESET TO END OF 1978				**
12301	13501:50	14480:35	78-333/06:01	78-365/21:01	02/18/79
**	START OF 1979 to TCM-3				**
13101	14484:20	14694:10	79-001/00:01	79-007/23:53	02/18/79
13102	14694:20	14904:10	79-008/00:01	79-014/23:53	02/18/79
13103	14904:20	15114:10	79-015/00:01	79-021/23:53	02/18/79
13104	15114:70	15359:30	79-022/00:01	79-030/04:09	02/18/79
**	TCM-3 TO TCM-4				**
13201	15359:40	15414:18	79-030/04:17	79-031/23:59	02/18/79
13202	15414:19	15481:46	79-032:00:00	79-034/05:58	02/27/79
13203	15481:47	15549:20	79-034/05:58	79-036/12:01	03/05/79
13204	15549:21	15616:59	79-036/12:02	79-038/18:08	02/27/79
13205	15617:00	15654:18	79-038/18:09	79-039/23:59	02/27/79
13206	15654:19	15714:18	79-040/00:00	79-041/23:59	03/02/79
13207	15714:19	15774:17	79-042/00:00	79-043/23:58	02/28/79
**	TCM-4 TO NEAR ENCOUNTER				**
13302	16074:19	16134:17	79-054/00:00	79-055/23:58	03/11/79
13303	16134:19	16194:17	79-056/00:00	79-057/23:58	03/11/79
13304	16194:19	16254:17	79-058/00:00	79-059/23:58	03/11/79
13305	16254:19	16314:17	79-060/00:00	79-061/23:58	03/11/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			L A U N C H P H A S E		
**			LAUNCH TO FDS POWER ON RESET		**
01001A	11:30	71:00	77-232/21:06	77-234/15:42	02/03/78
01002A	73:55	141:25	77-234/18:02	77-237/00:02	01/31/78
01003A	148:55	302:40	77-237/06:02	77-242/09:02	01/24/78
01004A	306:25	366:25	77-242/12:02	77-244/12:02	01/24/78
01005A	370:10	662:40	77-244/15:02	77-254/09:02	01/24/78
01006A	666:25	1322:40	77-254/12:02	77-276/09:02	01/30/78
01007A	1326:25	1540:10	77-276/12:02	77-283/15:02	01/25/78
**			FDS POWER ON RESET TO TCM A		**
01101	1543:55	1581:25	77-283/18:02	77-285/00:02	01/30/78
			E A R T H T O J U P I T E R C R U I S E P H A S E		
**			TCM A TO END OF 1977		**
02001A	1588:55	2027:40	77-285/06:02	77-299/21:02	01/24/78
02002	2031:25	2447:40	77-300/00:02	77-313/21:02	01/30/78
02003	2451:25	2867:40	77-314/00:02	77-327/21:02	02/13/78
02004	2871:25	3287:40	77-328/00:02	77-341/21:02	02/13/78
02005	3291:25	4007:40	77-342/00:02	77-365/21:02	03/22/78
02006	3891:25	3921:25	77-362/00:02	77-363/00:02	03/30/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
03001	4011:25	4427:40	78-001/00:02	78-014/21:02	04/26/78
03002	4431:25	5087:40	78-015/00:02	78-036/21:02	04/10/78
03003	5091:25	5357:40	78-037/00:02	78-045/21:02	04/10/78
	-	First 3 digits of above package numbers should have been 021 instead of 030.			
**	PACKAGE ID CORRECTION TO TCM				**
02104	5361:25	5837:40	78-046/00:02	78-061/21:02	05/08/78
02105	5841:25	7127:40	78-062/00:02	78-104/21:01	06/07/78
02106	7131:25	7607:40	78-105/00:02	78-123/21:02	07/17/78
**	TCM TO NAV DATA FORMAT CHANGE				**
02001	7701:25	8027:40	78-124/00:02	78-134/21:02	07/11/78
02202	8031:25	8957:40	78-135/00:02	78-165/21:02	08/05/78
02203	8961:25	9857:40	78-166/00:02	78-195/21:02	08/30/78
02204	9861:25	10787:40	78-196/00:02	78-226/21:02	09/30/78
**	NAV DATA FORMAT CHANGE TO PRESENT				**
02301	10791:25	11710:10	78-227/00:02	78-257/15:02	11/28/78
02302	11713L55	12617L40	78-257/18:02	78-287/21:02	03/09/79

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

19 April 1979

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: H. Woo HW

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the Monthly Science Data Product Report for your information and review.

JFS:jvc
Enclosure (1)

CRS	R.E. Vogt	MAG	N. Ness	PRA	J. Warwick
	T. Garrard		M. Acuna		J. Pearce
	N. Lal		R. Lepping		A. Riddle
	J. Trainor		E. Choo		
	T. Aufrantz		A. Silver		
IRIS	R. Hanel	PLS	H. Bridge	PWS	F. Scarf
	D. Crosby		A. Lazarus		W. Kurth
	L. Herath		J. Sullivan		
			K. Ogilive		
			G. Gordon		
			E. Sittler		
LECP	S. Krimigis	PPS	C. Lillie	UVS	L. Broadfoot
	T. Armstrong		C. Hord		D. Mosley
	G. Gloecker		K. Simmons		P. Takacs
	E. Keath				
	L. Lanzerotti				

cc:

J. Anderson	R. Heacock	R. Parks
J. Bergstralh	J. Holberg	R. Polansky
C. Busse	L. Horn	R. Poynter
D. Collins	S. Kumar	A. Sacks
S. Collins	R. Laeser	M. Sander
H. Danley	A. Lane	C. Stembridge
M. Devirian	J. Long	E. Stone
O. Divers	P. Lyman	G. Textor
K. Erickson	D. Lynn	T. Thompson
E. Franzgrote	R. Morris	B. Toyoshima
S. Hanson	R. Parker	J. Tupman
		G. Wood

Telephone 354-4321 *Twx 910-588-3269* *Twx 910-588-3294*

SCIENCE DATA TEAM

SCIENCE DATA PRODUCTS REPORT #9

19 April 1979

1) VOYAGER 2 FDSC RESET

The FDSC on Voyager 2 was reset at 79-106/21:21:51.500 ERT. Prior to the reset, the spacecraft SCET was running 3.67 seconds ahead of the COMSIM (sequence) SCET. After the reset, the spacecraft SCET was behind the COMSIM sequence SCET by 5.6 seconds. Hopefully by Voyager 2 Jupiter Encounter, the net offset will be very close to zero.

The reset was accomplished by subtracting 164 line counts from the FDSC at FDSC = 18137.16.001.

Actual spacecraft events will occur a few seconds later than the time shown on time lines, SOEs, etc. decreasing as Encounter approaches. The FDSC should still be accurate.

2) VOYAGER 1 END OF JUPITER ENCOUNTER

FDS load 1001 was executed at 79-104/03:43 ERT putting Voyager 1 into the CR-4 telemetry mode and officially ending the Jupiter Encounter period for the spacecraft.

3) CR-5

CR-5 is currently scheduled to go on-line aboard Voyager 1 in the September-October time frame. Plans are being developed to test the ground software prior to use as was done for CR-3 and CR-4.

Two changes have accurred in the CR-5 implementation.

a. Aboard the spacecraft, the first byte of PLS data was filler but will now be used to indicate long or short time integration, see attached memo.

b. In the ground processing, the EDR formats for CRS, PLS, and PWS no longer carry segment numbers.

The addition of integration time indication requires no change to the EDR format as the byte is embedded in the science data and is being passed directly to the EDR. The TTS Level II software will be modified to display this status. The elimination of segment numbering for CRS, PLS, and PWS EDR records has been discussed with appropriate personnel of the facilities involved and no difficulties are anticipated.

Reference memo from R. West on PLS CR-5 data is attached.

4) EDR END TIMES FROM DMT COVERSHEETS

Investigation of several Failure Reports (FRs) concerning ending times (SCET, ERT, FDSC) on PPS and MAG EDRs have resulted in the discovery that the end times shown on documentation supplied by the Data Management Team with the EDRs are not necessarily being extracted from the last record on the tape as specified originally. At the present time, it appears that the ERT shown on non-Science Data Team is always correct. A report will be written as soon as these problems are fully understood.

All documentation supplied by the Science Data Team, i.e., EDRVAL output, contains valid beginning and end times for all instruments. Reference ISA 2440 is attached.

5) SEDR SUMMARY

Attached is the latest update of the SEDR Summary.

6) SCIENCE SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events Report.

HW:jvc

INCIDENT/SURPRISE/ANOMALY REPORT

2440

ISA NO. 2440

JET PROPULSION LABORATORY
California Institute of Technology
4800 Oak Grove Dr / Pasadena, Calif 91103

PROJECT: VOYAGER

PAGE 1 OF 1

0442

A. INITIATION

1. INITIATOR: H. WOO | ORGANIZATION: SDT | EXTENSION: 7959

IS A INITIATION CALENDAR DATE: MO 4 | DAY 11 | YEAR 79

2. INCIDENT REPORTED: TO: J. Bailey BY: H. Woo

AT: GMT (UTC): DAY — HR — MIN — SEC —

3. MISSION: 31/32 S/C ID NA ☐

4. TIME OF INCIDENT: ALL

GMT (UTC): DAY HR MIN SEC
AT — — — —
TO — — — —

5. OBSERVATION:
LOCATION: ☐ JPL-230 ☒ JPL-264 ☐ JPL-SAF ☐ KSC ☐ OTHER
ORGANIZATION: DMT/SDT
OBSERVER: J. Bailey / H. Woo

6. DATA IDENTIFICATION: EDRPROC Coversheets

7. DATA SOURCE: ☐ GCF ☐ DSS ☐ NOCC ☐ MTIS ☐ MTPS ☐ MTTS ☒ MCCF DMT ☐ GPCF

8. MISSION ACTIVITY: ☐ MDS TEST ☐ GDS TEST ☐ LAUNCH ☒ CRUISE ☐ ENCOUNTER ☐ OTHER

9. SUSPECT PROBLEM AREA: ☐ MTTS ☒ MCCF ☐ GPCF ☐ NOCC ☐ S/C ☐ MTIS ☐ MTPS ☐ DSS ☐ GCF ☐ OTHER

10. SUSPECT CAUSE CATEGORY: ☐ S/C HARDWARE ☐ GND HARDWARE ☐ PROCEDURES ☐ OTHER ☐ S/C SOFTWARE ☒ GND SOFTWARE ☐ DOCUMENTATION ☐ UNKNOWN

11. (a) DESCRIPTION OF INCIDENT; (b) REAL TIME CHECKS/ANALYSES; (c) REAL TIME CORRECTIVE ACTIONS
IF IT'S NOT WORTH PROPER DOCUMENTATION – IS IT WORTH REPORTING?

S/C 31 – GS-3
S/C 32 – CQ-4

Time tags appearing on EDRPROC coversheets as the ending ERT, FDSC, and SCET of MAG and PPS EDR records are not being extracted from the last physical record on the tape per specification in PD 618-609. They do not appear to be extracted consistently from the same records each time

INITIATOR'S RECOMMENDATIONS

11. (d) MISSION OPERATIONS IMPACT ASSESSMENT: MOIA LEVEL ☐ MAJOR ☐ SIGNIFICANT ☒ MINOR

11. (e) CORRECTION REQ'D BY – DATE OR ACTIVITY

B. ACTION STATUS

12. MISSION OPERATIONS IMPACT ASSESSMENT (MOIA): ☐ MAJOR ☐ SIGNIFICANT ☒ MINOR

13. MISSION APPLICABILITY: ☐ LAUNCH ☐ ENC'R ☐ CRUISE

14. CORRECTION REQUIRED DATE:

15. ACTION ASSIGNMENT: (a) ORGANIZATION ☒ MDT'S ☐ DSN ☐ MCCC ☐ OTHER
(b) INDIVIDUAL: BARWICK | ORGANIZATION: 55E | DATE:

16. REASSIGNMENT: (a) ORGANIZATION ☐ MDT'S ☐ DSN ☐ MCCC ☐ OTHER
(b) INDIVIDUAL: | ORGANIZATION: | DATE:

C. ACTION: ANALYSES/CORRECTION/VERIFICATION

17. (a) ANALYSES, (b) CORRECTIVE ACTIONS AND (c) CORRECTION VERIFICATION:
(EACH SEPARATE ENTRY MUST BE IDENTIFIED BY NAME AND DATE)

- ISA CLOSED WITH ISSUANCE OF 55E FR 59468

CH _____

D. CLOSE OUT

18. FOLLOW-UP ACTIONS/DOCUMENTS: ☐ S/C PFR NO. ☐ DSN DR NO. ☒ MCCC FR NO 59468 ☐ MCCC FAR NO. ☐ OTHER

APPROVALS/CONCURRENCES

19. ACTION RESPONSIBLE ORG'N: GN DATE:

20. PFAR CONCURRENCE: GN DATE:

21. PROJECT (CMO): GN DATE: 4/12/79

22. DISTRIBUTION
(a) STANDARD NO. 3 (b) SPECIAL:

JPL 2811 1/77

3

VOYAGER: 2.195C
6 APRIL 1979

TO: DISTRIBUTION
FROM: R. WEST
SUBJECT: THIRD REVISION TO CR-5 DATA MODE DESCRIPTION

REFERENCES:
1. VOYAGER: 2.95, 1 MARCH 78, CR-5 DATA MODE DESCRIPTION
2. VOYAGER: 2.95A, 10 MARCH 78, FIRST REVISION
3. VOYAGER: 2.95B, 27 MARCH 79, SECOND REVISION
4. ECR NO. 37170, 5 APRIL 79

IN ACCORDANCE WITH ECR 37170 (REF 4) THE CRUISE 5 MODE SOFTWARE HAS BEEN CHANGED TO PROVIDE EITHER A LONG OR A SHORT PLS INTEGRATION TIME. PREVIOUS CRUISE 5 MODE SOFTWARE PROVIDED ONLY SHORT PLS INTEGRATION TIME.

SELECTION OF LONG OR SHORT INTEGRATION TIME IS DETERMINED BY DATA MODE COMMAND, SC 06 BB, AS IN CR-6. FOR CR-5 SHORT PLS INTEGRATION, SAMPLE AND COMMAND TIMING ARE UNCHANGED AND ARE AS DESCRIBED IN REF 1, I.E. THE SAME AS IN CR-6 WITH SHORT PLS INTEGRATION TIME.
FOR CR-5 LONG PLS INTEGRATION TIME, SAMPLE AND COMMAND TIMES ARE IDENTICAL TO CR-6 WITH LONG PLS INTEGRATION TIME.

THE OUTPUT DATA FORMAT FOR EITHER LONG OR SHORT INTEGRATION TIME IS AS DESCRIBED IN TABLE 9.0 OF REF 1, WITH THE EXCEPTION THAT THE 8-BIT FILLER BYTE IS REPLACED WITH A PLS INTEGRATION TIME BYTE.
THE PLS INTEGRATION TIME BYTE HAS A VALUE OF 0 FOR LONG PLS INTEGRATION TIME AND A VALUE OF 1 FOR SHORT PLS INTEGRATION TIME.

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DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
LAUNCH PHASE					
** LAUNCH TO TCM **					
11001A	12:00	13:08	77-248/14:09	77-248/15:03	01/24/78
11002A	13:11	15:19	77-248/15:06	77-248/16:48	01/24/78
11003A	15:35	34:18	77-248/17:01	77-249/07:59	01/30/78
11004A	34:19	45:59	77-249/08:00	77-249/17:20	01/25/78
11005A	46:00	178:00	77-249/17:21	77-254/02:57	01/31/78
11006A	187:00	245:00	77-254/10:09	77-256/08:33	01/30/78
EARTH TO JUPITER CRUISE PHASE					
** TCM TO END OF 1977 **					
12001A	253:05	650:35	77-256/15:01	77-269/21:01	01/16/78
12002A	654:20	961:50	77-270/00:01	77-280/06:01	01/25/78
12003A	965:35	1633:05	77-280/09:01	77-302/15:01	01/31/78
12004	1633:05	2026:50	77-302/15:01	77-315/18:01	01/31/78
12005	2030:35	2600:35	77-315/21:01	77-334/21:01	02/22/78
12006	2604:20	3530:35	77-335/00:01	77-365/21:01	02/22/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
13001	3534:20	4460:35	78-001/00:01	78-031/21:01	03/21/78
13002	4464:20	4925:35	78-032/00:01	78-047/09:01	04/10/78
13003	4929:20	5300:35	78-047/12:01	78-059/21:01	04/24/78
13004	4944:20	4974:20	78-048/00:01	78-049/00:01	04/25/78
	First 3 digits of above package numbers should have been 121 instead of 130				
**	PACKAGE ID CORRECTION TO NAV DATA FORMAT CHANGE				**
12105	4978:05	5750:35	78-049/03:01	78-074/21:01	05/12/78
12106	5154:20	6230:35	78-075/00:01	78-090/21:01	06/14/78
12107	6234:20	7130:35	78-091/00:01	78-120/21:01	06/14/78
12108	7134:20	8960:35	78-121/00:01	78-181/21:01	08/03/78
12109	8964:20	9890:35	78-182/00:01	78-212/21:01	09/12/78
**	NAV FORMAT CHANGE TO FDS RESET				**
12201	9894:20	10813:05	78-213/00:01	78-243/15:01	11/28/78
12202	10816:50	12050:35	78-243/18:01	78-284/21:01	01/31/79
12203	12054:20	13498:05	78-285/00:01	78-333/03:01	02/18/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	FDS RESET TO END OF 1978				**
12301	13501:50	14480:35	78-333/06:01	78-365/21:01	02/18/79
**	START OF 1979 to TCM-3				**
13101	14484:20	14694:10	79-001/00:01	79-007/23:53	02/18/79
13102	14694:20	14904:10	79-008/00:01	79-014/23:53	02/18/79
13103	14904:20	15114:10	79-015/00:01	79-021/23:53	02/18/79
13104	15114:70	15359:30	79-022/00:01	79-030/04:09	02/18/79
**	TCM-3 TO TCM-4				**
13201	15359:40	15414:18	79-030/04:17	79-031/23:59	02/18/79
13202	15414:19	15481:46	79-032:00:00	79-034/05:58	02/27/79
13203	15481:47	15549:20	79-034/05:58	79-036/12:01	03/05/79
13204	15549:21	15616:59	79-036/12:02	79-038/18:08	02/27/79
13205	15617:00	15654:18	79-038/18:09	79-039/23:59	02/27/79
13206	15654:19	15714:18	79-040/00:00	79-041/23:59	03/02/79
13207	15714:19	15774:17	79-042/00:00	79-043/23:58	02/28/79
13208	15774:19	15834:17	79-044/00:00	79-045/23:58	04/02/79
13209	15834:19	15894:17	79-046/00:00	79-047/23:58	04/03/79
13210	15894:19	15954:17	79-048/00:00	79-049/23:58	04/05/79
13211	15954:19	16018:21	79-050/00:00	79-052/03:14	04/04/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**			TCM-4 TO NEAR ENCOUNTER		**
13301	16018:23	16074:23	79-052/03:15	79-053/23:58	04/06/79
13302	16074:19	16134:17	79-054/00:00	79-055/23:58	03/11/79
13303	16134:19	16194:17	79-056/00:00	79-057/23:58	03/11/79
13304	16194:19	16254:17	79-058/00:00	79-059/23:58	03/11/79
13305	16254:19	16314:17	79-060/00:00	79-061/23:58	03/11/79
13306	16314:19	16359:20	79-062/00:00	79-063/12:01	03/28/79
**			NEAR ENCOUNTER		**
13401	16359:21	16370:49	79-063/12:02	79-063/21:12	03/27/79
13402	16370:50	16392:33	79-063/21:13	79-064/14:35	03/27/79
13403	16392:34	16407:53	79-064/14:36	79-065/02:51	03/27/79
**			POST ENCOUNTER 1		**
13501	16407:54	16449:18	79-065/02:52	79-066/11:59	03/28/79
13502	16449:19	16485:58	79-066/12:00	79-067/17:19	03/28/79
13503	16485:59	16524:18	79-067/17:20	79-068/23:59	03/30/79
13504	16524:19	16584:18	79-069/00:00	79-070/23:59	03/31/79
13505	16584:19	16644:18	79-071/00:00	79-072/23:59	03/30/79
13506	16644:19	16685:32	79-073/00:00	79-074/08:59	03/31/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			LAUNCH PHASE		
**			LAUNCH TO FDS POWER ON RESET		**
01001A	11:30	71:00	77-232/21:06	77-234/15:42	02/03/78
01002A	73:55	141:25	77-234/18:02	77-237/00:02	01/31/78
01003A	148:55	302:40	77-237/06:02	77-242/09:02	01/24/78
01004A	306:25	366:25	77-242/12:02	77-244/12:02	01/24/78
01005A	370:10	662:40	77-244/15:02	77-254/09:02	01/24/78
01006A	666:25	1322:40	77-254/12:02	77-276/09:02	01/30/78
01007A	1326:25	1540:10	77-276/12:02	77-283/15:02	01/25/78
**			FDS POWER ON RESET TO TCM A		**
01101	1543:55	1581:25	77-283/18:02	77-285/00:02	01/30/78
			EARTH TO JUPITER CRUISE PHASE		
**			TCM A TO END OF 1977		**
02001A	1588:55	2027:40	77-285/06:02	77-299/21:02	01/24/78
02002	2031:25	2447:40	77-300/00:02	77-313/21:02	01/30/78
02003	2451:25	2867:40	77-314/00:02	77-327/21:02	02/13/78
02004	2871:25	3287:40	77-328/00:02	77-341/21:02	02/13/78
02005	3291:25	4007:40	77-342/00:02	77-365/21:02	03/22/78
02006	3891:25	3921:25	77-362/00:02	77-363/00:02	03/30/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
03001	4011:25	4427:40	78-001/00:02	78-014/21:02	04/26/78
03002	4431:25	5087:40	78-015/00:02	78-036/21:02	04/10/78
03003	5091:25	5357:40	78-037/00:02	78-045/21:02	04/10/78
	- First 3 digits of above package numbers should have been 021 instead of 030.				
**	PACKAGE ID CORRECTION TO TCM				**
02104	5361:25	5837:40	78-046/00:02	78-061/21:02	05/08/78
02105	5841:25	7127:40	78-062/00:02	78-104/21:01	06/07/78
02106	7131:25	7607:40	78-105/00:02	78-123/21:02	07/17/78
**	TCM TO NAV DATA FORMAT CHANGE				**
02001	7701:25	8027:40	78-124/00:02	78-134/21:02	07/11/78
02202	8031:25	8957:40	78-135/00:02	78-165/21:02	08/05/78
02203	8961:25	9857:40	78-166/00:02	78-195/21:02	08/30/78
02204	9861:25	10787:40	78-196/00:02	78-226/21:02	09/30/78
**	NAV DATA FORMAT CHANGE TO FDSC RESET				**
02301	10791:25	11710:10	78-227/00:02	78-257/15:02	11/28/78
02302	11713L55	12617L40	78-257/18:02	78-287/21:02	03/09/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
02303	12621:25	13547:40	78-288/00:02	78-318/21:02	03/21/79
02304	13551:25	14061:25	78-319/00:02	78-336/00:02	03/21/79
**	FDSC RESET TO END OF 1978				**
02401	14065:10	14957:40	78-336/03:02	78-365/21:02	03/21/79
**	START OF 1979 TO PRESENT				**
02501	14961:25	15377:40	79-001/00:02	79-014/21:02	03/21/79
02502	15381:25	16307:40	79-015/00:02	79-045/21:02	04/12/79

S C I E N C E D A T A T E A M

S C I E N C E S I G N I F I C A N T E V E N T S

S/C 31

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP stepping to 6 seconds (Ground Command)	103/03:00:00	17547:09:370	1979-103/02:17:06	
LECP stepping to 24 seconds (Ground Command)	08:00:00	17553:24:339	07:17:04	
LECP stepping to 6 seconds (Ground Command)	13:00:00	17559:39:308	12:17:00	
LECP stepping to 24 seconds (Ground Command)	19:00:00	17567:09:271	18:17:00	
IRIS Flashoff Heater ON (Ground Command)	23:50:00	17573:11:641	23:06:59	
Deadband to $.16^{o}$	104/00:48:02	17574:24:267	1979-104/00:05:00	
IRIS Power OFF	01:33:02	17575:20:464	00:50:00	
IRIS Repl. Heater OFF	01:34:02	17575:21:664	00:51:00	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP Stepping to 24 seconds (Ground Command)	100/22:00:00	17480:54:697	1979-100/21:17:26	
All axes inertial	101/01:47:36	17485:39:274	1979-101/01:05:00	
Sun Search Enable	03:10:36	17487:23:066	02:28:00	
Star Acquisition	03:14:41	17487:28:148	02:32:05	
Deadband to .16^{o}	03:22:36	17487:38:064	02:40:00	
LECP stepping to 6 seconds (Ground Command)	04:00:00	17488:24:660	03:17:24	
IRIS Phase lock anomaly	08:13:55	17493:42:151	07:31:17	
LECP stepping to 24 seconds (Ground Command)	10:00:00	17495:54:624	09:17:21	
UVS HV Level OFF	14:42:41	17501:48:078	14:00:01	
All axes inertial	14:44:10	17501:49:761	14:01:30	
Target Manuever	14:45:31	17501:51:511	14:02:51	
Sun Search Enable	18:19:32	17506:19:106	17:36:50	
Star Acquisition	18:23:37	17506:24:189	17:40:55	
LECP stepping to 6 seconds (Ground Command)	20:30:00	17509:02:159	19:47:18	
LECP stepping to 24 seconds (Ground Command)	102/01:00:00	17514:39:531	1979-102/00:17:16	
Deadband to .05^{o}	01:42:45	17515:33:077	01:00:01	
Deadband to .16^{o}	06:32:46	17521:35:464	05:50:00	
LECP stepping to 6 seconds (Ground Command)	07:00:00	17522:09:494	06:17:14	
LECP stepping to 24 seconds (Ground Command)	13:00:00	17529:39:457	12:17:11	
UVS FOV Test	14:23:23	17531:23:632	13:40:34	
Deadband to .05^{o}	14:27:50	17531:29:281	13:45:01	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP stepping to 6 seconds (Ground Command)	098/19:00:00	17417:10:209	1979-098/18:17:45	
LECP stepping to 24 seconds (Ground Command)	23:00:00	17422:10:185	22:17:43	
LECP stepping to 6 seconds (Ground Command)	099/06:00:00	17430:55:142	1979-099/05:17:41	
LECP stepping to 24 seconds (Ground Command)	12:00:00	17438:25:106	11:17:38	
Start TCM	17:07:07	17444:48:791	16:24:43	
MOSTOW LECP	21:08:36	17449:50:650	20:26:11	
LECP Stepper Motor OFF	21:11:36	17449:54:449	20:29:11	
All axes inertial	21:20:39	17450:05:699	20:38:14	
Deadband to .05^{o}	21:20:49	17450:06:065	20:38:24	
All axes inertial	100/04:56:46	17459:35:769	1979-100/04:14:18	
Deadband to .16^{o}	04:57:47	17459:37:185	04:15:19	
Sun Search Enable	05:58:54	17460:53:496	05:16:26	
UVS to HV Level 3	06:11:01	17461:08:611	05:28:33	
LECP stepper Motor ON	06:11:28	17461:09:261	05:29:00	
LECP to full scan	06:13:28	17461:11:661	05:31:00	
LECP stepping to 6 seconds (Ground Command)	08:05:00	17463:31:183	07:22:31	
LECP stepping to 24 seconds (Ground Command)	13:00:00	17469:39:753	12:17:29	
IRIS Repl. Heater OFF	14:42:32	17471:48:075	14:00:01	
IRIS Power ON	14:43:32	17471:49:275	14:01:01	
LECP stepping to 6 seconds (Ground Command)	16:00:00	17473:24:734	15:17:28	
Deadband to .05^{o}	16:37:32	17474:11:664	15:55:00	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Entire engineering output devoted PPS LVMON (E-605) samples (Ground Command)	097/19:35:53	17387:55:235	1979-097/18:53:46	
Entire engineering output devoted to IRIS NEON (E-719) samples (Ground Command)	19:40:00	17388:00:351	18:57:53	
Entire engineering output devoted to DC BUS I (E-074) samples (Ground Command)	19:43:52	17388:05:218	19:01:45	
Entire engineering output devoted to PPS LVMON (E-605) samples (Ground Command)	19:45:28	17388:07:217	19:03:21	
LECP Stepper Motor ON (Ground Command)	19:48:00	17388:10:351	19:05:53	
PPS ¼ FOV - J mode OFF (Ground Command)	19:48:00	17388:10:351	19:05:53	
LECP 24 sec/60 Hz steps (Ground Command)	19:50:00	17388:12:750	19:07:53	
Engineering output restored to normal sampling (Ground Command	19:51:00	17388:14:150	19:08:53	
PPS ¼ FOV - J mode ON (Ground Command)	21:09:00	17389:51:542	20:26:52	
PPS Power OFF (Ground Command)	21:10:00	17389:52:742	20:27:52	
LECP Stepping to 6 seconds (Ground Command)	23:00:00	17392:10:331	22:17:52	
LECP stepping to 24 seconds (Ground Command)	098/04:00:00	17398:25:301	1979-098/03:17:50	
LECP stepping to 6 seconds (Ground Command)	09:00:00	17404:40:270	08:17:48	
LECP stepping to 24 seconds (Ground Command)	14:00:00	17410:55:240	13:17:46	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP Stepping to 6 seconds (Ground Command)	097/12:00:00	17378:25:398	1979-097/11:17:56	
PPS ¼ FOV - J Mode Off (Ground Command)	16:10:00	17383:37:773	15:27:54	
LECP Stepping to 24 seconds (Ground Command)	18:00:00	17385:55:361	17:17:54	
Entire engineering output devoted to IRIS NEON (E-719) samples (Ground Command)	19:09:36	17387:21:554	18:26:53	
Entire engineering output devoted to DC BUS I (E-074) samples (Ground Command)	19:13:28	17387:27:221	18:31:21	
Entire engineering output devoted to PPS LVMON (E-605) samples (Ground Command)	19:15:04	17387:29:221	18:32:57	
Entire Engineering output devoted to IRIS NEON (E-719) samples (Ground Command)	19:19:12	17387:34:353	18:37:05	
Entire engineering output devoted to DC BUS I (E-074) samples (Ground Command)	19:23:04	17387:39:220	18:40:57	
Entire engineering output devoted to PPS LVMON (E-605) samples (Ground Command)	19:24:40	17387:41:220	18:42:33	
PPS ¼ FOV - J mode on (Ground Command)	19:26:52	17387:44:019	18:44:45	
Entire engineering output devoted to IRIS NEON (E-719) samples (Ground Command)	19:30:25	17387:48:369	18:48:18	
Entire engineering output devoted DC BUS I (E-074) samples (Ground Command)	19:34:17	17387:53:235	18:52:10	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
START PPS STARCAL	096/06:51:00	17341:59:374	1979/096-06:09:06	
END PPS STARCAL	08:04:53	17343:31:650	07:22:59	
START IRIS STARCAL	09:33:42	17345:22:658	08:51:47	
LECP STEPPING TO 6 SEC (Ground Command)	12:00:00	17345:22:658	08:51:47	
END IRIS STARCAL	15:37:45	17352:57:671	14:55:48	
START IRIS SUNCAL	15:37:45	17352:57:671	14:55:48	
LECP STEPPING TO 24 SEC (Ground Command)	18:00:00	17362:55:623	22:54:09	
END IRIS SUNCAL	23:36:09	17363:03:639	23:00:34	
UVS HV LEVEL II	23:42:34	17363:03:639	23:00:34	
LECP STEPPING TO 6 SEC (Ground Command)	23:59:00	17363:24:271	23:17:00	
Entire Engineering output devoted to Receiver I (E-027) samples (Ground Command)	097/04:06:35	17368:33:629	1979-097/03:24:34	
PPS Power ON (Ground Command)	04:09:23	17368:37:229	03:27:22	
Engineering Output Restored to normal (Ground Command)	04:10:59	17368:39:229	03:28:58	
PPS Fixed Filter Position 0 (Ground Command)	04:11:59	17368:40:428	03:29:53	
LECP Stepping to 24 seconds (Ground Command)	05:00:00	17369:40:440	04:17:53	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP STEPPING TO 6 SEC (Ground Command)	094/19:30:00	17297:48:386	1979/094-18:48:19	
END PESCAL	19:55	17298:19:584	19:13:19	
LECP STEPPING TO 24 SEC (Ground Command)	23:00:00	17302:10:765	22:18:18	
END IR/SYSCAN CYCLE	095/01:13:52	17304:58:219	1979/095-00:32:09	
START JUPITER 20° LONGITUDINAL IMAGING	02:22:17	17306:23:628	01:40:34	
LECP STEPPING TO 6 SEC (Ground Command)	06:00:00	17310:55:723	05:18:15	
END JUPITER IMAGING	11:52:00	17318:15:688	11:10:13	
START IRIS/SYSCAN CYCLE	11:55:58	17318:20:654	11:14:11	
LECP STEPPING TO 24 SEC (Ground Command)	12:00:00	17318:25:687	11:18:13	
LECP STEPPING TO 6 SEC (Ground Command)	23:59:00	17333:24:415	23:17:09	
END IR/SYSCAN CYCLE	096/02:20:25	17336:21:218	1979/096-01:38:33	
ALL AXES INERTIAL	03:39:52	17338:00:460	02:58:00	
SUN SEARCH ENABLE	03:56:31	17338:21:308	03:14:33	
STAR ACQUISITION	04:00:35	17338:26:374	03:18:42	
LECP STEPPING TO 24 SEC (Ground Command)	06:00:00	17340:55:579	05:18:07	

TABLE 1

	CHANGED FROM:		TO:	
DECK POSITION	MEASUREMENT (E#)	DESCRIPTION OF MEASUREMENT	MEASUREMENT (E#)	DESCRIPTION MEASUREMENT
158	E-605	PPS LV MON	E-606	PPS SOL SEN
159	E-605	PPS LV MON	E-188	R CT INT

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
END IR/SYSCAN CYCLE	093/00:24:47	17243:57:225	1979/092-23:43:21	
START JUPITER ATMOSPHERIC IMAGING	00:41	17244:17:440	23:59:34	
PPS ¼FOV - J MODE OFF (Ground Command)	01:00:00	17244:41:238	1979/093-00:18:34	
PPS ¼FOV - J MODE ON (Ground Command)	01:10	17244:53:637	00:28:34	
PPS ¼FOV - J MODE OFF (Ground Command)	02:40	17246:46:228	01:58:34	
PPS OFF (Ground Command)	03:30	17247:48:624	02:48:33	
ENGINEERING DECOM CHANGE, SEE TABLE I (Ground Command)	03:31	17247:50:024	02:49:33	
END JUPITER IMAGING	10:10	17256:08:585	09:28:31	
START IR/SYSCAN CYCLE	10:10	17256:08:585	09:28:31	
CONTINUE IR/SYSCAN CYCLE	094/00:00:00	17273:26:103	23:18:26	
LECP STEPPING TO 6 SEC (Ground Command)	01:10:00	17274:53:496	1979/094-00:28:26	
LECP STEPPING TO 24 SEC (Ground Command)	03:30:00	17277:48:482	02:48:25	
LECP STEPPING TO 6 SEC (Ground Command)	06:00:00	17280:56:067	05:18:24	
LECP STEPPING TO 24 SEC (Ground Command)	16:00:00	17293:26:007	15:18:20	
START PESCAL	19:07	17297:19:589	18:25:19	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
PPS POWER ON (Ground Command)	092/14:40	17231:46:300	1979/092-13:58:38	
START LECP/PPS TEST	15:10	17232:23:697	14:28:38	
LECP STEPPER MOTOR OFF (Ground Command)	16:13	17233:42:490	15:31:37	
LECP STEPPER MOTOR ON (Ground Command)	17:13	17234:57:284	16:31:37	
END LECP/PPS TEST	17:16	17235:01	16:31:37	
ENGINEERING DECOM CHANGE See Table II, (Ground Command)	19:57:30	17238:23:484	19:16:06	
START LECP/IRIS TEST	20:00	17348:26:168	19:18:36	
ENTIRE 100 DECK DEVOTED TO IRIS NEON ANALOG SAMPLES (Ground Command)	20:03:00	17238:30:268	19:21:36	
100 DECK RESTORED TO NORMAL SAMPLING (Ground Command)	20:13:00	17238:42:467	19:31:36	
ENTIRE 100 DECK DEVOTED TO IRIS NEON ANALOG SAMPLES (Ground Command)	20:26:00	17238:58:665	19:44:36	
100 DECK RESTORED TO NORMAL SAMPLING (Ground Command)	20:40:00	17239:16:264	19:58:36	
ENGINEERING DECOM CHANGE, REVERSE Table II; RESTORE TO NORMAL SAMPLING (Ground Command)	20:55	17239:35:063	20:13:36	
END IRIS/LECP TEST	20:55	17239:35:063	20:13:36	

TABLE 1

CHANGED FROM:			TO:	
DECK POSITION	MEASUREMENT (E#)	DESCRIPTION OF MEASUREMENT	MEASUREMENT (E#)	DESCRIPTION OF MEASUREMENT
158	E-606	PPS SOL SEN	E-605	PPS LV MON
159	E-188	R CT INT	E-605	PPS LV MON

TABLE 2

CHANGED FROM:			TO:	
DECK POSITION	MEASUREMENT (E#)	DESCRIPTION OF MEASUREMENT	MEASUREMENT (E#)	DESCRIPTION OF MEASUREMENT
133	E-026	RNG AGC V	E-146	FDS M WD
134	E-189	R CT POSN	E-719	IRIS NEON
135	E-194	SCA EL C	E-719	IRIS NEON
136	E-146	FDS M WD	E-719	IRIS NEON

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
END IRIS/SYSCAN CYCLE	090/19:09:15	17177:22:206	1979/090-18:28:08	
UVS HV TO LEVEL II	21:41:42	17180:33:641	21:00:34	
LECP STEPPING TO 24 SEC (Ground Command)	22:00:00	17180:56:539	21:18:52	
UVS HV TO LEVEL III	22:01:43	17180:58:655	21:20:35	
BEGIN JUPITER ATMOSPHERIC IMAGING 20° LONGITUDE	23:21:42	17182:38:631	22:40:34	
CONTINUE JUPITER IMAGING	091/00:00:00	17183:26:527	23:18:57	
LECP STEPPING TO 6 SEC (Ground Command)	02:00:00	17185:56:515	1979/091-01:18:51	
LECP STEPPING TO 24 SEC (Ground Command)	06:00:00	17190:56:492	05:18:49	
END JUPITER IMAGING	09:03	17194:45:274	08:21:48	
START IRIS/SYSCAN CYCLE	09:21	17195:07:672	08:39:48	
LECP STEPPING TO 6 SEC (Ground Command)	16:00:00	17203:26:433	15:18:46	
LECP STEPPING TO 24 SEC (Ground Command)	20:00:00	17208:26:410	19:18:44	
LECP STEPPING TO 6 SEC (Ground Command)	092/00:01:00	17213:27:586	23:19:43	
LECP STEPPING TO 24 SEC (Ground Command)	03:00:00	17217:11:368	1979/092-02:18:42	
LECP STEPPING TO 6 SEC (Ground Command)	06:00:00	17220:56:351	05:18:41	
ENGINEERING DECOM CHANGE See Table I, (Ground Command)	14:30:00	17231:33:700	13:48:38	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP STEPPING TO 24 SEC (Ground Command)	088/22:00:00	17120:57:018	1979/088-21:19:09	
CONTINUE IRIS/SYSCAN CYCLE	089/00:00:00	17123:27:007	23:19:08	
LECP STEPPING TO 6 SEC (Ground Command)	00:01:00	17123:28:207	23:20:08	
LECP STEPPING TO 24 SEC (Ground Command)	03:00:00	17127:11:789	1979/089-02:19:07	
LECP STEPPING TO 6 SEC (Ground Command)	06:00:00	17130:56:772	05:19:06	
LECP STEPPING TO 24 SEC (Ground Command)	16:00:00	17143:26:714	15:19:03	
LECP STEPPING TO 6 SEC (Ground Command)	19:00:00	17147:11:697	18:19:02	
LECP STEPPING TO 24 SEC (Ground Command)	22:00:00	17150:56:679	21:19:01	
CONTINUE IRIS/SYSCAN CYCLE	090/00:00:00	17153:26:667	23:19:00	
LECP STEPPING TO 6 SEC (Ground Command)	00:01:00	17153:28:067	23:20:00	
LECP STEPPING TO 24 SEC (Ground Command)	03:00:00	17157:11:650	1979/090-02:18:59	
LECP STEPPING TO 6 SEC (Ground Command)	06:00:00	17160:56:632	05:18:58	
LECP STEPPING TO 24 SEC (Ground Command)	16:00:00	17173:26:574	15:18:54	
LECP STEPPING TO 6 SEC (Ground Command)	19:00:00	17177:11:557	18:18:53	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
ENTIRE 100 DECK DEVOTED TO IRIS NEON ANALOG SAMPLES (Ground Command)	086/21:15:00	17060:01:099	1979/086-20:34:26	
100 DECK RESTORED TO NORMAL SAMPLING (Ground Command)	21:45:00	17060:38:496	21:04:26	
LECP STEPPING TO 6 SEC (Ground Command)	087/01:00:00	17064:42:277	1979/087-00:19:24	
LECP STEPPING TO 24 SEC (Ground Command)	16:00:00	17083:27:191	15:19:19	
LECP STEPPING TO 6 SEC (Ground Command)	19:00:00	17087:12:174	18:19:18	
LECP STEPPING TO 24 SEC (Ground Command)	21:52:00	17090:47:158	21:11:17	
LECP STEPPING TO 6 SEC (Ground Command)	088/00:01:00	17093:28:345	23:20:17	
LECP STEPPING TO 24 SEC (Ground Command)	03:00:00	17097:12:128	1979/088-02:19:16	
DEAD BAND TO 0.05^{o} (Ground Command)	05:30:00	17100:19:514	04:49:15	
LECP STEPPING TO 6 SEC (Ground Command)	06:00:00	17100:57:111	05:19:14	
START IRIS/SYSCAN CYCLE	12:42	17109:19:472	12:01:12	
LECP STEPPING TO 24 SEC (Ground Command)	16:00:00	17113:27:053	15:19:11	
LECP STEPPING TO 6 SEC (Ground Command)	19:10:07	17117:24:551	18:29:17	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
ELEMENT #2 - DECOM MAP CHANGE (For PPS High Visibility) (Ground Command)	084/04:30:00	16979:05:264	1979/084-13:49:48	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	06:00:00	16980:57:656	05:19:47	
END JUPITER 20^{o} LONGITUDINAL IMAGING	08:42:00	16984:20:241	08:01:46	
START SYSCAN C	08:44:49	16984:23:657	08:04:35	
END SYSCAN CYCLE	10:49:59	16987:00:212	10:09:44	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	16:00	16993:27:600	15:19:44	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	20:00	16998:27:577	19:19:42	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	085/00:00:00	17003:28:755	23:20:41	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command	06:00:00	17010:57:521	1979/085-05:19:39	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	16:00:00	17023:27:465	15:19:36	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	20:00:00	17028:27:442	19:19:34	
DEAD BAND TO 0.16^{o} (Ground Command)	21:00:00	17029:42:436	20:19:34	
LECP STEPPING TO 6 SEC - D4 Fast (Ground Command)	086/00:00:00	17033:28:619	23:20:33	
LECP STEPPING TO 24 SEC	00:05:30	17033:34:319	23:25:03	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	083/14:00:00	16960:57:745	1979/083-13:19:52	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	18:00:00	16965:57:723	17:19:51	
ELEMENT #1 - DECOM MAP CHANGE (For PPS High Visibility) (Ground Command)	20:45:00	16969:24:108	20:04:50	
PPS POWER ON (Ground Command)	21:00:00	16969:42:706	20:19:50	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	22:00:00	16970:57:701	21:19:50	
END SYSCAN/IRCOMP CYCLE	22:02:43	16971:01:217	21:22:33	
START JUPITER 20^{o} LONGITUDINAL IMAGING	22:20:44	16971:23:632	21:40:34	
PPS TO ¼^{o}FOV - J MODE OFF (Ground Command)	23:10:00	16972:25:294	22:29:49	
PPS TO ¼^{o}FOV - J MODE ON (Ground Command)	23:15:00	16972:31:494	22:34:49	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	084/02:00	16975:57:678	1979/084-01:19:48	
PPS TO ¼^{o}FOV - J MODE OFF (Ground Command)	02:55	16977:06:473	02:14:48	
PPS TO ¼^{o}FOV - J MODE ON (Ground Command)	03:00	16977:12:673	02:19:48	
PPS POWER OFF (Ground Command)	04:00	16978:27:667	03:19:48	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	081/23:00:00	16912:13:161	22:20:05	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	082/02:00:00	16915:58:144	1979:082-01:20:04	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	06:00:00	16920:58:122	05:20:03	
END JUPITER 20^{o} LONGITUDINAL IMAGING	06:30:08	16921:35:653	05:50:11	
START SYSCAN/IRCOMP CYCLE	06:59:44	16922:12:650	06:19:47	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	10:00:00	16925:58:100	09:20:02	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	14:00:00	16930:58:078	13:20:00	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	18:00:00	16935:58:056	17:19:47	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	22:00:00	16940:58:034	21:19:58	
SYSCAN/IRCOMP CYCLE CONTINUING	083/00:00:00	16943:28:023	23:19:57	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	02:00:00	16945:58:012	1979/083-01:19:56	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	06:00:00	16950:57:790	05:19:55	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	10:00:00	16955:57:767	09:19:54	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP STEPPING TO 6 SEC - D 1 Fast (Ground Command)	080/18:00:00	16875:58:319	1979/080-17:20:15	
START PESCAL	20:05:00	16878:34:508	19:25:14	
END PESCAL	20:52:00	16879:33:303	20:12:14	
LECP STEPPING TO 24 SEC - D 1 Fast (Ground Command)	22:00:00	16880:58:297	21:20:14	
START CRS CRUISE FORMAT RECONFIG-URATION SEQUENCE (Ground Command)	22:01:00	16880:59:497	21:21:14	
END CRS CRUISE SEQUENCE (Ground Command)	22:34:00	16881:40:694	21:54:13	
LECP COMMAND #4, Restore Recon-figuration (Ground Command)	23:01:00	16882:14:492	22:21:13	
SYSCAN/IRCOMP CYCLE Continuing	081/00:00:00	16883:28:286	23:20:13	
LECP STEPPING TO 6 SEC -D1 Fast (Ground Command)	02:00:00	16885:58:276	1979/081-01:20:12	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	06:00:00	16890:58:254	05:20:11	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	10:00:00	16895:58:232	09:20:10	
LECP STEPPING TO 24 SEC - D1 Fast (Ground Command)	14:00:00	16900:58:210	13:20:08	
LECP STEPPING TO 6 SEC - D1 Fast (Ground Command)	18:00:00	16905:58:188	17:20:07	
END SYSCAN/IRCOMP CYCLE	20:43:15	16909:22:223	20:03:21	
START JUPITER 20^{o} LONGITUDINAL IMAGING	21:00:28	16909:43:638	20:20:34	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
END JUPITER 20° LONG IMAGING	078/03:24:48	16797:44:654	1979-078/02:45:23	
START SYSCAN/IR COMP Cyclic Sequences	03:40:00	16798:03:653	03:00:35	
SYSCAN/IR COMP Cyclic Sequences Continuing	079/00:00:00	16823:28:545	23:20:28	
END SYSCAN/IR COMP Cyclic Sequences	18:42:58	16846:52:212	1979-079/18:03:20	
START JUPITER 20° LONGITUDE IMAGING A	19:00:12	16847:13:643	18:20:34	
START PRA FAST-TIME STRUCTURE SEARCH (Ground Command)	21:00:00	16849:43:433	20:20:22	
END PRA STRUCTURE SEARCH	21:05:00	16849:49:632	20:25:22	
LECP STEP TO 6 SEC - D1 Fast (Ground Command)	080/02:00:00	16855:58:406	1979/080-01:20:20	
START CRS CRUISE FORMAT RECONFIGURATION SEQUENCE (Ground Command	02:10:00	16856:11:005	01:30:20	
END CRS CRUISE SEQUENCE (Ground Command)	02:23:00	16856:27:204	01:43:20	
LECP STEP TO 24 SEC - D-1 Fast (Ground Command)	04:00:00	16858:28:395	03:20:19	
END JUPITER 20° LONGITUDE IMAGING	05:21	16860:09:588	04:41:19	
START SYSCAN/IRCOMP CYCLE	05:40:16	16860:33:653	05:00:35	
LECP STEPPING TO 6 SEC - D-1 Fast (Ground Command)	10:00:00	16865:58:362	09:20:17	
LECP STEPPING TO 24 SEC - D-1 Fast	14:00:00	16870:58:341	13:20:16	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
END SYSCAN/IR COMP Cyclic Sequences	075/21:18	16730:06:538	1979-075/20:38:52	
START IOP CAL LAMPS	21:18	16730:06:538	20:38:52	
LECP DETECTOR D5 ON	23:15:00	16732:32:728	22:35:51	
END IOPCAL LAMPS	076/02:39	16736:47:710	1979-076/01:59:50	
START IR TARGET CAL	04:38:58	16738:17:667	03:59:48	10 Hr. Tgt Plate Meditation
END TARGET CAL	14:38:58	16738:47:614	13:59:45	
OPNAV IO (J1)	16:32:37	16754:09:655	15:53:23	
START SYSCAN/IR COMP Cyclic Sequences	18:24:38	16756:29:661	17:45:23	
SYSCAN/IR COMP Cyclic Sequences Continuing	077/00:00:00	16763:28:799	23:20:44	
OPNAV CALLISTO (J4)	12:32:44	16779:09:666	1979-077/11:53:24	
END SYSCAN/IR COMP Cyclic Sequences	14:58:43	16782:12:237	14:19:22	
JUPITER 20^{o} LONG IMAGING	17:39:56	16785:33:639	17:00:34	
WEATHER CONTINGENCY MODE CHANGE IM-3 TO IM-6 (Ground Command)	20:45	16789:25:089	20:05:37	
MODE CHANGE IM-6 TO IM-3 (Ground Command)	23:20:00	16792:38:676	22:40:36	
JUPITER 20^{o}LONG IMAGING (Continuing)	078/00:00:00	16793:28:672	23:20:35	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP STEPPING TO 6 SEC (Ground Command)	074/18:00:00	16695:59:279	1979-074/17:21:00	
LECP STEPPING TO 24 SEC (Ground Command)	20:00:00	16698:29:269	19:21:00	
LECP STEPPING TO 6 SEC (Ground Command)	22:00:00	16700:59:258	21:20:59	
LECP STEPPING TO 24 SEC (Ground Command)	075/00:00:00	16703:29:248	23:20:59	
SYSCAN/IRCOMP Cyclic Sequences Continuing	00:00:00	16703:29:248	23:20:59	
LECP STEPPING TO 6 SEC (Ground Command)	02:00:00	16705:59:238	1979-075/01:20:58	
LECP STEPPING TO 24 SEC (Ground Command)	04:00:00	16708:29:228	03:20:57	
LECP STEPPING TO 6 SEC (Ground Command)	06:00:00	16710:59:217	05:20:57	
LECP STEPPING TO 24 SEC (Ground Command)	08:00:00	16713:29:207	07:20:56	
LECP STEPPING TO 6 SEC (Ground Command)	10:00:00	16715:59:197	09:20:55	
LECP STEPPING TO 24 SEC (Ground Command)	16:00:00	16723:29:166	15:20:54	
LECP STEPPING TO 6 SEC (Ground Command)	18:00:00	16725:59:155	17:20:53	Poor Weather - Command not received at S/C
OPNAV EUROPA (J2) (Ground Command)	20:32:32	16729:09:675	19:53:24	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP STEP TO 24 SEC (Ground Command)	074/00:00:00	16673:29:371	1979-073/23:21:06	
PPS J MODE OFF-3½ FOV (Ground Command)	05:45:00	16680:40:542	1979-074/05:06:04	
LECP STEP TO 6 SEC (Ground Command)	06:00:00	16680:59:340	05:21:04	
START UVS FOV	07:01:56	16682:16:668	06:23:00	
PPS J MODE ON-3½ FOV (Ground Command)	07:05:00	16682:20:535	06:26:04	
PPS J MODE OFF-¼ FOV (Ground Command)	07:55:00	16683:23:131	07:16:03	
CRS/TET COMMAND SEQUENCE (Ground Command)	08:00:00	16683:29:330	07:21:03	
LECP STEPPING TO 24 SEC (Ground Command)	08:30:00	16684:06:728	07:51:03	
LECP STEPPING TO 6 SEC (Ground Command)	10:00:00	16685:59:320	09:21:03	
PPS POWER OFF (Ground Command)	10:05:00	16686:05:520	09:26:03	
LECP STEPPING TO 24 SEC (Ground Command)	12:00:00	16688:29:310	11:21:02	
LECP STEPPING TO 6 SEC (Ground Command)	14:00:00	16690:59:300	13:21:02	
LECP STEPPING TO 24 SEC (Ground Command)	16:00:00	16693:29:289	15:21:01	

SCIENCE DATA TEAM

SCIENCE SIGNIFICANT EVENTS

S/C 32

S/C 32

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
CRS Repl. Heater ON (Ground Command)	106/22:01:00	18138:04:374	1979-106/23:15:00	
Deadband to .05^{o}	23:54:46	18140:29:548	23:15:00	
Start B300, NET	107/06:40:00	18149:06:755	1979-107/06:00:12	
UVS HV Level 2 - UVS did not respond, remained in Level 3	06:53:24	18149:24:038	06:13:35	
All axes inertial	14:57:39	18159:42:134	14:17:47	
Roll to Callisto	15:00:39	18159:45:797	14:20:47	
Roll to Canopus	22:05:30	18168:48:236	21:25:35	
Sun Search Enable	22:10:49	18168:55:065	21:30:54	
Star Acquisition	22:14:54	18169:00:235	21:34:59	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Block Load: Deadband to 0.16°, IRIS Flashoff Heater OFF (Ground Command)	099/22:30	17928:41:290	1979-099/21:51:25	
IRIS Repl Heater OFF	103/20:22:44	18046:01:375	1979-103/19:43:30	
IRIS Power ON	20:23:44	18046:02:575	19:-4:30	
Deadband to .16°	21:19:14	18047:12:068	20:40:00	
Deadband to .05°	21:24:15	18047:18:284	20:45:01	
PPS to Filter 5, J mode ON (Ground Command)	23:30:03	18049:55:470	22:50:48	
Deadband to .16°	104/07:54:19	18060:25:678	1979-104/07:15:00	
Deadband to .05°	14:29:22	18068:39:482	13:50:01	
Deadband to .16°	19:55:24	18075:27:078	19:16:00	
UVS HV OFF	20:22:54	18076:01:375	19:43:30	
All axes inertial	20:24:24	18076:03:275	19:45:00	
Target Maneuver	20:26:30	18076:05:774	19:47:06	
Sun Search Enable	23:56:12	18080:28:050	23:16:47	
Star Acquisition	105/00:00:17	18080:33:133	23:20:52	
UVS HV Level 3	00:21:13	18080:59:264	23:41:47	
Deadband to .05°	06:33:28	18088:44:471	1979-105/05:54:00	
Deadband to .16°	11:14:30	18094:35:672	10:35:00	
Deadband to .05°	15:53:32	18100:24:473	15:14:00	
PPS Power ON	15:56:19	18100:28:056	15:16:47	
Deadband to .16°	106/04:36:38	18116:18:284	1979-106/03:57:01	
Reset FDS and CCS Clocks (Ground Command)	19:50:00	18135:19:745	19:10:16	
GRS Suppl. Heater OFF (Ground Command)	22:00:00	18138:03:153	21:20:15	

S/C 32

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
End Uplink Moratorium	091/16:00	17680:35:437	1979-091/15:22:47	
Start 48 Hr. Uplink Moratorium	17:00	17681:50:430	16:22:46	
Continue Uplink Moratorium	092/00:00:00	17690:35:383	23:22:44	
Continue Uplink Moratorium	093/00:00:00	17720:35:222	1979-092/23:22:34	
End Uplink Moratorium	15:00:00	17739:20:121	1979-093/14:22:28	
Deadband to .16^{o} (Grounc Command)	095/00:55	17781:43:725	1979-095/00:17:14	
Block load for ASCAL, Gyro Drift Turns, All axes inertial, Sun search enable, and star acquisition (Ground Command)	01:30	17782:27:521	00:52:14	
Deadband to .5^{o}	02:40	17783:54:681	02:02:13	
Start ASCAL	02:46	17784:02:280	02:08:13	
End ASCAL	03:35	17785:03:474	02:57:13	
Start Command Moratorium	06:00	17788:04:658	05:22:12	
Continue Command Moratorium	096/00:00:00	17810:34:536	23:22:04	
End Command Moratorium	23:00:00	17839:19:379	1979-096/22:21:55	
Start PESCAL	097/17:39	17862:38:052	1979-097/17:00:47	
End PESCAL	18:35	17863:48:046	17:56:47	
Start PLSCAL	19:24	17864:49:240	18:45:47	
End PLSCAL	22:39	17868:53:018	22:00:45	
Start MAG F.C.	22:39	17868:53:018	22:00:45	
End MAG F.C.	23:01:26	17869:21:049	22:23:11	
Start MAG BAM	23:02:14	17869:22:049	22:23:59	
End MAG BAM	23:07:50	17869:29:048	22:29:35	
Start 24 Hr. Uplink Moratorium	098/01:30	17872:26:598	1979-098/00:51:44	
End Uplink Moratorium	099/01:30	17902:26:434	1979-099/00:51:34	

S/C 32

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
UVS High Voltage OFF	086/06:05	17518:12:692	1979-086/05:28:39	
Start Quasar tracking	23:45	17540:17:577	23:08:32	
End Quasar tracking	23:55	17540:30:176	23:18:32	
"No Opt" IRIS SUNCAL	087/00:40:00	17541:26:371	1979-087/00:03:31	
"No Opt" IRIS SUNCAL	10:06:00	17553:13:709	09:29:28	
"No Opt" IRIS SUNCAL	22:06	17568:13:631	21:29:23	
"No Opt" IRIS OFF	23:17	17569:42:423	22:40:22	
All axes inertial	23:36:38	17570:07:054	23:00:00	
Start ASCAL	23:36:41	17570:07:104	23:00:03	
Sun Search Enable	088/01:45:09	17572:47:557	1979-088/01:08:30	
Star Acquisition	01:48:12	17572:51:407	01:11:33	
End ASCAL	01:48	17572:51:207	01:11:21	
Deadband to 0.05^{o}	02:03	17573:10:005	01:26:21	
Deadband to 0.5^{o}	02:48	17574:06:200	02:11:21	
Begin 48 Hr. Uplink Moratorium	04:30	17576:13:589	03:53:20	
Continue Uplink Moratorium	089/00:00:00	17600:36:061	23:23:13	
End Uplink Moratorium	090/04:30	17636:13:273	1979-090/03:53:01	
Start PESCAL	18:08	17653:15:582	17:30:56	
End PESCAL	19:04	17654:25:576	18:26:55	
Start PLSCAL	19:54	17655:28:170	19:16:55	
End PLSCAL	23:09	17659:31:749	22:31:54	
Start MAG F.C.	23:09	17659:31:749	22:31:54	
End MAG F.C.	23:31	17659:59:346	22:53:53	
Start MAG BAM	23:32	17660:00:546	22:54:53	
End MAG BAM	23:37	17660:06:746	22:59:53	
Start Uplink Moratorium	091/02:00	17663:05:530	1979-091/01:22:52	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Data Mode change GS-3 to CE40 bps (Ground Command)	078/20:47:00	17296:36:608	1979-078/20:11:46	
Deadband to 0.16^{o}	21:42:00	17297:45:402	21:06:46	
Deadband to 0.05^{o}	21:47:00	17297:51:602	21:11:46	
All axes inertial (Ground Command)	22:54:00	17299:15:395	22:18:45	
Sun Search Enable (Ground Command)	079/00:18:00	17301:00:386	23:42:45	
Deadband to 0.5^{o} (Ground Command)	01:41:30	17302:44:678	1979-079/01:06:14	
Data Mode change to CR-4, CE-10	01:42:30	17302:46:078	01:07:14	
Deadband to 0.16^{o} (Ground Command)	083/00:01:00	17420:38:392	1979-082/23:25:09	
Deadband to 0.5^{o} (Ground Command)	05:01:00	17426:53:360	1979-083/04:25:07	
Start PESCAL	18:37	17443:53:273	18:01:02	
End PESCAL	19:33	17445:03:268	18:57:01	
Start PLSCAL	20:24:00	17446:07:062	19:48:01	
Block I (No Option IRIS & Deadband to $.05^{o}$ - Impeding SUNCALS (Ground Command)	23:30:00	17449:59:442	22:54:00	
Block II	23:31:00	17450:00:642	22:55:00	
Block III	23:32	17450:02:042	22:56:00	
MAG F.C.	23:40	17450:12:041	23:04:00	
End PLSCAL	23:40	17450:12:041	23:04:00	
Deadband to $.16^{o}$	085/17:36	17502:36:572	1979-085/16:59:43	
Start SCAN CAL	18:37	17503:52:766	18:00:43	
End SCAN CAL	20:53	17506:42:751	20:16:42	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
MAG BAM	070/01:02	17031:57: 050	1979-070/00:28:01	
START H POINT (Ground Command)	23:55	17060:33:122	23:54:02	
END H. POINT UPDATE (Ground Command)	071/03:13	17064:40:503	1979-071/02:38:52	
DEADBAND TO .16 (Ground Command)	073/22:30:00	17148:46:316	1979-073/21:55:29	
IRIS REPL HTR OFF (Ground Command)	22:50:00	17149:11:314	22:15:29	
IRIS POWER ON (Ground Command)	22:51:00	17149:12:514	22:16:29	
PPS Power OFF (Ground Command)	076/02:30:00	17213:46:256	1979-076/01:55:10	
PPS Power OFF confirmed	03:39	17215:12:202	03:04:10	
Start PESCAL	18:36	17233:53:312	18:01:05	
End PESCAL	19:32	17235:03:307	18:57:04	
Start PLSCAL	20:54:55	17236:47:015	20:19:59	
PPS Power ON (Ground Command)	21:00:48	17236:54:298	20:25:52	
PPS Power ON confirmed	22:10:39	17238:21:541	21:35:42	
End PLS CAL	077/00:10:08	17240:51:012	23:35:11	
MAG F.C.	00:10	17240:50:679	23:35:03	
MAG BAM	00:32	17241:18:277	23:57:02	
Deadband to 0.16^{o} (Ground Command)	078/20:32:00	17296:18:009	19:56:46	
Deadband to 0.05^{o} (Ground Command)	20:37:00	17296:24:209	20:01:46	

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

15 May 1979

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: H. Woo

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the Monthly Science Data Product Report for your information and review.

HW:jvc
Enclosure (1)

CRS	R.E. Vogt	MAG	N. Ness	PRA	J. Warwick
	T. Garrard		M. Acuna		J. Pearce
	N. Lal		R. Lepping		A. Riddle
	J. Trainor		E. Choo		
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	D. Crosby		A. Lazarus		W. Kurth
	L. Herath		J. Sullivan		
			K. Ogilive		
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SCIENCE DATA TEAM

SCIENCE DATA PRODUCTS REPORT #10

15 May 1979

1) ENCOUNTER IDR RETENTION

All IDR tapes from the period 1 January through 1 September 1979 for both Voyager 1 and Voyager 2 will be retained until December 1979. The tapes will be reviewed for recycling at that time.

2) SEDR POINTING ACCURACY

A discrepancy of approximately 10^{o} in latitude was found between the Io imaging map and the SEDR value for the location of the optic path intercept. The Spacecraft Team has been tasked to analyze this difference in order to determine the accuracy of the SEDR. The analysis is presently underway.

3) CR-5 TELEMETRY

The latest information indicates CR-5 telemetry will be utilized as follows:

(a)	Voyager 1	09/13/79	-	12/06/79
		03/27/80	-	06/19/80
(b)	Voyager 2	05/08/80	-	05/28/81 (possibly to an unspecified time past this date)

Preparations are continuing to implement CR-5 ground software and provide test EDRs for all PIs receiving data in CR-5.

4) SEDR SUMMARY

Attached is the latest update of the SEDR Summary provided by Neil Toy.

5) SCIENCE SIGNIFICANT EVENTS

Attached is the lates update to the Science Significant Events Report provided by Cecil Brower's Data Control Group.

HW:jvc

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			L A U N C H P H A S E		
**			LAUNCH TO TCM		**
11001A	12:00	13:08	77-248/14:09	77-248/15:03	01/24/78
11002A	13:11	15:19	77-248/15:06	77-248/16:48	01/24/78
11003A	15:35	34:18	77-248/17:01	77-249/07:59	01/30/78
11004A	34:19	45:59	77-249/08:00	77-249/17:20	01/25/78
11005A	46:00	178:00	77-249/17:21	77-254/02:57	01/31/78
11006A	187:00	245:00	77-254/10:09	77-256/08:33	01/30/78
			E A R T H T O J U P I T E R C R U I S E P H A S E		
**			TCM TO END OF 1977		**
12001A	253:05	650:35	77-256/15:01	77-269/21:01	01/16/78
12002A	654:20	961:50	77-270/00:01	77-280/06:01	01/25/78
12003A	965:35	1633:05	77-280/09:01	77-302/15:01	01/31/78
12004	1633:05	2026:50	77-302/15:01	77-315/18:01	01/31/78
12005	2030:35	2600:35	77-315/21:01	77-334/21:01	02/22/78
12006	2604:20	3530:35	77-335/00:01	77-365/21:01	02/22/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
13001	3534:20	4460:35	78-001/00:01	78-031/21:01	03/21/78
13002	4464:20	4925:35	78-032/00:01	78-047/09:01	04/10/78
13003	4929:20	5300:35	78-047/12:01	78-059/21:01	04/24/78
13004	4944:20	4974:20	78-048/00:01	78-049/00:01	04/25/78
	First 3 digits of above package numbers should have been 121 instead of 130				
**	PACKAGE ID CORRECTION TO NAV DATA FORMAT CHANGE				**
12105	4978:05	5750:35	78-049/03:01	78-074/21:01	05/12/78
12106	5154:20	6230:35	78-075/00:01	78-090/21:01	06/14/78
12107	6234:20	7130:35	78-091/00:01	78-120/21:01	06/14/78
12108	7134:20	8960:35	78-121/00:01	78-181/21:01	08/03/78
12109	8964:20	9890:35	78-182/00:01	78-212/21:01	09/12/78
**	NAV FORMAT CHANGE TO FDS RESET				**
12201	9894:20	10813:05	78-213/00:01	78-243/15:01	11/28/78
12202	10816:50	12050:35	78-243/18:01	78-284/21:01	01/31/79
12203	12054:20	13498:05	78-285/00:01	78-333/03:01	02/18/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	FDS RESET TO END OF 1978				**
12301	13501:50	14480:35	78-333/06:01	78-365/21:01	02/18/79
**	START OF 1979 to TCM-3				**
13101	14484:20	14694:10	79-001/00:01	79-007/23:53	02/18/79
13102	14694:20	14904:10	79-008/00:01	79-014/23:53	02/18/79
13103	14904:20	15114:10	79-015/00:01	79-021/23:53	02/18/79
13104	15114:70	15359:30	79-022/00:01	79-030/04:09	02/18/79
**	TCM-3 TO TCM-4				**
13201	15359:40	15414:18	79-030/04:17	79-031/23:59	02/18/79
13202	15414:19	15481:46	79-032:00:00	79-034/05:58	02/27/79
13203	15481:47	15549:20	79-034/05:58	79-036/12:01	03/05/79
13204	15549:21	15616:59	79-036/12:02	79-038/18:08	02/27/79
13205	15617:00	15654:18	79-038/18:09	79-039/23:59	02/27/79
13206	15654:19	15714:18	79-040/00:00	79-041/23:59	03/02/79
13207	15714:19	15774:17	79-042/00:00	79-043/23:58	02/28/79
13208	15774:19	15834:17	79-044/00:00	79-045/23:58	04/02/79
13209	15834:19	15894:17	79-046/00:00	79-047/23:58	04/03/79
13210	15894:19	15954:17	79-048/00:00	79-049/23:58	04/05/79
13211	15954:19	16018:21	79-050/00:00	79-052/03:14	04/04/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**			TCM-4 TO NEAR ENCOUNTER		**
13301	16018:23	16074:23	79-052/03:15	79-053/23:58	04/06/79
13302	16074:19	16134:17	79-054/00:00	79-055/23:58	03/11/79
13303	16134:19	16194:17	79-056/00:00	79-057/23:58	03/11/79
13304	16194:19	16254:17	79-058/00:00	79-059/23:58	03/11/79
13305	16254:19	16314:17	79-060/00:00	79-061/23:58	03/11/79
13306	16314:19	16359:20	79-062/00:00	79-063/12:01	03/28/79
**			NEAR ENCOUNTER		**
13401	16359:21	16370:49	79-063/12:02	79-063/21:12	03/27/79
13402	16370:50	16392:33	79-063/21:13	79-064/14:35	03/27/79
13403	16392:34	16407:53	79-064/14:36	79-065/02:51	03/27/79
**			POST ENCOUNTER 1		**
13501	16407:54	16449:18	79-065/02:52	79-066/11:59	03/28/79
13502	16449:19	16485:58	79-066/12:00	79-067/17:19	03/28/79
13503	16485:59	16524:18	79-067/17:20	79-068/23:59	03/30/79
13504	16524:19	16584:18	79-069/00:00	79-070/23:59	03/31/79
13505	16584:19	16644:18	79-071/00:00	79-072/23:59	03/30/79
13506	16644:19	16685:32	79-073/00:00	79-074/08:59	03/31/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**			POST ENCOUNTER 2		**
13601	16685:33	16734:17	79-074/08:59	79-075/23:59	04/19/79
13602	16734:19	16794:17	79-076/00:00	79-077/23:59	04/20/79
13603	16794:19	16854:17	79-078/00:00	79-079/23:59	04/20/79
13604	16854:19	16914:17	79-080/00:00	79-081/23:59	04/20/79
13605	16914:19	16974:17	79-082/00:00	79-083/23:59	05/06/79
13606	16974:19	17034:17	79-084/00:00	79-085/23:59	04/21/79
03607	17034:19	17094:17	79-086/00:00	79-087/23:59	05/06/79
13608	17094:19	17154:17	79-088/00:00	79-089/23:59	04/21/79
13609	17154:19	17214:17	79-090/00:00	79-091/23:59	04/21/79
13610	17214:19	17274:17	79-092/00:00	79-093/23:59	04/21/79
13611	17274:19	17334:17	79-094/00:00	79-095/23:59	04/24/79
13612	17334:19	17394:17	79-096/00:00	79-097/23:59	04/24/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
			L A U N C H P H A S E		
**			LAUNCH TO FDS POWER ON RESET		**
01001A	11:30	71:00	77-232/21:06	77-234/15:42	02/03/78
01002A	73:55	141:25	77-234/18:02	77-237/00:02	01/31/78
01003A	148:55	302:40	77-237/06:02	77-242/09:02	01/24/78
01004A	306:25	366:25	77-242/12:02	77-244/12:02	01/24/78
01005A	370:10	662:40	77-244/15:02	77-254/09:02	01/24/78
01006A	666:25	1322:40	77-254/12:02	77-276/09:02	01/30/78
01007A	1326:25	1540:10	77-276/12:02	77-283/15:02	01/25/78
**			FDS POWER ON RESET TO TCM A		**
01101	1543:55	1581:25	77-283/18:02	77-285/00:02	01/30/78
			E A R T H T O J U P I T E R C R U I S E P H A S E		
**			TCM A TO END OF 1977		**
02001A	1588:55	2027:40	77-285/06:02	77-299/21:02	01/24/78
02002	2031:25	2447:40	77-300/00:02	77-313/21:02	01/30/78
02003	2451:25	2867:40	77-314/00:02	77-327/21:02	02/13/78
02004	2871:25	3287:40	77-328/00:02	77-341/21:02	02/13/78
02005	3291:25	4007:40	77-342/00:02	77-365/21:02	03/22/78
02006	3891:25	3921:25	77-362/00:02	77-363/00:02	03/30/78

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**	START OF 1978 TO PACKAGE ID CORRECTION				**
03001	4011:25	4427:40	78-001/00:02	78-014/21:02	04/26/78
03002	4431:25	5087:40	78-015/00:02	78-036/21:02	04/10/78
03003	5091:25	5357:40	78-037/00:02	78-045/21:02	04/10/78
	- First 3 digits of above package numbers should have been 021 instead of 030.				
**	PACKAGE ID CORRECTION TO TCM				**
02104	5361:25	5837:40	78-046/00:02	78-061/21:02	05/08/78
02105	5841:25	7127:40	78-062/00:02	78-104/21:01	06/07/78
02106	7131:25	7607:40	78-105/00:02	78-123/21:02	07/17/78
**	TCM TO NAV DATA FORMAT CHANGE				**
02001	7701:25	8027:40	78-124/00:02	78-134/21:02	07/11/78
02202	8031:25	8957:40	78-135/00:02	78-165/21:02	08/05/78
02203	8961:25	9857:40	78-166/00:02	78-195/21:02	08/30/78
02204	9861:25	10787:40	78-196/00:02	78-226/21:02	09/30/78
**	NAV DATA FORMAT CHANGE TO FDSC RESET				**
02301	10791:25	11710:10	78-227/00:02	78-257/15:02	11/28/78
02302	11713L55	12617L40	78-257/18:02	78-287/21:02	03/09/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
02303	12621:25	13547:40	78-288/00:02	78-318/21:02	03/21/79
02304	13551:25	14061:25	78-319/00:02	78-336/00:02	03/21/79
---------- FDSC RESET TO END OF 1978 ----------					
02401	14065:10	14957:40	78-336/03:02	78-365/21:02	03/21/79
---------- START OF 1979 TO PRESENT ----------					
02501	14961:25	15377:40	79-001/00:02	79-014/21:02	03/21/79
02502	15381:25	16307:40	79-015/00:02	79-045/21:02	04/12/79
02503	16311:25	17147:40	79-046/00:02	79-073/21:02	05/06/79

S C I E N C E D A T A T E A M

S C I E N C E S I G N I F I C A N T E V E N T S

S/C 31

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
End (PLS/MAG) F & P Calibration (Ground Command)	115/01:25:00	17905:08:366	1979-115/00:40:18	
Deadband to .05	116/15:45:00	17953:03:121	1979-116/15:00:04	
Deadband to .16	16:48:00	17954:21:715	16:03:03	
Unscheduled Plumbing Swap	19:00:00	17957:06;701	18:15:02	
Mode Change to 1200 bps Investigating Plumbing Swap (Ground Command)	22:45:00	17961:48:077	22:00:01	
Deadband to .5	117/12:15	17978:40:391	1979-117/11:29:56	
Start PESCAL	124/14:05:56	18190:57:639	1979-124/13:19:47	
End PESCAL	15:01:20	18192:07:033	14:15:10	
Deadband to .16	127/22:33	18291:30:792	1979-127/21:46:20	
Mini-ASCAL Cancelled	22:48	18291:49:591	22:01:20	
Deadband to .5	128/07:08	18302:14:538	1979-128/06:21:17	
Start Mini-ASCAL	130/02:50:30	18356:52:360	1979-130/02:03:30	
End Mini-ASCAL	04:15:34	18358:38:617	03:28:34	
Start Mod Index Test (Deadband = 0.16)	23:29:13	18382:40:545	22:42:05	
Mod Index Test (Deadband = 0.05)	23:34:13	18382:46:745	22:47:05	
End Mod Index Test	131/00:16:00	18383:39:124	23:28:52	
PLS/MAG CAL Load (Ground Command)	132/15:00:00	18432:03:678	1979-132/14:12:37	

S/C 31

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
LECP stepping to 6 seconds (Ground Command)	103/03:00:00	17547:09:370	1979-103/02:17:06	
LECP stepping to 24 seconds (Ground Command)	08:00:00	17553:24:339	07:17:04	
LECP stepping to 6 seconds (Ground Command)	13:00:00	17559:39:308	12:17:00	
LECP stepping to 24 seconds (Ground Command)	19:00:00	17567:09:271	18:17:00	
IRIS Flashoff Heater ON (Ground Command)	23:50:00	17573:11:641	23:06:59	
Deadband to .16^{o}	104/00:48:02	17574:24:267	1979-104/00:05:00	
IRIS Power OFF	01:33:02	17575:20:464	00:50:00	
IRIS Repl. Heater OFF	01:34:02	17575:21:664	00:51:00	
Deadband to .5^{o}	13:13:07	17589:55:475	12:30:01	
Deadband to .16	110/02:13	17756:09:323	1979-110/01:29:04	
Deadband to .05	02:18	17756:15:522	01:34:03	
Deadband to .5	03:13	17757:24:317	02:29:03	
Start PESCAL	14:44:36	17771:48:642	14:00:35	
End PESCAL	15:40:00	17772:58:036	14:55:58	
Deadband to .16	111/22:11	17811:06:438	21:26:47	
Start ASCAL	22:46:08	17811:50:368	22:01:55	
All axes inertial	22:46:14	17811:50:473	22:02:01	
Sun Search Enable	112/00:51:16	17814:26:693	1979-112/00:07:02	
End ASCAL	00:54:50	17814:31:260	00:10:36	
Star Acquisition	00:55:19	17814:31:743	00:11:05	
Deadband to .5	02:06	17816:00:219	01:21:45	
Start (PLS/MAG) F & P Calibration (Ground Command)	114/22:00:00	17900:52:187	1979-114/21:15:20	

S C I E N C E D A T A T E A M

S C I E N C E S I G N I F I C A N T E V E N T S

S/C 32

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
Start PLS/LECP/MAG CAL (Ground Command)	117/02:00:00	18443:00:068	1979-117/01:18:32	
End PLS/LECP/MAG CAL (Ground Command)	02:52:00	18444:05:062	02:10:32	
IRIS Flashoff Heater ON (Ground Command)	118/04:40:00	18476:19:683	1979-118/03:58:21	
IRIS Power OFF (Ground Command)	05:00:00	18476:44:680	04:18:21	
IRIS Repl. Heater ON (Ground Command)	05:01:00	18476:46:080	04:19:21	
PPS 1/16^{o} FOV, J-Mode ON, HV OFF (Ground Command)	119/08:52:00	18511:34:487	1979-119/08:10:09	
PPS Star CAL	123/23:47:24	18650:12:719	1979-123/23:04:47	
PPS FOV 1/16^{o} J-Mode ON, HV OFF (Ground Command)				Transmit Time 123/23:05:00
PPS FOV 1/16^{o} J-Mode ON, HV OFF	124/00:30:12	18651:06:315	1979-123/23:47:36	
PPS Star CAL	125/22:25:20	18708:29:734	1979-125/21:42:24	
PPS FOV 1/16^{o} J-Mode ON, HV OFF (Ground Command)				Transmit Time 125/22:43:00
PPS FOV 1/16^{o} J-Mode ON, HV OFF	126/00:08:51	18710:39:239	23:25:55	
PLS M Mode Word #1 (Ground Command)				Transmit Time 132/12:26:00
PLS M Mode Word #1 Change	132/13:54:01	18907:49:339	1979-132/13:09:59	
F & P CAL Load (Ground Command)				Transmit Time 132/23:00:00
Start F & P CAL	133/00:28:09	18921:02:002	23:44:03	
PPS Star CAL	04:08:55	18925:37:744	1979-133/03:24:48	
PPS FOV 1/16^{o} J ModeON, HV OFF (Ground Command				Transmit Time 133/05:50:00
PPS FOV 1/16^{o} J Mode ON, HV OFF	07:18:15	18929:34:456	06:34:06	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
PPS $1/16^{o}$ FOV, J-Mode ON (Ground Command)	112/21:30:00	18317:23:370	1979-112/20:49:15	
Start Microphonics Test (Ground Command)	113/22:15:00	18348:19:397	1979-113/21:34:04	
$1/16^{o}$ FOV, J-Mode ON , HV OFF (Ground Command)	23:20:00	18349:40:589	22:39:04	
Start B301 Sequence	114/00:42:00	18351:23:180	1979-114/00:01:03	
Reconfigure PRA for Jupiter Encounter (Ground Command)	06:00:00	18358:00:543	05:19:01	
Deadband to .05	19:42:00	18375:08:047	19:00:55	
UVS FOV	20:08:00	18375:40:444	19:26:55	
UVS to Level II	23:19:29	18379:39:705	22:38:23	
Start UVS SUNCAL	23:20:00	18379:40:422	22:38:54	
End UVS SUNCAL	115/00:59	18381:44:210	1979-115/00:17:53	
UVS HV Level III	01:01:06	18381:46:710	00:19:59	
FDS DECOM change - Measurement E-342 (DDS Mode St.) moved from deck position 356 to position 145.	03:00:00	18384:15:396	02:18:52	
FDS DECOM change - Measurement E-602 (PPS analyzer position) moved from deck position 145 to position 356. (Ground Command)				
Start PPS NAKCAL	07:58:45	18390:28:711	07:17:35	
End PPS NAKCAL	16:42:00	18401:22:700	16:00:46	
UVS FOV Calibration Alpha Leo Regulus	20:20:27	18435:55:558	19:39:02	
FDS DECOM change - Measurement E-342 (DSS Mode St.) moved from deck position 320 to poisition 145.	116/23:45:00	18440:11:284	1979-116/23:03:33	
FDS DECOM change - Measurement E-602 (PPS analyzer position) moved from deck position 145 to position 320 (Ground Command)				

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
IRIS Power OFF (Erroneous Command) (Ground Command)	109/20:00:00	18225:31:483	1979-109/19:19:46	
IRIS Repl. Heater ON (Erroneous Command) (Ground Command)	20:21:00	18225:57:681	19:40:46	
IRIS/LECP Mircrophonics Test No opt due to IRIS commanding errors	20:36:00	18226:16:479	19:55:45	
LECP LEPT Detectors ON (Ground Command)	20:50:00	18226:34:077	20:09:45	
* IRIS Flashoff Heater OFF (Ground Command)	21:10:00	18226:59:075	20:29:45	
* IRIS Repl. Heater OFF (Ground Command)	21:20:00	18227:11:474	20:39:45	
* IRIS Power ON	21:21:00	18227:12:674	20:40:45	
* These three commands correct the earlier erroneous commands.				
Continue PLSCAL	110/00:00:00	18230:31:455	23:19:44	
All axes inertial	00:53:15	18231:38:099	1979-110/00:12:59	
Start Earth Occultation Test	01:20:13	18232:11:663	00:39:56	
End Earth Occultation Test	04:14:37	18235:49:642	03:34:19	
Sun Occultation Test	04:50:40	18236:34:688	04:10:22	
UVS HV Level III	05:21:05	18237:12:701	04:40:47	
End PLSCAL	07:27:30	18239:50:703	06:47:11	
UVS HV Level OFF	08:08:18	18240:41:698	07:27:59	
Sun Search Enable	10:48:53	18244:02:463	10:08:32	
Star Acquisition	10:52:59	18244:07:563	10:12:38	
UVS HV Level III	14:16:21	18248:21:705	13:35:59	
Deadband to .16	17:20	18252:11:334	16:39:37	

SIGNIFICANT EVENT	ERT	FDSC	SCET	COMMENTS
CRS Repl. Heater ON (Ground Command)	106/22:01:00	18138:04:374	1979-106/23:15:00	
Deadband to .05°	23:54:46	18140:29:548	23:15:00	
Start B300, NET	107/06:40:00	18149:06:755	1979-107/06:00:12	
UVS HV Level 2 - UVS did not respond, remained in Level 3	06:53:24	18149:24:038	06:13:35	
All axes inertial	14:57:39	18159:42:134	14:17:47	
Roll to Callisto	15:00:39	18159:45:797	14:20:47	
Roll to Canopus	22:05:30	18168:48:236	21:25:35	
Sun Search Enable	22:10:49	18168:55:065	21:30:54	
Star Acquisition	22:14:54	18169:00:235	21:34:59	
CRS Configuration - Erroneous command - retransmitted at 16:57 (Ground Command)	108/04:00:00	18175:31:758	1979-108/03:20:03	
Start PLSCAL	06:32:03	18178:41:790	05:52:05	
CRS Configuration Test (Ground Command)	16:57:00	18191:43:067	16:16:57	
CRS Cycling Test (Ground Command)	16:59:00	18191:45:467	16:18:57	
LEPT Detector OFF (Ground Command)	21:40:00	18197:36:635	20:59:55	
Start LECP/PLS/IRIS Microphonics Test (Ground Command)	21:44:00	18197:41:634	21:03:55	
Continue PLS CAL	109/00:00:00	18200:31:618	1979-108/23:19:54	
End PLS/LECP/IRIS Microphonics Test (Ground Command)	02:48:00	18204:01:601	02:07:53	
IRIS Flashoff Heater ON (Erroneous Command) (Ground Command)	19:40:00	18213:51:548	09:59:50	

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

18 July 1979

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: H.W. WOO

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

Enclosed please find the Monthly Science Data Product Report for your information and review.

HWW:pmd
Enclosure

Distribution:

CRS	R.E. Vogt	MAG	N. Ness	PRA	J. Warwick
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	J. Trainor		E. Choo		
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IRIS	R. Hanel	PLS	H. Bridge	PWS	F. Scarf
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	L. Herath		J. Sullivan		
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SCIENCE DATA PRODUCTS REPORT

JULY 1979

1.) ZEROES IN EDR HEADERS

J. Pearce of PRA brought to our attention some EDR records (DOY 79-111/2100 UTC) in which large segments of the headers were all zeroes. This problem apparently occurs infrequently, and in its investigation, the Data Management Team discovered the problem is not confined to PRA EDRs, but intermittently occurs on all EDRs. To make the problem even vaguer, the mysterious zeroes do not appear in the whole group of tapes created at the same time. Each occurrence appears to be individual and random. The programmer is still studying the problem and has documented it in FR #60433. The impact of this intermittent problem is minor.

2.) DIFFERENCE IN SPACECRAFT SEDR LATITUDE

M. Acuna of MAG reported a difference of 0.04^{o} in sub-spacecraft latitude on Jupiter between his calculations and those given in the SEDR. E. Travers of Voyager Navigation concluded that the difference was due to the updated set of RA and DEC angles used to calculate the SEDR latitude value.

The differences are:

	MAG	VGR NAV
RA	268.07	268.007
DEC	64.55	64.506888

ISA 2447 written on this difference will be answered in this manner.

3.) REQUEST FOR FURTHER INFORMATION

TTS requests help in determining whether any "unusual" data was seen during the DSS43 pass on the two days:

1) 79-126/0700 to 1300 UTC

2) 79-131/0613 to 0623 UTC

Apparently the FDSC MOD 60 counter in the stand alone engineering data from the high speed data lines appeared to increment erratically. There have been no reports of any problems in the wide band data (i.e., GS type telemetry) so far, but TTS would appreciate knowing if any other subsystems encountered anything suspicious. It is suspected that there may be a "hung bit" in the equipment at DSS 43. Responses may be made to the SDT which will coordinate and pass the information on to TTS.

4.) VOYAGER 2 FINAL EDRs

A substantial number of quick look EDR tapes generated during the Voyager 2 Jupiter Encounter were of

sufficient quality to meet QQC (Quality, Quantity and Continuity) standards and by previous practice they will be considered to be final products. A list of these tapes follows.

ERT	CRS	PRA	PWS	IRIS
188/1101 – 189/0200	# 17099A	# 17205A	# 17154	# 17042A
189/0200 – 189/1100	# 09712B	# 17192	# 17094	# 09805
189/1101 – 190/0200	# 21506	# 11063C	# 3458B	# 11064A
190/0200 – 190/1100	# 22292	# 11224D	# 18771	# 22288

5.) SEDR SUMMARY

Attached is the latest summary of completed SEDR packages provided by N. Toy's SEDR Group.

6.) SCIENCE SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events Report provided by C.W. Brower's Data Control Group.

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
** - - - - - - - - - - - - - - - - - - -POST ENCOUNTER 2- - - - - - - - - - - - - - - **					
13601	16685:33	16734:17	79-074/08:59	79-075/23:59	04/19/1979
13602	16734:19	16794:17	79-076/00:00	79-077/23:59	04/20/1979
13603	16794:19	16854:17	79-078/00:00	79-079/23:59	04/20/1979
13604	16854:19	16914:17	79-080/00:00	79-081/23:59	04/20/1979
13605	16914:19	16974:17	79-082/00:00	79-083/23:59	05/06/1979
13606	16974:19	17034:17	79-084/00:00	79-085/23:59	04/21/1979
13607	17034:19	17094:17	79-086/00:00	79-087/23:59	05/06/1979
13608	17094:19	17154:17	79-088/00:00	79-089/23:59	04/21/1979
13609	17154:19	17214:17	79-090/00:00	79-091/23:59	04/21/1979
13610	17214:19	17274:17	79-092/00:00	79-093/23:59	04/21/1979
13611	17274:19	17334:17	79-094/00:00	79-095/23:59	04/24/1979
13612	17334:19	17394:17	79-096/00:00	79-097/23:59	04/24/1979
13613	17394:19	17444:18	79-098/00:00	79-099/15:59	05/15/1979
** - - - - - - - - - - - - - - - - JUPITER TO SATURN CRUISE - - - - - - - - - - - - **					
14001	17446:49	19010:34	79-099/18:00	79-151/21:00	06/15/1979

NNT/7/15/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
03104	19281:00	19305:48	79-144/23:42	79-145/19:32	06/19/1979
** - - - - - - - - - - - - - - - - - FAR Encounter 1 Phase - - - - - - - - - - - - - - - - - **					
03201	19305:52	19341:20	79-145/19:36	79-146/23:58	06/19/1979
03202	19341:22	19401:20	79-147/00:00	79-148/23:58	06/19/1979
03203	19401:22	18461:20	79-149/00:00	79-150/23:58	06/19/1979
03204	19461:22	19532:14	79-151/00:00	79-153/08:41	06/19/1979
03205	19532:16	19611:20	79-153/08:43	79-155/23:58	06/19/1979
03206	19511:22	19671:20	79-156/00:00	79-157/23:58	06/19/1979
03207	19671:22	19722:14	79-158/00:00	79-159/16:41	07/05/1979
03208	19722:16	19791:20	79-159/16:43	79-161/23:58	07/10/1979
03209	19791:22	19866:20	79-162/00:00	79-164/11:58	07/12/1979
03210	19866:22	19940:58	79-164/12:00	79-166/23:40	07/05/1979
03211	19941:00	20001:20	79-166/23:42	79-168/23:58	07/06/1979
03212	20001:22	20061:20	79-169/00:00	79-170/23:58	07/05/1979
03213	20061:22	20121:20	79-171/00:00	79-172/23:58	07/09/1979
03214	20121:22	20181:22	79-173/00:00	79-174/23:57	07/09/1979
03215	20181:24	20223:28	79-175/00:01	79-176/09:40	07/07/1979
03216	20223:30	20294:20	79-176/09:42	79-178/18:22	07/11/1979
** - - - - - - - - - - - - - - - - - FAR Encounter 2 Phase - - - - - - - - - - - - - - - - - **					
03301	20294:22	20361:22	79-178/18:23	79-180/23:59	07/12/1979
03302	20361:24	20388:28	79-181/00:01	79-181/21:04	07/17/1979
03303	20388:30	20463:10	79-181/21:42	79-184/09:26	07/18/1979
03304	20463:12	20538:38	79-184/09:27	79-186/21:48	07/18/1979

NNT:07/19/1979

SCIENCE DATA TEAM

SCIENCE SIGNIFICANT EVENTS

S/C 31

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) Dead band to .16°	79-173	Transmit 79-173/19:25:00
(GC) IRIS Repl. Htr OFF		21:19:00
(GC) IRIS ON		21:20:00
(GC) IRIS OFF, Special IRIS Test Part II	79-174	Transmit 79-174/01:20:00
(GC) IRIS Repl Htr ON		Transmit 79-174/01:21:00
Dead band to .5°		03:46:00
(GC) LECP Hi Bias ON	79-179	Transmit 79-179/01:10:00
Start PESCAL	79-180/11:30:35	
End PESCAL	12:24:59	
(GC) IRIS Repl. Htr OFF	79-183	Transmit 79-183/00:10:00
(GC) IRIS Flash-Off Htr ON		Transmit 79-183/00:11:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Start PESCAL	79-152/12:49:00	
End PESCAL	13:43:00	
Start TLC	14:15:42	
End TLC	15:48:43	
LECP Stepping to 192 sec (per ECR 37190)	79-156	Transmit 79-156/16:00:00
Dead band to .16°	157/18:46:03	
Start ASCAL	19:21:00	
All axes inertial	19:21:05	
Sun Search Enable	21:26:05	
End ASCAL	21:30:00	
Star Acquisition	21:30:10	
END d band to .5°	22:41:00	
Dead band to .16°	79-158/19:31:12	
Dead band to .05°	19:51:47	
Dead band to .16°	20:54:48	
Dead band to .5°	21:07:13	
Start TLC	79-159/12:27:00	
End TLC	15:30:00	
Start PESCAL	79-166/12:09:37	
End PESCAL	13:05:02	
(GC) IRIS Repl. Heater OFF	79-170/	Transmit 79-170/17:00:00
(GC) IRIS Flash-Off Heater OFF	79-172	Transmit 79-172/19:34:00
(GC) IRIS Repl. Heater ON		Transmit 79-172/19:35:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Deadband to .16	79-135/02:47:46	
Deadband to .5	79-136/11:20:00	
GROUND COMMAND - Start LECP NE/FE Test		Transmit 79-137/21:00:00
GROUND COMMAND - End LECP NE/FE Test		Transmit 21:55:07
Deadband to .16	79-137/22:37:00	
Start LECP NE/FE Test	22:37:00	
End LECP NE/FE Test	23:31:22	
GROUND COMMAND - Deadband to .5		Transmit 79-138/05:00:00
Start PESCAL	79-138/13:30:16	
End PESCAL	14:23:25	
Start TLC	79-145/13:09:00	
End TLC	16:08:00	
GROUND COMMAND - PLS & MAG CAL		Transmit 79-146/01:00:00
GROUND COMMAND - To correct improper implementation of ECR 37167		Transmit 79-147/00:45:00
GROUND COMMAND - Change PPS Safe Serial Command from 0081 to 00C1 to FDS Primary Memory		Transmit 79-151/03:00:00
GROUND COMMAND - Change PPS Safe Serial Command to FDS Secondary Memory		Transmit 05:05:00

S C I E N C E D A T A T E A M

S C I E N C E S I G N I F I C A N T E V E N T S

S/C 32

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Sun Search Enable	79-195/23:47:13	
Star Acquistion	23:51:18	
Start PLS FLOW	23:54:00	
Start LECP Cyclic	79-196/01:10:00	
PPS Configuration-HV OFF	01:53:06	
UVS NITEGLOW	02:37:07	
Sun Search Enable	12:30:03	
End PLS FLOW	12:33:00	
Star Acquistion	12:34:09	
IRIS Warm-UP NO/GO	13:45:00	
PRA/PWS Cyclic	13:54:00	
Start VEGA Starcal	14:31:32	
Start PPS STARCAL	17:12:00	
PPS HV ON	17:15:33	
End PPS STARCAL	18:16:12	
PPS HV OFF	18:35:34	
UVS NITEGLOW	19:53:10	
Continue NITEGLOW	79-197/00:00:00	
End NITEGLOW	07:00:00	
(GC) IRIS Replacement Htr. OFF (overrides sequence command)		Transmit 79-197/11:11:00
Start IOPCAL	12:46:02	
UVS NITEGLOW	19:13:53	
Continue NITEGLOW	79-198/00:00:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) End PPS Command Sequence		Transmit 79-192/22:49:00
(GC) LECP Detector D4 OFF		Transmit 79-193/01:20:00
(GC) PPS Analyzer Wheel to Position 0		Transmit 79-193/02:00:00
COMPOL Jupiter	79-193/03:15:14	
OPAC 2/3	06:50:27	
IRIS E/W PLUME	08:55:16	
(GC) IRIS N/S MAP		Transmit 79-193/09:00:00
COMP5 IRIS	10:16:04	
(GC) CRS Fix LET B		Transmit 79-193/15:30:00
IRIS N/S MAP	16:40:54	
(GC) PRA Configuration Command (Remove Atten. from receiver input to increase sensitivity)		Transmit 79-193/19:00:00
Start Command Moratorium	22:49:00	
(GC) IM-9, Restore to EDS Logic		Transmit 79-193/23:00:00
(GC) CRS Turn off LB-1		Transmit 79-193/23:01:00
OPNAV - J3	79-194/02:52:08	
Spectral Drift	02:58:32	
(GC) PPS Diagnostic Test		Transmit 79-194/05:00:00
(GC) PPS to ¼° FOV; J Mode off; Filter Whl to Look-Up Table		Transmit 79-194/05:36:00
Start B352 (Mini-load: Special J-Ring Seq.)	07:22:00	
End B352 (Mini-load)	13:21:32	
OPNAV J2	13:40:58	
IRIS E/W Map	13:52:10	
(GC) Turn on LECP D4 Detector		Transmit 79-194/23:30:00
Science NO/GO for IRIS Warmup	79-195/17:00:00	
Begin B372	23:27:00	End JSX Near Encounter Phase
All Axes Inertial	23:29:20	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
End Earth Occultation	79-191/23:08:00	
Start Solar Occultation	23:53:32	
Jupiter LONGX	79-192/00:43:57	
UVROAR	01:16:44	
J RING A	01:47:56	
End Solar Occultaion	02:28:00	
SUNCAL (IRIS)	03:05:33	
(GC) Increase PLS Gains to Maximum (7,10)		Transmit 79-192/04:02:00
(GC) LECP Motor Power ON		Transmit 79-192/07:02:00
(GC) LECP Full Scan Normal Step		Transmit 79-192/07:03:00
(GC) Stow LECP, Pos. 8		Transmit 79-192/12:56:00
(GC) Start LECP 48-min Cyclic (Stow/6 sec step /stow/48 sec step)		Transmit 79-192/13:01:12
Sun Search Enable	14:05:59	
Jupiter Ring	14:08:01	
Star Acquistition	14:10:05	
LECP Stepper Motor ON	14:37:12	
UVS IO TORUS Drift	14:56:48	
CST & Canopus Search	14:57:11	
UVS HV Level 3	14:57:37	
(GC) Turn off CRS HET2 A, B, & C Preamps		Transmit 79-192/17:40:00
(GC) Start CRS Outbound Format		Transmit 79-192/18:05:00
PRA/PWS Hi Rate	19:00:02	
CRS Express	19:20:02	
(GC) Start PLSCAL		Transmit 79-192/19:37:00
(GC) End PLSCAL		Transmit 79-192/19:56:00
End IO TORUS Drift	20:00:00	
(GC) Turn on LECP D3 & D4 Detectors		Transmit 79-192/21:30:00
(GC) Start PPS Command Sequence		Transmit 79-192/21:39:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
All Axis Inertial	79-191/01:28:40	
Start TCM Burn	01:30:40	
(GC) UVS HV to Level 1- Emergency Procedure		Transmit 79-191/02:38:00
VULCAN - IO Watch	02:44:37	
VULCAN - IO watch	03:55:02	
Sun/Star Search Enable	03:55:40	
Star Acquisition	04:01:45	End TCM
VULCAN - IO Watch	05:39:50	
PPS Configuration Change	07:05:28	PPS HV ON
PPS CLDSTR	07:15:51	
UVROAR	07:33:27	
(GC) UVS to HV Level 1 Emergency Procedure		Transmit 79-191/07:48:00
(GC) PPS HV OFF Emergency Procedure		Transmit 79-191/07:58:00
(GC) Restore CRS Status Word 6		Transmit 79-191/07:59:00
GRSDRK	08:16:39	
VULCAN - IO Watch	08:57:28	
IRIS Pole Search	09:18:16	
UVROAR	10:27:03	
IRIS HTSPT 1	11:09:28	
(GC) PLS E2 Gains to 1,10		Transmit 79-191/11:30:00
IRIS N/S	11:51:04	
OPAC 2/3	12:28:41	
(GC) CRS LET A & C Detectors ON		Transmit 79-191/12:31:00
(GC) UVS to HV Level 1		Transmit 79-191/12:44:00
J-1 Torus Drift	14:25:29	
(GC) UVS to HV Level 13		Transmit 79-191/15:08:00
(GC) Dead Band to .16°		Transmit 79-191/15:46:00
All Axes Inertial	19:57:07	
(GC) Dead Band to .5°		Transmit 79-191/23:16:00
Start Earth Occultation	21:21:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) UVS HV change to Level 1		Transmit 79-190/09:33:00
GRSMOS	79-190/09:35:43	
RETMOS	10:46:56	
CLDSTR	11:05:19	
RETMOS	11:42:08	
HOTSPOT	11:54:56	
Jupiter Limb	12:39:44	
(GC) PLS Gain State change to 1,1		Transmit 79-190/13:05:00
RETMOS	13:57:21	
CLOUDZ	14:10:08	
SATMOS Europa	15:01:21	
UVS Bright/Dark Limb Europa	15:51:45	
RETMOS	16:38:10	
SATMOS Europa	16:50:58	
RETMOS	17:58:10	
IRIS N/Pole Search	18:10:58	
Europa Closest Approach	18:35:00	
CLOUDZ	19:13:22	
PRA/PWS Hi Rate	19:18:59	
SATMIN Amalthea	20:10:10	
HOTSPOT2	20:26:11	
GRSMOS	21:10:11	
IO TORUS	21:21:10	
Terminator Obs.	21:55:47	
HOTSPOT2	22:38:12	
PRA/PWS Hi Rate	22:39:48	
CLDSTR	23:09:24	
Closest Approach to Jupiter	23:22:00	
IO VOLCANO	23:30:12	
HOTSPOT1	23:54:12	
VULCAN - IO Volcano Watch	79-191/00:37:24	
VULCAN - IO Volcano Watch	01:18:13	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Roll to Canopus	79-189/17:08:00	
Sun Search Enable		
Star Acquisition	17:17:50	
RETMOS	17:39:38	
RETMOS	17:55:39	
(GC) Turn OFF CRS LET C		Transmit 79-189/18:00:00
IRIS E/W PLUME Study	18:08:26	
SATMIN Europa	19:52:26	
OPAC Z	20:06:50	
STAROCC - UVS, Regulus (Alpha-Leo) Enteri	21:18:51	
PRA/PWS Hi Rate	21:56:28	
RETMOS	22:26:03	
GRSMOS	22:40:27	
Jupiter RING	23:55:39	
PPS Configuration & HV ON/OFF Cycle	79-190/00:09:17	
SATMOS Ganymede	00:30:04	
RETMOS	01:07:41	
STAROCC Regulus Alpha Leo Occultation	01:20:28	
Jupiter RING	01:58:52	
COMPAC	02:02:52	
RETMOS	03:06:53	
CLDSTR	03:19:41	
SATMOS Ganymede	03:56:28	
UVS Bright/Dark Limb Ganymede	07:16:30	
(GC) PPS Filter Wheel to Position 4		Transmit 79-190/07:50:00
SATAT	07:55:42	
Ganymede closest approach	08:05:00	
IRIS Ganymede Polar Mosaic	08:10:54	
SATDARK Ganymede	08:31:42	
SATSOC	08:46:06	
IRIS/ECLIPSE Io	09:10:55	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
SATMOS Callisto	79-189/04:37:10	
RETMOS	05:21:11	
RETMOS	05:37:11	
SATMIN Io	05:49:58	
SATMIN Ganymede	06:13:59	
(GC) LECP Anti-Coincidence OFF		Transmit 79-189/06:00:00
LECP Stepper Motor OFF	06:40:36	
UVS S/N Auroral Slitscan	06:53:58	
(GC) LECP Anti-coincidence ON		Transmit 79-189/07:00:00
All axes inertial	07:00:36	
Sun Search Enable	07:38:51	
Star Acquisition	07:42:56	
All Axes Inertial	07:45:37	
SATMIN Io	08:52:23	
SATMIN Europa	09:14:47	
Jupiter RING	09:33:59	
RETMOS	09:55:37	
RETMOS	10:11:37	
SATMOS Callisto	10:24:24	
(GC) Change PLS Gain States for Near Encounter Configuration		Transmit 79-189/11:15:00
RETMOS	11:40:25	
SATMIN Io	11:53:12	
UVS Bright Limb/Dark Limb Callisto	12:10:00	
SATMOS Callisto	12:58:00	
Callisto Closest Approach	13:11:00	
UVS Bright Limb/Dark Limb Callisto	14:03:37	
SATMOS Callisto	14:30:01	
HOTSPOT 1	15:35:37	
SATMIN Io	16:27:37	
(GC) LECP D-3 Detector OFF		Transmit 79-189/17:05:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
ECLIPSE/GLO & SATMIN	79-188/12:21:54	
Start MAGCAL	12:24:19	
PRA/PWS Hi Rate	12:47:30	
RETMOS	12:50:42	
RETMOS	13:20:19	
ECLIPSE Europa	13:49:06	
OPAC 1 North Pole	14:00:18	
OPAC 1 South Pole	14:25:04	
ECLIPSE/LITE CURVE Europa	14:49:06	
PRA/PWS Hi Rate	15:01:07	
PPS/MOS Amalthea	15:12:18	
GRSMOS	15:20:17	
RETMOS	15:45:55	
RETPAT	16:14:42	
RETMOS	16:29:55	
GRSMOS	16:34:41	
ECLIPSE Io	16:58:43	
(GC) PRA Configuration command due to POR		Transmit 79-188/17:00:00
(GC) LECP D-1 to low threshold		Transmit 79-188/17:01:00
SATMIN Io	17:30:42	
UVSROAR	17:43:31	
LITE CURVE/SATMIN Europa	18:21:55	
OPNAV Europa	18:31:31	
ECLIPSE Io	18:33:55	
End PLS CAL	18:41:08	
STARCAL PPS	18:55:31	
Start JSX Near Encounter Sequence	79-189/02:33:58	
Start B351	02:34:00	
Continue PPS Configuration & HV ON/OFF Cycle	02:34:00	
GRSMOS	02:46:45	
RETMOS	03:35:34	
SATMIN Europa	03:48:22	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
SATMEQ Europa	79-187/19:21:48	
PRA/PWS Hi Rate	19:50:38	
RETMOS	19:55:26	
North/South Map	20:10:37	
SATMIN Ganymede	22:39:25	
Start B332	22:57:00	
Start PLSCAL	23:00:14	
PRA/PWS Hi Rate	23:00:14	
North/South Map	23:04:13	
Start LECP Stepping Cycle	23:34:00	
Cont. PLSCAL	79-188/00:00:00	
Start MAG CAL	00:24:15	
End MAG CAL	00:31:27	
LECP D-3 Detector OFF		Transmit 79-188/01:10:00
LECP D-3 Detector ON		Transmit 79-188/02:10:00
Cont. PPS Config & HV ON/OFF	02:21:50	
SATMIN Europa	02:22:38	
North/South Map	02:47:26	
(GC) CRS Cycling Format C		Transmit 79-188/03:00:00
(GC) No-opt LET B in Triples mode portion of CRS Format C command		Transmit 79-188/06:10:00
OPNAV	06:13:53	
GRSMOS	06:21:04	
COMP 1	07:07:28	
RETPAT	08:16:16	
LITE CURVE Io	08:49:05	
ECLIPSE Europa	08:56:16	
IRMOS/SATMIN/LITE CURVE Ganymede	09:54:41	
SATMIN/LITE CURVE Callisto	10:16:15	
RETMOS	10:38:41	
ECLIPSE Europa	11:05:05	
UVSROAR Polar	11:17:54	
ECLIPSE Europa	11:58:41	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
FEASCAN	79-187/11:08:11	
FEASCAN	11:24:59	
FEASCAN	11:41:47	
PRA/PWS Hi Rate	11:59:24	
PRA/PWS Hi Rate	12:06:36	
SATMEQ Io	12:09:46	
Start MAGCAL	12:24:12	
End MAGCAL	12:31:24	
North/South Map	12:44:11	
SATNAK Io	13:08:59	
PRA/PWS Hi Rate	13:11:24	
Lite Curve Europa	15:05:00	
SATMIN Europa	15:06:36	
RETMOS	15:18:36	
RETMOS	15:32:13	
RETMOS	15:45:48	
FEASCAN	15:59:25	
Lite Curve Ganymede	16:09:47	
SATMIN Ganymede	16:14:36	
PRA/PWS Hi Rate	16:24:13	
North/South Map	16:27:24	
SATMEQ Europa	16:52:12	
PRA/PWS Hi Rate	16:53:01	
Start PLOMAN	17:17:14	
All axes inertial	17:19:14	
End PLOMAN	18:28:00	
Sun Search Enable	18:30:42	
Star Acquisition	18:34:47	
PRA/PWS Hi Rate	18:44:13	
End PLS CAL	18:47:25	
PRA/PWS Hi Rate	18:49:49	
FEASCAN	18:53:49	
FEASCAN	19:03:25	
SATMIN Europa	19:12:13	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Lite Curve Europa	79-186/22:48:56	
(GC) Start CRS Cyclic Format B		Transmit 79-186/22:52:00
SATMIN Europa	22:56:56	
Start PLSCAL	23:06:32	
RETMOS	23:07:20	
(GC) LECP D4 & D5 Detectors Off		Transmit 79-186/23:30:00
FEASCAN	23:48:08	
PRA/PWS	23:57:44	
Lite Curve Ganymede	79-187/00:02:31	
OPNAV	00:09:45	
East/West Map	00:12:08	
Cont. PLS CAL	00:23:20	
Start MAG CAL	00:24:09	
Contl PPS Config. & HV ON/OFF Cycle	03:17:43	
Lite Curve Ganymede	05:20:57	
SATMIN Ganymede	05:20:57	
OPNAV	05:40:09	
(GC) Fix CRS LET Logic		Transmit 79-187/05:45:00
SATMIN Europa	05:48:10	
FEASCAN	06:05:46	
FEASCAN	06:22:34	
FEASCAN	06:39:22	
SATMEQ IO	06:55:21	
SATMIN Callisto	07:30:32	
FEASCAN	07:57:46	
FEASCAN	08:13:47	
FEASCAN	08:29:47	
Lite Curve Io	08:44:10	
COMP 5	08:53:46	
SATMIN Europa	10:28:11	
OPNAV	10:47:23	
FEASCAN	10:51:24	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Lite Curve/Eclipse Ganymede	79-186/03:05:38	
SATMIN Ganymede	03:06:27	
Start PESCAL	04:15:00	
RETMOS	04:16:04	
End PESCAL	05:06:00	
Eclipse Ganymede	05:22:26	
RETMOS	05:40:04	
SATMIN Europa	06:48:52	
ECL/ECL GLO Ganymede	07:02:27	
Lite Curve Io	07:49:39	
UV ROAR	07:50:28	
FEASCAN	08:21:40	
SATMIN Lite Curve Callisto	08:48:52	
UVROAR	09:14:28	
Eclipse Lite Curve Ganymede	09:46:28	
SATMIN Europa	10:38:29	
East/West MAP	10:56:53	
Start MAG CAL	12:24:06	
End MAG CAL	12:31:00	
FEASCAN	15:21:41	
SATMIN Ganymede	15:40:06	
PRA/PWS Hi Rate	15:55:19	
OPNAV	16:01:42	
PRA/PWS Hi Rate	16:03:19	
SATMIN Europa	16:08:53	
PRA/PWS Hi Rate	16:36:54	
RETMOS	16:43:18	
East/West MAP	17:33:43	
End PLSCAL	22:36:08	
Cont. PPS Config & HV ON/OFF Cycle	22:41:48	
Start B321	22:42:00	
OPNAV	22:48:56	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
IO WANA	79/185/13:46:23	
SATNAK	14:16:46	
PRA/PWS Hi Rate	16:44:48	
UV ROAR	16:51:13	
SATMIN Ganymede	17:22:23	
(GC) PPS into Filter Wheel Look-up Table		Transmit 79-185/17:23:00
RETMOS	17:34:25	
RETMOS	18:13:37	
OPNAV	18:56:01	
SATNAK	18:57:35	
RETMOS	19:45:37	
COMP 5	20:24:01	
SATMIN Callisto	21:24:01	
OPNAV	21:39:13	
PRA/PWS Hi Rate	21:41:37	
RETMOS	21:47:13	
Dead Band to .16°	22:17:00	
All axes inertial	22:20:14	
Start ASCAL	22:20:18	
Sun Search Enable	23:05:14	
End ASCAL	23:08:16	
Star Acquisition	23:09:20	
Dead Band to .05°	23:09:30	
COMP 5	23:11:13	
Cont. PLSCAL	79-186/00:00:00	
RETMOS	00:12:50	
Start MAG CAL	00:24:02	
End MAG CAL	00:31:14	
COMP 5	00:51:12	
PRA/PWS Hi Rate	01:45:38	
RETMOS	01:54:27	
OPNAV	02:41:39	
OPNAV	02:48:51	
SATMIN Europa	02:52:03	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
RETMOS	79-185/01:36:44	
Lite Curve Europa	01:49:31	
SATMIN Europa	01:52:44	
PRA/PWS Hi Rate	02:11:56	
COMP 5	02:21:32	
RETMOS	03:07:09	
COMP 5	03:35:56	
RETMOS	04:21:33	
RETMOS	04:45:33	
Lite Curve Ganymede	05:14:20	
OPNAV	05:20:45	
Lite Curve Europa	05:22:20	
COMP 5	05:40:44	
OPNAV	06:07:57	
RETMOS	06:11:09	
RETMOS	06:35:09	
COMP 5	06:56:45	
RETMOS	08:15:09	
RETMOS	09:09:34	
RETMOS	09:51:11	
Lite Curve Europa	10:12:45	
OPNAV	10:31:59	
Lite Curve Ganymede	10:33:34	
SATMIN Ganymede	10:33:34	
COMP 5	10:49:33	
PRA/PWS Hi Rate	11:41:35	
Lite Curve Callisto	11:44:45	
SATMIN Callisto	11:47:10	
UVS SYSCAN	11:59:59	
UVS SYSCAN	12:29:35	
RETMOS	13:00:47	
PRA/PWS Hi Rate	13:40:48	
START PLSCAL	13:41:35	
Cont. PPS Config. & HV ON/OFF Cycle	13:42:24	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
OPNAV	79-184/14:50:17	
SATMIN Europa	14:53:29	
RETMOS	15:08:41	
RETMOS	15:28:41	
UVS SYSCAN	15:43:05	
UVS SYSCAN	16:12:42	
SATNAK	16:43:53	
IOWANA	16:43:53	
Cont. PPS Config & HV ON/OFF Cycle	16:44:42	
PRA/PWS Hi Rate	19:03:07	
RETMOS	19:18:18	
PPS Eclipse Europa	19:47:05	
SATMIN Europa	19:48:43	
Lite Curve Ganymede	20:07:53	
SATMIN Ganymede	20:09:31	
RETMOS	20:32:42	
RETMOS	21:02:19	
RETMOS	21:31:55	
PRA/PWS Hi Rate	22:01:31	
OPNAV	22:05:32	
RETMOS	22:09:32	
SATMIN Europa	22:19:55	
SATMIN Ganymede	22:51:55	
OPNAV	23:07:08	
Lite Curve Callisto	23:08:43	
SATMIN Callisto	23:13:32	
RETMOS	23:47:56	
RETMOS	79/185/00:01:31	
Lite Curve Europa	00:24:43	
(GC) FIXLO Frequency removed from PRA table through Encounter		Transmit 79-185/00:41:00
RETMOS	00:43:56	
RETMOS	01:23:08	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
UVS DRIFT Io	79-184/01:49:26	
SATMIN Ganymede	02:19:50	
IRIS/PPS LITE Curve Callisto	02:31:49	
SATMIN Callisto	02:31:50	
OPNAV	02:52:38	
RETMOS	02:57:26	
IRIS Light Curve Io	03:48:38	
IRIS Light Curve Europa	04:15:49	
RETMOS	04:42:15	
ATMOS	05:05:25	
RETMOS	05:05:27	
RETMOS	05:28:38	
RETMOS	05:55:03	
Lite Curve Ganymede	06:17:26	
OPNAV	06:46:15	
Lite Curve Callisto	06:47:49	
RETMOS	07:35:51	
RETMOS	08:35:52	
Lite Curve Europa	09:23:03	
UVS Drift Io	09:48:40	
Cont. PPS Config. & HV ON/OFF Ctcke	10:19:52	
RETMOS	10:27:04	
RETMOS	10:59:52	
SATMIN Ganymede	11:28:40	
OPNAV	11:43:04	
Lite Curve Io	11:44:39	
PRA/PWS High Rate	11:45:28	
OPNAV	12:18:16	
RETMOS	12:21:29	
RETMOS	13:00:41	
RETMOS	13:30:17	
Lite Curve Ganymede	13:59:04	
RETMOS	14:25:29	
OPNAV	14:44:40	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
IRIS/PPS Lite Curve Io	79-183/11:59:45	
SATMIN Ganymede	12:32:34	
PRA/PWS Hi Rate	12:42:58	
SYSCAN Io	12:50:59	
(GC) PPS to Filter Wheel Look-up Tbl, J-Mode OFF		Transmit 79-183/13:10:00
ATMOS	13:54:11	
SATNAK	14:49:23	
Cont. PPS Config. & HV ON/OFF Cycle	14:50:59	
IRIS Lite Curve Ganymede	15:52:35	
PRA/PWS Hi Rate	16:12:35	
ATMOS	16:21:23	
ATMOS	17:12:35	
IRIS Lite Curve Io	17:42:11	
IRIS Lite Curve Europa	18:09:22	
ATMOS	18:38:12	
SATMIN Ganymede	19:09:24	
IO WANA	19:18:59	
PRA/PWS Hi Rate	19:54:12	
OPNAV	20:09:25	
ATMOS	20:13:25	
ATMOS	20:55:48	
SYSCAN Io	21:26:12	
ATMOS	22:28:37	
IRIS Lite Curve Europa	23:20:36	
OPNAV	23:45:25	
IRIS Lite Curve Io	23:47:00	
OPNAV	79-184/00:03:49	
IRIS Lite Curve Io	00:05:24	
PRA/PWS Hi Rate	00:09:26	
ATMOS	00:17:26	
UVS DRIFT Io	00:47:49	
ATMOS	01:19:02	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
IRIS/PPS Lite Curve Callisto	79-182/19:32:28	
PRA/PWS	20:05	
IRIS Lite Curve Io	20:14:05	
ATMOS	20:58:54	
ATMOS	21:28:30	
SATMIN Ganymede	21:59:42	
OPNAV	22:13:19	
SYSCAN Io	22:15:43	
IRIS Lite Curve Europa	23:14:54	
ATMOS	23:49:19	
PRA/PWS Hi Rate	79-183/00:21:19	
ATMOS	00:51:43	
IRIS Lite Curve Ganymede	01:21:19	
PRA/PWS Hi Rate	01:23:44	
SATMIN Ganymede	01:37:19	
SATMIN Callisto	01:53:18	
ATMOS	02:06:56	
IRIS Lite Curve Io	02:36:30	
IRIS Lite Curve Europa	03:18:07	
ATMOS	03:51:44	
ATMOS	05:06:56	
ATMOS	06:26:07	
RETMOS	06:26:08	
RETMOS	06:50:57	
PPS Eclipse Io	07:19:43	
UVS Drift Io	07:38:57	
IRIS Lite Curve Europa	08:09:20	
PPS Eclipse/IRIS Lite Curve	08:41:20	
RETMOS	09:14:57	
Start PESCAL	09:26:00	
RETMOS	10:02:58	
End PESCAL	10:16:00	
SYSCAN Io	10:26:58	
ATMOS	11:30:10	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
ATMMOS	79-181/22:37:12	
OPNAV	23:12:24	
ATMMOS	23:14:00	
OPNAV	23:47:36	
UVS DRIFT - IO	23:49:11	
ATMOS	79-182/00:22:49	
PRA/PWS Hi Rate	00:52:25	
ATMOS	01:19:37	
UVS Europa Drift	01:49:11	
SATMIN Ganymede	02:38:49	
ATMOS	02:55:37	
ATMOS	03:50:50	
IRIS/PPS Lite Curve J4	04:20:24	
SATNAK IO	05:06:01	
Start PPS Config. & HV ON/OFF Cycle	05:07:37	
IRIS Lite Curve Europa	06:42:02	
RETMOS	07:25:15	
IR COMP	08:12:26	
RETMOS	08:54:03	
SATMIN Ganymede	09:44:26	
SATMIN Callisto	10:05:16	
SYSCAN Io	10:22:03	
IR COMP	11:20:26	
PRA/PWS Hi Rate	11:30:04	
ATMOS	11:37:16	
IRIS Lite Curve Ganymede	12:06:51	
IRIS Lite Curve Europa	12:38:03	
SYSCAN Io	13:17:16	
ATMOS	14:18:52	
ATMOS	14:48:29	
SATMIN Ganymede	15:20:28	
SYSCAN Io	15:30:52	
ATMOS	17:26:05	
PRA/PWS Hi Rate	18:18:53	
ATMOS	19:02:54	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
SATNAK - IO	79-181/04:25:06	
PPS Config. & HV On/OFF Cycle	04:26:07	
IR COMP	05:33:54	
GRSMOS	05:49:06	
LITCRV - Ganymede	06:47:31	
IR COMP	07:33:55	
ATMOS	07:58:43	
OPNAV - J3	08:47:31	
IR COMP	08:55:31	
PPS STAR CAL	09:38:43	
PVS Config. & HV ON/OFF Cycle	09:38:44	
RETMOS	10:29:57	
LECP Stepping Cyclic Begins	10:45:00	
ATMOS	11:25:57	
PRA/PWS Hi Rate	11:55:33	
ATMMOS	12:21:57	
ATMOS	13:17:57	
LITCRV - Ganymede	13:47:33	
SPINAX	14:26:45	
SATMIN Callisto	14:28:21	
ATMMOS	14:42:46	
ATMMOS	16:14:46	
PRA/PWS Hi Rate	16:45:10	
SATMIN Ganymede	17:04:22	
LITCRV - Europa	17:16:22	
OPNAV	18:00:23	
ATMMOS	18:03:35	
ATMMOS	19:39:35	
SYSCAN - IO	20:36:23	
OPNAV	21:37:12	
LITCRV - Ganymede	21:38:47	
PRA/PWS - Hi Rate	21:46:47	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) CRS Cycle Format A		Transmit 79-180/07:05:00
SATMIN Callisto	79-180/08:05:00	
IR COMP	08:25:48	
ATMOS	09:25:02	
OPNAV	10:21:50	
ATMOS	10:25:50	
OPNAV	11:55:26	
PRA/PWS Hi Rate	11:57:51	
ATMOS	12:23:27	
SATMIN LIT CURVE	12:53:50	
SATMIN Callisto	12:54:39	
OPNAV	13:07:27	
UVS DRIFT	13:11:27	
UVS DRIFT	13:41:03	
ATMOS	14:13:04	
ATMMOS	15:42:39	
Light Curve - Ganymede	16:12:15	
ECL Callisto	16:49:51	
ATMMOS	17:46:40	
PRA/PWS Hi Rate	18:16:16	
ATMMOS	19:25:05	
ECL - Callisto	19:54:19	
ATMMOS	21:23:10	
ECL Callisto	21:53:04	
SATMIN Callisto	22:33:54	
OPNAV	22:49:05	
ATMMOS	22:53:05	
ATMMOS	23:51:30	
OPNAV	79-181/00:25:54	
ECL Callisto	00:27:29	
ATMMOS	01:19:31	
UVS DRIFT	01:50:43	
ECL - Callisto	02:19:20	
ATMMOS	02:43:31	
ATMMOS	03:55:31	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Sun Search Enable	79-178/21:50:31	
Star Acquisition	21:54:36	
End TCM	22:02:37	
UVS HV to Level 3		
LECP Stepper Motor ON	79-178/22:02:40	
Start B327	79-179/02:33:00	
IRCOMP	02:50:28	
OPNAV	06:00:54	
IR DEEP	06:02:31	
OPNAV	10:06:32	
SYSCAN	10:08:07	
LITE CURVE Ganymede	11:52:55	
PRA/PWS Hi Rate	12:36:08	
UVS DRIFT	13:29:21	
UVS DRIFT	14:08:57	
IRIS SUNCAL	15:36:56	
PRA/PWS Hi Rate	18:39:22	
OPNAV	19:36:58	
OPNAV	19:43:22	
LITE CURVE Ganymede	19:45:45	
SATMIN	20:20:09	
PPS Configuration & HV ON & OFF Cycle	20:22:29	
3 CL 3 X 3	20:49:47	
3 CL 3 X 3	22:49:47	
PRA/PWS Hi Rate	79-180/00:20:11	
3 CL 3 X 3	00:33:48	
(GC) LECP Step to 6 Sec		Transmit 79-180/01:00:00
UVS EIEID - IO	02:17:48	
Light Curve - Ganymede	02:49:47	
Jupiter ATMOS	03:33:49	
Jupiter ATMOS	04:45:49	
OPNAV	05:45:01	
PPS SATNAK IO	05:46:35	
(GC) MAG CAL		Transmit 79-180/06:00:00
(GC) LECP Step to 48 sec		Transmit 79-180/07:00:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) LECP Step to 48 sec	79-174/14:17:59	Transmit 79-174/17:57:00
(GC) LECP Step to 6 sec		Transmit 79-174/18:46:00
(GC) LECP Step to 48 sec		Transmit 79-174/19:35:00
Cont. AISS Cycle	79-175/00:00:00	
Start CCS B-326	09:33:00	
Start PPS Config & HV ON & OFF Cycle	09:34:04	
All axes inertial	13:52:06	
Start VERTSCAN	14:19:00	
SUN/STAR Search Enable	20:47:05	
End VERTSCAN	20:50:09	
Star Acquisition	20:51:10	
Cont. UVS SYSCAN Cycle	79-176/12:06:48	
Callisto 6 NA	23:03:05	
Cont. UVS SYSCAN Cycle	79-177/00:00:00	
(GC) LECP Step to 6 sec		Transmit 79-177/00:35:00
(GC) LECP Step to 48 sec		Transmit 79-177/04:40:00
OPNAV	04:49:29	
(GC) LECP High Hias ON		Transmit 79-177/05:00:00
OPNAV	08:19:06	
Callisto ¢ NA	14:57:31	
OPNAV	79-178/02:39:59	
OPNAV	08:18:24	
OPNAV	10:06:25	
(GC) LECP Step to 48 sec		Transmit 79-178/10:58:00
Callisto 6 NA	13:48:50	
LECP to MOSTOW	19:08:03	
LECP Stepper Motor OFF	19:11:04	
Start Trajectory Correction Maneuver All axes inertial.	19:13:57	
Deadband to .05°	19:14:00	
Start TCMB 4 Burn	19:55:29	
All axes inertial	19:55:36	
End TCM B4 Burn	19:58:51	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) LECP Step to 6 sec		Transmit 79-172/21:20:00
(GC) LECP Step to 48 sec		Transmit 79-172/22:17:00
(GC) LECP Step to 6 sec		Transmit 79-172/23:05:00
Cont. AISS Cycle	79-173/00:00:00	
(GC) LECP Step to 48 sec		Transmit 79-173/00:16:00
UVS Satellite Drift	02:42:36	
Cont. BISS Cycle	03:59:25	
OPNAV	05:38:37	
UVS Satellite Drift	10:44:14	
UVS Satellite Drift	12:37:03	
OPNAV	13:44:15	
OPNAV	16:29:52	
UVS Satellite Drift	16:38:39	
Cont. UVS SYSCAN Cycle	20:25:53	
Cont. AISS Cycle	79-174/00:00:00	
Cont. UVS SYSCAN Cycle	00:33:54	
(GC) LECP Step to 6 sec		Transmit 79-174/01:05:00
(GC) LECP Step to 48 sec		Transmit 79-174/02:59:00
Cont. BISS Cycle	03:49:08	
Start PESCAL	06:31:00	
End PESCAL	07:21:00	
(GC) LECP Step to 6 sec		Transmit 79-174/08:01:00
(GC) LECP Step to 48 sec		Transmit 79-174/09:50:00
OPNAV	13:25:58	
Cont. UVS SYSCAN Cycle	14:17:59	
(GC) LECP Step to 6 sec		Transmit 79-174/16:45:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Cont. SYSCAN Cycle	79-171/00:56:45	
(GC) LECP Step from 6 to 48 seconds		Transmit 79-171/01:30:00
Cont. BISS Cycle	04:20:46	
OPNAV	11:11:12	
(GC) LECP Step from 48 to 6 seconds		Transmit 79-171/11:30:00
(GC) LECP Step from 6 to 48 seconds		Transmit 79-171/12:30:00
OPNAV	13:17:37	Transmit 79-171/
(GC) LECP Step from 48 to 6 seconds		Transmit 79-171/13:30:00
(GC) LECP Step from 6 to 48 seconds		Transmit 79-171/14:30:00
(GC) LECP Step from 48 to 6 seconds		Transmit 79-171/15:30:00
(GC) LECP Step from 6 to 48 seconds		Transmit 79-171/16:30:00
(GC) LECP Step from from 48 to 6 seconds		Transmit 79-171/17:30:00
(GC) LECP Step from 6 to 48 seconds		Transmit 79-171/18:30:00
IRIS Flash-off Heater OFF	22:30:00	
OPNAV	22:48:03	
OPNAV	23:01:40	
Cont. AISS Cycle	79-172/00:16:52	
Cont. BISS Cycle	04:10:29	
UVS Sat Drift	04:58:29	
IRIS Repl Heater OFF	12:29:44	
IRIS Power ON	12:32:17	
Cont. UVS SYSCAN Cycle	12:39:20	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Start PLSCAL	79-169/09:19:45	
Satellite Drift	09:27:45	
End PLSCAL	10:50:58	
Satellite Drift	15:11:47	
Satellite Drift	17:10:59	
(GC) Weather Response CMDS to Lower Bit Rate		Transmit 79-168/18:00:00
(GC) Weather Response CMDS to Normal Bit Rate		Transmit 79-168/19:50:00
OPNAV	20:11:00	
(GC) LECP Stepping [illegible] from 48 sec to 6 sec	79-170	Transmit 79-170/00:05:00
Start PPS Configuration and HV ON/OFF Cycle	00:24:37	
Cont. AISS Cycle	00:38:14	
(GC) LECP Stepping from 6 to 48 seconds		Transmit 79-170/00:51:00
OPNAV	01:41:26	
Contl SYSCAN Cycle	03:06:00	
Cont. BISS Cycle	04:31:51	
(GC) LECP Stepping from 48 sec to 6 sec)		Transmit 79-170/00:40:00
OPNAV	09:31:04	
(GC) LECP Stepping from 6 to 48 seconds	79-170/	Transmit 79-170/10:40:00
OPNAV	12:21:29	
OPNAV	22:56:44	
Cont. SYSCAN Cycle	79-171/00:00:00	
Cont. AISS Cycle	00:27:09	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
End PPS Gas Torus Mosaic Cycle - End PPS Config. & HV Cycle	79-167/14:35:16	
OPNAV	16:21:08	
Start SYSCAN Cycles	17:29:57	
(GC) WX Response CMDS for Lower Bit RAte		Transmit 79-167/18:20:00
(GC) WX Response CMD for Normal Bit Rate		Transmit 79-167/20:03:00
End SYSCAN Cycles	22:46:08	
Start PESCAL	23:57:11	
End PESCAL	79-168/00:45:59	
Cont. AISS Cycle	00:57:11	
Cont. UVS SYSCAN Cycles	03:30:00	
Cont. BISS Cycle	04:50:48	
OPNAV	79-168/07:28:25	
OPNAV	12:43:38	
OPNAV	17:30:52	
(GC) WX Response CMDS for low bit rate		Trasnmit 79-168/18:10:00
Cont. UVS SYSCAN Cycle	19:19:41	
(GC) WX Response CMDS for Normal Bit Rate	-	Transmit 79-168/19:55:00
Cont. UVS SYSCAN Cycle	79-169/00:00:00	
Cont. AISS Cycle	00:48:30	
PPS STAR CAL	01:17:18	
PPS HV ON	01:24:30	
PPS HV OFF	02:14:55	
Cont. BISS Cycles	08:40:33	
OPNAV	09:18:57	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Cont. AISS Cycle	79-165/01:28:48	
Cont. BISS Cycle	03:23:13	
OPNAV	05:10:25	
Cont. UVS SYSCAN (J1) Cycle	06:00:50	
Cont. AISS Cycle	79-166/01:18:31	
Cont. BISS Cycle	05:12:09	
ISS ELARA	17:52:37	
PPS HV ON	17:58:13	
PPS HV OFF	18:56:13	
OPNAV	18:59:25	
Begin B324	79-167/00:31:00	
OPNAV	00:49:04	
Cont. AISS	01:07:28	
Start UVS Satellite Drift Cycle	01:45:51	
(GC) LECP Step from 24 seconds to 48 seconds		Transmit 79-167/02:15:00
Cont. BISS Cycle	79-167/05:01:05	
End Sat. Drift Cycle	05:02:00	
Start PPS Gas Torus Mosaic Cycle	05:39:29	
Start PPS Configuration & High Voltage Cycle	05:45:04	
(GC) Increase LECP		Transmit 79-167/14:20:00
Alpha/Beta Discriminator Level		
(GC) Decrease LECP Alpha/ Beta Discriminator Level		Transmit 79-167/16:20:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
UVS/PPS STAR CAL	79-162/03:11:37	
UVS/PPS STAR CAL	04:31:38	
UVS/PPS STAR CAL	05:06:50	
Start BISS Cycle	07:54:03	
UVS/PPS STAR CAL	10:34:51	
UVS/PPS STAR CAL	11:09:15	
End PPS Configuration & HV ON and OFF Cycle	11:39:39	
(GC) Switch MAG to 1/0 B		Transmit 79-162/17:00:48
(GC) Start MAG CAL		17:00:48
(GC) End MAG CAL		17:29:48
Cont. AISS Cycle	79-163/00:00:00	
Start PESCAL	00:21:00	
End PESCAL	01:10:00	
OPNAV	02:40:32	
Cont. SYSCAN (J1) Cycle	04:22:57	
Cont. BISS Cycle	07:42:58	
OPNAV	21:20:39	
OPNAV	22:20:39	
Cont. AISS Cycle	79-164/00:00:00	
Cont. PPS (J1, J2) Cycle	00:16:40	
Start PPS Configuration & HV ON & OFF Cycle	00:21:40	
Cont. BISS Cycle	07:32:42	
End PPS Configuration &	13:19:56	
Cont. SYSCAN Cycle	16:07:09	
OPNAV	79-165/00:00:48	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
OPNAV	79-159/03:07:12	
	03:18:25	
(GC) PRA CAL - Part III		Transmit 79-159/03:20:00
Start B323	17:31:00	
Start AISS Cycle	18:24:54	
UVS SUN CAL	22:52:08	
UVS HV LEVEL III	23:33:32	
End UVS Sun Cal	79-160/00:04:08	
Cont. AISS Cycle	00:22:32	
Cont. SYSCAN Cycle	00:56:56	
Cont. BISS Cycle	08:15:22	
OPNAV	10:04:59	
Cont. AISS Cycle	79-161/00:12:16	
OPNAV	04:00:17	
Cont. BISS Cycle	08:04:19	
Start PPS J1, J2 Cycle	08:48:19	
Start PPS Configuration and HV Cycle	08:53:19	
Start PLS CAL	14:18:45	
End PLS CAL	15:56:21	
End PPS J1, J2 Cycle	17:41:10	
OPNAV	17:42:46	
Cont. AISS Cycle	79-162/00:02:00	
Cont. UVS SYSCAN Cycle	00:36:25	
UVS/PPS STAR CAL	02:38:01	
Start PPS Configuration HV ON & OFF Cycle	02:38:01	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Start PLS CAL	79-155/12:44:27	
Sun Search enable	14:26:32	
End PLS CAL	16:08:39	
Start CST & Canopus Search	16:42:44	
Star Acquisition	16:55:49	
End Cruise Maneuver	16:56:51	
Start MAG CALS	17:00:16	
End MAG CALS	17:20:16	
OPNAV	17:43:32	
C ont. SYSCAN Cycle	79-156/00:00:00	
Cont. OUV/UVO Cycle	05:14:01	
OPNAV	05:59:37	
All axes inertial	21:28:43	
Start ASCAL	21:28:44	
Sun Search enable	22:57:13	
End ASCAL	23:00:15	
Star Acquisition	23:01:10	
Cont. SYSCAN Cycle	79-157/00:00:00	
Contl UVO/OUV Cycle	03:03:44	
OPNAV	16:10:13	
(GC) PRA Cal., Part I		Transmit 79-157/18:35:00
Cont. SYSCAN Cycle	79-158/00:00:00	
Cont. OUV/UVO Cycle	02:53:28	
(GC) PRA Cal. Part II		Transmit 79-158/03:00:00
OPNAV	22:08:06	
Cont. OUV/UVO Cycle	79-159/02:42:24	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
PPS Aper Pos 0, HV ON	79-154/10:13:59	Aper. Pos. Change non-effective
PPS Aper Pos. 1, HV ON	11:21:47	Aper. Pos. change non-effective
PPS Aper Pos. 3, HV OFF	11:21:47	Aper. Pos. change non-effective
PPS Aper Pos. 1, HV ON	11:56:22	Aper. Pos. change non-effective
PPS Aper Pos. 0, HV ON	11:56:24	Aper. Pos. change non-effective
PPS Aper Pos. 1, HV ON	13:04:12	Aper. Pos. change non-effective
PPS Aper Pos. 3, HV OFF	13:04:13	Aper. Pos. change non-effective
PPS Aper Pos. 1, HV ON	13:55:34	Aper. Pos. change non-effective
PPS Aper Pos. 0, HV ON	13:55:37	Aper. Pos. change non-effective
PPS Aper Pos. 1, HV ON	15:03:24	Aper. Pos. change non-effective
PPS Aper Pos. 3, HV OFF	15:03:25	Aper. Pos. change non-effective
PPS Aper Pos. 1, HV ON	15:54:48	Aper. Pos. change non-effective
PPS Aper Pos. 0, HV ON	15:54:49	Aper. Pos. change non-effective
PPS Aper Pos. 1, HV ON	17:02:36	Aper. Pos. change non-effective
PPS Aper Pos. 3, HV OFF	17:02:37	Aper. Pos. change non-effective
End PPS SCAN Cycle	17:02:37	
OPNAV	18:09:48	
PPS Aper Wheel Anomaly cleared	19:30:00	
Cont. SYSCAN Cycle	79-155/00:00:00	
Start PESCAL	01:48:00	
End PESCAL	02:37:00	
Cont. UVO/OUV Cycle	03:25:51	
OPNAV	09:09:54	
Start Cruise Maneuver	12:04:22	
All axes inertial	12:09:07	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Start PPS STARCAL	79-153/11:57:00	
PPS Aper. Point 2, HV ON	12:29:09	
PPS Aper. Point 3 HV OFF	13:40:51	
End PPS STARCAL	13:43:00	
OPNAV	17:11:15	
Cont. SYSCAN Cycle	17:56:03	
Cont. SYSCAN Cycle	79-154/00:00:00	
Contl UVO/OUV Cycle	03:36:07	
Start PPSCAN Cycle	05:53:48	
PPS Aper. Position 1*; HV - ON (*See 154/07: 10 below)	05:58:44	Aper. Position change non-effect effective.
PPS Aper. Pos. 1, HV ON	07:06:33	Aper. Position change non-effective.
PPS Aper. Pos. 3,HV OFF	07:06:34	Aper. Position change non-effective.
ACE/Systems Report; @05:58:44 PPS Aperture Wheel stuck in 1/16° FOV (Pos.3) - Anomaly did not clear until 154/19:30; apparently a sequencing problem (Ref ISA #2975).	07:10:00	
OPNAV	08:07:21	
PPS Aper. Pos. 1 HV ON	79-154/08:22:44	Aper. Pos. change non-effective
PPS Aper. Pos. 0 HV ON	08:22:45	Aper. Pos. change non-effective
PPS Aper. Pos. 3 HV OFF	09:30:35	Aper. Pos. change non-effective
OPNAV	09:59:21	
PPS Aper. Pos. 1 HV ON	10:13:57	Aper. Pos. change non-effective

DAY: 152
S/C: 32

TABLE 1

MAG ANOMALY TEST

GMT TRANSMIT TIME	CHANNEL	MOVED TO ENGINEERING POSITION:
22 40 00	E-602 PPS Anal. Pos.	145
22 48 00	E-660 MAG MUX	121
22 56 00	E-342 DSS Mode St.	145
23 04 00	E-606 PPS Sol Sen	121
23 08 00	E-063 CDU SNR M	157
	E-064 CDU SNR L	158
[illegible] 12 00	E-063 CDU SNR M	151
[illegible]3 16 00	E-064 CDU SNR L	152
23 20 00	E-181 Y SS Posn	151
23 24 00	E-604 PPS HV	152
23 28 00	E-641 UVS HV	157
	E-025 RCV AGC	158

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Cont. AISS Cycle	79-152/00:00:00	
Cont. SYSCAN Cycle	00:25:25	
OPNAV	03:36:38	
Cont. BISS Cycle	07:41:27	
Start PLS CAL	12:25:00	
End PLS CAL	14:03:00	
Start MAG Anomaly Test see Table I		Transmit 79-152/22:40:00
End MAG Anomaly Test		Transmit 79-152/23:28:00
Cont. AISS Cycle	79-153/00:00:00	
FDS Decom Change - Measurement E606 (PPS Sol Sen) moved from deck position. 158 - 121		Transmit 79-153/01:01:00
MAG Test follow-up commands - LECP implementation of ECR 37198 & CRS MVR config.		Transmit 79-153/03:00:00
FDS to SM-40 for FDS 0704 Load	09:32:05	
Start UVO/OUV Cycle	09:44:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Start JSX Movie	79-147/21:18:24	
PPS HV ON, Filter Pos. 4	21:55:00	
PPS HV OFF, Filter Pos. 5	22:28:00	
Continue JSX Movie	79-148/00:00:00	
GROUND COMMAND -		
FDS Load 0704		Transmit 79-148/23:00:00
Continue JSX Movie	79-149/00:00:00	
GROUND COMMAND -		
FDS 0704 Patches		Transmit 79-149/04:30:00
GROUND COMMAND -		
PRA/PWS 0704 Update		07:30:00
End JSX Movie	79-150/00:08:19	
Start AISS Cycle	00:09:55	
Start PPS SYSCAN Cycle	00:43:31	
Start PPS Cycle, PPS HV ON, Aper. Pos. 1	79-150/00:48:31	
OPNAV	01:58:44	
End PPS Cycle, HV OFF, Aper. Pos. 3	09:50:44	
End PPS SYSCAN Cycle	10:01:58	
BISS	10:01:58	
Start Io SYSCAN Cycle	10:41:11	
BISS	12:01:12	
Continue SYSCAN Cycle	79-151/00:05:00	
Continue AISS Cycle	03:58:05	
BISS	09:50:56	
BISS	11:50:04	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
GROUND COMMAND -		
End F & P CAL		Transmit 79-143/23:37:37
F & P CAL Complete	79-144/01:06	
Continue PPS OBISS Cycle	01:57:01	
IRCOMP	02:05:01	
Continue UVS SYSCAN Cycle	04:05:50	
GROUND COMMAND -		
Change PPS Safe Serial Command from 0081 to A3C1		Transmit 79-144/13:00:00
Start B321 Sequence	79-145/00:28:00	
GROUND COMMAND -		
Configure PRA for FDS 0804 Program		Transmit 79-145/03:30:00
LECP Stepper Motor OFF	19:19:06	
Start TCM	20:22:21	
Deadband to .05	20:24:00	
All Axes Inertial	20:54:08	
Sun Search Enable	21:54:40	
Star Acquisition	21:58:45	
End TCM	22:05:01	
UVS HV Level III	22:06:46	
LECP Stepper Motor ON	23:16:38	
Start AISS Cycle	79-146/01:23:00	
Start PLSCAL	08:01:00	
Start BISS	09:16:00	
End PLSCAL	09:36:00	
End BISS	09:54:00	
Start BISS	11:16:00	
End BISS	11:53:00	
Start PESCAL	12:08:14	
End PESCAL	13:17:44	
Continue AISS Cycle	79-147/01:11:05	
Start BISS	09:08:00	
End BISS	09:47:00	
Start BISS	11:08:00	
End BISS	11:45:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
GROUND COMMAND -		
Canopus Tracker Flyback and Sweep		Transmit 79-138/21:03:00
Continue SYSCAN Cycle	79-139/00:49:50	
IRCOMP	02:57:04	
OPNAV	12:37:07	
GROUND COMMAND -		
Gyro Drift - Cancelled due to insufficient request & information		Transmit 79-139/14:00:00
Continue SYSCAN Cycle	79-140/02:38:49	
IRCOMP	02:46:49	
OPNAV	08:29:15	
PPS OBISS Cycle	79-141/00:29:21	
Continue SYSCAN Cycle	04:38:11	
GROUND COMMAND -		
Deadband to .16		Transmit 79-141/01:06:00
GROUND COMMAND -		
All Axes Inertial		Transmit 01:21:00
GROUND COMMAND -		
Start Mini ASCAL Load		Transmit 01:26:00
IRCOMP	02:36:34	
GROUND COMMAND -		
End Mini ASCAL Load & Deadband to .05		Transmit 02:40:00
Continue PPS OBISS Cycle	79-142/00:18:19	
IRCOMP	02:25:31	
Start SYSCAN Cycle	04:26:20	
Continue PPS OBISS Cycle	79-143/00:08:04	
GROUND COMMAND -		
PPS 1/16 FOV, J-Mode ON, HV OFF		Transmit 79-143/01:37:00
PPS Star CAL	02:24:05	
IRCOMP	03:14:29	
Continue SYSCAN Cycle	04:16:05	
GROUND COMMAND -		
Start F & P CAL		Transmit 22:45:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Continue SYSCAN Cycle	79-134/01:45:49	
GROUND COMMAND -		
AACS Patches, Sun Shutter Test		Transmit 79-134/17:00:00
IRCOMP	21:42:00	
Continue SYSCAN Cycle	79-135/01:31:16	
GROUND COMMAND -		
PPS 1/16 FOV, J-Mode ON, HV OFF		Transmit 79-135/03:05:00
PPS Star CAL	03:50:02	
PPS 1/16 FOV, J-Mode ON, HV OFF	04:33:51	
GROUND COMMAND -		
CRS TET - Delete D-3 Terms		Transmit 79-136/01:00:00
Continue SYSCAN Cycle	79-136/01:25:21	
CRS TET - Delete D-3 Terms	02:30:00	
IRCOMP	03:28:25	
OPNAV	09:10:13	
Continue SYSCAN Cycle	79-137/01:11:08	
IRCOMP	03:18:20	
OPNAV	09:00:47	
OPNAV	10:59:12	
Continue SYSCAN Cycle	79-138/01:00:05	
IRCOMP	03:08:06	
Deadband to .16	05:18:00	
All Axes Inertial	05:18:56	
Start ASCAL	05:25:24	
Sun Search Enable	06:15:01	
Star Acquisition	06:19:06	
End ASCAL	06:25:13	
GROUND COMMAND -		
All Axes Inertial		Transmit 79-138/16:38:00
GROUND COMMAND -		
Sun Search Enable		Transmit 21:00:00

SCIENCE DATA PRODUCTS REPORT

JUNE 1979

1.) TRACKING GAP

Wide band data will be available in real time from DSS43 (Australia) for the Voyager 2 Encounter with Jupiter. Because there exists only one tri-channeller at Goddard Space Flight Center that must be physically switched between DSS43 and DSS63, there will be a gap of approximately one minute in coverage as the switch takes place. A Project decision has been made not to attempt recovery through ODR/IDR replay.

2.) REMOTE NORT EOT MESSAGE

The end-of-transmission message (EOT) built into the software of the Remote NORT linedriver was successfully tested with MAG on 8 June 1979. Because of time regressions in the data inherent in this software, EDRSTRAIN will be used to transmit data for the Voyager 2 Encounter, as was done with Voyager 1. Solutions to the time regressions are in work and should be available shortly following the Voyager 2 Encounter. This will enable the use of the line driver.

A copy of the System Interface Specification for Remote NORT (SIS 4-4000-15, Rev. A) has been sent to the appropriate individuals for review prior to signature approval by the Project Science Office.

3.) FDS COUNT ANOMALIES

An algorithm for correcting bad FDS Mod 2^{16} counts in the TTS software was removed from the TTS on 15 January, when it was discovered that the algorithm actually trapped the bad FDSC and

kept outputting it for hours at a time. A new effect was seen on 13 June. A bad Mod 2^{16} FDS count in a TTS SDR (Systems Data Record) was followed by three records that had the correct Mod 2^{16} count, but had exactly the same Mod 60 and line counts. The NORT file, from which MDRs and EDRs are usually made, automatically eliminates records with anomalous FDS counts, but three "good" records are thus lost. FR 60445 was written on this problem and it is being investigated by the Data Management Team. This problem should have no effect on EDR tapes other than producing a small data outage when it occurs unless the MDR has been produced directly from SDR tapes. In this case, the erroneous records would be passed to the EDR unless manually removed by an analyst.

4.) SPACECRAFT LATITUDE DISCREPANCY

The Magnetometer investigators reported that based on their calculations the Spacecraft latitude (S/C 31) on Jupiter was off by 0.04 degree from the value on the SEDR, Jupiter format word 157. This difference was seen in recent Voyager 1 SEDRS, the earliest of which was the SEDR that covered Day 072. An ISA, No. 2447, has been prepared and the Navigation Team has been tasked with investigating the difference.

5.) CR-5 DELAYED

The use of the CR-5 telemetry data mode originally scheduled for September of this year has been postponed. It is now expected that CR-5 will be used on Voyager 1 beginning 26 March 1980. Voyager 2, tentatively, will go into CR-5 sometime in May of 1980.

6.) MONTHLY SEDR STATUS SUMMARY

Attached is the latest update to the SEDR Summary provided by Neil Toy.

7.) SCIENCE SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events report provided by Cecil Brower's Data Control Group. Please note that on DOY 135 (May 15, 1979) we have eliminated FDSC and SCET but have added the corrected transmit times of Real Time Commands.

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
**			POST ENCOUNTER 2		**
13601	16685:33	16734:17	79-074/08:59	79-075/23:59	04/19/1979
13602	16734:19	16794:17	79-076/00:00	79-077/23:59	04/20/1979
13603	16794:19	16854:17	79-078/00:00	79-079/23:59	04/20/1979
13604	16854:19	16914:17	79-080/00:00	79-081/23:59	04/20/1979
13605	16914:19	16974:17	79-082/00:00	79-083/23:59	05/06/1979
13606	16974:19	17034:17	79-084/00:00	79-085/23:59	04/21/1979
13607	17034:19	17094:17	79-086/00:00	79-087/23:59	05/06/1979
13608	17094:19	17154:17	79-088/00:00	79-089/23:59	04/21/1979
13609	17154:19	17214:17	79-090/00:00	79-091/23:59	04/21/1979
13610	17214:19	17274:17	79-092/00:00	79-093/23:59	04/21/1979
13611	17274:19	17334:17	79-094/00:00	79-095/23:59	04/24/1979
13612	17334:19	17394:17	79-096/00:00	79-097/23:59	04/24/1979
13613	17394:19	17444:18	79-098/00:00	79-099/15:59	05/15/1979

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
02303	12621:25	13547:40	78-288/00:02	78-318/21:02	03/21/1979
02304	13551:25	14061:25	78-319/00:02	78-336/00:02	03/21/1979
----------FDSC RESET TO END OF 1978----------					
02401	14065:10	14957:40	78-336/03:02	78-365/21:02	03/21/1979
----------START OF 1979 TO FDSC RESET----------					
02501	14961:25	15377:40	79-001/00:02	79-014/21:02	03/21/1979
02502	15381:25	16307:40	79-015/00:02	79-045/21:02	04/12/1979
02503	16311:25	17147:40	79-046/00:02	79-073/21:02	05/06/1979
02504	17151:25	18133:55	79-074/00:02	79-106/18:02	05/16/1979
----------FDSC RESET TO START OF OBSERVATORY PHASE----------					
02601	18137:40	18347:40	79-106/21:02	79-113/21:02	05/16/1979
----------OBSERVATORY PHASE----------					
03101	18351:24	18561:20	79-114/00:01	79-120/23:58	05/30/1979
03102	18561:24	18741:20	79-121/00:01	79-126/23:58	05/25/1979
03103	18741:24	19280:54	79-127/00:01	79-144/23:37	06/05/1979

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

20 September 1979

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: H. W. WOO

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

The Monthly Science Data Product Report is enclosed for your information and review.

HWW:pmd
Enclosure

CRS	R.	Vogt	MAG	N.	Ness	PRA	J. Warwick
	T.	Garrard		M.	Acuna		J. Pearce
	N.	Lal		R.	Lepping		A. Riddle
	J.	Trainor		E.	Choo		
				A.	Silver		
IRIS	R.	Hanel	PLS	H.	Bridge	PWS	F. Scarf
	D.	Crosby		A.	Lazarus		W. Kurth
	L.	Herath		J.	Sullivan		
				K.	Ogilive		
				G.	Gordon		
				E.	Sittler		
LECP	S.	Krimigis	PPS	C.	Hord	UVS	L. Broadfoot
	T.	Armstrong		K.	Simmons		C. Gordon
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	C.	Fan					
	G.	Gloeckler					
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	L.	Lanzerotti					

cc:	J.	Anderson		R.	Heacock		R. Parker
	J.	Bergstralh		J.	Holberg		R. Parks
	C.	Busse		L.	Horn		R. Polansky
	D.	Collins		S.	Kumar		R. Poynter
	S.	Collins		R.	Laeser		A. Sacks
	R.	Collins		A.	Lane		C. Stembridge
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	O.	Divers		D.	Lynn		T. Thompson
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	D.	Gordon		S.	Hanson		G. Wood

SCIENCE DATA PRODUCTS REPORT

SEPTEMBER 1979

1.) GENERAL

Both Voyager Spacecraft are in Cruise 4 telemetry mode and are operating nominally. The SEDR Group is investigating some apparently anomalous pointing data discovered by IRIS in the Voyager 1 Jupiter Encounter data.

2.) SEDR SUMMARY

Attached is the latest update to the delivered SEDR Package Summary Listing from N. Toy.

3.) SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events Report by S. Spohn of the Data Control Group. Page 127 of Voyager 2 and all Voyager 1 pages from last month's report are included here because of reproduction problems.

HHW

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
14001	17446:49	19010:34	79-99/18:00	79-151/21:00	06/12/1979
14002	19014:19	19910:34	79-152/00:00	79-181/21:00	07/22/1979
14003	19914:19	20870:34	79-182/00:00	79-213/21:00	08/23/1979

NNT:09/20/1979

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
03305	20538:40	20601:22	79-186/21:50	79-188/23:59	07/20/1979
03401	20601:24	20662:10	79-189/00:01	79-191/00:38	07/26/1979
03501	20662:12	20691:22	79-191/00:39	79-191/23:59	07/26/1979
03502	20691:24	20751:22	79-192/00:01	79-193/23:59	07/26/1979
03503	20751:24	20809:36	79-194/00:01	79-195/22:35	07/26/1979
***	POST ENCOUNTER BEFORE TCM-6				***
03601	20809:38	20931:22	79-195/22:36	79-199/23:59	08/20/1979
03602	20931:24	21070:36	79-200/00:01	79-204/15:23	08/20/1979
***	POST ENCOUNTER AFTER TCM-6				***
03701	21070:38	21171:22	79-204/15:24	79-207/23:59	08/29/1979
03702	21171:24	21291:22	79-208/00:01	79-211/23:59	08/29/1979
03703	21291:24	21411:22	79-212/00:01	79-215/23:59	08/29/1979
03704	21411:24	21531:22	79-216/00:01	79-219/23:59	09/06/1979
03705	21531:24	21651:22	79-220/00:01	79-223/23:59	09/06/1979
03706	21651:24	22151:22	79-224/00:04	79-240/15:59	09/11/1979

NNT:09/20/1979

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Radio SCI Solar Activity	79-230/13:59:00	
Radio SCI Solar Activity	79-231/13:59:00	
Radio SCI Solar Activity	79-232/13:55:00	
Radio SCI Solar Activity	79-233/13:50:00	
Radio SCI Solar Activity	79-234/13:50:00	
Radio SCI Solar Activity	79-234/13:45:00	
Radio SCI Solar Activity	79-236/13:45:00	
Radio SCI Solar Activity	79-237/21:15:00	
Radio SCI Solar Activity	79-238/21:15:00	
(GC) Increase PLS Gains		Transmit 79-240/15:00:00
Dead Band to .5	79-241/22:40:00	
Start PESCAL	243/00:00:00	
End PESCAL	243/00:50:00	
Start MAG/PLS CAL	243/00:55:00	
End MAG CAL	243/01:44:00	
End PLS CAL	243/04:10:00	
	244/	
	245/	
	246/	
	247/	
	248/	
	249/	
	250/	
	251/	
	252/	
Ground Command DB to .16		Transmit 79-253/19:15:00
(GC) FDS Mode to GS-3		Transmit 79-253/19:16:00
(GC) FDS Mode to CR-4		Transmit 79-253/19:50:00
(GC) Deadband to 0.5		Transmit 79-253/20:01:00
(GC) Dead Band to 0.16°		Transmit 79-254/20:00:00
Begin LECP NE/FE Format		
(GC) FDS to GS-3		Transmit 79-254/20:01:00
(GC) FDS to CR-4		Transmit 79-254/20:35:00
(GC) Dead Band to 0.5° - End LECP NE/FE Format		Transmit 79-254/20:46:00

Results of CMDS not see as stat tion nc config. for X/B

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Dead Band to .16°	79-212/04:01:00	
Dead Band to .5	79-213/06:57:00	
(GC) Data to CR-4		Transmit 79-213/17:00:00
(GC) Clock CAL (CCS)	79-214/	Transmit 79-214/02:30:00
Begin A401	79-214/17:39:00	
Start PESCAL	79-214/17:43:00	
End PESCAL	79-214/18:33:00	
Start MAG CAL	79-214/18:38:00	
Slew UVS Period 1	79-214/18:57:00	
End MAG CAL	79-214/19:26:00	
Dead Band to .10	79-214/23:27	
Start PLS CAL	79-214/23:23:00	
Radio SCI Activities	79-215/00:00:00	
End PLS CAL	79-215/02:29:00	
Dead Band to .05	79-215/22:57:00	
Radio SCI Activities	79-216/00:00:00	
Dead Band to .10	79-216/00:46:00	
Radio SCI Activities	79-217/00:00:00	
Dead Band to .5	79-217/02:57:00	
	79-218/	
	79-219/	
	79-220/	
Dead Band to .16	79-221/16:23:00	
Start ASCAL	79-221/16:57:00	
End ASCAL	79-221/18:27:00	
Dead Band to .5	79-221/18:32:00	
	79-222/	
	79-223/	
	79-224/	
	79-225/	
PESCAL	79-227/00:52:00	
PLS CAL	79-227/01:47:00	
MAG CAL	79-227/01:48:00	
Dead Band to .1	79-227/22:48:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
	79-184/	
	79-185/	
	79-186/	
	79-187/	
	79-188/	
	79-189/	
	79-190/	
(GC) Dead Band to .16°	79-191	Transmit 79-191/15:46:00
(GC) Dead Band to .5°		Transmit 79-191/23:16:00
	79-192/	
	79-193/	
Start PESCAL	79-194/10:54:00	
End PESCAL	79-194/11:46:00	
	79-195/	
	79-196/	
	79-197/	
	79-198/	
Dead Band to .16°	79-199/16:51:00	
Start ASCAL	79-199/17:29:50	
End ASCAL	79-199/19:34:00	
Dead Band to .5°	79-199/20:46:00	
	79-200/	
	79-201/	
	79-202/	
	79-203/	
	79-204/	
	79-205/	
	79-206/	
	79-207/	
Start PESCAL	79-208/10:13:00	
End PESCAL	79-208/11:06:00	
	79-209/	
	79-210/	
Dead Band to .16°	79-211/22:42:09	
Dead Band to .05°	79-212/02:57:44	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) CR-4 to GS-3 Mode		Transmit 79-239/18:00:00
(GC) LECP Step to 192 SEC		Transmit 79-240/17:35:00
(GC) Increase PLS Gains		Transmit 79-240/19:30:00
(GC) FDS GS-3 to CR-4 Mode		Transmit 79-240/22:00:00
Start MAG?PLS CALS	79-241/18:55:00	
End MAG CAL	19:43:00	
End PLS CAL	22:10:00	
PESCAL	22:12:00	
(GC) FDS to GS-3		Transmit 79-242/17:30:00
(GC) FDS to CR-4		Transmit 79-242/22:20:00
	79-243/	
	79-244/	
	79-245/	
	79-246/	
	79-247/	
	79-248/	
(GC) Record PWS @ GYRO Turn On		Transmit 79-249/20:00:00
Dead Band to .16	79-250/19:49:00	
	79-250/	
	79-251/	
	79-252/	
	79-253/	
	79-254/	
AACS MOD - All axis inertial	79-255/17:18:07	
Start ASCAL	17:19:07	
SS & Search Enable	17:19:11	
STAR Acquisition	18:48:17	
End ASCAL	18:48:19	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Dead Band to .05°	79-219/07:31:00	
Radio SCI SolarActivity	09:59:00	
Dead Band to .16°	14:52:00	
Radio SCI Solar Activity	220/02:00:00	
Radio SCI solar Activity	14:14:00	
Radio SCI Solar Activity	221/01:59:00	
Radio SCI Solar Activity	222/01:59:00	
Radio SCI Solar Activity	13:54:00	
S Band Drivers Off Until DOY 230	223/01:30:00	
Radio SCI Solar Activity	01:54:00	
Radio SCI Solar Activity	13:49:00	
Radio SCI Solar Activity	224/01:54:00	
Radio SCI Solar Activity	13:49:00	
Radio SCI Solar Activity	225/01:49:00	
Radio SCI Solar Activity	13:49:00	
Radio SCI Solar Activity	226/01:44:00	
Radio SCI Solar Activity	13:49:00	
Radio SCI Solar Activity	227/01:44:00	
Radio SCI Solar Activity	13:49:00	
Radio SCI Solar Activity	228/01:39:00	
Radio SCI Solar Activity	229/13:49:00	
(GC) FDS 1001 load to second memory		Transmit 79-235/21:00:00
(GC) FDS Transfer ENABLE		Transmit 79-236/03:00:00
(GC) PPS Power OFF		Transmit 79-236/22:00:00
FDS Transfer	79-237/01:01:00	
Dead Band to .5	01:30:00	
(GC) Cruise SCI Config. CMDS		Transmit 79-237/02:20:00
(GC) PRA Config.		Transmit 79-237/02:35:00
(GC) CR-4 FDS Mode		Transmit 79-237/03:00:00
(GC) Plink Window for B401		Transmit 79-239/17:23:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) PLSCAL SEQ.	79-208/---	Transmit 79-208/17:45:00
(GC) PRA Update Mode Command table to AIL POLLO for SAT Cruise		Transmit 79-208/23:45:00
(GC) PRA Receiver Post-Enc. CAL (1 of 3)		Transmit 79-209/02:00:00
(GC) PRA Receiver Post-Enc. CAL (2 of 3)		Transmit 79-209/06:00:00
(GC) PRA Receiver Post-End. CAL (3 of 3)		Transmit 79-209/10:00:00
UVS Torus Watch	79-209/15:24:00	
IRIS Power	209/17:20:00	
IRIS FLASHOFF HTR ON	209/17:21:00	
Radio SCI Solar Activity	210/13:00:00	
UVS Torus Watch	23:24:00	
Radio SCI Solar Activity	211/12:29:00	
(GC) PLS CAL Seq.		Transmit 79-211/21:09:00
UVS Torus Watch	212/07:24:00	
Radio SCI Solar Activity	14:24:00	
Radio SCI Solar Activity	213/09:59:00	
(GC) DTR to Record for DSS12 - 63 Gap		Transmit 79-214/00:43:00
(GC) DTR to Ready Mode		Transmit 79-214/07:00:00
Radio SCI Solar Activity	214/09:59:00	
(GC) DTR to Record Mode		Transmit 79-215/00:38:00
(GC) DTR to Ready Mode		Transmit 79-215/07:15:00
Radio SCI Solar Activity	215/07:59:00	
(GC) Science Mini-Seq. (B373)		Transmit 79-215/21:00:00
(GC) DTR to Record Mode		Transmit 79-216/00:37:00
Dead Band to .05°	216/06:51:00	
Radio Sci Solar Activity	09:59:00	
Dead Band to .16°	14:11:00	
Radio SCI Solar Activity	217/09:59:00	
Radio SCI Solar Activity	218/09:59	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
All axes inertial	79-202/12:35:24	
Start PLS FLOW	12:36:00	
Start NITEGLOW	12:38:22	
Sun Search	203/01:10:32	
End PLS FLOW	01:14:00	
Star Acquisition	01:14:37	
End NITEGLOW	01:36:00	
PPS SCAN	01:36:01	
PPS Configuration & HV ON and OFF Cycle	01:36:01	
PPS TONS	03:28:01	
Start NITEGLOW	16:53:39	
End NITEGLOW	204/15:33:00	
Dead Band to .05°	16:19:00	
Start TCM Burn	17:02:00	
All axes inertial	17:31:56	
End TCM	23:45:00	
Sun Search Enable	205/00:21:57	
Star Acquisition	00:26:02	
LECP Stepper MOTOR ON	00:33:58	
UVS HV Level 3	00:34:58	
Start NITEGLOW	02:53:44	
Cont. NITEGLOW	206/00:00:00	
(GC) Dead Band to .1°		Transmit 79-206/17:08:00
Dead Band to .16°	18:53:04	
Reset FIXLO (GC) frequencies in PRA tables to study "XMAS Tree" structure & S bursts		Transmit 79-206/21:05:00
Start UVS TORUS watch	23:23:27	
	79-207/---	
UVS Torus Watch	208/07:24:00	
Radio SCI Activity	09:00:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Cont. UVS NITE GLOW	79-198/00:00:00	
Start PESCAL	11:53:00	
End PESCAL	12:42:00	
End NITE GLOW	13:47:00	
LITE CURVE Ganymede	13:47:41	
Start PRA/PWS Cycle	15:32:30	
LITE CURVE Callisto	18:47:42	
All axes inertial	22:59:08	
Start PLS FLOW	23:00:00	
Cont. PLS FLOW	79-199/00:00:00	
(GC) PPS Power On Reset Sequence		Transmit 79-199/11:10:00
Sun Search Enable	11:34:17	
Star Acquisition	11:38:22	
End PLS FLOW	11:38:32	
Start NITE GLOW	12:53:22	
PRA/PWS	15:02:10	
LITE CURVE Callisto	79-200/00:12:35	
End NITE GLOW		
Start UVS NITE GLOW	01:33:25	
(GC) CRS Outbound Format A		Transmit 79-200/05:00:00
Start PRA/PWS Cycle	12:32:38	
End NITE GLOW (UVS)	13:10:00	
(GC) Start LECP PESCAL		Transmit 79-200/15:00:00
End LECP PESCAL	15:50:00	
(GC) LECP Detector ON		Transmit 79-200/20:50:00
(GC) CRS Express, Optimize HET 2		Transmit 79-200/20:55:00
(GC) PPS Analyzer Wheel Reset Sequence	79-201	Transmit 79-201/13:18:00
(GC) PPS POR Wiper Sequence W/LV Monitor Visibility		Transmit 79-201/19:15:00

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

15 October 1979

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: N. N. TOY

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

The Monthly Science Data Product Report is enclosed for your information and review.

NTT:pmd
Enclosure

CRS	R. Vogt T. Garrard N. Lal J. Trainor	MAG	N. Ness M. Acuna P. Alexander R. Lepping A. Silver	PRA	J. Warwick J. Pearce A. Riddle
IRIS	R. Hanel D. Crosby L. Herath	PLS	H. Bridge A. Lazarus J. Sullivan K. Ogilive G. Gordon J. Scudder	PWS	F. Scarf W. Kurth
LECP	S. Krimigis T. Armstrong W. Axford C. Bostrom C. Fan G. Gloeckler E. Keath L. Lanzerotti	PPS	C. Hord K. Simmons	UVS	L. Broadfoot C. Gordon

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SCIENCE DATA PRODUCTS REPORT

OCTOBER 1979

1.) Five Day EDR Tapes

Starting with DOY 280 and extending for the duration of the low activity cruise period, EDR tapes will contain 5 days of data instead of the customary 2 days of data.

2.) August and September Voyager 1 SEDR

For Voyager 1, the SEDR package for August 1979 had been delayed due to problems in the SASDRS engineering telemetry files. The problem has been corrected and the package will be delivered with the data covering the month of September, included.

3.) Voyager 1 Jupiter Encounter SEDR Pointing Difficulties

During the early phase of Sequence A371 (DOY 064) the Voyager 1 CCS and FDS experienced a timing offset due to a great number of FDS power on resets (POR) (approximately 40). The SCAN PLATFORM PREDICTS FILE was never corrected for these offsets. When missing or faulty engineering telemetry forces IPPS to use information from the PREDICTS FILE, the resulting pointing knowledge does not reflect reality because the predict data used are from the wrong time period. Pointing anomalies are expected to occur under the circumstances. As these pointing anomalies have come to our attention, definite steps have been taken toward their correction. It has been decided to rerun COMSIM for the Voyager 1 Jupiter Encounter (Sequences A353 and A371), in addition to correcting the IPPS software problem affecting SEDR pointing. It is thought that the IPPS problems and the POR caused timing offsets affect each other to a considerable degree, and eliminating the timing offset will make analysis of internal IPPS problems much easier.

Both the IPPS Cognizant Engineer and the Cognizant Programmer are committed to the solution of these problems in the shortest possible time. The Voyager Sequence Team, Spacecraft Team, and Science Data Team will assist them in every way possible to resolve these pointing difficulties.

4.) SEDR Schedule

There is no change in the SEDR Schedule from last month's report.

5.) Significant Events

Attached is the latest update to the Science Significant Events Report by S. Spohn of the Data Control Group.

NNT

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
14001	17446:49	19010:34	79-99/18:00	79-151/21:00	06/12/1979
14002	19014:19	19910:34	79-152/00:00	79-181/21:00	07/22/1979
14003	19914:19	20870:34	79-182/00:00	79-213/21:00	08/23/1979

NNT 10/17/1979

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
03305	20538:40	20601:22	79-186/21:50	79-188/23:59	07/20/1979
03401	20601:24	20662:10	79-189/00:01	79-191/00:38	07/26/1979
03501	20662:12	20691:22	79-191/00:39	79-191/23:59	07/26/1979
03502	20691:24	20751:22	79-192/00:01	79-193/23:59	07/26/1979
03503	20751:24	20809:36	79-194/00:01	79-195/22:35	07/26/1979
***	POST ENCOUNTER BEFORE TCM-6				***
03601	20809:38	20931:22	79-195/22:36	79-199/23:59	08/20/1979
03602	20931:24	21070:36	79-200/00:01	79-204/15:23	08/20/1979
***	POST ENCOUNTER AFTER TCM-6				***
03701	21070:38	21171:22	79-204/15:24	79-207/23:59	08/29/1979
03702	21171:24	21291:22	79-208/00:01	79-211/23:59	08/29/1979
03703	21291:24	21411:22	79-212/00:01	79-215/23:59	08/29/1979
03704	21411:24	21531:22	79-216/00:01	79-219/23:59	09/06/1979
03705	21531:24	21651:22	79-220/00:01	79-223/23:59	09/06/1979
03706	21651:24	22151:22	79-224/00:04	79-240/15:59	09/11/1979

NNT 10/17/1979

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
IRIS Rep. Htr. ON	79-278/22:19:00	
End IRIS SUNCAL	22:21:00	
UVS H.V. ON	23:05:00	
	279/	
	280/	
Gyros A/B OFF	281/17:01:00	
Start PESCAL	18:01:00	
End PESCAL	18:50:00	
Start MAGCAL	18:56:00	
Start PLSCAL	19:05:00	
End MAGCAL	19:44:00	
End PLSCAL	22:20:00	
Begin Flash-Off Htr Test	282/22:30:05	
Dead Band to .16^{o}	22:30:52	
IRIS Rep. Htr OFF	22:59:05	
IRIS Power ON	23:00:05	
IRIS Power OFF	283/03:00:05	
IRIS Rep. Htr. ON	03:01:05	
End IRIS FOHS Test	03:14:06	
(GC) Gyro Drift Update		Transmit 79-283/20:00:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Start MAGCAL	79-269/23:36:00	
Dead Band to .16°	270/17:24:00	
Start ASCAL	17:58:00	
End ASCAL	19:29:00	
	271/	
	272/	
	273/	
Dead Band to .16°	274/19:39:00	
(GC) Gyro Drift Comp. Update		Transmit 79-274/19:45:00
Dead Band to .05°	20:53:00	
Dead Band to .16°	22:24:00	
Start IRIS FOHS Test	275/18:13:00	
IRIS Power ON	18:15:00	
(GC) SCAN Plat. Azimuth Coil Heat ON		Transmit 79-275/20:00:00
IRIS POWER OFF	22:15:00	
IRIS FOHS Test	22:24:00	
Dead Band to .05°	276/20:29:00	
Dead Band to .16°	21:59:00	
UVS H.V. OFF	277/14:29:00	
IRIS Rep. Htr. OFF	15:07:00	
IRIS Power ON	15:08:00	
Dead Band to .05°	16:19:00	
Begin IRIS Sunport Map	18:07:00	
End IRIS Sunport Map	23:05:00	
IRIS POWER OFF	23:05:00	
IRIS Rep. Htr. ON	23:06:00	
Dead Band to .16°	23:06:00	
Begin IRIS Sun Cal	278/13:25:00	
Dead Band to .05°	13:31:00	
IRIS Rep. Htr. OFF	13:35:00	
IRIS POWER ON	13:36:00	
Dead Band to .5°	22:09:00	
IRIS POWER OFF	22:18:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
	79-155/	
Start PESCAL	256/18:00:00	
End PESCAL	18:50:00	
Start MAGCAL	18:56:00	
Start PLSCAL	19:12:00	
End MAGCAL	19:44:00	
End PLSCAL	22:21:00	
	257/	
	258/	
	259/	
IRIS FlashOff Heater OFF	260/18:21:00	
Dead Band to .16°	261/17:53:00	
Start IRIS FOHS Test	17:57:00	
IRIS Rep. Heater OFF	18:20:53	
IRIS Power ON	18:21:53	
(GC) FDS to GS-3		Transmit 79-261/21:54:45
(GC) FDS to CR-4		Transmit
IRIS Power OFF	22:21:53	
IRIS Rep. Htr. ON	22:22:53	
End IRIS FOHS Test	22:30:00	
Dead Band to .5°	22:39:00	
	262/	
	263/	
	264/	
	265/	
	266/	
	267/	
Dead Band to .16°	268/17:46:00	
IRIS Power ON	18:15:00	
IRIS Power OFF	22:15:00	
Dead Band to .5°		
Start PESCAL	269/22:41:00	
End PESCAL	23:30:00	

S/C 32

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
	79-282/	
(GC) PPS Analyzer Wheel C/O		Transmit 79-283/04:25:00
Dead Band to .16°	283/18:56	
Dead Band to .05	19:01	
Saturn Imaging	20:53	
Start PPS FOV Test	20:59	
(GC) Start PPS CMD SEQ		Transmit 79-283/21:22:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) FDS to FH-12	79-274	Transmit 79-274/18:34:00
(GC) FDS to EC-40		Transmit 79-274/19:01:00
(GC) FDS to CR-4		Transmit 79-274/19:16:00
(GC) E-220 to CE108		Transmit 79-274/19:31:00
(GC) Dead Band to .5°		Transmit 79-274/19:45:00
Dead Band to .16°	275/20:21:00	
(GC) Go to narrow DB		Transmit 79-275/21:25:00
(GC) FDS to PB-3		Transmit 79-275/21:30:00
(GC) DTR to Playback Mode		Transmit 79-275/22:37:00
(GC) DTR to Ready Mode		Transmit 79-275/22:30:00
(GC) FDS to GS-3		Transmit 79-275/22:34:00
(GC) Go to Medium DB		Transmit 79-275/22:45:00
(GC) Position 108 Anomoly Investigation		Transmit 79-276/15:30:00
(GC) FDS to CR-4		Transmit 79-276/15:30:00
(GC) PPS HV OFF/ 1/16 Field of View/J Mode ON		Transmit 79-276/21:30:00
(GC) PPS Filter 5		Transmit 79-276/21:31:00
(GC) Dead Band to .05°		Transmit 79-276/22:00:00
(GC) FDS to PB-3		Transmit 79-276/22:05:00
(GC) DTR to Playback Mode		Transmit 79-276/22:11:00
(GC) DTR to Ready Mode		Transmit 79-276/23:12:00
(GC) FDS Mode - CR-4		Transmit 79-276/23:16:00
(GC) Dead BAnd to .16°		Transmit 79-276/23:22:00
IRIS Flash Off Htr. OFF	277/19:53:00	
Begin IRIS FOHS Test	278/19:57:00	
IRIS Rep. Htr. OFF	19:58:00	
IRIS POWER ON	19:59:00	
IRIS POWER OFF	23:59:00	
IRIS Rep. Htr ON	279/00:00:00	
	280/	
(GC) PPS POWER ON		Transmit 79-281/19:15:00
(GC) 1°, HV OFF, J-ON		Transmit 79-281/19:15:24
(GC) 1/16°, HV OFF,J-ON		Transmit 79-281/19:15:48
(GC) Filter 5, J-OFF, Fixed		Transmit 79-281/19:16:12

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
	79-256/	
Start PLS & MAG CAL	257/01:11:00	
End MAG CAL	01:59:00	
Start PESCAL	04:22:00	
End PLSCAL	04:28:00	
	258/	
	259/	
	260/	
(GC) FDS to GS-3		Transmit 79-261/00:20:00
(GC) FDS to CR-4		Transmit 79-261/03:00:00
	262/	
	263/	
	264/	
	265/	
	266/	
(GC) Dead Band to .16°		Transmit 79-267/19:10:00
(GC) FDS to GS-3		Transmit 79-267/19:25:00
(GC) E-022 to CE108		Transmit 79-267/19:45:00
(GC) FDS to CR-4		Transmit 79-267/20:10:00
(GC) E-177 to CE108		Transmit 79-267/20:30:00
(GC) FDS to EH-12		Transmit 79-267/20:35:00
(GC) FDS to CR-4		Transmit 79-267/20:51:00
(GC) Dead Band to .5°		Transmit 79-267/20:57:00
	268/	
	269/	
Start MAG CAL/PLS CAL	270/22:24:00	
End MAG CAL	23:12:00	
End PLS CAL	271/01:39:00	
Start PESCAL	01:41:00	
End PESCAL	02:36:00	
Sun Sensor Bias Investigation CMDS cancelled	16:00:00	
	272/	
	273/	
(GC) Dead Band to .16°		Transmit 79-274/18:30:00

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

25 January, 1980

TO: VOYAGER PRINCIPAL INVESTIGATORS

FROM: N. N. TOY

SUBJECT: SCIENCE DATA TEAM - SCIENCE DATA PRODUCT REPORT

The Monthly Science Data Product Report is enclosed for your information and review.

NTT:pmd
Enclosure

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JANUARY SDPR

1. SCIENCE DATA PRODUCTS REPORT (SDPR)

No SDPR was issued for the months of November and December, 1979.

2. VOYAGER 1 ANOMALY

No telemetry was received during the period 79-347/2011 through 79-350/2226 because Voyager 1 was off Earth-point.

3. IRIS SEDR ANOMALY STATUS

Discrepancies in SEDR pointing data versus expected IRIS pointing resulted in the initiation of several Incident/Surprise Anomaly (ISA) reports as outlined in Attachment 1. Also described are the actions to be taken for the resolution of each ISA.

4. IDR RECYCLE

Responses have been received from all PIs regarding the release for recycle of 1979 IDR tapes covering January through August. Once approval from the Voyager Project Science Office is received, the tapes (except for those to be retained) will be released.

5. CR-5 TELEMETRY

The schedule for CR-5 telemetry format use aboard Voyager 1 was moved up to 15 February 1980. Voyager 2 is not expected to see CR-5 until approximately 1 April 1980.

Test EDRs with simulated CR-5 data have been sent to each PI facility and telephone contact has been made with responsible personnel. As in previous telemetry mode changes, the test tape is only a preliminary to the actual test involving real CR-5 telemetry data.

The SDT will ship to each PI a short CR-5 EDR following the start of CR-5 telemetry on 15 February. The tapes will be shipped in the most expedient manner. No further EDRs for a particular instrument will be generated until assurance is received from the responsible PI staff member that all is in order. SDT personnel will be in contact with each responsible PI staff member during this test period.

6. SEDR SCHEDULE

Attached is the latest summary of completed SEDR packages. All SEDRs have been completed through October for both spacecraft.

7. SCIENCE SIGNIFICANT EVENTS

Attached is the latest update to the Science Significant Events report provided by J. Albeck's Data Control Group.

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 1

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
14001	17446:49	19010:34	79-99/18:00	79-151/21:00	06/12/1979
14002	19014:19	19910:34	79-152/00:00	79-181/21:00	07/22/1979
14003	19914:19	20870:34	79-182/00:00	79-213/21:00	08/23/1979
14004	20874:19	22670:34	79-214/00:00	79-273/21:00	11/29/1979
14006	22674:19	23600:34	79-274/00:00	79-304/21:00	11/26/79

DELIVERED PRODUCTION SEDR SUMMARY BY MISSION PHASE

VOYAGER 2

PACKAGE NUMBER	FDSC START	FDSC END	SCET START	SCET END	COMPLETION DATE
03305	20538:40	20601:22	79-186/21:50	79-188/23:59	07/20/1979
03401	20601:24	20662:10	79-189/00:01	79-191/00:38	07/26/1979
03501	20662:12	20691:22	79-191/00:39	79-191/23:59	07/26/1979
03502	20691:24	20751:22	79-192/00:01	79-193/23:59	07/26/1979
03503	20751:24	20809:36	79-194/00:01	79-195/22:35	07/26/1979
***		POST ENCOUNTER BEFORE TCM-6			***
03601	20809:38	20931:22	79-195/22:36	79-199/23:59	08/20/1979
03602	20931:24	21070:36	79-200/00:01	79-204/15:23	08/20/1979
***		POST ENCOUNTER AFTER TCM-6			***
03701	21070:38	21171:22	79-204/15:24	79-207/23:59	08/29/1979
03702	21171:24	21291:22	79-208/00:01	79-211/23:59	08/29/1979
03703	21291:24	21411:22	79-212/00:01	79-215/23:59	08/29/1979
03704	21411:24	21531:22	79-216/00:01	79-219/23:59	09/06/1979
03705	21531:24	21651:22	79-220/00:01	79-223/23:59	09/06/1979
03706	21651:24	22151:22	79-224/00:04	79-240/15:59	09/11/1979
***		CRUISE			***
04001	22153:53	23147:38	79-240/18:00	79-273/21:00	11/12/1979
04002	23151:23	23867:48	79-274/00:00	79-297/21:00	12/04/1979

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) FDS to CR-4		Transmit 361/19:38:00
(GC) GS-2/GS-4 from TIC-1 to TIC-2		362/15:17:46
(GC) D/B to .5		16:00:00
	363	
	364	
	365	
	1980	
	001	
Gyro's B & C ON	002/15:56:00	
D/B to .16	15:58:00	
Start PESCAL	17:16:32	
End PESCAL	18:12:37	

S/C 31

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
HGA Select	355/07:20:00	
HGA Select	11:20:00	
(GC) NAV Block		Transmit 353/13:10:00
(GC) All Axis Inertial		Transmit 353/15:10:00
Disabled UVS Slew	16:54:00	
All Axis Inertial	17:00:00	
(GC) Roll to Canopus		Transmit 353/17:30:00
(GC) NAV Block		18:20:00
Roll Start	19:20:00	
Roll Stop	19:43:00	
HGA Select	20:10:00	
(GC) Sun Search/Star Acquisition		Transmit 353/21:03:00
Sun Search/Star Acquisition	22:53:00	
(GC) HGA/LGA Cyclics		Transmit 353/23:30:00
(GC) UVS HV to HV 03		Transmit 354/01:05:00
(GC) X/B to Low Power		04:50:00
(GC) S/B to High Power		04:51:00
(GC) FDS to CR-4		05:01:00
	356	
	357	
	358	
	359	
(GC) CCS Full Readout		Transmit 361/17:00:00
(GC) FDS to GS-3		17:01:00

S/C 31

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) FDS to PB-3		351/04:30:00
(GC) FDS to EH-12		08:15:00
(GC) FDS to GS-3		08:30:00
(GC) D/B to .16		Transmit 351/08:45:00
D/B to .16	351/10:21:52	
D/B to .5	15:35:00	
UVS Slew/F24	16:55:00	
D/B to .16	18:30:00	
(GC) Resume LECP Stepping		Transmit 351/21:00:00
(GC) NAV Block		Transmit 352/07:20:00
HGA Select	352/09:11:00	
(GC) NAV Block		352/12:50:00
HGA Select	14:11:00	
HGA Select	14:41:00	
HGA Select	19:41:00	
NAV Block		Transmit 352/21:00:00
(GC) Disable Scan PCT. Runtime		Transmit 353/02:20:00
(GC) FDS to GS-3		03:05:00
(GC) S/B to Low Rate		03:06:00
Start PECAL	353/03:56:00	
Scan Platform Routine	04:10:00	
End PESCAL	04:53:00	
(GC) NAV Block		Transmit 353/05:30:00

S/C 31

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
D/B to .05	348/16:40:00	
UVS Star CAL	16:59:00	Not seen due to TCMA Anomaly
(GC) Azimuth Heat PTCH		Transmit 348/20:30:00
(GC) AZ Pos. Plat. Slew		20:57:48
(GC) D/B to .5		21:31:00
(GC) Support Investigation of TCM A7 Anomaly PT I		Transmit 349/09:30:00
(GC) Support investigation of TCM A7 Anomaly PT II		19:30:00
(GC) UVS HV to Modest Level		Transmit 350/05:30:00
(GC) S/C Conf. for Earth Search PT I		10:00:00
(GC) Roll Inertial		10:04:00
(GC) Disable Sun PT.		10:05:00
(GC) Med D/B		10:06:00
(GC) S/C Fonf. for Earth Search PT II		13:10:00
(GC) S/B Drivers OFF		17:00:00
(GC) Earth Search PT III		
First TCM Lockup Since DOY 347	350/17:37:29	
(GC) Optimum Bias Ang. Select		Transmit 350/20:30:00
(GC) TCM A7 Investigation		23:00:00
(GC) R/T Seq for TCM A7 Anomaly Support		Transmit 351/00:00:00
(GC) D/B to .05		03:20:00
(GC) Micro ASCAL Sequence		03:25:00

S/C 31

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) TCM A7 Enabled		Transmit 347/15:45:00
TCM Heaters ON	347/16:00:00	
D/B to .05	19:55:00	
Begin TCM A7	20:00:00	
All Axis inertial	20:15:00	
Roll Turn	20:16:01	
Yaw Turn	20:35:42	
Burn Start	20:54:58	
TCM Htrs OFF	20:55:00	
Burn Stop	21:32:17	
Yaw Turn	21:56:22	
Roll Turn	22:32:41	
Sun Search Enable	23:09:00	
Gyro's B & C OFF	23:13:00	
Planned Star Acquisition	23:13:26	No data detected-beginning of S/C Emergency
LECP Stepper Motor ON	23:22:21	
Transfer to FDS 1001	348/00:36:00	
(GC) TCM A7 Anomaly Invest.	05:12:00	Transmit 348/05:12:00
(GC) Low Gain Ant. Select		Transmit 348/05:12:00
(GC) TMU Select		05:12:30
(GC) 2-Way Non-Coherent		05:13:00
D/B to .16		06:20:00
(GC) UVS HV OFF		10:00:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
D/B to .05	339/03:45:00	
	340	
(GC) CCSL A405		Transmit 341/16:05:00
	342	
	343	
Begin A405	344/18:04:00	
Gyros B&C ON	18:57:00	
D/B to .16	19:00:00	
Transfer to 0804 Program	345/15:37:00	
ISS Power ON	15:58:00	
D/B to .05	16:55:00	
Start ISS Scan Depart Test	17:25:00	
End ISS Scan Depart Test	18:11:00	
Slew to Dark Sky	18:17:00	
Start ISS Long Exposure Test	18:25:00	
(GC) CCS-FDS Timing Offset Test	21:00:00	
ISS Power OFF	22:11:00	
End ISS Long Exposure Test	22:18:00	
D/B to .16	346/00:05:00	
UVS Slew to HZ 43	01:05:00	
(GC) S/B to Low Power/X/B to High Power		Transmit 346/19:30:00
(GC) Gyro Drift Update		Transmit 346/21:00:00

S/C 31

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) D/B to .16		Transmit 332/17:01:00
(GC) FDS to GS-3		Transmit 17:06:00
(GC) PLS/MAG CAL		Transmit 17:15:00
D/B to .16	332/21:11:00	
D/B to .05	21:16:00	
PPS Star CAL	21:30:00	
D/B to .5	23:01:00	
PPS Power OFF	23:16:00	
Start IRIS FOH Test	334/15:36:00	
IRIS Power ON	16:06:00	
IRIS Power OFF	20:06:00	
End IRIS FOH Test	20:21:00	
D/B to .5	20:26:00	
	335	
	336	
(GC) Enable IRIS FOHS Test		Transmit 337/16:00:00
Slew IRIS FOH Test	338/03:55:00	
Start PESCAL	04:31:00	
D/B to .16	19:21:00	
Start IRIS FOH Test	19:26:00	
IRIS Power ON	19:56:00	
IRIS Power OFF	23:56:00	
(GC) IRIS Repl Htr OFF		Transmit 339/01:00:00
IRIS FOH ON		Transmit 339/01:01:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
D/B to .16	324/17:32:00	
D/B to .05	17:37:00	
Transfer to FDS 0804	17:48:00	
ISS Power ON	17:59:00	
Start ISS SPCAL	18:45:00	
End ISS SPCAL	23:24:00	
(GC) Enable IRIS FOH Test		Transmit 325/15:31:00
Start Saturn Imaging	325/18:24:00	
Start GEO/Radio Exp.	20:14:00	
End Saturn Imaging	23:41:00	
ISS Power OFF	23:45:00	
Transfer to FDS 1001	326/01:28:00	
D/B to .5	02:16:00	
Slew SFOH	02:56:00	
	327	
	328	
	329	
D/B to .16	330/15:36:00	
StartIRIS FOH Test	15:44:00	
IRIS Power ON	16:12:00	
IRIS Power OFF	20:27:00	
End IRIS FOH Test	20:27:00	
D/B to .5	20:36:00	
PPS Power ON	331/19:57:00	
(GC) PLS/MAG CAL Setup		Transmit 332/17:01:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
D/B to .5	317/03:52:00	
D/B to .16	05:07:00	
Sun Shutter ON	16:02:00	
Start ASCAL	16:04:00	
Sun Shutter OFF	18:07:00	
Sun Search Enable	18:07:00	
End ASCAL	19:28:00	
D/B to .5	21:04:00	
D/B to .16	318/15:30:00	
AZ Port Scan ACT Test	15:42:00	
(GC) Enable IRIS FOH Test		Transmit 319/16:00:00
EL Port Scan ACT Test	319/16:07:00	
D/B to .5	19:07:00	
Start IRIS FOH Test	320/15:43:00	
IRIS Power ON	16:12:00	
IRIS Power OFF	20:12:00	
End IRIS FOH Test	20:28:00	
D/B to .5	20:37:00	
Slew to UVS Dark CAL Plate	20:57:00	
	321	
	322	
Start PESCAL	323/21:04:38	
End PESCAL	21:59:17	
D/B to .16	324/17:32:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
D/B to .5	306/21:28:00	
	307	
	308	
	309	
D/B to .16	310/15:27:00	
Start UVS Star CAL	15:58:30	
End UVS Star CAL	20:44:00	
Start PESCAL	311/19:44:00	
End PESCAL	20:40:00	
(GC) Enable FOHS Check		Transmit 311/21:00:00
PLS/MAG CAL		Transmit 312/15:45:00
D/B to .16	312/15:57:00	
Start IRIS FOH Check	16:05:13	
IRIS Repl Htr OFF	16:32:00	
IRIS Power ON	16:33:00	
IRIS Power OFF	20:33:00	
IRIS Repl Htr ON	20:34:00	
End IRIS FOH Check	20:50:59	
	313	
	314	
	315	
Start A404	316/18:06:00	
D/B to .16	18:22:00	
Gyro B&C ON	18:30:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
	301	
D/B to .16	302/18:08:00	
Transfer FDS to 0804	18:10:00	
ISS ON	18:19:00	
D/B to .05	20:08:00	
Start ISS Scattered Light Test	20:14:00	
End ISS Scattered Light Test	303/03:34:00	
Start ISS Scattered Light Test	15:19:00	
End ISS Scattered Light Test	304/03:52:00	
D/B to .16	06:28:00	
Start ISS Scattered Light Test	305/19:20:00	
D/B to .05	19:48:00	
(GC) Enable IRIS FOHS Test		Transmit 305/20:00:00
(GC) D/B to .16		Transmit 305/21:44:00
End Scattered Light Test	23:22:00	
ISS Power OFF	23:28:00	
Transfer to 1001 Program	23:38:00	
D/B to .16	305/23:40:00	
D/B to .16	306/16:28:00	
Start IRIS FOHS Test	16:33:00	
IRIS Repl Htr OFF	17:02:00	
IRIS Power ON	17:03:00	
IRIS Repl Htr ON	21:04:00	

S/C 31

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
D/B to .5	290/21:58:00	
(GC) Enable FOHS Test		Transmit 291/17:00:00
D/B to .16	292/16:58:00	
Start IRIS FOH Test	17:32:00	
IRIS Repl Htr OFF	17:33:00	
IRIS Power ON	17:34:00	
IRIS Power OFF	21:34:00	
IRIS Repl Htr ON	21:35:00	
DB to .50	21:58:00	
	293	
	294	
	295	
Start PESCAL	296/16:05:00	
End PESCAL	17:00:00	
	297	
(GC) Enable FOHS Test		Transmit 298/03:21:00
(GC) PLS/MAG CALS		Transmit 299/16:00:00
IRIS Repl Htr OFF	299/17:32:00	
IRIS Power ON	17:33:00	
IRIS Power OFF	21:33:00	
IRIS Repl Htr ON	21:34:00	
End IRIS FOH Test	299/21:41:00	
D/B to .5		
	300	

S/C 31

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Begin A403	284/17:08:00	
	285/	
	286/	
	287	
Start CRS SCI Maneuver	288/19:06:00	
S/C Roll Turn	289/01:07:00	
S/C Sun Search	11:05:00	
End Cruise ScI Maneuver	15:50:00	
S/C Emergency Pellared	15:57:00	
D/B to .5	15:58:00	
(GC) Respond to CRS Manuever Anomaly PTI	23:00:00	
(GC) Respond to CRS Manuever Anomaly PTI	23:45:00	Transmit 23:45:00
(GC) Gyro Drift Complete	23:45:00	Transmit 23:45:00
(GC) All Axis Inertial	23:55:00	Transmit 23:55:00
(GC) Sun Search Enable	290/00:00:00	Transmit 00:00:00
(GC) Respond to CRS Manuever Reacquisition PT II	00:05:00	Transmit 00:05:00
(GC) S/C Roll Turn	00:05:00	Transmit 00:05:00
(GC) Respond to CRS Manuever Reacquisition PT III	02:50:00	Transmit 02:50:00
(GC) CAN Flyback Sweep	02:50:00	Transmit 02:50:00
(GC) High Gain Ant. Select	03:00:00	
S/C Emergency Terminated	05:20:00	
D/B to .16	14:28:00	
D/B to .05	14:33:00	
(GC) Confirm Gyro Drift Value		Transmit Time 289:21:15:00

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
	316	
	317	
D/B to .16	318/01:30:00	
(GC) Enable IRIS FOH Test	03:00:00	Transmit Time 03:00:00
(GC) IRIS Warm Dark TGT Plate CAL	15:30:00	Transmit Time 15:30:00
Start IRIS FOH Test	20:51:00	
IRIS Power ON	21:21:00	
IRIS Power OFF	319/01:21:00	
IRIS Repl Htr OFF	01:23:00	
IRIS Power ON	01:24:00	
End IRIS FOH Test	01:36:00	
D/B to .5	01:44:00	
D/B to .16	01:45:00	
Slew UVS to Jupiter	01:45:00	
Start IRIS TGT Plate CAL	17:34:00	
Slew to TGT Plate	21:05:00	
Start PESCAL	22:32:00	
End PESCAL	23:28:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
End ISS/PPS Scattered Light Test	311/06:19:00	
D/B to .16	06:40:00	
Start IRIS FOH Test	15:33:00	
(GC) PLS & MAG CALS	16:00:00	Transmit Time 16:00:00
IRIS Power ON	16:21:00	
IRIS Power OFF	20:21:00	
End IRIS FOH Test	20:23:00	
Slew UVS to Jupiter	20:48:00	
D/B to .05	312/18:02:00	
Start ISS Scattered Light Test	19:45:00	
End ISS Scattered Light Test	313/00:49:26	
Start ISS OPCAL Test	02:51:00	
OPNAV	06:11:00	
End ISS OPCAL Test	06:29:00	
ISS OFF	06:43:00	
D/B to .16	06:51:00	
Transfer to FDS 1001 Program	16:02:00	
(GC) FDS to GS-3	18:10:00	Transmit Time 18:10:00
(GC) D/B to .16	18:16:00	Transmit Time 18:16:00
D/B to .05 (Sequence (CMM)	19:58:14	
D/B to .16 (Due to R/T (CMM)	19:58:44	
	314	
	315	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
Start IRIS FOH Test	305/15:52:00	
IRIS Power ON	16:22:00	
IRIS Power OFF	20:22:00	
D/B to .5	20:42:00	
Slew UVS to Jupiter	20:46:00	
End IRIS FOH Test	20:50:00	
(GC) Initiation Warm Dark TGT Plate CAL	306/19:25:00	Transmit Time 19:25:00
(GC) D/B to .16	19:40:00	
(GC) Data Mode Change to GS-3	19:45:00	
	307	
	308	
D/B to .16	309/18:06:00	
D/B to .05	18:11:00	
Transfer FDS to 0804 Program	18:16:00	
ISS Power ON	18:29:00	
Start Scan CAL	19:46:00	
End Scan CAL	22:09:00	
D/B to .05	310/18:27:00	
ISS/PPS scattered Light Test	18:29:00	
(GC) Enable IRIS FOH Test	22:00:00	Transmit Time 22:00:00
End ISS/PPS Scattered Light Test	311/00:51:00	
Start ISS/PPS Scattered Light Test	04:25:00	
(GC) Enable IRIS FOH Test	04:42:00	Transmit Time 04:42:00

S/C 32

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
S/C Roll Turn	299/01:49:00	
ISS Power OFF	03:34:00	
S/C Roll Turn	04:26:00	
S/C Yaw Turn	04:39:00	
End S/C TGT Mur	05:19:00	
IRIS Deep Space CAL	05:19:00	
D/B to .5	17:47:00	
S/C Transfer to FDS 1001 Program	17:58:00	
	300	
	301	
D/B to .16	302/15:56:00	
Start UVS Star CAL	16:12:00	
Slew UVS to Jupiter	21:40:00	
End UVS Star CAL	21:43:00	
	303	
D/B to .05	304/17:57:00	
(GC) Increase LECP Des-criminator Levels	22:10:00	Transmit Time 22:10:00
Start PESCAL	22:59:00	
(GC) Enable IRIS FOH Test	23:00:00	Transmit Time 23:00:00
D/B to .16	305/01:36:00	
Start ASCAL	03:01:00	
End ASCAL	05:11:00	
D/B to .05	05:15:00	
D/B to .16	05:50:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
IRIS Power ON	296/14:25:00	
UVS H.V. OFF	18:25:00	
Start IRIS Sun CAL	18:25:00	
UVS H.V. ON	22:01:00	
IRIS Power OFF	22:02:00	
End IRIS Sun CAL	22:02:00	
D/B to .16	22:04:00	
(GC) CRS Detector Let BL1 ON	297/14:45:00	Transmit Time 14:45:00
Transfer to FDS 0804 Program	15:22:00	
(GC) CRS Detector Let BL1 OFF	16:45:00	Transmit Time 16:45:00
(GC) WNC ON (To protect UVS/ PPS FOV P/B)	298/17:30:00	Transmit Time 17:30:00
Begin B403 Load	17:34:00	
Start IRIS Deep Space CAL	17:35:00	
(GC) FDS to P/B-3	17:40:00	Transmit Time 17:40:00
IRIS Repl Htr OFF	17:42:00	
IRIS Pwr ON	17:43:00	
(GC) DTR to P/B 1/4°UVS/PPS FOU Test	17:45:00	Transmit Time 17:45:00
(GC) DTR to End P/B 1/4° UVS PPS FOV Test	19:31:00	Transmit Time 19:31:00
(GC) FDS to GS-3	19:36:00	Transmit Time 19:36:00
(GC) TGT MUR Enable	19:45:00	Transmit Time 19:45:00
ISS Power ON	23:45:00	
Start S/C TGT MUR	299/01:32:00	
S/C Yaw Turn	01:37:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
(GC) Increase X-Band Descrinator Level in LECP	290/19:30:00	Transmit Time 19:30:00
End PLS CAL	20:08:00	
Start PESCAL	20:10:00	
End PESCAL	21:05:23	
PRA Anomaly Detected	291/10:10:36	Will be corrected as S/C goes to GS-3 Mode
Start ± RIS FOH Test	19:01:00	
IRIS Power ON	19:03:00	
IRIS Power OFF		
End IRIS FOH Test	23:11:00	
	292	
	293	
	294	
UVS H.U OFF	295/13:37:24	
D/B to .16	13:43:23	
D/B to .05	13:48:24	
IRIS Repl Htr OFF	14:00:24	
IRIS Power ON	14:01:24	
Start IRIS Sunport Mapping	14:01:57	
End IRIS Sunport Mapping	21:55:17	
IRIS Power OFF	21:55:33	
IRIS Repl Htr ON	21:56:33	
UVS H.V. ON	22:00:33	
D/B to .16	22:02:22	
D/B to .05	296/14:12:00	

SIGNIFICANT EVENT	EARTH OBSERVED TIME/ EARTH RECEIVED TIME	COMMENTS
	79-282/	
(GC) PPS Analyzer Wheel C/O		Transmit 79-283/04:25:00
Dead Band to .16°	283/18:56	
Dead Band to .05	19:01	
Saturn Imaging	20:53	
Start PPS FOV Test	20:59	
(GC) Start PPS CMD SEQ		Transmit 79-283/21:22:00
End Saturn Imaging	284/00:14:00	
ISS POWER OFF	00:18:00	
Start IRIS FOH Test	19:41:00	
IRIS POWER ON	19:43:00	
IRIS POWER OFF	23:43:00	
End IRIS FOH Test	23:45:00	
	285/	
	286/	
	287/	
	288/	
Dead Band to .16°.	289/18:22:00	
Dead Band to .05°.	18:27:00	
Start 1/4° UVS/PPS FOH Test	19:37:00	
End 1/4° UVS/PPS FOH Test	290/01:03:00	
(GC)Increase B discriminator levels in LECP	[illegible]	Transmit 79-290/16:00:00
Start MAG CAL	16:53:00	
Start PLS CAL	16:53:00	
End MAG CAL	17:41:00	
(GC) Increase B discriminator level in LECP	290/19:30:00	Transmit 79-290/19:30:00
End PLS CAL	20:08:00	
Start PESCAL	2	