

611-TD-552-001

## **EOSDIS Core System Project**

# **M&O Procedures: Section 11.18.5—DPREP**

Interim Update

November 1999

Raytheon Systems Company  
Upper Marlboro, Maryland

# Preface

---

This document is an interim update to the Mission Operations Procedures Manual for the ECS Project, document number 611-CD-500-001. This document has not been submitted to NASA for approval, and should be considered unofficial.

DPREP Section 11.18.5 was replaced with new contents and the old Section 11.18.5 became 11.18.6 Chaining PGE's.

Any questions should be addressed to: Elroy R. McLeod, 301-925-0767.

Data Management Office  
The ECS Project Office  
Raytheon Systems Company  
1616 McCormick Drive  
Upper Marlboro, Maryland 20774-5301

This page intentionally left blank.

## 11.18 DPREP

### 11.18.5 FDD Ephemeris Reprocessing Due To QA Failure

The following events occur when FDD-supplied ephemeris fails QA checking:

1. A subscription is placed on ESDT AM1EPHNF for replacement data (ESDT AM1EPHF) when *QaPercentMissingData* or *QaOutOfBoundsData* is greater than or equal to 1.
2. The AM1 DPREP FDD ephemeris processor (“RepEph” or “Step 3” DPREP PGE) detects a data gap or an out-of-bounds data point in the FDD-supplied ephemeris timeline (supplied through ESDT ShortName AM1EPHF). Assuming that no fatal errors are otherwise encountered, the PGE exits with status code 216, a success condition that indicates that the FDD-supplied ephemeris data set must be replaced by a re-delivery of the *same* data set. The *QaPercentMissingData* or *QaOutOfBoundsData* metadata has been set to a value greater than or equal to 1.
3. A subscription triggers when the DPREP output data set (i.e. AM1EPHNF) that is generated in step 2 is inserted into the archive. The subscription triggers because of *QaPercentMissingData* or *QaOutOfBoundsData* being greater than or equal to 1.
4. The GDAAC operator receives an E-mail notification indicating that the subscription has triggered. The universal reference (UR) of the AM1EPHNF granule that triggered the subscription is provided in the E-mail.
5. The GDAAC operator uses the database ID imbedded within the UR to identify the AM1EPHNF granule in the archive using *EcCoDbViewer*. Retrieve the start and end times of this granule.
6. The GDAAC operator telephones the FOT (telephone number 301-614-5431) and requests an FDD ephemeris data set (ESDT ShortName AM1EPHF) be sent for the time period spanned by the start and end times determined in step 5. The operator explicitly states what the replacement granule’s start and end time must be, to the second. The replacement ephemeris data set will be sent to both the GDAAC and the LDAAC.
7. The GDAAC operator notifies LDAAC operations (telephone number 757-864-9197) that a new AM1EPHF ephemeris data set is going to arrive for the time period determined in step 5.
8. The GDAAC and LDAAC operators schedule the AM-1 DPREP FDD ephemeris processor (“RepEph” or “Step 3” DPREP PGE) to process the time interval determined in step 5. If data replacement occurs on the first granule following a period of data dropout, Profile 2 processing must be scheduled. Otherwise, Profile 1 can be scheduled to run.

#### 11.18.5.1 Boot-up of EDOS Ephemeris Processing

AM-1 DPREP EDOS ephemeris processor (“AM1Eph” or “Step 1” DPREP) Profile 2 requires a special procedure in order to achieve boot-up processing at the start of the mission and following periods of data dropout. The required steps follow:

9. Wait for the first EDOS-supplied AM1ANC data set that follows the interval of data dropout to be ingested.
10. Use the *EcCoDbViewer* archive browser to determine the start and end time of the granule.
11. Call the FOT (telephone number 301-614-5431) and ask to speak with the on-line engineer.
12. Ask the on-line engineer to provide the orbit number at the granule start time determined in step 2.
13. Telephone LDAAC operations (telephone number 757-864-9197). Pass-on the orbit number determined in step 4 to the operator so the LDAAC can proceed with steps 6 through 9. This avoids having both the LDAAC and the GDAAC perform steps 1 through 4.
14. In directory /usr/ecs/OPS/CUSTOM/data/DPS, locate ODL file PGE\_AM1EphVVVVV02.odl. VVVVV is the version number of the operational AM-1 DPREP.
15. Edit this file using vi. Locate logical ID 998 (*PGE\_PARAMETER\_NAME InitialOrbitNumber*) within the ODL file and insert the orbit number provided by the FOT on-line engineer into the line beginning with *PGE\_PARAMETER\_DEFAULT*. This step requires *allmode* privileges in order to edit the ODL file.
16. Register the “AM1Eph” AM-1 DPREP.
17. Schedule “AM1Eph” AM-1 DPREP, Profile 2 to process the interval given by the start and end times determined in step 2.

### 11.18.5.2 FDD Replacement Ephemeris Processing

The following events occur in FDD replacement ephemeris processing:

18. A subscription is placed on ESDT AM1EPHN0 for replacement data (ESDT AM1EPHF) when *QaPercentMissingData* is greater than or equal to 1.
19. The AM1 DPREP EDOS ephemeris processor (“AM1Eph” or “Step 1” DPREP PGE) detects a long data gap in the EDOS-supplied ephemeris timeline (supplied through ESDT ShortName AM1ANC). Assuming that no fatal errors are otherwise encountered, the PGE exits with status code 216, a success condition that indicates the replace ephemeris condition has been detected. The *QaPercentMissingData* metadata is set to a value greater than or equal to 1, depending on the size of the data gap that is detected.
20. A subscription triggers when the DPREP output data set (i.e. AM1EPHN0) that is generated in step 2 is inserted into the archive. The subscription triggers because of *QaPercentMissingData* being greater than or equal to 1.
21. The GDAAC operator receives an E-mail notification indicating that the FDD replacement ephemeris data set subscription has triggered. The universal reference (UR) of the AM1EPHN0 granule that triggered the subscription is provided in the E-mail.
22. The GDAAC operator uses the database ID imbedded within the UR to identify the AM1EPHN0 granule in the archive using *EcCoDbViewer*. Retrieve the start and end times of this granule.

23. Given the start and end granules times, the GDAAC operator derives the replacement time range. The procedure will be demonstrated by example. If the 2-hour AM1EPHN0 granule ideally spans 22h – 24h of day 2000-06-07, the replacement ephemeris granule time span is
  - Start time = 2000-06-07 22:00:00.000
  - End time = 2000-06-07 23:59:59.000
 Replacement data starts on the hour and ends one second prior to the start of the subsequent 2-hour granule.
24. The GDAAC operator telephones the FOT (telephone number 301-614-5431) and requests an FDD replacement data set (ESDT ShortName AM1EPHF) be sent for the time period spanned by the start and end times determined in step 6. The operator explicitly states what the replacement granule’s start and end time must be, to the second. The replacement ephemeris data set will be sent to both the GDAAC and the LDAAC.
25. The GDAAC operator notifies LDAAC operations (telephone number 757-864-9197) that a replacement ephemeris data set (AM1EPHF) is going to arrive for the time period determined in step 6.
26. The GDAAC and LDAAC operators schedule the AM-1 DPREP replacement ephemeris processor (“RepEph” or “Step 3” DPREP PGE) to process the time interval determined in step 6. If data replacement occurs on the first granule following a period of data dropout, Profile 2 processing must be scheduled. Otherwise, Profile 1 can be scheduled to run.

### 11.18.5.3 FDD Attitude Reprocessing Due To QA Failure

The following events occur when FDD-supplied attitude fails QA checking:

27. A subscription is placed on ESDT AM1ATTNF for replacement data (ESDT AM1ATTF) when *QaPercentMissingData* or *QaOutOfBoundsData* is greater than or equal to 1.
28. The AM1 DPREP FDD attitude processor (“FddAtt” or “Step 2” DPREP PGE) detects a data gap or an out-of-bounds data point in the FDD-supplied attitude timeline (supplied through ESDT ShortName AM1ATTF). Assuming that no fatal errors are otherwise encountered, the PGE exits with status code 216, a success condition that indicates that the FDD-supplied attitude data set must be replaced by a re-delivery of the *same* data set. The *QaPercentMissingData* or *QaOutOfBoundsData* metadata has been set to a value greater than or equal to 1.
29. A subscription triggers when the DPREP output data set (i.e. AM1ATTNF) that is generated in step 2 is inserted into the archive. The subscription triggers because of *QaPercentMissingData* or *QaOutOfBoundsData* being greater than or equal to 1.
30. The GDAAC operator receives an E-mail notification indicating that the subscription has triggered. The universal reference (UR) of the AM1ATTNF granule that triggered the subscription is provided in the E-mail.
31. The GDAAC operator uses the database ID imbedded within the UR to identify the AM1ATTNF granule in the archive using *EcCoDbViewer*. Retrieve the start and end times of this granule.

32. The GDAAC operator telephones the FOT (telephone number 301-614-5431) and requests an FDD attitude data set (ESDT ShortName AM1ATTF) be sent for the time period spanned by the start and end times determined in step 5. The operator explicitly states what the replacement granule's start and end time must be, to the *millisecond*. The replacement attitude data set will be sent to both the GDAAC and the LDAAC.
33. The GDAAC operator notifies LDAAC operations (telephone number 757-864-9197) that a new AM1ATTF attitude data set is going to arrive for the time period determined in step 5.
34. The GDAAC and LDAAC operators schedule the AM-1 DPREP FDD attitude processor ("FddAtt" or "Step 2" DPREP PGE) to process the time interval determined in step 5. If data replacement occurs on the first granule following a period of data dropout, Profile 2 processing must be scheduled. Otherwise, Profile 1 can be scheduled to run.

### 11.18.6 Chaining PGE's

#### PGE Chaining

1. Create PRs (so that DPRs) for the PGEs to be chained.

This can be done by using PR Editor. Follow the same procedure as creating independent PR.

A few points need to be noticed. Let's say among the chained PGEs, the output of PGE A will be the input of PGE B.1) In ESDT odl for this shared granule, "DYNAMIC\_FLAG" has to be set to "I", i.e., dynamic internal. 2) First create PR for PGE A, then for PGE B. Otherwise PGE B PR may not be able to be generated.

2. Create the plan for a bunch of PRs which are chained.

In Work Bench GUI, 1) pull down "file" menu and select "new" to create the new plan; 2) highlight all PRs that are chain by clicking on their names on "unscheduled" area of Production Request area; 3) click schedule button to schedule these PRs.

3. Activate the plan.

In the Workbench GUI, click "activate" button, a GUI will pop up to ask for saving the plan. Answer "yes". Then another GUI will pop up to confirm whether to really activate the plan. Answer "yes" and the lowest level of DPR(s) in the chain will kick off.

In the pdps database, the PIDataProcessingRequest table is where the PRs are successfully generated, the "completionState" for all DPRs in the chain are "NULL". When the plan is successfully activated, the "CompletionState" for lowest level of DPR(s) is changed from "NULL" to "STARTED". The high level of DPR(s) in the chain is changed from "NULL" to "CQ\_HOLD". Eventually, the low level of DPR(s) finish so

that the input for high level of DPR(s) become available, Then the high level DPR(s) kick off and the "CompletionState" then changes from "CQ\_HOLD" to "STARTED".

---

This page intentionally left blank.