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Gravity Probe B Relativity Mission

Re-processing High-resolution Data from the L0 Database

GP-B Procedure
P0911 Revision -

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Data Processing

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Quality Assurance

Tom Langenstein ITAR Assessment Performed, ITAR Control Req'd? □ Yes □ No

Table of Contents:

1. Revision History

Rev Level	Comments/notes	Date	Revised By
-	First release of this operational procedure		

2. Scope

2.1. This operational procedure details the steps required to reprocess L0 data into p100.tmp files. The format of the p100.tmp file is detailed in the and Stanford Post-Processing Operations for Science Mission Data document S0401.

3. Operational Personnel Responsibilities and Qualifications

3.1. Operators must be competent working in a Unix environment and have a strong familiarity with IDL and Sybase. The operator must take care to insure that no other instances of GPB_TDP_L1.pro are running during this operation.

3.2. User should be familiar with the IDL graphical user interface and know the time range and cycle of the data they wish to extract. Time ranges must be inside a single cycle. Most time formats are acceptable as input. The format is day-of-year. In Sim 1B, the time was from 2000/300-16 to 2000/300-19. Please note that time in TCAD is with respect to the on-board clock. It is listed year/day-of-year – hour in GMT. There exists a translation algorithm from spacecraft clock to GMT; the data itself is stored with respect to the Vehicle Time Clock Word (see S0401 for details). An executable script on the "science" server named /apps/supported/lasp-1.6/src/tdp/l02l1 will initialize the IDL environment and launch the user interface. To run this script, the user should be logged in as "local".

3.3. On entry of an invalid cycle, time, or range, the user will be prompted to correct their mistake in the user interface before the program can succeed. A range with no data will generate no error messages and exit normally.

4. Requirements

4.1. Hardware and Software Requirements

This procedure should be run on the Sun server "science" as the user "local". Sybase must be running, and IDL must be properly installed. No instances of GPB_TDP_L1.PRO may be operating while this program is in use.

4.2. Configuration Requirements

Must be logged in on the sun server "science" as the user "local". A wrapper script to launch the user interface may be found in /apps/supported/lasp-1.6/src/tdp named l02l1

4.3. Verification and Success Criteria

On successful completion, the user interface exits normally, displaying a count of the records processed. Additional success criteria are defined in S0642, the Verification of L0 to L1 reprocessing tool document and P0826, Telemetry Data Processing in the Non-Real-Time System.

5. Reference Documents

5.1. Data Management Plan, S0331

5.2. Post-Processing Operations for Science Mission Data, S0401

5.3. Verification of L0 to L1 Reprocessing Tool, S0642

5.4. Telemetry Data Processing in the Non-Real-Time System, P0826

6. Test Facilities

6.1. Mission Operations Center at Gravity Probe B, Stanford University.

7. QA Provisions

7.1. Please reference Verification of L0 to L1 Reprocessing Tool, S0642 for details.

8. Test Personnel

8.1. This operational procedure is for use by the following personnel:
Jennifer Mullins
Samantha Patterson

9. General Instructions

9.1. Login to the science server as user local. Verify that no instances of GPB_TDP_L1.pro are running. This can be accomplished by typing 'ps –aef | grep idl' at the command line. If there are no instances of IDL running, it is safe to run this process. If IDL tasks are running, cd to the /apps/supported/lasp/src/tdp directory and check the size and date of the p100.tmp file. If the date of the file is not 'right now' and the file size is not increasing in the next minute or so, it is safe to proceed. Run the GUI interface with the cycle and range of data you wish to extract.

10. Software Operational Procedure

This section describes how to run the populate script.

10.1. Login to the science server as user local either on the console or via ssh. Verify that no instances of GPB_TDP_L1.pro are running. Go to the /apps/supported/lasp-1.6/src/tdp directory (cd /apps/supported/lasp-1.6/src/tdp) and run the script l02l1 by typing (l02l1) to spawn the IDL user interface. A point-and-click user interface should appear with a button to select the cycle and input fields for the beginning and end times. (see 3.2 for date format) Input the Cycle and Start/End times of the data range you wish to capture to a p100.tmp file. Click 'Ok' to proceed or 'Cancel' to abort the process.

10.2. On successful completion, the total number of records processed will be displayed in the window you started the script from.   Check the contents of the cycle log (named Cycle.CYCLENUM.log where CYCLENUM represents the numeric cycle number selected in the user interface) in the /home/tdp directory. The cycle and start/stop time in the log should be within the range specified in the user interface and the number of records processed should be identical to the output of the script.