

To: tgs_staff

From: Carey Myers

Date: March 26, 2004

Subject: Minutes of 03/24/04 TGS Project Meeting

Attendees: C. Darby, S. Speck, D. Jones, M. Boyer, R. Boyer,
M. Giuliano, C. Myers, L. Foor, M. Reinhart,
I. Dashevsky, A. Welty, R. Pitts, T. Krueger

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*** Next Meeting: Wednesday, March 31, 2004 9:00 A.M. ***  
*** Location: Bloomberg B448 ***  
*** Topic: Phase II , issues, action items ***  
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- We discussed, by area, the Phase II enhancements for TGS mode. We came up with the following list of capabilities:
 - APT
 - 1) Add schedulability constraints to the output display.
 - 2) Enhancements to target visibility and orientation reports.
 - 3) Support for Phase 1 proposal submission.
 - 4) Enhancements to the Exposure Time Calculator.
 - 5) Turn-off of capabilities not supported in TGS mode.
 - PREPROCESSOR
 - 1) Enhancements for two-gyro mode.
 - TRANS/SPIKE
 - 1) SPIKE:
 - a. Enhancements to the constraint component based on initial testing results.
 - b. Scheduling component updates based on scheduling criteria, e.g. using roll angles to improve FHST coverage of SAA periods.
 - 2) TRANS: Update scheduling efficiency parameters for TGS mode.
 - SPSS/SCS
 - 1) Incorporate performance improvements (in terms of activity timing).
 - 2) Add moving target support.
 - 3) Support reacquisition scenario.

- PASS
 - 1) Enhanced modeling for error uncertainty and definition of unstable periods
 - 2) Stop uplinking FHST calibration coefficients?
 - 3) TDRS communication updates (avoid unstable periods; use LGAs during unstable periods)
 - 4) Add magnetic field modeling.
 - 5) Incorporate common SPSS/PASS FHST occultation algorithm.
 - 6) Support reacquisition scenario.

- CMD
 - 1) Support commanding for reacquisition scenario.
 - 2) Adjust instruction sets as needed.
 - 3) SRT changes.

- PRD
 - 1) Normal support levels.

- Operations
 - 1) Generate test SMSs.

- Test Team
 - 1) Perform Phase II system integration testing.
 - 2) Allocate VEST testing time.

- Carey requested that by next Wednesday, March 31, each team refine their list of capabilities and provide a writeup of their Phase II impacts (schedule and resources).
- The remainder of the meeting was spent discussing FHST visibility overlaps and whether the visibility requirements for OBADs and GOBs were being implemented consistently between SPSS and PASS. An FHST to be used for rate control must have visibility at least one minute prior to the start of the map portion of an OBAD. The FHST to be used for the map does not. The GOB has no special requirements beyond single FHST visibility coverage.
- Carey asked whether a two-gyro SMS was available from SPSS for testing purposes. Scott and Mike B. said not yet. Merle suggested that maybe an SMS containing only the pointing profile could be generated and run through PASS so that FHST visibility profiles could be compared between SPSS and PASS.
- Attached are the open action item and issues lists. They are also available on the TGS Project web page: http://www.stsci.edu/org/ess/projects/two_gyro_science

Attachments

TGS Open Issues

TGS Open Action Items

TGS Open Issues

- SPSS will avoid a bad magnetic field alignment when scheduling Type 2 slews and establishing initial rate control. But how do we avoid FSW locking in a bad attitude error when it is autonomously transitioning from M2G to T2G mode in the absence of a Type 2 slew (e.g. following an uncovered SAA occultation)?
 - Status: Open
 - 03/10/04 – Options to consider include: 1) Have SPSS pass IRC times through the SMS to PASS. Then PASS can avoid making the FHST available to FSW until the bad alignment period has passed. 2) Have the FSW be smart enough not to try to transition to T2G mode when they're in M2G open loop. 3) Send commands to FSW indicating when the bad mag field alignment times are. 4) Ignore the problem and let the OBADs take care of it.
- FHST handoffs should be allowed from start of GSACQ until start of FGS visibility.
 - Status: Open
 - 03/03/04 – SPSS should use the existing scenario parameters to delay the start of the FHST GOB until FGS visibility begins. This will allow normal systemic single FHST coverage from the start of the GSACQ until the start of FGS visibility, thus allowing for FHST handoffs. Eventually, we should remove the GOB time offset parameter from ICD-26, Part 2 (maybe as part of the mag field parameter update).
 - 03/10/04 – Instead of using the existing scenario parameters to schedule the GOB, we settled on two database times (using the existing TGS_GOB_TIMES parameter with slightly different definitions): The first time defines the start of the GOB relative to the start of the GSACQ. The second time defines the duration of the GOB.
- Delta time for turning off FHST availability before end of FHST visibility should be parameterized.
 - Status: Open
 - 03/03/04 – New availability pad parameter: TGS_FHST_AVLEND_PAD needs to be added to the SCHF. Availability/shutter PLCPs should be separate PLCPs to allow use of the pad parameter when commanding the FHSTs.
 - 03/10/04 – Parameter TGS_FHST_AVLEND_PAD added to SCHF. Mary G. wrote email to M. Wenz and A. Bradley describing options for the FHST PLCPs that would provide maximum flexibility in commanding.
- Are there internal risks that the Scheduling Systems should identify that might impact the TGS Project?
 - Status: Open
 - 02/18/04 – Risks related to science schedulability and types of science that can be supported in TGS mode should be added. The HST Project is requesting that we use their format for defining / tracking risks and that we present our risks at the Project CDR.

- 02/25/04 – Carey discussed additional risks with Rodger. Carey will write up and review with Rodger, then put risks into Project-defined format.
- Provide support for target reacquisitions using the save / restore quaternion feature
 - Status: Open
 - 02/18/04 – Test with ACS (can be done in 3-gyro mode). Add to Phase II work.
 - 03/01/04 – P. Coleman found the PLCPs that support this capability. Rodger suggested that we try to arrange a test in the May timeframe, and use the results to define requirements for a Phase II implementation.
 - 03/10/04 – An on-orbit test is tentatively scheduled for May. Details of the test will be worked out via the GSACQ working group.

TGS Open Action Items

- 03/10/04-1 Define PDB SCHF parameters for the magnetic field model.
 Assignee: ???
 Status: New
 03/10/04 – Need parameters for all six gyro combinations and a flag indicating which set to use. Need a parameter defining the minimum time needed in a bad magnetic field alignment in order to trigger the scheduling constraint.
- 12/03/03-1 Meet with H. Wynn to discuss PASS options for HGA scheduling in two-gyro mode.
 Assignee: M. Galloway
 Status: Open
 12/10/03 – Needs to be addressed before the Design Review.
 02/18/03 – Mary talked to H. Wynn and they will hold meetings later in the Spring.
 03/03/04 – Contact for I&C changed from H. Wynn to G. Goulet.
- 12/03/03-2 Evaluate changes needed for Health and Safety SMSs in two-gyro mode.
 Assignee: Commanding, Ops
 Status: Open
 12/10/03 – Merle will coordinate next Spring.
 01/14/04 – Bob McCutcheon generated a Health and Safety scenario diagram for two-gyro mode.
- 11/12/03-3 Review additional SCHF parameters, such as slew settle times and GSACQ times, to see whether the current operational values are OK for two-gyro mode.
 Assignee: R. McCutcheon
 Status: Open
 11/19/03 – Bob M. looked at additional SCHF parameters, but won't know whether the values are appropriate for two-gyro mode until PCS provides firmer definitions.
 12/10/03 – Waiting for PCS definitions.
- 11/12/03-4 Identify all basefile parameters in TRANS, SPIKE, SPSS, and PASS that may need to be changed for two-gyro mode and trace each parameter back to its source (e.g. CARD, PDB).
 Assignee: M. Reinhart (with support from the teams)
 Status: Open
 11/19/03 – PASS provided Merle with a handout of existing Mission Scheduler basefile parameters, noting any that may be impacted by two-gyro mode.
 12/03/03 – Merle hopes to have a complete list by the end of the year.