

To: tgs_staff

From: Carey Myers

Date: April 23, 2004

Subject: Minutes of 04/21/04 TGS Project Meeting

Attendees: C. Darby, S. Speck, D. Jones, M. Boyer, G. Chapman, M. Bielefeld,
M. Giuliano, C. Myers, L. Foor, M. Reinhart, A. Vick,
Scott Stallcup, R. Pitts, T. Krueger, Alan Welty, M. Galloway,

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*** Next Meeting: Wednesday, April 28, 2004 9:00 A.M. ***  
*** Location: Bloomberg B448 ***  
*** Topic: Phase II , issues, action items ***  
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- Team status:

- Ops Support

- Completed two-gyro updates to the SCHF and CRPF files. Test versions of the PDB files are available.
 - A proposal containing a multi-orbit STIS imaging observation was created for the on-orbit reacquisition test scheduled for the week of May 31. The test will check out the feasibility of the save/restore quaternion feature.
 - PRD updates have been completed to reduce the FGS earth avoidance angles, thus increasing the amount of science time available each orbit. The changes will take effect with the May 10th SMS.

- Science Studies

- The TIPS presentation on April 15 marked the end of the science visibility study period.
 - The team will meet with HST Project the second week of May to review study results and the science impact of the FGS fine lock simulations.
 - Next for the science studies is to create a movie of target visibilities for the current ops period.
 - Work will begin shortly on validating the SPIKE model against the SPSS two-gyro scheduling algorithm (and vice versa).

- APT

- Implemented PR 50479 to add two new guide star acquisition scenarios in support of two-gyro guiding.

SPIKE/TRANS

- Work continues on incorporating two-gyro roll orientations and SAA occultations into SPIKE.

SPSS

- Build 46.3 in testing.
- Build 46.4 development scheduled to be completed mid-May.
- Currently integrating magnetic field code into the calendar display tool and the calendar check tool.
- Currently refining the two-gyro scheduling algorithm.
- Once the magnetic field code is integrated, the next step is to add it to constraint scheduling (after Build 46.4).

PASS

- Build 1 completed and delivered.
- Build 2 underway – calculating FHST visibility windows, supporting new SMS statement types, verifying new two-gyro activities.
- Modified an operational SMS to begin testing new statement types and modes.
- Need a pointing profile SMS to verify SPSS visibility calculations with PASS calculations.

CMD

- Currently working on special commanding for May reacquisition test.
- Next for CMD is FHST changes and Health and Safety changes for two-gyro.

PRD

- Need parameter relationships defined for verifying SPSS and PASS parameters and pads (see Action Item 11/12/03-4).

Testing

- Working on incorporating the UNIX version of PASS into the I&T system. Need to set up symbolic links pointing to scripts and executables.

- TGS Phase II: We went over Rodger's notes from the MSR roundtable discussion and reviewed a draft Phase II implementation schedule provided by Carey. The teams are to provide comments on the schedule and updates to their Phase II capabilities write-ups by Tuesday, April 27.
- We did not go over the open issues and action items. They are attached below. 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.
 - 03/31/04 – This is not a PCS problem, because the subsequent OBADs will take out any attitude error that was locked in. However, there may be an extended period of large attitude uncertainty until the OBAD executes (due to FHST visibility patterns) during which HGA communications could be affected.
- 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.
 - 03/31/04 – This needs to be addressed before the Project CDR in June.
- 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.
 - 03/31/04 – Merle is working with the GSACQ working group on defining an on-orbit test in May. It will probably cover two orbits.

TGS Open Action Items

- 03/10/04-1 Define PDB SCHF parameters for the magnetic field model.
 Assignee: C. Darby
 Status: Open
 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.
 03/31/04 – Get parameter names and values from SPSS and document in ICD 26, Part 2.
- 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.
 03/31/04 – Start looking at this after the May on-orbit test.
- 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: M. Reinhart
 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.
 03/31/04 – Assignee changed from R. McCutcheon to M. Reinhart.
 Expect the GSAWG to define TGS values in the June-July timeframe.
- 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.

03/31/04 – Priority on this remains lower than other issues and action items.