

MINUTES FROM THE NPP PROJECT SCIENCE MEETING

November 17, 2003

Present: Bob Murphy, Jeff Privette, Bruce Guenther, Pete Kealy, Forrest Hall, Chuck McClain, Wayne Esaias, Jack Xiong, Kelly Jeletic, Forrest Hall, Jeff Lubelczyk, John Qu, Joseph Lyu, Alex Lyapustin, Hassan Ouaidrari, Seth Hoffman, Yujie Wang, Mohan Nirala, Bob Barnes, Natasha Vozza

Action Items Carried Forward:

92. John Qu to send Jeff Privette information on MATLAB licensing
Status: Pending

New Action Items:

93. The **rapporteurs** were asked to coordinate their summaries with the session chairs and submit final version by **December 1, 2003**.

MEETING DISCUSSIONS

1) General remarks: Bob Murphy:

- NPP Project Manager Jim Watzin is returning from his HQ assignment in one month.
- Enterprise level (Code Y) Mission Confirmation Review was held at HQ on Nov 5. Representatives from the IPO, the Air Force and NOAA participated. It went well. The L1 requirements were signed. NOAA assured NASA that the Long Term Archive capability would be in place despite budget problems. The amount of data distribution that can be done needs further discussion.
- The final step in Mission Confirmation will take place with Deputy Administrator Fred Gregory on Nov 24, 2003.
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2) Cal/Val: Bruce Guenther:

- Sensor specific Cal/Val meetings are ready to begin. They will be spread over the next 5 weeks. Bruce is negotiating with NGST on participation of Science Team PI's on a case-by-case basis.
- Bruce is working with Karen StGermain (IPO) to make sure that the results of these meetings get fed into the Payload IPT, which defines and conducts the actual testing
- No sensor specific Cal/Val meeting has been set for ATMS, which is managed by NASA and not by NGST.
- Following the Science Team Meeting Bruce is establishing bi-weekly telecons among the interested Science Team Members, the PSG and NASA's instrument managers.
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3) Algorithms: Pete Kealy:

- Pete continues to participate in the NGST's Algorithm Configuration Control Board meetings.
- Pete continues to be concerned over the inadequacy of the documentation on incomplete work at the time algorithms drops are declared completed.
- NGST says that there will be an intermediate drop after 1.4 and before the at-launch drop (1.5). Pete has not been able to find any documentation of this new drop.
- Bob Hughes has been named lead system engineer at NGST, replacing Bob Marcus who retired. All algorithm work at NGST is conducted under his supervision.

4) Science Team Meeting:

- All agreed that the Science Team meeting went well. Bob was particularly pleased that all PI's were represented despite the short notice and by the strong and positive interaction from NGST. A number of actions were identified coming out of the meeting, including dealing with the ITAR concerns and getting funding into the hands of the Team as soon as possible.
- Rapporteurs and chairs from the Breakout sessions (ConOPs: Forrest Hall, L1: Hassan Ouaidrari, and L2: Chuck McClain) presented their summaries. SEE ATTACHED. The rapporteurs were asked to coordinate their summaries with the session chairs and submit final version by December 1, 2003. Bob will use these summaries to prepare a briefing to the IPO on NASA's initial insights.

5) Future Meetings: The IPO is planning a meeting of the VIIRS, Sounder and Ozone OATS the week of Feb 9 at NGST in El Segundo. They will invite the NASA NPP Science Team Members to participate. We will consider having additional splinters at that time. PI's (or a designated representative) should mark their calendars

6) The next PSG meeting is scheduled for December 1, 2003.

NPPST SUMMARY RECS (Forrest Hall- Rapporteur))

- The NPPST should focus in the near term on insuring that the various sensors on the NPP platform are meeting specs and determining if there are any sensor-performances "show-stoppers". Only if the sensors perform properly and produce "good" radiances, can EDR's and CDR's eventually follow. To accomplish this, NPPST members should concentrate initially on reviewing test results and procedures from the EDU's and/or Flight Models in light of the team member's individual responsibilities for particular end products. All algorithms may not be in place, but previous experience with sensor performance can uncover show-stoppers.
- The algorithms for the various products may not be as mature as one is led to believe from the SSPR presentations and still subject to quite a bit of redirection, even at this late date. NPPST members should as quickly as possible find out the real status of the algorithms from the SSPR to determine just how mature they are. If there are obvious disasters in the making see if significant impacts can be made. In any case, algorithms should be implemented on the NPP1 data system as soon as stable science code is available and exercised on simulated MODIS/VIIRS test data to see if there are major issues to be communicated to the SSPR.
- Once implemented, NPPST members can begin to assess the degree to which the EDR's are of cDR quality and thus the degree to which future algorithm changes and reprocessing will be required. This information can serve as a vehicle for communication between NPPST members and the SSPR contractors developing the algorithms. NPP1 so configured can also begin to serve as a CARS prototype and help define CARS systems requirements
- Even though all current NPPST members may not be in place following launch, the NPPST should collaborate with the SSPR to define the Cal/Val implementation plan, planned cal orbital maneuvers, the product validation procedures, stressing in particular participation in the development of the "first light" plans to assess and correct sensor and algorithm issues post launch. It is also critical that NPPST members participate now in the development of the post-launch cal/val plan, helping to define procedures. A "truth" implementation plan should be developed as soon thereafter as possible, defining

the required "truth" resources (e.g. buoys, cruises, aeronet, field studies, instrumentation etc.).

- To accomplish any of these objectives in the face of an extremely aggressive schedule, clear and efficient lines and modes of communication between NPPST members, the PSG and SSPR must be defined, particularly for on-site representation at the SSPR location, NPPST attendance at regular meetings, one-on-one contacts, telecons, and distribution of status reports.

SENSOR AND LEVEL 1 SPLINTER (Hassan Ouaidrari- Rapporteur)

Splinter meeting included 34 participants (Science Team, NGST and IPO):

- 19 participants had VIIRS interest
- 17 participants had CrIS interest
- 9 participants had ATMS interest
- 4 Participants had OMPS interest

- **Splinter went very well, and it was productive.**

- **All participants were enthusiastic about working with each other (Science team, NGST and IPO).**

- **All participants had the opportunity to raise their concerns related to the program in general, and to their sensor of interest and EDR in particular.**

- **Splinter to discuss:**
 - The sensor and level 1 issues
 - What are top issues/concerns
 - Science Team Meeting Schedule

- **The sensor and level 1 top concerns:**
 - Timely access to test data and results
 - Timely access to test plans/procedures
 - Presence of key test plans and procedures
 - Adequacy of Tests
 - Inability to influence test plan/procedures
 - Would like a briefing (details) on instrument testing procedure.

- **The sensor and level 1 top concerns:**
 - Translation of test data into characterization/calibration coefficients
 - Operation constraints
 - In-flight diagnostics
 - CAM
 - Transition to operational mode in 7 months
 - Discontinuity of calibration coefficients
 - Mechanism to influence correction to hardware
 - Mechanism to influence future instruments
 - Availability of validation data (government supplied truth data) and vicarious calibration

- **Science Team Schedule:**
 - Telecon: Bi-weekly

- 4 telecons (VIIRS, CrIS, ATMS, OMPS), Bruce Guenther to coordinate this effort.
- **Communication tools:**
- Science Team would like to attend instrument contractor test plan reviews.
- Science Team would like to access reference documents (ATBDs, plans, and related documents).

**L2 + PRELAUNCH & POSTLAUNCH VALIDATION:
DISCUSSION POINTS FROM 1ST SPLINTER SESSION (Chuck McClain -
Chair)**

Algorithm Analysis Report

1. Science Team has two objectives wrt algorithm analysis:
 - Evaluate NGST operational algorithms to help improve operational products (assist NGST)
 - Evaluate usefulness of EDRs as cDRs for climate research (assist NASA HQ)
 - These objectives have 2 very different timelines.
2. Initial evaluations must be focused on ATBDs, software code, and simulations using assumed sensor performance because sensor characterization data won't be available anytime soon.
3. Last software drops & characterization schedules are very tightly synched, especially for VIIRS and CrIS.
4. Science Team inputs to NGST need to be expedited to impact code delivery schedule over next year.
5. Science Team needs to review both documentation and code to check for correctness and consistency. Both will be changing up to final delivery.
6. Algorithm Analysis Report should be drafted by end of 2004 and periodically updated to include new information on sensor performance tests, advances in algorithm development, etc.
7. Strategy for collecting, organizing, and synthesizing report needs to be developed. Who is responsible for pulling it together (PSG)?
8. Suggestion: Organize by categories of EDRs (atmospheric, ocean, land) with chapters by each Science Team PI and synthesis sections by PSG and/or Science Team members. Publish as a NASA technical memorandum so that contributions can be cited.
9. In order to evaluate EDR qualifications as cDRs, the attributes (accuracy, stability, etc.) of cDRs need to be defined. Most Science Team members are sceptical that EDRs will even come close to being "climate quality" because of instrument stability, real-time ancillary data quality, etc.

Post-launch Validation Requirements

1. Post-launch validation is highly dependent on pre-launch sensor characterization results. Science Team needs to review test plan in time to provide inputs.
2. Science Team needs to participate in the Operational Algorithm Team and the IPO Cal/Val Team meetings/activities. Right now, it is unclear how these groups function and how the Science Team can interface with them.
3. Given the October 2003 launch schedule, post-launch validation within the first 7 months will be limited because of weather. Certainly, the ocean community would not be collecting much data during N.H. winter.
4. Post-launch validation efforts will need to leverage off other ongoing programs (ARM, Aeronet, WOCE Repeat Hydrography, NSF LTER, etc.). These need to be identified and the appropriate negotiations and arrangements initiated with the sponsor agencies.
5. Validation sites for long term monitoring of NPP sensor and product performance need to be identified and data extraction/processing at these sites needs to be included in the SDS design. The oceans community is already doing this for SeaWiFS and MODIS.