

MODIS TECHNICAL TEAM MEETING

October 20, 1999

The MODIS Technical Team meeting was chaired by Vince Salomonson. Present were Bill Barnes, Francesco Bordi, Barbara Conboy, Mark Domen, Wayne Esaias, Al Fleig, Dorothy Hall, Steve Kempfer, Michael King, Gene Legg (NOAA), Ed Masuoka, Harry Montgomery, Bob Murphy, Mike Roberto, and Dan Tarpley (NOAA). Meeting minutes were taken by Mike Heney.

1.0 SCHEDULE OF EVENTS

MODIS PI Processing Meeting Location TBD	November date TBD 9:30 a.m.
MODIS Science Team Meeting The Sheraton Columbia Hotel Columbia, MD	November 16–17, 1999 8:30 a.m.
Terra Launch Vandenberg Air Force Base Lompoc, CA	No earlier than December 1999
AGU 1999 Fall Meeting San Francisco, CA	December 13–17, 1999
IGARSS 2000 Abstracts Due	December 28, 1999
AGU 2000 Spring Meeting Washington, DC	May 30–June 3, 2000
IGARSS 2000 Honolulu, HI	July 24–28, 2000
EOS-PM Launch	December 21, 2000
Next Mini-SWAMP Meeting	Date TBD

2.0 MINUTES OF THE MEETING

2.1 Instrument Report

Mike Roberto provided an update on the FM1 instrument status. The only news since the last Technical Team meeting comes from a teleconference held on Monday, October 18, 1999. Between 5 and 11 channels (out of 20) in Band 6 appear to be defective. Tests of their functionality were made during Thermal Vacuum testing and by measuring their resistance when MODIS was in ambient conditions. At the lowest operating temperature (83K) there are five non-working channels (1, 2, 7, 8, 19). At the highest operating temperature (88.9K) there are seven non-working channels (1, 2, 4, 5, 7, 8, 19). In between those

temperatures, several channels are intermittently working, including channel 9, which works properly at either extreme. By the time the focal plane reaches 110K there are 11 non-working channels (1, 2, 4, 5, 7, 8, 9, 11, 16, 17, 19). This information is based on 32 data sets from March 1998 to October 1999. SBRS is trying to trace the builds on the focal plane assemblies to see if anything stands out.

Upcoming plans include looking at the FM2 short-/mid-wave focal plane, and doing a requalification on it.

Bill Barnes summarized that the current situation is that five Band 6 channels are uncalibrated at 83K. At a possible end-of-mission operating temperature of 88K, the number rises to seven. At 118 K, 11 channels out of the 20 are non-working. In an addendum, Bruce Guenther added that the calibration source for Band 6, a spherical integrator source, was not used during Thermal Vac #3, so we have no radiometric performance data for any channels on this band during this period.

Regarding fixing the problem, there are two questions that need to be answered. The first is whether the situation is stable or not. Mark Domen reports that the problem was noticed at the beginning of Thermal Vac #3. Since then there have been 10-15 thermal cycles on the focal plane, and no new failures have been seen. Thermal cycling may be the cause of the initial failures, but continued cycling has not made the problem worse. The second question is whether the short-/mid-wave focal plane on FM2 is any better. If not, a fix would require in excess of a year. There is no estimate on the time needed for moving the short-/mid-wave focal plane from FM2 to FM1, 9 months was offered as a guesstimate.

Al Fleig noted that one detector on Band 5 physically proximate to Band 6 had also failed, and asked if this was being examined. Bill Barnes noted that it has been 18 months since anyone has been able to look at Band 6 on the PFM instrument, and it will have been about 24 months by the time Terra is on orbit and checked out; if there is a similar problem on the PFM instrument, there is no way of knowing until it is on-orbit. In an addendum, Guenther added that electronic calibration testing could be capable of establishing that no channels on Bands 5 or 6 on PFM have shorted electrically, and an electrical short is the predominate problem on FM1 Band 6 detectors.

2.2 Data Systems

Steve Kempler reported on the status of the MOSS-3 system tests. The DAAC is ingesting data, processing data, keeping up with processing, and distributing data to MODAPS and MCST. He noted that the data distribution is a new capability being demonstrated, which is good news. The data cannot be inserted back into the DAAC as quickly as it is coming in at this point, but that is a part of the learning experience, and should be resolvable with what is learned from MOSS-3.

Ed Masuoka provided some detail on the MOSS-3 test. He noted that all products had been made from 0200 through a full day, as well as products for day 227. There was a problem with bad data from EDOS for the cloud mask,

which knocked some products out. There is also a problem with Dr. Wan's land surface temperature product, which is not running. Finally, there is a problem with PGE 22—the level 3 aggregation PGE—anything dependent on it is also not running. SDST is still working on shipping data back from MODAPS into the DAAC.

The only status change in PGE's has been a patch for a metadata problem on the Snow product. The patch has gone through, but is not in the MOSS-3 system, so the metadata would not insert in the test runs.

Dorothy Hall mentioned that George Riggs had alerted her that his algorithm updates were not going through SDST in a timely manner—it has been more than 2.5 months since some changes were submitted. Michael King reported hearing similar complaints from his team. Masuoka noted that there were a number of factors affecting implementations of changes. In some cases, fixes required to upstream PGE's can slow down changes to downstream PGE's. Level 3 changes may lag behind level 2 changes. Masuoka's focus at this point is getting inserts to the DAAC running. In one case Hall mentioned, Masuoka reported that the product required creation of a NICE tiling for polar grids, which was the source of the hold-up on the sea ice product. In response to a question from Wayne Esaias on PGE53, Masuoka noted that an error had been identified in the Oceans source code; fixing the error would likely get PGE53 to run, which would then break loose the Oceans products dependent on it.

Murphy posed a question on co-registration problems between the focal planes; this will be brought up at the Level 1 Integration meeting next week. It was noted that the synthetic data does show the registration effects. A discussion ensued on generating images on available output devices with sufficient resolution and coverage to show the effects.

Masuoka reported that a problem in the Level 1B software that caused images to not look right with a bad detector flag present has been fixed. Runs with synthetic data are now looking as expected.

A version of the Operational Agreement with ECS has been drafted that looks acceptable; it is being forwarded for signature.

The Operational Readiness Review (ORR) will require status reports on MODAPS and the PGE's, and requires QA and validation status updates. Masuoka will need help in preparing these; they should include validation activities for the PGE's and a plan to process QA input.

Esaias asked if SDST was using real ancillary data in final format, or test ancillary data for MOSS-3. Masuoka reported that since MOSS-3 is running using 1997 data, older (1997) format ancillary data is being used. SDST has worked with the current formats for ancillary data, but had to back up to an older format for MOSS-3. Fleig noted that SDST does not create synthetic ancillary data, all ancillary data used in testing are real.

Kempler briefly reviewed the GDAAC Notes for MODIS Technical Team Meeting dated 10/20/99 (see Attachment 1). Masuoka briefly reviewed the Launch Ready PGE Status dated 10/20/99 (Attachment 2).

2.3 NOAA Status

Dan Tarpley noted that an Action Item (see section 3.2, Action Items Carried Forward, item #2, below) on NOAA Product Oversight Panels (POP's) staffing has been carrying over from meeting to meeting. Each of the NOAA POP's meets quarterly or as needed, and is tasked to coordinate MODIS products generated through the NOAA processing system. To ensure MODIS product quality, MODIS Science Team members will be added to the POP's to approve the release of MODIS products. Tarpley suggested asking Eric Vermote to represent the Land group, and asked Oceans and Atmosphere groups to suggest representatives. Esaias volunteered to represent Oceans. King will follow up to find someone to represent the Atmosphere group.

Salomonson noted that representatives for the Discipline Group Validation Team have been named (see section 2.6, PM-1 Science Working Group Report, below).

2.4 Launch Update

Salomonson has spoken with Chris Scolese; the Terra launch has not yet slipped into January. There are a number of items that need to be signed off on by KSC. There was going to be a launch readiness review next week, but all actions would not be done by that time. The critical date seems to be November 3; if everything has come together by then, fueling can begin. Bordi reports that he has heard that fueling will begin this Friday, October 22, regardless of the launch readiness review. Murphy noted that if the launch is delayed too much more, battery reconditioning becomes an issue. Also, there is a potential conflict with an early December launch date—a shuttle mission is scheduled to launch on December 3, which will preempt usage of the TDRSS system for the duration of that flight.

2.5 MAST Report

Barbara Conboy reminded everyone that registration forms for the next MODIS Science Team meeting are due to Deborah Howard by Monday, October 25.

2.6 PM-1 Science Working Group Report

Bob Murphy reported on the PM-1 Science Working Group Meeting held on October 15, 1999. The major MODIS-related item is that the deep-space look maneuver will take place on Day 55. This is a disconnect with the MODIS operations plan, which has the maneuver on Day 65. One constraint on the maneuver is the fact that AIRS will not open their doors until all maneuvers have been completed. They need sufficient time to check out their instrument before the 90-day acceptance deadline; waiting until Day 65 will not allow them to accomplish this. There is also a need to have the moon not be in the MODIS field-of-view during the maneuver, which could impact the date by up to 10 days. Salomonson remarked that the 90-day acceptance deadline seems to be standard boilerplate rather than a requirements-driven number, and suggested that perhaps this should be modified.

Murphy noted that the maneuver will be three driven-pitch maneuvers on three consecutive orbits, because CERES requires three pitch maneuvers, and this can be combined with the MODIS requirement. Murphy thinks that operations concerns will weigh against doing the three pitch maneuvers on consecutive orbits. A series of small yaw maneuvers over the pole will also be performed to characterize the solar diffuser; Jerry Godden will be working with Bob Lee to see if they can coordinate with CERES on their required yaw maneuver. Regarding small roll maneuvers for lunar looks, both AMSR and AIRS said no to anything after the deep-space look pitch maneuvers. One maneuver has been okayed for the beginning of the mission, before AIRS opens its doors. The MODIS team will revisit additional rolls at later PM-1 meetings.

The EOS PM-1 launch date remains set for December 21, 2000.

Murphy had some preliminary discussions with the AIRS team; there appear to be some opportunities for coordinating validation efforts between MODIS and AIRS. Coincident SST measurements is one possibility. A complication is that there is no easy way to get AIRS data for small tiles; AIRS has their own internal data system, and has no outside users. MODIS would need to learn how to get access to AIRS data.

The PM Project has asked each team to provide validation contacts for their instrument. Murphy said he would identify the MODIS validation contacts. As amended, the final list is Yoram Kaufman - Atmospheres, Jeff Morisette - Land, Wayne Esaias - Oceans, Ed Masuoka - Level 1A, Bruce Guenther - Level 1B, and Kurt Thome - Vicarious Calibration. (These are the MODIS validation contacts for both AM and PM.)

3.0 ACTION ITEMS

3.1 New Action Items

1. King: Identify an Atmospheres representative to the NOAA Product Oversight Panels.

3.2 Action Items Carried Forward

1. Hohner, Fleig, and Masuoka: Include a space for MODIS early images on the MODIS home Web site. After launch, it would include downloadable early images on the MODIS site and a link to the DAAC's for obtaining products and data. The TRMM and SeaWiFS Web pages and how they process and present images can be used as good examples.

Status: This item remains open.

2. Legg: Find out when and how NASA MODIS representatives will be integrated into the NOAA review process and report on status to the MODIS Technical Team. NOAA has agreed to have MODIS representatives serve on the NESDIS data product review boards (Product Oversight Panels). However, MODIS representatives have not yet been invited to participate in an advisory

panel.

Status: This item remains open. At the October 20 MODIS Technical Team meeting, Dan Tarpley suggested asking Eric Vermote to represent the Land group, and asked Oceans and Atmosphere groups to suggest representatives. Esaias volunteered to represent Oceans. King will follow up to identify someone to represent the Atmosphere group (see New Action Items, #1, above).

3. Hohner and Howard: Develop a weekly MODIS news page linked to the MODIS home Web site. It should include hot items and reflect weekly progress.

Status: This item is in progress.

4. Masuoka: Submit an EOS-PM Data Product Update to ESDIS.

Status: This action item remains open.

3.3 Closed Action Items

1. Murphy and Conboy: Inputs for the EOS Data Products Handbook PM-1 Volume 2 were due to Barbara Conboy by June 17, 1999.

Status: This item is closed. Barbara Conboy has submitted MODIS' input to Claire Parkinson.