

## MODIS TECHNICAL TEAM MEETING

**July 8, 1999**

Bob Murphy chaired the MODIS Technical Team Meeting. Present were Ken Anderson, Francesco Bordi, Barbara Conboy, Wayne Esaias, Al Fleig, Steve Kempler, Ed Masuoka, and Eric Vermote, with Michael Hohner taking the minutes.

### **1.0 SCHEDULE OF EVENTS**

MODIS PI Processing Meeting Building 32, Room E103	July 13, 1999, 9:30 a.m. (Tuesday)
Semi-annual Reports Due (For January–June 1999)	July 15, 1999
SAFARI Program Implementation Meeting (Gaborone, Botswana)	July 26–30, 1999
Terra Launch Vandenberg Air Force Base	No earlier than September 13, 1999
AGU 1999 Fall Meeting (San Francisco, CA)	December 13–17, 1999
IGARRS '00 Abstracts Due	December 1999
AGU 2000 Spring Meeting (Washington, DC)	May 30–June 3, 2000
IGARRS '00 (Honolulu, HI)	July 24–28, 2000
EOS-PM Launch	December 2000

Note: The PI Processing meeting is usually held on a Wednesday. Please note that the July meeting will be held on a Tuesday. Also, no PI Processing Meeting is scheduled for August. Meetings will resume in September.

### **2.0 MINUTES OF THE MEETING**

#### **2.1 Level 1 Integration**

Francesco Bordi reviewed the MODIS Level 1 (L1) Integration document dated

Thursday, 8 July 1999 (Attachment 1). He noted the MODIS Working Group on L1 Integration met on Wednesday, July 7, 1999. The attachment contains the current Summary Schedule, Master Schedule and Top Ten Issues affecting L1 Integration.

The Summary Status chart lists items affecting integration. Version 2.1.5 of L1B (PGE02) is currently in the DAAC; a soon to be delivered revised lookup table will upgrade it to version 2.1.6. The expected launch version will be version 2.2.x. The speeded up PGE01 for L1A and Geolocation (PGE01) has been promoted to DAAC operations. The at-launch version of Cloud Mask (PGE03) is currently in the DAAC and waiting for an Earth Science Data Type (ESDT) from ECS. The L1A Subsetter (PGE71) is completed and is currently being delivered to the DAAC; it is waiting for an ESDT from ECS. The launch version of the L1B Subsetter (PGE02A) is in the DAAC and is being promoted to operations. Testing of L1B will involve version 2.1.6. MOSS-2 testing has slipped to late July or August.

The Master Schedule page (see Attachment 1) is a graphical timeline of milestones in the Summary Schedule. Bordi reviewed the Top Ten Issues affecting L1 Integration. For Item 1, Bordi asked Masuoka to write a memorandum discussing problems with ECS data production. Masuoka agreed to prepare a memorandum by the next MODIS Technical Team Meeting. For Item 2, regarding the schedule for resolving ECS-related problems at the DAAC, four issues are listed. Kempler noted that from an integration point of view, specific problems are required to dispense specific fixes. For Item 5, Bordi noted that L1 product data volumes are 94GB per day above baseline. Of the 94GB, 85GB are attributed to L1B, the remainder to L1A and geolocation fields. Masuoka will send an e-mail to the discipline leads describing the problem and Murphy will discuss this with them at the next discipline group leaders meeting.

## **2.2 SDST**

Masuoka reviewed the Launch Ready PGE Status dated 7/8/99 (Attachment 2). For L1B (PGE02), Masuoka said a launch version must be defined. For Cloud - Optical Depth (PGE06), he said the software would be ready for installation, but they were waiting rebuild of the hard disk on the workstation. For Ocean Color (PGE09), Masuoka said the current software has been inserted into the DAAC. For Oceans Interim daily (PGE20), he said it is working, but he needed to know how many days he needed for testing. Esaias commented that 3 days are needed to make 1 day. Masuoka said that he should have enough synthetic data for testing. He added that a patch has been added to the PGE.pm library to insure downstream products have correct metadata. Before the patch, PGE12 - PGE15 were not properly propagating downstream.

Masuoka said there are problems with the time ordering of data packets and

with missing data in the rate buffer. This is where NOAA's bent-pipe system obtains its data. Masuoka will send an e-mail to NOAA to explain the issue and recommend a solution.

### **2.3 GDAAC**

Kempler reviewed the GDAAC Notes for MODIS Technical Team Meeting dated 7/8/99 (Attachment 3). He reported that this chart is consistent with what Bordi presented and with what Masuoka presented. Kempler reported that the DAAC has just completed the MOSS-2 dry run with 24 hours of data (see Attachment 3). The data was also successfully pushed to the MODIS-DAAC PDR server. Kempler said much manual intervention was needed and that all manual interventions were documented and brought to the attention of ESDIS/ECS for resolution. He reported that it took more than 24 hours to complete the test on the data. (More like 36) He also reported that PGE71 (v2.0.2) has been delivered to the DAAC. Regarding the ECS System, Kempler said Drop 4PY is in Ops mode. He also stated that Drop 5A is scheduled for installation in the DAAC on July 22. Murphy asked what lessons had been learned from the integration of 5A at NSIDC. Kempler said that it had been delayed and that they would actually receive 5A at NSIDC on the same date as GDAAC.

### **2.4 PI Processing**

Vermote said the next PI Processing meeting will be held on Tuesday, July 13. He said they will be producing sample data this weekend. He announced an EDC representative will be visiting the Land team during the week of July 18 to discuss archive and distribution.

### **2.5 Instrument Report**

Anderson reported that there is an end-to-end test going on now for the ground system for PFM. He also reported that next week the first and only planned transience test simulates off and on nominal conditions for the instrument.

The launch date for Terra is still to be determined pending the resolution of the failure on the Centaur launch vehicle. The official launch date will now be no sooner than August 31, 1999. This was subsequently modified to no earlier than September 13, 1999.

Anderson reported that thermal vacuum testing is now being conducted on FM1. The two major concerns going into testing were power supply shutdowns and PC sector-drift. The issue with power splice shutdowns has been fixed. Anderson said the issue with PC sector-drift appears to be corrected or is at the very least correctable with some operational constraints. Anderson said the PC sector-drift is now no worse than it is on PFM. He said the band 36 behavior appears to be tied to the blackbody heater cycling on and off, but we will be able to provide a workaround for this issue. They expect that the problems will be

greatly reduced at the nominal and hot plateaus. The blackbody heater was limited to a maximum 30 percent duty cycle, exclusively heating only between the end of the earth-view sector and the beginning of the solar diffuser-sector. This duty cycle allowed for maintaining a temperature difference between the scan cavity and the blackbody of about 18K. The design of focal plane temperature control is identical when the Short-wave/Mid-wave heater is used compared to when the Long-wave heater is used. The temperature that is needed for the blackbody immediately after launch will affect the sensitivity of the instrument especially on longer wavelength bands. Esaias asked if there should be concern for the SST bands—bands 31 and 32. Anderson said band 36 is the worst case, but there will also be some effect on other longer wavelength bands. At the other plateaus we will be able to heat the blackbody to an appropriate temperature.

Anderson also reported that they have a misregistration issue with the MODIS instrument. The misregistration appears to be primarily between the cooled and uncooled focal planes. SWIR and LWIR seem to be in reasonable agreement with each other but not with the VIS and NIR focal planes. At this point it has not been determined what could have caused this; it was not present at the end of the last thermal vacuum test, but it was seen in ambient just before they went into this thermal vacuum test. There is a possibility that this problem is not real, but more and more test data proves that it is. Anderson said they are conducting additional tests while they are still in the thermal vacuum chamber. This will extend thermal vacuum testing until the end of the month. Since the misregistration is between 35 and 40 percent, there is the potential for a serious impact on the science.

## **2.6 Odds and Ends**

Esaias reiterated that the ocean cruise scheduled for this fall will proceed, even though we may not have launched Terra. Firm commitments had already been made. The cruise will focus on specific process studies addressing issues raised during the analysis of SeaWiFS data. Regarding the Data Products Handbook, Murphy has received revised input from Strahler and is still expecting input from Townshend. It may take a little more time to produce since some are further behind.

Regarding the communications issue and MODIS Instrument News database, Murphy said Hohner will produce a demo in about 2 weeks. The communications initiative will provide a more convenient way for people to post news items and updates to the Web. The scenario for posting items will define a number of users such as the team members and their associates and will allow them to post items on a permissive basis. The items will be reviewed for appropriateness. If the items posted are not appropriate, several actions may be taken such as editing or removing items.

Fleig recommended that the IGARRS 2000 conference would be a good forum for the MODIS Science Team members to discuss preliminary and other results. Fleig said that the MODIS Science Team could ask them to set aside a special session for each discipline group. Fleig will request a special session if the Atmospheres, Oceans, and Land MODIS discipline teams agree to have one. The deadline for abstracts is December 1999 and the conference will be held in July 2000 in Honolulu, HI.

### **3.0 ADDENDUM TO THE MINUTES**

Steve Kempfer forwarded the following results of the MOSS-2 Dry Run at the GES DAAC that commenced July 1. Mark Fuerst (ECS GES DAAC Operations Lead) and Catherine Harnden provided this status.

#### **3.1 Data Ingest (without EDOS):**

- 24 hours of MODIS and Ephemeris (APID-64 and APID-04) data from Day 226 and Corresponding FDD Data were Ingested and Archived Prior to Kickoff (No EDOS transmission during this exercise).
- Eight ASTER expedited datasets were ingested.
- Six DAO First Look Products were ingested (First Time!).

#### **3.2 Automated Production:**

- Processed all data from Day 226 from DPREP through PGE02 (Compatible version of PGE03 not installed in Ops Mode at time of exercise; anticipate it will be installed in time for the next MOSS-2 exercise).
- Chronic problems with the Staging Disk Server required that the server be either warm or cold started in order to continue with the production plan. This impacted production throughput by 5 to 30 minutes per incident (greater than 30 times during the course of the exercise).

#### **3.4 Distribution:**

- ASTER data was successfully distributed to the Japanese.
- DAO First Look Products was successfully staged to the PDR Server.
- MODIS Expedited data was successfully distributed to MCST.
- Successfully pushed DPREP and PGE01 and PGE02 Data to the PDR server for staging for MODAPS Ingest (First Time!).
- The Staging Disk Server problem (mentioned above) also impacted on distribution activities as it caused the Distribution Server to fail. This failure resulted in pending distributions to be suspended.
- There was also a problem with incorrect passwords for subscriptions being used—this was corrected during the test—impact was nominal.
- Finally, two defective MODIS Level 0 data input production files (previously ingested) resulted in 48 output files that were forwarded to MODAPS, but

were not usable for their processing.

## **4.0 ACTION ITEMS**

### **4.1 Action Items Carried Forward**

1. Discipline Leaders and Support Team Leaders: Inputs for the EOS Data Products Handbook PM-1 Vol. 2 are due to Barbara Conboy by May 24, 1999.

Status: This item remains open. Conboy has received all inputs except the data flow chart and input from Townshend. She is incorporating corrections received from the MODIS Team to-date and awaiting final corrections/input from Bob Murphy.

2. Murphy: Create a mechanism for coordinating MODIS operations and other schedules that includes an interactive listing. It should be more than a passive posting of schedules on the World Wide Web. Such an interactive schedule could be used by MODIS science discipline teams to coordinate field campaigns or by the operations group to coordinate MODIS activities with the other Terra instruments' activities.

Status: This action is being fulfilled through item 3 below.

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 remains open.

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

Status: This action item remains open.

5. Barnes: Work with Wayne Esaias to complete the written and vugraph versions of the Oceans Validation Plan.

Status: This action item remains open. Esaias has submitted the narrative version of the Oceans Validation Plan to Michael King. The vugraph version is pending.

### **4.2 Closed Action Items**

1. Masuoka: Examine status of DAO ancillary products for MODIS.

Status: This action is ongoing and will no longer be listed as an open action item.

2. Murphy: Investigate the status of direct broadcast and present an update to the Technical Team.

Status: This item was completed by the briefing at the last MODIS Science Team Meeting.

3. MODIS Community: Last call for Terra Launch; updates/additions due to Barbara Conboy by May 20, 1999.

Status: Conboy submitted MODIS' list to PAO . Since launch has been postponed, additional updates/additions are forwarded to PAO when received.

4. Murphy: Clarify the data release agreements between NASA and NOAA on MODIS data, including MODIS requirements and which of these requirements NOAA will accommodate. Discuss these items with Legg and Tarpley of NOAA.

Status: This item is closed. It was agreed to have MODIS representatives serve on the NESDIS data product review boards.

5. Murphy: Follow up on the status of the PI Processing working agreement with ESDIS.

Status: This item is closed as of March 11, 1999. The conveyance memo from SDDTs and Discipline Leaders was signed.