

# MODIS TECHNICAL TEAM MEETING

**August 25, 1994**

The MODIS Technical Team Meeting was chaired by Vince Salomonson. Present were Chris Justice, David Herring, Bruce Guenther, Bill Barnes, Dick Weber, Janine Harrison, Ed Masuoka, Steve Ungar, John Barker, John Bauernschub, Al Fleig, Locke Stuart, and Wayne Esaias.

## **1.0 SCHEDULE OF EVENTS**

Sept. 6	DAAC Meeting at EDC
Sept. 13 - 14	MODIS Quarterly Review at SBRC
Sept. 15	533Q Financial Reports due to Teresa Mautino
Sept. 20 - 22	SDST Simulation Data Workshop, Flathead Lake, MT
Oct. 11	Calibration Working Group, Holiday Inn, College Park, MD
Oct. 12 - 14	MODIS Science Team Meeting, Holiday Inn, College Park, MD
Oct. 15	Quarterly Technical Report for July-Sept. due to Barbara Conboy
Oct. 17 - 18	Oceans Productivity Working Group, Greenbelt Marriott Hotel

## **2.0 MINUTES OF THE MEETING**

### **2.1 MODIS Project Reports**

Weber announced that the Critical Design Review (CDR) for the MODIS dedicated thermal vacuum chamber at SBRC went well. The chamber is about 12 feet long and 8 feet in diameter.

SBRC is testing the electronic boards of the MODIS Engineering Model (EM) with an infrared camera to see if there are any hot spots. They found, while conducting the tests in ambient, that there are indeed some hot spots. These will be corrected on the protoflight model.

Weber announced that the EOS AM Project will discuss a second temperature point for the EM thermal vacuum test on Monday at the Project Status Review (PSR). Weber said he will be on annual leave at that time and asked Barnes and Guenther if they could attend.

Weber noted that the MODIS beryllium structure is now being painted by SBRC. It is the largest beryllium structure ever produced for GSFC.

### **2.2 Direct Broadcast**

Barnes reported that, according to Ron Muller (Code 170), there will be no interference from the EOS AM-1 direct broadcast antenna/transmitter of MODIS, as long as MODIS meets current interface specifications.

Salomonson said recent discussions have focused on the requirement to obtain 95 percent of MODIS' data at GSFC over two orbits or better. He noted that another antenna was added to the plans for EOS AM-1 to enable direct downlink and x-band broadcast to take place simultaneously. Salomonson reminded the team that EOS PM-1 and all subsequent EOS satellites are not expected to include a TDRSS antenna. Instead, each satellite will contain an appropriately-sized solid-state recorder on board for storage of data until it can be transmitted to the ground at high-latitude (presumably) ground stations where will be relayed subsequently to the relevant ground-processing facilities. Salomonson asked Fleig if, given his experience with the NIMBUS satellite, if he would see what the experience was in that instance in retrieving data.

### **2.3 Spurious Illumination from ASTER of MODIS' Scan Mirror**

Guenther reported that Martin Marrietta suspects that there may be a direct glint path from the ASTER Thermal Infrared Radiometer (TIR) onto the MODIS scan mirror. Weber added that no one knows yet whether glint from ASTER will measurably affect MODIS' performance, but he has sent a memo to the EOS AM Project asking them to explore the possibility further.

#### 2.3.1 Spurious Light Effects

Guenther reported that MCST is still investigating the effects of spurious light in MODIS. They are still gathering information, but hope to have preliminary results in time for the October 1994 MODIS Science Team Meeting.

#### 2.3.2 MODIS Flight Operations

Guenther announced that MCST had a meeting last week to discuss MODIS flight operations. Guenther also spent time with Mike Roberto, Code 421, and as a result now has a more complete description of flight operations requirements to deliver to the ground station in September 1994. He will submit the requirements for review by the Team Leader. He asked Masuoka if SDST is interested in participating on the MODIS flight operations team.

#### 2.3.3 Calibration ATBD

Guenther told the team that the revised Calibration ATBD is being presented Tuesday, Aug. 30, from 8:30 a.m. to 5 p.m. in Building 22, room 365. Anyone interested may attend.

### **2.4 SDST Reports**

Fleig reported receiving e-mail from Paul Menzel stating that CERES wants data for every MODIS wavelength, for all times. Fleig said CERES wants

images of clouds with optical depths down to zero. In short, he said, they want situational, not operational, cloud flagging.

#### 2.4.1 Processing MAS Data

Fleig stated that there is a need to clarify whose responsibility it is to process data from the MODIS Airborne Simulator (MAS). Of course, SDST will process the data from campaigns conducted by MODIS Science Team members, but there is the potential for the processing task to become unwieldy if SDST is expected to process MAS data from other investigators not on the MODIS team.

#### 2.4.2 MODIS Validation Plans

Fleig recalled that the ATBD Panel Reviewers commented that there is currently a lack of a detailed validation plan for MODIS products. He mentioned that he prepared a draft validation plan several years ago for the CAL/VAL panel and that he will update it for consideration by the MODIS team. Fleig discussed UARS validation experiences with Skip Reber, who said he started preparing UARS' validation plans 4 years prior to launch. Skip noted that energy applied to this task increased substantially as launch approached. One concern is that there can be a substantial overhead penalty if the requirements and responsibility for documenting and reformatting validation data are not carefully thought out.

#### 2.4.3 Obtaining MISR Data to Derive the BRDF Product

Fleig said he talked to Alan Strahler regarding his need to receive MISR data from NASA Langley Research Center in order to derive his Bidirectional Reflectance Distribution Function (BRDF) product.

#### 2.4.4 Gridding and Interpolation Methods for Level 3 Products

Masuoka reported that SDST is preparing a survey of gridding and interpolation methods. They are reviewing MODIS ATBDs to produce a table of what team members have already proposed and will suggest one or more gridding schemes and software tools that meet the Team needs for Level 3 processing and interpolation as set forth in the ATBDs. The goal of the survey process and subsequent contact sessions with the Team will be to arrive at a common set of MODIS approaches to Level 3 gridding and interpolation that SDST can implement as a toolkit for the Science algorithm developers. Issues to be resolved in the survey include: a common origin for grids, picking spatial dimensions of a grid's cells so that they are multiples of other MODIS grids and either binning and interpolation methods for grid cells or how to best store all observations on a grid cell.

#### 2.4.5 Updates for the SPSO Database

Masuoka said he sent a memo to Steve Wharton, EOSDIS Project Scientist, on refining the SPSO (Science Processing Support Office) database. In his memo,

Masuoka asked about quality assurance, as well as how much data will be delivered, and where, as part of the Science Computing Facility (SCF).

Masuoka said he is also still working on Bruce Barkstrom's, CERES Team Leader, survey on the SCF for the PDR. Masuoka said he is trying to finalize plans for browse products, archival products, and the cost of different aspects of the system.

Masuoka reported that Chuck Wivell, of EROS Data Center, gave Robert Wolfe's Geolocation ATBD a positive review.

Masuoka noted that MODIS is the only EOS instrument considering using C++ for prelaunch software. Other instruments are considering using it post launch.

Masuoka stated that Matt Schwaller, EOSDIS Project, needs a list of ancillary data sets from the MODIS Science Team. Matt is responsible for negotiating agreements with non-NASA data providers to acquire the ancillary data sets needed for standard data production and he will be sending around an email requesting this information from the Team. Masuoka will send a request to the Team for information regarding their ancillary data set needs as soon as he determines the exact information that Matt requires.

Salomonson gave a general action item for someone to determine how, given the MODIS bowtie effect, MODIS images will be produced at launch. Ungar said he already has an idea how to produce images at launch.

## **2.5 MAST Reports**

Harrison reported that Skip Reber has finished reviewing suggested minor changes to the Team Member Statements of Work and will forward his comments to Salomonson and William Hatchl. These changes will bring the statements of work up to date with respect to the Team Leader Working Agreement for MODIS, which was signed in April.

Harrison announced that the plans are complete for holding the MODIS Science Team Meeting at the Holiday Inn in College Park, MD. Herring presented a strawman agenda for that meeting. MAST will distribute the agenda closer to the meeting time in October.

## **3.0 ACTION ITEMS**

1. *MODIS Team*: Determine how, given the MODIS bowtie effect, MODIS images will be produced at launch.

### **3.1 Action Items Carried Forward**

2. *Science Team*: Provide information to Salomonson regarding the significance of the timing error issue.
3. *Fleig and Ungar*: Interact with the group leaders prior to developing a MODIS data simulation plan for review at the next Science Team Meeting, due Sept. 16. [Revised date.]
4. *Masuoka*: Provide Gordon's Water Leaving Radiance software to ESDIS project as a test case for the utility of massively parallel processing. [This software will be delivered by Bob Evans in early September].

### **3.2 Closed Action Items**

1. *Barnes*: At Salomonson's request, explore the possibility of EMI effects on MODIS data as a result of direct continuous broadcast. [According to Ron Muller (Code 170), there will be no interference from the EOS AM-1 direct broadcast antenna/transmitter of MODIS, as long as MODIS meets current interface specifications.]
2. *Fleig & Herring*: Review the MODIS brochure and recommend changes/alternatives. [The text of the brochure is complete and has been reviewed, revised, and submitted to Charlotte Griner, EOS Project, for layout and design].

## **4.0 ATTACHMENTS**

**NOTE: All attachments referenced below are maintained in MODARCH and are available for distribution upon request. Please contact David Herring, MAST Technical Manager, at (301) 286-9515, Code 920, NASA/Goddard Space Flight Center, Greenbelt, MD 20771 if you desire copies of any attachments. Or, e-mail [herring@ltpsun.gsfc.nasa.gov](mailto:herring@ltpsun.gsfc.nasa.gov).**

1. MODIS Science Team Meeting Agenda, by David Herring

## **5.0 RECENT MODIS DOCUMENTS**

**Note: All recent MODIS documents are maintained in MODARCH. If you would like access to or information about MODARCH, please contact the MODARCH System Administrator, Michael Heney, at (301) 286-4044 or via e-mail at [mheney@ltpsun.gsfc.nasa.gov](mailto:mheney@ltpsun.gsfc.nasa.gov).**

1. Geolocation ATBD, by SDST. Distribution to the MODIS Science Team by Aug. 5, 1994.