

MODIS TECHNICAL TEAM MEETING

August 3, 1994

The MODIS Technical Team Meeting was chaired by Vince Salomonson. Present were Wayne Esaias, Locke Stuart, John Barker, Joann Harnden, Dick Weber, Harry Montgomery, Al Fleig, Bruce Guenther, Janine Harrison, Ed Masuoka, John Bauernschub, Dorothy Hall, and David Herring.

1.0 SCHEDULE OF EVENTS

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, GSFC
Oct. 12 - 14	MODIS Science Team Meeting, Holiday Inn, College Park, MD
Oct. 15	Quarterly Technical Report for July-Sept. due to Barbara Conboy

2.0 MINUTES OF THE MEETING

2.1 MODIS Project Reports

Weber announced that SBRC has placed the MODIS Engineering Model (EM) hardware in the thermal test chamber.

Regarding Al Fleig's report entitled, "MODIS Sensor Patterns and Multiresolution Pixel Registration" (see Attachment 3 from the July 28, 1994, MODIS Technical Team Minutes), Weber noted in the "Summary" section Fleig states, "It may be possible to make a change in some timing circuit to make the three sizes of nominal pixel line up, ..." Weber stated that according to SBRC, changing the timing circuit at this time would cost more than \$10 million. It was generally agreed that changing the timing circuit is a solution too costly to implement.

2.2 MODIS Day/Night Modes

At an earlier Technical Team Meeting, Barnes was given an action item to investigate the procedure for redesignation of channels for night data return. Subsequently, Barnes determined that MODIS channels can be redesignated for night data return. Today, Barnes reported that according to SBRC, MODIS cannot change its day mode which means that data are being collected from all 36 bands. Currently, night mode means that although all 36 bands are on, data are only being collected from 20 of them. Any change in the MODIS night mode will require modifications to the format engine writable control

store, a set of software stored in PROMs that is capable of being loaded via ground command. If new bands are added to the night mode, then the format headers must be modified. (See Attachment 1.)

Barker asked if the night mode can be modified after launch. Barnes responded affirmatively, stating that the EOS control center would have to modify the software and upload it to MODIS. Barker said it is important to be able to change the night mode if and when we need to.

Fleig asked if there is a provision in the Team Leader Agreement to employ someone at Goddard to reprogram the PROM. Barnes replied that he doesn't believe the Team Leader Agreement includes maintenance of the flight software.

Barnes concluded that it may be possible to add bands to the night mode, but it will be difficult and should not be changed often. He noted that it may also be possible to occasionally leave MODIS in the day mode for part of the night, which is much easier than changing the software. He also noted that it is still possible to redefine the night mode.

2.3 MCST Reports

Guenther reported that he met with Japanese scientists to discuss ADEOS and the prospect of calibration comparisons between that satellite's sensors—such as OCTS—and MODIS.

Guenther announced that he has established a Tiger Team on spurious effects—light scatter, ghosting, and crosstalk—on MODIS. MCST is planning a briefing on the subject, which will be attended by Gene Waluschka. Weber was also invited to attend. Guenther stated that there is some indication that SBRC's measurements of light scatter may be low by a factor of 10 to 25.

Guenther plans to complete MCST's ATBD revision prior to the Oct. 12 - 14 Science Team Meeting.

2.4 SDST Reports

Salomonson told attendees that he asked Masuoka to determine MODIS' burden on the EOSDIS system. Masuoka reported that he first examined the entire EOSDIS budget to determine the EOS data processing cost for all science data processing in the EOSDIS Core System (ECS). He found that about 13 percent of EOSDIS' budget is designated for processing and distribution (computers, disk drives, COTS software and maintenance of same) based on budget figures prior to latest cost scrub exercises. Masuoka then examined the processing and storage requirements of the MODIS products in order to be able to estimate what percentage of the COTS hardware and software budget is due to MODIS processing.

In terms of daily storage, MODIS accounts for 66 percent of the volume through AM-1 and 77 percent of the daily volume through PM-1 (based on the July 1994 SPSO database distributed by Dr. Wharton). If one considers computer processing MODIS accounts for 3 percent of the total MFLOPS at AM-1 launch and 4 percent of the total through PM-1. Most of the MFLOPS belonged to CERES which will use roughly 85 percent of the total processing capacity in MFLOPS up through PM-1.

Masuoka stated that the portion of the ESDIS budget used to support MODIS processing is between 1 percent and 10 percent depending on how one figures the relative balance between cpu and storage costs. By assuming an equal weight for the cpu and storage costs he estimated that MODIS accounted for roughly half of the COTS hardware/software costs or roughly 5.5 percent of the total ESDIS costs.

Masuoka announced that Robert Wolfe's Geolocation ATBD is complete and is being distributed to the Team.

Masuoka reported that the simulation data generation and scan cube tools are being tested and reviewed internally by SDST. These tools will be ready for distribution in about two weeks. SDST will work with the team members to integrate these tools once the second Beta software is delivered.

2.5 MAST Reports

Harrison reported that the budgeting exercise in response to Weber's memo has now been completed. She noted that Michael King, EOS Senior Project Scientist, was given a copy of everything given to Weber.

Harrison announced that Jorge Scientific has found a site for the rescheduled MODIS Science Team Meeting—the Holiday Inn in College Park, MD. She will update the Technical Team of any new developments in the meeting logistics. Herring announced that he is still exploring the availability of potential speakers for the upcoming MODIS Banquet. Team members with suggestions are encouraged to contact him at (301) 286-9515; or e-mail herring@ltpsun.gsfc.nasa.gov.

Herring announced that he has completed re-writing the text for the MODIS Brochure. The text has been reviewed by Harrison and Fleig and is currently being reviewed by the MODIS Team Leader and each Discipline Group Leader.

3.0 ACTION ITEMS

3.1 Action Items Carried Forward

1. *Science Team*: Provide information to Salomonson regarding the significance of the timing error issue.

2. *Barnes*: At Salomonson's request, explore the possibility of EMI effects on MODIS data as a result of direct continuous broadcast.
3. *Fleig & Herring*: Review the MODIS brochure and recommend changes/alternatives [Ongoing—the first draft is complete and being reviewed].
4. *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 July 4.
5. *Masuoka*: Provide Gordon's Water Leaving Radiance software to ESDIS project as a test case for the utility of massively parallel processing. [Beta software has been received from the Oceans Group.]

3.2 Completed Action Items

1. *Barnes*: Investigate the procedure for redesignation of channels for night data return (to Kaufman). [Barnes has determined that MODIS channels can be redesignated for night data return.]

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.

1. "MODIS: Changing Day/Night Bands", viewgraph by Bill Barnes

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.

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