

MODIS TECHNICAL TEAM MEETING

**Building 33, Room E125
March 22, 2000**

Vince Salomonson chaired the MODIS Technical Team Meeting. Present were Francesco Bordi, Barbara Conboy, Wayne Esaias, Al Fleig, Bruce Guenther, Dorothy Hall, Michael Hohner, Chris Justice, Steve Kempler, Michael King, Gene Legg (NOAA), Ed Masuoka, Harry Montgomery, Bob Murphy, Skip Reber, Mike Roberto, Locke Stuart, Eric Vermote, and Robert Wolfe. The minutes were taken by David Herring.

1.0 SCHEDULE OF EVENTS

EOS-IWG Tucson, AZ	April 11-13, 2000
CEOS WGISS/GOFC Meeting London, England	April 11-14, 2000
CEOS WGCV Moderate Resolution Land Products Validation Meeting Joint Research Centre, Ispra, Italy	May 22-25, 2000
AGU 2000 Spring Meeting Washington, DC	May 30-June 3, 2000
COSPAR 2000 Warsaw, Poland	July 16-23, 2000
COSPAR/IRS Joint Symposium Warsaw, Poland and St. Petersburg, Russia	July 21 and July 24, 2000
IGARSS 2000 Honolulu, HI	July 24-28, 2000
IRS-2000 St. Petersburg, Russia.	July 24-29, 2000
EOS/SPIE Symposium on Remote Sensing Barcelona, Spain	September 25-29, 2000
SPIE's Remote Sensing Japan 2000 Sendai, Japan	October 9-12, 2000
VENICE-2000 (Oceans from Space) Venice, Italy	October 9-13, 2000
PORSEC 2000	December 5-8, 2000

Goa, India

Aqua Launch

December 21, 2000

2.0 MINUTES OF THE MEETING

2.1 MODIS On-Orbit Maneuvers

Salomonson asked the Team if it still considers the MODIS calibration maneuvers “mandatory.” Murphy responded that without the maneuver MODIS would not be able to show that its performance is within spec. In particular, the Ocean Group will have problems measuring sea surface temperature to within a well-understood error margin. Without the maneuvers, Murphy is not certain the MODIS Team will ever be able to fully calibrate its data.

Murphy said there is some concern in the Terra Project Office regarding the timing of the maneuver. We certainly don’t want to experience any problems before the first press conference. However, Kevin Grady says the Flight Operations Team is prepared to do the maneuver.

Salomonson noted that, without the maneuver, it would take the CERES Team 2 years to fully calibrate their sensor. He asked if the MODIS Team can resolve its “unknowns” any other way without the maneuver. Guenther said that’s hard to answer. The question is how long would it take the Oceans Group to pull out the errors from its data. According to Guenther, Otis Brown says that these errors cannot be pulled out of the SST products.

Salomonson indicated that the discussion reconfirmed his previous opinion that the MODIS Team needs the on-orbit maneuvers. The Team cannot meet its calibration requirements without them. Esaias added that there is still evidence of residual response versus scan angle, and the only way to resolve that problem is via on-orbit maneuvers. Guenther is optimistic that if the maneuver is made on April 5, he can have that issue resolved before the EOS IWG (April 11-13).

Esaias reported that he attended a good Terra Project meeting on spacecraft inclination adjustments. The Flight Ops Team will do an inclination burn to get Terra to a 10:30 a.m. equatorial crossing earlier, and do a study of what it takes to keep it there over the life of the mission.

2.2 Terra First Press Conference

Salomonson said he is operating under the thesis that the MODIS Team should dump images into the Terra Review Repository (at <http://terra.nasa.gov/int-bin/pressrelease>), and from that the mission principal investigators will select the images for display in the press conference.

Masuoka said SDST and the discipline personnel are placing their “best” images on the newly-developed MODARCH Web site. He provided Michael Hohner the URL for the MODLAND Image Gallery and the Terra Outreach Team can also select images from there. He said the Goddard Science Visualization Studio

(SVS) visualizers probably want to work with Level 1B data. (Note: the SVS prefers to work with high-resolution TIFF images—as high resolution as the Team can provide. The images should be in equidistant cylindrical projection with latitude and longitude information provided.)

Justice said in addition to the TV materials released in the press conference, the MODIS Science Team plans to have a poster that it will make available at press release. He showed a conceptual layout of the poster. Stuart asked Ginger Butcher to design the poster and Hohner and Herring will work with her as needed.

Salomonson said that in the press conference, his first priority is showing the strengths of MODIS. In particular, he wants to emphasize MODIS' 250-m resolution capabilities, cirrus and other cloud property measurements, chlorophyll fluorescence, and fire. His second priority is getting images ready for the poster. His third priority is contributing materials to the Terra-wide “synergistic stories” in the press conference. There was some discussion on the logistics of the press conference.

2.3 MCST Reports

Harry Montgomery provided a list of missing MODIS SRCA data that he hopes the Goddard DAAC can provide (see Attachment 1). These are early data that were collected before “tweaking” began. Guenther added that these data are part of the onboard calibrator (OBC) requirements and, therefore, it doesn't matter which look up table the DAAC uses.

Guenther announced that MODIS will acquire the moon in its space view port on Friday. Two possible instrument configurations have been scoped for this acquisition—a single outage in Band 22, or no outages in Band 22. He said the best MCST could do under those constraints is to improve electronic cross talk by a factor of 2. Guenther hopes by this time next week he can bring a summary of this issue to the Science Team for resolution.

Salomonson asked for clarification. When we talk about the on-orbit maneuvers, we're talking about two in particular. Murphy said the first maneuver is “essential,” the second is “highly useful.”

Justice requested that MCST keep its Web site up to date. He said Science Team personnel are checking that site regularly now for information updates. Guenther acknowledged that MCST is 4 days behind in its updates and will correct this situation.

2.4 GDAAC Status Reports

Kempler reported that all MODIS PGE's are either in operation now or are undergoing integration and testing to prepare for operations. The latest PGE entered was PGE03. He said it will take about a week to get new software into the GDAAC system. This situation is getting better, he noted, and DAAC folks and MODAPS folks are dialoging on how to improve input efficiency further.

Kempler said MCST is now getting all the calibration data they need. The University of Miami is getting a flow of Ocean data. He said there have been some Distributed Computing Environment (DCE) problems and tape problems, such as reading stored data off tapes during reprocessing. Guenther asked if the GDAAC tests tapes for bad sectors before writing data to them? Kempler said he will find out the answer to that question. Guenther said MCST previously lost some data going to tape and learned not to archive on tapes it hasn't verified. Kempler said there is a backup to Level 0; there is not just one copy of the data.

Kempler reported that the GDAAC was about 100 hours behind on processing the MODIS data stream and now it is about 24 to 48 hours behind. He said ECS Drop 5A.04 of the processing system is now installed. It took about 6 hours to install, plus time to run tests. On average, the GDAAC is processing about 28 hours of data per 24-hour period. He noted that the operations team is getting good at detecting and resolving problems quickly. Esaias asked how much data remain unprocessed. Kempler said about 100 hours.

2.5 SDST Reports

Masuoka handed out an updated table on MODIS PGE status (see Attachment 2). He said SDST met with the Ocean Group to see what SDST could do to get Ocean's PGE's up and running through global products. He said SDST is now stymied on a spatial binning problem. Esaias said all MOCEAN products above Level 2 should be "red" on Masuoka's PGE chart.

Masuoka reported that the Atmosphere Group's products are in good shape.

Masuoka distributed an eye chart (Attachment 3) on production currently ongoing in the GDAAC, MODAPS, and EDOS. For MODIS, it appears that February 28, 29, and March 1 are the best days of data acquisition. Also, March 5 and 6 are good days. Masuoka thinks Lookup Table #2 is best for going forward from Day 73.

Salomonson asked Kempler if the gaps in available MODIS data will get filled in. Kempler responded that as the GDAAC adds more computing capacity, the gaps will get filled in. Kempler said that although the GDAAC can process 28 hours of data in 24 hours, backtracking to reprocess takes more time and slows efficiency.

King observed there are 15-minute gaps in the data. He asked when this problem would be fixed. Fleig said these gaps will not be fixed until mid-April. Salomonson said he is concerned that the system may stabilize but will not allow for reprocessing of data in a timely manner. Kempler reiterated that he believes the GDAAC will catch up.

Esaias added his concern that current assessments of system performance do not include getting data out of archive. Current metrics only address production and do not include input and output of data when the larger community begins requesting them. In addition, Masuoka said, the GDAAC is supposed to be running at 100 percent production at Level 1 and 50 percent production at Level

2 and higher. Because the SDST is not running all Level 2, it is processing Level 1 faster. SDST is sending all products to the PDR server. Then, EROS Data Center is ingesting these data into its product archives on its hidden server.

Justice said there was good news presented at the March 16-17 SWAMP Meeting: distribution of data from the GDAAC will not impact production.

2.6 Snow and Ice Product Update

Hall said her team's next near-term goal is to produce a 500-m scene of James Bay, Canada, for the snow and sea ice algorithm. She talked to Herring about producing an 8-day composite of North American snow and ice extent that he can use along with other products in the first press conference.

Justice said he received a copy of a letter from the NSIDC DAAC to Martha Maiden, at NASA HQ, inquiring about MODIS' polar grid.

2.7 MODLAND Reports

Justice announced that the LDOPE is pushing the MODLAND Group to do quality assurance and validation on their products. Zhengming Wan is currently at Mono Lake doing validation.

2.8 Ocean Group Reports

Esaias said Dennis Clark is planning a validation cruise April 9–15 off Lanai, Hawaii. The NASA ER-2 will be flying there with AVIRIS and MAS onboard. The SIMBIOS project will be looking at coral reefs and MAS looking at volcanoes. Esaias is very concerned that there currently seems to be a “black hole” over Hawaii, as the Ocean Group is only getting 50 percent of the data for that scene.

Esaias said he thinks the MODAPS tiger team “will bear fruit,” but a lot of work still needs to be done. He does not know how big a problem the team faces; it might just be a couple of lines of code that need to be tweaked.

He said the flow of subset data from the GDAAC to Miami is good and the Lookup Tables are transmitting okay. The Ocean Group is making good progress.

2.9 On Data Processing and the Press Conference

Reber said there are two components to the concern about falling behind on data processing: (1) the learning curve, and (2) adequate computing resources. He suggested that the more resources the MODIS Team gives in preparing for the press conference, the better. The idea is to “make Terra look so good that they can't afford not to provide more support for data processing.”

2.10 Geolocation

Fleig said that in terms of basic geolocation accuracy, the MODIS pixels are currently located within about 2 km. SDST made a first guess at how to better geolocate and tests on just one scene seem to have already reduced the error some. He plans to input the first change to the geolocation code next week and have this in the production system in early April. He hopes this update will

bring the error down to the order of 0.5 km.

Fleig acknowledged that a geolocation problem is causing some gaps in the data, but it is basically running correctly when the input data are to specification.

2.11 Next MODIS Science Team Meeting

Conboy said holding the next MODIS Science Team Meeting during the week of June 5 is best for most Science Team members. But Michael King is on annual leave that week. The first week in May is a pretty good alternative, but there are really no dates that work for all Team members. The objective of the meeting is to exchange information among Science Team members regarding QA and validation on their data products. The meeting will also be a good opportunity to begin planning for the Terra Early Science Results meeting. Current thinking is that each Team member will give a 5-10 minute show and tell on his or her product(s).

3.0 ACTION ITEMS

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

Status: This action item remains open.