

MODIS Team Meeting Minutes

Minutes of the MODIS Team Meeting held on Tuesday July 5, 1994.

Action Items:

75. Determine if the four electronic module boxes can be individually thermal tested in air, or must the thermal testing be done in a vacuum. Assigned to Silva 10/26/93. Due 11/9/93 CLOSED 7/11/94
88. Obtain drawings from SBRC for CDR Actions 65 & 68. Assigned to Ken Anderson 5/19/94. Due 6/15/94
89. Investigate the availability and adaptability of surplus metal shipping containers for MODIS. Assigned to Bauernschub 6/20/94. Due 8/2/94.
90. Clarify what is required of SBRC to allow GSFC qualification of flight detectors. Assigned to Silva 6/30/94. Due 8/2/94
91. Clarify the round-robin BRDF measurement requirements. Assigned to Guenther. Due 8/16/94

The following items were distributed:

- 1) Weekly Status Report #145
- 2) SBRC Memos submission from week #137
- 3) Minutes of the previous team meeting

Attendees:

✓ Richard Weber	✓ Bruce Guenther	✓ Larissa Graziani
✓ John Bauernschub	✓ George Daelemans	✓ Bob Martineau
✓ Rosemary Vail	John Barker	✓ Bob Silva
Lisa Shears	Patricia Weir	Robert Kiwak
✓ Mike Roberto	✓ Mitch Davis	Harvey Safren
✓ Nelson Ferragut	Jack Ellis	✓ Ed Knight
✓ Gene Waluschka	✓ Ken Anderson	✓ Harry Montgomery
✓ Bill Barnes	Rick Sabatino	Marvin Maxwell
✓ Les Thompson	✓ Cherie Congedo	✓ Bill Mocarsky
		Rick Mills

MODIS Team Technical Weekly July 8, 1994

General

Travel orders need to be submitted now for the next QMR. The QMR for the last quarter of FY-94 will be held at SBRC on September 13 and 14. GSFC is considering a format which would include a few hours of presentation on September 13 followed by interaction with our counterparts at SBRC in the afternoon and following morning. There would then be an action item/wrap-up during the afternoon of September 14.

Topics in your area which you would like covered during this time period should be submitted to Ken Anderson by July 22.

A Martin Marietta Interface Meeting is scheduled for September 15 at SBRC. The focus of the meeting will be Spacecraft Interface Simulator testing.

Quarterly Management Review

The QMR was held on Thursday, June 30, as a video teleconference from SBRC. SBRC provided an excellent top level technical presentation of the status of MODIS. GSFC was represented at SBRC by Ken Anderson, David Jones, Ed Knight, Bob Martineau, Les Thompson, Tim Zukowski, Harry Montgomery, and Mike Roberto. There were splinter sessions on detectors, scattered light, and the MODIS Ground Based Calibrator (MGBC). Comments from the technical team members are being compiled.

Based on inputs from our GSFC technical team, I believe the largest concern at this time is in the area of the focal plane assemblies for the photo voltaic (PV) short/midwave infrared (S/MWIR) detectors and the photo conductive (PC) long wave infrared (LWIR) detectors. These concerns also rated in the top five of the concerns listed by SBRC at the time of the QMR. The problem is the small number of detectors that are potentially available for the protoflight instrument. The solution is to start new lot for each of these detectors now.

Focal Plane Assembly Integration

SBRC is making good progress integrating the focal plane assemblies (FPAs). A few GSFC personnel at SBRC during the June QMR were provided with a tour of focal plane integration in the class 10,000 high bay clean room where this work is being done. The visible (VIS) and near infrared (NIR) FPAs have been aligned to their objective assemblies on the aft optics platform (AOP). The radiant cooler has been mounted to the AOP. The brassboard analog electronics module (BAEM) has been integrated with the NIR and VIS FPAs and the IBM personal computer data acquisition system. The system collects focal plane data and stores the data for future analysis. FPA functionality has been checked out using the electronic calibration mode. Operating ranges have established for the integration and alignment collimator (IAC).

Details of the focal plane assembly integration and other topics are included in Tom Pagano's Systems Monthly, dated July 5.

MODIS Ground Based Calibrator

Discussions on the MGBC were held on the afternoon of June 29 with several GSFC and SBRC personnel in attendance. The issues came down to the IAC being able to perform most of the functions of the MGBC with the following complications. The IAC has a central obstruction which will move as a function of scan angle and it is used in ambient rather than thermal vacuum. It is not believed that either of these drawbacks is sufficient to rule out deleting the MGBC. SBRC would obtain data with the scan mirror fixed for two or three scan angles. Additional data would be obtained with the scan mirror rotating. One source of information for the meeting was Jim Young's memo on evaluation areas of testing with MGBC versus the IAC, dated May 23, 1994. Jim concluded that from a technical viewpoint his previous opposition to deletion of the MGBC was largely muted. Jim recommended that the effects of the IAC central obstruction with respect to the MODIS entrance aperture be modeled.

Testing may take longer using the IAC instead of the MGBC. However, during engineering model development, the IAC will be well characterized and its use will be optimized. The MGBC would require characterization and a learning curve would be needed in using it most efficiently.

Optics

MODIS science personnel discussed scattered light with Jim Young the day before the QMR. The general conclusion is that scattered light will be much larger than ghosting or detector crosstalk, perhaps an order of magnitude. Much of the scatter is from the scan mirror. Since the scan mirror surface smoothness is state of the art, the scan mirror scatter has been minimized. The quantifying and impact of scattered light is under review at GSFC. There is general agreement with Jim's work which used BRDF measurements of the scan mirror as input. It is likely that scattered light will affect how close to a cloud MODIS will be able to obtain calibrated data.

Detectors

Bob Martineau reported that the hybrid reliability, based on many temperature cycles, is looking good. There is likely a shortage of PV S/MWIR detectors and PC LWIR detectors for making PFM FPAs.

Quality Assurance

Bob Silva has expressed concerns about flight qualification of the MODIS detectors. Les Thompson and Bob Martineau are working on a verification matrix which would lead to flight qualification.

There is a concern that the parts stress analysis work is using nominal rather than predicted temperatures for calculating stress values. Based on SBRC thermal analysis, some of the parts will operate above nominal values. Bob is following up on this with counterparts at SBRC.

Thermal

George Daelemans is looking into the cost of fabrication of thermal blankets for MODIS by GSFC. At this time, I believe the best approach is to fabricate one set of blankets made to flight quality. The total cost of one set including labor, materials, and travel is expected to be less than \$48K.

Science

Ed Knight is checking MODIS system response based on band 9 filter transmission data. SBRC may request a waiver on this band. The edge response is a little wide and may be affected by Fraunhofer absorption lines.

Jim Young is looking into whether or not more than one slit is needed for the scatter spectral measurement assembly (SSMA).

Mike Roberto

July 8, 1994