CALIBRATION WORKING GROUP

REPORT AND ACTION ITEMS

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MODIS Science Team Meeting
14 October 1994

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MODIS Calibration Discipline Group Agenda

MODIS Science Team
(11) 12-14 October 1994
Holiday Inn
College Park, MD

11 October 1994 Agenda

[redacted]

8:30 am	Welcome and Introduction	P. Slater
8:45 am	MODIS Sensor Status Briefing	T. Pagano and J. Young
9:45 am	*Break*	
10:00 am	MCST Status Briefing	B. Guenther
	Status of Calibration Peer and ATBD Reviews	
	Beta-2 Algorithm Delivery	G. Kvaaren
	Spacecraft Maneuvers Requirements Review	
	AM-1 Operations Briefing	E. Knight
	Solar Diffuser Door Failsafe Discussion	
11:30 am	*Lunch Break*	
1:00 pm	**ATBD Briefing**	H. Montgomery and P. Abel

5:30 pm Adjourn

13 October 1994

8:30 am	Unfinished Business from 11 October Meeting	
	Action Item Review	R. Weber
	GOES-8 lessons learned	J. Bremer
	~~Validation Plans~~	~~A. Fleig~~
	Reference Solar Spectrum	A. Mecherikunnel

Further discussion of stray light — Jim + Tom

ATBD REVIEW

ATBD for MODIS Level 1B product presentation - Montgomery, Abel, Menzel, Knowles, Anuta, and Che.

Improved over earlier presentations - suggestions and comments from Slater and Biggar were given to Guenther on October 12. The ATBD presentation still needs further work in the subjects of inclusion of vicarious calibration in the "calibration architecture," error budgets and validation.

COMMENTS AND CONCERNS

Engineering Model test plan and schedule - Jim Young

1) Far-field stray light (>3-4 degrees off axis) not to be tested on the EM.

2) We feel that two temperature plateau levels presented are insufficient for EM T/V testing, specifically for adequate characterization and calibration of the thermal channel detectors and optical system. We (Menzel, Biggar, and I) think that an absolute minimum of five temperature plateau levels should be used for both EM and all flight models (along with multiple - 10 or more - BCS temperatures).

3) We are unsure of the effect, on calibration accuracy, of the new temperature maximum of approximately 350 K for the BCS (to prevent crazing of the "black" anodized coating which happens between 350 and 380 K).

4) We are still concerned about the stray light modeling for MODIS and the calibration and characterization equipment. More than one model should be used to check this important quantity.

GOES 8 thermal space look offsets - Jim Bremer

5) The space offset measurement done at both ends of the earth scan in the longer thermal channels of GOES 8 (both sounder and imager) differ. This offset is caused by the scan angle dependence of the p-polarization reflection from a silicon mono/dioxide coating over a silver coating over a nickel overcoat on beryllium (very similar to the MODIS scan mirror). The GOES mirror is used over a smaller range of incidence angles (40 to 50 degrees) so the problem will probably be more severe with MODIS. The GOES data can show a greater than 1 degree "cliff" in temperature fields if this offset is not correctly accounted for. Menzel has concerns about a similar effect in that the offset measured through the space port may be different than the offset that would be measured through the nadir view port if the nadir port were pointed to space.

PAST AND NEW ACTION ITEMS

1. BCS emissivity question - Still open.

Dick Weber: Request SBRC to collect all information on the stray light and BCS question. GSFC will put together their information by November 22, 1994 and forward to Slater/Biggar.

2. Polish level of the SSMA primary mirror - Still open.

The mirror finish is 7 angstroms RMS, but there is still a question about stray light introduced by the filter.

Dick Weber: Request SBRC to look into this. Response by 11/15/94.

3. How will SBRC verify and maintain the wavelength integrity of the SSMA - Closed. The SSMA wavelength will be verified with a monochromator and emission lines.

4. Effect of earthshine on the on-board BB (specifically cold scenes) - Still open.

SBRC needs to modify the MSAP program to adequately answer this question.

Dick Weber: Related to the above, SBRC/MCST to determine if the problem, caused by specular reflection off the edge of the scan mirror while MODIS views the BB, has been solved.

5. Will SBRC measure BB actual pieces or witness samples and how are they measured? they measured?

Still open. SBRC will attempt to measure the reflectance of the actual on-board BB. The BCS will not be measured (only the BRDF of samples will be measured). New: effect of 350° maximum temperature on accuracy.

6. Will the integrating sphere have sufficient output to measure the stray light? - still open. The output is sufficient however the methodology of combining the measurements still needs study. This brought out a side issue of how to measure the MODIS linearity (VIS-SWIR). This is to be studied over the next three weeks.

7. Formal time-line for TV testing - Closed. On October 11, SBRC presented a new longer time-line for EM testing which allows two temperature plateaus.

8. What is the effect of scan angle on stray light.
Closed. SBRC plans to measure the scan mirror temperature and to measure stray light with the SIS at various positions.

9. Is SBRC planning to measure the transmittance of the solar diffuser screen? Still open. SBRC and MCST will investigate the optimal design. The possibility of measuring the transmittance of a screen, constructed to SBRC's specifications, will be studied at the University of Arizona. If practical, the measurement will be attempted using the same technique as employed for the SeaWiFS calibration.

10. What is the magnitude of the effect on radiometric error when the sunlight hits the internal side of the sunshade?

Still open. This will be investigated during the stray light modeling effort.

11. The detector for monitoring the spectral output of the SRCA would also be very useful for tracking the preflight to the in-flight calibration. Because of saturation problems this may not be possible. However some channels may work, even a very few channels would provide very worthwhile checks.

Dick Weber: Request SBRC to investigate this possibility. Response 11/14/94.

12. What is the wavelength stepping strategy for the SRCA?

Dick Weber: Request reply from SBRC. Response date 11/14/94.