

July 31, 2002

## MODIS sensor Working Group (MsWG) Summary

**Attendance:** Bill Barnes, Bob Barnes, Vincent Chiang, Roger Drake, Wayne Esaias, Bob Evans, Gene Feldman, Shaida Johnston, Gerhard Meister, Vince Salomonson, Junqiang Sun, Jack Xiong, Eric Vermote, Zhengming Wan, Joe Esposito

---

### **Scheduled Items**

Note changes – WB: Bill Barnes, BB: Bob Barnes

#### **Item 1 Terra MODIS Status**

Formatter Issue

WB) Taxi errors, which indicate unfilled packets, occur only during the plateau of warm up cycle of BB calibration. The heaters possibly cause this at 100% duty cycle, turning on/off in order to maintain the plateau temperature. MCST recommends heating up all the way to 315°K then go into cool down phase.

This prevents cycling to maintain temperature at a plateau. SBRS is continuing to investigate the cause of the errors.

JX) No science errors caused by taxi errors.

RD) Engineering packets were dropped, no impact on science data.

JX) Taxi error have only occurred during recent BB warm-up/cool-down calibration.

#### **Item 2 Aqua MODIS Status**

S/C safe hold: 2002210 (20:23 GMT, Monday, July 29, 2002)

WB) The Earth sensor algorithms reported the S/C tipping over which forced a S/C safe hold. This caused Aqua/MODIS into safe hold (NAD closed). Patches are being written to prevent the occurrence of this error. Next week the patches will be uploaded and Aqua should be turned on Wednesday, August 7. It will take 2 days to establish onboard temperatures.

JX) A full set of instrument calibrations will be done upon re-establishing science mode (SD, BB, SRCA, etc.).

Pre-launch and on-orbit m1 ratio

JX) L1B Bands change for on-orbit coefficients when compared to pre-launch for the RSB (B7 change by ~ 10%). B26 changes by 20% that may be caused by the radiance used for the pre-launch calibration analysis.

WE) What causes the detector-detector shape of the m1 on-orbit to pre-launch ratio.

JX) The cause has two parts: a) A difference due to changes between the pre-launch and on-orbit, b) Initial gain differences between the detectors.

Aqua LUTs delivered

---

- JX) New LUTs have been delivered that are based upon 4 completed on-orbit SD calibrations. The first two are for times prior to the NADIR opening and are not used for science data. The remaining LUTs cover the period from the NADIR opening onward. Due to the safe hold, MCST may add 2 additional LUTs when turned back on. Non-linear coefficients are used for Bands 31 and 32 (non-zero  $a_0$ ,  $a_2$ ), no impact on all other TEB. L1B granules using on-orbit calibration have been made available to ZW. The new LUTs results will improve somewhat but not completely. Arizona has found a 10% difference between RRV and Aqua. They are working to understand this result.
- L1B code V4.1 for Aqua only contains the change for time dependent RVS. Since there is no science difference MCST recommends placing V4.1 into production after SDST completes testing.
- 

### ***Around the Table***

**Participant:** Wayne Esaias - Oceans needs to have a discussion on the NIR calibration. Currently Oceans takes NIR from Terra, but we now have Terra, Aqua, and SeaWifs. Need to discuss how the cross instrument calibration should be done.

- JX) Oceans, Bob Barnes (SeaWifs), and MCST should work together on a comparison study (Moon, Desert, etc.). Perform analysis using slowly varying terrains, such as the moon, which has no atmosphere. This effort may be a project unto itself.
- BB) Kurt Thome has looked at ETM+ and MODIS (the paper on the results is being written)
- WE) Vicariously calibrate Terra/Aqua (Howard Gordon is looking at the calibration of B15 and B16). Special attention should be paid to the 860nm region.
- WB) This should be discussed.

**Participant:** Bob Evans – Miami has the new L1B and LUTs. Our coefficients are moving in the correct direction. Given the gain difference per detector, is MCST using detector-detector for new tables rather than in pre-launch.

- JX) Ocean VIS bands have roughly a 1% gain variation. Band 11 should be used for comparison.
- BE) Applying  $a_0$  and  $a_2$  has led to an improvement.

**Participant:** Zhengming Wan – Have looked at the new B29 data and see a small improvement.