

5/14/03

## MODIS sensor Working Group (MsWG) Summary

**Attendance:** Bob Barnes, Stuart Biggar, Vincent Chiang, Roger Drake, Wayne Esaias, Bob Evans, Timothy Gubbels, Bruce Guenther, Gerhard Meister, Chris Moeller, Vince Salomonson, Junqiang Sun, Gary Toller, Jack Xiong, Eric Vermote, Zhengming Wan, Bill Bandeen, Jim Butler

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### **Scheduled Items**

#### **Agenda:**

#### **Item 1 Instrument Status**

##### **Terra SDS issue**

JX) An issue has appeared with the Solar Diffuser Screen. The charts I have distributed illustrate this issue. The IOT has found that the Solar Diffuser Screen did not open properly on during the last SD calibration.

BG) As I recall, a single motor controls both the screen and the door. So during a cycle, first the door opens, then the screen opens, then the screen closes followed by the door closing.

VS) Someone needs to corroborate Bruce's statement, possibly Roger Drake

JX and others) Discussion over the motor drive mechanism

BG) So, if the system is failing, the door should be left open, given that the screen will remain closed (a preferred configuration for ocean).

JB) I agree. You are trading contamination against calibration.

BE) If SD left open, how far will we still have good/useful SD calibration before SD degrades? What about the signal to noise?

WE) 400 count vs. 200 count.

JX) In this scenario, even if the SD degradation is profound, we still have data and we still can track SD degradation.

SB) That is right, we still have a pretty good idea how spectralon decays. We can look into MISR's experience. The major change will be in blue, minor changes at longer wavelengths.

#### **Item 2 L1B and LUTs Related Issues**

##### Terra 2003045 water leaving radiance jump

JX) Bob, have you looked at your recent nLw results?

BE) The 2003045 jump is getting normalized out.

JX) We could not find a difference on our L1A or L1B results either. Good.

##### Lunar SeaWiFS/Terra DSM

JX) The agreement is appearing. Now we are within 4%.

BE) We have a telecon meeting tomorrow with ASTER and MISR @2pm (Stuart will join the meeting also).

### **Aqua L1B V4.1.5**

JX) Aqua one year on-orbit operation (June 26). We have delivered L1B V4.1.5. The changes are: 1) SWIR OOB using B25; 2) B26 destriping; 3) Orbital altitude correction.

VS) We will not reprocess Aqua probably until November.

VS) If we looked at the exact same target on land from Terra and Aqua, would we see any difference?

EV) We do not notice change. It is within 2% on land.

VS) That is worth a paper. Really an achievement.

VS) What about TEB?

JX) We use AVHRR as transfer Terra to Aqua. Comparison B31, 32.

CM) I have ER2 compared to Terra and Aqua. May be published in SPIE or beyond.

VS) That's great.

BE) When would it be possible to get Aqua LUT based on individual m1's since launch.

JX) Right now we update monthly. MOD03 updated in March, which changed SD azimuth angle. We used SD zenith angle in the calculations. We saw a .5% discontinuity.

JX) It will take a couple of weeks until we resolve the MOD03 issue.

BG) Has anyone trended the minimum surface reflectance over time to see if it would mimic the minimum m1. Probably you need a reproducible condition over ocean with low chlorophyll and minimum atmosphere.

WE) There is an area in the Pacific, near Easter Island, that is suitable.

EV) There is a problem with cloud contamination.

WE) If we finish Terra Ocean reprocessing in October, we could start Aqua's in November.

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

VS) The MODIS model is in a new case in the Building 32 lobby, along with the Terra model. Also I turned in the Team Leader proposal.

WE) We received an excellent presentation by the Naval postgraduate school illustrating their usage of MODIS during the Iraq war. We saw dust products, cloud and ice, snow, low clouds, smoke plumes. After the 3rd slide we received an endorsement. They said that MODIS was critical to war operations. We should be proud. They do processing than put it on a secure intranet. The usage is mostly for aircraft operations. They also do some limited water work - done by a group at Stennis. About 85% of the briefs included MODIS. We saw several combinations of MODIS, interspersed with SeaWiFS.

WE) Moving on to the polarization study. There is very little mirror side differences in Aqua. Aqua is uniformly better. These are tied with the polarization.

JX) Terra MSD 5% Aqua 0%.

BE) MSD Terra is worse in 02 than 01. Lots of problems with Terra, little with Aqua. We can watch Terra diverge over time.

WE) The southern ocean winter shows 30% difference in water leaving radiances. That's the worst. The chlorophyll is not unduely affected. We need ocean reprocessing.

JX) AOI, time, mirror side differences cause lots of problems.

WE) We need a good raytrace model to see when we apply time-dependent differences.

JX) If Gene can help we could use it. Its tough to invert.

SB) Do you have adequate description of coating materials on Terra for your model?

JX) We have a lot of the optics information.

ZW) (Changing topics), I am interested in Mid-IR crosstalk.

GT) The next version of the Aqua code has been delivered v 4.1.5.

JX) That is up to the DAAAC. Eventually all of the LUT will be in the DAAC.

CM) I have looked at the corrected test granules, they look similar to the real. I will be in DC Wednesday afternoon to talk DSM RVS.

RD) I just got off the phone with Chad, talking about the mechanical aspects of the door/screen linkage.

We are trying to characterize the different failure modes. Was the door overdriven or the screen overdriven? We do not want to activate the SD door again until we believe we know what happened. The telemetry is all good. The motor currents matched exactly to the step counts. The motor worked correctly, but the screen did not open.

BG) Roger, what is the frequency of the readout of the telemetry voltage? If there was a problem with the screen we should see a difference in the motor current or temperature.

RD) We are looking at this.

JX) If we don't have another SD cal operation it will be upsetting to our operation.

RD) For now, we don't want to mess with the door.