**MODIS Technical Team Meeting**
**Thursday, October 18, 2001**
**Building 33, Room E125**
**3:00 pm**

Vince Salomonson chaired the meeting. Present were Wayne Esaias, Steve Kempler, Jack Xiong, Bruce Ramsay, Dorothy Hall, Barbara Conboy, Bob Evans, Sol Broder, Ed Masuoka, and Chris Justice, with Rebecca Lindsey taking the minutes.

## 1.0 Upcoming Events

MODIS Science Team Meeting December 17-19th, 2001
BWI Marriott

## 2.0 Meeting Minutes

2.1 Instrument Update
Reviewing the previous week's report on Aqua MODIS, Salomonson said they are still trying to figure out the formatter problems seen during thermal vacuum tests. They maybe able to fix the boards, but since the problem has never been evidenced at component (board) level, only the system level, fixing the component may not solve problem. So it is a complicated issue. Evans asked if it happened on A-side and B-side. Xiong said that is a good question, but he will have to check. Xiong added that MCST has conducted a test on SWIR cross-talk using B-side electronics, and they are still looking at that data.

Salomonson reported that he went to MSRs for Aqua, Terra and ESDIS. Phil Sablehaus was candid with respect to the formatter problem issue.

2.2 Data Processing Update
Kempler reported that he had sent an email draft of revisions of the product disclaimers. Salomonson said that we are advertising Collection 3 data availability, we should think about our disclaimers, which may have to be specific for each "epoch" of data. Salomonson suggested the disciplines and MCST look at those disclaimers and refine them based on the better quality of Collection 3.

Kempler went on to say that as far as sub-sampling, requirements have been finalized, and they will support both HDF and binary, which will include no info on data, no headers, which should be easier for many users, but will be cumbersome in a different way, because of the large file size.

Kempler reported that the DAAC released 24 new ocean parameters today. They DAAC is moving along on with processing, and they are approaching the end of December. He wanted to know what day in July they should begin with. The team said they should start with July 2. Xiong reminded the group that the blackbody didn't come on until July 3. So there would be no SST data on the 2nd.

Kempler then said reprocessing is maintaining a good rate (although it slipped a little due to the power outage over the weekend). They will need slightly over 2x to make

the December 21st deadline. They are showing total performances over 2.5x for five days (except for the power outage). Forward processing is going well. They were asked to stop sending that data to MODAPS because of many remaining open days.

Masuoka reported that on mtvs1, there are 8 days that are partially done, for the week of 272-280. The week ending 272 ends a 16-day period, so it is important to close the three open days--268, 269, 271--so they can clear off their disks. These open days are causing some disk management issues. So MODAPS asked DAAC to stop sending forward stream data until some of the holes were filled in, which is an EDOS issue. Kempler indicated that he would do what he could to convey to EDOS the importance of getting those days filled. Broder reported that it is expected that EDOS-produced data for the next processing will provide full days. The gaps will not be determined until after the GDAAC runs Level 1 production.

On reprocessing, Esaias mentioned that they would be requesting a code change for primary productivity to correct an error in PAR of about 2x that they detected in the product once they were able to review some of the Collection 3 products. The error was introduced with a previous delivery. Esaias has asked MODAPS to hold production of the product until Oceans can get that change in. Esaias would like to have the consistent three months reprocessed. It should be minimal impact on processing, and they have asked Masuoka to consider reprocessing it, if it doesn't impact other milestones the team is shooting for. Esaias felt the change was a type I change according to the previous scheme. Justice said that if the change necessitated reprocessing then it was a Type III. Hall commented that they too, would have liked to request that data be reprocessed to include their expected code delivery. They had not done so because they didn't think that was permitted in the code change policy the team had agreed on.

Salomonson said that information should definitely be included in the disclaimers, and that after Oceans has done their fact-finding, Esaias should send him an email and he will decide how to proceed. Masuoka said that since we have halted production, October forward would be consistent and correct. If we go back and do March-June, we will have to coordinate with DAAC.

Justice said that all the issues raise the question of what the schedule is for the next major reprocessing. Salomonson said it doesn't exist yet. Justice suggested we should try to formulate that.

Masuoka reported that five days of Atmosphere products would have to be reproduced because of issues with bounding coordinates on L2G granules. They caught the problem for land, but didn't notice problem in Atmosphere products. However, it does affect them. We will have to run Atmosphere L3 to correct them. Esaias said he didn't understand the difference between this and the primary productivity problem. Salomonson said the distinction is that it was a procedural problem, not an algorithm problem.

Masuoka also asked about the issue of mission critical vs. essential. ESDIS is asking him. The short answer is that we need 1x forward for Aqua, 1x forward for Terra, and 2x reprocessing for Terra. Masuoka said he thinks they want to know whether if they are in a pinch for resources, borrowing from Terra, could they do that. Salomonson said it would depend on how long they would be borrowing from the Terra resources. He indicated that there is some flexibility in the Terra reprocessing stream to handle emergencies, but we wouldn't want to offer any specific compromises. Esaias asked what the launch date is. March 24 is still the official date.

Masuoka commented that the recent issue of the Earth Observer newsletter said that ASTER has announced that they have L1 data validated. He wondered what MODIS team's thoughts were on when the L1b would be validated. Salomonson said we would need to work on that. Salomonson asked Masuoka to ask Robert Wolfe if MOD03 is considered validated, because he thought it was.

Masuoka said that Wolfe would be addressing the SWGD on the MODIS requirements.

2.3 Cryosphere
Hall announced that the poster Salomonson requested is ready for the October 31 meeting and the IWG. She says they can mail it ahead to the IWG.

2.4 Oceans Update
Esaias reported that working with the DAAC, they have developed a new ordering interface for Oceans products. You can get a lot of products with fewer "clicks." Salomonson asked Kempler to help him summarize what the DAAC has done to facilitate ordering of data by users, and he plans to also point out what the science team has also done to achieve user friendliness.

Oceans delivered new code that is in production (an approved change). Results look good. Esaias reported that they have found an anomaly in the water leaving radiances. It is a big trend—about 50% of the signal, which is small to begin with. It would correspond to 1.5% top of the atmosphere bias. As a result, chlorophyll isn't showing main seasonal signal. They have a telecon tomorrow (October 19) with MCST, and they think they are on their way to identifying problem.

Evans commented that the corrections should result in a consistent A-side/B-side profile. The changes will be a one-line change in ocean color and SST programs, PGEs 9 and 10, and a set of table changes. Ocean color and SST will have to be redone to be of acceptable quality. Evans said they are looking at A-side as well to see if there is a time dependent trend.

Salomonson said we might want to collect a bunch of things we want to fix, rather than put in fixes each time we find them. Esaias said they need to decide how big a change it will be. They would certainly want it for forward processing. He doesn't think the data will be scientifically useful for in situ validation, etc, until this is fixed.

Hall said that many people have those things they would like to fix, but have been willing to wait for reprocessing.

Justice said we have three kinds of issues: bugs that don't change science; bugs that change science that are deemed essential, but do not necessitate reprocessing; bugs that change science that do require reprocessing.

Evans asked if they could send revised code as soon as tomorrow, would that be helpful? That way if they determined that we don't have to deal with an A-side time trend, and have calibration in hand in the next two weeks, we would be in a position to put our new code and tables into production when MODAPS started processing July. Masuoka said yes.

Salomonson said that it is good news that the discontinuity caused by the instrument configuration change may go away with the new correction. Evans said he hopes so. Evans said they will be making a lot of data products over in the analysis, and wondered whether those products could replace some of the bad ones in the DAAC. Miami could send them to MODAPS, and MODAPS could send them on to DAAC as part of the regular mechanism for pushing data to the DAAC. Masuoka will look into it.

2.5 General Discussion
Justice said people should be sending material to Salomonson for the IWG. Salomonson hopes to come next week with a draft of the presentation to get the team's reaction.

Salomonson said that with respect to the science team meeting, he encourages the team to think about the upcoming data products review that will be held at headquarters on January 7-8, 2002, when they prepare their presentations. He also thinks the team will need to talk about the schedule for what products will be validated and when. And also he was thinking of inviting NASA PAO and outreach folks. Preliminary results from the data processing review team may be available at that time.

Evans asked about getting funding out to team members. Salomonson said we still have to pay attention to the 533s. We have gotten funding to cover PI contracts through November. We expect another extension after that, and we will have to decide how to disburse that.

Salomonson asked Esaias to discuss the issue of equator crossing times. The FOT recommendation is that we fix it at 10:30. The second choice is go to 10:19 to get less sun glint, and also be closer to the crossing time of Landsat. This option would require crossing SEC-C orbit twice, and would require 7 burns, closing the doors each time. Esaias's opinion is the added benefit of ten minutes is not worth the potential risks.

Esaias explained how the maneuvers required for the second option are much more intense than the deep space maneuver; the deep space maneuver requires only a pitch maneuver. The FOT proposed maneuver requires yaw as well as pitch, and requires them

to burn the big thrusters. Esaias indicated that the deep space maneuver would be discussed at IWG.

Salomonson announced a MODIS Data Processing Review Team (MDPRT) will be meeting will be December 11-13th. The Committee includes Moshe Pniel (JPL--Chairperson), Gene Feldman (GSFC), Erich Stocker (GSFC), Tom Kalvelage (USGS/EDC DAAC Manager), Graham Bothwell,(JPL), and Compton J. (Jim) Tucker (GSFC ). The intent and purpose of the review is to examine all aspects of MODIS data processing to see if MODIS products can be provided to the community in a more efficient, effective, consistent, and reliable fashion.

The MDPRT will focus primarily on the processing on the GSFC DAAC and MODAPS, but will look at all other components of this process. The MDPRT will be supported and complemented by a MODIS Data Processing Tiger Team chaired by Dr. William Ridgeway of SSAI at GSFC. The Tiger Team is composed of individuals presently and deeply engaged in MODIS processing. Their purpose will be to examine all aspects of the processing to describe the present processing procedures, equipment, performance, etc., and examine from their highly familiar point of view what efficiencies, procedures, etc., might be accomplished to improve the production of MODIS products. This team's information and findings will be provided to the MDPRT for their review and for background. The Tiger Team is meeting now and will complete their effort in time to provide it to the MDPRT well in advance of the meeting December 11-13.

Masuoka said they ran some tests on the Linux processors, and it takes 16 hours to do a day through L2G dailies. That is 70% of the processing load on mtvs2. They think they will get it down to 12 hours, which would bring MODPAS up to about 3.5 x. Esaias reported that the results have been compared and approved. He reported that Al Fleig is pursuing processing the data from Aqua spacecraft testing.

Masuoka reported that he announced the expected 20% cut. This will hit testing pretty hard. In addition he will no longer be able to support Rapid Response, since it is up and going. Xiong reported that they have announced a potential upcoming cut for the MCST task as well.

2.6 NOAA/NESDIS Update
Ramsay reported that NOAA/NESDIS anticipated the installation of the new NASA-funded processing system no later than December 2001. The giga-bit per second communication upgrade should be implemented by May 2002. Consequently, NOAA-NASA may have a fully functional near real-time global MODIS data processing system by late spring or early summer. He also reported that they have been discussing with Justice the potential role for NOAA in the MODIS Land Rapid Response System and they'll continue the pursuit of options for NOAA and NASA management to consider.

## 3.0 Action Items

3.1 Discipline leads to meet to resolve the issue of beta-quality code and science-quality code, and what we need to say about it.

Status: Open.
3.2 Technical Team to discuss further the issue of predicted ephemeris data and how to improve it.
Status: Open.