MODIS Technical Team Meeting
Thursday, July 17, 2003
GSFC Building 33, Room E125

Vince Salomonson chaired the meeting. In attendance were Gary Alcott, Ed Masuoka, Chris Justice, Bob Barnes, Bill Barnes, Robert Wolfe, Wayne Esaias, Michael King, Bruce Guenther, and Dorothy Hall, with Yolanda Harvey taking the minutes.

1.0 Upcoming Meetings

- IGARSS 2003, July 21-25, 2003, Toulouse, France (abstracts deadline past) http://www.igarss03.com/
- 10th International Symposium on Remote Sensing by The International Society for Optical Engineering (SPIE). September 8-12, 2003, Barcelona, Spain (abstracts deadline past) http://www.spie.org/info/rs
- 2003 AGU Fall Meeting. September 8-12, 2003, San Francisco, California (USA). Abstracts deadlines August 23 (postal or express mail), September 4 (electronic submission). http://www.agu.org/meetings/fm03/
- MODIS Science Team Meeting, September 30-October 2, 2003, Baltimore-Washington International Airport (BWI) Marriott

2.0 Meeting Minutes

2.1 General Discussion

Salomonson reported that he has received some good suggestions for the content and approach to the upcoming Science Team meeting. As quick as those plans get more definite he will be letting the Science Team know more specifics.

Bob Barnes reported that Chuck McClain and Gene Feldman talked with Salomonson about the SeaWiFS/MODIS chlorophyll product issue. He said that Gene has since sent out statistics from a comparison of SeaWiFS' chlorophyll product to MODIS'. If there is still to be a meeting to discuss the issue/products, it will have to wait for a few weeks because of scheduling conflicts. Salomonson said that he was positively impressed by the discussion, and observed that good things are happening. The SeaWiFS Processing System (SPS) is apparently able to get SeaWiFS-like quality out of MODIS data, which portents good for the future. Bob said that SeaWiFS is making a chlorophyll product similar to one that MODIS makes (a global 1km data product of good quality), and it is rapidly being processed. He said that the two parties ought to sit down and talk about where we are on the issue. Justice suggested that they also talk about where they're going, since this could be an opportunity to get support from the public and avoid product duplication. Bob said that SeaWiFS is doing this to prepare for the NPOESS VIIRS. Justice said that it's good to look at efficiency as well.

2.2 Instrument Status

Xiong reported that both instruments are working fine.

2.2.1 Terra MODIS

Salomonson asked about the Terra Deep Space Maneuver (DSM) results, and Xiong replied that MCST has pretty much completed the science testing and comparisons of rvs

data. The next DSM will be in November. Salomonson noted that there is some question about when to do the next DSM, and Xiong replied that there is, and that the issue was raised at the last review meeting, but the final decision has not been made yet. Salomonson suggested that a summary of results be put together, and Xiong said that he would do so. Salomonson said that we should start thinking about an Aqua DSM, and Xiong agreed. He reported that Tom Pagano was here this morning (July 17, 2003), and he is supporting the lunar calibration for Aqua's monthly maneuver. He will email details about this to Salomonson and Harvey.

Salomonson asked what was being done to help better understand some of the recent issues involving the Terra MODIS instrument's calibration, and Xiong replied that MCST is working out the causes of the SD door problem. For Land, MCST is working out how to resolve their issues from having the screen down, and a strategy has been approved by Vermote. Right now MCST is analyzing data, and he will send a summary to Salomonson.

2.2.2 Aqua MODIS
No specific update given.

2.3 DAAC

Alcott reported that the DAAC was having a good week until a day or so ago, when some distribution problems cropped up; data is now going out quite slowly. The root of the problem is in dealing with large orders (but has naught to do with the MOPITT order). Masuoka asked if this shows that our products are popular, and Alcott said yes. The problem has to do with how the system deals with these orders, and has some to do with migration. They wrote a lot of trouble tickets on breaking up large orders (which can cause backups if any part of the order fails). The root cause has been cleared up, but they are still dealing with side effects.

There is also an issue with Landover changing from one DVD writer to another – the new one is having problems being integrated and the old one doesn't work, so the DVD ordering option has been turned off until the issue gets worked out. Salomonson asked if there are a lot of DVD orders, and Alcott said yes, a lot of users use DVD in place of 8mm. Justice asked if users are reordering portions of data on DVD that they already have in other media formats, and Alcott said that he hasn't seen evidence of that. There are a small number of large orders from new users ordering large portions of MODIS data. Masuoka asked if the DAAC is considering having users who receive the MODIS data on tape copy it to their own disks and then ship the tapes back to the DAAC, which could then ship it to the next user or ask the end user to act as a distribution sites for that data sets to offload the DAAC. Alcott said that the products they are looking at are large products, so there is a problem there with their sheer volume. For instance, cloud mask is a13 gig/day product, which for a full year of data from both instruments takes up 15 tapes. Wolfe added that writing the tapes initially is the hardest part, plus there are other logistical problems.

Alcott said that right now they're just working through bugs and trying to fulfill orders. Salomonson asked what the fraction is of public orders, and Alcott replied that he doesn't know the actual breakdown numbers. Wolfe said that it is also possible that as the Collection 4 reprocessing nears completion, there will be an increase in orders because

users will be interested in 3.5 years of consistent and high-quality Terra time-series data. Justice asked about vetting the orders to weed out overly ambitious (large) orders, and Alcott replied that those large orders have to be manually released to the system by an operator. If the DAAC has a large ftp push order that starts to fail, an operator will switch it to an ftp pull and send a message to the user with information about how to get the data and how much time they have to do it (3 days); this process avoids clogging the system.

Justice asked about statistics on that kind of failure, noting that we need useful statistics on that kind of failure, because that will help manage costs and give us a good user model. Alcott noted that the DAAC is seeing a trend of late arrivals: a lot of users are people coming late to the mission, and they want all the data we've processed. Masuoka noted that for first time users who want large data orders the DAAC could send them a sample of the data and get confirmation that they know how to work with it and still want large volumes of products. Justice noted that the Science Team has never gotten involved in distribution until now. Alcott said that he has statistics on how orders fail internally, and he's only now getting statistics on the user patterns themselves. Masuoka noted that in the past privacy issues have been raised with regard to collecting information on users. Guenther asked if there is some sort of indoctrination/training on what data to order for these new users, and Wolfe replied that there are various tutorials on the web. Guenther suggested that there should be some process that the users have to go through so that they understand the concepts of making the best use of MODIS data and knowing what to order, but Justice replied that users generally don't like obstacles to getting what they want.

Alcott noted that the bulk of orders are distributed electronically, which translates into a bandwidth issue. However, the Synergy 4 data pool should help things greatly. Wolfe said that the bottlenecks at the network-level may be the next obstacle we have to face.

Alcott reported that there was going to be an Oceans test next week; but it was delayed because a lot of the repaired stuff from the archive corruption was sitting on the server and had to be cleared off of the PDR disk first. He said that they also still need to have a sand fusing done on another part of the network, which should speed up the flow of metadata on a lot of the systems. Soon they will be able to have nice end-to-end test of the whole system, including distribution.

2.4 MODAPS

Masuoka reported that the EDC is slowing down on pulling data off of the PDR server, down to about 1 TB/day, whereas it is usually pulling about 1.6 TB/day, so reprocessing is slowing down. He was not sure why there was a slow down. It may be the network between EDC and the PDR server.

Masuoka handed out a chart showing a schedule for reprocessing through Collection 6.In the chart the production rate was limited only by the EDC ingest rate and Masuoka indicated that to achieve this rate we will need to also address the rate at which Level 1 products can be produced at the GES DAAC. Masuoka noted that the end-to-end system of GES DAAC-MODAPS-EDC has demonstrated performance of 3.6x production and ingest for land products, (1.2 TB/day for the Terra MODIS mission. He also noted that an ECS capacity study is carrying a 5.6x ingest rate (1.85TB/day when both Terra and Aqua

are being produced). At the current 330GB/day per 1x, it will take 18 months to finish Collection 5 (82 data months). We could finish in 13 months once the reduced volume (240GB/1x) PGEs are in place for land. A major consideration in the schedule is getting as much of Collection 6 processing done and evaluated by the Science Team as possible before the Team's funding runs out at the end of September 2006. Salomonson said that we also need to think about an end-of-mission Collection 7. Masuoka offered the opinion that Collection 7 will be a community effort since the Science Team will not be funded at that point. Salomonson said that we might focus on themes. Justice said that this chart also assumes that we maintain the status quo in terms of product mix. Masuoka said that it is unlikely even with new team members that we will get more data product volume in the DAACs than we have now. We must also consider that because the schedule is based on ingest rates, ingest ability might then become a priority.

We also need to work on the rate we can generate the L1B cloud mask at and getting profiles off of the L1A data. He suggested to Alcott that we might need to split the processing load between GES DAAC and MODAPS capacity. Salomonson asked what the model is, and Masuoka said that if the reprocessing rate at the GES DAAC is limited to 4x (2x Terra and 2x Aqua) then MODAPS could produce the remaining 1.6x of Level 1B. The two systems would work on separate time periods of the reprocessing. There are a number of details that would need to be worked and Masuoka will discuss them with Gary Alcott.

Wolfe reported that the Science Working Group on Data's (SWGD) next user workshop has been put off until late October or early September. There just wasn't enough time to get everyone signed up, plus there were some funding issues as well.

2.5 Oceans

Esaias reported that the Oceans group is getting ready for reprocessing; they completed a science test, had the Miami people up here, products processing is looking good, and the differences they found as compared to SeaWiFS were explainable. They did an analysis of a temporal test run in Miami of SYMBIOS data compared to SeaWiFS, compared it to our Collection 4, and found that the choppiness of L3 data in Collection 4 was taken care of, stripiness was reduced, scan biases were reduced, and radiance ratios were right on target, but it still remains that we don't have a good explanation of the divergence between MODIS and SeaWiFS radiance in the Southern Ocean for April through June. The final set of radcorrs will be implemented this week. The temporal test will start on Monday, and next week there will be a meeting to decide whether to go ahead on producing the MODIS Oceans Collection 4, so we're on track. Salomonson asked if they will be completed by the end of November, and Esaias replied that if they start in the first week of August, they would finish in the middle of September. Justice asked if the Collection will meet HQ requirements, and Esaias said in terms of timeliness yes, and right now they're working out the quality issue.

2.6 Land

Justice suggested that for the for August review meeting (review of Land products at EDG) at HQ, we ought to package some MODIS data distribution information. He asked if Salomonson will be involved in that meeting, and Salomonson said no. Justice suggested that for the next MODIS-wide review, we should put more energy into relevant statistics.

Salomonson noted that the MODLand team member list on the MODLand website has been updated.

2.7 Atmospheres

King reported that he is preparing a white paper entitled 'EOS contributions by the Earth Sciences Directorate', and in the last week he has received no new contributions from anyone on the MODIS team. When the paper is done, it will cover a lot of MODIS areas (in addition to other missions), and it's already quite large. The initial purpose of the paper is for a visiting directorate committee, but he said he wasn't sure about who is on the committee or what the dates of their visit will be, though he thought it might happen the week after the MODIS Science Team Meeting in September. Esaias asked when people should submit their contributions to King, and King replied that by the 1st of August would be ideal, since he is getting back from IGARSS/vacation on August 2nd. He said that he just wants a couple of figures and a paragraph or so from MODIS oceans, atmospheric correction over the land, and fires; this shouldn't be a major effort to put together.

3.0 Action Items

3.1 New Action Items

3.1.1 Xiong to email details of Aqua lunar calibration maneuver proposal to Salomonson and Harvey.

3.2 Old Action Items

3.2.1 Kempler to coordinate with Oceans group on creating documentation for the DAAC on the new Oceans L1A data subsets.
Status: Open.

3.2.2 Tech Team to further discuss TRW using MODIS data for validation of the NPP/NPOESS production process.
Status: Open.

3.2.3 PIP to develop list of items to go into work plan for the new contract (EMD).
Status: Open.

3.2.4 Ed Masuoka to invite a NOAA delegate to the weekly MODIS Tech Team meetings or the PIP meetings.
Status: Open. Masuoka sent the invitation.

3.2.5 Masuoka to send Harvey the Aqua reprocessing schedule; Harvey is then to distribute it to the 7/10 MTT meeting attendees.
Status: Closed. Harvey sent out the schedule on 7/14/2003.