



MODIS SCIENCE DATA SUPPORT TEAM PRESENTATION

October 22, 1993

AGENDA

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ACTION ITEMS

No.	Due Date	Item
1.	09/20/93	[Al Fleig, Paul Hubanks, Jim Storey] Prepare response to "MODIS pointing knowledge" for Dave Diner/Scientific Working group AMI Platform (SWAMP). STATUS: Open. (Assigned 09/03/93)
2.	10/08/93	[Al Fleig] Speak to Steve Unger on simulation data. Develop an approach for a plan for simulated test data. STATUS: Open. (Assigned 07/23/93)
3.	10/22/93	[John Crocker] Get OPs. Concept into MODARCH and distribute to Larry, Dave Case (HIS), Julie Breed, and Ed (Three copies). STATUS: Open. (Assigned 10/15/93)
4.	10/22/93	[Ed Masuoka] Make comments on MAS User's Guide. STATUS: Open. (Assigned 10/15/93)
5.	10/22/93	[Ed Masuoka] Talk to the SYBASE rep about getting a loaner copy of SYBASE. STATUS: Open. (Assigned 10/15/93)
6.	10/22/93	[Larry Fishtahler] Set up meeting between SDST and the ECS to discuss the capabilities of the Beta DAAC. STATUS: Open. (Assigned 10/15/93)
7.	10/22/93	[Carl Solomon and Al Fleig] Set up a matrix of software requirements (dependencies, I/O, ancillary data, processing characteristics) for the ATBDs. STATUS: Open. (Assigned 10/15/93)
8.	10/22/93	[Ed Masuoka] Talk to Mike King re configuration management of MODIS inputs regarding products and parameters in the Science Processing Database. STATUS: Open. (Assigned 10/15/93)
9.	11/04/93	[Al Fleig] Develop meta-documentation concept for ATBDs. STATUS: Open. (Assigned 09/03/93)

MODIS Airborne Simulator (MAS) Status

Paul A. Hubanks

Progress through 21 October 1993

1. Software modifications to "LEVEL1B" program implementing new FIRE calibration is complete. Updated ASCII text file "config.asc" to reflect new calibration logic and coefficients.
2. Renamed all MAS processing programs and load modules to reflect their function more clearly. Changed all compile scripts to reflect these new names. Updated MAS flow chart and processing instructions to reflect the new executable names.
3. A new display utility for HDF files released: ENVISION 1.0b. ENVISION is an interactive system for the management and visualization of large scientific data sets. It runs on UNIX workstations under X/Motif, manages data stored in HDF3.3 files, and does visualization using NCSA XImage, NCSA Collage, and IDL. It is available by anonymous FTP (vista.atmos.uiuc.edu) in pub/envision.
4. Sent a memo to Tom Arnold (MAS VIS/NIR Calibration) standardizing naming conventions for MAS calibrations. He will adopt the convention in each of his calibration reports.
5. According to Sue Sorlie, the DAAC Mgr. at Langley, the Langley DAAC will be the recipient of the LEVEL-1B MAS FIRE data. As it stands now, the Goddard DAAC will be the recipient of the LEVEL-1B MAS ASTEX data.
6. Handling of the clock offset problem between the MAS and INS data streams has been settled. Each scan line in the MAS LEVEL-0 data contains a time from the INS recorder and a time from the MAS EXABYTE recorder. When the MAS Level-0 data is ingested, the bit that flags whether "GOES time lock" for the INS recorder was obtained will be queried and written to a QA file. In addition, at every 100th scan line, the time from the INS recorder, the time from the MAS EXABYTE recorder, and the offset between the two will be written to the same file. This QA file will be used to study the clock problems. If INS "GOES lock" was obtained, the MAS time will be overwritten by the INS time in the Level-0 disk data set. If "GOES lock" was not obtained and the INS and MAS times differ by more than a few minutes, a determination is made as to which data stream shows the aircraft level-off (typically at 18,000 meters) occurring closest to 30 minutes after take-off. That stream will be used as the "correct" time for processing. If the MAS time is ever used in processing (and it is different than the INS time) the "clock offset" will be recorded in the MAS LEVEL-1B metadata. This is done to ensure that comparisons of data from other instruments (that used the incorrect INS time) can be adjusted to be temporally coincident.
7. Updating of MAS ASTEX LEVEL-1B output tapes to include new metadata, "SoftwareVersion" and "CalibrationVersion", has begun.

MODIS Geolocation Status

Jim Storey

October 22, 1993

Atmospheric Refraction Effects

I resuscitated an atmospheric ray tracing program I got from Doug Hoyt several months ago and ran some tests with it on our VAX. It uses a nominal atmospheric pressure and temperature profile to trace vectors with and without atmospheric refraction effects, from the EOS-AM1 altitude to the ground for a variety of scan angles. The program computes both the apparent angular change in satellite zenith angle and the horizontal displacement of the vector intersection with a spherical Earth. The refraction effect is small for scan angles less than 40 degrees (ranging from 0 to 5 meters horizontal displacement) but accumulates rapidly for higher scan angles, reaching about 30 meters at 55 degrees. Since refraction is an along-scan effect and the along-scan pixel dimension grows rapidly at high scan angles this is still only 0.007 of a 1-km pixel.

SPICE Library Capabilities

I have begun reviewing the JPL SPICE software library (SPICELIB) documentation distributed at Ted Meyer's geolocation working group meeting. SPICELIB provides a set of tools for accessing and manipulating ephemeris (spacecraft and/or planetary body) and pointing (attitude) data as well as a variety of coordinate and time system conversion routines. The documentation is fairly low level making it somewhat difficult to get an overall sense of the capabilities and use of SPICELIB. I will present a more detailed discussion of SPICE next week.

November SWAMP Meeting

I received a copy of the proposed agenda for the November 4-5 SWAMP meeting this week. The topics most relevant to geolocation including Dr. Diner's pointing requirements report, a report on DEM requirements, and a discussion of global gridding requirements and techniques, are being discussed on the first day.

Band to Band Misregistration Paper

I located (and made copies of) the 1982 paper by Swain, Vanderbilt, and Jobusch presenting some simulation results on the effects of band to band misregistration on classification algorithms. They observed significant differences in classification results (10%-15%) for band to band misregistrations as small as 0.3 pixels.

MODIS Level 2 Processing Shell Design and Development

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Status:

1. Discussed the MODIS Level 2 Shell Software Requirements Document with SDST members (Ed Masuoka, Al Fleig, Lloyd Carpenter, and Carl Solomon). I am updating this document.
2. Generated a diagram to show the data dependency among five instruments (MODIS, ASTER, MISR, CERES, and MOPITT) on the AM Platform. The source information of this diagram is from MODIS ATBDs and SPDB.
3. Prepare a demo program to show the MODIS algorithm dependency generation for the SWAMP meeting.
4. Work on the prototype Shell script development with emphasis on the I/O data management and memory access. This script is used to confirm the Shell operation concept.

MODIS Land Prototye

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Work through 10/21/93

MODIS Land Prototye

1. Global Fire Prototype

- The next step will use a composite software package which is expecting from EDC.

2. Snow Cover Prototype

- The next step will be use the GAC data being obtained from Pathfinder.

3. Land Cover Test Sites Prototype

- I am working on the projection transform for the AVHRR bi-weekly data. The AVHRR data need to be transformed from Lambert Azimuthal Equal Area projection to the Universal Transverse Mercator projection in order to overlay with the TM and MSS data which are all in UTM projection.

MODIS Ancillary Data

- I updated the MODIS Ancillary Data table based on the newly received ATBDs.
- I reorganized the table based on the product and parameter numbers distributed at the MODIS Science Meeting.
- I reviewed the document "Ancillary and Auxiliary Data in the EOSDIS Core System" and discussed it with the author Graham Bland. Since the document is only a discussion paper, not a statement of ECS' final requirements, he would like to get some written comments from us.

Documentation

John Crocker

October 22, 1993

TIP: I obtained a copy of "500-TIP-2110" and an MS WORD Toolkit diskette from Sheryl Jones of the TIP Lab, Technical Information Program (TIP), MISSION OPERATIONS AND DATA SYSTEMS DIRECTORATE (MO & DSD), Bldg. 12, room E36.

A major objective of TIP is to improve productivity and product quality. One way is to establish an on-line library of NASA information. Another way is to standardize procured documentation to the extent possible; that is, to make reports uniform and modular and re-usable, in analogy with modern software concepts. (Some documents, such as scientific papers, are exempted).

The effect of standardized, modularized, on-line information is to promote improved communication, superior product quality, reduced duplication of effort, and better productivity.

An immediate use for TIP is in writing standard data processing documents such as software requirements, test procedures, performance requirements, etc.

I am currently learning to use the TIP MS WORD Toolkit.

OPs Concept: The "MODIS PGS Data Processing Operations Concept of October, 1993", has been delivered to Ed Masuoka and Mike Heney. Mike will enter it into the MODARCH archive.

Data Management Plan: The "MODIS Software and Data Management Plan of September, 1993", has been delivered to Ed Masuoka.

Level 1A Software Baseline Requirements: The "MODIS Level 1A Software Baseline Requirements" is currently being published as a NASA TM.

SDST Meeting Minutes: Beginning with 9/24/93, these Minutes are being forwarded by E-mail to Mike Heney for the MODARCH archive.

ECS Documents: A.K. Sharma is helping us in obtaining ECS documents.

MODIS SDST Document Schedule

Document	Status	Estimated Completion	Responsible Individuals
ATBD meta-documentation	outline		Al
Configuration Management Plan	draft		Sue
Level 1A Preliminary Design Report			Tom, Jim, John
Level 1A Software Baseline Requirements	completed		Lloyd, Tom, Carl, Jim
Level 1B Requirements Report			Joann Harnden, J. Barker, Tom
Level 2 Shell Requirements Report	draft	Oct 22	J.J., John C.
MAS Level 1B Data Processing Guide	draft	Oct 29	Paul Hubanks
MAS Level 1B Data User's Guide	draft	Oct 22	Paul Hubanks
MODIS Earth Location Error Report	completed		Al, Jim, Paul
Operations Concept	revision		John, Carl, J.J., Jim, Tom
Prototyping Plan	outline submitted		Ed, Phil
Quality Assurance Plan	draft		Sue
Science Computing Facility Plan	completed		Ed Masuoka
Software and Data Management Plan	completed		Carl, Ed, Al, Lloyd
Software Guidelines/Programming Standards			Carl, Tom, John
Software Test Plan			Sue, Phil

MODIS SDST Meeting Calendar

October 1993

Monday	Tuesday	Wednesday	Thursday	Friday
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> Mtg. A: Masuoka, Fleig, Carpenter Mtg. B: Masuoka, Fleig, Guenther </div>		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> MODIS CDR, Goleta, CA Dec. 7-10, 1993 </div>		8:30a: Science Team, B8, Auditorium
2:30-3:30p: A 4-5p: B	3p: PGS Toolkit, B22, Rm166B	2P: PGS Toolkit, B22, Rm271	3-4p: Tech Team	10a: SDST, B22, Rm G95
4	5	6	7	8
Holiday			3-4p: Tech Team	10a: SDST, B22, Rm G95
11	12	13	14	15
2:30-3:30p: A			3-4p: Tech Team	10a: SDST, B22, Rm G95
18	19	20	21	22
2:30-3:30p: A			3-4p: Tech Team	10a: SDST, B22, Rm G95
25	26	27	28	29

