MODIS
SCIENCE DATA SUPPORT TEAM
PRESENTATION

August 13, 1993

AGENDA

Page

1. Action Items 1
2. MODIS Airborne Simulator (MAS) Status 2
3. MODIS Metadata Parameters on a Data Product Basis 4
4. MODIS Level 2 Processing Shell Design and Development 5
5. MODIS Land Prototype 6
6. MODIS SDST Meeting Calendar 8
7. MODIS SDST Document Schedule 10

ACTION ITEMS

No.	Due Date	Item
1.	08/10/93	[John Crocker]. Complete the first draft of the MODIS Operations Concept document. STATUS: (The first draft was completed and delivered on 8/10/93.) Open. (Assigned 05/21/93)
2.	08/13/93	[Tom Goff]. Determine MODIS requirements for metadata on ancillary products. These include Version Number, changes in generating software, etc. STATUS: Open. (Assigned 07/30/93)
3.	08/13/93	[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)
4.	08/20/93	[Ruiming Chen, J.J. Pan] Develop an ancillary data product document. Use information in ATBDs. Identify what data sets are to be used for: generating standard Data Products, validation, and QA. Identify requirements for second choices in ancillary data sets if an investigator fails to get the desired data on a particular day. STATUS: Open. (Assigned 07/02/93)
5.	09/03/93	[Paul Hubanks & Carl Solomon]. Evaluate the SeaWiFS scheduling algorithm and code to see if it can be applied to MODIS prototyping. STATUS: Open. (Assigned 06/25/93)

MODIS Airborne Simulator (MAS) Status

Paul A. Hubanks
Progress through 12 August 1993

- New version of HDF/NetCDF integrated software available
- Fine tuning of new ASTEX calibration by Tom Arnold
- MAS ASTEX processing begins

MAS Processing Log

ASTEX - Atlantic Stratocululus Transition Experiment
(27 May 1992 - 30 June 1992)

Tape #	Flight Type	Configur-ation	Date/ Julian Date	Processing Priority h=high m=med l=low	Expected Completion Date	Level-0 File Size (512 byte blocks)	Automated Flight Tracks Selected	QA bad nav?	Flight Tracks Verified	Take-off TIme	Main Process. Produce HDF Level1b	QA bad clock/ clock offsets?	# of Flight Lines (Size of Output)	Output Tape Written/ Quicklooks to FTP site	Completion Date
92-092	fcf	King	27 May 92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
92-100	ff	King	29 May 92 (150)	h	08/11/93	2,500,000	√	ok	√	14.08806	√		17		
92-101	ff	King	31 May 92 (152)	m	08/16/93	2,700,000	√								
92-102	sdf/Azores	King	02 Jun 92 (154)	m	08/11/93	590,000	√	ok	√	9.129171	√	ok	5 (700,000)	√	08/12/93
92-103	sdf/Azores	King	04 Jun 92 (156)	m		1,800,000	√	ok	√						
92-104	sdf/Azores	King	05 Jun 92 (157)	m		2,000,000	√								
92-105	sdf/Azores	King	08Jun 92 (160)	m		2,300,000	√								
92-106	system failure	King	12 Jun 92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
92-107	sdf/Azores	King	17 Jun 92 (169)	h	08/11/93	980,000	√	ok	√	11.00694	√	ok	13 (1,300,000)	√	08/12/93
92-108	sdf/Azores	King	18 Jun 92 (170)	m	08/16/93	1,300,000	√								
92-109	sdf/Azores	King	19 Jun 92 (171)	m		1,700,000	√								
92-110	sdf/Azores	King	21 Jun 92 (173)	m	08/11/93	650,000	√	ok	√	8.97639	√	ok	9 (1,700,000)	√	08/12/93
92-111	sdf/Azores	King	22 Jun 92 (174)	m		1,300,000	√								
92-112	sdf/Azores	King	23 Jun 92 (175)	m	08/16/93	1,000,000	√								
92-113	ff	Jedlovec	29 Jun 92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
92-114	ff	Jedlovec	30 Jun 92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

fcf = functional check flight
ff = ferry flight
sdf = science data flight

MODIS Metadata parameters on a Data Product basis

What this metadata contains - MODIS L1A
Database keys -
Who is responsible for this data set?
Instrument modes - calibration, Earth/Moon
Engineering data summaries
- temperature range - in or out of Sun
- noise levels
- averages and error bars on science data

Temporal Domain
- full GMT w/date
- Orbit number
- MODIS clock times

Spatial Domain
- type - full or partial orbit
- nadir equatorial crossing longitude
- max, min latitudes
- Land/Ocean percentages

Quality indications
- Overall quality indication
- scan cube statistics
- Data Product Automated quality summary

Computer hardware specifications
- designators for all the hardware through which the data has passed
  - type - TDRSS, broadcast, PGS, TLSCF
  - location - where is the machine
  - machine designation
  - hardware revision codes

Software specifications
- software delimiters for all software that has touched this data set - last to first
  - type - production, test
  - revision number

MODIS Level 2 Processing Shell Design and Development

J. J. Pan
MODIS Science Data Support Team
(301) 982-3700

Status:

- I am developing a table which includes ancillary data sets to be used for generating standard data products, validation, and QA. Attached is a prototype of this table which is based on the information retrieved from 6 ATBDs.

- I am also preparing a draft of the MODIS Level 2 Processing Shell System Requirements Document. The format and structure will be similar to that used in the MODIS Level 1A Software Baseline Requirements Document.

MODIS Land Prototype

Ruiming Chen
(301) 982-3754

Work through August 12, 1993

MODIS Land Prototype

- I received 5 CD-ROM "Conterminous U.S. AVHRR" data (1990) for the Land Cover product.
- I received 1 8mm AVHRR tape from Jim Storey for the fire product.

MODIS Ancillary Data

- The MODIS Ancillary Data were extracted from the ATBDs received and the previous conversation records with the investigators.

MODIS A. Data

Prod #	Product Name	Parameter Name	Parm #	Investigator(s)	Ancillary Data for Producing Standard Prod	Ancillary Data for Validation	Ancillary Data for QA	Data Source	Data Change	Default Value	Accuracy Needed
MOD01	level-A Radiance MODIS	Level-A Radiance, MOLDIS	3708	Salomonson	DEM						
MOD02	Level-1B Radiance, Calibrated Geolocated MODIS	Level-1B Radiance, Calibrated Geolocated MODIS	2338	Salomonson		Control Chips 2500 in situ ground radiance measurements					
MOD03	Aerosol Optical Depth, Spectral	Aerosol Optical Depth, Spectral	2293	Kaufman, Tanre							
		Aerosol Size-distribution (Radius-Dispersion)	1022	Tanre, Kaufman							
MOD04	Precipitable Water	Precipitable Water	1874	Kaufemn, Tanre, Menzel		Water Vapor Measurements		NWS (NMC)			
MOD05	Cloud Cover	Cloud Cover	2081	Menzel King				ground-based optical and microwave radiometers			
		Cloud Drop Phase	1764	King Menzel							
		Cloud Drop Size (Effective Radius)	1780	King							
		Cloud Optical Depth	2311	King							
		Cloud Properties, Top	1528	Menzel							
MOD06	O3 Total Burden	O3 Total Burden	1333	Menzel							
MOD07	Stability (Lifted Index), Atmospheric	Stability (Lifted Index), Atmospheric	1559	Menzel							
MOD08	Spectral Reflectance/Surface Leaving Radiance	Spectral Reflectance/Surface Leaving Radiance	2015	Kaufman, Justice							
		Bidirectional Reflectance, w/o Topography	3669	Muller, Strahler	Land Leaving Radiance DTM (DEM)			MISR	1 2 3 4		
		Bidirecional Reflectance w/ Topography		Muller Strahler	DEM				N/A		
		Albedo, Spectral, Land sfc, w/o Topography	3665	Muller, Strahler	DTM (DEM)				N/A		
		Albedo, Spectral, Land sfc, w/ Topography		Muller, Strahler	DEM				N/A		
MOD09	Snow Cover	Snow Cover	3020	Salomonson, Hall	Land Reference Map World Coastline Map			DCW (GLOBE)	N/A		
		Snow Cover Level 3		Salomonson, Hall	Land Reference Map World Coastline Map Radar Microwave Data DTM (DEM)			DCW (GLOBE) DCW (GLOBE) DCW (GLOBE) SSM	N/A N/A N/A 2 bands (TBD)		
MOD10	Land_sfc Temperature	Land_sfc Temperature	2484	Wan							
		Land_sfc Emissivity	3323	Wan							
MOD11	Land-Cover Type	Land-Cover Type	2669	Strahler, Huete	DEM						
		Land-Cover Type Level-3		Strahler, Huete	DEM				N/A		
		Land-Cover Type Change	2671	Strahler Huete					N/A		
MOD12	Vegetation Indices	NDVI, level2	2749	Justice, Huete							
		NDVI, level3	?	Justice, Huete							
		MVI, level2	?	Justice Huete							
		MVI, level3	?	Justice Huete							
MOD13	Thermal Anomalies (Fire Size & Temperature)	Thermal Anomalies (Fire Size & Temperature)	2471	Kaufman, Justice							
MOD14	Leaf Area (LAI) & FPAR	Leaf Area (LAI) &FPAR	2680	Running							
MOD15	Evapotranspiration	Evapotranspiration	3722	Running							
MOD16	Vegetation Production, Net Primary (NPP)	Vegetation Production, Net Primary (NPP)	2703	Running							
MOD17	Photosynthesis-Respiration	Photosynthesis-Respiration	3716	Running							
MOD18	Classification Masks, Clouds/Land/Water/Snow, MODIS Level-2	Classification Masks, Clouds/Land/Water/Snow, MODIS Level-2	3660	Salomonson, Barker, Hall							
MOD19	Pigment Conc. "CZCS"	Pigment Conc. "CZCS"	2591	Gordon, Clark							
MOD20	Level-2 Radiance, Water-leaving	Level-2 Radiance, Water-leaving	2416	Gordon, et. al		extraterrestrial solar irradiance		Neckel & Labs (1984)	N/A		
					ozone optical thickness			MODIS (or a sensor on the NOAA)			20-40 DU
					surface atmospheric pressure			NMC	N/A		< +/- 5 MB
					wind speed			NMC	N/A		speed<1-2m/s dir. <30deg
					air-sea temperature difference			NMC	N/A		< +/-1deg
					surface relative humidity (RH)			NMC	N/A		< +/- 5-10%
MOD21	Chlorophyll fluorescence	Chlorophyll Fluorescence Line Height	2575	Abbott, Evans							
		Chlorophyll Fluorescence Line Curv	2673	Hoge							
		Chlorophyll Fluorescence Efficiency	3211	Abbott							
MOD22	Chlorophyll_a Pigment Concentrason	Chlorophyll_a Pigment Conc. Case I	2571	Abbott							
		Chlorophyll_a Pigment Conc. Case II	2569	Clark		Bio-Optical Profiling system (BOPS)		Bioapheric Instruments			
MOD23	PAR	PAR, Sfc(IPAR) and Incident (IPAR)	2266	Carder, Tanre		Data from the CZCS-type Case 1 Alg		CZCS-type Case 1 Alg			
					Air Mass Type						1-10 DU
					Pressure in inches mercury				N/A	29.92inch	
					Relative Humidity				N/A	80%	
					Mean Wind Speed				N/A	4.0 6.0 (m/s)	
					Visibility				N/A	15km	
					Precipitable Water				N/A	1.5cm	
					Ozone (Optical Thickness?)						
		PAR Daily	2330	Eagaas							
MOD24	Suspended-Solids Conc. Ocean Water	Suspended-Solids Conc. Ocean Water	3085	Clark							
MOD25	Organic Matter Concentration	Organic Matter Conc. Particulate	2608	Clark							
		Organic Matter Conc. Dissolved	2580	Carder Parslow							
MOD26	Coccolith Conc. Detached	Coccolith Conc. Detached	2577	Gordon							
MOD27	Ocean Water Attenuation Coefficient	Ocean Water Attenuation Coef@490nm	3199	Clark,Gordon							
		Ocean Water Attenuation Coef@520nm	3206	Clark,Gordon							
MOD28	Ocean Productivity,Primary, Global Annual	Ocean Productivity,Primary, Global Annual	2606	Esaias,Abbott							
		Ocean Productivity Primary Daily	2602	Abbott Esaias							
MOD29	Sea_sfc Temperature(SST)	Sea_sfc Temperature(SST)	2527	Brown,Barton							
						North American Match-up Database	SST	AIRS			
						The Global match-up database	SST	NOAA Pathfinder			
						Environmental data		buoys, drifting buoys			
MOD30	Sea_Ice Max Extent	Sea-Ice Max Extent	3153	Salomonson Hall							
MOD31	Temperature Profile	Temperature Profile	3726	Menzel							
MOD32	Water Vapor Profile	Water Vapor Profile	3727	Menzel							
MOD33	Phycoerythrin Conc.	Phycoerythrin Conc.	3320	Hoge							
MOD34	Calibration Data, MODIS	Calibration Data, MODIS	3303	Evans							
MOD35	Ocean Water Backscatter Coef. Total	Ocean Water Backscatter Coef. Total	2559	Gordon,Parslow							
MOD36	Absorption Coef. Total	Absorption Coef. Total	3724	Carder							
						Bio optical Profiling data		Bioapheric Instruments Bio-Optical Profiling System			
MOD??	Ocean Aerosol Properties	Aerosol Optical Depth@865nm	2344	Gordon	same as MOD20 #2416	Data from the CZCS-type Case 1 Alg		CZCS type Case 1 Alg			
		Aerosol Angstrom Exponent	2295	Gordon							
MOD39	Water Vapor, Atmospheric	Water Vapor, Atmospheric (thermal IR)	3725	Menzel							
MOD40	Clear Water Epsilon	Clear Water Epsilon	3707	Carder							

Data Source in parenthesis is the secondary source

MODIS SDST Meeting Calendar
August 1993

Monday	Tuesday	Wednesday	Thursday	Friday
2:30-3:30pm: Mtg (Masuoka, Fleig, Carpenter) 4-5pm: Mtg (Masuoka, Fleig, Barker) 2	3	4	3-4pm: MODIS Tech Team Mtg 5	10am: SDST Mtg, B22, Rm G95 6
2:30-3:30pm: Mtg (Masuoka, Fleig, Carpenter) 4-5pm: Mtg (Masuoka, Fleig, Barker) 9	10	11	3-4pm: MODIS Tech Team Mtg 12	10am: SDST Mtg, B22, Rm G95 13
2:30-3:30pm: Mtg (Masuoka, Fleig, Carpenter) 4-5pm: Mtg (Masuoka, Fleig, Barker) 16	17	18	3-4pm: MODIS Tech Team Mtg 19	10am: SDST Mtg, B22, Rm G95 20
2:30-3:30pm: Mtg (Masuoka, Fleig, Carpenter) 4-5pm: Mtg (Masuoka, Fleig, Barker) 23	24	25	3-4pm: MODIS Tech Team Mtg 26	10am: SDST Mtg, B22, Rm G95 27
2:30-3:30pm: Mtg (Masuoka, Fleig, Carpenter) 4-5pm: Mtg (Masuoka, Fleig, Barker) 30	31			

MODIS SDST Meeting Calendar
September 1993

Monday	Tuesday	Wednesday	Thursday	Friday
		1	3-4pm: MODIS Tech Team Mtg. 2	10am: SDST Mtg, B22, Rm G95 3
Holiday 6	7	8	3-4pm: MODIS Tech Team Mtg. 9	10am: SDST Mtg, B22, Rm G95 10
2:30-3:30pm: Mtg. (Masuoka, Fleig, Carpenter) 4-5pm: Mtg (Masuoka, Fleig, Barker) 13	ECS SRR Mtg. 14	ECS SRR Mtg. 15	DPFT IV Mtg. DOAFT Mtg. 3-4pm: MODIS Tech Team Mtg. 16	DPFT IV Mtg. DOAFT Mtg. 17
2:30-3:30pm: Mtg. (Masuoka, Fleig, Carpenter) 4-5pm: Mtg (Masuoka, Fleig, Barker) 20	21	22	3-4pm: MODIS Tech Team Mtg. 23	10am: SDST Mtg, B22, Rm G95 24
2:30-3:30pm: Mtg. (Masuoka, Fleig, Carpenter) 4-5pm: Mtg (Masuoka, Fleig, Barker) 27	MODIS Calibration Mtg. 28	MODIS Calibration Mtg. MODIS Science Mtg. 29	MODIS Science Mtg. 30	MODIS Science Mtg. continues to Oct. 1, 1993

MODIS SDST Document Schedule

Document	Outline	Draft	Revision	Final	Estimated Completion	Responsible Individuals
Software and Data Management Plan	completed	completed	July 15	July 30	To Ed & Al August 20	Carl, Ed, Al, Lloyd
Science Computing Facility Plan	completed	completed	July 15	July 30	August 20	Ed Masuoka
Software Guidelines/Programing Standards						Carl, Tom, John Crocker
Operations Concept	completed	completed	August 13 (to team)	Science Team Meeting		John, Carl, J.J., Jim, Tom
Configuration Management Plan				November		Carl
Quality Assurance Plan				October		Sue
Geolocation ATBD		June 28		July 26	completed	Jim Storey
Level 1A Baseline Requirements	completed	completed	completed		completed	Lloyd, Tom, Carl, Jim
Level 1A Preliminary Design Report						Tom, Jim, John C.
Level 1B Requirements Report						John Barker, Tom, Joann Harnden
Level 2 Shell Requirements Report						J.J., John C.
Software Test Plan						
ATBD meta-documentation	completed			Sept 27		Al