Terra-MODIS Calibration Workshop January 2001

MCST Presentations

Science Team Member Comments

B. Guenther, MCST Head

301-943-0350

Guenther@mcst.gsfc.nasa.gov

22 January 2001

	Part I First Year of MODIS sensor and product			
1.0 *1300*	Introduction & Welcome - Objectives & Outline - MODIS 1 Year Highlights/Milestones	Guenther		15
2.0 *1315*	MODIS Operations Overview - Status of Consumables - Engineering Trend	Salo		10
3.0 *1325*	MCST Computer System Architecture - CROM and MOPADS Architecture - Data Ordering and Planning Tools	Ellicott		10
4.0	L1B Version Status	Rogers		10
5.0 *1345*	RSB Algorithm as Implemented in the Current L1B - Algorithm Outline - Caveats	Esposito		20
6.01 *1405*	TEB Algorithm as Implemented in the Current L1B - Algorithm Outline - Caveats	Chiang		20
7.0 *1425*	Terra SRCA Performance - Spectral Mode - Spatial Mode	Xiong		10
8.0	ECAL Performance	Adimi		10
9.0 *1445*	SD/SDSM Performance - SD for RSB calibration - SDSM analysis status	Sun		20
10.0	Improvements Since Last STM	Xiong		20
11.0 *1525*	ST L1B Related Concerns and Demonstrations (Moeller, Wan, Platnick. Evans …..)	ST Members		30
1555	**Break**			20
	Part II Current Work Program Highlights – What's Next			

12.0
1615
	Concerns for best science, data days beyond 2000305
	- B-side Performance
	  - ADC
	- Vdet at DN = 110
	  - Residual cross-talk
	- Introduction of MCST striping reduction by Direct Surface Smoothing
	- Description of Mirror rotation correlated noise
	- Stability within an orbit
		Guenther		85

	Break			30
13.0 *1810*	Requirements for L1B reprocessing - Cross-talk - Stripes and Mirror rotation correlated noise - RSB degradation	Xiong		80
14.0 *1930*	Future Work - Develop next-step validation approaches - Leak correction studies - Aqua sensor and Spacecraft Thermal Vacuum analyses - Polarization - Scene Restoration	Guenther		30
15.0	Action Items	Guenther		10
2010	Contingency			
2100	Meeting ends			

Workshop Objectives

- Status on sensor and operations **(SECTIONS 1 - 3, 7 - 9)**

- Status on L1B code and algorithms **(SECTIONS 4 - 6)**

- Status on current research effort **(SECTION 10)**

- Review of what we are planning to work on in coming months **(SECTIONS 12 - 14)**

- Science Team Member updates **(SECTION 11)**

- Framework for L1B validation efforts-beyond use of OBCs **(SECTION 14)**

Terra MODIS Year 1 Highlights

SENSOR, L1B PRODUCTS AND MCST

- Successful and safe MODIS turn-on, activation and continuing event-free commanding operations

- MODIS L1B data was first Terra data publicly release

- 22.9 terra-bytes of MODIS data in SSR playback in year 2000

- Detected and selected operation configuration to minimize electronic cross-talk

- Transitioned to electronics B-side for best ADC performance

- Initiated long-term trend of calibration in RSB using lunar observations

- Achieved stable operating configuration

We are indebted strongly to the support and help of the MODIS Science Team Members for what successes we have had in this work.

MODIS RSB SNR from Pre-launch, Post-launch and Specification at Ltyp

Band+Channel (in L1B production order)
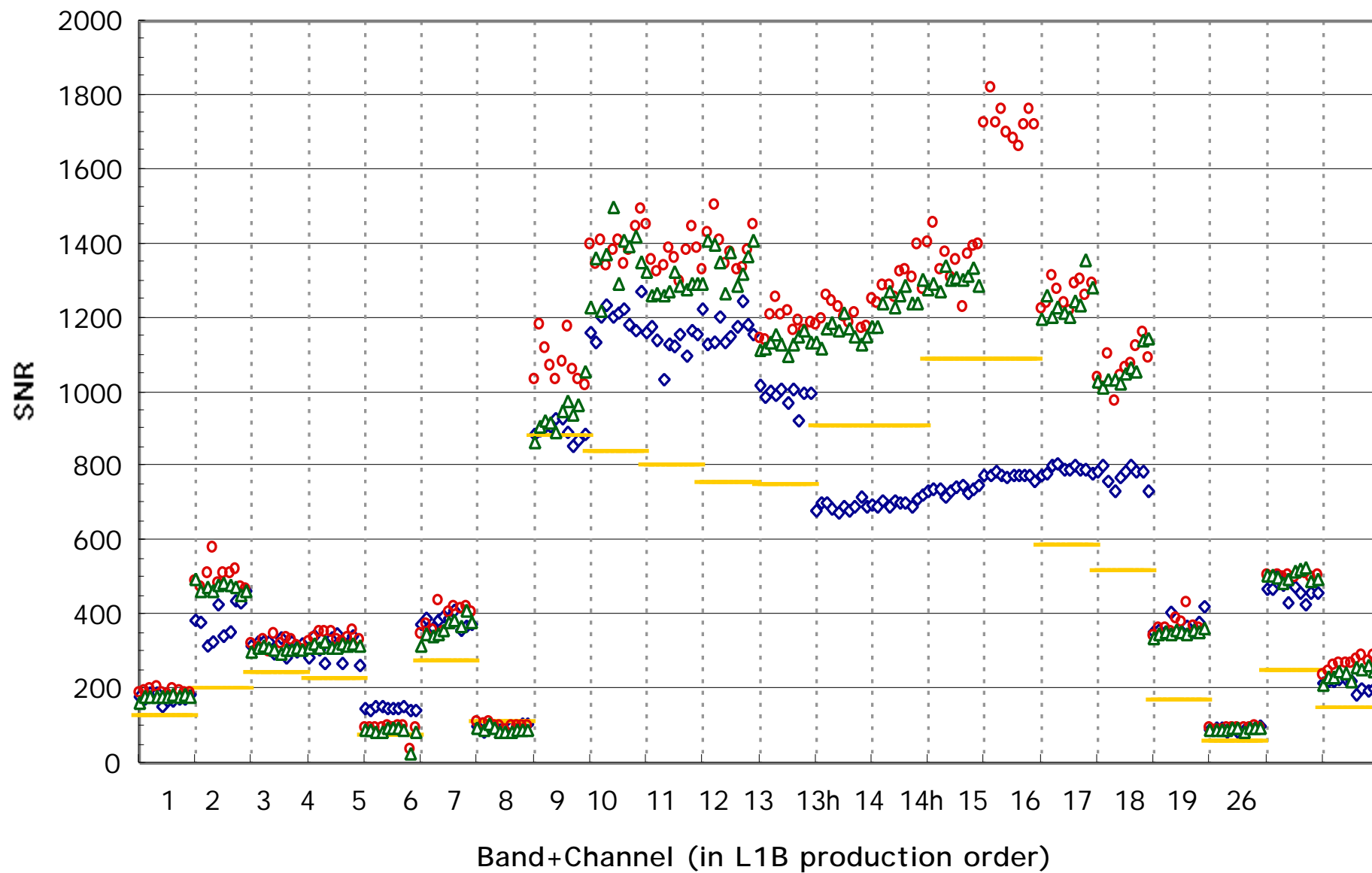
Pre-launch — Specification ○ Aside-2000294 △ Bside-2000305

MODIS PFM TEB On-orbit NEdL (@ Ltyp) vs. Pre-launch and Specification
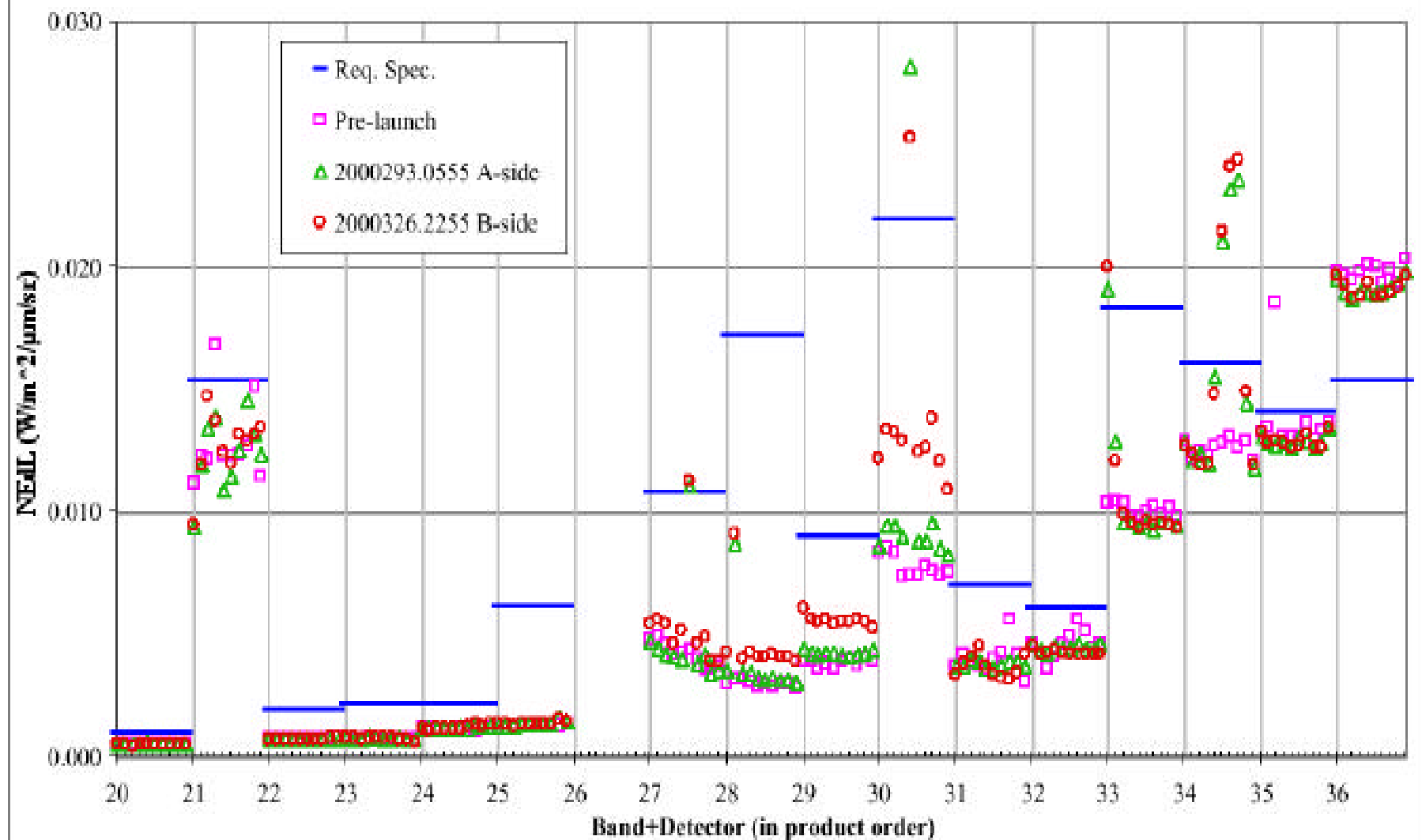
# SUMMARY OF KEY MODIS OPERATIONAL CONFIGURATIONS

2000 — days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

February
- Science Data in Earth View Sector
- SW/MWIR Focal Plane Bias
- Temperature Control of Cold Focal Plane
- A-side (Primary)/B-side (Redundant) Electronics

March — various values

April — Inclination Adj

May

June

July

August — Formatter Anomaly and Anomaly Resolution

September

October

November

December

2001

January

Legend

Science Data in Earth View Sector	Yes		No (Nadir Door Closed or Sensor data not to Recorder)
SW/MWIR Focal Plane Bias (DN)	110	190 218 226	
Temperature Control of Cold FPA	Yes	Partial Loss in orbit	No controlled over entire orbit
A-side /B-side Electronics	A-side	B-side	
Day 2000174, first formatter reset		Complete cooler outgas, focal plane control returned	

Terra-MODIS Band 4 (555 nm) L1B Product Uncertainty Components
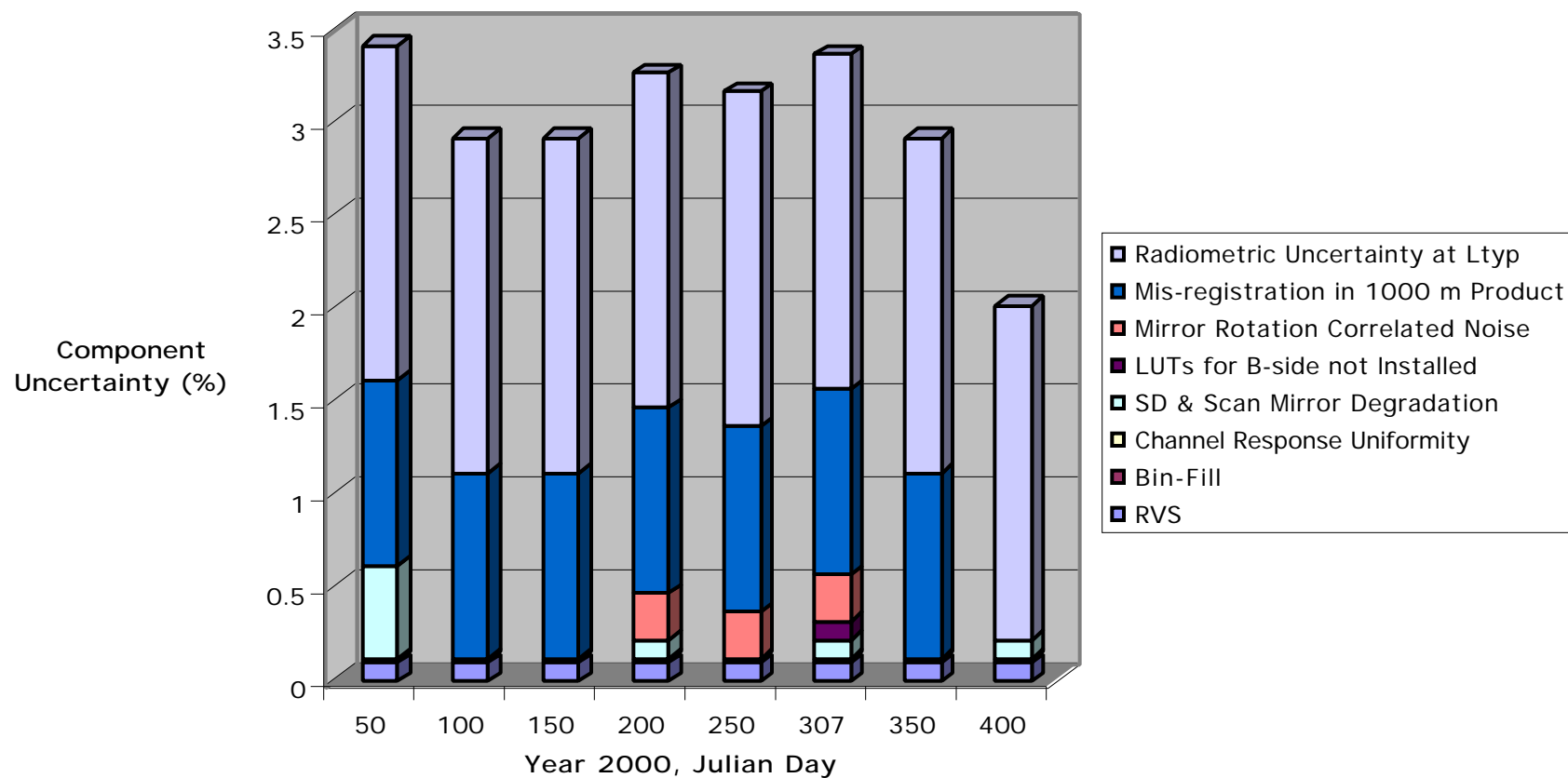
Note: The sum of uncertainties as displayed in this "stacked bar" chart exceeds the total uncertainty for these same uncertainty sources that more properly should be handled in an RSS sense.

Terra-MODIS Band 5 (1240 nm) Product Uncertainty Components
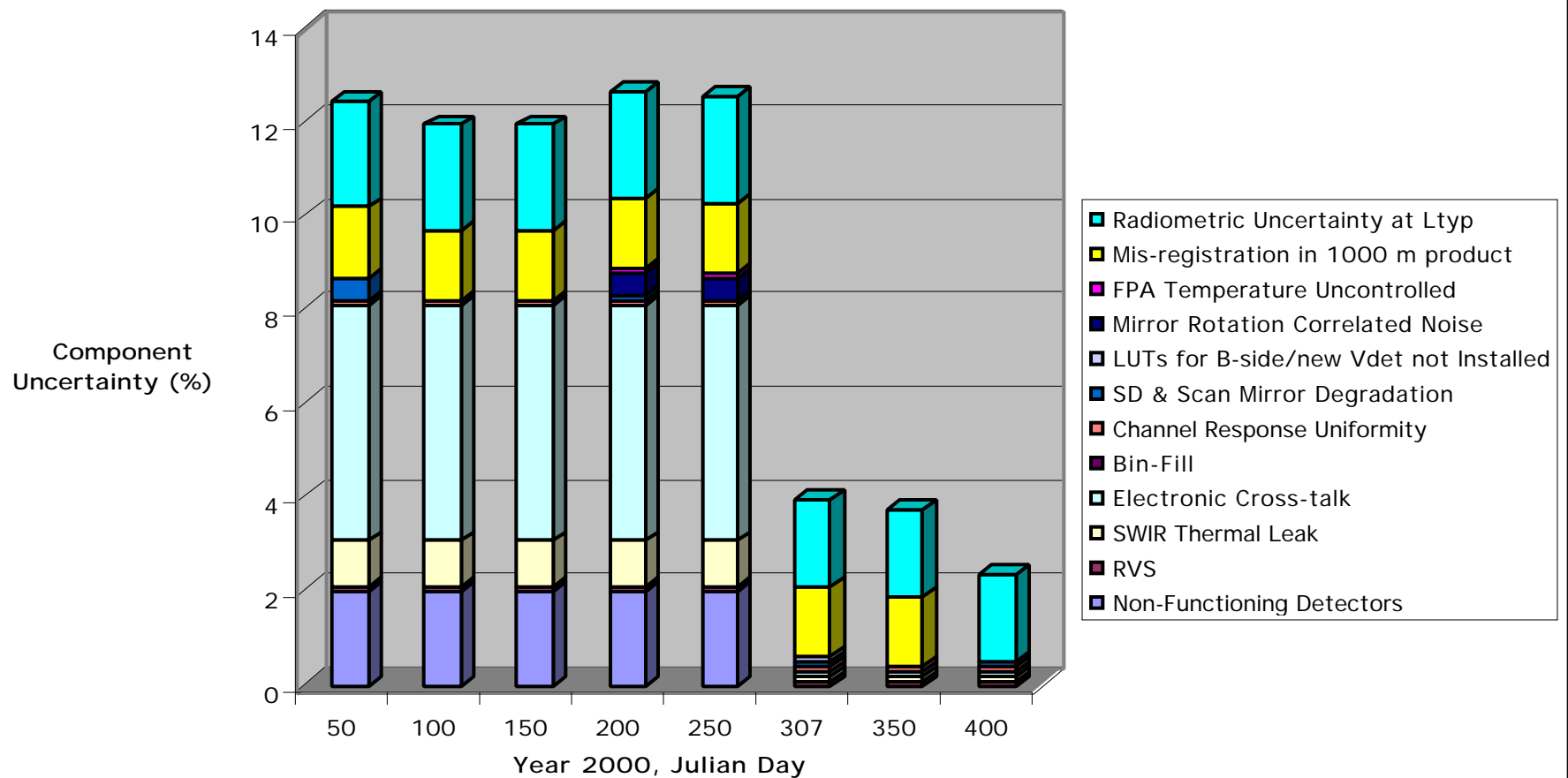
Note: The sum of uncertainties as displayed in this "stacked bar" chart exceeds the total uncertainty for these same uncertainty sources that more properly should be handled in an RSS sense.

Terra-MODIS and 32 (12000 nm) L1B Product Uncertainty Components

Component Uncertainty (%)

Year 2000, Julian Day

Legend:
- Radiometric Uncertainty at Ltyp
- FPA Temperature Uncontrolled
- Mirror Rotation Correlated Noise
- LUTs for B-side not Installed
- Channel Response Uniformity
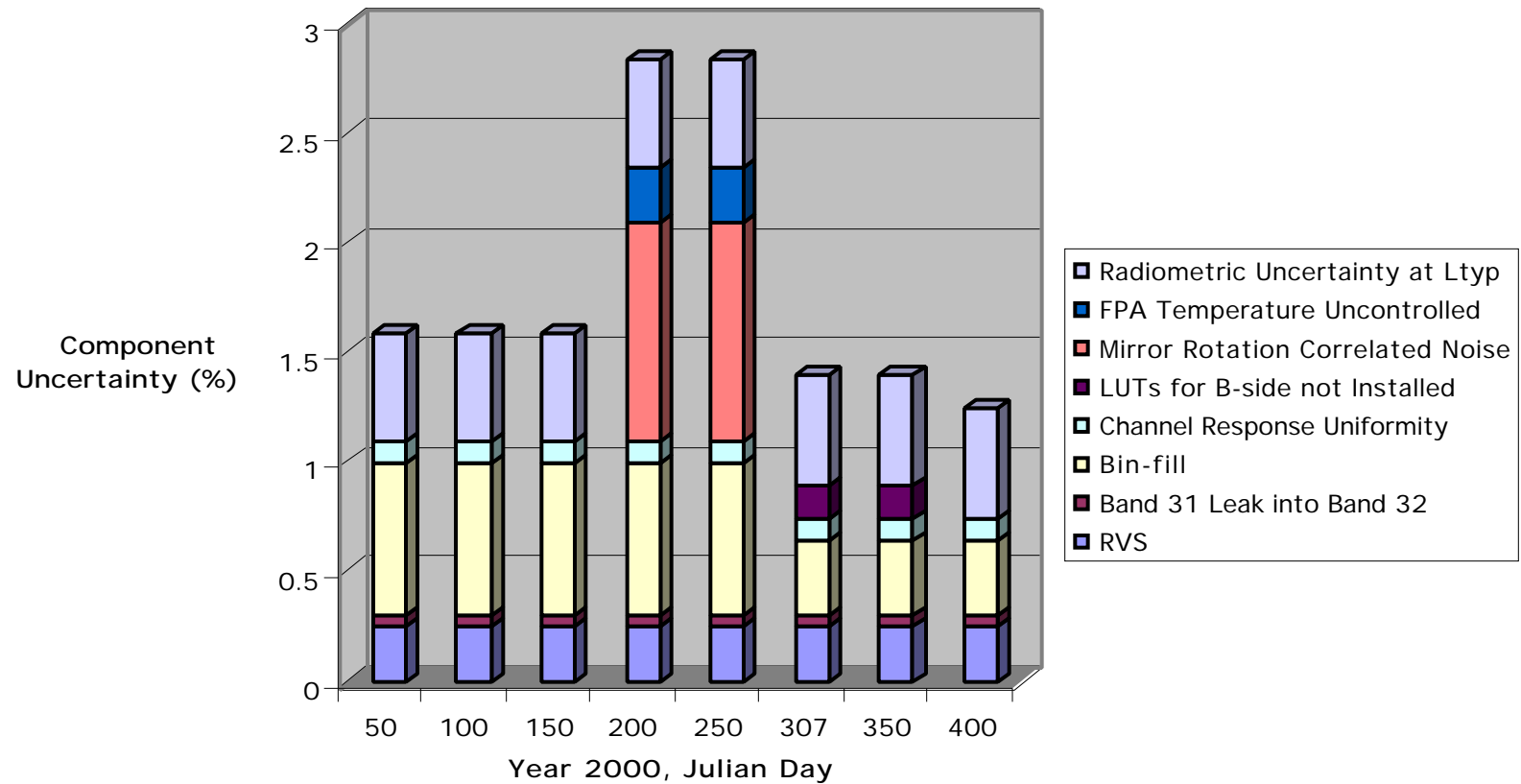- Bin-fill
- Band 31 Leak into Band 32
- RVS

Note: The sum of uncertainties as displayed in this "stacked bar" chart exceeds the total uncertainty for these same uncertainty sources that more properly should be handled in an RSS sense.

Principal Parameters Requiring On-oribt Determination/ Verification

Principal Parameters Requiring On-oribt Determination/ Verification	Strategy for Determination/ Verification	Comments
Reflected Solar Bands (RSB) Reflectance-factor Calibration	Use literature values for solar spectral irradiance and measured Bidirectional Reflectance Factor (BRF) of solar diffuser (SD)	SD attenuation screen has small ripple due to variation with illumination of screen hole pattern
Thermal Emissive Bands (TEB) non-linear coefficients, all bands	Observe response of sensor to on-board blackbody during cycle of temperature cool down from 315 K to ambient	No pre-launch data for Bands 20-25 and 27-30; best results for measurements over temperature range of flight blackbody (315 K to 274 K)
Electronic cross-talk	Pre-launch improvements not tested; look for Short-wave InfraRed (SWIR) sub-frame differences; direct measurements using high contrast sharp edges such as moon in space view port and rectangular reticle in SRCA	SWIR sub-frame differences misleading, perhaps because pre-launch correction put system into different engineering regime; both moon and SRCA data useful, but thermal bands heavily saturated for moon data, and complex data processing needed to show effect in SRCA data.
Analog to Digital Converter (ADC), differential non-linearity effects	Knew differential non-linearity not in specification, but failed to understand the implications of that situation	Effect seen as fuzzy histograms on virtually all bands; modest improvements in Bands 31 - 36 using redundant electronics; frequent need to truncate data to 11 bits for most demanding analyses
Spectral Leaks, SWIR thermal & Band 31 into Bands 32 - 36	Verification needed for pre-launch characterizations	SWIR data for night (no sun) provide best data set for thermal leak; moon in Space View Port useful for Band 31 leak, further tuned using vicarious data sets looking at ghost images of surface features
Channel to channel and band to band co-registration	Spectro-radimetric Calibration Assembly (SRCA) to be used for these studies	Objectives met through complex data analysis strategies
Response versus Scan Angle (RVS) & Mirror side differences	Best strategy is deep-space calibration maneuver in absence of moon in FOV; remove mirror side differences by looking at inside of closed nadir aperture door (C-NAD)	Deep Space maneuver date TBD; C-NAD data set useful to normalize mirror side differences, but can provide no insight into true RVS for either mirror side
Solar Diffuser Stability Monitor (SDSM) system performance	No system level performance testing accomplished on SD or SDSM	Significant structure in radiance field onto SDSM detectors due to 1.8% transmission screen requires complex modelling analysis for tracking solar diffuser degradation
Band 21 (fire band) calibration above 3.5% full-scale	Specified to 500 K but tested only to 340 K, useful for approximate linear gain term	Literature values at 4 micrometers (400 K) to calibrate linear gain term over larger temperature range; non-linear terms not determined

Principle MODIS On-Orbit Surprises

Characteristic	Nature of Surprise	Comments
Initial System Turn-on	Y2K and Christmas shut-downs at Goddard and longer time period for ascent to orbit delayed initiation of science and created significant early operations commanding requirements	First Earth-view observations delayed until 22 February 2000
Electronic Cross-talk	Pre-launch resistor change mitigated electronic cross-talk in Bands 27 - 30, but not in Bands 5-7 and 20 - 26. It apparently did change sensor electronic cross-talk in these 10 bands into a different performance regime. The presence of new regime was not recognized until the Fall.	Transition to more negative bias voltage on SW/MWIR focal plane on october 30, 2000 minimized SW/MWIR electronic cross-talk and eliminated the non-functional detector concerns on that focal plane by returning all detectors to a focal plane bias where all detectors are operational.
Mirror-side induced banding and channel-to-channel induced striping in data	Ripples in SD transmission screen interfers with channel-to-channel equalization calibrations in ocean color bands; initial OBC-BB observations provided smooth images in IR only at location in scan corresponding to location of BB within scan cavity	May need "develop" more complex radiometric calibration algorithm in ocean color bands; still need deep space calibration maneuver for response versus scan angle in infrared bands
Analog to Digital Converter (ADC), differential non-linearity effects	LSB on many bands noisy; seen in histograms of frequency of occurance of DN values as "fuzzy" histograms.	Did not recognize importance of miss on differential non-linearity specification; amounts to non-functional LSB in most bands; when taken with Tsat on Bands 31 and 32 leads to significant limit to 12-micron pathfinder SST accuracy; lead to redesign of these Tsat on Aqua.
Mirror rotation correlated noise variations in imaging smoothing	Appears to be variations in system noise performance across scan lines; leads to apparent mirror RVS characteristics changing with time frames not related to any sensor optical changes	Transition to B-side (redundant) electronics has eliminated the effect in continuing data acquisitions; electronic effect (?) still TBD, and will have impact on development of optimum look-up tables for reprcessing between 22 June and 31 October 2000.
Polarization		Not started in L1B studies
Scene Restoration due to Scattering Corrections		Not started in L1B studies

Section 2
MODIS Operations Overview

MODIS Operations
Contact Information

- MODIS Instrument Operations Team

- GSFC Building 32, Room S234

- E-mail: modiot@mcst.gsfc.nasa.gov
  - Chad Salo   301-614-5025
  - Bryan Breen   301-614-5131
  - Tony Salerno   301-614-5117

MODIS Operations Objective

- What: One year on-orbit summary and instrument status with an outlook to future operations issues

- Why: The MODIS Instrument Operations Team is responsible for the health and safety of the MODIS instrument as well as planning and scheduling instrument activities

MODIOT-3
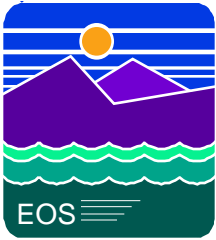
MODIS Operations Highlights

- Successful Activation of the MODIS Instrument
  - December 18th, 1999:   Terra Launch
  - February 11th, 2000:   Science Mode
  - February 24th, 2000:   Open Nadir Door
- Responded to Rad Cooler Temperature Anomaly
  - June 8th, 2000:   FPA stopped controlling at 83K
  - August 3rd, 2000:   Set FPA temperature to 85K
  - August 8-10th, 2000:   Performed second active outgas

MODIS Operations Highlights

- Supported Resolution of Formatter Anomaly
  - June 21st, 2000:   First formatter reset
  - August 5th, 2000:   Repeated formatter resets
  - August 18th, 2000:   Returned to Science mode with two FSW patches in place

- Switched Instrument Configuration to B-side
  - October 30th, 2000:   Transitioned to B-side science

MODIS Operations
SRCA Calibrations

- 60 SRCA Calibrations
  - 11 Full Spectral, 13 Full Spatial, 9 Full Radiometric
- Lamp Usage in hours: total (on orbit)
  - 10W Lamps, 500hr life: 1) 176.3 (42.1)   2) 137.6 (18.5)
  -                              3) 146.8 (18.5)   4) 61.5 (0)
  - 1W Lamps, 5000hr life: 1) 556.3 (13.4)   2) 276.3 (0)

	Lamp Use in Hours					
	10W #1	10W #2	10W #3	10W #4	1W #1	1W #2
Full Radiometric	0.151	0.13	0.13	0	0.086	0
Full Spatial	0.34	0.34	0.34	0	0.17	0
Full Spectral	2.38	1.172	1.172	0	0	0
One Year Use with: Monthly Radiometric Monthly Spectral Quarterly Spatial	31.732	16.984	16.984	0	1.712	0
Total after 5 years	334.96	222.52	231.72	61.5	564.86	276.3

MODIS Operations
SD/SDSM Calibrations

- 202 SD/SDSM Calibrations
  - 71 SD Door Open, 131 SD Door Screened
  - 1489 (556) of 3022 Solar Diffuser Door Movements

Date Range of Operation	SDCal per week closed/open	Number Used	Total Number Used	Number Remaining 1800
20 March - 02 July, 2000	3/1	150	150	1650
03 July 2000 - 08 July, 2001	1/1	324	468	1332
09 July 2001 - 21 December, 2003	0.5/0.5	384	852	948
22 December, 2003 - 19 March, 2006	1/1	702	1554	246
20 March, 2006 - 31 December, 2006	1/1	246	1800	0

MODIS Operations
Other Doors / Calibrations

- Nadir Door Operations
  - 529 (3) of 1316 Nadir Door Movements
- Space View Door Operations
  - 433 (4) of 1316 Space View Door Movements
- 29 Blackbody Calibrations
- 10 Electronics Calibrations
- 11 Lunar Calibrations, 9 via Roll Maneuvers
- 11 Yaw Maneuver SD/SDSM Calibrations

MODIS Operations Telemetry Trends

- General Temperature Increases
  - Appears to correlate with Solar Beta Angle
  - Trends since FR anomaly show a temperature increase rate of 2-5 degrees (C) per year, but the beta angle is currently increasing
  - Current rates will not exceed telemetry warning limits within 5 years

- Voltages are steady with occasional single-sample spikes

MODIOT-9

TA_AO_VIS_FPA   Min: 261.187(1340)   Max: 271.568(1489)

*Switch to B side

Year 2000 (Day 110 thru 366)
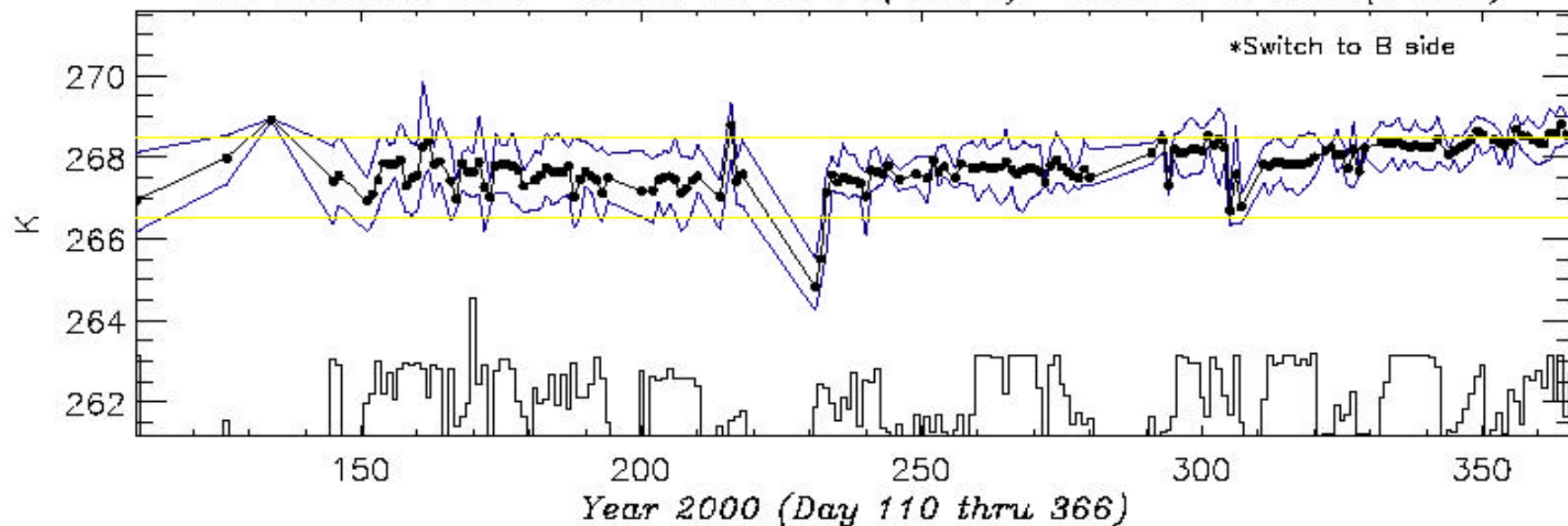
TA_AO_NIR_FPA   Min: 262.187(1325)   Max: 271.415(1457)

*Switch to B side

Year 2000 (Day 110 thru 366)
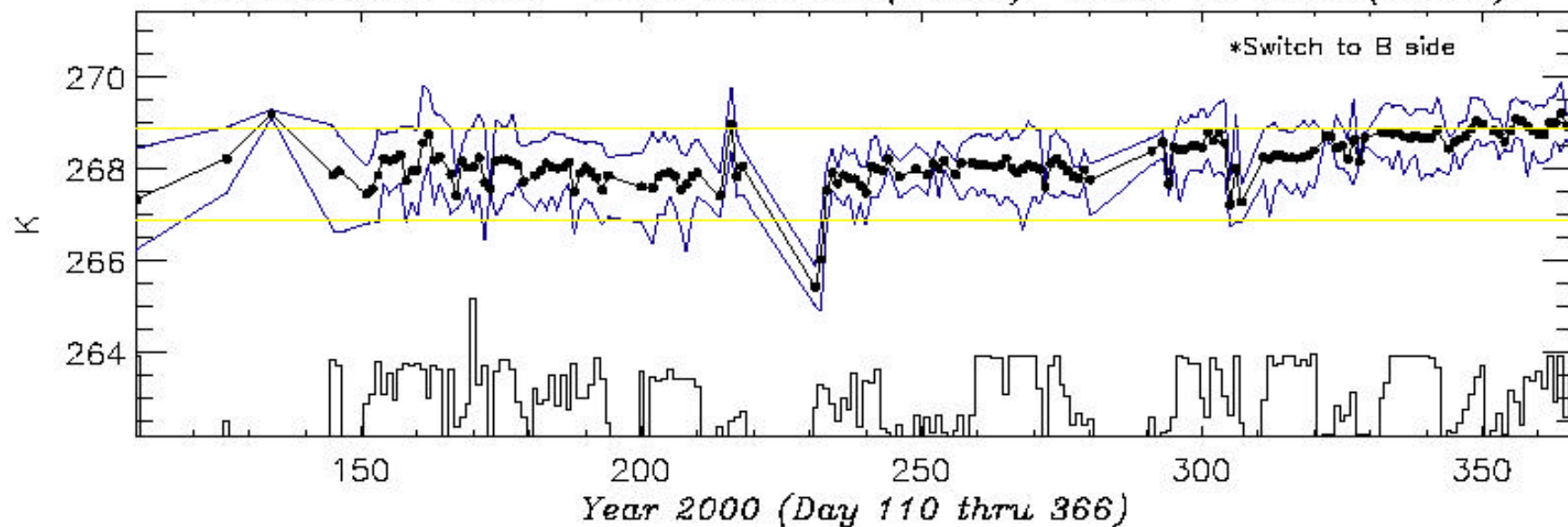
TA_RC_SMIR_CFPA_83   Min: 81.7969(1917)   Max: 85.4606(2037)

*Switch to B side

Year 2000 (Day 110 thru 366)
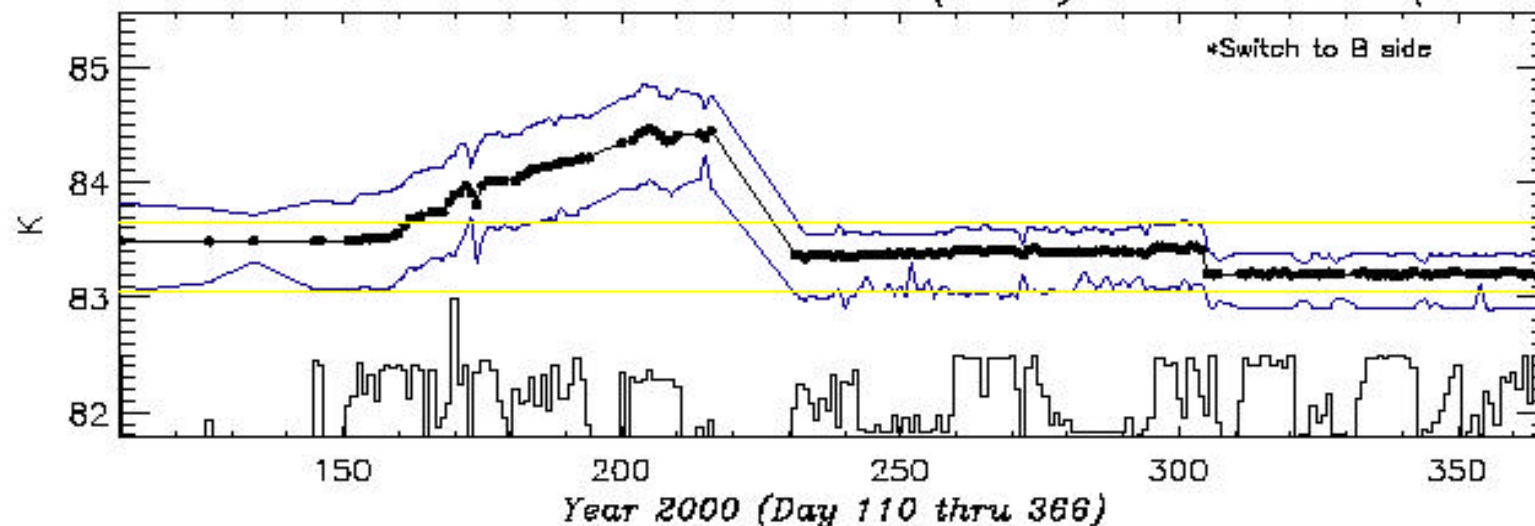
TA_RC_LWIR_CFPA_83   Min: 82.3317(2012)   Max: 84.4626(2810)

*Switch to B side

Year 2000 (Day 110 thru 366)
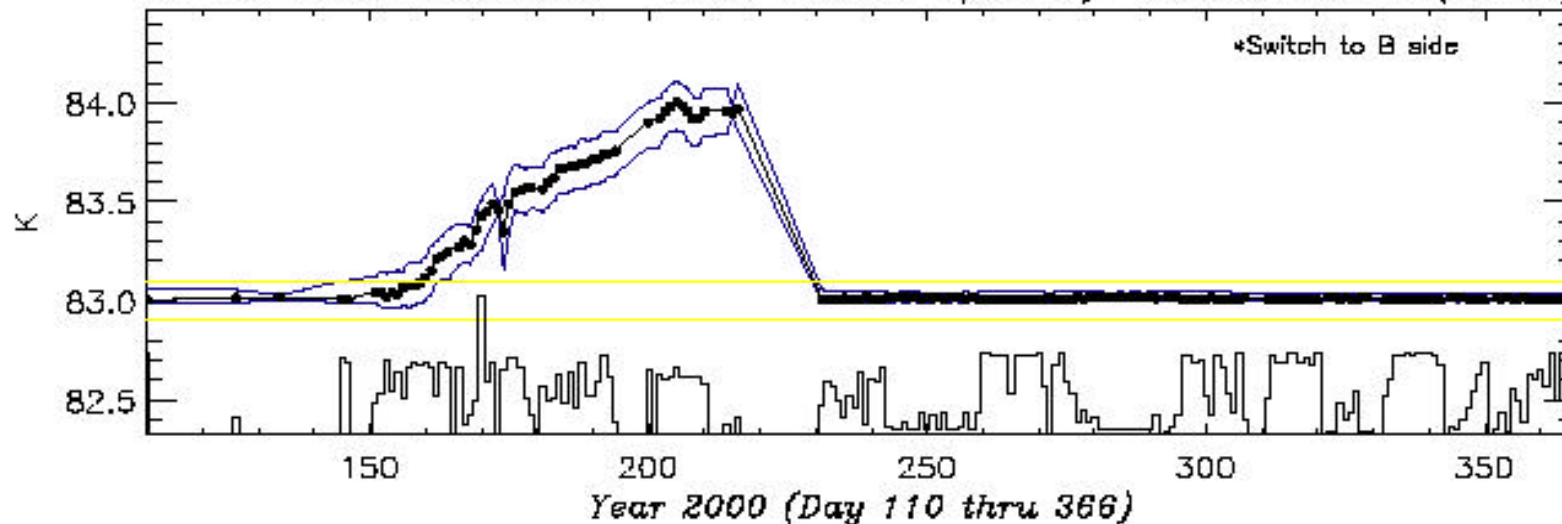
MOD_TP_DR_SVD and Solar Beta Angle
vs Day of Year
Day of Year (2000)

MODIOT-12
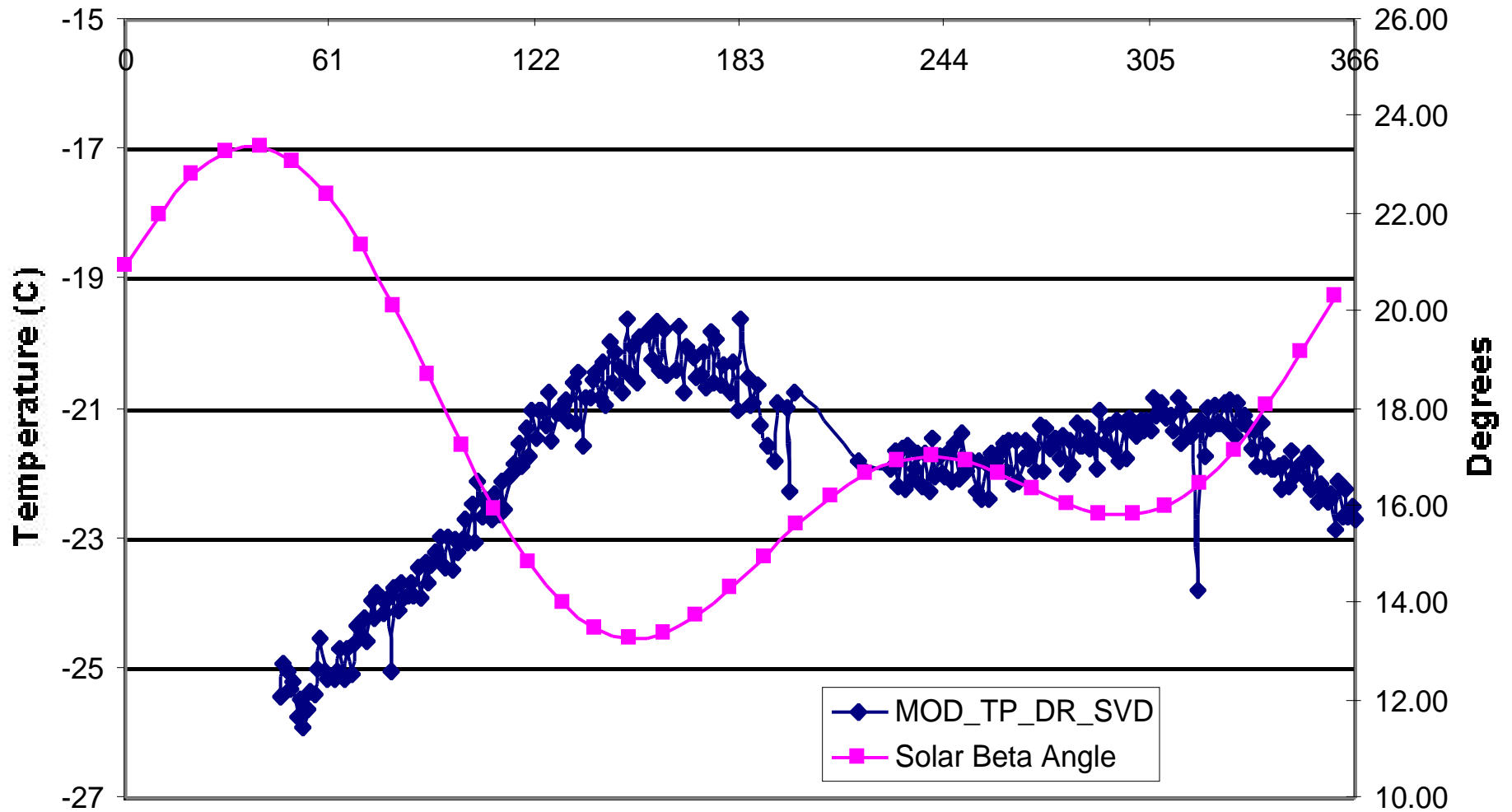
MOD_TP_AO_SMIR_OBJ vs. Day of Year
DOY (2000)

MODIOT-13

VR_SA_A_MTR_TORQ   Min: −9.79159(508)   Max: 20.9418(602)

*Switch to B side

IN OZ

Year 2000 (Day 110 thru 366)

VR_SA_B_MTR_TORQ   Min: −9.58065(507)   Max: 19.8449(597)

*Switch to B side

IN OZ

Year 2000 (Day 110 thru 366)

TP_CP_B_1553   Min: 258.099(381)   Max: 280.905(453)

*Switch to B side

K

280

275

270

265

260

150   200   250   300   350

Year 2000 (Day 110 thru 366)

TP_FR_A_ENGINE   Min: 262.671(396)   Max: 277.215(442)

*Switch to B side

K

276

274

272

270

268

266

264

150   200   250   300   350

Year 2000 (Day 110 thru 366)

MODIS Operations
FPA Telemetry Trends

- Focal Plane Heater Voltage

  - LWIR Focal Plane Heater Margin, -0.057 mW / day

  - Another Outgas required in approx. 1-2 years

- Radiative cooler / Outgas Temperatures

  - Prior to second outgas, Intermediate Stage temperature exceeded 131K

  - Intermediate Stage is currently 126.3K and steady

MOD_VR_PS2_P5_6V_D1 vs. Day of Year
DOY (2000)

Legend: MOD_VR_PS2_P5_6V_D1

Y-axis: Voltage (V), ranging from 5.7 to 5.9

X-axis: 306 to 366

MODIOT-17

TA_RC_CS   Min: 80.4968(3179)   Max: 86.0762(3296)

*Switch to B side

K

Year 2000 (Day 110 thru 366)

TA_RC_IS   Min: 118.077(2858)   Max: 135.532(3103)

*Switch to B side

K

Year 2000 (Day 110 thru 366)
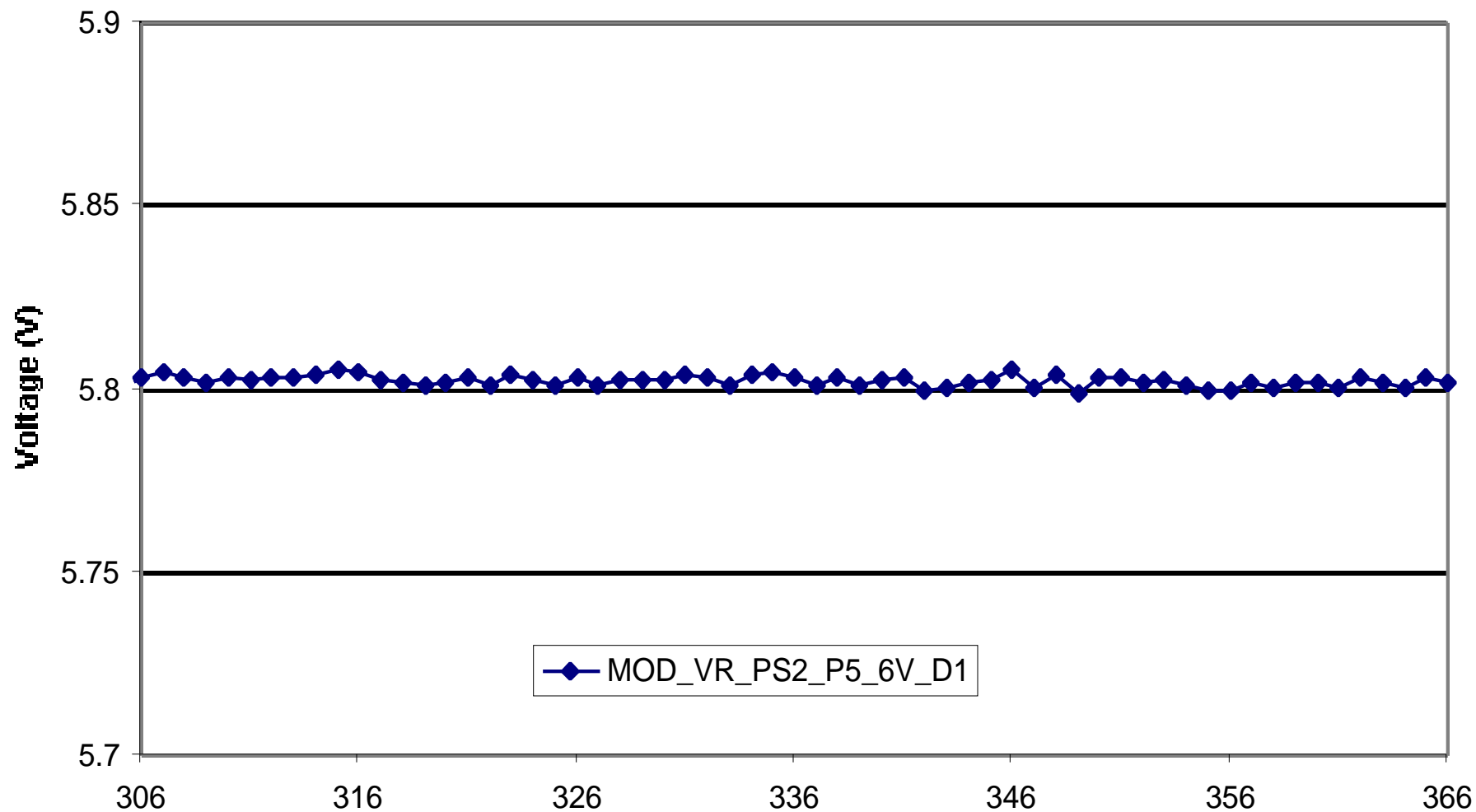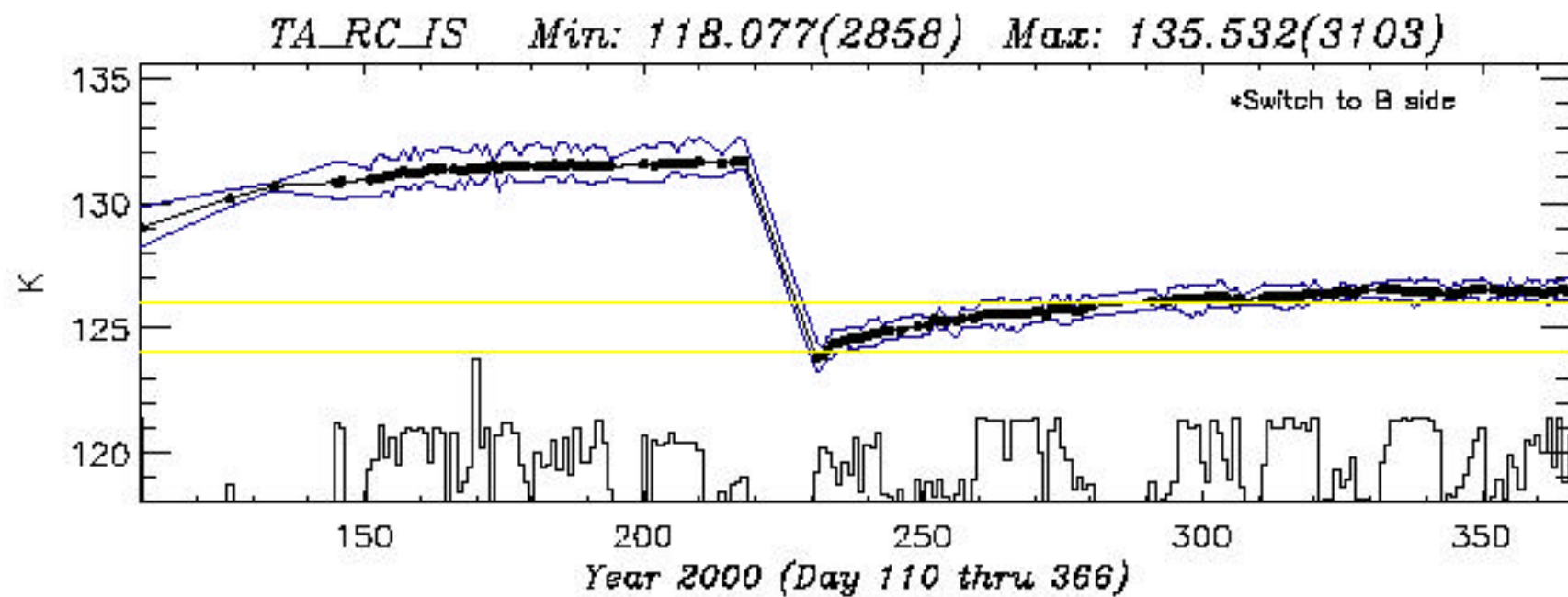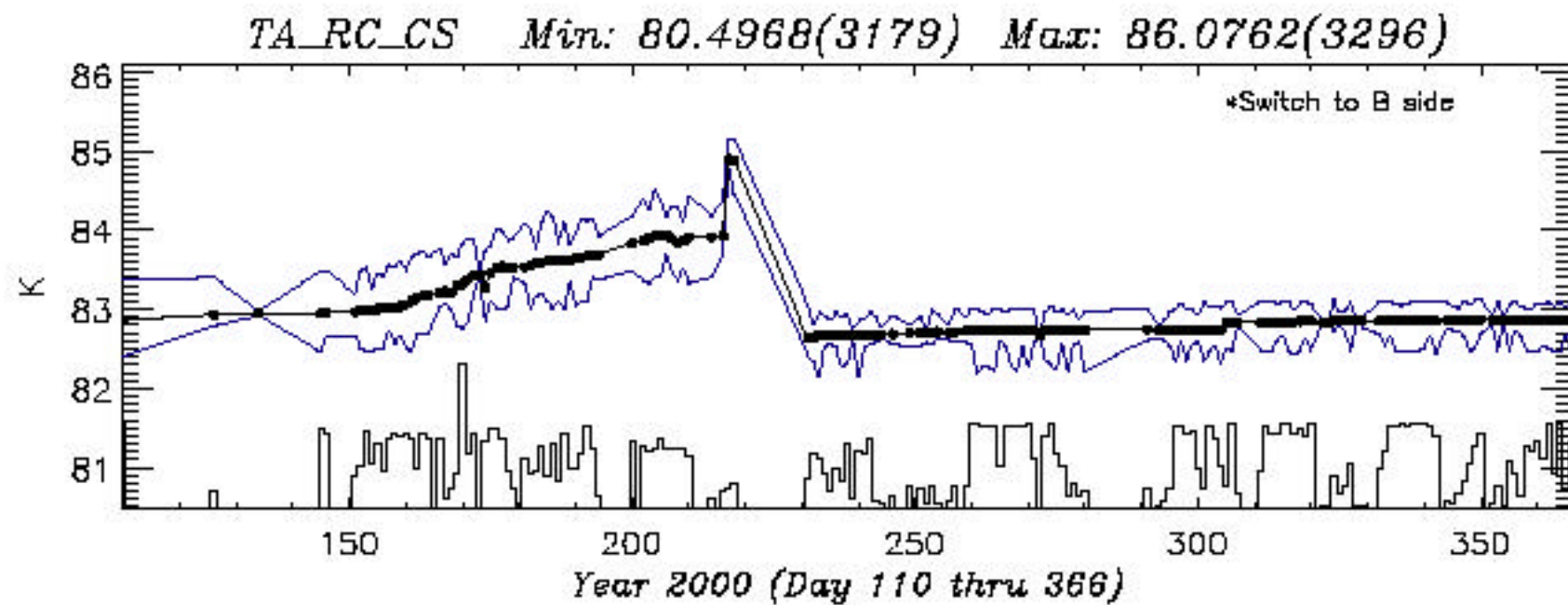
Section 3
MCST Computer System Architecture

Support, Infrastructure, the network
and the tools

MCST Environment

- The Network Environment
  - Hardware configuration
  - Software configuration
- Internal Tools
  - For use by MCST analysts
- External Tools
  - For use by the world

The Network

- Hardware Environment
  - Is built in modular fashion
  - Has a high performance production side
  - Has a lower performance development side
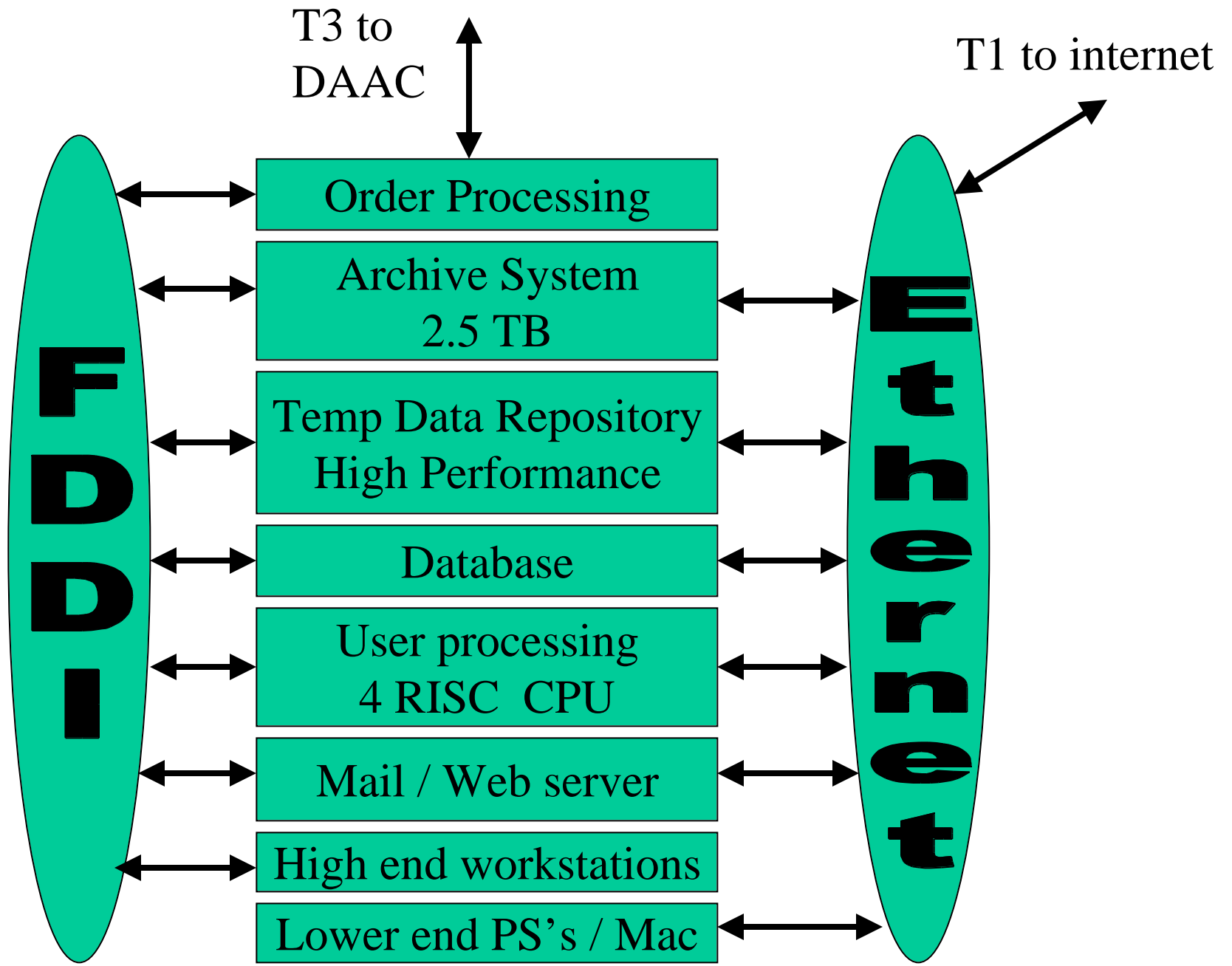
Network

- Software Environment
  - All machines have the same version of the common UNIX tools.
  - The paths to the data and working directories is the same across all platforms.
  - The path to your home directory is the same on all machines.

Internal Tools

- Data Order/Tracking System
- Retrospective Order Retrieval
- Data Repository Query Tool
- Data Repository Purge Tool
- Data Archive Query Tool
- MCST Web Interface

Production System Overview

- Orders are placed and submitted
- Data is received from the DAAC
- Data is processed
  - Data is placed in a read only data repository
    - it has a life of 7 days
  - Email is sent to the interested analyst
- Data is purged from the system or moved to the archive

Data Order/Tracking System

- Allows data to be presented to the analyst as soon as possible.

- Single point of contact.
  - Free analyst from delivery burden

- Eliminate duplication of work and orders.
  - Reduces the resources consumed.

- Graphical representation of granules Delivered.

MCST Ordering System

Refresh
Reload the aplication.

Select Date
Select date to work with.

Login
Change Login ID.

Show key
Show Order System Key

L1BOBC L1B1KM L1BHKM L1BQKM L1A L0 GEOLOC DATE + DATE -

Name: test   Date: 2001003 (January 3, 2001)   Type: L1BOBC

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
0	D											D			D	D	D		D	D				
5	D											D			I	I	D		D	D				
10		D													D	D	D	D	D	D				
15		D													D	D	D	D	D	D	D			
20		D													D	D	D	D	D	D				
25		D													D	D	D	D	D	D				
30		D													D	D	D	D	D	D				
35		D													D	D	D	D	D	D				
40		D													D	D	D	D	D	D		N		
45		D													D	D	D	D	D	D				
50		D													D	D	D	D	D	D				
55												D		D	D	D	D	D	D			N		

Order Syste...

- 🟩 Your Orders
- 🟦 Other Orders
- **S** Submitted to the DAAC
- **A** DAAC Acknowledgement
- **I** DAAC is processing
- **N** DAAC shipping notice
- **R** Retrospective order tracking
- **D** Delivered to /mopads/terra

Retro Order Retrieval

- Automates the retrieval of Retrospective orders.
- Allows the use of the ordering system T3 line verses the standard T1 connection.
- Allows the order to be tracked by the ordering system.
- Stores the data in the repository for all to see.

File   Edit   View   Go   Communicator   Help

Back   Forward   Reload   Home   Search   Netscape   Print   Security   Shop   Stop

Retrospective Order Retrieval

This form is used to retrieve a retrospective order. It will ftp the order down the T3 and place it in /incoming/ftp/pub for processing thru the system. If you have not recieved your file please use this link to notify us. scheduler@mcst.gsfc.nasa.gov

Paste Email here

Submit   Clear

Document: Done

Production System Overview

- Orders are placed and submitted
- Data is received from the DAAC
- Data is processed
  - Data is placed in a read only data repository
    - it has a life of 7 days
  - Email is sent to the interested analyst
- Data is purged from the system or moved to the archive

Data Repository Query Tool

- Shows a graphical Representation of data available

MCST Data Interface – Netscape

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

MCST /mopads/terra Query

This form checks /mopads/terra to see what files are available. If your file is on this list and you have not recieved an email notification please use this link to notify us. scheduler@mcst.gsfc.nasa.gov

Delivery Format
```
L1A
L1BOBC
L1B1KM
L1BHKM
L1BQKM
L1B1QA
L1AGEO
```

Submit   Clear

Here are the current results for: 2000353

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

Document: Done

...ape

...cator Help

Home Search Netscape Print Security Shop Stop

...ent results for: 2000357

06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

...ent results for: 2000358

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

Document: Done

Production System Overview

- Orders are placed and submitted
- Data is received from the DAAC
- Data is processed
  - Data is placed in a read only data repository
    - it has a life of 7 days
  - Email is sent to the interested analyst
- Data is purged from the system or moved to the archive
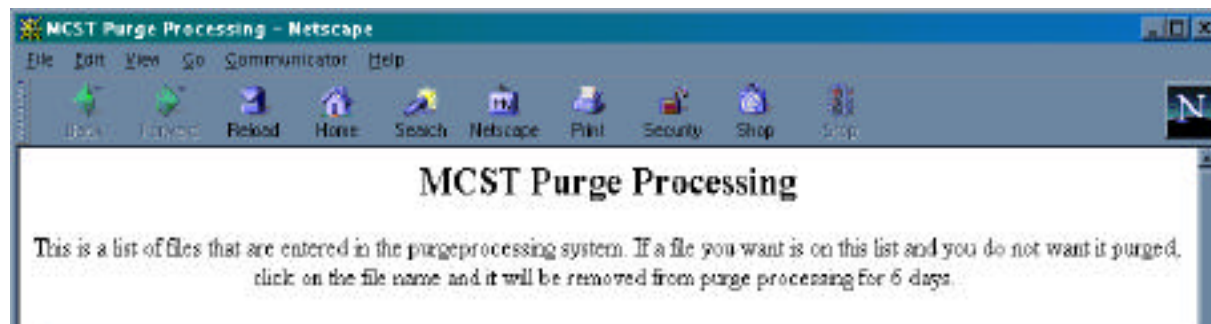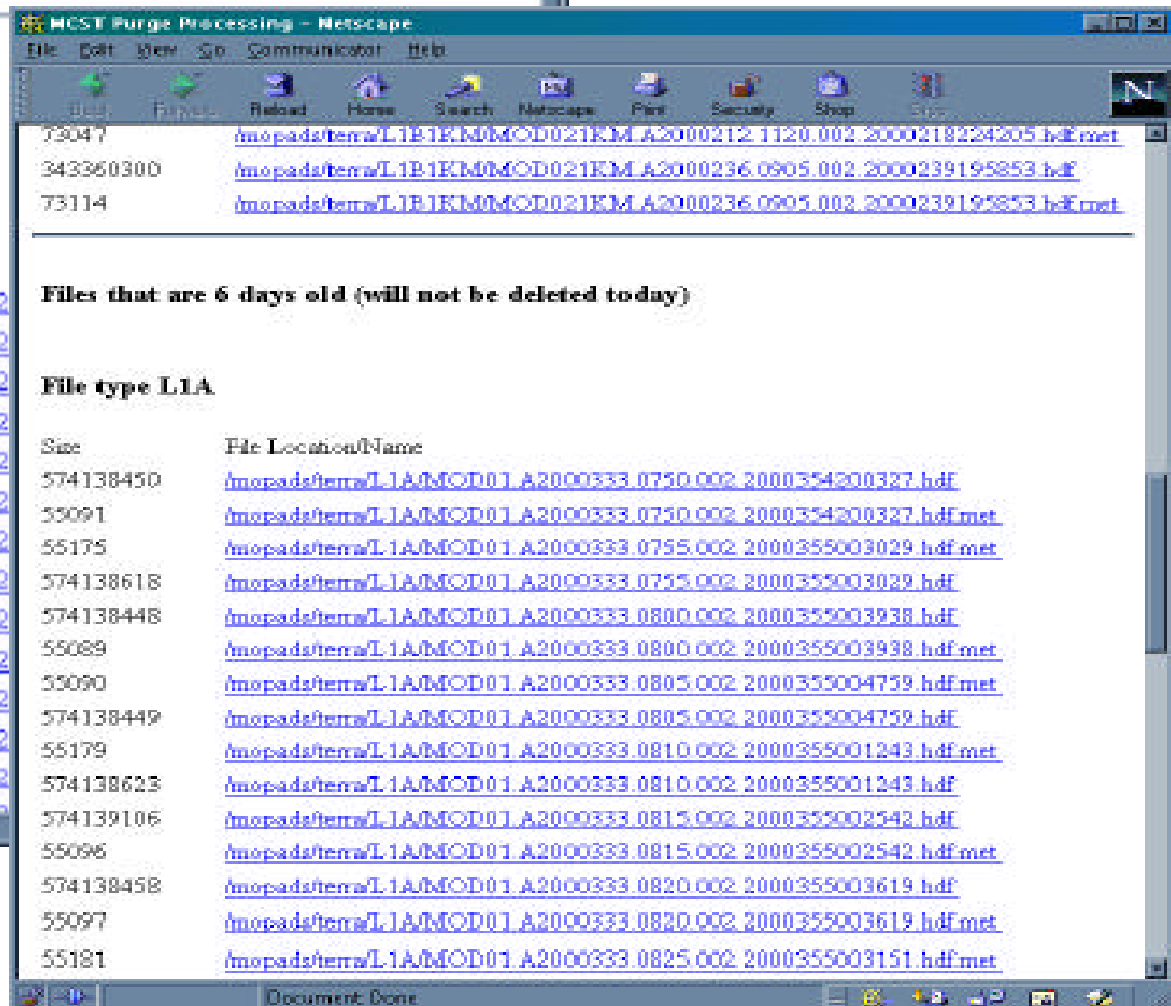
Data Repository Purge Tool

- Shows what files are scheduled to be removed from the repository.

- Allows analyst to remove files from the purge list for an additional 7 days.

MCST Purge Processing

This is a list of files that are entered in the purgeprocessing system. If a file you want is on this list and you do not want it purged, click on the file name and it will be removed from purge processing for 6 days.

Files to be deleted today (older than 6 days)

File type L1A

Size	File Location/Name
55100	/mopads/terra/L1A/MOD01.A2000333.0550.002
55184	/mopads/terra/L1A/MOD01.A2000333.0555.002
55097	/mopads/terra/L1A/MOD01.A2000333.0600.002
55094	/mopads/terra/L1A/MOD01.A2000333.0605.002
55176	/mopads/terra/L1A/MOD01.A2000333.0610.002
55091	/mopads/terra/L1A/MOD01.A2000333.0615.002
55090	/mopads/terra/L1A/MOD01.A2000333.0620.002
55174	/mopads/terra/L1A/MOD01.A2000333.0625.002
55093	/mopads/terra/L1A/MOD01.A2000333.0630.002
55095	/mopads/terra/L1A/MOD01.A2000333.0635.002
55179	/mopads/terra/L1A/MOD01.A2000333.0640.002
55095	/mopads/terra/L1A/MOD01.A2000333.0645.002
55098	/mopads/terra/L1A/MOD01.A2000333.0650.002

Document Done

73047	/mopads/terra/L1B_1KM/MOD021KM.A2000212.1120.002.2000218224205.hdf.met
343360300	/mopads/terra/L1B_1KM/MOD021KM.A2000236.0905.002.2000239195853.hdf
73114	/mopads/terra/L1B_1KM/MOD021KM.A2000236.0905.002.2000239195853.hdf.met

Files that are 6 days old (will not be deleted today)

File type L1A

Size	File Location/Name
574138450	/mopads/terra/L1A/MOD01.A2000333.0750.002.2000354200327.hdf
55091	/mopads/terra/L1A/MOD01.A2000333.0750.002.2000354200327.hdf.met
55175	/mopads/terra/L1A/MOD01.A2000333.0755.002.2000355003029.hdf.met
574138618	/mopads/terra/L1A/MOD01.A2000333.0755.002.2000355003029.hdf
574138448	/mopads/terra/L1A/MOD01.A2000333.0800.002.2000355003938.hdf
55089	/mopads/terra/L1A/MOD01.A2000333.0800.002.2000355003938.hdf.met
55090	/mopads/terra/L1A/MOD01.A2000333.0805.002.2000355004759.hdf.met
574138449	/mopads/terra/L1A/MOD01.A2000333.0805.002.2000355004759.hdf
55179	/mopads/terra/L1A/MOD01.A2000333.0810.002.2000355001243.hdf.met
574138623	/mopads/terra/L1A/MOD01.A2000333.0810.002.2000355001243.hdf
574139106	/mopads/terra/L1A/MOD01.A2000333.0815.002.2000355002542.hdf
55096	/mopads/terra/L1A/MOD01.A2000333.0815.002.2000355002542.hdf.met
574138458	/mopads/terra/L1A/MOD01.A2000333.0820.002.2000355003619.hdf
55097	/mopads/terra/L1A/MOD01.A2000333.0820.002.2000355003619.hdf.met
55181	/mopads/terra/L1A/MOD01.A2000333.0825.002.2000355003151.hdf.met

Document Done

Production System Overview

- Orders are placed and submitted
- Data is received from the DAAC
- Data is processed
  - Data is placed in a read only data repository
    - it has a life of 7 days
  - Email is sent to the interested analyst
- Data is purged from the system or moved to the archive

Data Archive Query Tool

- Gives a graphical representation of The data files stored in the archive structure.

- Shows the status of the files (on tape , on disk or unavailable).

- Allows the analyst to move the file from tape to disk either singly or in groups.

File Edit View Go Communicator Help

MCST Archive Query

This form checks the archive to see what standing order data is stored here. The form requires a three digit julian day. If your file is on this list and you have not recieved your file please use this link to notify us scheduler@mcst.gsfc.nasa.gov

MOD02OBC
MOD021QA

Observation day: 189 Year 2000 Format

Submit   Clear

Here are the current results for: 2000189

	00	01	02	03	04	05	06	07	08	09	10	11	12	13
0	T	-D-	T	T	T	T	T	T	T	-D-	-D-	-D-	-D-	-D-
5	T	-D-	T	T	T	T	T	T	T	-D-	-D-	-D-	-D-	-D-
10	T	-D-	T	-X-	T	T	T	T	T	-D-	-D-	-D-	-D-	-D-
15	-X-	-D-	T	-X-	T	T	T	T	-D-	-D-	-D-	-X-	-D-	-D-
20	T	-D-	T	-X-	T	T	T	T	-D-	-D-	-D-	-D-	-D-	-D-
25	T	-D-	T	T	T	T	T	T	-D-	-D-	-D-	T	-D-	-D-
30	T	-D-	T	T	T	T	T	T	-D-	-D-	-D-	-D-	-X-	-D-
35	-X-	-D-	T	T	T	T	T	T	-D-	-D-	-D-	-D-	-D-	-D-
40	T	-D-	T	T	T	T	T	-D-	-D-	-D-	-D-	-D-	-D-	-D-
45	T	-D-	T	T	T	T	T	T	-D-	-D-	-D-	-D-	-D-	-D-
50	T	-D-	T	T	T	-X-	T	T	-D-	-D-	-D-	-D-	-D-	-D-
55	T	-D-	T	T	T	T	T	T	-D-	-D-	-D-	-D-	-D-	-D-

-X- : File not present in Archive

-D- : File on Archive disk cache

-T- : File on Archive tape system

Document: Done

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks   Netsite: http://mcst-arc.gsfc.nasa.gov/cgi-bin/stage.cgi?file=MOD02OBC.A2000189.16   What's Related

MCST- Servers   NASA   Yahoo!   Mon - Home   NY JETS HOME   Slashdot News   Mills Martial A

MCST Archive Stage file Request

This program will issue a stage file request to the archive (move file from tape to the diskcache). The process may take up to 5 mins to complete depending on file size. If you have a problem with this page please use this link to notify us. scheduler@mcst.gsfc.nasa.gov

File Names matching - MOD02OBC.A2000189.16*
are being staged.

MOD02OBC.A2000189.1600.002.2000217043004.hdf.gz
MOD02OBC.A2000189.1600.002.2000217043004.hdf.met.gz
MOD02OBC.A2000189.1605.002.2000217045313.hdf.gz
MOD02OBC.A2000189.1610.002.2000217045846.hdf.met.gz
MOD02OBC.A2000189.1615.002.2000217045702.hdf.gz
MOD02OBC.A2000189.1615.002.2000217045702.hdf.met.gz
MOD02OBC.A2000189.1620.002.2000217052309.hdf.gz
MOD02OBC.A2000189.1620.002.2000217052309.hdf.met.gz
MOD02OBC.A2000189.1625.002.2000217051639.hdf.gz
MOD02OBC.A2000189.1625.002.2000217051639.hdf.met.gz
MOD02OBC.A2000189.1630.002.2000217051757.hdf.gz
MOD02OBC.A2000189.1630.002.2000217051757.hdf.met.gz

Document: Done

MCST Web Interface

- Allows the analyst with a user_id and password access to selected web tools from any where in the word.
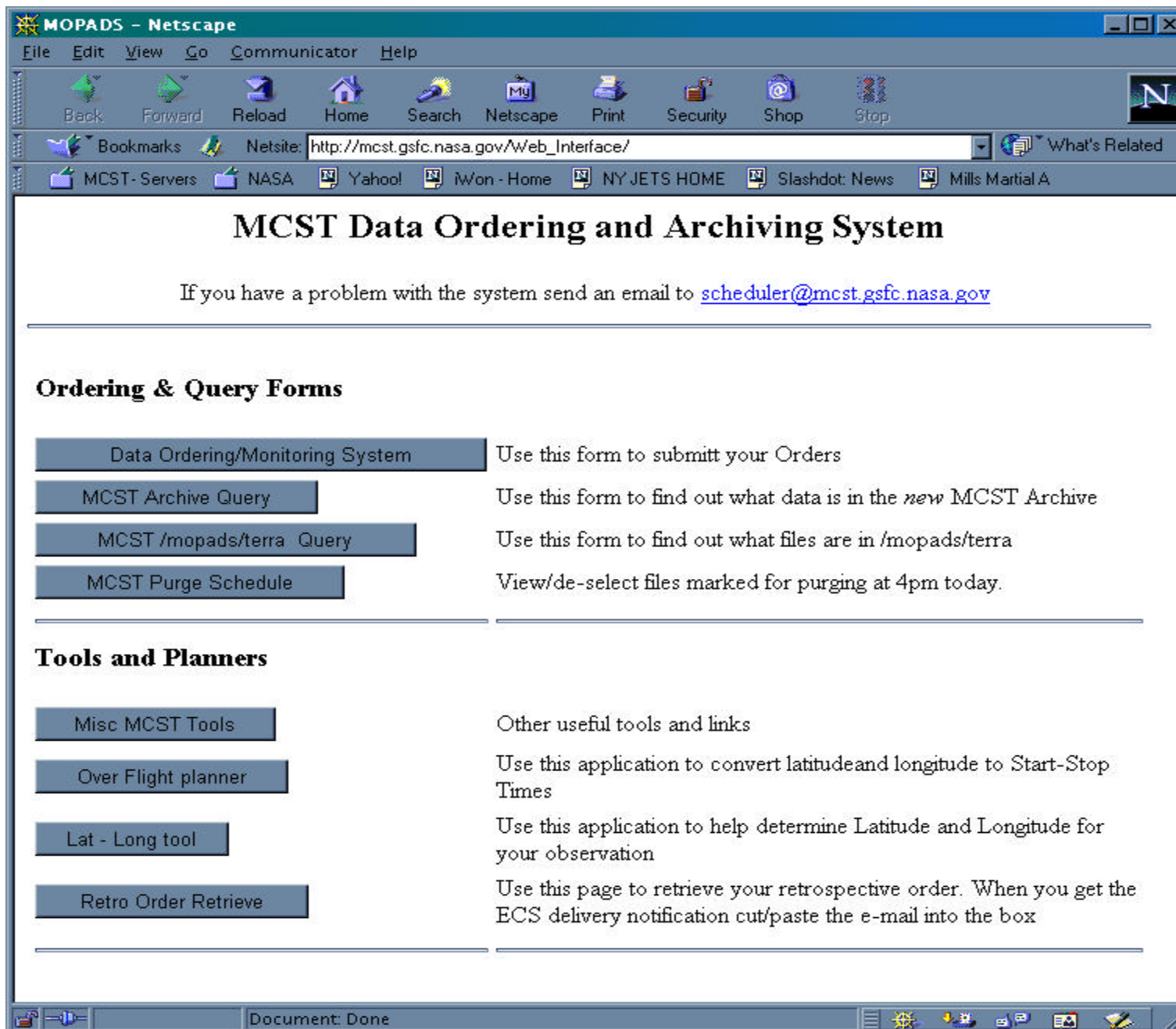
MCST Data Ordering and Archiving System

If you have a problem with the system send an email to scheduler@mcst.gsfc.nasa.gov

Ordering & Query Forms

Data Ordering/Monitoring System	Use this form to submitt your Orders
MCST Archive Query	Use this form to find out what data is in the *new* MCST Archive
MCST /mopads/terra Query	Use this form to find out what files are in /mopads/terra
MCST Purge Schedule	View/de-select files marked for purging at 4pm today.

Tools and Planners

Misc MCST Tools	Other useful tools and links
Over Flight planner	Use this application to convert latitudeand longitude to Start-Stop Times
Lat - Long tool	Use this application to help determine Latitude and Longitude for your observation
Retro Order Retrieve	Use this page to retrieve your retrospective order. When you get the ECS delivery notification cut/paste the e-mail into the box

Misc.

- System monitor tool
  - Big Brother
- Print queue monitor
  - LPRng mon
- Problem reporting and tracking system
  - Wreq

External tools

- Lat_Long tool

- Over flight planner

Lat Long Tool

- Gives a graphical representation of earth.

- Allows the user to determine the latitude and longitude of a spot on the globe.
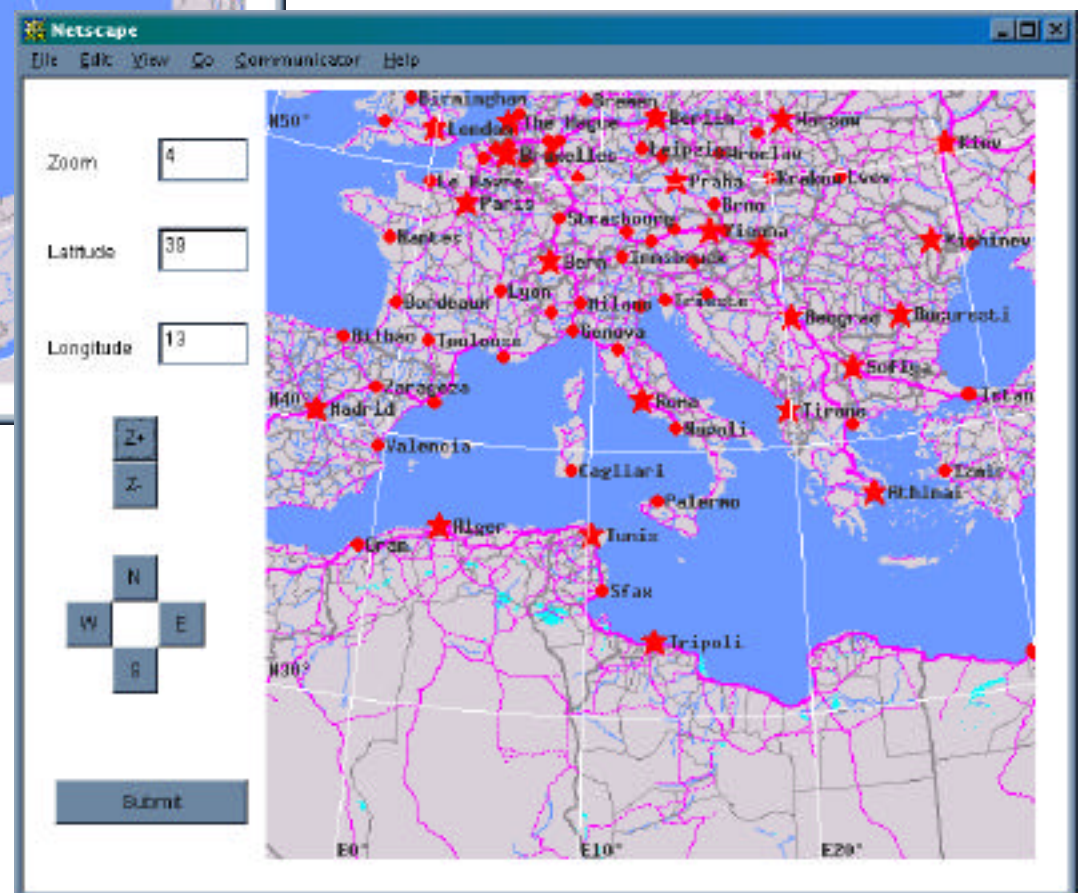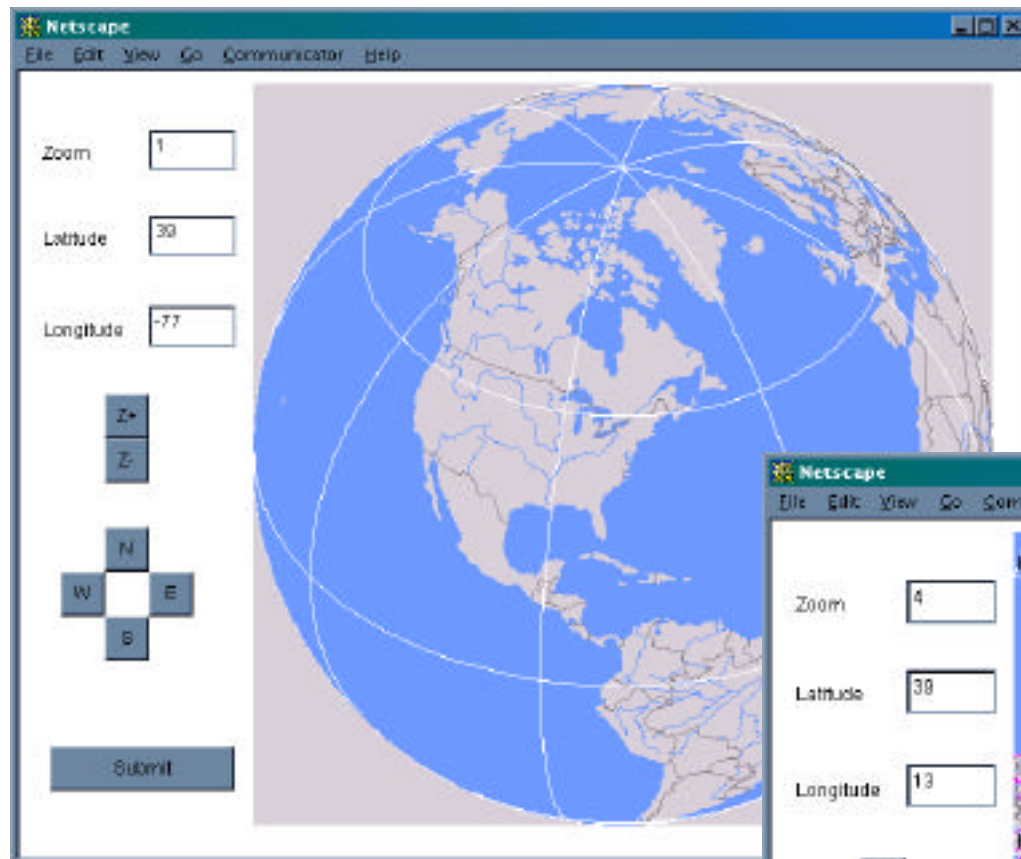
Over Flight planner

- Given the latitude and longitude of a point on the globe this tool will predict when it will be observed by the satellite as well as the angle of the observation.

- A check for a new parameter file is done every hour

- Can predict the location of any satellite by changing the parameters. The current default is terra.

File　Edit　View　Go　Communicator　Help

EOS SATELLITE OVERFLIGHT PLANNER

Input the Target

Latitude	0	deg	0	min	0	sec	North
Longitude	0	deg	0	min	0	sec	East
Radius	100	km	(0 < Radius < 1000)				

Input Satellite Orbit Parameters:　　(Default values for MODIS)

Parameter	Value	Unit
Semi-major axis	7077.689237099999	km
Eccentricity	1.37914E-4	
Period	5932.933428350361	sec
Inclination	98.1738795	deg
Ascending node	81.03370870481857	deg
Ascending node rate	1.1407711613050424E-5	deg/sec
Argument of perigee	111.45999552	deg
Starting time	2451910.2669240204	julian day

Input Instrument Scan Angle Range:　　(Default values for MODIS)

Minimum angle	-55	deg	Maximum angle	55	deg

Input Time Range:　　(Month/Day/Year　Hour:Minute:Second)

Start	1	19	2001	0	0	0
Stop	1	26	2001	0	0	0

Results only　　　　**Results and Params**

Output:

File   Edit   View   Go   Communicator   Help

Eccentricity	1.37914E-4	
Period	5932.933428350361	sec
Inclination	98.1738795	deg
Ascending node	81.03370870481857	deg
Ascending node rate	1.140711613050424E-5	deg/sec
Argument of perigee	111.45999552	deg
Starting time	2451910.2669240204	julian day

Input Instrument Scan Angle Range: (Default values for MODIS)

Minimum angle   -55   deg   Maximum angle   55   deg

Input Time Range: (Month/Day/Year Hour:Minute:Second)

Start	1	19	2001	0	0	0
Stop	1	26	2001	0	0	0

Results only   **Results and Params**

Output:

```
Period              5932.933428350361
Inclination         98.1738795
Ascending node      81.03370870481857
Argument of perigee 111.45999552
Starting time       2451910.2669240204

Min Ang: -55    Max Ang:  55
Start Time - 1/19/2001 - 0:0:0
Stop Time - 1/26/2001 - 0:0:0


Encounter  Target Encounter      Leaves Target          Target Point       Scan Angle
 number         GMT                   GMT                 Local Time          degree
   001     01/19/01 10:58:45     01/19/01 10:59:14     01/19/01 10:59:00      32.850
   002     01/19/01 23:20:09     01/19/01 23:20:39     01/19/01 23:20:24     -53.102
   003     01/20/01 22:25:03     01/20/01 22:25:33     01/20/01 22:25:18      32.972
   004     01/21/01 10:46:27     01/21/01 10:46:57     01/21/01 10:46:42      10.040
   005     01/21/01 23:07:52     01/21/01 23:08:22     01/21/01 23:08:07     -43.918
   006     01/22/01 22:12:45     01/22/01 22:13:15     01/22/01 22:13:00      46.898
   007     01/23/01 10:34:09     01/23/01 10:34:39     01/23/01 10:34:24     -16.982
```