SUOMI NPP ATMS INSTRUMENT STATUS REPORT

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NOAAA/STAR

SESSION 4, AUGUST 9TH, 2016

Outline

- ATMS Instrument Status
- ATMS Data Quality
- ATMS Scan Drive Motor Current Anomaly
- Summary and Path Forward

Suomi NPP ATMS Instrument Status

ICVS Home > ICVS Anomaly History

ICVS Instrument Anomalies

Cumulative Zip file of all MX Releases, (ZIP, 1.57 MB, New: 6/30/2016)

Click column headings to sort; Type in the "Search" box to query table contents.

Updated: 8/8/2016

Show 30 entries Search: ATMS

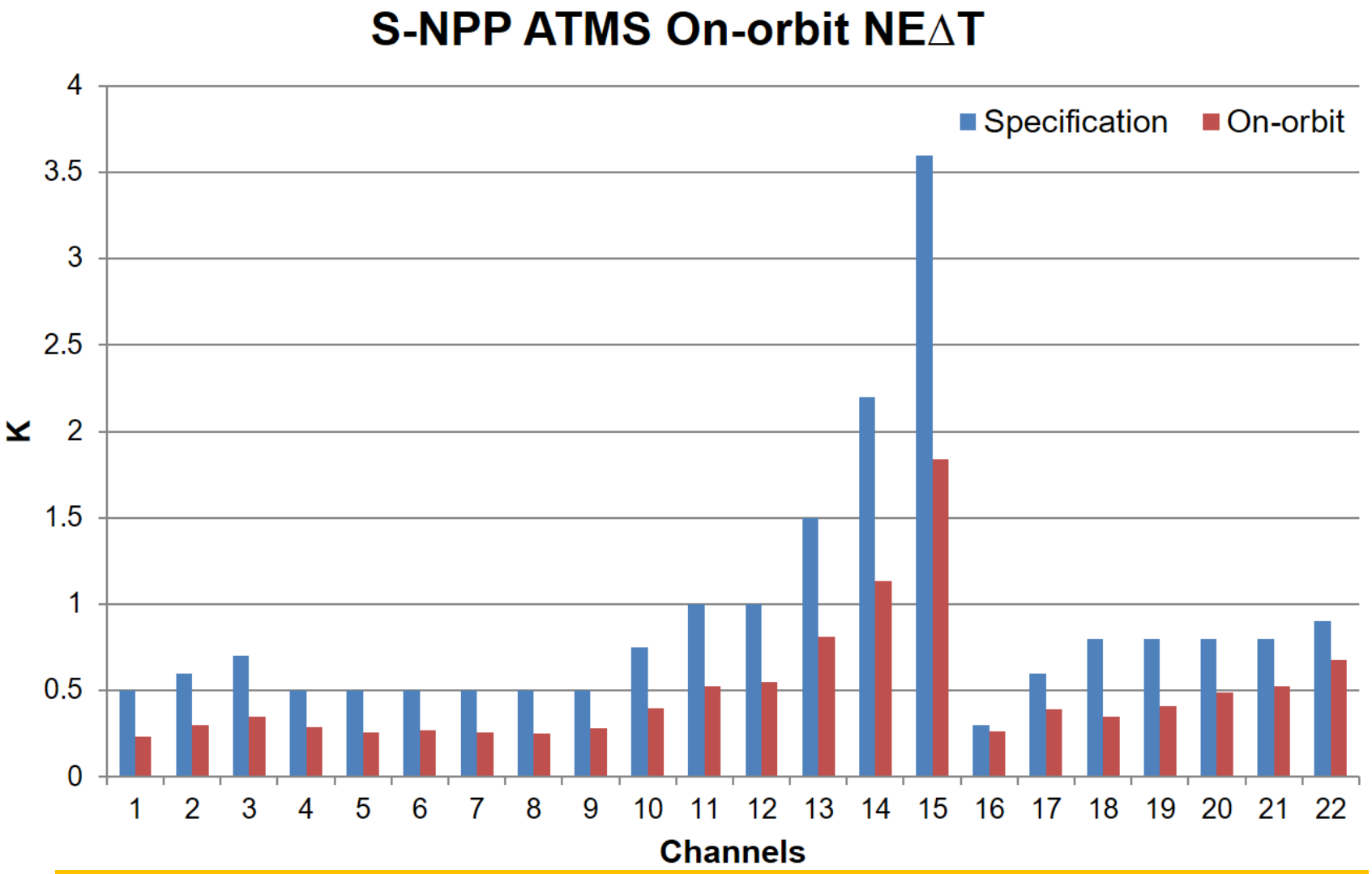
Event	Date	Time (UTC)	End (UTC)	Instrument(s)	Retrieved from:	CCR	Notes
ATMS Table and RAM Dumps	08/02/16	16:59	17:02	A	ESPC Ops Report	---	During SVL Contact 24691 SNPP engineers placed the ATMs instrument in safe mode to perform required ATMS table dumps. While in safe mode no scince data was generated resulting in a 2 minute, 40 second ATMS outage.
ATMS Once-per-Orbit Scan Reversals Implemented	07/25/16	-:--	-:--	A	Go-CAM Report, C/V Leads Archive	---	Svalbard Contact 24577, Ground commanded CBM-sequence until 08/04/16, then DAS-commanded at 70N, 75N, 80N, repeat. Expect 14 reversals/day.
ATMS TMon 131 and 132 Activated	07/18/16	-:--	-:--	A	C/V Leads Archive	---	---
ATMS TMon 131 and 132 Load	07/15/16	19:21	-:--	A	Go-CAM Report, C/V Leads Archive	---	On Friday, 15 July 2016, during contact 24437 at 19:21 UTC, OSPO loaded two new TMons (131 & 132) and one new ACBM sequence (100) to ATMS to monitor ATMS Main Motor temperature and DTU-measured ATMS Scan Drive Mechanism temperature. If either temperature exceeds 60C for 24 seconds or 10 seconds, respectively, ATMS will automatically be commanded to safe mode.

Suomi NPP instrument event log is now available in STAR ICVS website provided by Cole Rossiter

Suomi NPP ATMS Instrument Status

Event	Day	Event	Day
ATMS Table and RAM dump	08/02/2016	ATMS Once-per-Orbit Scan Reversals Implemented	07/25/2016
ATMS TMon 131 and 132 Activated	07/18/2016	ATMS TMon 131 and 132 Loaded	07/15/2016
ATMS Manual Command Scan Drive Reversal	05/09/2016 ~ 05/13/2016	ATMS Manual Command Scan Drive Reversal	05/05/2016 ~ 05/06/2016
ATMS Daily Scan Drive Reversals Stopped	04/15/2016	ATMS 1553 Packet Error Counter Alarm	02/01/2016
Commencement of the daily ATMS Scan Reversal	08/24/2015	ATMS Scan Reversal DAS Test Out	08/13/2015
ATMS Scan Reversal Upload Test	07/14/2015		

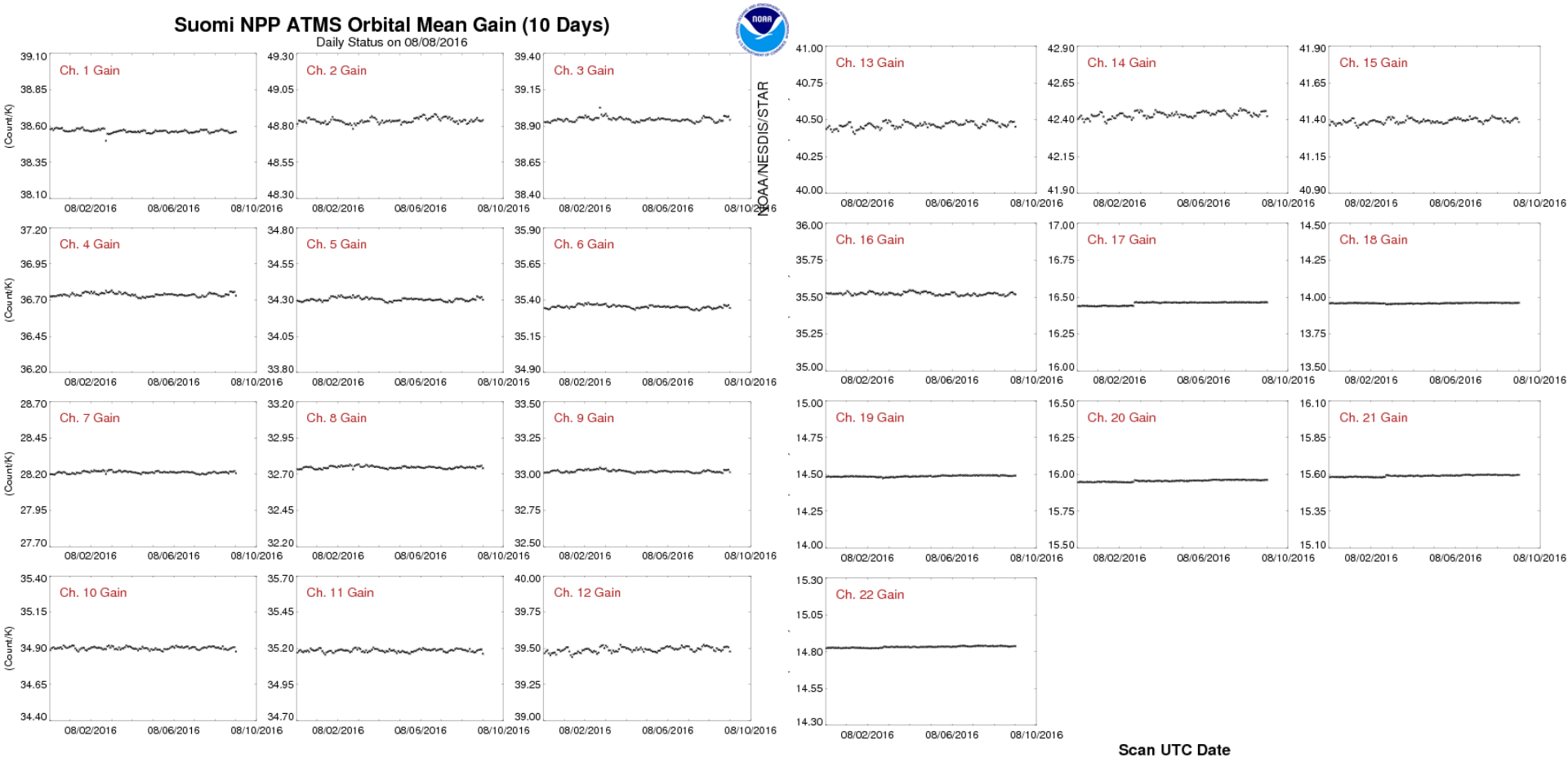
Suomi NPP ATMS On-orbit Performance



Suomi NPP ATMS all channel noise meets the requirement with margins

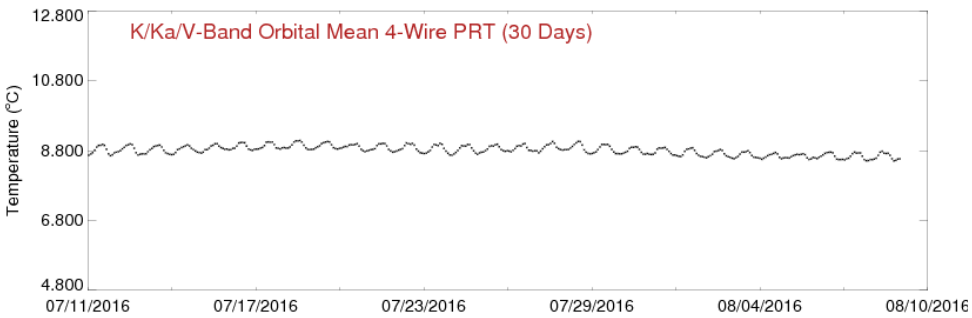
Suomi NPP ATMS On-orbit Performance

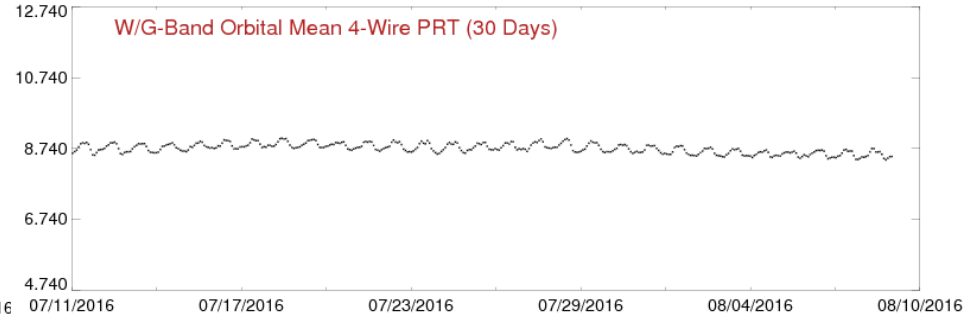
Suomi NPP ATMS channel calibration gain is stable

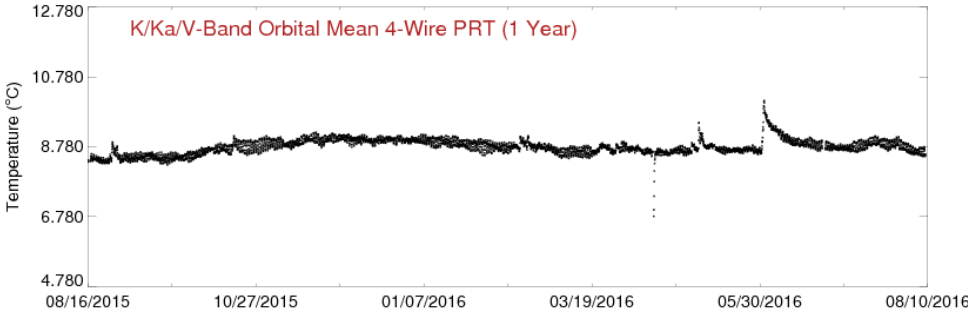


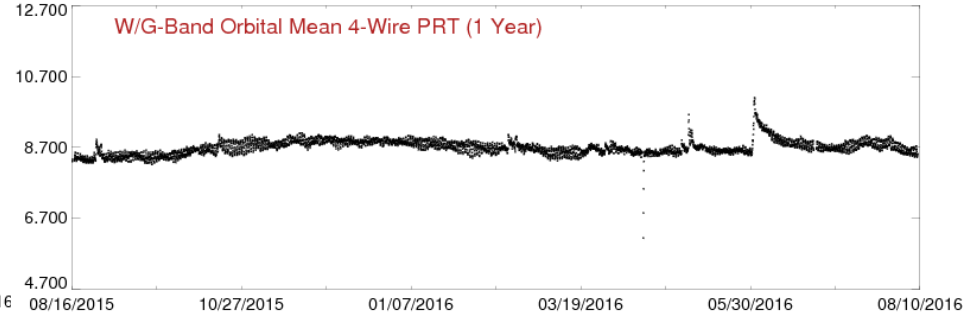
Suomi NPP ATMS On-orbit Status

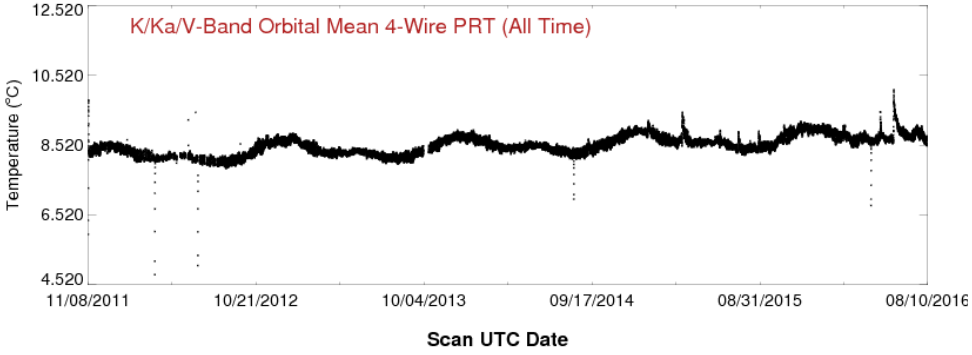
Suomi NPP ATMS warm load PRT temperature is stable

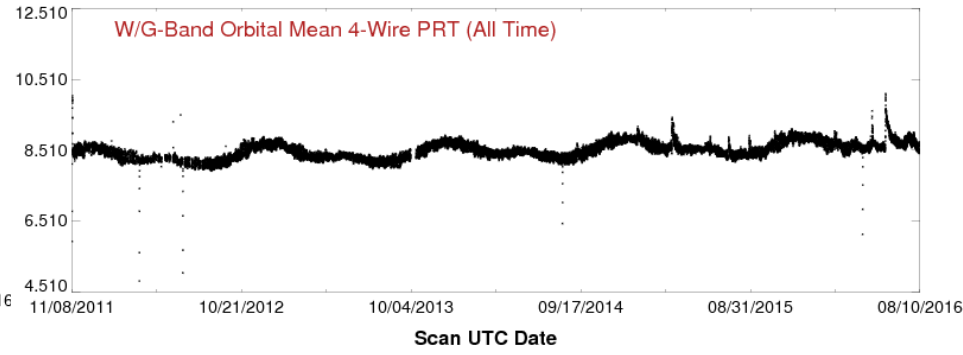




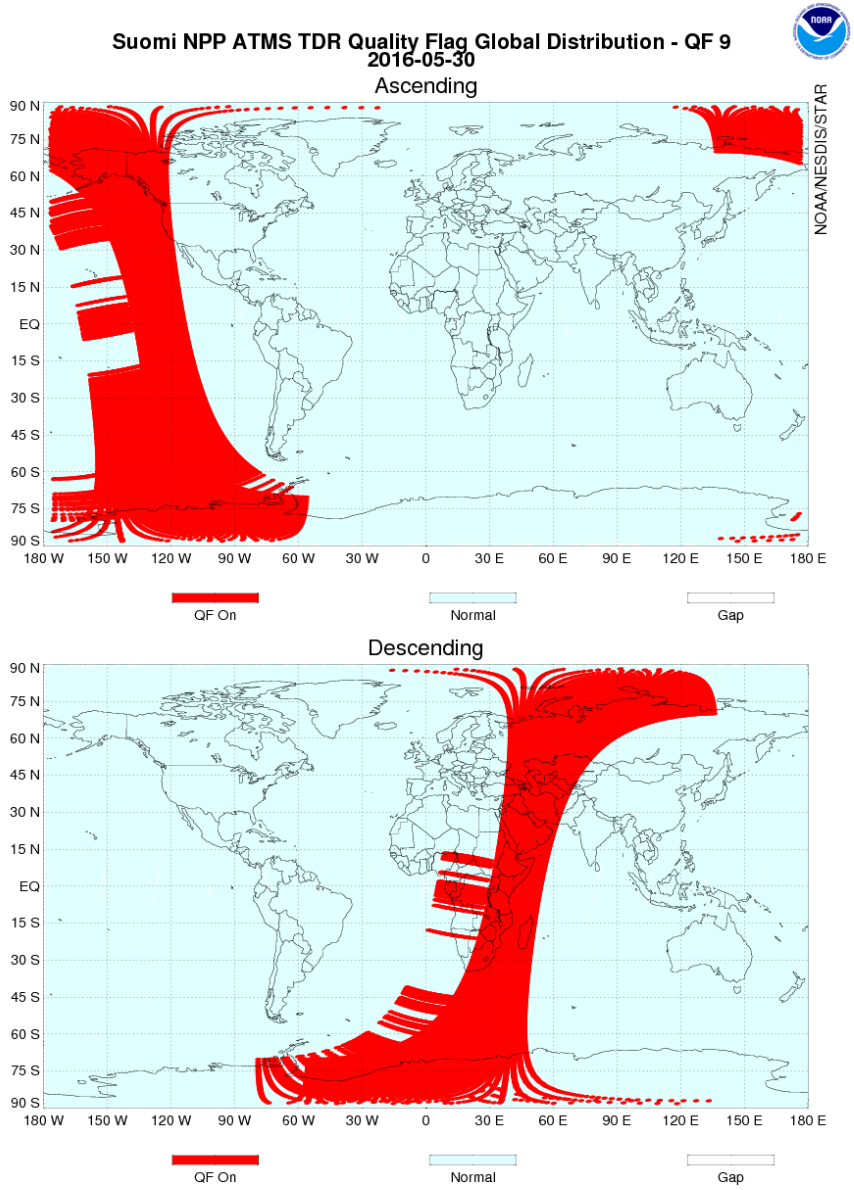




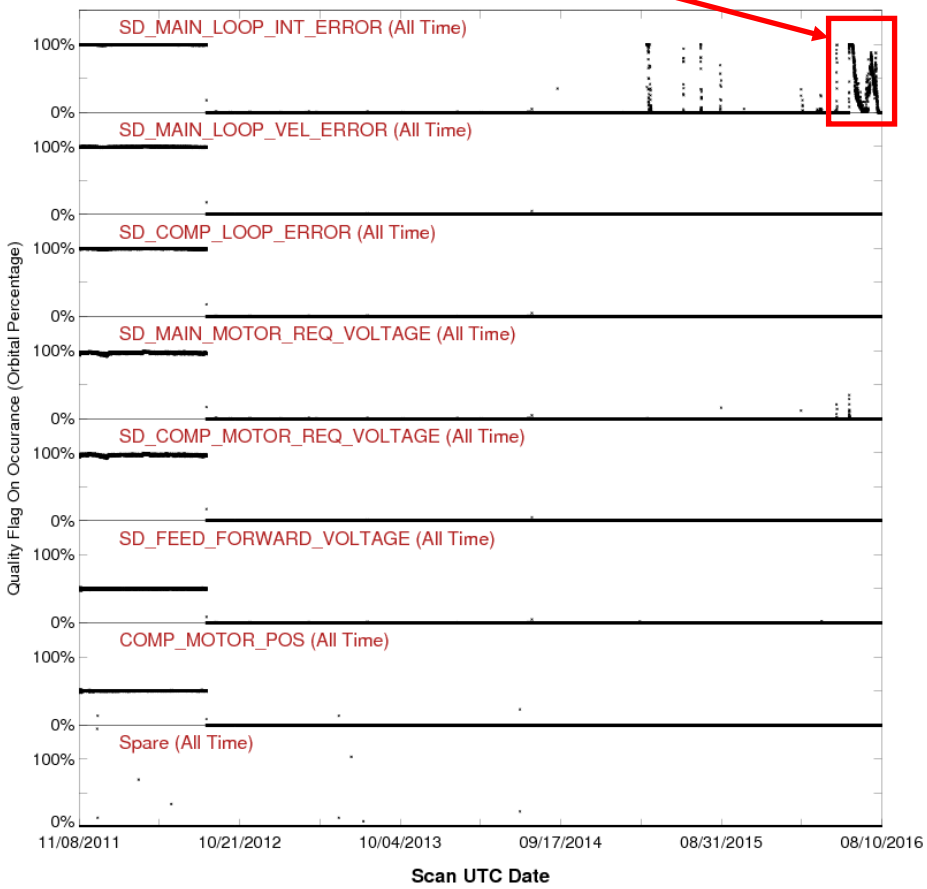




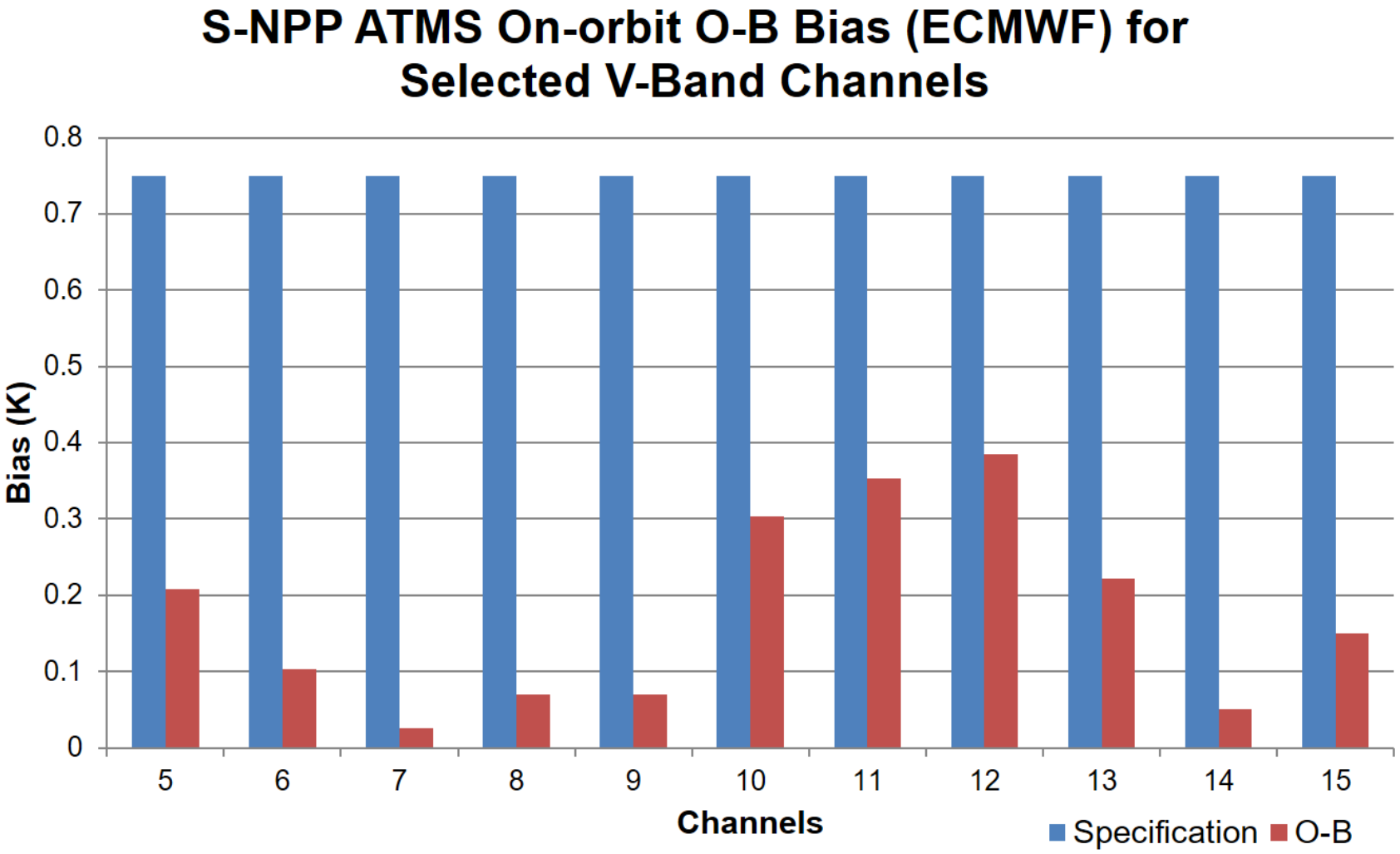
Suomi NPP ATMS On-orbit Status



The number of SD Main Loop Integral Error QF scans keeps high orbital percentage since May 30, 2016



Suomi NPP ATMS On-orbit Performance

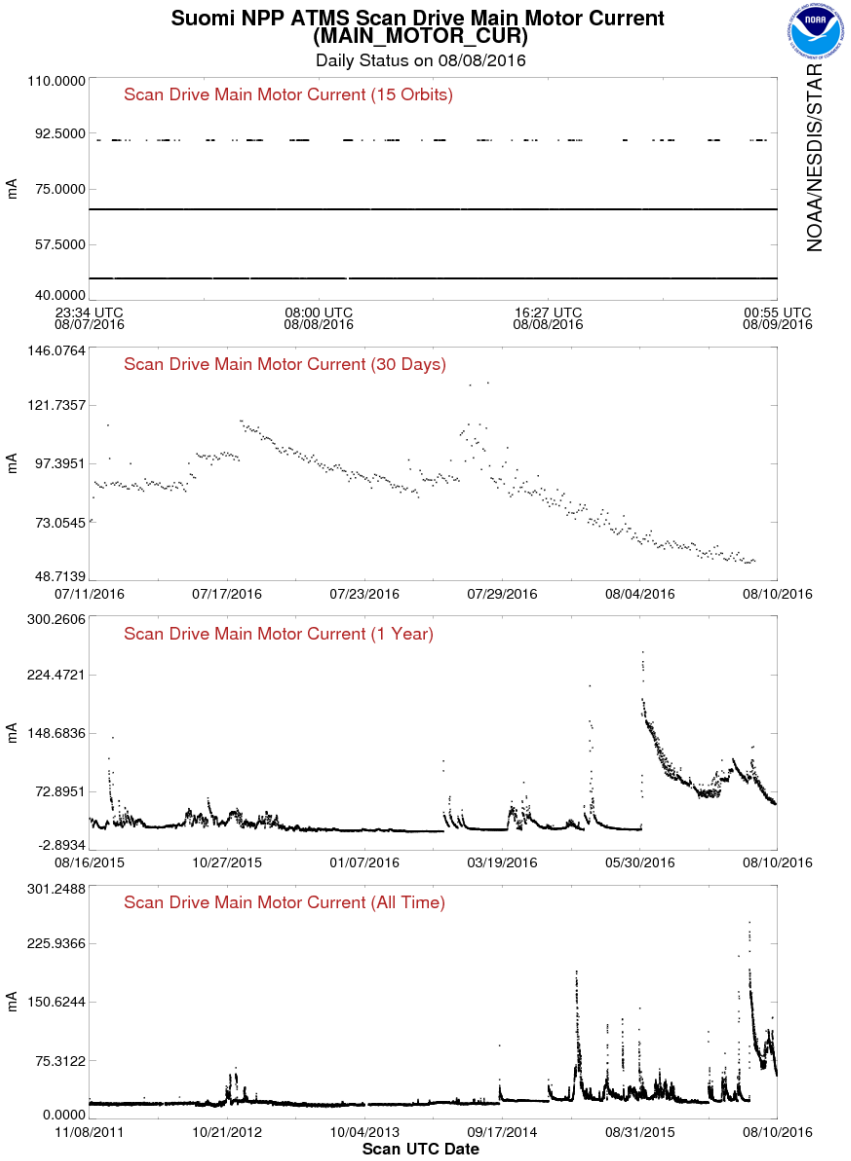


Suomi NPP ATMS on-orbit absolute bias (OBS-RTM) meet the requirement

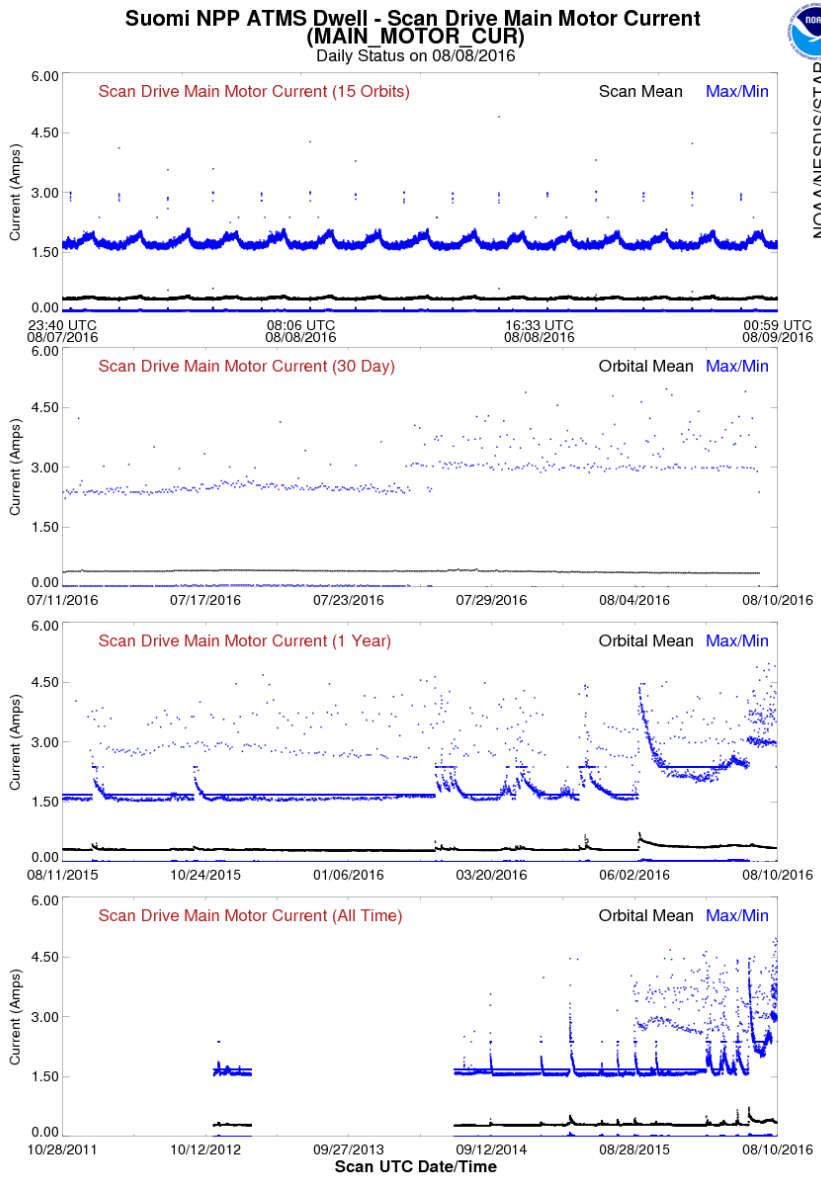
Suomi NPP ATMS On-orbit Status

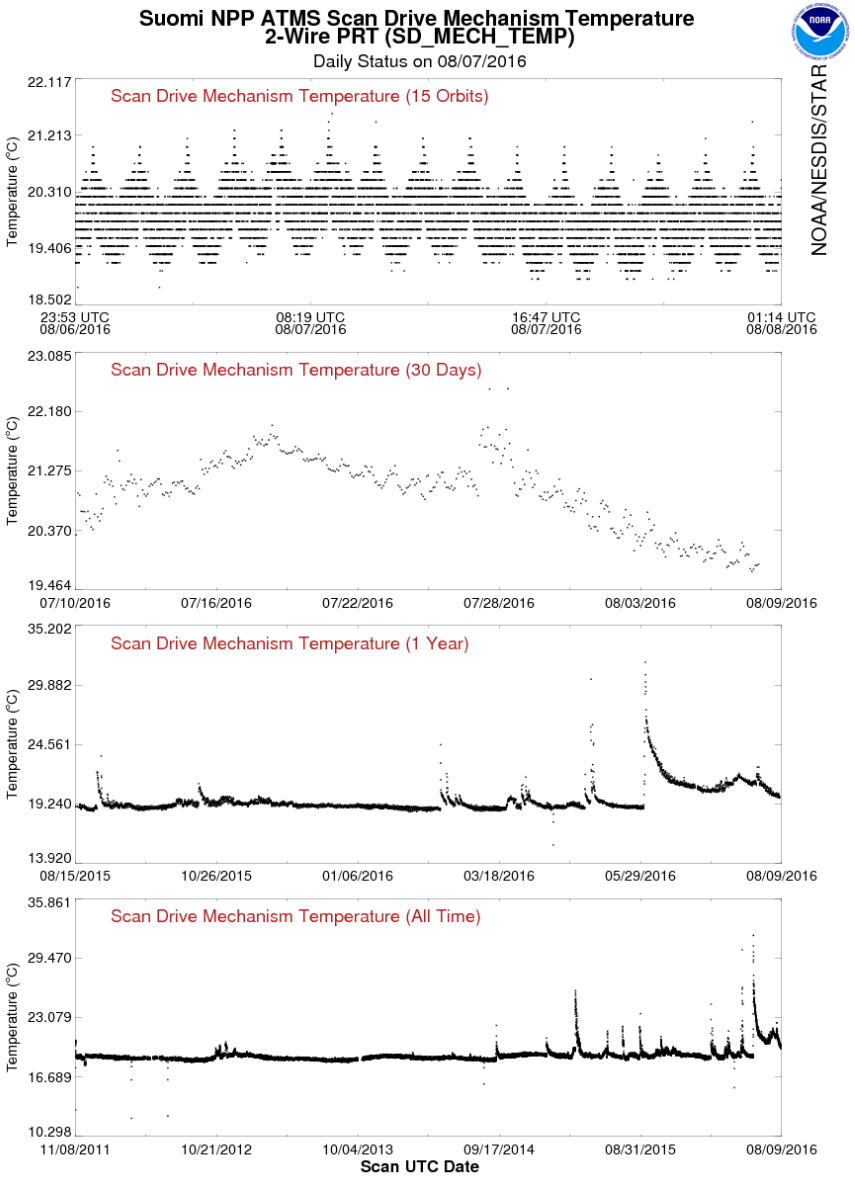
ATMS scan drive main motor current major spikes detected

- Instrument temperature increased
- Scan angle shift observed after SD motor current spikes but still well below requirements
- Once per day scan reversal implemented from August 24, 2015
- Once per orbit scan reversal implemented from July 25, 2016 (staggering configuration among consecutive orbits)
- ATMS put in safe mode due to 1553 issue during once per day reversal
- Twice per orbit reversal (staggering configuration near north and south pole) to be implemented soon

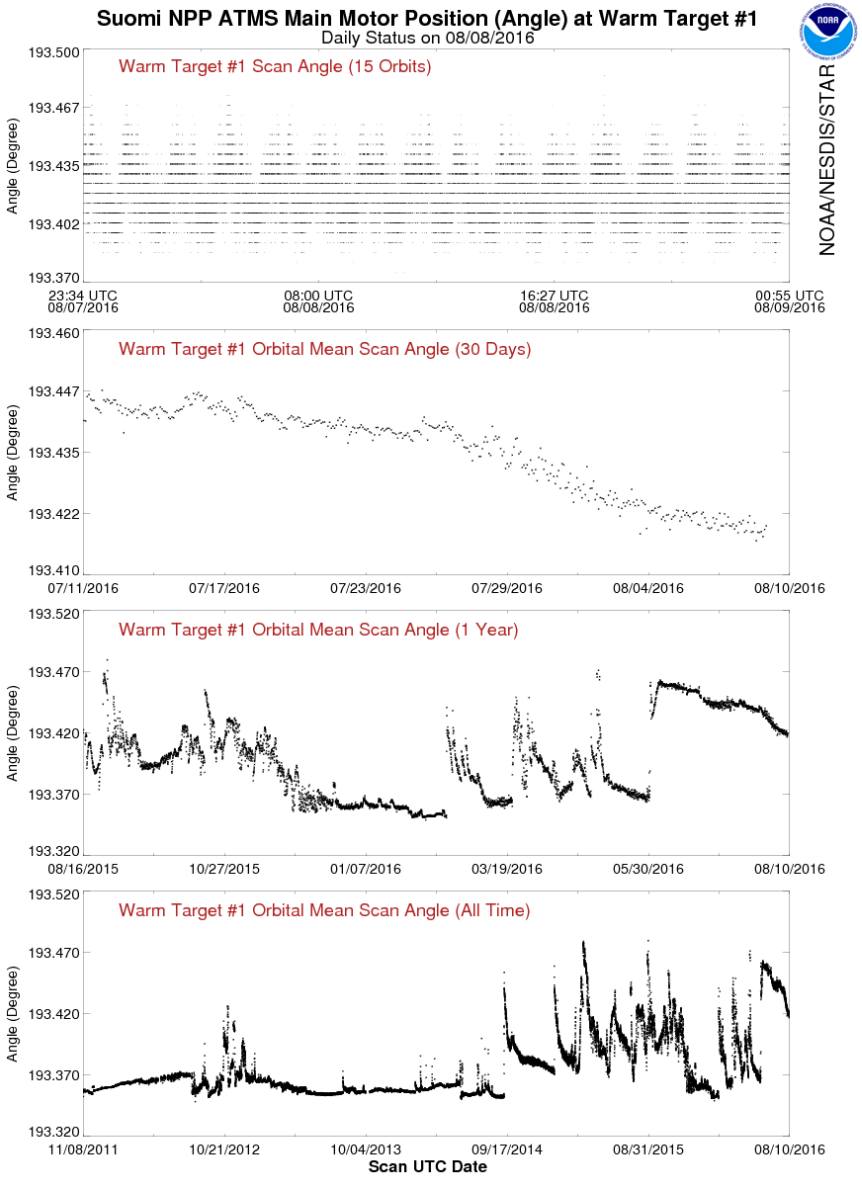


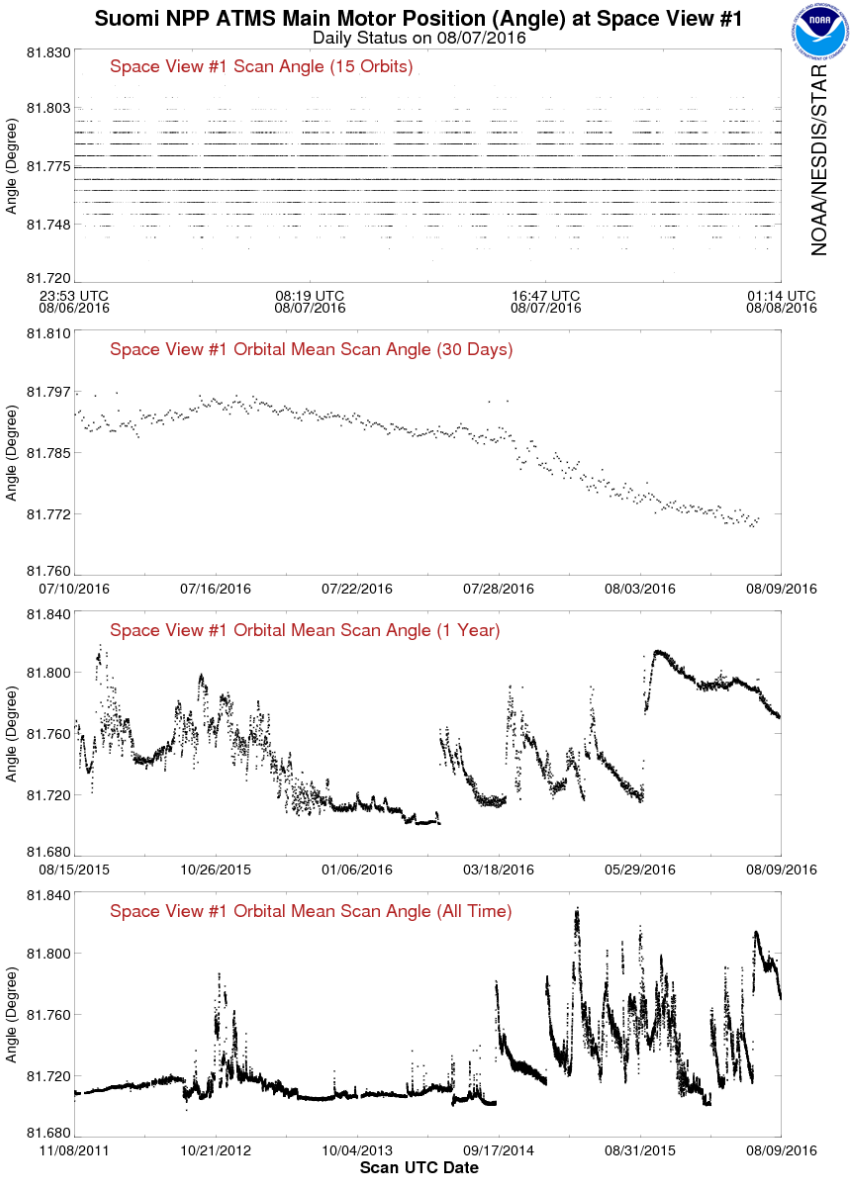
Suomi NPP ATMS On-orbit Status



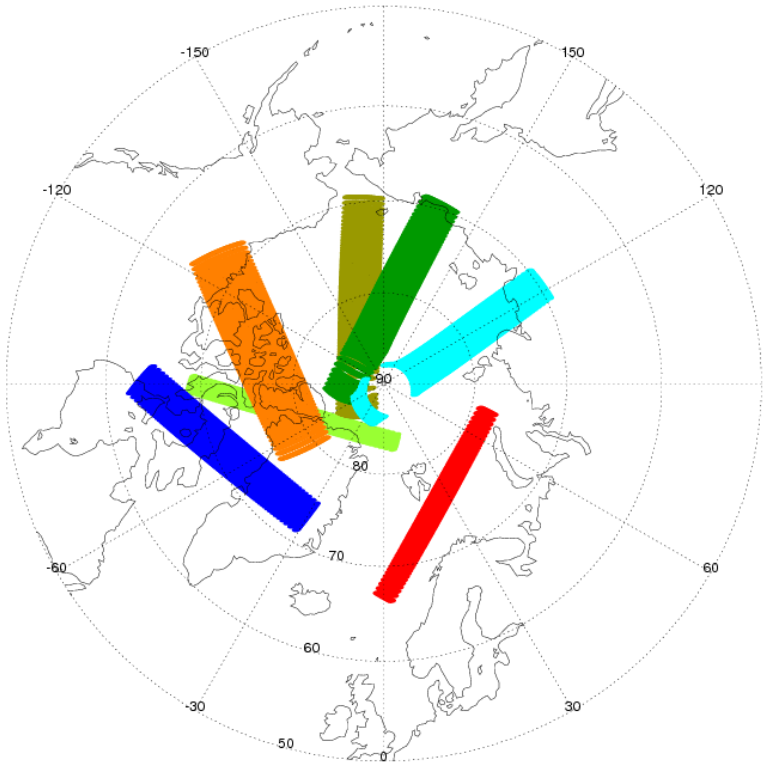


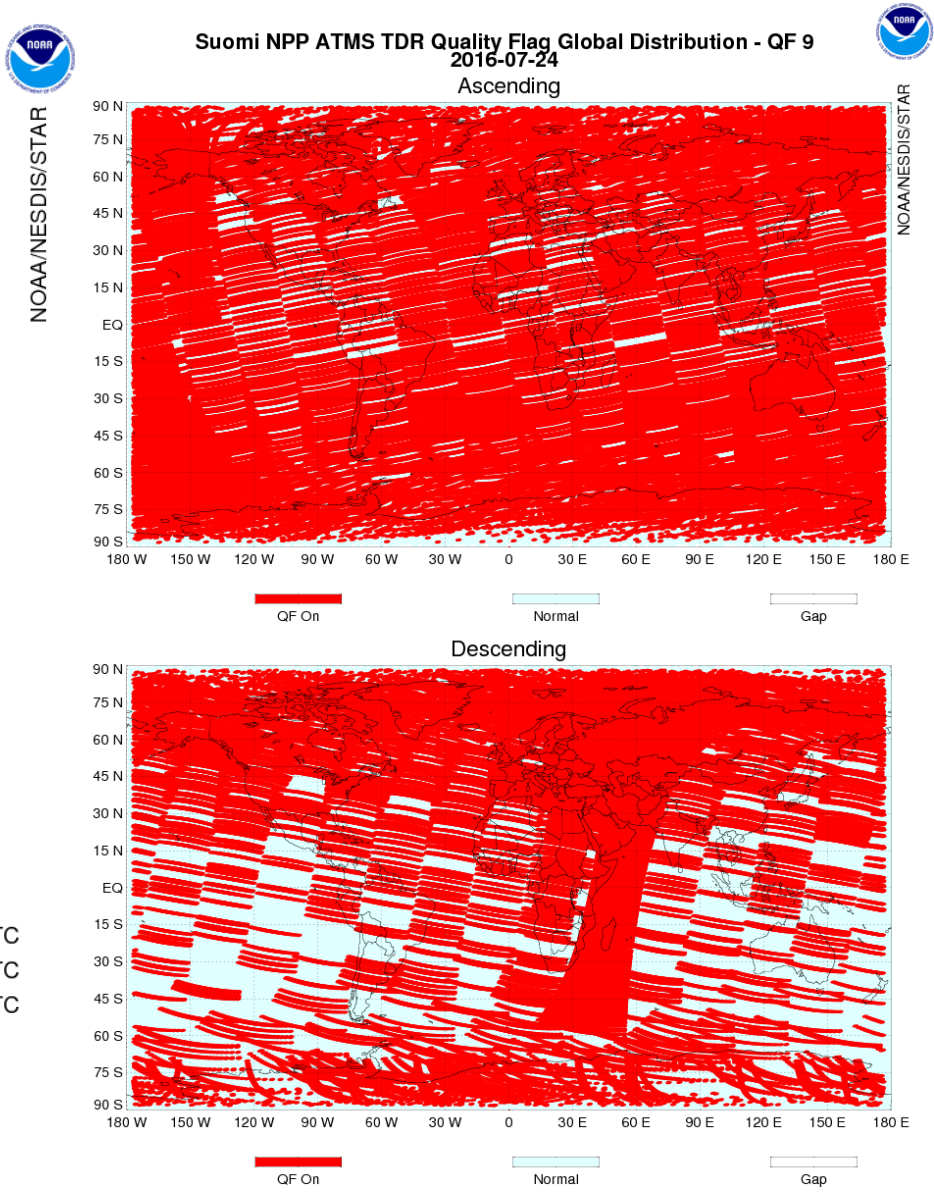
Suomi NPP ATMS On-orbit Status





Suomi NPP ATMS On-orbit Status





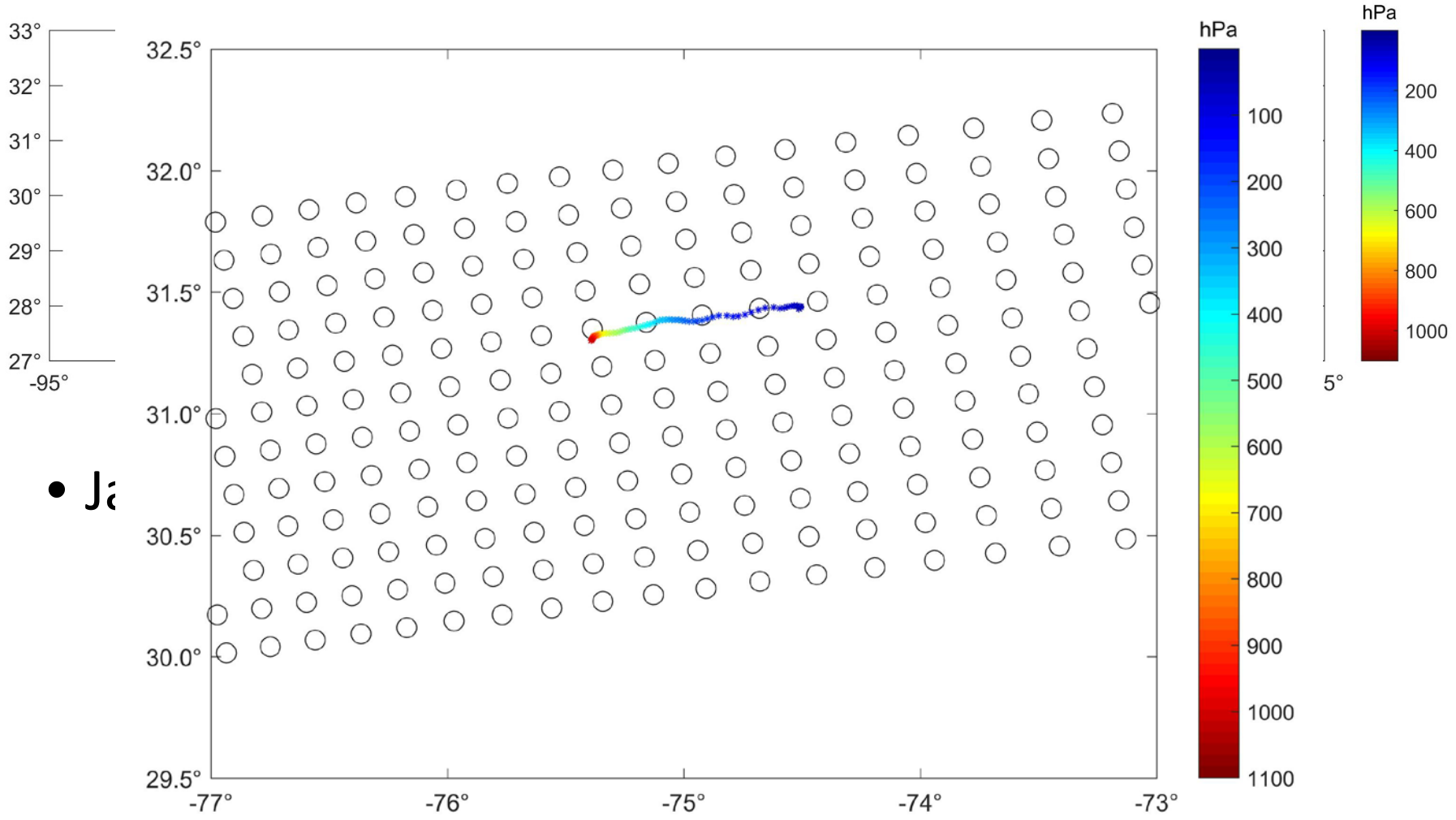
Summary & Path Forward

- Summary
  - S-NPP ATMS on-orbit channel performance meets the requirement with margins
  - S-NPP ATMS scan drive motor current increased during the last year. More frequent scan reversal activities can help to reduce motor current. SD motor current anomaly didn't show apparent impact on channel sensitivity
  - S-NPP ATMS TDR SD loop integral error quality flag was triggered on May 30, 2016 and the affected scans have been reduced since the implementation of once-per-orbit scan reversal
  - S-NPP ATMS reverse scan data are available for additional study from STAR ICVS website
  - ATMS ICVS-LTM packages have been tested successfully and ready for JPSS-1 operations

Summary & Path Forward

- Path Forward
  - Keep watching S-NPP ATMS on-orbit health status, performance, and data quality
  - Enhance ICVS anomaly notification function
  - Implement near real time JPSS-1 ATMS post-launch monitoring to support ATMS SDR team cal/val activities
  - Work with ATMS SDR team to improve current monitoring capability

Colocation of GRUAN



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Provide radiosonde based ATMS TDR bias characterization results to support NWP applications