



# 2014 STAR JPSS Science Teams Annual Meeting

## ICVS Team Lead Report

STAR ICVS Team





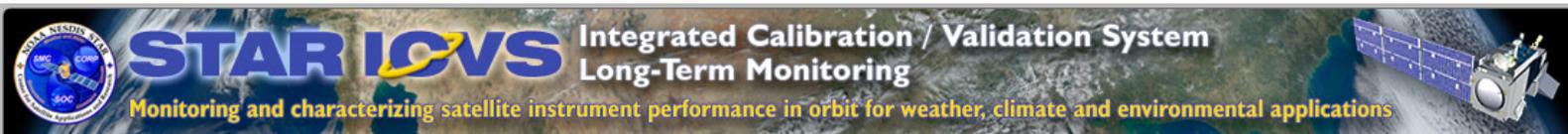
# Major Accomplishments



- SNPP Spacecraft Level (Spacecraft health status and telemetry parameters)
  - 107 products
  - 2 customized text format data files
- Instrument Level (Health status and telemetry parameters) – 984 products
  - S-NPP (total 412 products)
    - ATMS – 92 products
    - CrIS – 46 products
    - VIIRS – 39 products
    - OMPS NM/NP/LP – 81/75/79 products
  - POES/MetOp (total 512 products)
    - AMSU/MHS – 380 products
    - AVHRR – 76 products
    - HIRS – 56 products
  - GOES Sounder/Imager – 60 products
- Calibration Level (Calibration target and performance parameters) – 1714 products
  - S-NPP (total 588 products)
    - ATMS – 92 products
    - CrIS – 170 products
    - VIIRS – 163 products
    - OMPS NM/NP/LP – 79/39/45 products
  - POES/MetOp (total 832 products)
    - AMSU/MHS – 352 products
    - AVHRR – 152 products
    - HIRS – 328 products
  - GOES Sounder/Imager – 294 products
- SDR Level (SDR images, quality flags, and bias characterization parameters) – 633 products
  - S-NPP (total 465 products)
    - ATMS – 108 products
    - CrIS – 213 products
    - VIIRS – 62 products
    - OMPS NM/NP/LP – 29/33/20 products
  - POES/MetOp (total 168 products)
    - AMSU/MHS – 132 products
    - AVHRR – 28 products
    - HIRS – 8 products
  - GOES Sounder/Imager

**Total 3440 products from ICVS-LTM, 1574 for S-NPP**

# Major Accomplishments



Search STAR website:

[About the Suomi NPP VIIRS instrument](#)

» STAR ICVS Home

» Instrument Performance Monitoring

## STAR ICVS Long-Term Monitoring

5/16/2014  
01:48 UTC

Instrument Status > NPP > VIIRS

Displaying the last 24 hours of instrument status, updated every three hours.

[Slide Show of All Charts for Selected Date](#)

- Suomi NPP**
- Spacecraft Telemetry
  - ATMS
  - CrIS
  - **VIIRS >>**
  - OMPS Nadir Mapper
  - OMPS Nadir Profiler
  - OMPS Limb Profiler

- MetOp-B**
- AMSU-A
  - MHS
  - AVHRR
  - HIRS

- NOAA-19**
- AMSU-A
  - MHS
  - AVHRR
  - HIRS

- MetOp-A**
- AMSU-A
  - MHS
  - AVHRR
  - HIRS

- NOAA-18**
- AMSU-A
  - MHS
  - AVHRR
  - HIRS

- GOES**
- GOES-13 Sounder
  - GOES-13 Imager
  - GOES-15 Sounder
  - GOES-15 Imager

- DMSP**
- DMSP F17 SSMIS
  - DMSP F18 SSMIS

Select a parameter:

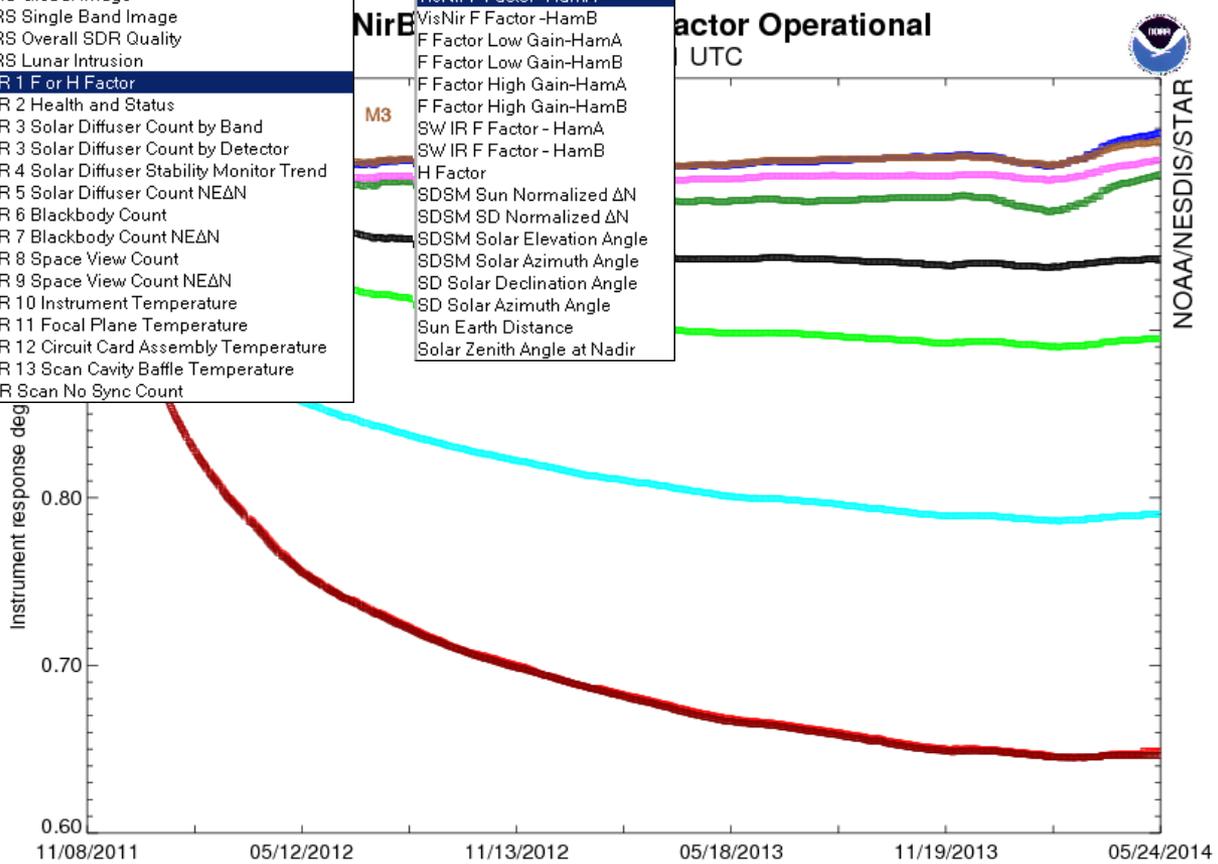
- SDR 1 F or H Factor
- VIIRS Global Image
- VIIRS Single Band Image
- VIIRS Overall SDR Quality
- VIIRS Lunar Intrusion
- SDR 1 F or H Factor**
- SDR 2 Health and Status
- SDR 3 Solar Diffuser Count by Band
- SDR 3 Solar Diffuser Count by Detector
- SDR 4 Solar Diffuser Stability Monitor Trend
- SDR 5 Solar Diffuser Count NEΔN
- SDR 6 Blackbody Count
- SDR 7 Blackbody Count NEΔN
- SDR 8 Space View Count
- SDR 9 Space View Count NEΔN
- SDR 10 Instrument Temperature
- SDR 11 Focal Plane Temperature
- SDR 12 Circuit Card Assembly Temperature
- SDR 13 Scan Cavity Baffle Temperature
- RDR Scan No Sync Count

SDR 1 F or H Factor

- VisNir F Factor -HamA
- VisNir F Factor -HamB
- F Factor Low Gain-HamA
- F Factor Low Gain-HamB
- F Factor High Gain-HamA
- F Factor High Gain-HamB
- SW IR F Factor - HamA
- SW IR F Factor - HamB
- H Factor
- SDSM Sun Normalized ΔN
- SDSM SD Normalized ΔN
- SDSM Solar Elevation Angle
- SDSM Solar Azimuth Angle
- SD Solar Declination Angle
- SD Solar Azimuth Angle
- Sun Earth Distance
- Solar Zenith Angle at Nadir

Select a Date:

05-15-2014





# Future Plan – ICVS-Lite Transition



- A lite version of ICVS will be transitioned to GRAVITE and serve as the operational S-NPP instrument and SDR data quality monitoring system
- GRAVITE (GV3) can provide more reliable support on S-NPP data stream and be operated in 24/7 mode
- STAR will keep the ownership of ICVS-Lite system and be responsible for system test, transition, maintenance, and upgrade services
- ICVS-Lite users can submit requests to add more parameters in the system



# Future Plan – Generation of J1 Proxy Data

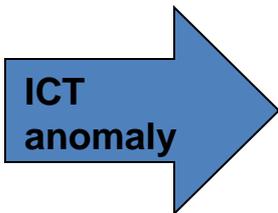
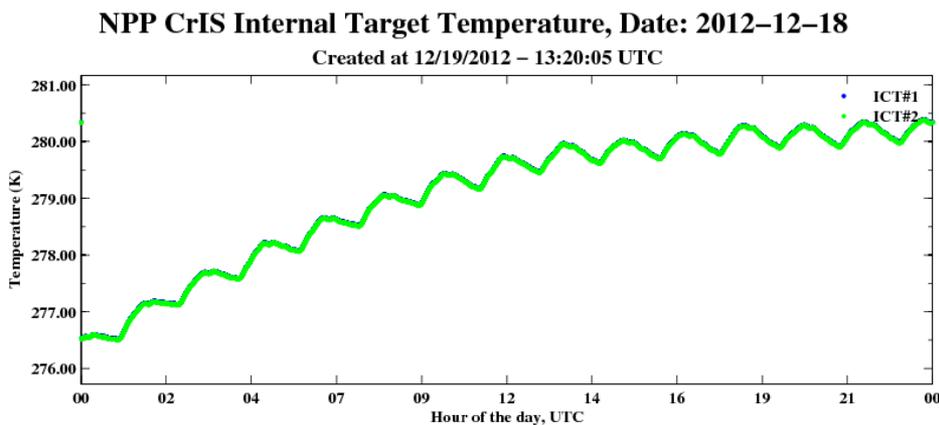


- J1 proxy data will be produced to evaluate the error handling capability of operational ground processing system
  - Functional test
    - Golden day data
  - Instrument/data anomaly will be provided using ICVS record
    - PRT inconsistency
    - Calibration count inconsistency
    - Calibration count out of range
    - Missing calibration or scene packets
    - Missing spacecraft diary packet
    - Missing scans
    - Maneuver flag setting
    - SDR data quality flag setting
    - Lunar intrusion
- STAR ICVS team will be working with each SDR team to generate and archive J1 proxy data for test.

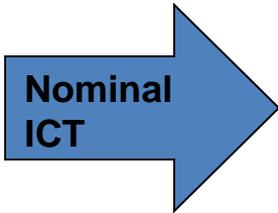
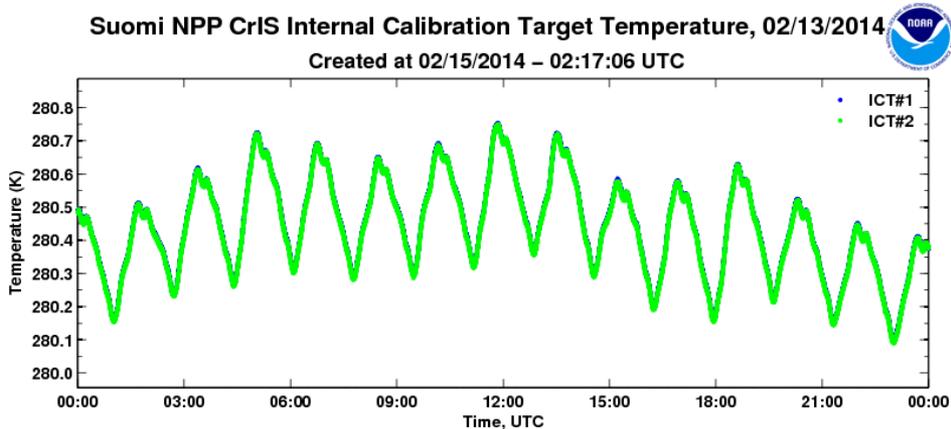
# S-NPP Anomaly for J1 Proxy Data

## CrIS ICT temperature anomaly

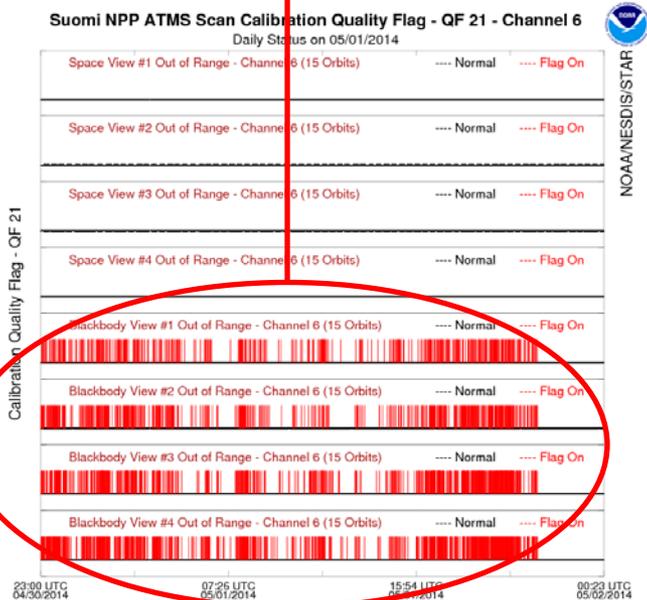
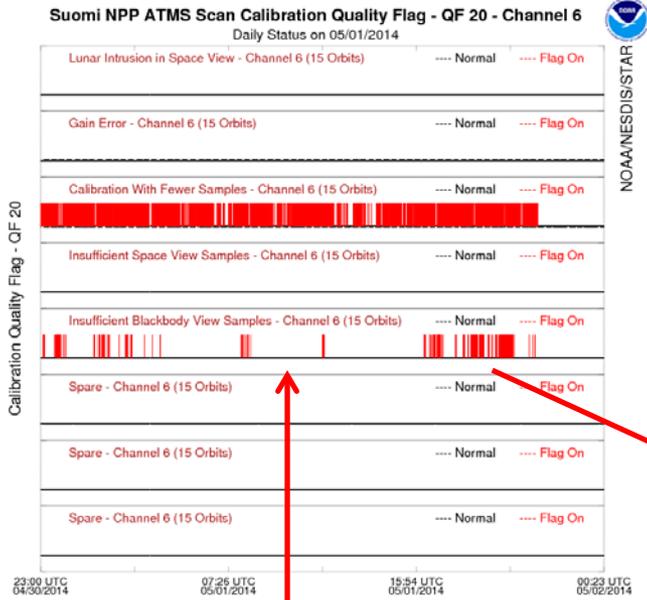
- ICT temperature quickly increased more than 4K on Dec 18, 2012 after CrIS was switched to safe mode, and the nominal daily variation is less than 0.8K



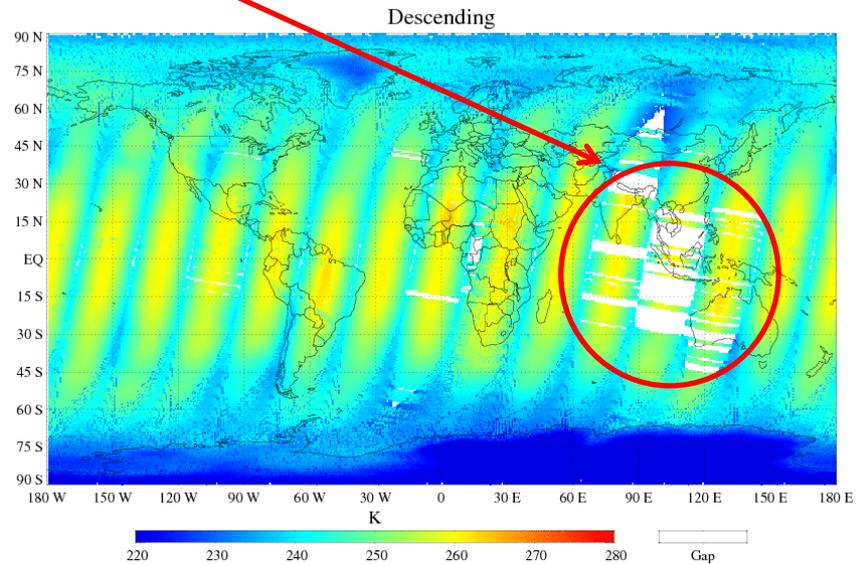
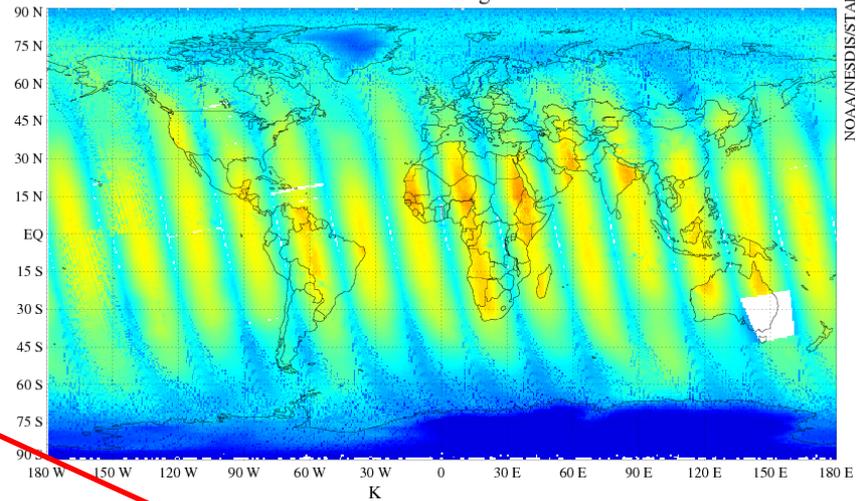
This case will be used to test the program response to dramatic ICT drifting. Some quality flags should be triggered.



# S-NPP Anomaly for J1 Proxy Data



**Suomi NPP ATMS TDR Ch.6 53.596±0.115 GHz QH-POL**  
2014-05-01



# Future Plan – EDR LTM Prototype

- STAR ICVS website hosts a number of ozone product monitoring web pages
- ICVS team will be working with STAR ozone EDR group to build a EDR LTM prototype in STAR ICVS

Search STAR website

- » OMPS Product Demonstration Site
  - Operational
    - SBUV/2
    - GOME-2 (MetOp-A)
    - GOME-2 (MetOp-B)
  - Released
    - SBUV/2
    - SBUV/2 - Rel.- 2
  - O<sub>3</sub> Product Comparison
  - Provisional
    - OMPS Product
      - **OMPS Product TOZ V8**
      - >>
      - OMPS Product TOZ INCTO
      - OMPS Product TOZ OOTCO
      - OMPS Product O<sub>3</sub> PRO V8
      - OMPS Product O<sub>3</sub> PRO IMOPO
      - MICROS
- » New STAR ICVS Site

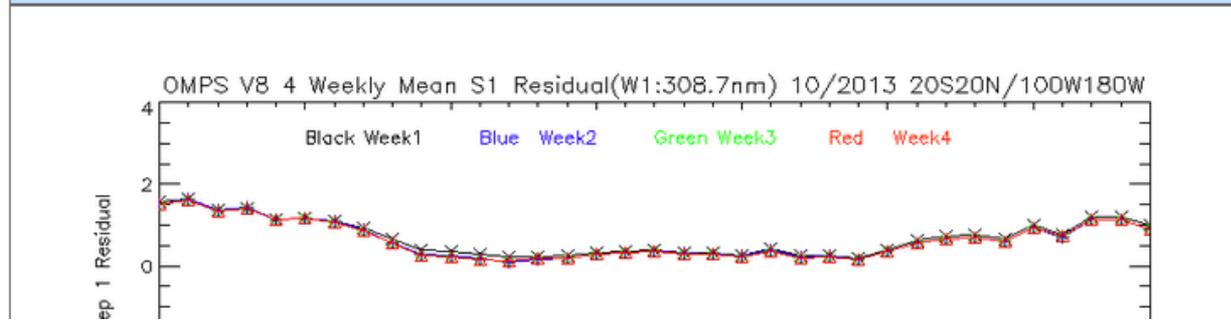
Data and images displayed on STAR sites are provided for experimental use only and are not official operational NOAA products. [More information>>](#)

## Temporary Product Demonstration Site for OMPS

### NOAA OMPS Total Column V8 Products - Provisional

Please select the product index & press 'Display' Button

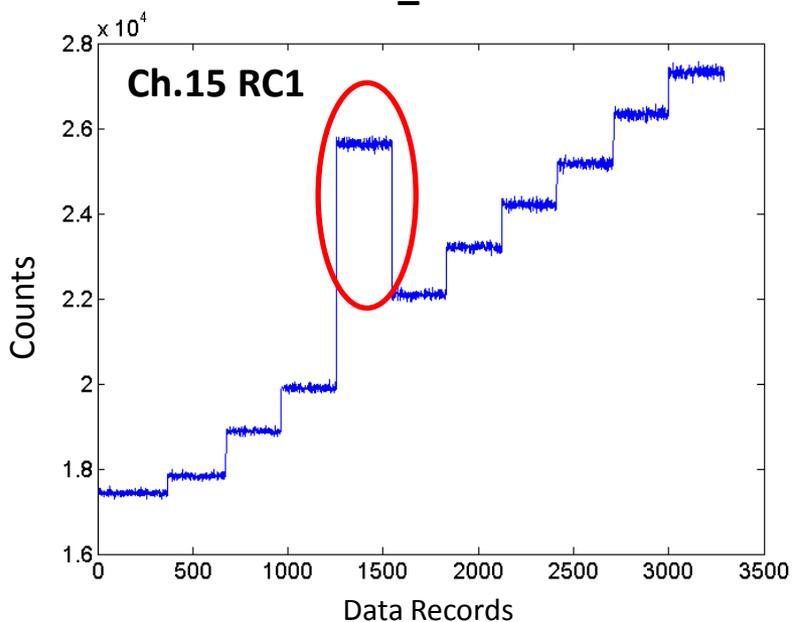
<b>Daily Zonal Mean Total O<sub>3</sub></b> October 2014 <input type="button" value="Display"/>	<b>Daily Zonal Mean Aerosol Index</b> October 2014 <input type="button" value="Display"/>
<b>Daily Zonal Mean Reflectivity</b> October 2014 <input type="button" value="Display"/>	<b>Daily Zonal 1 Percentile Refle.</b> October 2014 <input type="button" value="Display"/>
<b>Daily Zonal Mean Step 1 Residual</b> October 2014 <input type="button" value="Display"/>	<b>4 Weekly Mean Total O<sub>3</sub></b> October 2014 <input type="button" value="Display"/>
<b>4 Weekly Mean Aerosol Index</b> October 2014 <input type="button" value="Display"/>	<b>4 Weekly Mean Reflectivity</b> October 2014 <input type="button" value="Display"/>
<b>4 Weekly Mean Step 1 Residual</b> October 2014 <input type="button" value="Display"/>	<b>4 Weekly Mean 1 Percentile Reflec.</b> October 2014 <input type="button" value="Display"/>
<b>OMPS V8 Antarctic Total Ozone</b> October 2012 <input type="button" value="Display"/>	



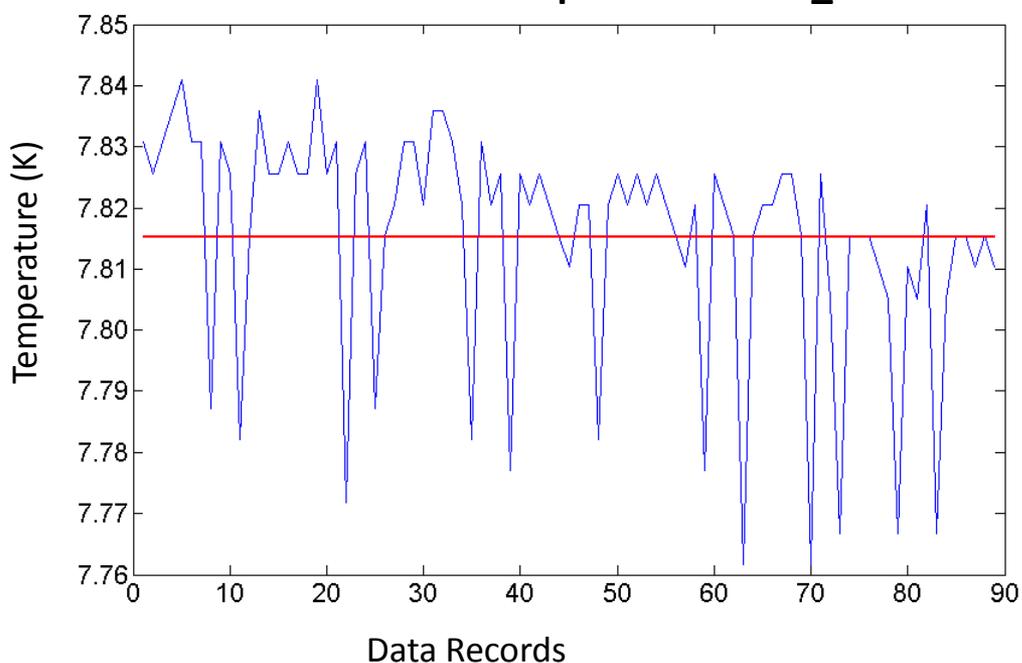
# Future Plan – J1 TVAC Support

- STAR ICVS will be archiving J1 instrument thermal vacuum (TVAC) raw data
- ICVS team will be providing TVAC data decoding and key parameter trending monitoring service for each SDR team during TVAC test

J1 ATMS TVAC CP\_Mid Scene Count



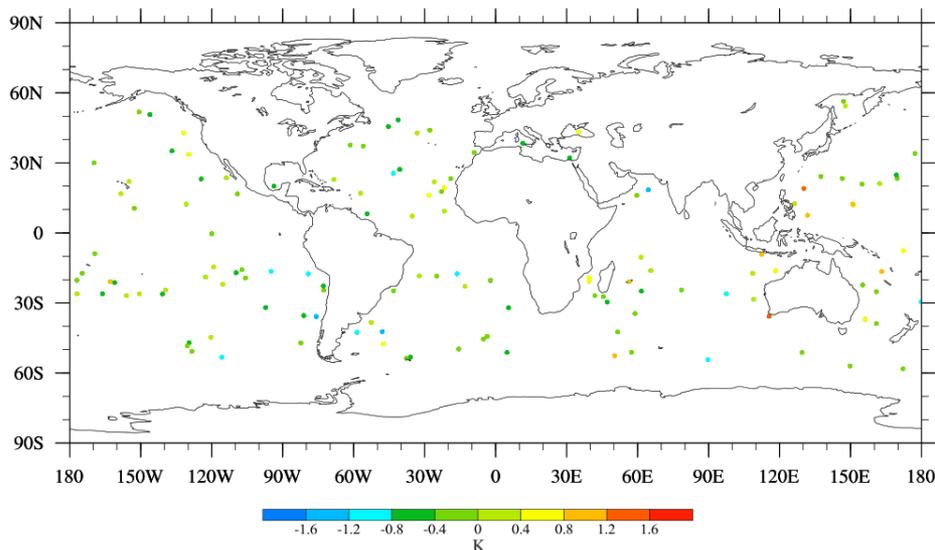
J1 ATMS TVAC Cold Plate Temperature at CP\_Mid ST-300



# Future Plan – Improved SDR Bias Characterization

- Current SDR bias characterization package needs to be improved
  - Global RTM simulation is not stable
  - Lack of long-term trending products over different surface conditions or geophysical locations
  - RTM needs to be improved for more accurate simulations
- Reprocess S-NPP data to build SDR bias characterization LTM

O-B for ATMS Ch.7 54.4 GHz 2014-05-10  
(clear-sky, over ocean, 60°S-60°N)



NPP CrIS BT Observ. - Calc., 14.93  $\mu\text{m}$  ( $670 \text{ cm}^{-1}$ ), Mapped, Ascending, 05/07/2014

