

# ICVS-LTM Website Demonstration

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# ICVS-LTM Redesign: ICVS Version 1.0

- ICVS LTM 1.0

- The original ICVS website ('version 1.0') supplied instrument performance metrics for S-NPP and other satellite instruments.

- Initially built in 2009 and modified extensively over the next 4 years.

- The ICVS team started working in spring 2012 to redesign ICVS.

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formerly ORA — Office of Research and Applications

NOAA Satellite and Information Service  
National Environmental Satellite, Data, and Information Service (NESDIS)  
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- GOES-13 Sounder
- GOES-14 Sounder
- GOES-15 Sounder

» Instrument Performance Monitoring - Bias

**ATMS Channel NedT**  
All Channel Snapshot

**ATMS Channel Gain**  
All Channel Snapshot

**ATMS Cold Calibration Count**  
All Channel Snapshot

**ATMS Warm Calibration Count**  
All Channel Snapshot

**ATMS 4-Wire PRTs**  
KKa,V-Band Sensor

**ATMS Receiver Shelf 2-Wire PRTs**  
K-Band

**ATMS Main Motor Position (Angle)**  
Warm Target-01

**ATMS 2-Wire PRT (27 PRTs)**  
K-Band Receiver Front End Temperature

**ATMS Health/Status Analog Parameters (38 Parameters)**  
Signal Processing Assembly +5V Secondary Voltage

**Suomi NPP ATMS Scan Drive Main Motor Current (MAIN\_MOTOR\_CUR)**  
Updated at Sep 24 13:49:10 2013 UTC

Scan Drive Main Motor Current (15 Orbits)

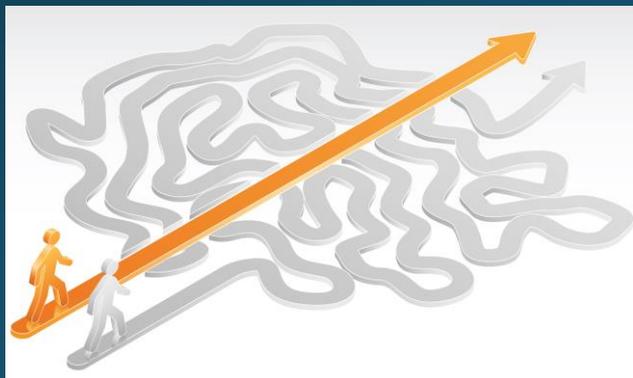
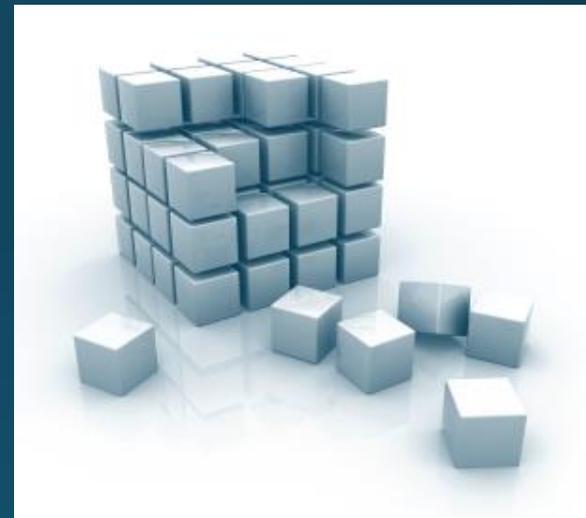
Scan Drive Main Motor Current (30 Days)

NOAA NESDIS/STAR



### ICVS-LTM Redesign: Goals and Objectives

- **Improve the user experience for finding and viewing satellite instrument status metrics.**
  - The first version of ICVS had a bulky banner and interface controls; they took up so much vertical space that the user had to scroll to see charts, which are the entire point of the site.
  - Chart layout and labelling was not consistent.
  - No chart metadata was presented.
  - The new site has reduced the size of banner and form controls to move the metrics up the page so users can see them without scrolling on desktop displays.



- **Standardize presentation.**  
Standardize the presentation, layout, size, labelling, and branding of the metrics images across satellite instrument teams
  - Make charts easier to read;
  - Easier to produce;
  - Easier for users to share in contexts away from the site, like embedding in presentations and e-mails.



### ICVS-LTM Redesign: Goals and Objectives

- **Improve system maintainability and extensibility**

Build a site that can easily be edited to house an evolving set of metrics for each satellite instrument.

- Our goal was to build a site that was maintainable, extensible, and simple for instrument monitoring teams to populate and manage.
- The site was designed to easily accommodate the addition of new satellite instrument monitoring pages or a different set of metrics for a given instrument with no additional programming.



- **Make ICVS accessibility compliant and address other compliance deficits**

- We needed to make the ICVS LTM fully compliant with Section 508 accessibility standards and other requirements associated with a properly compliant government website. This has been achieved by programmatically generating alt tag contents to house specific image metadata. The goal was to give every metrics image displayed meaningful and specific labelling.

# Section 508





## ICVS-LTM Redesign: Goals and Objectives

### • Search engine optimization:

- Better chart metadata and consistent labeling for satellite and instrument names has made the ICVS system very 'discoverable' via web search tools.
- Producing compliant alt tagging of images not only makes ICVS metrics accessible to users with sensory deficits, it also improves the searchability of specific instrument information through Google and Bing.
- Search on 'ICVS and instrument name' from any search engine, and ICVS' pages are returned consistently in the first page of search results for both image and content searches.



### • Animation capability:

- For the new ICVS, we wanted to develop an animated view of metrics charts that:
  - Didn't use Flash but –
  - Which would also load quickly regardless of how many metrics were being presented.
- By using a jquery-based animation tool called cycle2 instead of Flash, we provide an animation capability that runs on all major browsers
- With progressive loading, the animation facility loads quickly even when the animation stack contains hundreds of images.
- Browsers and devices supported include:
  - IE8 and newer; Chrome, Firefox; Safari; Opera, iPhone and Android mobile devices.





### ICVS-LTM Redesign: Goals and Objectives

- **Access to metrics across S-NPP's entire operational history:**
  - The new system is designed to store not just current information but will house and present metric charts keyed by date through the life of each S-NPP instrument.
  - The ICVS team will be backfilling the instrument pages' earlier metrics data with 2014 task funding.
  - ICVS 1.0 presented historical charts for some instruments, but mainly presented only real time information. True monitoring over time is possible in this system.
- While mainly used to present .jpg, .png and .gif image files, the system is able to house and present .txt and .zip files.
- As different metrics are developed, the ICVS LTM site can be adapted to house and present them to users.



- **Intelligent error handling**

- On both the main instrument status pages and on the animation viewer the site is coded to explicitly inform users which metric charts are missing when files are unavailable. Often this is due to data that isn't yet available or brief computational backlogs. By listing missing files, we give users transparency and accelerate our own ability to identify and address problems.



# Suomi NPP SDR Science and Products Review



## ICVS-LTM Website Demonstration

### Instrument status pages:

- All instrument status pages are constructed identically.
- Left hand navigation panel
- Upper right side: label identifies the current satellite and instrument
- Form controls across the middle of the page
- Date selector
- Step buttons to traverse parameter by parameter or day by day.
- Current UTC displayed
- Button to launch animation "Slide Show of All Charts for Selected Date"



**STAR ICVS** Integrated Calibration / Validation System  
Long-Term Monitoring

Monitoring and characterizing satellite instrument performance in orbit for weather, climate and environmental applications

12/18/2013  
22:49 UTC

[About the Suomi NPP ATMS instrument](#)

[Instrument Status > NPP > ATMS](#)

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

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» Instrument Performance Monitoring

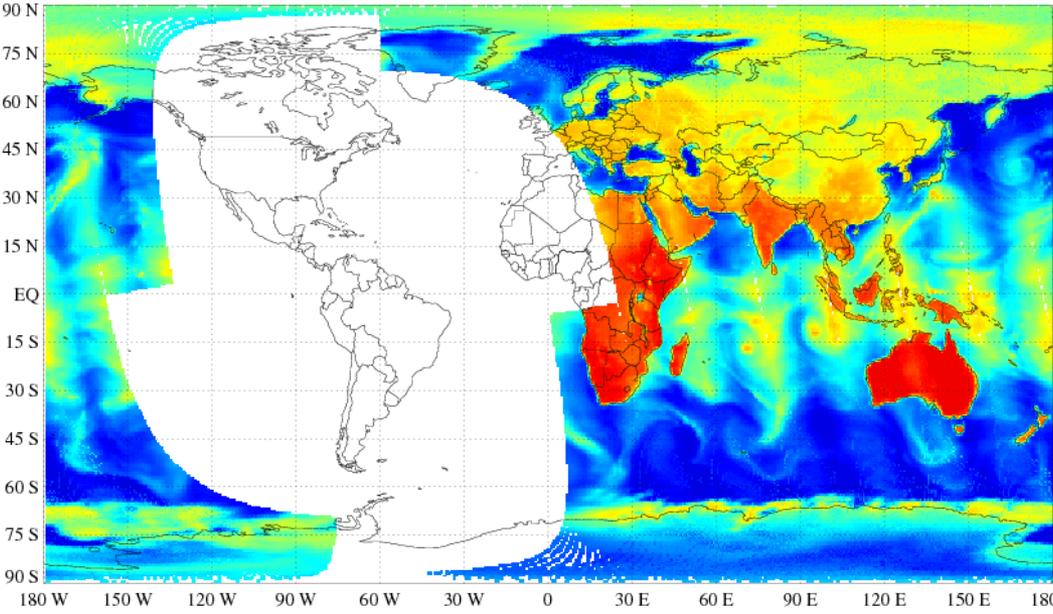
- Suomi NPP
  - Spacecraft Telemetry
  - **ATMS >>**
  - CrIS
  - VIIRS
  - OMPS Nadir Mapper
  - OMPS Nadir Profiler
  - OMPS Limb Profiler
- MetOp-B
  - AMSU-A
  - MHS
  - AVHRR
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  - HIRS
- NOAA-18
  - AMSU-A
  - MHS
  - AVHRR
  - HIRS
- GOES
  - GOES-13 Sounder
  - GOES-13 Imager
  - GOES-15 Sounder
  - GOES-15 Imager
- DMSP

**STAR ICVS Long-Term Monitoring**

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

Select a parameter: ATMS TDR Global Image

**Suomi NPP ATMS TDR Ch.1 23.8 GHz QV-POL**  
2013-12-18  
Ascending



K



NOAA/NESDIS/STAR



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## ICVS-LTM Website Demonstration

### How to find metrics:

- Select the satellite and instrument you want to review from the left-hand navigation;
- In the form controls, choose a parameter from the first select box.
- The parameter you select will populate your choice of metrics in the second select box. Choose a metric with the second select box, or use the arrow keys to traverse the entire set associated with the parameter you selected.
- If you want to view a different date than today, click the date select icon and choose another date.

### STAR ICVS Integrated Calibration / Validation System Long-Term Monitoring

Monitoring and characterizing satellite instrument performance in orbit for weather, climate and environmental applications

About the Suomi NPP ATMS instrument

**Instrument Status > NPP > ATMS**

Slide Show of All Charts for Selected Date

Search STAR website

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  - GOES-15 Imager
- DMSP

### STAR ICVS Long-Term Monitoring

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

Select a parameter:

ATMS TDR Global Image

Select a Date:

12-18-2013

#### Suomi NPP ATMS TDR Ch.1 23.8 GHz QV-POL

#### 2013-12-18

#### Ascending

180 W 150 W 120 W 90 W 60 W 30 W 0 30 E 60 E 90 E 120 E 150 E 180 E
NOAA/NESDIS/STAR

To view image metadata, hover over the image.



# Suomi NPP SDR Science and Products Review



## ICVS-LTM Website Demonstration

To view an animated sequence of metrics for a selected satellite:

- Select the satellite and instrument you want to review from the left-hand navigation;
- Select a date;
- Click the blue button on the upper right: "Slide Show of All Charts for Selected Date"

**STAR ICVS** Integrated Calibration / Validation System  
Long-Term Monitoring  
Monitoring and characterizing satellite instrument performance in orbit for weather, climate and environmental applications

ICVS Home > NPP.ATMS ← return to the instrument status page

Review an animated sequence of all ICVS charts for a selected satellite / instrument from a single day. Use the control buttons at right to navigate the images.

ICVS Chart Viewer - NPP ATMS - 12-17-2013

ATMS TDR Global Image - Channel 5  
Chart 5 of 374

next previous pause resume

**Animation controls**

Suomi NPP ATMS TDR Ch.5 52.8 GHz QH-POL  
2013-12-17  
Ascending

90 N  
75 N  
60 N  
45 N  
30 N  
15 N  
EQ  
15 S  
30 S  
45 S  
60 S  
75 S  
90 S

180 W 150 W 120 W 90 W 60 W 30 W 0 30 E 60 E 90 E 120 E 150 E 180 E

K  
220 230 240 250 260 270 280

NOAA/NESDIS/STAR

To view image metadata, hover over the image.



# Suomi NPP SDR Science and Products Review



## ICVS-LTM Website Demonstration

Each date-specific animation view for a satellite instrument has a unique and permanent web address:

Each combination of satellite / instrument / date has a specific web address that users can share and reference and link as needed – you don't have to re-navigate to the link if there is a specific date and metric that want to reference in a discussion or e-mail or document. Just copy and share the URL.

Error information for the animation view is rendered at the bottom of the screen:

CrIS RDR Variables - OMA Structure Temp.- Hrly. Avg.  
Chart 4 of 395

next previous pause resume

Suomi NPP CrIS OMA Structure Temperature, Hourly Average  
Created at 12/18/2013 – 16:27:58 UTC

Temperature (K)

Jan/12 Jan/13 Jan/14

OMA#1  
OMA#2

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The following charts were not found for NPP CrIS for 12-18-2013:

- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_670.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_900.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_1500.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_2320.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_2500.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_670scan.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_900scan.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_1500scan.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_2320scan.gif](#)
- ↗ [/www/icvs/metrics/status/NPP/CrIS/daily/2013/12/20131218\\_npp\\_cris\\_BT\\_diff\\_2500scan.gif](#)

Metrics which have not yet been generated are listed at the bottom of the animation page.

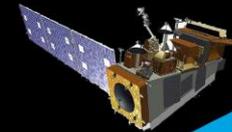
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W3C HTML 4.01 W3C WAI-A WCAG 1.0



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ICVS-LTM Website Demonstration

## Next Steps

- Filling in historical data for NPP instrument performance;
- Exploring the incorporation of vector graphics type charts
  - Dynamic jquery-driven vector charting tools use json / text file inputs which are smaller than chart images
  - Vector charts enable users to zoom in on charts and view dynamic labels and other interactive features
  - Such charts have dynamically rendered axes to better present data outliers.
  - The basic architecture of the site could be used to present vector charts in much the same way as it houses images.

