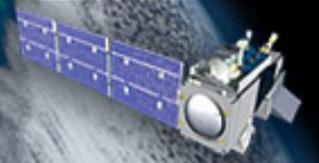




# ICVS & JPSS/EDRs Long-Term Monitoring Systems

Website Status,  
J-I Readiness  
& New Features



## ICVS Design, Content, and Structure

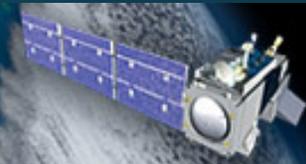
### ICVS & JPSS/EDRs Long Term Monitoring Systems

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**Lori K. Brown**

StormCenter Communications at NESDIS / STAR

2016 STAR JPSS Annual Science Meeting  
Session 12 – GSICS Users' Workshop - 11 August 2016



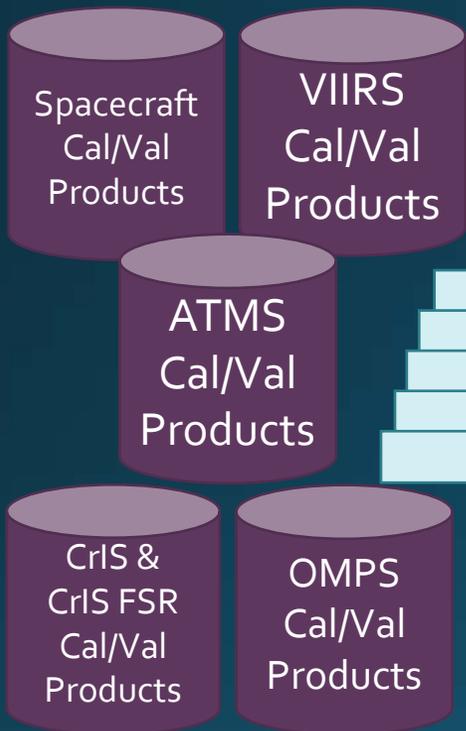
## What is the Long Term Monitoring System?

- A web application built with HTML, CSS, javascript/jquery, and PHP designed to organize, navigate and display a large set of images, cal-val metrics, and data produced daily and accumulated over the life of the S-NPP satellite
  - Originally developed for ICVS project, it was the successor to various single-instrument cal-val efforts.
  - Went live in September 2013
  - Activity to extend and implement the LTM application for product monitoring (EDRs) started in fall 2014
- Designed to be 'content agnostic' so as to flexibly house any image, text, or data file, as long as content files conform to the system's naming and organization conventions
- ICVS: <http://www.star.nesdis.noaa.gov/icvs/>
- JPSS EDRs: <http://www.star.nesdis.noaa.gov/jpss/EDRs/>



# ICVS LTM – Web Interface Architecture

### S-NPP Cal/Val products

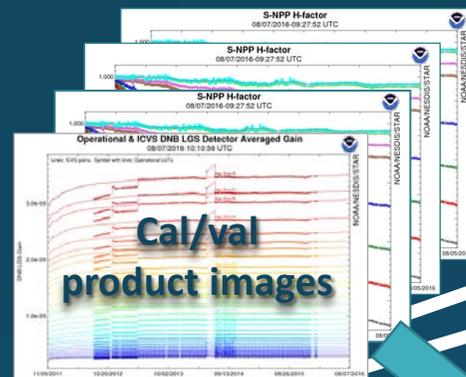


ICVS instrument teams develop code to generate S-NPP cal/val metrics; code runs several times per day on STAR servers.

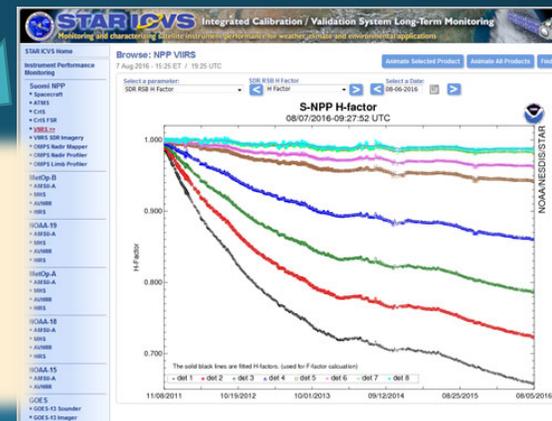
Products generated & copied to webserver several times daily

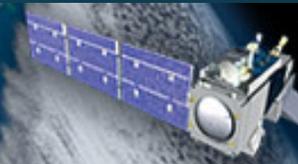


Product images organized by instrument, type, year & month. All images created to a common naming convention that makes the page coding and dynamic scripting portable and extensible across all instances of the LTM codebase



The ICVS and EDR instances of the LTM System run on an IDENTICAL codebase; this focuses development efforts on extending and improving functionality instead of managing code.





# Scale of JPSS monitoring effort - by the numbers

## ICVS – LTM System



2,896

Images generated per day



25,599

Total site users — last 12 months



~15, varying

# of team contributors



22

Web pages



5 years

Time span monitored



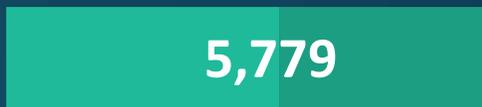
3,334,550 files / 700 GB

Total images generated / file size

## JPSS EDRs LTM Site



851



5,779



19 on product teams / 4 on system team



25



2+ years



412,751 files / 168 GB



## ICVS Cal / Val Metrics Generated Daily:

Satellite Instrument	# metrics	Generated starting:	Satellite Instrument	# metrics	Generated starting:
<b>Suomi NPP</b>			<b>NOAA-19</b>		
Spacecraft	109	3/25/2013	AMSU-A	179	5/20/2013
ATMS	447	7/26/2013	MHS	65	6/10/2013
CrIS	452	1/30/2012	AVHRR	63	8/1/2013
CrIS FSR	261	12/4/2014	HIRS	126	7/2/2013
VIIRS	353	5/16/2013	<b>MetOp-A</b>		
VIIRS SDR Imagery	721	June 2016	AMSU-A	153	10/6/2012
OMPS Nadir Mapper	224	November 2011	MHS	65	5/21/2013
OMPS Nadir Profiler	167	November 2011	AVHRR	64	8/1/2013
OMPS Limb Profiler	162	October 2012	HIRS	126	7/9/2013
<b>MetOp-B</b>			<b>NOAA-18</b>		
AMSU-A	179	5/16/2013	AMSU-A	181	5/20/2013
MHS	65	5/22/2013	MHS	65	5/21/2013
AVHRR	64	8/1/2013	AVHRR	63	8/1/2013
HIRS	126	7/4/2013	HIRS	126	7/5/2013
<b>Total across all satellite/instruments monitored: 4,818 images per day</b>			<b>NOAA-15</b>		
			AMSU-A	149	3/24/2015
			AVHRR	63	2/10/2016

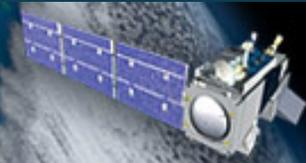
- The set of metrics generated for each satellite/instrument pair is managed in a CSV file that is maintained by each instrument team; the CSV file is the source for the dynamically generated set of select boxes on each status page.
- Teams can make changes to reconfigure the images shown on each page independently, without any programming or scripting. This way the site can instantly reflect any changes to the set of generated metrics.
- The dates at left are the date that each instruments metrics start.



## All JPSS EDR Products now generated daily – Completion of Phase I

Products	# Daily Products	Start	Products	# Daily Products	Start
Active Fires	1	1/1/2012	Ocean Color	3	1/1/2015
Active Fires - radiative power	3	3/16/2016	OMPS / Ozone	3	1/1/2015
Aerosols - AOT	1	1/1/2013	OMPS / IMOPO	2	12/18/2015
Aerosols - Suspended Matter	1	1/1/2015	Polar Winds	2	7/20/2016
Albedo	1	1/1/2015	Sea Surface Temperature	2	12/7/2015
Clouds	4	1/1/2015	Surface Type	4	5/1/2015
Cryosphere - Ice	4	2/5/2016	Green Vegetation Fraction	1	8/1/2012
Cryosphere - Snow	15	1/1/2015	Vegetation Indices	3	5/19/2014
GCOM - AMSR2	40	1/1/2016	Veg. Health - weekly composites	6	1/1/2015
VIIRS Imagery - DNB	1	4/23/2016	MIRS Soundings Products	166	2/18/2016
Land Surface Temperature	4	4/7/2014	NUCAPS	584	1/1/2015

- The goal of this phase was to offer a global overview for users and downstream products to quickly assess availability and potential sources of error.
- This phase also allowed for the creation of a framework and a common set of presentation standards for all EDR teams to use.



## Phase II – JPSS/EDRs LTM

- Starting: August 2016
  - Will focus on showing real time measures of product quality, such as maps of quality flags or percentage of the granules in a day that meet the specifications.
  - Comparisons to similar products from other satellite systems will be included.
  - The site will also show trending of these and other measures of product quality.
  - The full system will be in place for the Spring 2017 launch of JPSS-1 and will enable product developers and users to quickly identify and rectify potential errors in EDR products.
- **JPSS-1 readiness:**
  - The EDR LTM Phase I is ready to replicate and stand up for JPSS-1
  - Phase II will be complete by launch of JPSS-1.





## Recent LTM System Improvements – available to both ICVS and JPSS-EDR product sites

- New since May 2015:
  - Users can animate any product across a user configured time span. (demo)
  - Pages with a large number of different products (all ICVS pages and the Soundings pages for EDRs) have in-page search – click ‘Finder’ button to search by product name instead of select box navigation.
  - Status pages include a configurable description popup. (demo in EDRs)
  - Performance rework in Feb. 2016 to ship code to GRAVITE included complete review of page loading performance to reduce server trips, simplify javascript and php includes.



## ICVS LTM System Status & JPSS-1 Readiness

- Addition of VIIRS high resolution SDR imagery page:
  - [http://star.nesdis.noaa.gov/icvs/status\\_NPP\\_VIIRS\\_IMG.php](http://star.nesdis.noaa.gov/icvs/status_NPP_VIIRS_IMG.php)
- Incorporated weekly updated Anomaly History for JPSS:
  - <http://star.nesdis.noaa.gov/icvs/AnomalyHistory.php>
  - Sortable, searchable, and includes a current downloadable bundle of change lists.
- **JPSS-1 readiness:**
  - The beta site for ICVS has had pages for all the JPSS-1 instruments live since Feb. 2016
    - Full set of J-1 images for test dates April 9, 2016
    - [http://star.nesdis.noaa.gov/icvs-beta/status\\_J01\\_sc.php](http://star.nesdis.noaa.gov/icvs-beta/status_J01_sc.php)



## Coming Attractions!

- Enlargements for selected images (VIIRS-DNB first)
- Sharable URLs for specified images
- Vector-based charting
- User configurable comparisons between instruments, between products, etc.
- GOES-R Cal-Val site
- ICVS is a MONITORING tool, but as it matures, users look for features that trend towards making it an ANALYSIS tool.



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