The Use of VIIRS for Environmental Intelligence

Mitch Goldberg, Program Scientist
Joint Polar Satellite System
National Environmental Satellite, Data, and Information Service
National Oceanic and Atmospheric Administration
Why is NOAA interested in JACIE?

Why JACIE?

Quality image data is crucial to the Federal Government to aid in decision-making for global problems, such as climate change, food supply monitoring, and deforestation, and specific problems, such as the management of federal lands, defense and homeland security.

NOAA regularly uses NOAA provided imagery for environmental intelligence, and for significant events high spatial resolution and other technologies will be helpful.
Upcoming Opportunities for Collaboration

• More countries are joining the remote-sensing community

• Big Data / Cooperative Research And Development Agreement (CRADA)
  – DOC’s big data project with Amazon Web Services, Google Cloud Platform, IBM, Microsoft Corp and the Open Cloud Consortium will explore ways of bringing the DOC closer to its goal of unleashing its vast resources of environmental data—transforming DOC data capabilities and supporting a data-driven economy.
<table>
<thead>
<tr>
<th>JPSS Instrument</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATMS - Advanced Technology Microwave Sounder</td>
<td>ATMS and CrIS together provide high vertical resolution temperature and water vapor information needed to maintain and improve forecast skill out to 5 to 7 days in advance for extreme weather events, including hurricanes and severe weather outbreaks</td>
</tr>
<tr>
<td>CrIS - Cross-track Infrared Sounder</td>
<td></td>
</tr>
<tr>
<td>VIIRS – Visible Infrared Imaging Radiometer Suite</td>
<td>VIIRS provides many critical imagery products including snow/ice cover, clouds, fog, aerosols, fire, smoke plumes, vegetation health, phytoplankton abundance/chlorophyll</td>
</tr>
<tr>
<td>OMPS - Ozone Mapping and Profiler Suite</td>
<td>Ozone spectrometers for monitoring ozone hole and recovery of stratospheric ozone and for UV index forecasts</td>
</tr>
<tr>
<td>CERES - Clouds and the Earth’s Radiant Energy System</td>
<td>Scanning radiometer which supports studies of Earth Radiation Budget</td>
</tr>
</tbody>
</table>
### VIIRS: Next Gen Operational Polar Orbiting Imaging Radiometer

- **22 spectral bands**
  - Visible to LWIR
  - Spatially registered
- **Better spatial resolution**
  - Reduced variation over scan
  - Higher resolution imaging bands
- **High radiometric accuracy**
  - NIST-traceable
  - Supported by on-board calibrators

<table>
<thead>
<tr>
<th>Band No.</th>
<th>Wave-length (µm)</th>
<th>Horiz Sample Interval (km Downtrack x Crosstrack)</th>
<th>Driving EDRs</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>0.412</td>
<td>0.742 x 0.259, 1.60 x 1.58</td>
<td>Ocean Color Aerosols</td>
</tr>
<tr>
<td>M2</td>
<td>0.445</td>
<td>0.742 x 0.259, 1.60 x 1.58</td>
<td>Ocean Color Aerosols</td>
</tr>
<tr>
<td>M3</td>
<td>0.488</td>
<td>0.742 x 0.259, 1.60 x 1.58</td>
<td>Ocean Color Aerosols</td>
</tr>
<tr>
<td>M4</td>
<td>0.555</td>
<td>0.742 x 0.259, 1.60 x 1.58</td>
<td>Ocean Color Aerosols</td>
</tr>
<tr>
<td>I1</td>
<td>0.640</td>
<td>0.371 x 0.387, 0.80 x 0.789</td>
<td>Imagery</td>
</tr>
<tr>
<td>M5</td>
<td>0.672</td>
<td>0.742 x 0.259, 1.60 x 1.58</td>
<td>Ocean Color Aerosols</td>
</tr>
<tr>
<td>M6</td>
<td>0.746</td>
<td>0.742 x 0.776, 1.60 x 1.58</td>
<td>Atmospheric Corr’n</td>
</tr>
<tr>
<td>I2</td>
<td>0.865</td>
<td>0.371 x 0.387, 0.80 x 0.789</td>
<td>NDVI</td>
</tr>
<tr>
<td>M7</td>
<td>0.865</td>
<td>0.742 x 0.259, 1.60 x 1.58</td>
<td>Ocean Color Aerosols</td>
</tr>
<tr>
<td>CCD</td>
<td>DNB</td>
<td>0.7, 0.742 x 0.742, 0.742 x 0.742</td>
<td>Imagery</td>
</tr>
<tr>
<td>S/MWIR</td>
<td>PV/HgCdTe (HCT)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M8</td>
<td>1.24</td>
<td>0.742 x 0.776, 1.60 x 1.58</td>
<td>Cloud Particle Size</td>
</tr>
<tr>
<td>M9</td>
<td>1.378</td>
<td>0.742 x 0.776, 1.60 x 1.58</td>
<td>Cirrus/Cloud Cover</td>
</tr>
<tr>
<td>I3</td>
<td>1.61</td>
<td>0.371 x 0.387, 0.80 x 0.789</td>
<td>Binary Snow Map</td>
</tr>
<tr>
<td>M10</td>
<td>1.61</td>
<td>0.742 x 0.776, 1.60 x 1.58</td>
<td>Snow Fraction</td>
</tr>
<tr>
<td>M11</td>
<td>2.25</td>
<td>0.742 x 0.776, 1.60 x 1.58</td>
<td>Clouds</td>
</tr>
<tr>
<td>I4</td>
<td>3.74</td>
<td>0.371 x 0.387, 0.80 x 0.789</td>
<td>Imagery Clouds</td>
</tr>
<tr>
<td>M12</td>
<td>3.70</td>
<td>0.742 x 0.776, 1.60 x 1.58</td>
<td>SST</td>
</tr>
<tr>
<td>M13</td>
<td>4.05</td>
<td>0.742 x 0.259, 1.60 x 1.58</td>
<td>SST</td>
</tr>
</tbody>
</table>

- **LWIR**
  - M14: 8.55, 0.742 x 0.776, 1.60 x 1.58, Cloud Top Properties
  - M15: 10.763, 0.742 x 0.776, 1.60 x 1.58, SST
  - I5: 11.450, 0.371 x 0.387, 0.80 x 0.789, Cloud Imagery
  - M16: 12.013, 0.742 x 0.776, 1.60 x 1.58, SST
### VIIRS Improvements From AVHRR:

AVHRR does not have the spectral bands for: low light, ocean color, aerosol over land, discrimination of clouds from snow, sensitivity to thin cirrus, fire radiative power (intensity), and does not meet current user requirements.

#### Greater spectral coverage with increased radiometric quality

<table>
<thead>
<tr>
<th>VIIRS</th>
<th>MODIS Equivalent</th>
<th>AVHRR-3 Equivalent</th>
<th>OLS Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Band</td>
<td>Range (um)</td>
<td>HSR (m)</td>
<td>Band</td>
</tr>
<tr>
<td>DNB</td>
<td>0.500 - 0.900</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>M1</td>
<td>0.402 - 0.422</td>
<td>750</td>
<td>8</td>
</tr>
<tr>
<td>M2</td>
<td>0.436 - 0.454</td>
<td>750</td>
<td>9</td>
</tr>
<tr>
<td>M3</td>
<td>0.478 - 0.498</td>
<td>750</td>
<td>3</td>
</tr>
<tr>
<td>M4</td>
<td>0.545 - 0.565</td>
<td>750</td>
<td>4</td>
</tr>
<tr>
<td>I1</td>
<td>0.600 - 0.680</td>
<td>375</td>
<td>1</td>
</tr>
<tr>
<td>M5</td>
<td>0.662 - 0.682</td>
<td>750</td>
<td>13</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>M6</td>
<td>0.739 - 0.754</td>
<td>750</td>
<td>15</td>
</tr>
<tr>
<td>I2</td>
<td>0.846 - 0.885</td>
<td>375</td>
<td>2</td>
</tr>
<tr>
<td>M7</td>
<td>0.846 - 0.885</td>
<td>750</td>
<td>16</td>
</tr>
<tr>
<td>M8</td>
<td>1.230 - 1.250</td>
<td>750</td>
<td>5</td>
</tr>
<tr>
<td>M9</td>
<td>1.371 - 1.386</td>
<td>750</td>
<td>26</td>
</tr>
<tr>
<td>I3</td>
<td>1.580 - 1.640</td>
<td>375</td>
<td>6</td>
</tr>
<tr>
<td>M10</td>
<td>1.580 - 1.640</td>
<td>750</td>
<td>6</td>
</tr>
<tr>
<td>M11</td>
<td>2.225 - 2.275</td>
<td>750</td>
<td>7</td>
</tr>
<tr>
<td>I4</td>
<td>3.550 - 3.930</td>
<td>375</td>
<td>20</td>
</tr>
<tr>
<td>M12</td>
<td>3.660 - 3.840</td>
<td>750</td>
<td>20</td>
</tr>
<tr>
<td>M13</td>
<td>3.973 - 4.128</td>
<td>750</td>
<td>21</td>
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<td></td>
<td></td>
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<td>22</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>M14</td>
<td>8.400 - 8.700</td>
<td>750</td>
<td>29</td>
</tr>
<tr>
<td>I5</td>
<td>10.500 - 12.400</td>
<td>375</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>M16</td>
<td>11.538 - 12.488</td>
<td>750</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Low light capabilities**
- **Ocean Color, Aerosol**
- **Atm Correction**
- **Thin Cirrus**
- **Snow Map**
- **Cloud**
- **SST, Fire**
- **Cloud Top Properties**

**VIIRS Improvements From AVHRR:**

- VIIRS has increased spectral coverage compared to AVHRR.
- VIIRS offers improved radiometric quality and additional functionalities such as ocean color, aerosol, thin cirrus, fire, and cloud properties.
- VIIRS also introduces thin cirrus and fire detection capabilities.

**High light capabilities:**

- Improved for low light conditions.
- Enhanced ocean color and aerosol detection.
- Thin cirrus discrimination.
- Sensitivity to fire radiative power (intensity).
- Meets current user requirements.

**Combining VIIRS with MODIS:**

- Optimized for high radiometric quality.
- Enhanced functionality in ocean color, aerosol, thin cirrus, fire, and cloud properties.

**Combining VIIRS with AVHRR:**

- VIIRS provides additional spectral bands not available in AVHRR.
- Enhanced low light, ocean color, aerosol, cloud discrimination, thin cirrus, fire, and radiative power capabilities.

**Comparisons:**

- VIIRS offers improvements over AVHRR in terms of spectral coverage and radiometric quality.
- AVHRR lacks certain functionalities that VIIRS provides.

**Summary:**

- VIIRS extends the spectral coverage and improves the radiometric quality compared to AVHRR.
- VIIRS introduces new functionalities that AVHRR does not offer, enhancing its capabilities in various applications.
Comparing MODIS (250m) to VIIRS (375m) Edge of Scan
JPSS-1 satellites 50 minutes ahead of SNPP
VIIRS and MODIR RSB Inter-comparison at SNO-x (over desert)
VIIRS-CrIS SDR Comparisons

- VIIRS SDR accuracy/stability plus RVS performance
- Global; 2.9 million matchups daily from SNPP platform
- CrIS radiances anticipating Mx8.1
- In-band spectral radiance for M13, M15, M16 and I5
- Long term high quality data record to assess stability

CrIS spectrum covers VIIRS M13, M15, M16, and I5 but does not include OOB response in M15 and M16

VIIRS mean within CrIS FOVs

Scene Temperature

Courtesy of C. Moeller, U. of Wi
VIIRS-CrIS SDR Comparisons

After early March 2012 OBC calibration adjustment, VIIRS (and CrIS) exhibit excellent radiometric stability

- Daily avg spectral radiance bias within +/- 0.10 K all bands
- Bias of each band very stable over time (< 0.05 K trend )
<table>
<thead>
<tr>
<th>VIIRS</th>
<th>Environmental Parameters</th>
<th>NOAA Operational Assessments and Forecasts/Warnings</th>
<th>Impacted Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides daily high-resolution imagery and radiometry across the visible to long-wave infrared spectrum for a multitude of environmental assessments</td>
<td>Cloud properties</td>
<td>Cloud and fog data provide warnings needed for safe transport and commerce (land, ocean and air). Volcanic ash provides data for critical alerts needed for aviation safety. Fire and smoke information are critical for fire fighters and property owners. Smoke, dust, aerosols critical for air quality warnings</td>
<td>Public and Commercial Aviation, Insurance, Health, Home Owners, Energy, Tourism</td>
</tr>
<tr>
<td>Provides significant improvements over AVHRR, much better spatial resolution and more spectral information (22 vs. 6 channels)</td>
<td>Fog</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Day-Night-Band provides critical ice monitoring capabilities especially during the polar night and most accurate fog detection of any satellite sensor</td>
<td>Volcanic Ash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides the only continuity for NOAA AVHRR and NASA MODIS imagers, Only source of imagery with both high spatial resolution (~ 500 m) and large geographic coverage (3000 km wide) which provides global coverage with no gaps.</td>
<td>Fire and Smoke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only source for Arctic regions (Alaska) where geostationary satellites are out of range. Only source of operational ocean color data</td>
<td>Dust and Aerosols</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snow and Ice Cover and Thickness</td>
<td>Vegetation properties and land surface temperature are used in agricultural, drought, fire risk assessments and provide data need to predict prolong periods of drought. Critical data for planners – water resources, food security.</td>
<td></td>
<td>Agriculture, Energy, Health, Water Management, Tourism</td>
</tr>
<tr>
<td>Sea Surface Temperature (SST)</td>
<td>Snow pack information used in avalanche, water resources, river flood, transportation warnings. Ice data for Arctic Ocean navigation and winter maritime regions with ice conditions</td>
<td></td>
<td>Commerce, Water Management, Tourism</td>
</tr>
<tr>
<td>Ocean Color - Phytoplankton Harmful Algal Blooms (HABs)</td>
<td>SST primary source of data for seasonal forecasts (El Nino, La Nina oscillations) and for predicting tropical storm intensification</td>
<td></td>
<td>Agriculture, Construction, Energy, Insurance</td>
</tr>
<tr>
<td></td>
<td>Phytoplankton concentration for monitoring health of aquatic life. Critical for fishing industry and conservation efforts. HAB data for monitoring health of coast ecosystems, alerting local community on poor water quality and to quarantine regions due to potential contamination of seafood</td>
<td></td>
<td>Fishing Industry, Local Coastal Economies, Health</td>
</tr>
</tbody>
</table>
Day Night Band  May 20, 2012
Day/Night Band (DNB) Attributes

- Spatial Resolution: 742 m (constant across swath via 64 aggregation modes)
- Sensitivity: $3.0 \times 10^{-5} \text{ W m}^{-2} \mu\text{m}^{-1} (L_{\text{min}}$; signal to noise ratio ~10)
- Radiometric Calibration Accuracy ~ 13% (High Gain Stage)

Miller et al., Remote Sens. 2013, 5, 6717-6766; doi:10.3390/rs5126717
The ability of visible light to scatter through optically thin clouds (that are opaque at thermal infrared bands) enables the DNB to capture information.
VIIRS Day Night Band Observation of the Power Outage – Washington DC/Baltimore Metro Area
June 2012 Derecho
F/V Kiska Sea assist February 2013

DNB images from the previous night clearly showed the lights from F/V Kiska Sea and the ice pack around the vessel.

NWS Sea Ice personnel were able to assist the captain plot a track out of the ice pack, avoiding areas of thicker and higher concentration sea ice.

The timeliness of the DNB images provided an essential tool for this vessel assist.

7 Feb 2013
Strong Northernly winds cause rapid advance of ice pack

10 Feb 2013
150+ F/V Kiska Sea crab pots were deemed in danger of being overrun by sea ice

11 Feb 2013
F/V Kiska Sea captain and NWS Sea Ice Desk worked together to get pots back and return to ice free waters

13 Feb 2013
F/V Kiska Sea surrounded by sea ice, some >3 ft thick

15 Feb 2013
Fishing Example...
Fishing Example...
At night the VIIRS collects data in three daytime imaging bands: M7, M8, and M10. The nighttime M10 data have an remarkable ability to detect combustion sources!
What makes nighttime VIIRS data so great for gas flares?

The M7,8,10 spectral bands are well placed to record the peak radiant emissions from flares. During daylight hours the signal is overwhelmed by sunlight. At night combustion sources stand out clearly against the noise background.
Iraq gas flare detection from September 11, 2013

Combustion parameters:
Source ID=8VM10_npp_d20130911_t2228433_e2232237_IR_source_232
Lat=30.747845 Lon=48.279762 deg.
Temperature=1666 deg. K.
Radiant heat intensity=84.57 W/m²
Radiant heat=51.13 MW
Source footprint=11.7111 m²
Methane equivalent=1.381 m³/s
CO2 equivalent=2528.750 g/s
Cloud state=clear
Time=11-Sep-2013 22:27:57

IR source radiances:

Unused
Used
Multi-band fit

Wavelength, µm
Top 100 Gas Flares From January 2013

Map showing estimated value of flared gas in thousands of US dollars.
Lac-Megantic, Quebec Explosion Detected by VIIRS at Night

NGDC’s VIIRS Nightfire product provides temperature, source size and radiant heat worldwide on a nightly basis.
September 2012
VIIRS Day/Night Band
Tropical Storm Isaac in AWIPS

Data captured and processed in real-time at the University of Wisconsin-Madison Space Science and Engineering Center using CSPP Software.

07:09 UTC
28 Aug 2012

An unique visible look at a Tropical Storm at night.
September 2012
VIIRS Day/Night Band
Tropical Storm Isaac in AWIPS

Data captured and processed in real-time at the University of Wisconsin-Madison Space Science and Engineering Center using CSPP Software.

07:09 UTC
28 Aug 2012

An infrared look at a Tropical Storm at night.
Great lakes ice imagery
March 7, 2014 - last snow of the season and ice in the Chesapeake Bay
California Floods: Dec. 11-13, 2014
JPSS Proving Ground Delivering Experimental River Ice and Flood Products to NWS River Forecast Centers

Evansville, In

VIIRS Imagery
Calbuco Volcano in southern Chile has erupted for the first time since 1972, with the last major eruption occurring in 1961 that sent ash columns 12-15 kilometers high. This image was taken by the Suomi NPP satellite’s VIIRS instrument color enhanced infrared and the Day Night Band at 0515Z on April 23, 2015.
VIIRS is Critical for Mitigating Volcanic Related Aviation Hazards: Direct and indirect benefits

**Direct Benefit:** Nearly everyday VIIRS identifies volcanic activity that is not unambiguously identifiable using any other meteorological satellite sensor.

**Indirect Benefit:** The VIIRS images are used to identify subtle volcanic ash cloud features from geostationary imagery, thereby allowing the clouds to be tracked in time.

Recently, VIIRS was the first space sensor to detect renewed activity at Sangay Volcano in Ecuador (lava and ash emissions)

*PI: Mike Pavolonis, NESDIS Center for Satellite Applications and Research (STAR)*
VIIRS Fire Imagery

2012 Pacific NW fires

Whitewater-Baldy Complex fire, New Mexico is up to 259,025 acres burned. June 4, 2012.
Tracking the Rim Fire at Night
VIIRS DNB + IR enhanced with Lunar Irradiance Model
18 – 27 August
Integrating various satellite data is well recognized and emphasized.
LANDSAT 8 (30 meter resolution vs VIIRS 375 meter resolution)

But Landsat has a 16 day repeat cycle – it will not observe this location for another 16 days.
LANDSAT 8 (30 meter resolution) vs VIIRS (375 meter resolution)
Annual cycle of vegetation
Vegetation (August 2012 vs 2014)

USDA reported record corn production
In 2014 - 629 million bushels vs 467 in 2004

Deep red has 30% less vegetation in 2012

VIIRS GVF difference (15 Aug 2012 minus 15 Aug 2014)
Drought examples

Vegetation health SNPP/VIIRS July 22, 2012

Stressed Fair Favorable
0 6 12 24 36 48 60 72 84 100

~ 2.5 km
Detail imagery of ocean nutrients and sea surface temperature

Phytoplankton in the Baltic Sea

Sea surface temperature gradients south of Cape Cod
VEIRS ocean color data products are being processed by NOAA CoastWatch on an experimental basis.

Global 4km chlorophyll-a (single file) and 750m (24 sector tiles) and CONUS (CoastWatch regions) are produced daily. Both CONUS and GLOBAL 750m (L2.L1) products are available through the CoastWatch THREDDS Server.

Level-2 granules can be browsed by using the CoastWatch Granule Selector. The selector allows visualization of a granule's geographic coverage with quick access to the Level-2 dataset.

Sentinel-3
NOAA OceanWatch and other US partners are in discussions with EUMETSAT to develop pre-operational support for Sentinel-3 data and products.

http://coastwatch.noaa.gov/
NOS/NMFS uses polar-orbiting data for Operational harmful algal bloom forecasts
Response to other algal blooms
Oil spill response
Indirectly for boundary models for coastal hydrodynamic models
Sanctuaries and habitat assessment

Gulf of Mexico Harmful Algal Bloom Bulletin
Region: Southwest Florida
Friday, 12 December 2014
NOAA National Ocean Service
NOAA Satellite and Information Service
NOAA National Weather Service
Last bulletin: Tuesday, May 27, 2014

Satellite chlorophyll image with possible HAB areas shown by red polygon(s), when applicable. Points represent cell concentration sampling data from December 7 to 11: red (high), orange (medium), yellow (low b), brown (low a), blue (very low b), purple (very low a), pink (present), and green (not present). Cell count data are provided by Florida Fish and Wildlife Conservation Commission (FWC) Fish and Wildlife Research Institute. For a list of sample providers and a key to the cell concentration categories, please see the HAB-OPS bulletin guide:
http://tidesandcurrents.noaa.gov/hab_data_bulletin_guide.pdf
Detailed sample information can be obtained through FWC Fish and Wildlife Research Institute at:
http://myfwc.com/wildliferecords

To see previous bulletins and forecasts for the other Harmful Algal Bloom Bulletin regions, visit: http://tidesandcurrents.noaa.gov/hab_bulletin.html

Map data ©2015 Google; Google Map Terms of Use; Google Terms of Use; Google Image Terms; Map data ©2015 HERE; HERE Terms of Use; Map data ©2015 ESRI; Map data ©2015 GeoEye

Current Coral Bleaching Alert Level
Time Series Graphs and Data (Marine
SST = 30.697
Anomaly = 1.305
HotSpot = 1.244
DHW = 15.106

Nauru
Fig. 2. VIIRS 865-nm images (imaging band #2) on (left) 15 and (right) 21 June 2013 from the same location in the northwest Gulf of Mexico (location shown in the inset figure) showing surface oil slicks due to natural seeps. Depending on the relative solar/viewing geometry (and therefore sun glint strength), the slicks can appear as both dark features (left) and bright features (right). Figure adapted from Hu et al. (2015, in press).

Fig. 4. Preliminary results of oil slick delineation from MODIS sun glint imagery on 2 June 2005. The parameters in the algorithm need to be fine tuned with VIIRS.
Attention CORS users (06/23/14):
Starting January 1, 2014, the National Geodetic Survey's CORS data archived at CLASS now includes GPS+GLONASS data for stations with GNSS-capable equipment. The GLONASS broadcast navigation file (BRDC) is also available for users at the same starting date. (GLO navigation file name example: brdc1660.14g.pcl)

CORS data collections include RINEX since 1994 and raw GPS from selected CORS sites since 2004. The original at-sampling rate was retained except where there was only the 30-second decimated rate data. For more info see the CORS CLASS search page.

Attention Suomi NPP Users:
The most recent global NPP operational products are now available in daily tar files for quick and easy downloads at ftp://ftp-npp.class.ngdc.noaa.gov/. Please see the NPP help page for instructions. Up to the most recent 65 days of data will be available for direct online access.

Suomi NPP data access status (11/25/14):
The majority of S-NPP products are now available and can be ordered through CLASS. The ones available to the public will show the begin dates after the product name on the search page. Also, a "quick look" of which products are at which maturity stages can be easily viewed at the STAR Algorithm Product Maturity Matrix website. Details of high priority issues related to the data quality are contained in the Readme files provided by the S-NPP Project Scientist. Many of these have recently been updated. Please read these before ordering and using the data.
NOAA View Data Exploration
Science Seminar Annual Digest

On behalf of the Joint Polar Satellite System (JPSS) Program Science, it is my pleasure to share with you our science digests, which are a collection of technical articles generated from a series of monthly science seminars. The digests capture the importance of the close collaborative efforts between product developers and key users to conceptualize and develop new products that help improve the use of JPSS data to enhance key services, such as forecasting of severe weather events and environmental monitoring of land, ocean and the cryosphere. I would like to thank our federal staff, private sector support staff, and university partners whose contributions and dedicated efforts have made JPSS a big success.

The JPSS program is committed to ensuring that its user community is prepared to utilize the satellite imagery and data available from JPSS – the United States’ next generation polar-orbiting operational environmental satellite system. JPSS provides environmental observations which are used in a wide range of application areas that include severe weather, hazards, aviation, ocean, coastal, land, imagery and data assimilation.