



CIMSS support of JPSS

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- Overview of McIDAS-V
- Examples
- McIDAS-V summary
- Other work



What is McIDAS-V



$McIDAS-X \rightarrow VisAD + IDV + HYDRA =$

- Integration of Geophysical Data
- Remote and Local Data Access
- Powerful Analysis Tools
- 3D Visualization
- Ease of Re-projection







- Built on top an extensible framework for adapting new sources of data (format and type, local or remote), user interface components and for creating novel displays and analysis techniques
- Developed in the Java programming language object oriented, write once run anywhere, very portable
- Persistence mechanism (bundles) for saving and sharing interesting displays/analysis with other McIDAS-V users
- Python based user defined computation
- Open source, freely available, community driven software
- Is able to easily load and manipulate Suomi NPP (Block 1 and 2) and JPSS-1 simulated Block 2 data without any special readers





- It has 5 instruments which retrieve data regarding the atmosphere, land and ocean. 3 of these instruments can be displayed in McIDAS-V
 - VIIRS
 - CERES
 - CrIS
 - ATMS
 - OMPS



- 22 microwave channels, combining all the channels of the preceding AMSU-A1, AMSU-A2, and AMSU-B sensors into a single package
- Provides sounding observations needed to retrieve profiles of atmospheric temperature and moisture for forecasting models and continuity for climate monitoring purposes.





Cross-track Infrared Sounder (CrIS)



- 1,305 infrared spectral channels
- Designed to provide high vertical resolution information on the atmosphere's structure of temperature and water vapor.









- Has 22 channels at three different resolutions
 - 16 Moderate Band (M-Band) channels (~750 m at nadir)
 - 5 high resolution (I-Band) channels (~375 m at nadir)
 - Day Night Band (~750 m at nadir)
- M and I band data encompass data from 412 nm to 12 μm
- Used to produce Level 2 products



Multi-channel animation















VIIRS Channel Differencing DNB Stray light example







VIIRS SDR Ancillary data









- There are a series of 20 Environmental Data Records (EDRs) produced from VIIRS
- McIDAS-V has been able to successfully ingest all EDRs including NDE Enterprise output
- McIDAS-V can unpack and display bit level data.
 - Ex. Displaying VCM test results



VIIRS DNB and Surface temperature EDR 2236Z, 09/29/2012







Imagery EDR example Scatter analysis







Product EDR Variable selection







Product EDR Data Probe





Location: Lat: 48.64 Lon: -91.41

VIIRS 2013-04-16 08:19:56 GMT, ... - Suomi NPP Quality Flag Display:

Confidently Cloudy







- Support for the VICMO cloud mask EDR (released March 2017) as well as backwards compatibility with IICMO data.
- Added a new "show variables" button to the Field Selector tab of the Data Explorer which can show the variable shortname or (if present) long name.
- VIIRS Formulas plugin that gives formulas to remove the bowtie deletion and create RGB displays without the bowtie
- Added several VIIRS specific Scripting functions to load and grab information from SNPP/J1 files.



- Support added for CrIS Full Spectrum data.
- Chooser rename to JPSS (it's not just for Suomi any more!)
- Reordering of fields provided now (e.g. M bands used to be listed out of order in multibanded VIIRS files)
- Better time formatting in scripting functions
- Generalization and renaming of scripting functions, with deprecation warnings provided

EXAMPLES OF MCIDAS-V USED FOR JPSS







NOAA-20 2018 lower Puna lava outbreaks





VIIRS – NOAA-20 – Day Night Band 23 May 2018, 2:13am HST







Disaster monitoring Fires and Smoke support





https://www.eumetsat.int/website/home/Images/ImageLibrary/DAT_3524803.html



Mesospheric Gravity Wave monitoring









- Support for visualizing granules which straddle the dateline (note, this issue occurs with other polar and geo data)
- Support for OMPS
 - Needed for comparisons and visualizations with other instruments
- Support for NUCAPS
- Output in other GIS-type formats (ex. geoTIF)
 - Google KML/KMZ files often either don't display properly in other GIS viewers other than Google Earth.
 - This is needed for comparisons and interactions with other groups, both in cal/val and other activities.









Polar Monitoring Public Outreach





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