McIDAS-V for International Training

2018 McIDAS Users' Group Meeting

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CIRA International Training

WMO Virtual Laboratory for Education and Training in Satellite Meteorology

- Worldwide collaborative network connecting training Centres of Excellence (CoEs) and Satellite Operators
- Objective: globally share knowledge, experience, methods, and tools related to satellite data, especially in support of WMO members that have limited resources
- http://www.wmo-sat.info/vlab

Challenges

- Trainers and forecasters require access to digital data
- Recurring gaps, particularly for countries with limited resources
  - Affordable access to real-time data
  - Access to low cost software for both display and manipulation
  - Training (on access, display, and interpretation)
- Limited software choices
  - Comprehensive software requires skilled computer technicians and programmers to install and maintain, spin-up time, and often expensive

Why McIDAS-V?

- Free software, easy to install, support forum
- Capabilities:
  - Reads in and displays multiple types of data
  - View different projections and regions, interrogate the data
  - Perform calculations, manipulate and combine imagery, and add color tables
  - Output values to a file, or jpg type images
  - Incorporate python for batch processing

Workshop Preparation

Select case examples relevant to the region:

- Gather readily available gridded datasets (format must be compatible with McIDAS-V)
- Fire/hotspot, dust, convection, rain rate and precipitation, vegetation, volcanic ash/SO_2, etc.

Utilize McIDAS-V software:

- Load data, select display and setting preferences
- Create bundle files and plugins with custom color tables and formulas
- Develop tutorials with step-by-step instructions and McIDAS-V screen captures

Deliver training:

- Hands-on approach to learning using McIDAS-V
- Provide interpretation of the data and associated weather patterns

Types of Users

Mix of participants: forecasters, instructors, students, meteorological technicians, researchers, hydrologists, statisticians, oceanographers

Introductory:

- Use McIDAS-V bundle to quickly demonstrate what can be viewed and what extra information can be gained from digital imagery

Advanced:

- Provide step-by-step McIDAS-V instructions on how to load the imagery, where to find color tables, modifying labels, and other features

Lab Structure:

- Everyone starts with bundles
- "Faster" participants can work through step-by-step tutorials
- Class collectively answers questions

Workshops

Caribbean Institute for Meteorology and Hydrology
3-6 May 2016, Barbados

Exercises in McIDAS-V:

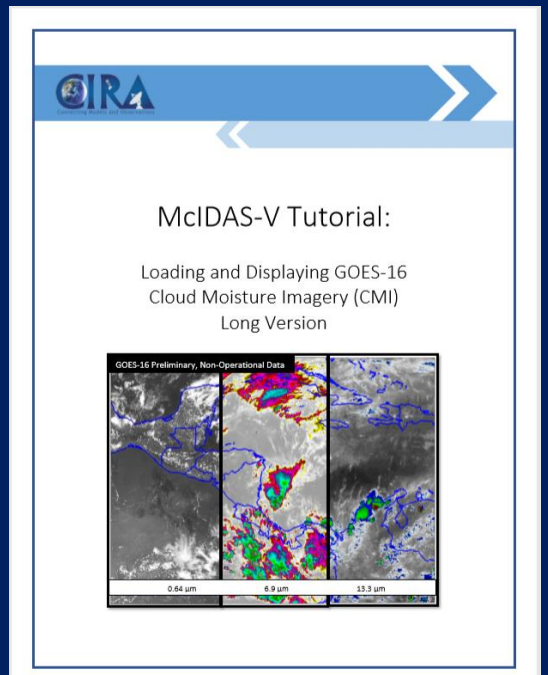
- Compare satellite-based precipitation products to ground observations
- Sea and land surface temperature, normalized difference vegetation index (NDVI)
- Simple channel differences for identifying dust
- RGB creation for volcanic ash detection

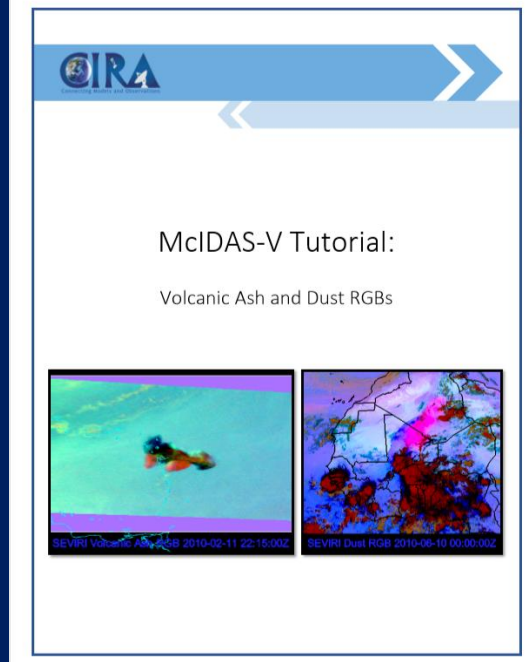
Workshops

WMO/NOAA VLab Train the Trainer Workshop
(prior to NOAA Satellite Conference)
15-16 July 2017, NYC

GEONETCast Workshop at the
AmeriGEOSS Meeting
31 July – 4 August 2017, Costa Rica

Focus was on imagery from the next generation satellites, GOES and JPSS

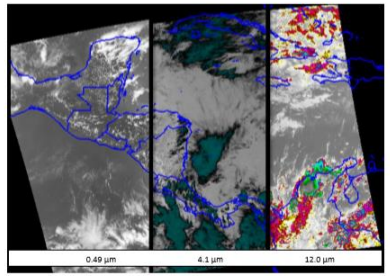




Contents

McIDAS-V Tutorial:

Viewing Visible, Near Infrared and Infrared Suomi-NPP VIIRS Imagery



3. Loading the McIDAS-V Bundle File: Bands M1-M5

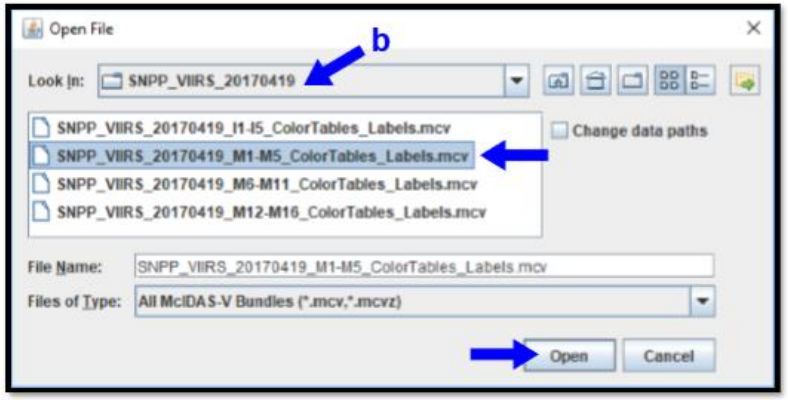
3.1 Locate the McIDAS-V bundle file (.mcv) and S-NPP VIIRS data file (.h5) for bands M1-M5. Here they are saved in **D:\McIDAS-V_Examples\SNPP_VIIRS_20170419.**

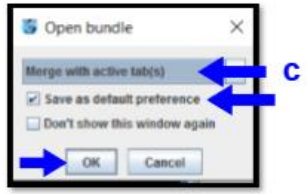
3.2 Load the McIDAS-V bundle file.

a) From the **Main Display** window select **File → Open File…**

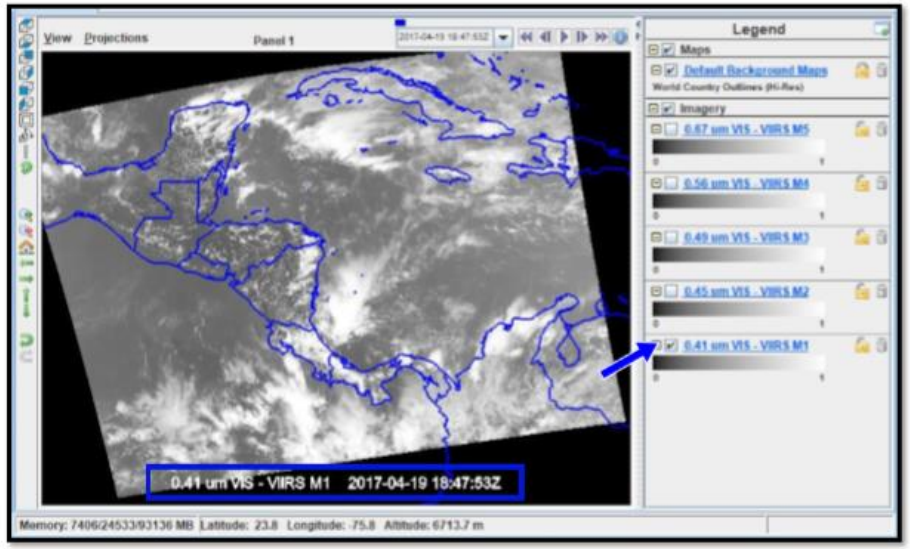
b) In the **Open File** window, use the **Look in** drop-down menu to navigate to **\SNPP_VIIRS_20170419.** Select the file **SNPP_VIIRS_20170419_M1-M5_ColorTables_Labels.mcv** and click the **Open** button.

c) In the **Open bundle** window, select **Merge with active tab(s)** and **Save as default preference.** Click the **OK** button.

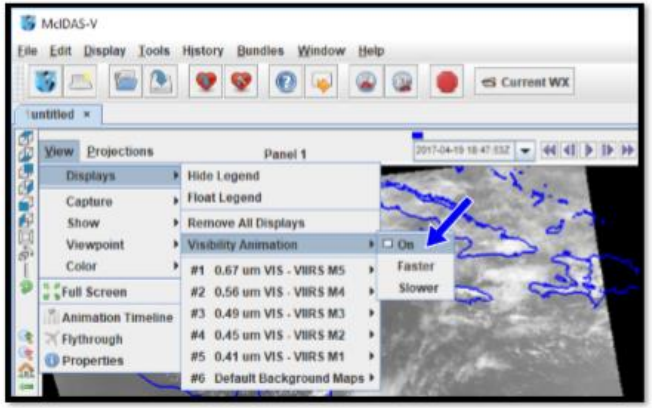




3.3 The bundle file will open with imagery from the 5 visible bands loaded in the **Main Display** window. You can choose bands to view by checking the boxes to the left of the labels in the **Legend** column. Labels for selected bands are displayed along the bottom of the image.



3.4 To view an animation of the imagery for the 5 bands, go to the **Main Display** window and click on the **View** tab. Select **Displays → Visibility Animation → On.** Here you can also choose to loop through the layers faster or slower.



Looking Ahead

- Jython scripting for RGB products
- All inclusive bundle files with pre-loaded data, color tables, etc
- Address system memory issues by subsecting data

- How can we better address different levels of users?
- Can we do hands-on virtual trainings effectively?