

Hampton University Satellite Direct Broadcast Workshop: Polar Orbiter Satellites in Support of Real-Time Environmental Applications

Location: Hampton University, Virginia

Date: 6-9 June 2017

Workshop Agenda

Day One Polar Orbiter Imager Sensors - including MODIS and VIIRS

6 June 2017 Kathy Strabala and Jessica Braun

9:00 AM – 12:00 PM Lecture: Introduction to Polar-Orbiting Satellites and Sensors

- Properties of Polar-Orbiting Satellite sensors
- Bowtie effects and data aggregation
- SDR and Level 1B products and formats
- Software for visualization of SDRs and Level 1B files
- Overview of Direct Broadcast system at Hampton University
- Overview of Software for SDR and L1B file generation
- CSPP – Community Satellite Processing Package

Noon – 1:00 PM Group Lunch and Loading of Lab Data onto Laptops

1:00 PM – 5:00 PM Lab Session: Exploring MODIS and VIIRS L1B data in Hydra

- Learning Hydra
- Exploring S-NPP SDR and MODIS L1B using direct broadcast data
- Exploring VIIRS Day/Night Band Capabilities.

Day Two Level 2 Imager Polar Orbiter Products and Applications

7 June 2017 Kathy Strabala and Jessica Braun

9:00 AM – 12:00 PM Lecture: MODIS Level 2 & VIIRS EDR algorithms and products

- MODIS and VIIRS Atmosphere Products and Applications including identification of severe weather signatures and atmospheric turbulence.
- MODIS and VIIRS Land Products and Applications including fire detection.
- MODIS and VIIRS Ocean Products and Applications.
- VIIRS Day/Night Band Applications.

Noon – 1:00 PM Group Lunch and Loading of Lab Data onto Laptops

1:00 PM – 5:00 PM Lab Session: MODIS and VIIRS data and product applications

- Exploring Ocean Features in MODIS and VIIRS data.
- Exploring MODIS and VIIRS Cloud Composition and Severe Weather Detection Capabilities.
- Exploring MODIS and VIIRS Fire Detection capabilities.

**Day Three Sounder Instrument Sensor and Measurement Characteristics and Accuracy including AIRS, CrIS and IASI
Level 2 Sounder Instrument Products and Applications
8 June 2017 Dave Tobin and William Smith Sr.**

**9:00 AM – 12:00 AM Lecture Session 3:
Dave Tobin**

- Sensor Characteristics and Calibration
- Data Products and Formats
- Level-1 radiance generation software

Bill Smith, Sr.

- Level-2 sounding retrieval generation algorithms and severe weather applications.

1:00 PM – 5:00 PM HYDRA Lab Session: Exploring hyperspectral sounders and their applications including severe weather precursors.

**Day Four Student Satellite Data Investigations and Presentations
9 June 2017**

9:00 AM – 12:00 PM Lab Session: Students in groups of three will choose a topic to investigate. They will explore the S-NPP and Aqua/Terra data from a case study or from the local antenna data, and present the results of their investigation to the class in the afternoon.

1:00 PM – 4:00 PM: Student presentations – 15 minutes each.

General Notes:

- The workshop will take place at the Hampton University Harbor Center, 2 Eaton St. Hampton, VA 23669.
- Lunch will be provided daily by the University of Wisconsin.
- There will be a 15 minute break in the morning and afternoon sessions with refreshments.
- The labs will be executed on student laptops. The data and software will be loaded onto the laptops during lunch breaks (**USB port required**). The labs will consist of students working together in groups of 3. The free tool we will use for lab investigations is called Hydra, and can be installed on most Apple, Windows, and Linux laptops. It was developed at the University of Wisconsin specifically as a remote sensing teaching tool. It is advantageous to have a mouse when working with HYDRA.
- Laptops should have at least **50GB of disk space available** for the data sets used in the labs.
- The free Google Earth Pro geobrowser will be used in one lab session if installed on the student laptop (<https://www.google.com/earth/desktop/>).

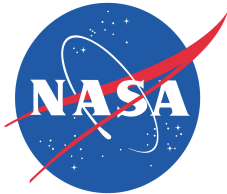
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