



# 2014 HypIRI Product Symposium

## **HypIRI: Enabling the Evolution of Land Imaging with New Approaches and Products**

*How can HypIRI Help Address Sustainable Land Imaging Requirements?*

***A Symposium Sponsored by NASA***

***Goddard Space Flight Center-Building 34, Rooms W150, W120A/B***

***June 4-5, 2014***

## Day One: Wednesday, June 4

**8:00-9:00am**     **Registration/Poster Set-ups/Coffee Service, Foyer**

**Evolving the HypsIRI Mission and Products** [Chair, Elizabeth Middleton, NASA/GSFC] Room W150

- 9:00-9:15am     Welcome and Overview of Symposium (**Elizabeth Middleton, NASA/GSFC**)
- 9:15-9:30am     Status of HypsIRI (**Woody Turner, NASA HQ**)
- 9:30-9:45am     NASA's Evolving Vision for Space (**Steve Volz, NASA HQ**)
- 9:45-10:00am    Summary: Comprehensive Mission Report, 2008-2013 (**Rob Green, JPL**)
- 10:00-10:15am   Systems Architecture for Distributed Spacecraft Missions (**Jacqueline Le Moigne, NASA/GSFC**)
- 10:15-10:30am   White Paper Summary: Science Impact, Deploying VSWIR & TIR Instruments on Separate Platforms (**Simon Hook, JPL**)

**10:30-11:00am**   **Coffee Break/Posters, Foyer**

**Session 1:**

**HypsIRI's compatibility with other US Missions and Sustainable Land Imaging, SLI** [Chair, Petya Campbell, UMBC] Room W150

- 11:00-11:30am   Architecture Study Scope & Methods / Hyperspectral Imaging & SLI (**Del Jenstrom / Jeff Masek, NASA/GSFC**)
- 11:30-11:45am   Sustainable Land Imaging (SLI) for USGS (**Ray Byrnes, USGS**)
- 11:45-12:00am   CEOS/Essential Climate Variables and SLI (**Miguel Roman, NASA/GSFC**)
- 12:00-12:15pm   Landsat 8 (**Jim Irons, NASA/GSFC**)
- 12:15-12:30pm   VIIRS and MODIS (**Robert Wolfe, NASA/GSFC**)
- 12:30-12:45pm   PACE (**Carlos Del Castillo, NASA/GSFC**)
- 12:45-1:00pm    Session 1 Open Discussion (**Everyone**)

**1:00-2:00pm**     **Lunch, Foyer**

Room W150, Discussion TOPIC: How HypsIRI Strategies Can Help Meet SLI Multispectral Needs (**Steve Ungar**)

**Session 2:**

**Ecosystem Studies** [Chair, Susan Ustin, UC Davis] Room W150

- 2:00-2:15pm     Retrieving LUE with Hyperion Globally (**Fred Huemmrich, NASA/GSFC**)
- 2:15-2:30pm     Retrieving the New fAPARchl Product from Space (**Qingyuan Zhang, NASA/GSFC**)
- 2:30-2:45pm     Retrieving GPP in Forests and Agriculture (**Ben Cheng, NASA/GSFC**)
- 2:45-3:00pm     Vegetation Feature Analysis and Spectral Comparison Using the USGS PRISM Software (**Ray Kokaly, USGS**)
- 3:00-3:15pm     EcoSIS: The Ecosystem Spectral Information System (**Philip Townsend, UW**)
- 3:15-3:30pm     Mapping Fire Scars Using Hyperspectral Imagery and Kernel Based Image Analysis (**Saurabh Prasad, UH**)
- 3:30-3:35pm     Coastal Remote Sensing Using HICO: Results, Challenges and Applications for HypsIRI (**Wesley Moses, NRL**)

**3:35-4:15pm**     **Coffee Break/Posters, Foyer**

**Session 3A:**

**Aquatic Ecology** [Jeff Luvall, MSFC] Room W150

- 4:15-4:30pm     HypsIRI Aquatic Studies Group (HASG) Activities (**Wesley Moses, NRL**)
- 4:30-4:45pm     Decomposition of Hyperspectral Data for use in Case 2 Environments (**Joseph D. Ortiz, Kent State University**)
- 4:45-5:00pm     Role of Space Borne Imaging Spectrometry in Global Water Quality Monitoring (**Arnold Dekker, CSIRO**)

**Session 3B:**

**Public Health and Disasters** [Jeff Luvall, MSFC] Room W150

- 5:00-5:15pm     Health and Air (**John Haynes, NASA/HQ**)
- 5:15-5:30pm     CEOS Disaster Risk Management for Societal Benefit (**Stu Frye, NASA/GSFC**)
- 5:30-5:45pm     Volcanoes (**Rick Wessels, USGS**)
- 5:45-6:00pm     SLI Requirements to Monitor Surface Soil Moisture with HypsIRI-like Data (**Mike Ramsey, U. of Pittsburgh**)

**6:00pm**            **ADJOURN, Day 1**

**6:30-9:00pm**     **Dinner/Evening Event in Honor of Susan Ustin, UC Davis** (Sir Walter Raleigh Restaurant, Greenbelt, MD)

**6:30 pm**            **Shuttle Pick-up from GSFC Visitor Center Parking Lot to Sir Walter Raleigh for Group Dinner**  
**Return Pick-up, 9:00pm to Holiday Inn**

## Day Two: Thursday, June 5

**8:00am**      **Registration/Poster Set-ups/Coffee Service, Foyer**

### **Session 4A:**

**New HypsIRI Like Data Sets & Calibration Topics [Chair, Rob Green, JPL] Room W150**

- 8:45-9:00am      HypsIRI Airborne Campaign Overview (**TBD**)
- 9:00-9:15am      Level 2 Processing of AVIRIS HypsIRI Preparatory Campaign Measurements (**Rob Green, JPL**)
- 9:15-9:30am      HypsIRI Flight Campaigns for Summer Sea-Land Thermal Gradients & Sea-Breezes in LA (**Jorge Gonzalez, NOAA**)
- 9:30-9:45am      Atmospheric Corrections (**Bo-Cai Gao, Naval Research Lab**)
- 9:45-10:00am      **Poster Speed Talks (5 @ 3 min. each)**

**10:00-10:30am**      **Coffee Break with Demo Presentations, Foyer**  
**GEO-social/API Demo (Pat Cappelaere, Vightel) AND Fast AC Demo (Vuong Ly, NASA/ GSFC) Room W120A**

### **Session 4B:**

**New HypsIRI Like Data Sets & Calibration Topics [Steve Ungar, NASA/GSFC] [Room W150]**

- 10:30-10:45am      Calibration and Validation of AVIRIS-C and AVIRIS-NG in Relation to HypsIRI (**Robert Green and the AVIRIS Team**)
- 10:45-11:00am      Landsat-7&8/Hyperion/G-LiHT/CLARREO (**Joel McCorkel, NASA/GSFC**)
- 11:00-11:15am      Hyperion Stability and Sub-pixel Heterogeneity in a Pseudo-invariant Desert Site (**Chris Neigh, NASA/GSFC**)
- 11:15-11:30pm      EO-1 Calibrations (**Lawrence Ong, NASA/GSFC**)
- 11:30-11:45am      Geo-correction or Geo-corruption (**Steve Ungar, NASA/GSFC**)
- 11:45-12:00pm      Discussion: Can Spectrometers Provide Landsat Data Continuity? (**Chair, Steve Ungar, NASA/GSFC**)

**12:00-1:00pm**      **Lunch, Foyer**

### **Session 5:**

**Intelligent Payload Module [Chair, Dan Mandl, NASA/GSFC] Room W150**

- 1:00-1:15pm      Intelligent Payload Module (PM) Concept Evolution (**Dan Mandl, NASA/GSFC**)
- 1:15-1:30pm      Prototype and Metrics for Data Processing Chain Components of IPM (**Vuong Ly, NASA/GSFC**)
- 1:30-1:45pm      Generation of OLI Data Products Onboard Earth Observing One: a Preliminary Report (**Steve Chien, JPL**)
- 1:45-2:00pm      CubeSat Technology Flight Validation and the IPEX Mission (**Charles Norton, JPL**)
- 2:00-2:15pm      Flight Validation of HypsIRI IPM Concepts on the Intelligent Payload Experiment (IPEX) CubeSat (**Steve Chien, JPL**)
- 2:15-2:30pm      Csp and Xilinx Zynq Processors for Onboard Processing (**Chris Wilson, U. Florida and CHREC**)

**2:30-3:00pm**      **Coffee Break/Posters, Foyer**

### **Session 6:**

**Ground Data Processing and Distribution [Chair, Pat Cappelaere, Vightel] Room W150**

- 3:00-3:15pm      Data Products on Cloud - Update (**Vuong Ly, NASA/GSFC**)
- 3:15-3:30pm      Cloud-based Scanning Analytics for Large Volumes of Hyperspectral Data (**Maria Patterson, U. Chicago**)
- 3:30-3:45pm      NASA Earth Science Products for Farmer Management and Cell Phone Systems (**Molly Brown, NASA/GSFC**)
- 3:45-4:00pm      Data Fusion and Compression (**Wojciech Czaja, UMD**)
- 4:00-4:15pm      OpenGeoSocial API: Product Discovery/Distribution via Social Networks (**Pat Cappelaere, Vightel**)
- 4:15-4:30pm      Distributed Disaster Architecture (**John Evans, GST**)

**Preparing for Next Decadal Survey [Chair, Woody Turner, HQ] Room W150**

- 4:30-4:45pm      The NRC 2017 Decadal Survey (**Woody Turner, HQ**)
- 4:45-5:00pm      Discussion: *How can HypsIRI Contribute?*

**5:00-5:30pm**      **Group Discussion, Synopsis and Concluding Remarks [Elizabeth Middleton, NASA/GSFC] Room W150**

**5:30pm**      **ADJOURN, HypsIRI Symposium**

**6:00pm**      **Shuttle pick-up from GSFC Visitor Center Parking Lot Back to Holiday Inn**

## Friday, June 6

- 09:00-10:20am** ***New Studies and Products for Coastal & Aquatic Science with HypIRI [Chair, Kevin Turpie, UMBC] Room W150***
- 09:00am Overview Progress Report (**Kevin Turpie, UMBC**)
- 09:20am Phytoplankton Functional Types and Water Quality at the Land-Sea Interface: Challenges, Progress, and Opportunities with the HypIRI Airborne Campaign (**Liane Guild and Sherry Palacios, AMES**)
- 09:40am Airborne Hyperspectral Instrument PRISM and Observations of Submerged Aquatic Vegetation (**Heidi Dierssen, UCONN**)
- 10:00am Atmospheric Correction over Water (**Bo-Cai Gao, NRL**)
- 10:30-10:45am** ***Coffee Break, Foyer***
- 10:45-11:15am** ***Forum Discussion (Exit Criteria - Form Clear Recommendations for Each Topic and Summarize)***
- Atmospheric Correction Improvements
  - Glint Correction
  - Calibration, Characterization, and Validation
  
  - VSWIR/TIR Instrument Separation
  - Alternative Orbits and Platforms
  - Coastal Mask Development
- 11:15-11:45am** ***Further Aquatic Algorithm Development: Efforts and Directions***
- Can the HASG Expand to Support Other Coastal and Inland Water RS Efforts?
  - What Resources can be Exploited for Community Algorithm Development?
  - Will there be Funding to Support Algorithm Development?
  - How Does the Community Support Operational Production of Level 3-4 Data?
- 11:45-12:00pm** ***Summarization of Key Actions and Recommendations***
- 12:00pm** ***ADJOURN***

## Spectroscopic (PRISM) Tutorial, Room W305

- 9:00-4:00pm**  
***(By Invitation)*** ***Processing Routines in IDL for Spectroscopic Measurements (PRISM) Tutorial***  
***[Instructor: Ray F. Kokaly, USGS] Room W305***
- 10:00-10:15am** ***Coffee Break, Foyer***
- 12:00-1:00pm** ***Lunch, Foyer***
- 3:00-3:15pm** ***Coffee Break, Foyer***
- 4:00pm** ***ADJOURN***
- 4:30pm** ***Shuttle Pick-up from Visitor Center, Going to Holiday Inn***