HyspIRI: Enabling the Evolution of Land Imaging with New Approaches and Products

How can HyspIRI 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
8:00-9:00am  Registration/Poster Set-ups/Coffee Service, Foyer

Evolving the HyspIRI 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 HyspIRI (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:
HyspIRI’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 HyspIRI 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 HyspIRI (Wesley Moses, NRL)

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

Session 3A:
Aquatic Ecology  [Jeff Luvall, MSFC] Room W150
4:15-4:30pm  HyspIRI 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 Wessen, USGS)
5:45-6:00pm  SLI Requirements to Monitor Surface Soil Moisture with HyspIRI-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 HyspIRI Like Data Sets & Calibration Topics [Chair, Rob Green, JPL] Room W150

8:45-9:00am HyspIRI Airborne Campaign Overview (TBD)
9:00-9:15am Level 2 Processing of AVIRIS HyspIRI Preparatory Campaign Measurements (Rob Green, JPL)
9:15-9:30am HyspIRI 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 HyspIRI 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 HyspIRI (Robert Green and the AVIRIS Team)
10:45-11:00am Landsat-7&8/Hyperion/G-LiHT/CLAIREO (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 HyspIRI 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 (Vuqng 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 HyspIRI Contribute?

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

5:30pm ADJOURN, HyspIRI Symposium

6:00pm Shuttle pick-up from GSFC Visitor Center Parking Lot Back to Holiday Inn
09:00-10:20am  | *New Studies and Products for Coastal & Aquatic Science with HyspIRI* [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 HyspIRI 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)*

**Coffee Break, Foyer**

09:30-10:45am  | 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

**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

**ADJOURN**

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**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