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

How Can HyspIRI Help Address Sustainable Land Imaging Requirements?

NASA/GSFC, June 4 and 5, 2014
Building 34, Conference Room W150

Wireless internet connection:
Choose "Guest-CNE" network

GSFC EO-1/HyspIRI Team

Betsy Middleton, NASA
Steve Ungar, USRA

Petya Campbell, UMBC
Kevin Turpie, UMBC
Lisa Henderson, Sigma Space

David Landis, Sigma Space
Fred Huemmrich, UMBC
Ben Cheng, Sigma Space
Qingyuan Zhang, USRA
Larry Corp, Sigma Space
Lawrence Ong, SSAI
Dan Mandl, NASA
Stu Frye, SGT
Chris Neigh, NASA/GSFC
Pat Cappelaere, Vightel Corp

Wed/Thurs Lunches: Boxed Lunches are for Pre-Purchases Only
If pre-purchased, please pay at Registration Desk ($10)

Tuesday Dinner: Sign up at Registration Desk

HyspIRI Symposium Focus

This is the 4th Annual HyspIRI Product Symposium at NASA/GSFC, which will cover:

- The evolving HyspIRI mission and products;

- Science & application studies: ecosystems, agriculture, coastal/aquatic, health, and disasters/natural hazards;

- HyspIRI's contribution for Sustainable Land Imaging (SLI);

- The HyspIRI Airborne Campaign;

- Data Calibration Issues and Approaches;

- Data Management Approaches and Tools; and

- The Intelligent Payload Module (IPM), and Data Processing and Communication Tools.

An additional one day (June 6) is devoted to a workshop on spectral processing using PRISM, and half a day session for Coastal / Aquatic Studies Forum

DAY 1 (June 4): Morning Agenda

8:00-9:00 Registration/ Posters Up/ Coffee

Evolving the HyspIRI Mission and Products *[Chair, Elizabeth Middleton, NASA/GFSC] 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 (***J. Le Moigne, NASA/GSFC***)
10:15-10:30am	White Paper Summary: Impact VSWIR&TIR 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	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	ORCA/PACE and HICO (***Carlos Del Castillo, NASA/GSFC***)
12:45-1:00pm	*Session 1 Open Discussion (**Everyone**)*

1:00-2:00pm Lunch, Foyer

Discussion TOPIC: HyspIRI strategy to meet SLI multispectral needs (***Steve Ungar***)

DAY 1 (June 4): Afternoon Agenda

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 Wessels, 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 2 (June 5): Morning Agenda

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/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**)

DAY 2 (June 5): Afternoon Agenda

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 Xilynx Zynq Processors for Onboard Processing (***Chris Wilson, U. Florida and CHREC***)

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

DAY 2 (June 5): Afternoon Agenda

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DAY 2 (June 5): Afternoon Agenda

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 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

Building 34, Room W305

Spectroscopic (PRISM) Tutorial

Instructor: Ray F. Kokaly, USGS

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

Friday, June 6, (9:00 - 12:00), Room W150
HyspIRI Coastal / Aquatic Studies Forum

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**)

10:30-10:45am Coffee Break, Foyer

10:45-11:45am   ***Forum Discussion*** *(Form Clear Recommendations for Each Topic and Summarize)*

11:45-12:00pm   **Summarization of Key Actions and Recommendations**
12:00pm   ***ADJOURN***

NASA Decadal Survey HyspIRI