

2011 HypsIRI Science Workshop
NASA Decadal Survey Mission

23 -25 August 2011

Washington, DC

HOLIDAY INN CAPITOL,
550 C Street S.W. Washington, DC 20024.
Phone: (202) 479-4000

Ask for the Reservations Department, Request the group rate for the HYSPIRI Meeting

AGENDA 110806

Tuesday, 23 Aug 2011 AM: Programmatic context and overview of the HypsIRI mission

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| 8:00 AM | Registration Opens |
| 9:00 AM | Welcome and Objectives of HypsIRI Science Workshop - Woody Turner, John LaBrecque |
| 9:20 AM | The Evolving Interagency Picture for Global Environmental Research - Jack Kaye NASA Earth Science Division, Associate Director for Research |
| 9:40 AM | HypsIRI VSWIR Science Measurement and Instrument Concept Baseline - Rob Green, Carl Bruce and Elizabeth Middleton |
| 10:00 AM | HypsIRI TIR Science Measurement and Instrument Concept - Simon Hook and Marc Foote |
| 10:20 AM | Status of NASA's Climate Initiative Plan: The Evolution of the Decadal Survey - Michael Freilich, NASA Earth Science Division, Director |
| 10:40 AM | Measurements for New understanding and Improved Forecasting of the Response and Feedback of the Earth's Carbon Cycle and Ecosystems to Climate - Scott Ollinger |
| 11:20 AM | HypsIRI Mission Concept with Low Latency - Bogdan Oaida, Dan Mandl, Michael Mercury and Robert Knox |
| 11:40 AM | Review Draft Preliminary HypsIRI Mission Level 1 Requirements - Rob Green and Simon Hook |
| 12:00 PM | A unique role for HypsIRI in Earth System Science dynamical global vegetation models - Jose Moreno |
| 12:20 PM | Lunch |
| | Tuesday, 23 Aug 2011 PM: Global scientific objectives and HypsIRI precursor science and technology |
| 1:40 PM | Discriminating dominant plant species and functional types across ecosystems using imaging spectroscopy and multiple endmember spectral mixture analysis - Keely L. Roth, Dennison, P.E., Roberts, D.A. and Fryer, G.K. |

2:00 PM	Status of AVIRIS Next Generation and Technologies Validated for the HypsIRI VSWIR Instrument Concept - Robert O. Green and the AVIRIS-NG Team
2:20 PM	Status of HyTES/PhyTIR Concepts and Technologies being Validated for the HypsIRI TIR Instrument Concept - Simon J. Hook and the HyTES/PhyTIR Team
2:40 PM	HypsIRI: Temperature and the Measurement of Ecosystem Processes - Philip A. Townsend, Shawn Serbin and Aditya Singh
3:00 PM	Radiative forcing by light-absorbing impurities in mountain snow inferred from imaging spectroscopy: Case studies from the Upper Colorado River Basin and the Khumbu Himal, Nepal - T.H. Painter, A.C. Bryant, B.C. Gao, R.O. Green, M. Skiles
3:20 PM	Can HypsIRI provide data that will reduce uncertainties in the global carbon budget? Results of two small workshops on the role of HypsIRI in climate research - Susan Ustin and Workshop Team
3:40 PM	Break
4:00 PM	Remote Sensing Derived Estimates of Forest Structure and Composition - Paul Moorcroft
4:20 PM	Overview of the 2011 GSFC Science Symposium - Betsy Middleton
4:40 PM	Using AVIRIS to map local CH ₄ emissions: Potential for HypsIRI - Andrew K. Thorpe, Eliza S. Bradley ¹ , Dar A. Roberts ¹ , Philip E. Dennison ² , Christopher C. Funk ¹
5:00 PM	Contributions of HypsIRI science to monitoring global coastal wetlands and near shore aquatic environments - Susan Ustin and Shruti Khanna
5:20 PM	Characterization of Glint and Its Impact on HypsIRI Aquatic Science - Eric Hochberg and the HypsIRI Sunlint Subgroup.
6:00 PM	DISCUSSION: Roles of HypsIRI in fulfilling the Decadal Survey Objectives

Wednesday, 24 Aug 2011: Global and regional applications of HypsIRI data

8:00 AM	Autonomous Forecasting Of Lava Flow Hazards Using HYSPIRI -Robert Wright
8:20 AM	HypsIRI Preparatory Data Sets for Volcanology Applied to Mt Etna, Italy - Michael Abrams, Vince Realmuto, Dave Pieri and Rob Wright
8:40 AM	Potential Contributions of HypsIRI to the Remote Sensing of Volcanic Plumes - Vincent J. Realmuto
9:00 AM	In situ observations of volcanic emissions for sub-orbital calibration and validation - David Pieri, Geoffrey Bland, Andres Diaz, Matthew Fladeland
9:20 AM	How will remote sensing of volcanic activity continue to evolve with HypsIRI data? - Michael Ramsey, Christopher Hughes, and Andrew Harris
9:40 AM	Using combined ShortWave -InfraRed (SWIR) and Thermal InfraRed (TIR) spectral signatures to regionally map mineral deposits - John Mars
10:00 AM	Break
10:20 AM	Wildfire Mapping and Decision Support, Capabilities, Gaps & Opportunities - Everett Hinkley

10:40 AM	Practical considerations regarding the use of HypsIRI for fire monitoring - Louis Giglio
11:00 AM	Improving global fire carbon emissions estimates by combining moderate resolution burned area and active fire observations - Jim Randerson, Yang Chen
11:20 AM	The potential of mid infrared data for post-fire assessments - S. Veraverbeke, G. Hulley, S. Hook
11:40 AM	Spatial scaling of imaging spectrometer fire detection and temperature modeling - Phillip Dennison
12:00 AM	Lunch
1:00 PM	Monitoring evapotranspiration over arid lands of the U.S. Southwest - Andrew N. French, Juan Manuel Sanchez, Vicente Garcia-Santos, Enric Valor, Cesar Coll & Tom Schmugge
1:20 PM	Routine local to regional scale evapotranspiration monitoring by combining geostationary with HypsIRI observations - William Kustas, Martha Anderson and Feng Gao
1:40 PM	Monitoring drought at fine spatial scales using HypsIRI data - Martha Anderson, William Kustas and Feng Gao
2:00 PM	Use of optical and thermal infrared imagery from AVIRIS/MASTER to estimate evapotranspiration - Susan Ustin, Shawn Kefauver, Jenna Rodriguez, Tao Cheng, David Riano, University of California Davis
2:20 PM	Uncertainties in the Relationship between Hyperspectral Data and Leaf Nitrogen Content - Y. Knyazikhin, M. Schull, S. V. Ollinger, L. Lepine et al. Knyazikhin
2:40 PM	Break
3:00 PM	Detection and measurement of power plant CO2 plumes using imaging spectrometer data - Phillip Dennison
3:20 PM	Measurement of Urban Land Surface Temperatures as Related to Land Cover Change Dynamics: The HypsIRI Advantage - Dale Quattrochi
3:40 PM	Synergies between VSWIR and TIR data for the urban environment: An evaluation of the potential for the Hyperspectral Infrared Imager (HypsIRI) Decadal Survey mission - Dar A. Roberts, Dale A. Quattrochi, Glynn C. Hulley, Simon J. Hook, Robert O. Green
4:00 PM	Analysis of the urban surface radiative budget and urban heat islands: How can HypsIRI data be used? - Jeffrey Luvall
4:20 PM	Mineral Mapping Using Simulated HypsIRI Data - F. A. Kruse
4:40 PM	Potential of HypsIRI for geothermal exploration in high northern latitudes - Christian Haselwimmer*and Anupma Prakash
5:00 PM	Current status of Hyperspectral Imager Suite (HISUI) - Tsuneo Matsunaga, Satoshi Tsuchida, Akira Iwasaki, Jun Tanii, Osamu Kashimura, and Shuichi Rokugawa
5:20 PM	DISCUSSION: Roles of HypsIRI Science Application Role and Future Activities and Prospects - Woody Turner, John Labrecque, Simon Hook, Robert Green Elizabeth Middleton

Thursday, 25 Aug 2011: Preparatory activities, potential synergies, and HyspIRI mission requirements

- 8:00 AM HyspIRI Low Latency Intelligent Payload Module - Presentation Set
- 9:00 AM Prototype Ecosystem Products Developed at GSFC - Betsy Middleton
- 9:20 AM Update on NEON (National Ecosystem Observatory Network) and Complementarity with HyspIRI - Tom Kampe and the NEON Team
- 9:40 AM Preparation for HyspIRI: A demonstration of coastal remote sensing with space-borne hyperspectral sensor - Zhongping Lee
- 10:00 AM The Environmental Mapping and Analysis Program (EnMAP) - Technical Update and Future Science Issues - H. Kaufmann, K. Segl, S. T. Peisker, Ch. Rogass, L. Guanter, S. Hofer, B. Sang, T. Stuffer, A. Mueller, R. Richter, C. Chlebek, G. Roessner
- 10:20 AM Agricultural Greenhouse Gas Flux Determination via Remote Sensing and Modeling - Guy Serbin, E. Raymond Hunt Jr., David J. Brown, Cesar Izaurralde, Keith Paustian, Tristram O. West, Heather McNairn, Bonny Schumaker, Charles W. Rice, and Robert O. Green
- 10:40 AM A HyspIRI Calibration Preparatory Activity (Lunar Calibration with EO-1 Hyperion) - Steve Ungar, Kurt Thome, Lawrence Ong
- 11:00 AM Break
- 11:20 AM HyspIRI measurements of emergent vegetation: spectral and specular effects - Kevin Turpie
- 11:40 PM Airborne TIR Hyperspectral Imaging with High Spatial Resolution and Wide Area Coverage - David M. Tratt and Jeffrey L. Hall
- 12:00 PM Atmospheric correction algorithms for surface reflectance retrievals from VSWIR measurements - Bo-Cai Gao, Robert O. Green, and Sarah Lundeen,
- 12:20 PM Lunch
- 1:20 PM Lessons Learned from Landsat, MODIS, EO-1, and Their Data Systems - David Landis, J. Masek, R. Wolfe, E. Masuoka
- 1:40 PM Using level-3 ASTER emissivity products as a validation tool and proxy dataset for HyspIRI thermal infrared data - Glynn Hulley, Simon Hook
- 2:00 PM The APEX Airborne Imaging Spectrometer - M. Jehle, A. Hueni, A. Damm, P. D'Odorico, M. Kneubühler, K. Meuleman* and M.E. Schaepman
- 2:20 PM HyspIRI Terrestrial Surface Coverage Requirement and Cloud Analyses - Michael Mercury
- 2:40 PM On the relevance of HyspIRI to the coastal environment - Gerardo Toro-Farmer, Frank Muller-Karger
- 3:00 PM Sea Grass properites and habitat measurement capabiltiy with HyspIRI - Dierssen
- 3:20 PM Coral Reef Remote Sensing Science Objectives and Requirements - Eric Hochberg
- 3:40 PM Break
- 4:00 PM Spaceborne Flight Validation of NASA ESTO Decadal Survey Technologies: HyspIRI IPM - Charles Norton
- 4:20 PM Australian activities and contributions to the HyspIRI program - Alex Held

4:40 PM Summary and Review of HyspIRI Draft Level 1 Requirements in the Context of the Decadal Survey and the Science Community Input

5:00 PM Discussion and Plans for Next HyspIRI Science Workshop - Woody Turner and John LaBrecque

5:20 PM Close

POSTERS

Applicability of LST/LULC retrieval derived from Multi sensor data in HyspIRI data - Sima Bagheri

Laboratory Spectral, Radiometric, Spatial, and Uniformity Calibration of a HyspIRI like Next Generation Imaging Spectrometer - Robert O. Green, Michael Eastwood, Sven Geier and Greg Asner

A exercise and demonstration of techniques of mineral identification of dune sands - Stephen Scheidt

Russian 2010 wildfires: CO ground based measurements to estimate accuracy of AIRS, MOPITT, IASI, and SCIAMACHY data - Leonid Yurganov

Active Volcano Monitoring Using a Space-Based Short-Wave Infrared Imager - John Cipar, Gail Anderson, and Thomas Cooley

Water Use and Water Productivity of Key World Agricultural Crops for
Supporting Food Security using Hypersperspectral and Thermal Data - Isabella Mariotto^{1,2,*} and Prasad S. Thenkabail¹

STSAT-3 has a plan to be launched into a sun-synchronous orbit at a nominal altitude of 600 km at the 2nd half of 2012 by Dnepr - Seugn-Wu Rhee

Considerations in foliar nutrition modelling from hyperspectral satellite data in Australian forest plantations - Neil Sims, Glenn Newnham, and Darius Culvenor

Empirical Basis for the Measurement of Plant Metabolic and Functional Status using HyspIRI - Shawn P. Serbin, Aditya Singh and Philip A. Townsend

Exploring the utility of the broadband multispectral sensor worldview2 for investigation of nearshore coastal environments - HILL Victoria¹ ZIMMERMAN, Richard¹ BISSET Paul KOHLER Paul³

Effect of Remote Sensing Image Resolution on the Retrieval of Biomass and Productivity Estimates for Giant Kelp Forests - Tanique Rush, Richard C Zimmerman and Victoria J. Hill

Uncertainties assessment and satellite validation from time series of multi- and hyperspectral measurements in coastal waters at Long Island Sound Coastal Observatory - S. Ahmed, et al.

Remote estimation of chlorophyll-a in coastal and inland waters using red and near infrared bands - A. Gilerson, et al.

Uncertainties in the Relationship between Hyperspectral Data and Leaf Nitrogen Content - Y. Knyazikhin, M. Schull, S. V. Ollinger, L. Lepine et al. Knyazikhin

The Long-Term Cal/Val Plan for Hyper-Spectral Imager Suite (HISUI) - Akihide Kamei, Kazuki Nakamura, Tetsushi Tachikawa, Hirokazu Yamamoto, Ryosuke Nakamura, and Satoshi Tsuchida

A simulated HypsIRI dataset using combined ASTER and AVIRIS data of the Ka'u Desert dunes for terrestrial mapping and planetary application - Stephen P. Scheidt¹, Christopher Hughes², Bob Craddock¹, Michael Ramsey² and Jim Zimbelman¹

Retrieval of inherent optical properties of the ocean from the satellite observations using neural network - Alex Gilerson, I. Ioannou, S. Ahmed

A thermally homogeneous rice crop near Valencia, Spain as an ideal site for Validation/Calibration of HypsIRI LST and emissivity products - Vicente García-Santos*, Andrew N. French, Juan M. Sánchez, César Coll, Enric Valor and Vicente Caselles

Routine local to regional scale evapotranspiration monitoring by combining geostationary with HypsIRI observations - William Kustas, Martha Anderson and Feng Gao

Earth Science Technology Office (ESTO) Investments in Support of the HypsIRI Mission - Charles Norton et al.

Operation planning for Japanese future hyperspectral and multispectral sensor: HISUI - Kenta Ogawa, Tsuneo Matsunaga, Satoru Yamamoto, Osamu Kashimura, Tetsushi Tachikawa, Akira Iwasaki, Satoshi Tsuchida, Jun Tani, Shuichi Rokugawa

SIMULATED HYPsIRI DATA FOR GLOBAL VOLCANO MONITORING: MEASURING VOLCANIC THERMAL FEATURES WITH A WIDE RANGE OF TEMPERATURES - R. Greg Vaughan

Great East Japan Earthquake and Tsunami Disaster Observed by ASTER/TIR: Potential of HypsIRI/TIR for Earthquake Disaster Response- Hideyuki Tonooka

Ecological Context for Ebola Outbreaks in the African Rainforest Using Spectral Information from EO-1 Hyperion and ALI - Jorge Pinzon and Petya Campbell

MULTI-TEMPORAL UNMIXING ANALYSIS OF HYPERION IMAGES OVER THE GUANICA DRY FOREST - Miguel Velez-Reyes, Maria C. Torres-Madronero, Skip J. Van Bloem, and Jesus D. Chinea

Hyperspectral Imaging for Biodiversity Assessment of Coastal and Terrestrial Ecosystems - Miguel Velez-Reyes, James Goodman, J. Danilo Chinea-Rivera, Skip Van Bloem, Shawn D. Hunt, Vidya Manian

The Prototype HypsIRI Thermal Infrared Radiometer (PHyTIR)- Simon J. Hook, Bjorn T. Eng, Bruno Jau, Marc Foote & William R. Johnson

Hyperspectral Thermal Emission Spectrometer (HyTES): An airborne imaging spectrometer to support HypsIRI-TIR band selection - Simon J. Hook, Bjorn T. Eng, Sarath J. Gunapala, William R. Johnson, Zakos Mouroulis, Vincent J. Realmuto & Daniel

Unmanned aerial vehicle-based remote sensing for complimentary HypsIRI validation - Jessica Mitchell (1,2), Ryan Hruska(2), Matthew Anderson(2), Nancy Glenn(3)

Radiometric Characterization of a Hyperspectral Image Projector - S.E. Maxwell, J. P. Rice, J. E. Neira, and H.W. Yoon