HyspIRI Preparatory Airborne Campaign

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Earth Science Division
NASA Headquarters
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ROSES 11 Solicitation A.26

- Preceded by two HyspIRI Preparatory Activities solicitations in ROSES 2009 and 2010 calling for the use of existing imagery
  - Thank you Jack Kaye!
- Purpose and Approach: To support HyspIRI mission development and prepare community for HyspIRI-enabled science and applications research, NASA plans to fly the Airborne Visible/Infrared Imaging Spectrometer (AVIRIS) and the MODIS/ASTER Airborne Simulator (MASTER) instruments on the NASA ER-2 high-altitude aircraft to collect data sets in concert with other instruments for precursor science and applications research
  - Flights in California in 2013 and 2014 along 3 transects from capturing ecological/climatic gradients
  - Plan to fly these 3 transects 3 times per year for the two years; 3-year awards solicited
  - Other relevant datasets welcome, with limited support for *in situ* acquisitions; other airborne datasets must be contributed
- Proposals asked to address science or applications research topics aligned with science questions for the HyspIRI mission
- Transects to allow simulation of HyspIRI datasets
- Seeking important science and applications research results that are uniquely enabled by HyspIRI-like data
Possible Transects from Proposal
Solicitation Outcome

- 49 Proposals received by the March 21, 2012 due date
  - Only 5 sought applications research support
- Peer Review Panel and Earth Science Division Steering Committee Approval in mid-summer 2012
- Notifications sent at the end of July 2012
- 14 proposals selected for funding
- Organizational teleconferences in September and October 2012
- Initial planning meeting in November 2012 at UCSB
- Planning meeting will set the dates and transects for the flights as we cross-compare site and acquisition needs
HyspIRI Preparatory Airborne Activities Projects

- UNV/Wendy Calvin - *Energy and Mineral Resources*: Surface composition mapping that identifies resources and the changes and impacts associated with their development.

- Sonoma State/Matthew Clark - *Spectral and temporal discrimination of vegetation cover across California* with simulated HyspIRI imagery.

- NRL/Bo-Cai Gao - *Characterization and Atmospheric Corrections to the AVIRIS-Classic and AVIRISng Data to Support the HyspIRI Preparatory Airborne Activities*.

- USGS/Bernard Hubbard - *Using simulated HyspIRI data for soil mineral mapping, relative dating and flood hazard assessment of alluvial fans in the Salton Sea basin, Southern California*.

- UC Riverside/George Jenerette - *Assessing Relationships Between Urban Land Cover, Surface Temperature, and Transpiration Along a Coastal to Desert Climate Gradient*.

- NEON/Thomas Kampe - *Synergistic high-resolution airborne measurements of ecosystem structure and process at NEON sites in California*.

- UC Santa Cruz/Raphael Kudela - *Using HyspIRI at the Land/Sea Interface to Identify Phytoplankton Functional Types*.

- Bubbleology/Ira Leifer - *Hyperspectral imaging spectroscopic investigation of California natural and anthropogenic fossil methane emissions in the short-wave and thermal infrared*.
HyspIRI Preparatory Airborne Activities Projects Continued

- UMD/Shunlin Liang - Characterizing surface energy budget of different surface types under varying climatic conditions from AVIRIS and MASTER data
- Harvard/Paul Moorcroft - Linking Terrestrial Biosphere Models with Imaging Spectrometry Measurements of Ecosystem Composition, Structure, and Function
- UC Santa Barbara/Dar Roberts - HyspIRI discrimination of plant species and functional types along a strong environmental-temperature gradient
- UWI/Philip Townsend - Measurement of ecosystem metabolism across climatic and vegetation gradients in California for the 2013-2014 NASA AVIRIS/MASTER airborne campaign
- UC Davis/Susan Ustin - Identification of Plant Functional Types By Characterization of Canopy Chemistry Using an Automated Advanced Canopy Radiative Transfer Model
- RIT/Jan van Aardt - Investigating the impact of spatially-explicit sub-pixel structural variation on the assessment of vegetation structure from HyspIRI data
# HyspIRI Preparatory Airborne
# Year 1 Tentative Flight Schedule

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Next Steps

- Planning Meeting next month
- Flights likely to begin in early spring 2013
- Stay tuned for discussions at next year’s workshop
Thank You