2010 HyspIRI Science Workshop
Objectives and Update

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Workshop Objectives

- Update Community on HyspIRI Status
- Explore relevance of HyspIRI to Climate Science
- Explore relevance of HyspIRI to Carbon Cycle Science
- Present new Technologies, Tools, and Products supporting or arising from a HyspIRI Mission
- Explore new Applications for HyspIRI Data
- Vet Domestic and International Partnership Opportunities
- Discuss options for a HyspIRI mission’s going forward
Workshop Overview

- Updates regarding HyspIRI Mission Concepts and Level 1 Requirements
- Science Focus: HyspIRI’s Importance to Climate and Carbon Science
- Reports from Initiatives at last year’s Workshop
  - Sun Glint Subgroup: characterization, scientific impacts, mitigation options, and recommendations (2 talks)
  - Hot Target Saturation Subgroup: Analysis Report
- HyspIRI and the Gulf Oil Spill
- *HyspIRI Preparatory Activities Using Existing Imagery* Project Talks
- New Science, Applications, Techniques and Tools
- Domestic and Foreign Partnerships
- Precursor Science Campaign
Since the Last Workshop

- ROSES 2009 *HyspIRI Preparatory Activities Using Existing Imagery*
  - proposals reviewed and 6 funded
- 2 Subgroups formed to address issues raised in 2009 Workshop
  - Sun Glint
  - Hot Target Saturation
    - Both reporting out at this workshop
- HyspIRI Science Symposium on Ecosystem Data Products
  - May 4-5, NASA GSFC
- Presentations to Mike Freilich, NASA Earth Science Division Director
- Iceland Volcano and Gulf Oil Spill point to the importance of HyspIRI data
- SSG discussions of HyspIRI High-level Objectives for Non-Specialists and Critical Climate Contributions
- Release of NASA Climate Plan
  - June 2010, *Responding to the Challenge of Climate & Environmental Change*
- ROSES 2010 *HyspIRI Preparatory Activities Using Existing Imagery*
  - Review panel last week
NASA’s FY2011 Budget Accelerates:
  • Tier 1 SMAP launch to 11/2014
  • Tier 1 ICESAT-2 launch to 10/2015
  • Tier 1 CLARREO-1 launch to 11/2017 & CLARREO-2 launch to 2020
  • Tier 1 DESDynI launch to 10/2017
  • Tier 2 ASCENDS launch to 2019
  • Tier 2 SWOT launch to 2020

Also:
  • OCO-2 launch in 2/2013; OCO-3 ready for flight as early as 2015
  • Expanded Venture-class program
  • SAGE-III on Space Station in 2014
  • GRACE Follow-on Mission launch in 2016
  • Ocean Color and Clouds/Aerosols Polarimetry Mission launch in 2018
  • Other Tier 2 missions launched at rate of ~ 1 per year starting 2021
    – Based on scientific priorities, Administration objectives, technical maturity & partnership opportunities, NASA will work with USGCRP to determine order for remaining Tier 2 missions.
## Accelerated ESD Missions

<table>
<thead>
<tr>
<th>Missions</th>
<th>Launch Readiness Date</th>
<th>FY10 Plan</th>
<th>FY11 Plan</th>
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<tbody>
<tr>
<td>SMAP</td>
<td>FY10 +7 mos</td>
<td>Development</td>
<td>Development</td>
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<td>FY11 2015</td>
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<tr>
<td>DESDynI Radar</td>
<td>FY10 +2 yrs</td>
<td>Development</td>
<td>Development</td>
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<td>FY11 2017</td>
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<tr>
<td>DESDynI Lidar</td>
<td>FY10 +2 yrs</td>
<td>Development</td>
<td>Development</td>
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<td></td>
<td>FY11 2019</td>
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<tr>
<td>CLARREO-1</td>
<td>FY10 +2 yrs</td>
<td>Development</td>
<td>Development</td>
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<td></td>
<td>FY11 2019</td>
<td></td>
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<tr>
<td>Venture (Satellite EV2)</td>
<td>FY10 +4 yrs</td>
<td>Development</td>
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<td>FY11 NET 2022</td>
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<tr>
<td>ASCENDS</td>
<td>FY10 +4 yrs</td>
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<td></td>
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<tr>
<td>CLARREO-2</td>
<td>FY10 -1 yrs</td>
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<tr>
<td>SWOT</td>
<td>FY10 +5 yrs</td>
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<tr>
<td></td>
<td>FY11 2020</td>
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**FIGURE 2:** Accelerated Missions—This figure compares the timelines for mission development associated with the FY2010 and FY2011 budgets. The FY11 budget request substantially accelerates the development and launch of Decadal Survey-recommended missions.
HyspIRI Next Steps

• Remember what we are:
  – A *global* mission providing VSWIR imaging spectrometry (380 to 2500nm) and multispectral day/night thermal imaging in 8 bands at 60m spatial resolution for global lands and waters <50m depth, with a 19-day repeat for the VSWIR and 5-day repeat for the TIR, and ice sheets and open oceans averaged to 1km

• Build HyspIRI scientific case, with a focus on climate and the carbon cycle

• Mature mission technologies and reduce costs

• Develop precursor scientific opportunities using existing and planned airborne and complementary satellite platforms

• Seek partnerships with domestic and international partners
  – Joint Scientific Campaigns—precursor and flight
  – Calibration/Validation
  – Data Product Development and Use
  – Spacecraft
  – Launch

• Work with other NASA missions, e.g.: DESDynI and PACE

• Be Ready!