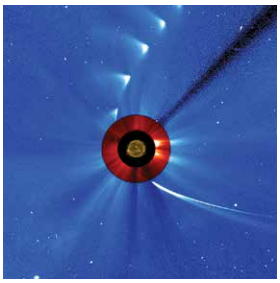
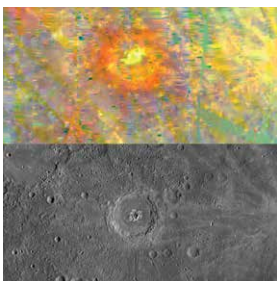
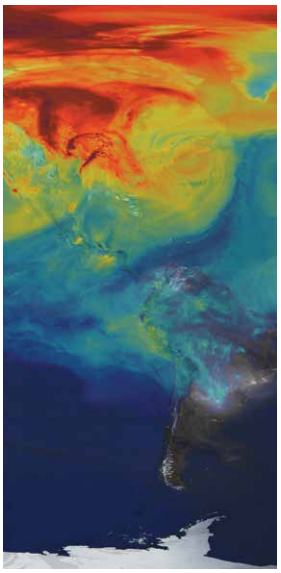
National Aeronautics and Space Administration

Schedule of Events at the NASA Booth







Please join us at the NASA booth (#2335), where we will showcase a wide variety of science presentations and cutting-edge, interactive science, technology, and data demonstrations. This year's program will be held Monday, December 15, through Friday, December 19, 2014. Hyperwall presentations and in-booth talks will cover a range of research topics, science disciplines, and programs within NASA.

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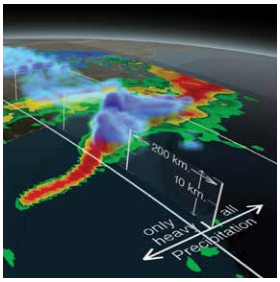
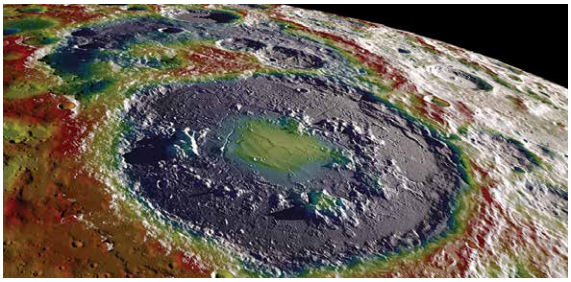




Hyperwall Presentation Agenda

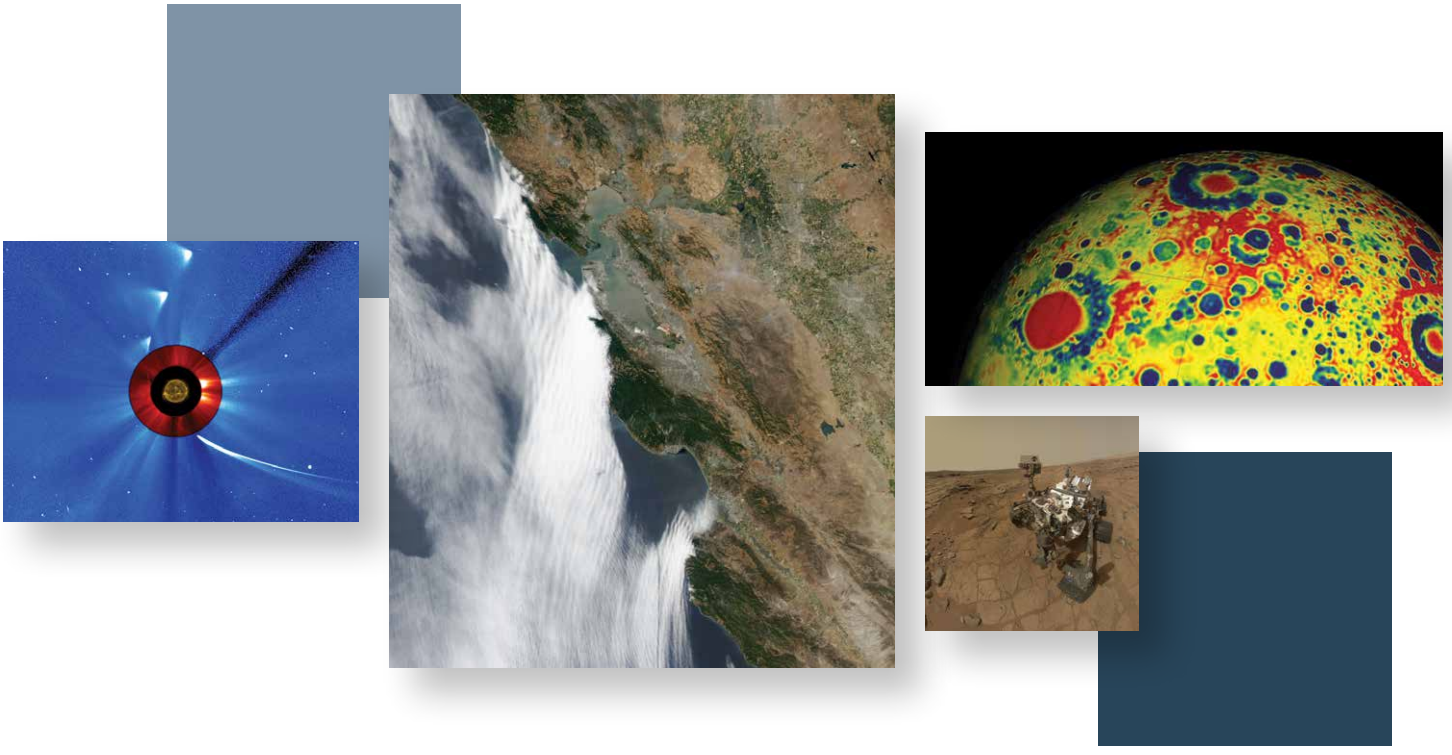
Monday, December 15		
Time	**Presentation**	**Presenter**
Reception 6:00 - 8:00 PM	Nature Run: Simulating Global Weather at Local Scales	Dr. Bill Putman
	Fluid Lensing and the Reactive Reef	Ved Chirayath
	Earth and Solar System 3D	Kevin Hussey
	NASA 360: Stories of the Solar System	NASA Video Loop

Tuesday, December 16		
10:00 - 10:15	SERVIR: Connecting Space to Village	Dr. Africa Flores
10:15 - 10:30	Clouds in the Time-Domain: SEVIRI Retrievals Using a MODIS-Like Algorithm	Dr. Steve Platnick
10:30 - 10:45	Earth Observations and Knowledge for Global Water Resources Management	Dr. John Bolten
10:45 - 11:00	Water in the Western U.S.: Perspectives from Space	Dr. Forrest Melton
3:30 - 3:45	NASA's Earth Observing Capabilities Meeting the Challenges of Climate and Environmental Change	Dr. Mike Freilich
3:45 - 4:00	Planetary Science Opportunities	Dr. Jim Green
4:00 - 4:15	Heliophysics Science Discoveries	Dr. Jeffrey Newmark
4:15 - 4:30	Ocean Salinity	Dr. Eric Lindstrom
4:30 - 4:45	Fluid Lensing: Applications to High-Resolution 3-D Subaqueous Imaging and Automated Remote Biosphere Assessment from Airborne and Spaceborne Platforms	Ved Chirayath
4:45 - 5:00	Breathe Easier: NASA Observations Highlight Improving Air Quality	Dr. Bryan Duncan

Wednesday, December 17		
10:00 - 10:15	Global Climate Observations from Earth-Viewing Satellites	Dr. Jack Kaye
10:15 - 10:30	Transition Unique NASA Data and Research Technologies to Operations: SPoRT (Short- term Prediction Research and Transition Center)	Dr. Andrew Molthan
10:30 - 10:45	Tracking Down Extreme Climate Change on Mars	Dr. Michelle Thaller
10:45 - 11:00	Cyclone Global Navigation Satellite System (CYGNSS): All Weather Observations of Hurricane Surface Wind Speed	Dr. Chris Ruf
3:30 - 3:50	Joint NASA and JAXA presentation - Looking at Rain Drops From 250 Miles Up: The Global Precipitation Measurement (GPM) Mission	Dr. Gail Skofronick-Jackson
3:50 - 4:05	The View from Space: How Satellites Inform Biodiversity Research and Ecological Forecasting Applications	Dr. Allison Leidner
4:05 - 4:20	A Virtual Telescope on the World's Oceans and Sea Ice	Dr. Chris Hill
4:20 - 4:35	Pole-to-Pole Airborne Science	Dr. Randal Albertson
4:35 - 4:50	Using Satellite Images of Environmental Changes to Predict Infectious Disease Outbreaks	Dr. Compton Tucker
4:50 - 5:05	Planetary Science Opportunities	Dr. Jim Green

Hyperwall Presentation Agenda

Thursday, December 18		
Time	**Presentation**	**Presenter**
9:30 - 9:45	Earth from Space: Looking Down, Looking Back, Looking Ahead	Dr. Piers Sellers
9:45 - 10:00	Terra@15	Dr. Kurt Thome
10:00 - 10:15	NASA and Wildfires: Science & Technology Supporting the Nation	Dr. Vincent Ambrosia
10:15-10:30	LRO and New Views of the Moon	Dr. Noah Petro Dr. John Keller
10:30 - 10:45	The NASA Orbiting Carbon Observatory- 2 (OCO- 2): Measuring Atmospheric Carbon Dioxide From Space	Dr. David Crisp
10:45 - 11:00	Stratospheric Ozone Recovery	Dr. Anne Douglass
3:30 - 3:45	MODIS Observes Our Changing Planet	Dr. Michael King
3:45 - 4:00	Nature Run: Simulating Global Weather at Local Scales	Dr. Bill Putman
4:00 - 4:15	SERVIR: Connecting Space to Village	Dr. Eric Anderson
4:15 - 4:30	GRACE Observations of the California Drought	Dr. James Famiglietti
4:30 - 4:45	Craters of the Moon: A Planetary Analog	Dr. Scott Hughes
4:45 - 5:00	Earth and Solar System 3D	Kevin Hussey



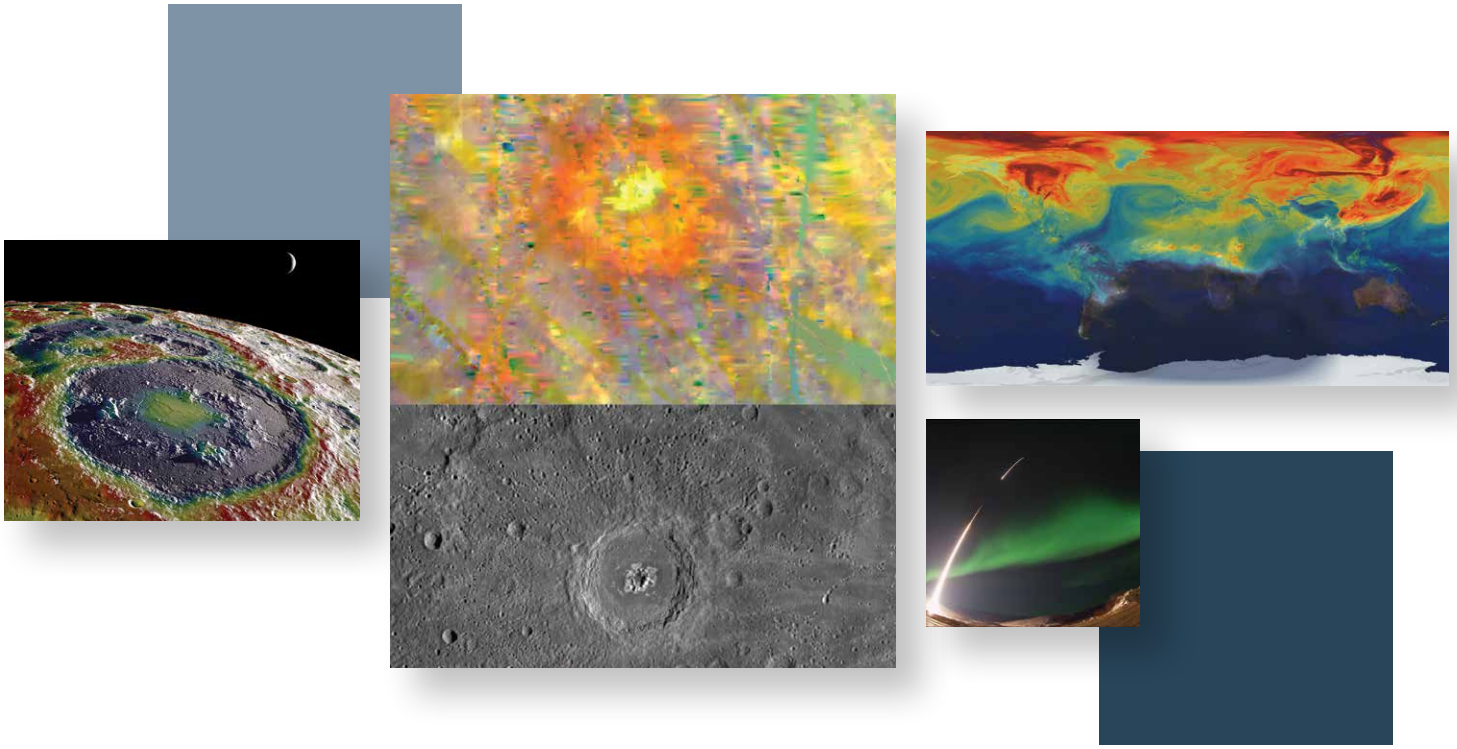
In-Booth Talks: Schedule-at-a-Glance

Tuesday, December 16		
Time	**Presentation**	**Presenter**
10:00 - 11:00	Special Hyperwall Presentations (Please see detailed *Hyperwall Presentation Agenda* on pages 2-3)	
11:00-11:20	Visualizing Arctic Data: Satellite Observations of Arctic Change (SOAC)	Steve Tanner
11:25 - 11:45	Assessing the Credibility of Downscaled Climate Projections	Duane Waliser
11:50 - 12:10	SciSpark: Highly Interactive and Scalable Regional Climate Model Evaluation	Chris Mattmann
12:15 - 12:35	Heliophysics 2014 Science Discoveries	Jeff Newmark
12:40 - 1:00	THREDDS Usage Scenarios – NASA ORNL DAAC Example	Yaxing Wei
1:05 - 1:25	Opportunities with the NASA Postdoctoral Program	Bob Gibson
1:30 - 1:50	Interplanetary Space Weather: The Next Frontier	Lika Guhathakurta
1:55 - 2:15	Explore NASA's Lunar Mapping and Modeling Portal (LMMP)	Brian Day
2:20 - 2:40	Clouds and the Cryosphere: A view of Arctic Sea Ice and Cloud Interactions from CALIPSO, CloudSat, and CERES	Patrick Taylor
2:45 - 3:05	SABOR – New Frontier in Ocean Remote Sensing	Amy Jo Scarino Wayne Slade
3:10 - 3:30	Simulating Venus Surface Conditions and Other Extreme Environments	Tibor Kremic
3:30 - 5:00	Special Hyperwall Presentations (Please see detailed *Hyperwall Presentation Agenda* on pages 2-3)	
5:00 - 5:20	Space Place in a Snap	Alex Kasprak
5:25 - 5:45	Modeling Volcanic Hazard Risk Levels Surrounding the Copahue Volcano in the Andes Mountains	Amberle Keith

Wednesday, December 17		
10:00 - 11:00	Special Hyperwall Presentations (Please see detailed *Hyperwall Presentation Agenda* on pages 2-3)	
11:00 - 11:20	Open NASA Earth Exchange: Enabling Citizen Science Through Public-Private Partnerships	Sangram Ganguly
11:25 - 11:45	Microwave Radiometer Technology Acceleration Mission	Kerri Cahoy
11:50 - 12:10	Finding the Slippery Slope: Detecting Landslides from Space	Dalia Kirschbaum
12:15 - 12:35	Detecting Methane with Lasers	Haris Riris
12:40 - 1:00	Climate Analytics-as-a-Service (CAaaS): Advanced Information Systems and Services to Accelerate the Climate Sciences	Mark McInerney
1:05 - 1:25	Measuring Air Quality from Space: Insight from DISCOVER-AQ	Andreas Beyersdorf
1:30 - 1:50	Eyes on the Storm: The Cyclone Global Navigation Satellite System (CYGNSS)	Nathan Boll
1:55 - 2:15	Discovery and Differentiating Data Sets with NSIDC Search	Amanda Leon
2:20 - 2:40	How to Make NASA Physical Oceanography Data Work for You	Vardis Tsontos
2:45 - 3:05	Scientist Involvement in Education and Public Outreach: Increasing Your Impact	Stephanie Shipp Theresa Schwerin
3:10 - 3:30	The JPL Tropical Cyclone Information System - An Innovative Approach to Hurricane Data and Modeling	Svetla Hristova-Veleva
3:30 - 5:00	Special Hyperwall Presentations (Please see detailed *Hyperwall Presentation Agenda* on pages 2-3)	
5:00 - 5:20	Diving into the Data Pool with DAAC2Disk	Lindsey Harriman
5:25 - 5:45	CLARREO: Achieving Climate Change Absolute Accuracy In Orbit	Yolanda Roberts

In-Booth Talks: Schedule-at-a-Glance

Thursday, December 18		
Time	**Presentation**	**Presenter**
10:00 - 11:00	Special Hyperwall Presentations (Please see detailed *Hyperwall Presentation Agenda* on pages 2-3)	
11:00 - 11:20	Unveiling the New Face of NASA EOSDIS: NASA Earthdata Website	Ross Bagwell
11:25 - 11:45	ISS-RapidScat: A New Measure of Ocean Winds	Stacey Boland
11:50 - 12:10	Collaborative REAnalysis Technical Environment Intercomparison Project (CREATE-IP)	Laura Carriere Jerry Potter
12:15 - 12:35	Lunar Reconnaissance Orbiter Data: Accessing and Working With Data From LRO	Noah Petro
12:40 - 1:00	PO.DAAC: Discover and Visualize NASA Physical Oceanographic Data	David Moroni
1:05 - 1:25	Creating Effective Data Management Plans for Research Proposals	Robert Cook
1:30 - 1:50	Putting People on the Map: What's New in the Gridded Population of the World version 4?	Alex de Sherbinin
1:55 - 2:15	Multi-Mission Observation Operator (M2O2): A Streamlined Satellite Observation Assimilation Service	Meemong Lee
2:20 - 2:40	Magnetospheric Multiscale: Unlocking the Mysteries of Magnetic Reconnection	Bill Paterson
2:45 - 3:05	Seeing Raindrops from 250 Miles Up: The Global Precipitation Measurement (GPM) Mission	Dalia Kirshbaum
3:10 - 3:30	Connecting Educators to NASA Earth and Space Science: NASAWavelength.org	Theresa Schwerin Laura Peticolas
3:30 - 5:00	Special Hyperwall Presentations (Please see detailed *Hyperwall Presentation Agenda* on pages 2-3)	
5:00 - 5:20	Earth Right Now: NASA's Big Missions to Our Home Planet	Laura Tenenbaum
5:25 - 5:45	Virtualized Quality Screening Service: Improving the Application of Data Quality Information	Edward Armstrong



Detailed Descriptions of In-Booth Talks

Name	Description	Presenter
Visualizing Arctic Data: Satellite Observations of Arctic Change (SOAC)	A new Web site, Satellite Observations of Arctic Change (SOAC, http://nsidc.org/soac), has been developed to help expose NASA Earth science data that show changes taking place in the Arctic over the past few decades. The site was designed to be used by decision makers, teachers, non-specialist scientists, and the motivated public without the need for technical tools or expertise in manipulating data. The data are displayed on interactive maps, allowing users to explore how and where conditions in the Arctic have changed from the 1970s to the present. Users may animate a time series, zoom in or out, and view a bar graph of anomalies over time. Supporting pages provide brief scientific discussion and background to help users understand the data and the significance of the changes. Links to the source data and documentation are also included. Initial data products for SOAC include anomalies associated with near-surface air temperature; water vapor; sea ice concentration; snow cover; and several others.	**Steve Tanner** ICEBridge and ICESat-2 Data Management, NASA National Snow and Ice Data Center Distributed Active Archive Center (NSIDC DAAC) **For information** *nsidc.org/soac*
Assessing the Credibility of Downscaled Climate Projections	For climate modeling and projection, "dynamic downscaling" refers to driving a limited-area, regional climate model (RCM) with boundary conditions from a previously executed global climate model (GCM) simulation. Focusing available computational resources on an RCM affords advantages of higher spatial resolution and thus typically a more realistic treatment of climate processes. Despite significant use of dynamic downscaling for climate assessment and impact studies, the credibility of this practice continues to be questioned. Some raise concerns over mismatches in the processes and information communicated between the driving GCM and the RCM that may deleteriously influence the fidelity of the downscaled climate—including representation of physical processes, topography, and regional-to-global feedbacks. Given the important role of dynamic downscaled climate projections in climate change impacts assessment, it is vital to quantify the specific contributions, if any, that such downscaling offers. This presentation will discuss recent NASA efforts aimed at assessing the credibility and value-added of dynamic downscaling. Key to addressing these questions are NASA's expertise in Earth system and climate processes, our development and application of RCMs and GCMs, our knowledge of applying satellite and other Earth observations to model evaluation, and the considerable computational resources and analysis infrastructure needed to carry out these objectives.	**Duane Waliser** Chief Scientist, Earth Science and Technology Directorate, NASA Jet Propulsion Laboratory, Caltech **For information** *rcmes.jpl.nasa.gov*
SciSpark: Highly Interactive and Scalable Regional Climate Model Evaluation	We present SciSpark, a lightning fast cluster computing technology built on top of Apache Spark. Spark outperforms the de facto big data technology Apache Hadoop by a factor of 100-1000x in memory and 10-100x on disk for iterative cluster algorithms. SciSpark enables data reuse between scientific workflows by natively deciding which data should be kept in memory and periodically what data should be flushed to and from disk. SciSpark is being prototyped using a novel k-means clustering algorithm for Climate Variables and their probability distribution functions (PDFs), and for a graph-based algorithm for discovering mesoscale convective complexes in satellite IR-data.	**Chris Mattmann** Chief Architect, Instrument Science Data Systems Section Jet Propulsion Lab
Heliophysics 2014 Science Discoveries	Earth is best understood not as orbiting the sun in isolation through a vacuum, but as a physical system connecting the heliosphere, the solar atmosphere and Earth¹s magnetosphere and ionosphere. Earth resides in the outer atmosphere of the sun, which emits a constant solar wind. The sun occasionally sends out powerful mass ejections, accompanied by shock waves that accelerate charged particles to nearly the speed of light. These disturbances drive the aurora and powerful electric currents on Earth, and violently churn the ionosphere and uppermost atmosphere. Dramatic advances were made in 2014 to establish the relationships between solar activity, the resulting interplanetary disturbances, the response of Earth¹s space environment, and the dynamics of the outer boundaries of our solar system with interstellar space. Noteworthy science results from 2014 will be highlighted.	**Jeff Newmark** Interim Director, Heliophysics Division, NASA HQ
THREDDS Usage Scenarios – NASA ORNL DAAC Example	The NASA Oak Ridge National Laboratory Distribruted Active Archive Center (ORNL DAAC) is leveraging the Thematic Realtime Environmental Distributed Data Services (THREDDS) to promote the interoperability and usage of its biogeochemical and ecological data resources. THREDDS data server provides a suite of standards-based Web services that support data discovery, visualization, and on-demand data access to a variety of scientific data. It not only provides nice Web interfaces but also allows a variety of tools (IDV, Matlab, R, UV-CDAT, etc.) to utilize the THREDDS data resources. This talk will first briefly introduce the background information about THREDDS and then discuss benefits of the ORNL DAAC THREDDS data server through demonstration of a number of usage scenarios, for example, step-by-step demonstration of finding, visualizing, and accessing the 1-km daily surface meterological data (Daymet) through THREDDS data server web interface and integrating ecological data from the ORNL DAAC THREDDS data server into common software (e.g. Matlab) dynamically for further analysis.	**Yaxing Wei** Geospatial Information Scientist, NASA ORNL DAAC

Detailed Descriptions of In-Booth Talks (cont.)

Name	Description	Presenter
Opportunities with the NASA Postdoctoral Program	The NASA Postdoctoral Program (NPP) offers scientists and engineers unique opportunities to conduct research at NASA Centers. Each NPP fellowship opportunity is designed to advance NASA research in a specific project related to space science, Earth science, aeronautics, space operations, exploration systems, lunar science or astrobiology. Applicants apply for a specific research opportunity and, if selected by NPP's competitive process, are offered one- to three-year fellowship appointments. Applicants must have a Ph.D. or an equivalent doctorate degree before beginning the fellowship. Applicants must have U.S. citizenship, Lawful Permanent Resident status, an Employment Authorization Document with pending LPR status, or a J-1 Visa status as a Research Scholar before beginning the fellowship. Stipend rates for Postdoctoral Fellows start at $53,500 per year. Moderate supplements are given for high cost-of-living areas and for certain academic specialties. Limited relocation assistance is provided, and health insurance is available through the program. Fellows also receive $8,000 per appointment year to support travel to conferences, meetings and other activities that directly support their research projects. Applications are accepted three times each year: March 1, July 1, and November 1.	**Bob Gibson** NPP Program Director **For information** Applications must be submitted online at: *nasa.orau.org/postdoc*
Interplanetary Space Weather: The Next Frontier	Before the Space Age, "protecting ourselves" meant looking after our resources on Earth. Now it includes our assets in space. Powerful solar storms have the potential to disrupt our modern-day, hi-tech society. Satellites bind us all together through communications and GPS. Deep space probes that collect and transmit images and data are now exploring the solar system, far beyond Earth's protective magnetosphere. Learn about how the study of space weather is vital to the continued success of these missions in space to ensure minimal impacts to our lives here on Earth.	**Lika Guhathakurta** Living With a Star Program Scientist, NASA HQ
Explore NASA's Lunar Mapping and Modeling Portal (LMMP)	NASA's Lunar Mapping and Modeling Portal (LMMP) provides a web-based Portal and a suite of interactive visualization and analysis tools to enable mission planners, lunar scientists, and engineers to access mapped lunar data products from past and current lunar missions. Its visualization and analysis tools allow users to perform analysis such as lighting and local hazard assessments including slope, surface roughness and crater/boulder distribution. Significant advantages are afforded by LMMP's features facilitating collaboration among members of distributed teams. Sharing of multi-layered visualizations is made easy with the ability to create and send LMMP bookmarks. While great utility is provided by LMMP's interface and tools, it is also of particular value through its ability to serve its data to a variety of other applications. Exciting new client applications for LMMP include the Moon Tours mobile app and a new interactive touch table. LMMP's capabilities are now being extended to other planetary bodies including Mars and Vesta. This presentation will provide an overview of LMMP Uses and capabilities, highlight new features, and preview coming enhancements	**Brian Day** NASA Solar System Exploration Research Virtual Institute, Lead for Citizen Science and Community Development
Clouds and the Cryosphere: A view of Arctic Sea Ice and Cloud Interactions from CALIPSO, CloudSat, and CERES	Arctic sea ice is melting at an alarming rate. Many factors influence the acceleration of Arctic sea ice loss—e.g., atmospheric and ocean heat transport, circulation patterns, and atmospheric thermodynamic state. Arctic low clouds, however, have been shown to play an especially important role in sea ice extent variability. Due to the nature of clouds, changes in Arctic sea ice cover can profoundly influence cloud characteristics as well. How does the interaction with clouds influence sea ice extent? This question is studied using state-of-the-art NASA satellite observations from CALIPSO, CloudSat, and CERES. The results indicate that the response of clouds to changing sea ice act to inhibit summer time melting and accelerate winter time growth buffering sea ice loss. Thus, clouds serve as a protector of sea ice.	**Patrick Taylor** Physical Scientist, Climate Science Branch, NASA LaRC
SABOR – New Frontier in Ocean Remote Sensing	The Ship-Aircraft Bio-Optical Research (SABOR) experiment was a 3-week expedition in July-August 2014 to sample a wide range of ocean environments in a region from the Gulf of Maine to Bermuda and along the mid-Atlantic Seaboard of the United States. The NASA Langley Research Center (LaRC) airborne High Spectral Resolution Lidar (HSRL-1) and the NASA Goddard Institute for Space Studies (GISS) Research Scanning Polarimeter (RSP) flew on the LaRC UC-12 on flights coordinated with the research vessel Endeavor. Coincident ship-based optical measurements, as well as the important biogeochemical variables from the Endeavor will be used to assess/improve lidar and polarimeter retrievals of ocean optical properties traditionally provided from ocean color radiometers. In addition to ocean properties, HSRL and RSP provide important measurements of clouds and aerosol properties. Several instruments from the City College of New York on Endeavor and deployed in the ocean were used to relate polarization of light from water with characteristics of ocean particulates and to match airborne RSP measurements. Results from the airborne and ship-based instruments will be presented to demonstrate the knowledge gained from SABOR for future ocean-atmospheric satellite missions and studies of the changing planet.	**Amy Jo Scarino** Missing Professional Title, Science Systems and Applications, Inc./NASA Langley Research Center **Wayne Slade** Scientist, Sequoia Scientific, Inc.

Detailed Descriptions of In-Booth Talks (cont.)

Name	Description	Presenter
Simulating Venus Surface Conditions and Other Extreme Environments	The atmosphere and surface conditions of Venus make it are a challenging environment for both in-situ missions and ground based laboratory science experiments. The Venus community has had a limited capability to accurately simulate Venus, and other extreme environment conditions, for instrument and spacecraft system development and for ground based laboratory experiments. A new capability has been developed at the NASA Glenn Research Center to address this need. The Glenn Extreme Environment Rig (GEER) is the largest known chamber that can simulate Venus surface temperatures and pressures. In additional, it is the only known chamber that accurately reproduces the atmospheric chemistry, including all the trace gases. This presentation describes GEER, why this capability is significant for future science, and current status and results of recent test runs.	**Tibor Kremic** Science Manager, NASA Glenn Research Center
Space Place in a Snap	Space Place is pleased to announce a new way to learn about science. Space Place in a Snap! These brief, narrated animations are engaging and entertaining, and they come with a downloadable poster, too. Preview them yourselves in the NASA booth!	**Alex Kasprak** Science Writer and Web Producer, NASA Space Place Program, Jet Propulsion Laboratory
Modeling Volcanic Hazard Risk Levels Surrounding the Copahue Volcano in the Andes Mountains	Copahue is a stratovolcano located along the rim of the Caviahue Caldera near the Chile-Argentina border in the Andes Mountain Range, and is estimated to have been active for the last 2 million years. This isolated region has steep topography and little vegetation, rendering it poorly monitored. The need to model volcanic hazard risk has been reinforced by recent volcanic activity that intermittently released several ash plumes from December 2012 through May 2013. Ash emitted during these eruptions canceled hundreds of flights and forced the evacuations of thousands of people from their homes. This project applied NASA Earth observations (Landsat 7 ETM+, Landsat 8 OLI, EO-1 ALI, Terra ASTER, SRTM, ISS ISERV Pathfinder, Aura OMI) and remote sensing techniques to examine and identify volcanic activity and areas vulnerable to experiencing volcanic hazards including volcanic ash, SO2 gas, lava flow, pyroclastic density currents and lahars. The team produced a historic volcanic deposits map of Copahue, as well as volcanic risk and hazard maps to assist with prioritizing of disaster relief and evacuation orders and improved decision making in the region.	**Amberle Keith** Marshall DEVELOP Assistant Center Lead & DEVELOP Project Coordination Young Professional
Open NASA Earth Exchange: Enabling Citizen Science Through Public-Private Partnerships	Over the last year, NASA established the Open NASA Earth Exchange (OpenNEX) project, which partnered with Amazon Web Services (AWS) to make available a large amount of Earth-observing data, modeling results, and analysis tools on the AWS cloud. To encourage the public's engagement in this project, NASA ran a virtual workshop and prize competition. The virtual workshop provided online lectures and tutorials about how prominent scientists used the data in their research, with the tutorials giving examples of how to use the tools to interrogate the data in the AWS cloud. Finally, the prize competition would allow much wider participation in the OpenNEX project and enable testing non-traditional projects and out-of-box ideas. This presentation will give an overview of OpenNEX with emphasis on how the project is enabling citizen science through a public-private partnership.	**Sangram Ganguly** Research Scientist, Bay Area Environmental Research Institute, NASA Ames Research Center **For information** *nex.nasa.gov/OpenNEX*
Microwave Radiometer Technology Acceleration Mission	The Microwave Radiometer Technology Acceleration (MiRaTA) is a 3U CubeSat NASA Earth Science Technology Office (ESTO) mission under development for a 2016 launch. Microwave radiometry and GPS radio occultation (GPSRO) measurements of all-weather temperature and humidity provide key contributions toward improved weather forecasting. The MiRaTA mission will validate new technologies in both passive microwave radiometry and GPS radio occultation. The current plan is to launch from an ISS orbit at ~400 km altitude for low-cost validation over a ~90-day mission to fly in 2016. MiRaTA will demonstrate high fidelity, well-calibrated radiometric sensing from a nanosatellite platform, enabling new architectural approaches for future missions at lower cost and risk with more flexible access to space.	**Kerri Cahoy** Optical Physicist, NASA Goddard Space Flight Center

Detailed Descriptions of In-Booth Talks (cont.)

Name	Description	Presenter
Finding the Slippery Slope: Detecting Landslides from Space	This talk will showcase a brand new system that demonstrates how we can estimate potential rainfall-triggered landslide activity using remotely sensed data. In addition to presenting the science of this innovative new activity, this presentation will take users through a demo of how to access this information and how any user can contribute information to improve our understanding of landslides around the world.	**Dalia Kirschbaum** GPM Applications Science Lead, NASA Goddard Space Flight Center
Detecting Methane with Lasers	Methane is the second most important anthropogenic greenhouse gas. Understanding current global methane trends is a difficult challenge that cannot be resolved by existing measurement networks or satellite observations. Methane is also an important biomarker in planetary atmospheres. At GSFC we have been developing cost-effective methane measurement technology that will enable global methane and other greenhouse gas measurements with sufficient coverage, sensitivity, and precision to address current science questions for the carbon cycle and climate change. In this talk we will address the difficult technology and science challenges in obtaining accurate methane column measurements from space and airborne platforms.	**Haris Riris** Optical Physicist, NASA Goddard Space Flight Center
Climate Analytics-as-a-Service (CAaaS): Advanced Information Systems and Services to Accelerate the Climate Sciences	The climate sciences represent a big data domain that is experiencing unprecedented growth. In our efforts to address the big data challenges of climate science, we are moving toward a notion of Climate Analytics-as-a-Service (CAaaS). We focus on analytics, because it is the knowledge gained from our interactions with big data that ultimately product societal benefits. We focus on CAaaS because we believe it provides a useful way of thinking about the problem: a specialization of the concept of business process-as-a-service, which is an evolving extension of IaaS, PaaS, and SaaS enabled by cloud computing. Within this framework, cloud computing plays an important role; however, we see it as only one element in a constellation of capabilities that are essential to delivering climate analytics-as-a-service. These elements are essential because in the aggregate they lead to generativity, a capacity for self-assembly that we feel is the key to solving many of the big data challenges in this domain.	**Mark McInerney** Data Services Lead, Climate Model Data Services, Computational and Information Sciences and Technology Office, NASA Goddard Space Flight Center **For information** *cds.nccs.nasa.gov* *CAaaS.net*
Measuring Air Quality from Space: Insight from DISCOVER-AQ	The goal of future satellite instrumentation is to accurately measure ground-level pollution in order to better inform the public of air quality. However, these measurements are hindered by the presence of pollution aloft. In order to improve the use of satellites to monitor air quality for public health and environmental benefit, a multi-year airborne field campaign entitled DISCOVER-AQ (Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality) flew four airborne campaigns between 2011 and 2014. The four locations – Baltimore, California's San Joaquin Valley, Houston and Denver - had diverse pollution sources and meteorological conditions. DISCOVER-AQ involved two aircraft flying coordinated flights over ground sites spread throughout the region. Remote-sensing instruments on a high flying King Air (30,000 ft) approximated measurements of gas-phase pollutants and aerosols made from satellites. Meanwhile, a P-3 flew a series of spirals over the ground sites and below the King Air. Thus instrumentation on the P-3 acts as a link between the remote-measurements and ground level conditions. Details of the missions and preliminary results will be shared.	**Andreas Beyersdorf** Atmospheric Scientist, NASA Langley Research Center
Eyes on the Storm: The Cyclone Global Navigation Satellite System (CYGNSS)	Due to a rise in the temperature of ocean surface waters, both the wind speed intensity and total rainfall rate of tropical cyclones are expected to increase, significantly escalating the hazard these storms pose to coastal populations. While advances in track forecasting have improved our ability to predict when and where such storms will make landfall, current models do not accurately forecast their intensity. The Cyclone Global Navigation Satellite System (CYGNSS) is a constellation of eight microsatellites that will remotely monitor the formation and intensification of tropical cyclones by penetrating the intense precipitation bands surrounding the eye, allowing unprecedented observation of the energies and dynamics of the inner core. These data will support the development of accurate intensity forecast models, which will improve our ability to effectively prepare vulnerable populations for impending storm events.	**Nathan Boll** NASA Student Ambassador, University of Michigan

Detailed Descriptions of In-Booth Talks (cont.)

Name	Description	Presenter
Discovery and Differentiating Data Sets with NSIDC Search	NSIDC has developed a new Data Search portal (nsidc.org/data/search) with the goal of addressing one common user question: "Which data set is best for my research?". Two NSIDC data programs—the NASA-sponsored NSIDC Distributed Active Archive Center (DAAC) and the NSF-sponsored Advanced Cooperative Arctic Data and Information Service (ACADIS)—joined forces to make data search easier and more satisfying for users. Research showed that users needed ways to make sense of results and compare data sets. They needed quick information about the data without being overwhelmed with a lot of text. All of this needed to be intuitive to use, since many data users only visit the site a few times a year. To enable both discovery and data set differentiation, NSIDC employed a faceted search that exposes metadata along with search results. Users can glance over the metadata to learn more about the data sets, and check or un-check specific terms to filter the list. Popular on consumer shopping sites, facets give users results more quickly and eliminate guessing games about what is available.	**Amanda Leon** NSIDC DAAC Deputy Manager **For information** *nsidc.org/data/search*
How to Make NASA Physical Oceanography Data Work for You	NASA's Physical Oceanography Distributed Active Archive Center (PO.DAAC) continues to explore novel and meaningful approaches to access its datasets in order to facilitate and promote their search, discovery, and evaluation. This presentation will highlight the potential of utilizing the latest powerful web-based tools and protocols for dynamically interacting with science data by using a few lines of code. Focus will be given to THREDDS and webification, protocols that can subset data, and web services that offer a chained approach to data and metadata discovery, data subsetting extraction, and visualization for the user through simple URLs.	**Vardis Tsontos** Data Engineer, NASA JPL Physical Oceanography DAAC
Scientist Involvement in Education and Public Outreach: Increasing Your Impact	NASA's Science Mission Directorate (SMD) Education and Public Outreach (E/PO) Forums are here to help scientists share their research and discoveries with their audiences – from classrooms to teachers to the general public. The Forums have created critical resources, established partnerships, conducted professional development, and coordinated programs to help scientists engage in E/PO in ways that fit their time and interests. The presentation will share tools scientists can use right away, and connect scientists with vetted, peer-reviewed activities for use in almost any learning environment. Join us to learn tips to make the most of your time! Participants will come away with more ideas for how to be involved, new resources, and strategies to increase the impact of their E/PO efforts.	**Stephanie Shipp** Lunar and Planetary Institute, Lead, Planetary Science Education and Public Outreach Forum **Theresa Schwerin** Institute for Global Environmental Strategies, Lead, Earth Science Education and Public Outreach Forum **For information** Science Mission Directorate E/PO Community Workspace: *smdepo.org/*
The JPL Tropical Cyclone Information System - An Innovative Approach to Hurricane Data and Modeling	There are still many unanswered questions hurricane genesis and evolution and NASA's hurricane science research program is bringing a wealth of satellite and airborne observations to bear to answer them. But the data are underutilized in hurricane research and operations, due to their complexity and volume. The JPL Tropical Cyclone Information System (TCIS) is intended to facilitate the inter-comparison of models and observations by bringing them into a common system and developing online tools for joint analysis and visualization. The TCIS project aims to develop an interactive near-real-time (NRT) portal with the goal to reduce barriers to timely delivery of satellite and model products to increase the understanding of the hurricane processes and the accuracy of their forecasts.	**Svetla Hristova-Veleva** Research Scientist, NASA Jet Propulsion Laboratory
Diving into the Data Pool with DAAC2Disk	The Land Processes (LP) DAAC2Disk download manager allows users to simplify the data search and retrieval process from not only the LP Distributed Active Archive Center (DAAC) Data Pool, but other DAAC Data Pools as well. The LP DAAC Data Pool holds all of its publicly available data in an efficient and secure HTTP interface. The new LP DAAC2Disk maintains the benefits of HTTP direct download, but by providing the user two interface options, web-based and command prompt, spatial and temporal data requirements can also be defined. LP DAAC2Disk can also be used in conjunction with existing NASA Earthdata download interfaces, such as Reverb, enabling the user to search, find and save data, then directly download through the DAAC2Disk interface. Geared towards users that would like to access large datasets, the DAAC2Disk benefits those applications seeking data for long time periods or over large areas of land. This presentation will provide a demonstration of how to use the basic functions of LP DAAC2Disk and also how to leverage its functions to increase efficiency of the user data search and retrieval process.	**Lindsey Harriman** Science Communications Lead, NASA LP DAAC; Innovate! Inc. Contractor to USGS/EROS **For information** *lpdaac.usgs.gov*

Detailed Descriptions of In-Booth Talks (cont.)

Name	Description	Presenter
CLARREO: Achieving Climate Change Absolute Accuracy In Orbit	The Climate Absolute Radiance and Refractivity Observatory (CLARREO), a Tier-1 Decadal Survey mission recommended by the National Research Council, is a climate observation system designed to characterize Earth's climate and how it is changing. CLARREO benchmarks will be derived from its spectrally resolved measurements of Earth-reflected shortwave (0.32 to 2.3 μm) and Earth-emitted thermal infrared (5 to 50 μm) radiation, and from radio occultation measurements from which accurate temperature profiles will be derived. CLARREO will provide the first orbiting radiometers with unprecedented accuracy sufficient to serve as reference calibration standards for other space sensors, essentially serving as a NIST in orbit. Accurate decadal-length records are essential for climate change detection and attribution and for testing the accuracy of climate predictions. CLARREO data will provide a critical test of uncertainty in future climate change prediction. This highly accurate and high information content data will contain the information needed to accelerate decisions on climate-related public policy by 15 to 20 years. Earlier and better-informed climate policy is economically valuable to the amount of about $12 Trillion over the next 40 to 60 years, which illustrates the value of having such a climate observing system in place.	**Yolanda Roberts** Research Scientist, CLARREO Team, NASA Langley Research Center
Unveiling the New Face of NASA EOSDIS: NASA Earthdata Website	Two years ago, NASA's Earth Science Data and Information Systems (ESDIS) Project launched the Earthdata website (https://earthdata.nasa.gov) in order to facilitate Earth science data discovery and access to NASA Earth Observing System Data and Information System (EOSDIS) data, information, services and tools. Earthdata is being redesigned to be the one-stop shop in providing Earth science data, services, and information to a diverse community of end-users worldwide. The goal is to move from the current static, manually-intensive content format to a dynamic, data-driven website in order to provide a more flexible and usable design website infrastructure that leverages EOSDIS components such as the User Registration System (URS), the Common Metadata Repository (CMR) and the Global Imagery Browse Services (GIBS). Upcoming new features will include the addition of the "Google-like" Earthdata Search Client and the Sea Level Change Portal.	**Ross Bagwell** Senior Systems Engineer, NASA Earth Science Data and Information Systems (ESDIS), NASA GSFC
ISS-RapidScat: A New Measure of Ocean Winds	ISS-RapidScat is providing new measurements of ocean wind speed and direction to the science and operational weather forecasting communities from the International Space Station. The mission, which launched September 21, 2014 aboard SpaceX-4, was accomplished for a fraction of the time and money typically spent for even a small Earth science mission. Dr. Stacey Boland will discuss the opportunities and challenges associated with repurposing legacy hardware for flight aboard ISS, as well as share highlights of RapidScat's launch, installation, activation, and operation to-date.	**Stacey Bolan** ISS-RapidScat Project Systems Engineer **For information** *winds.jpl.nasa.gov*
Collaborative REAnalysis Technical Environment Intercomparison Project (CREATE-IP)	Want to see what the weather patterns were like over the past 30 years, or visualize the devastating 2003 or 2010 heat waves in Europe and Russia? NASA is gathering gridded reanalysis data from major weather forecast centers around the world and saving them side-by-side to help better understand the patterns responsible for such phenomena as heat waves, droughts, and floods and ultimately improve climate model predictions. The CREATE-IP, or Collaborative REAnalysis Technical Environment-Intercomparison Project, has created a repository of reanalyses (essentially re-forecasts of past weather using the latest forecast models) that can help improve weather and climate forecasts by studying the differences and similarities among various reanalysis efforts. Participating organizations include NASA, NOAA's National Centers for Environmental Prediction and Earth System Research Laboratory, the European Centre for Medium-Range Weather Forecasts, and the Japan Meteorological Agency. NASA's Climate Model Data Services group is partnering with the NASA Center for Climate Simulation to develop tools that will bring to bear the massive computing power of the latest supercomputers along with large data storage facilities to make analysis and comparison of complex model output faster and more efficient for climate scientists.	**Laura Carriere** Senior Systems Engineer, Climate Model Data Services, Computational and Information Sciences and Technology Office, NASA Goddard Space Flight Center **Jerry Potter** Consulting Climate Scientist, Climate Model Data Services, Computational and Information Sciences and Technology Office, NASA Goddard Space Flight Center **For information** *cds.nccs.nasa.gov/*
Lunar Reconnaissance Orbiter Data: Accessing and Working With Data From LRO	The LRO Mission is creating an incredible archive of data of the lunar surface and environment. In this talk we will highlight some ways the science community can access, download, and work with data from this amazing mission.	**Noah Petro** NASA Research Scientist and LRO Deputy Project Scientist, NASA GSFC Scientist **For information** *lunar.gsfc.nasa.gov/*

Detailed Descriptions of In-Booth Talks (cont.)

Name	Description	Presenter
PO.DAAC: Discover and Visualize NASA Physical Oceanographic Data	The Physical Oceanography Distributed Active Archive Center (PO.DAAC) is responsible for the management and distribution of NASA's physical oceanographic data. It distributes over 500 datasets spanning gravity, ocean wind, sea surface topography, salinity, and sea surface temperature satellite missions. This year PO.DAAC's data holdings have increased with the addition of new datasets from Jason-1, Seasat, MODIS, WindSat and Aquarius, which will be summarized in this presentation. PO.DAAC supports the physical oceanography user community by offering a suite of data access and visualization tools and services. The web portal is designed to provide users a way to search for data through facets, narrowing down the large variety of data PO.DAAC distributes. We will also highlight 3 GUI based tools. State Of The Ocean provides visualization of near real time data. Swath data subsetting is performed by HiTide. Live Access Server will visualize and subset gridded data.	**David Moroni** Data Engineer, NASA JPL Physical Oceanography DAAC **For information** *podaac.jpl.nasa.gov*
Creating Effective Data Management Plans for Research Proposals	Are you preparing a research proposal? Increasingly, funders are requiring that proposals include a comprehensive plan that describes how the data will be managed during the life of the project and beyond. This talk introduces participants to the components of effective data management plans as well as how to create a plan that is tailored to the size, duration, and breadth of your project. Resources for preparing plans will be provided, including a Data Management Plan Template that can be easily adapted to meet individual needs.	**Robert Cook** Chief Scientist, NASA Oak Ridge National Laboratory Distributed Active Archive Center (ORNL DAAC) **For information** *daac.ornl.gov/PI/plan.shtml*
Putting People on the Map: What's New in the Gridded Population of the World version 4?	Gridded Population of the World (GPW) is the flagship data set of the Socioeconomic Data and Applications Center (SEDAC) which translates census data from irregularly shaped census units into a consistent global grid. It is commonly used in conjunction with NASA remote sensing data sets for a variety of research topics, such as understanding drivers of habitat loss or exposure to natural hazards and health threats. This presentation focuses on (1) the materials and methods used in the construction of GPW v.4; (2) the improvements to GPW following the 2010 round of censuses, such as higher resolution census inputs, age and sex distribution, and urban/rural delineation; (3) comparison of methods and fitness for use of GPW versus other gridded population data sets; and (4) sample applications of GPW for research purposes.	**Alex de Sherbinin** Deputy Manager, NASA Socioeconomic Data and Applications Center (SEDAC) **For information** *sedac.ciesin.columbia.edu/*
Multi-Mission Observation Operator (M2O2): A Streamlined Satellite Observation Assimilation Service	The Multi-Mission Observation Operator (M2O2) team supported by the NASA-ACCESS program has created a streamlined interface mechanism between the atmospheric chemistry model developers and the atmospheric sounding mission data providers. The M2O2 interface mechanism provides the model developers L2# (L2-sharp) data by applying a data transformation process to the L2 data to formulate the observation information in a mission-generic data structure. The M2O2 interface mechanism also provides a model transformation process to map the model space to the L2# observation space. The M2O data transformation process has been integrated within Goddard Earth System Data and Information Service Center (GES DISC) as a web-service for providing "on-demand' observation information from four types of atmospheric sounding missions, Microwave Limb Sounder (MLS), Tropospheric Emission Spectrometer (TES), Atmospheric Infra-Red Sounder (AIRS), and Atmospheric Carbon Observatory System (ACOS). The M2O2 model transformation process has been integrated with the GEOS-Chem-Adjoint system that provides inverse modeling of the GEOS-Chem forward modeling system, a global 3-D model of atmospheric chemistry driven by assimilated meteorological observations from the Goddard Earth Observing System (GEOS) of the NASA Global Modeling and Assimilation Office (GMAO).	**Meemong Lee** Principal Engineer, Jet Propulsion Laboratory, California Institute of Technology

Detailed Descriptions of In-Booth Talks (cont.)

Name	Description	Presenter
Magnetospheric Multiscale: Unlocking the Mysteries of Magnetic Reconnection	The Magnetospheric Multiscale (MMS) mission, scheduled to launch in March 2015, will solve the mystery of how magnetic fields around Earth connect and disconnect, explosively releasing energy via a process known as magnetic reconnection. MMS consists of four identical spacecraft that will provide the first three-dimensional views of this fundamental process that occurs throughout our universe. MMS will use Earth¹s protective magnetic space environment, the magnetosphere, as a natural laboratory to directly observe how it interacts with the sun¹s extended magnetic field, which can result in reconnection. Stop by to learn about this exciting new mission.	**Bill Paterson** MMS Program Scientist, NASA HQ
Seeing Raindrops from 250 Miles Up: The Global Precipitation Measurement (GPM) Mission	This talk will present new and exciting results the Global Precipitation Measurement (GPM) mission has uncovered since its launch in February, 2014. The presentation will outline how GPM and its predecessor the Tropical Rainfall Measuring Mission (TRMM) has been instrumental in a wide range of societal benefit areas, including natural disasters, weather prediction, water resources and public health.	**Dalia Kirschbaum** GPM Applications Science Lead **For information** *pmm.nasa.gov*
Connecting Educators to NASA Earth and Space Science	NASA Wavelength is an online science resource for educators of all levels – from elementary to college to out-of-school time – that helps bring Earth, the solar system, and the universe into schools and colleges, science centers, museums, and homes. This digital collection features over 2,000 educational resources that span the extent of NASA's Science Mission Directorate (SMD). These are NASA-funded, peer-reviewed resources, including award-winning curriculum tools, activities that allow students and teachers to learn about and participate in NASA missions and education programs, multi-media, exhibits and planetarium shows, and much more. NASA Wavelength also provides unique features and robust tools that support educators in creating and sharing rich storylines for STEM education based on NASA-unique STEM: AAAS strand maps, lists and list-building tools, social media, authentic NASA data and images, science and education news and events, and a NASA Wavelength archive.	**Theresa Schwerin** Vice President, Education, Institute for Global Environmental Strategies (IGES) **Laura Peticolas** Director, Multiverse, Space Sciences Laboratory, University of California, Berkeley **For information** *NASAWavelength.org*
Earth Right Now: NASA's Big Missions to Our Home Planet	Of all the planets NASA has explored, none have matched the dynamic complexity of our own Earth. Yet our planet is changing. Through the build-up of greenhouse gases in the atmosphere, Earth is warming, ocean waters are expanding, and ice is melting causing sea level rise. With the launch of five new Earth-observing missions in just one year, NASA will be able to deliver crucial data to scientists and to the public to help all of us understand our changing planet. This is Earth Right Now.	**Laura Tenenbaum** Communications Specialist, NASA Jet Propulsion Laboratory (JPL)
Virtualized Quality Screening Service: Improving the Application of Data Quality Information	Optimal use of satellite-based earth science data records requires access to and understanding of the data quality information contained in those records. This can be a complex and time-consuming process, with metadata attributes, bit flags, ancillary variables all needed, possibly in combination, to ensure that the data meets scientific requirements. For example, quality screening of Level 3 data from the upcoming Soil Moisture Active Passive (SMAP) instrument can involve up to 26 unique bit states or conditions a user can filter for. The Virtualized Quality Screening Service (VQSS), a recently funded 2013 NASA ACCESS project, aims to address these issues and concerns by developing an infrastructure that will allow users to view and apply the quality information in SMAP and Group for High Resolution Sea Surface Temperature (GHRSST) data products. It builds upon proven NASA components for data extraction, subsetting by value, and visualization using granule-based quality information.	**Edward Armstrong** Senior Data Scientist. Jet Propulsion Laboratory

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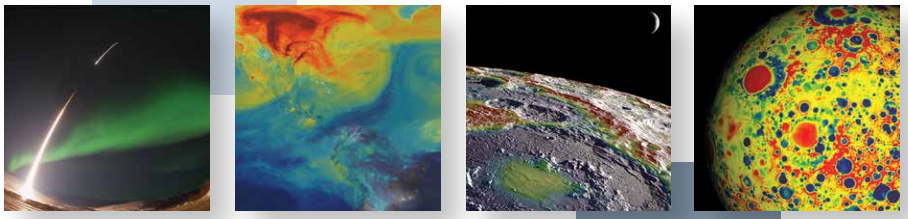
To reach for new heights and reveal the unknown so that what we do and learn will benefit all humankind.



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