Keeping Up with HAQAST: Website and Communication Strategy

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with the NASA Health and Air Quality Applied Sciences Team (HAQAST)

November 28, 2017

HAQAST

NASA Health and Air Quality Applied Sciences Team

Center for Sustainability and the Global Environment

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NASA HEALTH AND AIR QUALITY APPLIED SCIENCES TEAM

Connecting NASA Data and Tools with Health and Air Quality Stakeholders

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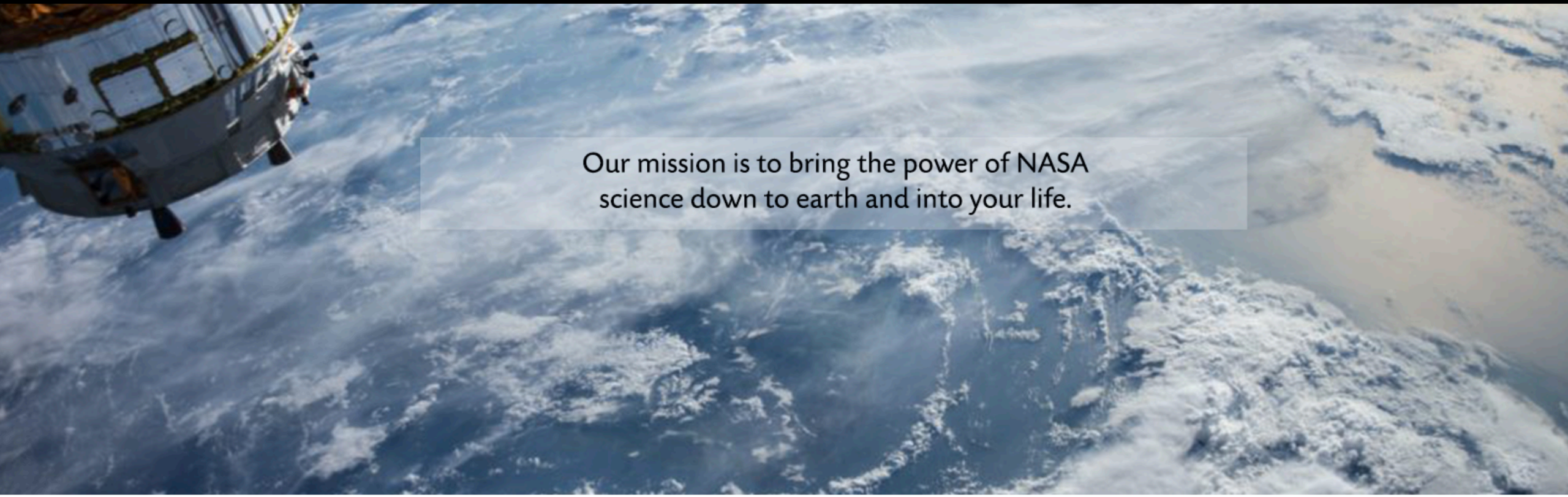


HAQAST is a collaborative team that works in partnership with public health and air quality agencies to use NASA data and tools for the public benefit. Here you can learn about our team, partnerships, and newsworthy achievements. You can also find short tutorials for NASA's open-access satellite tools.

MORE FROM HAQAST

HAQAST 3 MEETING

The third HAQAST meeting will take place November 28-29, 2017. It is generously hosted by the Lamont-Doherty Earth Observatory at Columbia University, and co-sponsored by the New York State Energy and Research Development Authority (NYSERDA).

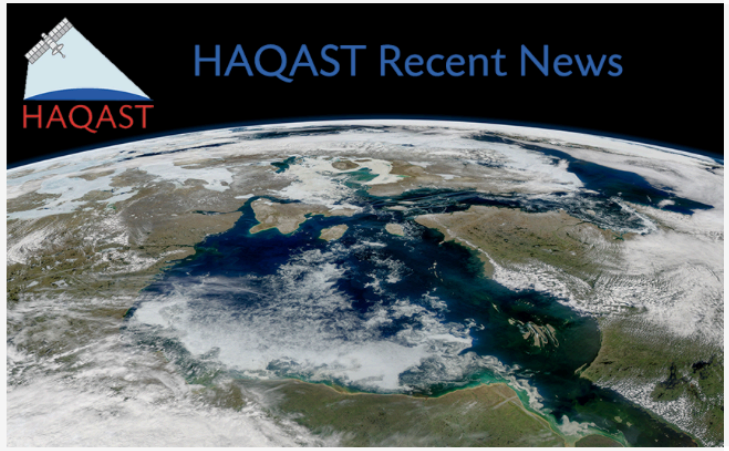
LEARN MORE ABOUT HAQAST 3 »

LAMONT-DOHERTY EARTH OBSERVATORY
THE EARTH INSTITUTE AT COLUMBIA UNIVERSITY

HAQAST

Save the Date for HAQAST 3
November 28-29, 2017

Hosted by Lamont-Doherty Earth Observatory
Columbia University, New York



RECENT NEWS

From media appearances to cutting-edge research, catch the newest developments in HAQAST's work.

VIEW HAQAST RECENT NEWS »

ABOUT HAQAST

HAQAST is a collaborative team that works in partnership with public health and air quality agencies to use NASA data and tools for the public benefit. HAQAST 2016-2019 is funded by the Applied Sciences division of NASA.

LEARN MORE ABOUT HAQAST »

Welcome from HAQAST Team Leader Tracey Holloway

Greetings from the NASA Health and Air Quality Applied Sciences Team (pronounced "hay-cast")! We are a group of thirteen scientists from across the country dedicated to air quality and public health. We work closely with representatives of the public, and we want to hear from you! Sign up for our newsletter, follow us on Twitter, or visit us at one of our tri-annual conferences.

Tracey

Dr. Tracey Holloway, HAQAST Team Lead
University of Wisconsin-Madison

STAKEHOLDER PARTNERS

HAQAST reaches scores of stakeholder organizations through our newsletter, talks at major meetings (including our own triannual public conference), and broader outreach activities. Part of what makes HAQAST unique is that we actively partner with stakeholders to identify and solve real-world problems using NASA's data and products. You'll find below a list of our stakeholder partners, sorted by the HAQAST PI with whom they collaborate. If you are working with HAQAST and would like to be included in this list, or if you are a stakeholder interested in exploring the possibility of a partnership, please contact either the relevant HAQAST member or communications coordinator Daegan Miller.

TIGER TEAMS

WHAT IS A TIGER TEAM?

A Tiger Team is a short-term, high-impact collaborative effort between HAQAST members and public stakeholders to identify and solve an immediate problem using NASA data and products. Each Tiger Team draws on the expertise of multiple HAQAST PIs to find the best, multifaceted solutions to pressing health and air quality issues.

HAQAST 2017 TIGER TEAMS

1. Demonstration of the Efficacy of Environmental Regulations in the Eastern U.S.

Bryan Duncan

Jason West

This Tiger Team is led by HAQAST members Bryan Duncan and Jason West in partnership with the Mid-Atlantic Regional Air Quality Management Association, the Maryland Department of the Environment, the EPA, the Centers for Disease Control/National Center for Environmental Health, the Northeast States for Coordinated Air Use Management, and the Connecticut Department of Energy & Environmental Protection. HAQAST members and collaborators Mark Zondlo, Ted Russell, Yang Liu, Arlene Fiore, Lok Lamsal, Daniel Tong, and Daven Henze also contribute to this team.

Between 1990 and 2015, the U.S. average concentration of $PM_{2.5}$ decreased by 37%, while O_3 decreased by 22%. Many observers expect such reductions to have brought substantial benefits for public health in the U.S., but assessing the health benefit requires an understanding of where air quality has improved relative to where people live. This team will demonstrate the efficacy of air quality regulations by analyzing the time trends for levels of ozone (O_3), nitrogen dioxide (NO_2—an O_3 precursor), particulate matter (PM), and PM precursors, including NO_2, sulfur dioxide (SO_2), and ammonia (NH_3) in the northeastern U.S., to determine how they affect population health during the same period.

Contact Dr. Duncan or Dr. West for more information.

2. Supporting the Use of Satellite Data in State Implementation Plans (SIPs)

Arlene Fiore

This Tiger Team is led by HAQAST member Arlene Fiore in partnership with California's South Coast Air Quality Management District, the Connecticut Department of Energy & Environmental Protection, the Mid-Atlantic Regional Air Quality Management Association, Northeast States for Coordinated Air Use Management, Georgia Environmental Protection Division, the Texas Commission on Environmental Quality, the Bay Area Air Quality Management District, and the EPA. HAQAST members and collaborators Bryan Duncan, Jessica Neu, Daven Henze, Talat Odman and Ted Russell, Patrick Kinney, Daniel Tong, Mark Zondlo, and Jonathan Patz and Tracey Holloway also contribute to this team.

Under the U.S. National Ambient Air Quality Standards (NAAQS), states in non-attainment of criteria pollutants, such as ozone and $PM_{2.5}$, must submit State Implementation Plans (SIPs) to demonstrate their approach to achieving NAAQS compliance. Satellite data may be included in SIPs as part of a weight-of-evidence approach to show that a particular strategy is anticipated to succeed in attainment, or to show that transported pollution is confounding attainment efforts. Yet, questions often arise as to the accuracy of satellite data, the specific meteorological conditions and spatial or temporal averaging scales over which the product is most reliable, and whether a particular satellite product can be used for a desired application.

This team will work closely with at least three air agencies that are already incorporating satellite data into the SIP process and identify at least three different applications of satellite data to be showcased in a user-friendly, technical-guidance document. Each document will include frequently asked questions (FAQs) and will be "beta-tested" by at least one other air agency. The team will disseminate these case studies widely, including via the NASA Air Quality from Space website, with the goal of enabling other current and future users of satellite data in the SIP process to learn from "early-adopter" air quality managers.

Contact Dr. Fiore for more information.

3. High Resolution Particulate Matter Data for Improved Satellite-Based Assessments of Community Health

Patrick Kinney

This Tiger Team is led by HAQAST investigator Patrick Kinney in partnership with the New York City Department of Health and Mental Hygiene, the California Department of Public Health, the City of Boston Environment Department, the South Coast Air Quality Management District, and the California Air Resources Board. HAQAST members and collaborators Frank Freedman, Yang Liu, Matt Strickland, Daven Henze Arlene Fiore, Susan Anenberg, Mohammed Al-Hamda, Akula Venkatram Mark Zondlo, Susan O'Neill, and Daniel Tong are also members of this team.

Health departments and urban planners have growing needs for high-resolution data on urban-air-pollution concentrations to quantify existing health burdens at the neighborhood scale, to identify and prioritize exposure-reduction strategies for pollution hot spots, to track progress in achieving air-quality-related health-improvement goals, and to assess health co-benefits of longer-term carbon-mitigation strategies. To date, however, few data exist to inform these high-priority urban-health objectives. Newly available 1×1 km aerosol optical depth retrievals from NASA MODIS remote sensing provide opportunities to construct higher-resolution $PM_{2.5}$ spatial fields for intra-urban public-health assessments. The retrievals also can serve as a launching pad for further downscaling using emerging low-cost sensors in conjunction with land use regression and dispersion models.

The overall objective of this Tiger Team project is to construct gridded $PM_{2.5}$ spatial fields on 1-km MAIAC satellite-based aerosol optical depth retrievals, and to explore methods by which these can be downscaled using hi-density urban networks of low-cost sensors and dispersion modeling. The goal is to provide new tools for assessing air-pollution-related health burdens and mitigation strategies in community settings. This work will be carried out across four communities: New York City, Boston, Los Angeles, and California's Imperial Valley.

Contact Dr. Kinney for more information.

4. Improved National Emissions Inventory NO_x emissions using OMI Tropospheric NO_2 retrievals and Potential Impacts on Air Quality Strategy Development

Brad Pierce

Daniel Tong

This Tiger Team is led by HAQAST investigator R. Bradley Pierce and member Daniel Tong in partnership with NOAA/Air Resources laboratory, NOAA/National Weather Service, EPA/Office of Air Quality Planning and Standards, the Centers for Disease Control, Lake Michigan Air Directors Consortium, and NOAA/Earth System Research Laboratory. HAQAST members Ted Russell, Tracey Holloway, Susan O'Neill, and Daven Henze are also members of this team.

The overall goal of this HAQAST Tiger Team effort is to improve estimates of National Emissions Inventory (NEI) area and point source NOx emissions using NO2 retrievals from the NASA Ozone Monitoring Instrument (OMI) and the NASA Geostationary Trace gas and Aerosol Sensor Optimization (GeoTASO).

Recent studies suggest that NO_x emissions are overestimated in the NEI. These overestimates can affect model predictions of ozone and nitrate aerosol concentrations, leading to systematic biases in forecasts of surface ozone and nitrate aerosols. Improving constraints on anthropogenic area and non-EGU point source emissions (including wild and prescribed fires) within NEI can lead to improved forecasts thereby improving NWS air quality forecasting, EPA/CDC exposure assessments, and state SIP modeling.

Contact Dr. Pierce or Dr. Tong for more information.

NEWSLETTERS

JANUARY, 2017 NEWSLETTER

This HAQAST newsletter provides details for registering for the public stakeholder meeting.

FEBRUARY, 2017 NEWSLETTER

This HAQAST newsletter includes a reflection from our HAQAST1 meeting, as well as research and news updates.

MAY, 2017 NEWSLETTER

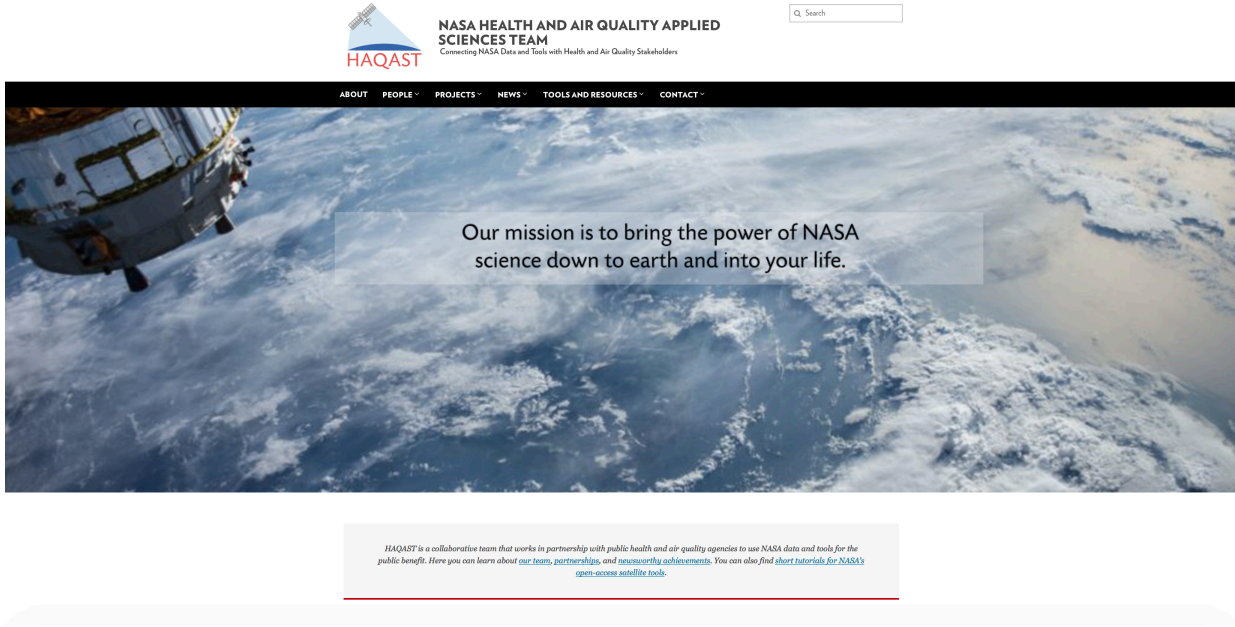
This HAQAST newsletter includes a reflection of HAQAST2, research and stakeholder updates as well as an announcement of a funding opportunity.

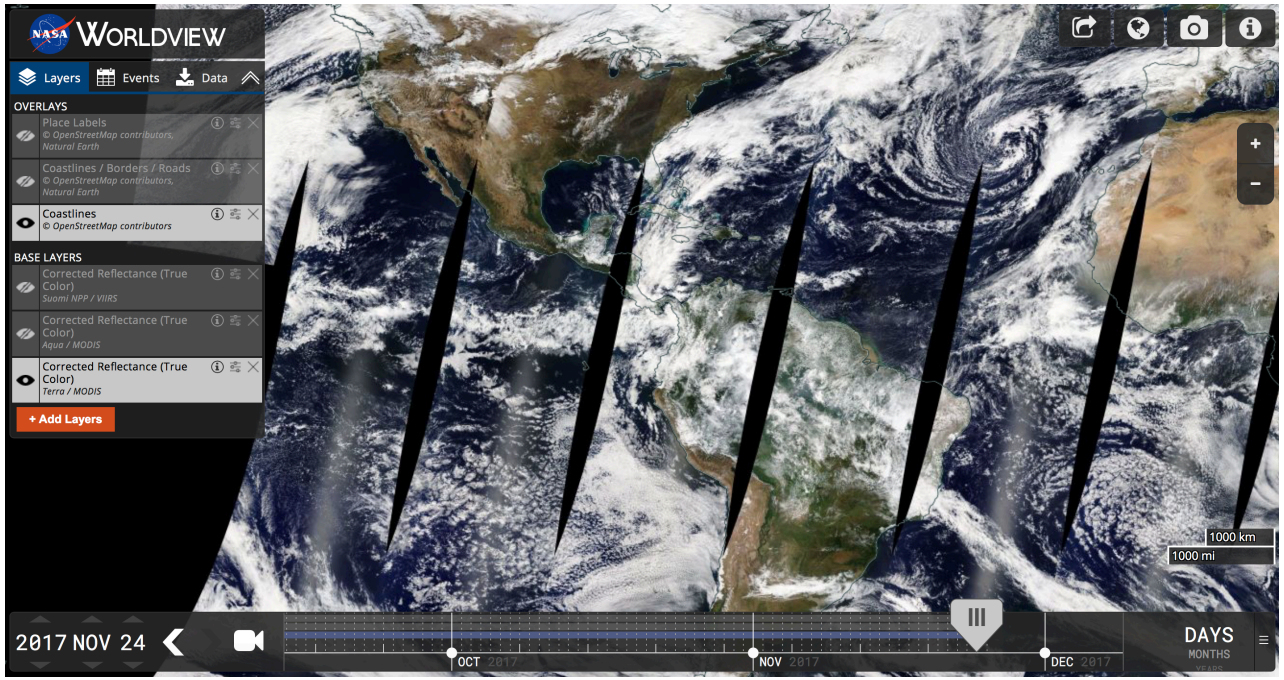
JULY, 2017 NEWSLETTER

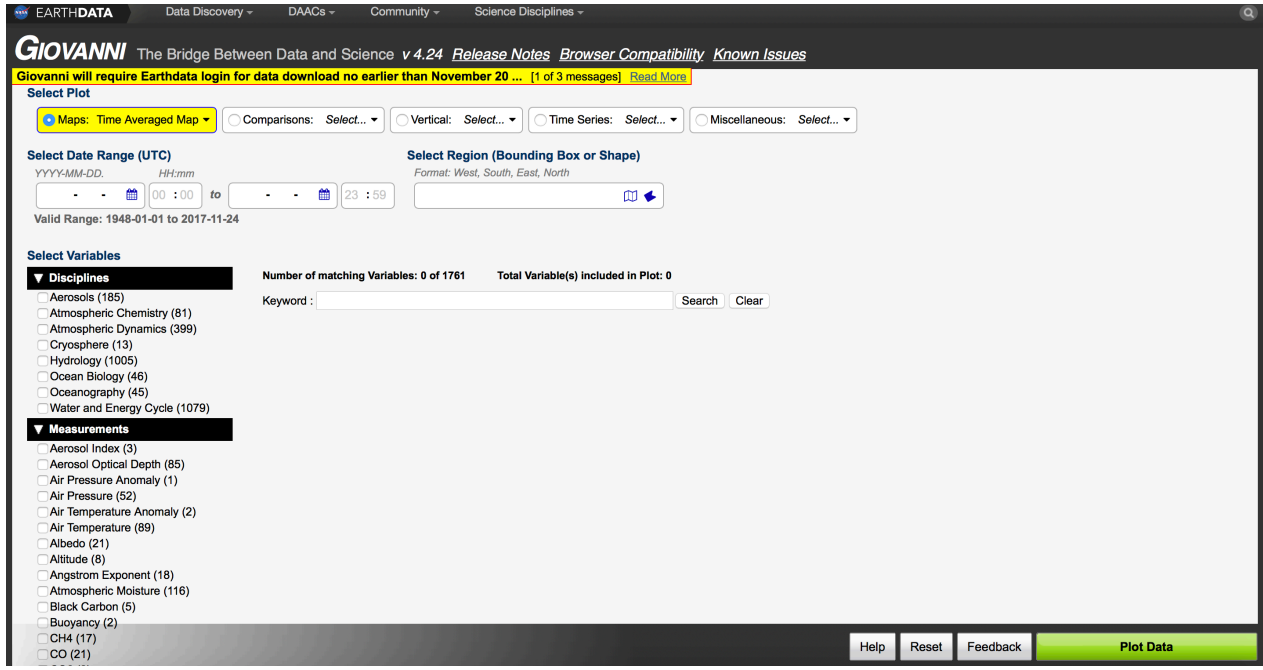
This HAQAST newsletter includes an introduction to HAQAST's Tiger Teams, as well as research and news updates.

Looking Forward

- NASA Tools Tutorial Videos
- ‘About HAQAST’ Video
- HAQAST3 Video







Thank You

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