Message

From: EPAResearchCompass [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C1E8F11508674C3C954553A1129D33E5-EPARESEARCH]
Sent: 3/6/2018 7:04:50 PM
To: ORD-ALL Feds and NonFeds and RSLs [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2c735272eef941588aefd9a05ed28823-ORD-ALL Feds and NonFeds and RSLs]
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Subject: Weekly Compass: March 6, 2018

EPA

WEEKLY compass

Weekly Update: 3/6/2018

Welcome to the Weekly Compass, your gateway to information about recent and upcoming ORD activities. If you have ideas for the Weekly Compass, please send them to the editors. To see past issues, visit the Weekly Compass archive on ORD@work.

Weekly Note from Jennifer

ORDers – Staff from ORD and OAR/OAQPS met last week in Phoenix with Arizona State University, Maricopa County, and Arizona Department of Environmental Quality to discuss a pilot project in Phoenix focused on sensor technology for air quality measurements. The meeting included discussion on key research questions, community involvement, and project design. Local stakeholders and tribal representatives were invited by ASU to also share their perspectives.

On March 8th, staff from the House Science, Space, and Technology Committee will meet with us to discuss how the EPA Strategic Plan affects ORD. They would also like information on the FY 2019 Justification and how it pertains to the Science and Technology budget and to ORD.

Please continue to share your ideas with us on the best organizational structure for our core science functions and the draft vision statement by March 9 via the Suggestion Box. We will take all of your suggestions into consideration and keep you posted as we move forward.

We appreciate your careful thoughts and continued commitment to our mission to protect human health and the environment. Thank you for sharing your input. *-Jennifer*

Quick Updates

- Read A Closer Look at EPA's ORD Laboratory Research Facilities (begins on page 6) in the most recent edition of *Bridges, an Association of Public Health Laboratories' publication*
- Don't forget to check out the open opportunities on Talent Hub!
- Abstract Extension: 3/7 for the 2018 International Decontamination Conference
- At the 2018 National Executive Leadership Development Conference in January, Henry Darwin delivered an overview of the EPA Lean Management System (ELMS) and the Agency's transformation, the talk is available on the Resources page of the ELMS intranet site. *You must use Internet Explorer to log in to Office 365 Video to watch the video, which is the second video in the "Video" section of the page*
- You can read the This Week @ EPA newsletter here.
- Goodbye Reservationless Plus, hello Office 365 dial-in conferencing
- Upcoming webinars:
    - ACE Connections Call: Wednesday, March 7, 11:30-12:30 pm ET
    - Webinar: Small and Large Water Systems Piloting Real-time Data Analytics: Monday, March 12, 2-3 pm ET
    - Webinar Training: Federal Technology Transfer Act Fundamentals for CORs – Inventions under Contracts: March 14, 1-2pm ET,1 CLP
    - Nutrient Sensor Action Challenge Informational Webinar: Thursday, March 15, 2-3 pm ET

Photo of the Week: View from WED

In the Lab:

Alternative Toxicity Testing Strategy Paper

ORD continues to provide major support to OCSPP in the development of the alternative toxicity testing strategy paper. A major driver toward transitioning away from using vertebrates in toxicity testing is to demonstrate the utility of the in vitro and in silico approaches. ORD is developing and applying many of those new approaches and plans to discuss this work at a TSCA Special Session during the Society of Toxicology Meeting next week.

Water Resilience Tool Featured at SXSW Conference

ORD's Water Network Tool for Resilience (WNTR) will be highlighted at the South by Southwest Conference (SXSW) on Friday in Austin, Texas. Alvand Salehi, Senior White House Technology Officer, is presenting about government developed open source software using WNTR as an example. WNTR is a software tool designed to simulate and analyze resilience of water distribution networks to a variety of disaster scenarios. The software can help water utilities explore the capacity of their systems to handle disasters and guide the planning necessary to make systems more resilient over time. The conference is focused on creativity, bringing together people from the film, music, and technology fields.

Bringing Million Hearts to the National Heart, Lung, and Blood Institute

Today, NHEERL's Wayne Cascio, and HHS' Million Hearts Initiative Director Janet Wright, will meet with the National Heart, Lung, and Blood Institute in Bethesda to discuss collaboration around air pollution and cardiovascular disease. They will share information about outreach and collaboration through Million Hearts to provide guidance to heart attack and stroke patients on avoiding exposure to particle pollution. Collaboration with federal, state, and non-governmental partners has supported translating environmental health science into actionable information for public health officials, health care professionals, and at-risk populations. Discussions with the Heart, Blood, and Lung Institute will include opportunities for broader collaboration, particularly to support states.

Society of Toxicology Annual Meeting

A number of ORDers will be attending the Society of Toxicology (SOT) Annual Meeting in San Antonio, Texas, next week from March 11-15. ORD will have an exhibit booth, #1643, so if you are attending, please stop by! A number of ORD researchers will be presenting posters, taking part in scientific sessions and receiving awards. For more on ORD's participation at SOT, check out the ORD event page.

Building Wetland Monitoring and Assessment Capacity in States and Tribes

Last week, NHEERL researchers provided the first in a four-part webinar series for states and tribes to learn how to use tools developed by the National Aquatic Resources Survey (NARS) team at NHEERL's Western Ecology Division. The focus was on how to perform analyses of data collected through the NARS National Wetland Condition Assessment (NWCA). The data being analyzed are from a regional assessment funded by OW in response to a proposal from Pacific Northwest states and tribes and completed as part of the 2016 NWCA. The webinars are open to all states and tribes that participate in the National Wetland Monitoring and Assessment Work Group, which is coordinated by OW. In October, a workshop is planned for wetland managers from the states of Alaska, Idaho, Oregon, and Washington, and the Umatilla and Quinault tribes who participated in the 2011 and/or 2016 NWCA.

Supporting Oregon's More Strategic and Efficient Water Monitoring

NHEERL scientists, Cheryl Brown and Amy Zimmer-Faust, shared research about sources of nutrients and bacteria in Tillamook Bay and its watershed as part of the "Oregon Mid and North

Coast Water Monitoring Summit," last week in Newport, Oregon. The summit focused on Oregon's Integrated Water Resources Strategy and newly emerging Clean Water Partnership to help local partners understand how their efforts contribute to statewide results and to identify opportunities to coordinate. The meeting was organized by Oregon's Strategic Enterprise Approach to Monitoring (STREAM), which includes Oregon Departments of Environmental Quality, Agriculture, Water Resources, Fish and Wildlife, Forestry, the Oregon Health Authority, and the Oregon State University Institute for Natural Resources.

Meeting with Japanese to Discuss Endocrine Disruptor Research

Last week in Duluth, MN, scientists from ORD and OCSPP met with visitors from the Japanese Ministry of the Environment and the National Institute of Natural Sciences of Japan, along with Japanese scientists and university staff, and others. The meeting focused on the use of the testing protocols to study and screen effects of endocrine disrupting chemicals on the fish, Japanese medaka, both in Japan and the U.S. NHEERL scientists shared results of amphibian studies, along with information about research programs on small fish and thyroid, and gave a demonstration of the species extrapolation tool, SeqAPASS. Two OCSPP fish biologists shared results of several contract studies in the area of endocrine disrupting chemicals. The visitors shared the current status of endocrine research in Japan.

NC AIR Charlotte Research Linking Environmental Exposure and Health

The NC Division of Air Quality invited NHEERL's David Diaz-Sanchez and Tom Long to participate last week at a stakeholder advisory meeting for the AIR Charlotte research project, whose goal is to enable data-driven decisions about how to monitor and improve neighborhood health. UNC-Chapel Hill researchers are combining data from sensors on asthma inhalers with real-time distributed air pollution sensor data and predictive models to link environmental exposures with the occurrence of respiratory symptoms and medication use. The project builds on a similar effort in Louisville, KY, where a public/private collaboration engaged 1,147 participants and collected over 1.2 million data points using app-enabled inhalers. AIR Charlotte will add air pollution data and explore social science questions regarding groups and neighborhoods that may be at increased risk for elevated exposures and increased respiratory symptoms. They will work with stakeholders to understand the types of data, analytics, and visualization that would make decision support information most valuable to them.

Informational Public Meeting on Lead in Drinking Water

Today, the City of Galesburg will hold an informational public meeting on "Lead in Drinking Water and Other Sources." The meeting will provide information to the community on lead in drinking water and other sources and to answer any questions. No formal presentations will be given. The city will be providing information on the city's water quality report, recent lead testing results, and steps residents can take to reduce their exposure to lead in drinking water. They will also provide an update on the lead service line replacement project and the corrosion inhibitor program. Knox County Health Department and the city will also provide information on lead in the environment, blood lead level testing, and a housing grant that the city has received to reduce lead paint hazards in homes. Members of the public can attend any time between 6:00 and 8:00 PM. Representatives from Region 5 and the Illinois Environmental Protection Agency will attend and be available to answer questions. NRMRL scientist Darren Lytle will also attend and be available to answer questions on the lead service line identification project.

Grantee Publication on Mapping Wetlands and Other Coastal Habitats

Ecological Assessment of Generalized Littoral Environments Decision-Support System (EAGLE/OS) grantee Frank Muller-Karger and colleagues published in Remote Sensing of

Environment a semi-automated approach that they developed to map wetlands and other coastal habitats using high performance computing technology and two-meter resolution satellite imagery to improve forested-wetland-mapping accuracy for the entire Tampa Bay watershed (6,500 km2). The approach uses programming languages and the University of South Florida supercomputer. In under 24 hours, the team completed work that typically takes traditional approaches at least 6 months, and produced maps that are more accurate than those produced by NOAA, Southwest Florida Water Management District, and the National Wetland Inventory. The research team now aims to apply this approach to map terrestrial and benthic habitats at this resolution yearly to assess interannual habitat changes. The protocol developed may have high potential for regular monitoring of wetland and other habitats at high spatial resolution over regional, national and global scales

Grantee Publication on Manufactured Nanomaterials

Agricultural fields are exposed to manufactured nanomaterials (MNMs) through irrigation with contaminated water from manufacturing plants or domestic greywater, fertilization with MNMs-containing sludge, and accidental release of nanomaterials from industrial sites. Such a compound is ZnO, incorporated as nanomaterial (NM) in several applications due to its improved properties, compared to the bulk counterpart. Previous studies have shown zinc accumulation in plants exposed to ZnO NMs is concentration-dependent. Those studies have evaluated in-lab synthesized instead of commercially available NMs. Researchers at the Center for Environmental Implications of Nanotechnology (CEIN), funded jointly by EPA and NSF, have assessed the effects of commercial ZnO NMs such as Z-COTE® or Z-COTE HP1® in kidney bean plants. Results showed bulk ZnO and ZnCl2 imposed more toxicity to kidney bean than the NMs. Overall, coated Z-COTE HP1® increased root length and the concentration of more nutritional elements than uncoated Z-COTE®; however, none of them affected pod production.

Grantee Publication on PFAS in Human Serum

EPA grantee Susan Pinney (University of Cincinnati) and co-authors, recently published the first study looking at human serum concentrations of perfluorooctanoic acid (PFOA) in the US in the early 1990s. They looked at serum levels of PFOA and other per-and polyfluoroalkyl (PFAS) substances in residents of the Mid-Ohio River Valley to determine whether the Ohio River and the Ohio River Aquifer were a source of exposure. They concluded that PFOA discharges to the Ohio River upstream of the study area were the most likely source of PFOA and the use of granular activated carbon in drinking water treatment systems reduced serum PFOA concentrations. PFOA is a synthetic organic acid used in a variety of consumer products and is a degradation product of other perfluorinated compounds. In 2012, EPA included PFOA and PFOS among the list of contaminants that water systems are required to monitor under the third Unregulated Contaminant Monitoring Rule (UCMR 3), and in May 2016, published a new drinking water health advisory for PFOA that significantly lowered the allowable level in drinking water.

Presentation on Thermal Remediation Technologies

Tomorrow, at the request of the EPA Engineering Forum, NRMRL's Eva Davis will give a presentation on thermal remediation technologies during a forum conference call. She will provide an overview of how thermal remediation can be used at Superfund sites. Thermal remediation can be applied to a wide range of volatile and semivolatile organic compounds. The EPA Engineering Forum is a group of engineers who support the Superfund and RCRA programs and was organized to exchange up-to-date information related to issues at Superfund and RCRA sites.

Visit to Chinese Academy of Sciences, Beijing, China

March 9-14, NRMRL's Jeff Yang and Jonathan Pressman will visit the Chinese Academy of Sciences (CAS). EPA has developed a drinking water plant model to help optimize water

treatment processes. CAS has expressed interest in using these models in China. The focus of this trip is to discuss the drinking water treatment plant model and finalize plans for the Chinese delegation to visit EPA Cincinnati during FY18. Discussions will explore areas where both China and EPA have overlapping research needs and interests.

Research on Organic Aerosol Published in PNAS

A number of ORD researchers co-authored a paper that was recently published in the journal, *Proceedings of the National Academy of Sciences* (PNAS). The article, Monoterpenes are the largest source of summertime organic aerosol in the southeastern United States, discusses the way that air quality, climate, and human health are impacted by atmospheric fine organic aerosol and how we can improve our understanding of those impacts when we are able to identify and quantify the sources of organic aerosol on the molecular level. To date, the chemical complexity of atmospheric organic aerosol has been a barrier to such studies. This article hopes to help researchers overcome that barrier by providing a comprehensive molecular characterization of atmospheric organic aerosol samples from the southeastern U.S. by combining state-of-the-art high-resolution mass spectrometry techniques. The authors found that monoterpene secondary organic aerosol accounted for approximately half of total fine organic aerosol. More importantly, the monoterpene secondary organic aerosol mass increases with enhanced nitrogen oxide processing, indicating human influence on biogenic secondary organic aerosol formation. EPA coauthors to this article include NERL's John Offenberg, Michael Lewandowski, Tadeusz Kleindienst, Melinda Beaver, William Lonneman, Mohammed Jaoui, and Havala Pye; NRMRL's Amara Holder; and Kenneth Docherty (Jacobs Technology Inc. at EPA).

Study Looks to Link Residential Environments and Health

An epidemiological study on *Residential Environment, Allostatic Load, and Diseases* (RENALDI) being led by NHEERL's Andrey Egorov and NERL's Shannon Griffin has begun recruiting adult participants in the Raleigh-Durham-Chapel Hill area of North Carolina. This observational study sets out to link residential environmental factors, such as vegetated land cover near a residence, with a measure of stress known as allostatic load. Blood and saliva samples from participants will be collected at NHEERL's facility in Chapel Hill and will be analyzed for multiple biomarkers of immune, metabolic and neuroendocrine functions. Data from EPA's EnviroAtlas will be applied to assess exposure to natural living environments in residential settings. In addition, a microbiome survey of participants might help find links between environmental characteristics, human gut microbiome composition, and biomarker-based measures of health. Findings from this research could help decision-makers and community planners develop policy interventions aiming to enhance the livability of neighborhoods, reduce health-related disparities, promote well-being, and reduce stress-related disease by improving access to green space.

Collaborating with Region 6 and Louisiana on Small Water Systems Study

NERL's Stacy Pfaller, Dawn King, and Jingrang Lu are collaborating with NRMRL's Jonathan Pressman and David Wahman, EPA Region 6, and drinking water treatment plants in Louisiana. The project aims to better understand the impacts and meaning of maintaining detectable disinfectant residuals in distribution systems for controlling waterborne pathogens (*Legionella* and mycobacteria), disinfection byproducts, organic chloramines, and nitrification. This project has a strong focus on small systems, and the data obtained might assist operators on proper disinfection of their systems to control for pathogens while minimizing DBP (disinfection by-products) formation, while concurrently providing better protection to consumers. There are four small drinking water systems partnering with the researchers. Drinking water samples are being collected quarterly and sent to ORD-Cincinnati for analyses, with the second round of samples arriving this week.

Journal Article: Wetlands for Greywater Recycling

NRMRL's Cissy Ma is coauthor on a paper titled, "Constructed wetlands for greywater recycle and reuse: A review," which was published in *Science of the Total Environment* (in-progress July 15, 2018 issue). This paper reviews existing case study literature to summarize the treatment performance of greywater wetlands in the context of chemical, physical, and microbiological water quality standards.

Harmful Algal Blooms: EPA Meets with States

Last week, Amy Shields (Region 7 RSL) led a federal and state harmful algal blooms meeting with Mike Hiscock (NCER), Jim Lazorchak (NERL), staff from the Kansas Department of Natural Resources (DNR), Iowa DNR, Missouri DNR, the U.S. Geological Survey, U.S. Army Corps of Engineers, Iowa State University, and OW. Mike and Jim provided an overview of ORD's harmful algal bloom research portfolio and the EPA grantee research at Iowa State University.

Assisting Communities with Public Health Data

Last week, Jonathan Essoka (OSP), Jennifer Richmond-Bryant, Annie Jarabek and Jeanette Reyes (NCEA) met with staff from Region 3 to kick-off a collaborative research project to assess the relationship between air quality and socioeconomic factors, and their impact on community health in Philadelphia, PA. This effort will leverage existing air quality, public health and socioeconomic data to help identify communities that may be vulnerable to adverse air quality impacts. During the meeting, the project team discussed initial plans for data analysis and community engagement and outreach.

Multi-regional RARE Project

Last week, Robert Hillger (Region 1 RSL) and Marie O'Shea (Region 2 RSL) coordinated a kick-off meeting in Narragansett, RI, for the Multi-regional Long Island Sound Seagrass Assessment RARE Project. The project includes staff from NHEERL, Regions 1 and 2, and state and local partners from MA, CT, RI, and NY. Topics of discussion include project priorities, roles and responsibilities, quality assurance and communication plans. This study will support regional and local decision making in the near-term as it aims to provide a replicable analytical and predictive approach for assessing eelgrass responses to future changes in water quality using satellite data. Eelgrass, a type of seagrass, is an important habitat targeted for restoration and protection throughout Region 1 and 2.

ORD Scientist Present at Cross-EPA PFAS Meeting

On February 27, the Cross-EPA PFAS Toxicity Steering Group held a monthly meeting with updates on Agency activities and a presentation by ORD scientists on the approach to select the PFAS for Tier 1 toxicity and toxicokinetic testing. Data from this effort will inform hazard assessments across the PFAS landscape. The steering group, co-led by OSP and OLEM, includes representatives from across the Agency.

National Tribal Caucus Meeting

Tomorrow, Fred Hauchman, Monica Rodia (OSP), Jose Zambrana (NERL) and other ORD participants will provide the National Tribal Caucus (NTC) with an overview of proposed plans for engaging the EPA's Tribal Partnership Groups (for water, air, etc.) in the development of ORD's new Strategic Research Action Plans. The NTC is a national body of high-level tribal advisors whose primary focus is to identify and address tribal environmental issues that are national in scope, cross-agency or cross-media in nature.

Final Agency Review (FAR) for Primary NAAQS for Nitrogen Dioxide Final Rule

On March 14, OSP will represent ORD at this Final Agency Review meeting. The Clean Air Act requires EPA to set and periodically review NAAQS for six criteria air pollutants, including nitrogen dioxide. ORD develops Integrated Science Assessments in support of the NAAQS reviews.

Unilever Visit

Today, representatives from Unilever will visit ORD's RTP facility to discuss the ongoing research collaboration between Unilever and EPA NCCT. The collaboration focuses on incorporating alternative testing methods into chemical safety assessments. During the visit, project teams will provide updates, the group will discuss the upcoming Society of Toxicology annual meeting and Unilever will receive a tour of the EPA RTP facility.

In the Office:

ORD Diversity Day

Offices are making progress on their Diversity Day plans. The celebration will be held April 4, 2018. OARS' Human Resources Division staff have identified folklore speakers to conduct "storytelling" for the ORD-wide event and are working on procuring the services. Other staff have taken the lead on the food sampling event, developing posters and flyers, working on the activities, and coordinating the VTC for the cultural sensitivity training that will be available to all ORD sites. The ORD Special Emphasis Program Managers will be working with personnel in DC and Cincinnati to help with their celebrations.

FedHR Navigator (Retirement Calculator)

The FedHR Navigator is an internet-based, interactive, self-service tool for EPA employees to develop calculations for Federal civilian retirement, Thrift Savings Plan annuities, and Social Security benefits. Using the features in FedHR Navigator, EPA employees can develop unlimited retirement scenarios based on different assumptions using optional, early, disability, or discontinued service retirement rules. Your servicing Benefits Specialist has simultaneous access to the screens that you do and can assist with your retirement estimates and forms. Visit FedHR Navigator and click on the PIV card tab and follow the instructions to register your PIV. The results contained in your projection are for planning and estimating purposes only and do not contain deductions for state/federal taxes. The Office of Personnel Management has the final authority on actual retirement amounts. For assistance, please contact your Servicing Benefits Specialist.

Accolades:

Scientist Awarded Medal of Public Health Service

NRML's Anthony Zimmer, a Captain in the U.S. Public Health Service, earned the Department of Health and Human Services' Distinguished Service Medal of Public Health Service, "in recognition of an impactful career through public health leadership, emergency response, and groundbreaking federal research." In recent years, Anthony has focused his research on SHC Sustainable Materials Management and Oil Spills Programs.

Critical Support to OARM for Grosse Ile Trash Removal Services

On February 22, Billy Sahli of OARS' Simplified Acquisitions Branch (SAB) processed and awarded an urgent request for trash removal services at Grosse Ile, MI. This request was from OARM but supports ORD staff stationed at Grosse Ile. Historically, the SAB processed similar requirements when this facility was operated by ORD. Since transfer of the site to OARM, failure to establish a vehicle for continued waste management was causing trash to accumulate, creating an unsanitary condition. SAB's expertise as well as efficient and effective service was requested by OAM to ensure the timely removal of waste and recycling items from this EPA facility, and OARS was pleased to be of assistance.

In the News:

Press Release on Nutrients Sensor Action Challenge

On March 1, EPA issued a press release announcing the launch of Stage II of the Nutrient Sensor Action Challenge. Teams will compete for 100K in cash prizes by using sensor data to improves actions and decisions for nutrient management. The challenge is a collaboration between EPA, USGS, USDA, NIST, NOAA and the Cleveland Water Alliance.

In the Community:

Presentation at Middle School Global Education Day, Cincinnati

On Friday, NRMRL's Steve Rock will be a volunteer presenter at the Cincinnati-area Seven Hills School's Global Education Day, an annual event that showcases a broad range of presentations and activities to seventh and eighth grade students. Steve's interactive session titled, "Taking a Bite at Understanding our Food System," will touch on topics including geography and origins of fruit and vegetable growing, environmental impacts of our food system, food waste and ways to prevent it, and composting and landfills. Steve will lead students in using maps to plot distances to calculate fuel use during food transport and weighing food scraps.

EPA-RTP STEM Outreach Program

- Yesterday: the Program led 8th grade students from Rogers Herr Middle School in hands-on environmental activities at the Durham Public School's Hub Farm in Durham and presented a hands-on activity about ecosystems to 5th grade students at Olds Elementary School in Raleigh.
- Today: the Program will present a hands-on air quality activity to middle school students at Research Triangle Charter Academy in Durham.
- Tomorrow: the Program will host an EPA booth at Jordan High School's Career Fair in Durham; present a hands-on activity about ecosystems to 5th grade students at Olds Elementary School in Raleigh; and lead two hands-on activities to teach students about energy during its 2nd session for the spring apprenticeship for Citizen Schools at Lowes Grove Middle School in Durham.
- On Thursday: the Program will lead 4th and 5th graders in a hands-on air quality activity at W.G. Pearson Elementary School in Durham as part of its biweekly program for a STEM elective, and host approximately 30 high school girls from Young Women in Biology for tours, hands-on activities, and speed mentoring.

NERL Presented Webinar to Robotics Team

On February 21, NERL's Dr. Tammy Newcomer-Johnson and Dr. Susan Glassmeyer presented a webinar to the robotics team at Hodge Road Elementary School in Knightdale, N.C. The robotics

team is involved in the FIRST LEGO League Hydro Dynamics Challenge. FIRST LEGO League teams research a real-world problem such as food safety, recycling, energy, or, in the case of this season, hydrodynamics. The teams develop solutions to the challenges that surround each season's problem by working to complete missions on a tabletop playing field. The teams design, build, and program a robot and complete those missions. Newcomer-Johnson and Glassmeyer presented a webinar that explained how the missions in the hydrodynamics challenge relate to real-world treatment and distribution of water. Some of the hydrodynamics missions the teams are being asked to address deal with filters, rain, sludge, pipe construction, and pumps.

Outreach at Ligon Middle School

On February 20th, NCEA's Marieka Boyd assisted in leading three sessions of hands-on air quality activities for AgriScience students at Ligon Middle School in Raleigh. Marieka and co-presenters conducted a Particle Sensor Activity where students wired together a mini particulate matter sensor to learn about how air quality is measured. The activity's purpose was to introduced air quality and how it connects to agriculture. In addition, the presenters introduced the kids to careers at EPA.

Photo of the Week: View from WED

NHEERL's Bill Rugh (WED) took this photo of Mary's Peak recently from the roof of WED while checking some instruments. In the foreground are WED's teracosms.

Courtesy of This Week@WED