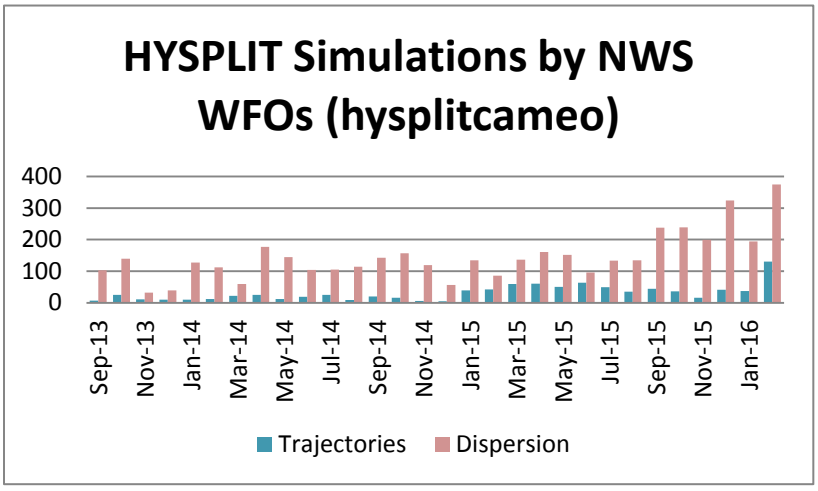
Outreach and Engagement

The Air Resources Laboratory conducts, supports, and promotes formal and informal outreach and engagement activities to enhance public awareness and understanding of atmospheric dispersion and boundary layer characterization, atmospheric chemistry and deposition, and climate observations. The following summary highlights ARL's engagement of decision makers in government, private industry, the media, education communities, and the public.

Hybrid Single Particle Lagrangian Integrated Trajectory Model (HYSPLIT) Training Workshops

ARL has hosted annual workshops which provide extensive theory, examples, and hands-on approaches for experienced and new users of HYSPLIT. ARL's HYSPLIT development team has guided participants in solving real-world atmospheric dispersion problems using HYSPLIT. The three-day workshops at the NOAA National Weather Service (NWS) Center for Weather and Climate Prediction in College Park, MD, are well-attended by HYSPLIT users from other NOAA offices, private companies, major universities, and state agencies. ARL has also delivered workshops to weather forecasters in NWS who were interested in using the web-based HYSPLIT model during emergency response events, such as industrial fires and wildfires (see figure below). Over the past two years, ARL has been invited to present specialized HYSPLIT training classes to partners at the New York State Department of Environmental Conservation (2014) and Oak Ridge National Laboratory (2015). These off-site courses focused on specific applications, such as plume modeling capabilities to assist first responders in New York and particle calculation methods for research activities at ORNL. Numerous small-group tutorials have also been provided regarding specific HYSPLIT applications, including, for example, to scientists at the United States Geological Survey (USGS), the Red Cliff Band of Lake Superior Chippewa, Clark County (Nevada), University of Maryland, Clarkson University, Florida State University, Texas Christian University, the Desert Research Institute, and the Autonomous University of Baja California. Additional workshops have been delivered to international collaborators in Spain, Ireland, and South Korea. ARL also created an online forum for HYSPLIT in 2012. The forum, which boasts over 3,600 registered users, is curated by ARL scientists, who have posted over 700 responses to questions. Beyond the online forum, there are, on average, over 63,000 unregistered simulations of HYSPLIT per month.



NOAA Scholar and NRC Postdoctoral Mentoring

Over the years, ARL scientists have frequently mentored summer interns and fellows from NOAA Education programs, including the Educational Partnership Program Undergraduate Scholarship Program, Ernest F. Hollings Scholarship Program, and Graduate Research and Training Scholarship Program. In addition, ARL offers several research opportunities for postdoctoral scientists through the NRC Research Associateship Program. From 2010-2015, ARL hosted over 10 young scientists from these programs.

Outreach Activities

ARL supports numerous activities that raise public awareness and understanding of atmospheric data and information. From classroom visits with students to "Ask A Scientist" columns in local newspapers, the ARL staff is committed to sharing science with a broad audience.

- Ron Dobosy, Rick Saylor, Will Pendergrass, and LaToya Myles were interviewed by teams of high school students from Knoxville, TN, for the 2015 CSPAN StudentCam Competition, a program that highlights current-affairs video documentaries. The students' documentaries focused on climate change and air quality.
- Pius Lee was involved with outreach efforts to municipal and state forecasters and the general public through the NWS National Air Quality Forecasting effort.
- In 2015, Michael Buban visited a science camp in Oak Ridge, TN, to discuss weather data and forecasts and launch a weather balloon.
- Rick Eckman and Jason Rich participated in the 'Ask a Scientist' series with the Idaho Falls Post Register where meteorological questions posed by the public and responses from researchers are published in the newspaper.
- LaToya Myles delivered an overview presentation of ARL research to incoming NOAA scholars during their annual orientation week in Silver Spring, MD, from 2011-2015.
- From 2010-2015, Mark Cohen supplied numerous responses to questions from the public and from the news media regarding mercury. Many of these questions were related to atmospheric mercury emissions, transport, and fate.
- LaToya Myles was an invited panelist for the 'Opportunities Beyond Academia' session during the 2015 AGU Fall Meeting.
- Walter Schalk visited elementary and middle school science classes and Boy Scout troops in Las Vegas, NV, from 2010-2015 and gave multiple weather presentations, including a hands-on history of wind and temperature instruments, weather experiments (including a tornado in a box), weather data collection, and weather, climate, and the effects of El Nino in Southern Nevada.
- Temple Lee conducted a weather station demonstration at the University of Tennessee Arboretum for an Oak Ridge, TN, Cub Scout pack and discussed the importance of making reliable meteorological measurements.
- LaToya Myles served as a mentor for the 2015 AGU Fall Meeting Undergraduate Mentoring Program.
- LaToya Myles led hands-on science activities for elementary and middle school students in Oakland, CA, from 2011-2015.
- Ariel Stein visited an elementary school in Bethesda, MD, in 2014 and gave a presentation about weather.

- In 2014, Rick Eckman participated in a public forum in Idaho Falls, ID, related to energy supplies and the potential impacts of climate change.
- Will Pendergrass and LaToya Myles provided an overview of ARL/ATDD research to the Oak Ridge,TN, Breakfast Rotary Club in 2014.
- In 2014, LaToya Myles served on a STEM careers panel at the White House Initiative on Historically Black Colleges and Universities National Conference in Washington, DC.
- John Kochendorfer erected a portable eddy covariance and micrometeorological tower for a demonstration of climate research at an elementary school in Knoxville, TN, in 2014.
- Xinrong Ren served as science counselor at a school in North Potomac, MD, and gave a science lecture on environmental pollution and health effects for K-8 students.
- LaToya Myles served on the student development committee for the 2014 NOAA Educational Partnership Program Education and Science Forum at the University of Maryland Eastern Shore in Princess Anne, MD.
- Randy White and LaToya Myles hosted a group of Girl Scouts for an air quality presentation and instrumentation demonstration at ARL/ATDD in Oak Ridge, TN in 2014.
- In 2013 and 2014, Jason Rich gave weather presentations to youth groups in Idaho Falls, ID.
- Dian Seidel served as a judge for a high school science and engineering fair in Greenbelt, MD, and for the Montgomery County (MD) Science Fair in 2013.
- In 2013, Rick Eckman gave a presentation to an Idaho school teachers' organization on ARL activities, including demonstrations of meteorological equipment.
- John Kochendorfer delivered a presentation in 2013 on climate research and demonstrated meteorological instruments at a Science Café hosted by Ijams Nature Center in Knoxville, TN.
- Jason Rich gave weather presentations and served as a counselor for meteorology (for merit badges) for a scout group in Idaho in 2011-2013.
- LaToya Myles was a STEM Café lecturer at Contra Costa College in San Pablo, CA, in 2013.
- Jason Rich gave three hour-long weather presentations to students at a middle school in 2012 and 2013.
- Rick Saylor served as a category judge at the 2012 Southern Appalachian Science and Engineering Fair hosted by the University of Tennessee, Knoxville.
- Richard Artz hosted numerous tours for various government, university, and private groups as part of ARL's relocation to the NCWCP in 2012.
- Rick Eckman developed a NOAA INL Weather Center web site that allows the public to obtain real-time observations from 34-tower mesonet operated by ARL in Southeast Idaho. The site also provides links to webcams and other meteorological information relevant to the area.
- Jason Rich gave presentations on weather safety and demonstrated the NOAA INL Weather Center Website in 2011 and 2012.
- Paul Kelley and Winston Luke traveled to the Exploratorium in San Francisco, CA, in 2012 to participate in discussions surrounding the museum's move to a new facility with a "wired pier" observation system to display real time data relating to the air and water quality, climate, and currents in the San Francisco Bay Area.
- Tilden Meyers gave a presentation entitled "Monitoring for Climate Change" at the University of Tennessee Arboretum.
- Kirk Clawson delivered a brief presentation of ARL/FRD's research and a facility tour to a group of Boy Scouts from Idaho.

- In 2012, LaToya Myles was a panelist for a STEM Pathways Session at the NOAA Educational Partnership Program Education & Science Forum at Florida A&M University in Tallahassee, FL.
- Ron Dobosy and Ed Dumas mentored middle-school students on wind-energy science fair projects that investigated the effect of blade shape on power output.
- Jim Angell, Melissa Free, and Dian Seidel created a series of five short podcasts on “What the Upper Atmosphere Reveals about Climate.” The podcasts explained ARL’s upper air climate research in non-technical terms and were posted to the NOAA OAR website.
- LaToya Myles held adjunct faculty appointments (as a dissertation committee member) at Jackson State University and Florida A&M University.
- Jason Rich volunteered at the DOE-Idaho Safety Fair at the Idaho National Laboratory.
- In association with the Vols4STEM program, LaToya Myles delivered an air quality presentation at a middle school in Knoxville, TN, in 2011.
- LaToya Myles is profiled in the 'Gateway to NOAA' exhibit at NOAA headquarters in Silver Spring, MD, and in the ‘Meet our Scientists’ section of the NOAA OAR website.
- Tim Wilson delivered a presentation on land-atmosphere interactions to the Oak Ridge Institute for Continued Learning at Roane State Community College in 2010.
- Ron Dobosy provided a wind-generator test for the Appalachian Regional Commission's Middle-School Summer Science Academy's annual visit to ARL/ATDD's wind tunnel.
- Tianfeng Chai served as a member of the CMAQ adjoint development team since 2009.
- Rick Eckman operated five community monitoring stations that display meteorological conditions in Idaho Fall, ID, to the public and explained some of the observations collected by ARL and other government agencies.
- Walter Schalk gave multiple hour-long weather presentations and hands-on experiments for "Take Your Sons and Daughters to Work Day" at ARL/SORD in Las Vegas, NV.