National Atmospheric Deposition Program

2021 National Atmospheric Deposition Program Science Symposium

Atmosphere-Biosphere Exchange and Ecosystem Processes: New Frontier of Measurements and Models

Agenda

Note all times are in EDT

Wednesday, October 27

10:00 – 10:10 Welcome and logistics

10:10 – 10:20 Opening of Symposium, Jamie Schauer, Director Wisconsin State Laboratory of Hygiene

10:20 – 10:40 Annual State of the NADP Address, David Gay, Program Coordinator

10:40 – 11:15 Keynote Address, Delphine Farmer (Colorado State University) - *Masters of their fate: Revisiting atmospheric particle dry deposition and lifetime*

11:15 – 11:30 Break

Session 1: The Clean Air Act and the past, present, and future of acid deposition

Chair: Mike Bell (National Park Service)

11:30 – 11:50 Reid Harvey (Retired EPA)- *An overview of the Clean Air Act policy and implementation*

11:50 – 12:10 John Schwartz (University of Tennessee) - *Examining shifts in biochemical processes from long-term monitoring of water quality in the Great Smoky Mountains National Park*

12:10 – 12:30 Pat Brewer (Retired National Park Service) - *Regional haze, fire, and reducing deposition*

12:30 – 12:50 Stephanie Connolly (US Forest Service) - *Best management practices for addressing the long-term effects of acid deposition on federal lands*

12:50 – 1:20 Break

1:20 – 1:40 James Boylan (Georgia Dept. of Natural Resources) - *Acid deposition modeling and projections in the southeastern US*

1:20 – 2:00 Kathy Stecker (Maryland Dept. of the Environment) - *Atmospheric deposition and Clean Water Act TMDLs*

Session 2: Linkages between deposition and ecosystem processes

Chair: Jeremy Ash (US Forest Service)

2:00 – 2:20	Christopher Clark (US EPA) - *Recent advances in critical loads research from the US EPA Office of Research and Development*
2:20 – 2:40	Douglas Burns (USGS) - *Responses of forest ecosystems to decreasing nitrogen deposition in eastern North America*
2:40 – 3:00	Barry Baldigo (USGS) - *Evidence of ecosystem recovery in streams of the Adirondack Mountains in northern New York*
3:00 – 3:20	Break
3:20 – 3:40	Jana Compton (US EPA) - *Decadal impact of Clean Air Act policies on US stream nitrogen concentrations*
3:40 – 4:00	Nathan Pavlovic (Sonoma Technology, Inc.) - *Empirical nitrogen and sulfur critical loads of U.S. tree species and their uncertainties with machine learning*
4:00 – 4:20	Kayla Wilkins (Trent University) - *Ecological thresholds under atmospheric nitrogen deposition for 1200 herbaceous species and 24 communities across the U.S.*

Thursday, October 28

Session 3: Measurement and modeling of air-surface exchange

Chair: Ryan Fulgham (US EPA)

10:00 – 10:20	Glenn Wolfe (NASA) - *What goes up comes down…eventually*
10:20 – 10:40	Zhiyong Wu (US EPA) - *State of the science and future direction of air-surface exchange models for reactive compounds*
10:40 – 11:00	Jianlin Shen (Chinese Academy of Sciences) - *Atmospheric nitrogen deposition in an agricultural catchment in subtropical China and its ecological effects*
11:00 – 11:20	Pascal Wintjen (Thünen Institute of Climate-Smart Agriculture, Germany) - *Forest-atmosphere exchange of reactive nitrogen in a low polluted region - temporal dynamics and annual budgets*
11:20 – 11:40	Eiko Nemitz (UK Center for Ecology and Hydrology, Scotland) - *Review of methods for assessing deposition of reactive nitrogen pollutants across complex terrain with focus on the UK*
11:40 – 12:00	Abdullah Mamun (Environment and Climate Change Canada) - *Estimation of atmospheric dry and wet deposition of particulate elements in the Canadian Athabasca oil sands region*

12:00 – 12:20	Jun Zhou (University of Massachusetts) - *Comparison of net ecosystem exchange of atmospheric gaseous elemental mercury (GEM) between a temperate evergreen needle-leaf and a nearby deciduous broadleaf forest*
12:20 – 12:50	Break

Posters

Chair: John Walker (US EPA)

Poster Session 1

12:50 – 12:55	Moh Naseem (Jawaharlal Nehru University, India) - *Ammonia Availability Index and fraction acidity of rainwater at an urban site of National Capital Region-Delhi, India*
12:55 – 1:00	Ankita Katoch (Jawaharlal Nehru University, India) - *Dry deposition of particles on natural surfaces in the indoor air at New Delhi (India)*
1:00 – 1:05	Daimy Avila Rodríguez (National Autonomous University of Mexico) - *Nitrogen compounds in the atmosphere of the Gulf of Mexico. Case study: State of Veracruz*
1:05 – 1:10	Alberto Antonio Espinosa Guzmán (Universidad Autonoma de Campeche, Mexico) - *Temporal variation and chemical composition of wet atmospheric deposition from a coastal site in the Gulf of Mexico from 2007 to 2012*
1:10 – 1:20	Question and answer for poster session 1

Poster Session 2

1:20 – 1:25	Cara Mathers (North Carolina State University) - *Improving predictions of dry surface layer thickness and soil resistance with a simple, physically-based model*
1:25 – 1:30	Da Pan (Colorado State University) - *Ammonia surface-atmosphere exchange processes in Rocky Mountain National Park*
1:30 – 1:35	Hannah Rubin (University of Tennessee) - *Revisiting global nitrogen and sulfur budgets using a measurement-model fusion approach*
1:35 – 1:40	Luis Miguel Urbina-Leonor (National Autonomous University of Mexico) - *Atmospheric deposition study importance on the conservation of built heritage*
1:40 – 1:50	Question and answer for poster session 2

Poster Session 3

1:50 – 1:55	Rebecca Dalton (US EPA) - *Regional variation in sensitivity of trees to nitrogen and sulfur deposition across the United States*
1:55 – 2:00	Meaghan Petix (Washington State University) - *Using epiphytic lichen tissue N concentration to evaluate the TDep N deposition model in the Pacific Northwest*
2:00 – 2:05	Jian Feng (Environment and Climate Change Canada) - *Temporal and regional trends of Inorganic chemical components in precipitation in the eastern U.S. and eastern Canada during 1989-2016*
2:05 – 2:10	Eric Uram (NADP) - *Viability of pollen analysis using existing NADP equipment*
2:10 – 2:20	Question and answer for poster session 3
2:20 – 2:40	Break

Session 4: Recent advances in measurements of atmospheric chemistry

Chair: Katie Benedict (Los Alamos National Laboratory)

2:40 – 3:00	Jordan Krechmer (Aerodyne Research, Inc.) - *Recent advances in chemical ionization mass spectrometry for fast, speciated, and in-situ measurements of atmospheric constituents*
3:00 – 3:20	Lynne Gratz (Colorado College) - *Observations of ambient elemental and oxidized mercury from a continental mountaintop site using an improved dual-channel measurement system*
3:20 – 3:40	Jackson Seymore (Texas A&M University) - *Molecular characterization of dissolved organic matter in São Paulo, Brazil wet deposition by ultra-high resolution mass spectrometry*
3:40 – 4:00	Natalie Szponar (University of Toronto) - *Tracing atmospheric sources of mercury through passive air sampling and isotopic characterization*
4:00 – 4:20	Joshua Landis (Dartmouth College) - *Systematics of fallout radionuclides (FRNs): towards their use as biogeochemical tracers of aerosol deposition*
4:20 – 4:40	David Pfotenhauer (Wisconsin Department of Natural Resources) - *PFAS mass concentrations and flux in Wisconsin rainwater through analysis of wet deposition samples from National Trends Network*

Friday, October 29

Session 5: Routine monitoring of atmosphere and ecosystem processes: Recent advances and remaining challenges

Chair: Greg Wetherbee (USGS)

10:00 – 10:20	Guey-Rong Sheu (National Central University, Taiwan) - *Variability of wet mercury deposition measurements using different types of samplers*
10:20 – 10:40	Umesh Kulshrestha (Jawaharlal Nehru University, India) - *Atmospheric deposition of reactive nitrogen in India*
10:40 – 11:00	David Kelleghan (University College Dublin, Ireland) - *Monitoring and modelling atmospheric deposition impacts and effects in the Republic of Ireland*
11:00 – 11:20	Yuk Tang (UK Centre for Ecology & Hydrology, Scotland) - *UK Air Pollution Impacts on Ecosystems Networks (APIENs): An integrated approach to assess impacts of key air pollutants on sensitive freshwater and terrestrial ecosystems*
11:20 – 11:40	Theresa Crimmins (USA National Phenology Network) - *Phenology monitoring infrastructure and data: Fundamental resources supporting scientific discovery, natural resource management, and Earth observations*
11:40 – 12:00	Irene Cheng (Environment and Climate Change Canada) - *Long term atmospheric deposition of nitrogen and sulfur at Canadian rural locations*
12:00 – 12:20	Katrina Macsween (Environment and Climate Change Canada) - *Global mercury passive sampler network: one year on*
12:20 – 12:50	Break

Session 6: Measurement-model fusion

Chair: Amanda Cole (Environment and Climate Change Canada)

12:50 – 1:10	Jeffrey Geddes (Boston University) - *The WMO measurement model fusion for global total atmospheric deposition initiative: Supporting science, policy, and sustainable development goals*
1:10 – 1:30	Greg Beachley (US EPA) - *Evaluation of changes in annual deposition fluxes estimated with the modernized TDep Measurement Model Fusion method using the EQUATES time-series dataset*
1:30 – 1:50	Sarah Benish (US EPA) - *Evaluation of a measurement model fusion approach for improving predictions of wet deposition from EQUATES*

1:50 – 2:10 Alain Robichaud (Environment & Climate change Canada) - *ADAGIO: A simple and effective data-fusion algorithm for particle dry and wet deposition*

2:10 – 2:30 Sharmin Akter (University of Connecticut) - *Modeling the urban areas contribution to nitrogen deposition in US*

2:30 – 2:50 Break

Session 7: Climate, air quality, and deposition

Chair: Rick Haeuber (US EPA)

2:50 – 3:10 Christopher Nolte (US EPA) - *The impacts of climate change on air quality and deposition: Recent advances and future directions*

3:10 – 3:30 Qasim Mehdi (Syracuse University) - *Future changes in atmospheric emissions and deposition under U.S. policies to decarbonize the electricity sector*

3:30 – 3:50 Rodolfo Sosa Echeverría (Universidad Nacional Autónoma de México) - *Sulfate:nitrate and ammonium:nitrate ratios in wet atmospheric deposition as indicators of atmospheric pollution in different regions of México*

3:50 – 4:10 Gregory Lawrence (USGS) - *The recent past, present and future of acidic deposition effects on Adirondack biogeochemistry*

4:10 – 4:30 Christopher Lawrence (University of Albany) - *Changes in atmospheric aqueous chemistry at Whiteface Mountain: Shifting focus from acid rain*

4:30 Close of symposium