



AQMEII 4 Planning

- **Formed steering group to define project objectives and design simulation experiments**
- **Held bi-weekly calls since April 2018**
- **Designed 3-pronged simulation approach:**
 - **Full annual grid-model simulations over North America and Europe**
 - **“One-Hour” grid model simulations under standardized meteorological conditions**
 - **Box model comparison of deposition schemes**
- **Develop analysis approaches and help assemble observational data**
- **Steering group members:**
 - **Johannes Bieser** (Helmholtz-Zentrum Geesthacht); **Olivia Clifton** (Lamont-Doherty Earth Observatory, Columbia University); **Jason Ducker** (Florida State University); **Lisa Emberson** (University of York); **Johannes Flemming** (European Centre for Medium-Range Weather Forecasts); **Stefano Galmarini** (European Commission Joint Research Centre); **Christian Hogrefe** (EPA/ORD/NERL/CED); **Christopher Holmes** (Florida State University); **Paul Makar** (Environment and Climate Change Canada); **Martijn Schaap** (TNO - Netherlands Organisation for Applied Scientific Research); **Donna Schwede** (EPA/ORD/NERL/CED); **Sam Silva** (Massachusetts Institute of Technology)



AQMEI14 Science Questions

- **Annual 3D CTM Simulations:**
 - How do simulated deposition fields differ between modeling systems and what are the key drivers of these differences?
 - How well do these models simulated deposition fields agree with available observations?
 - What are the major differences in depositions schemes and what are the key parameters?
 - Is the same deposition scheme behaving very differently when used in a different “modeling environment”?
 - How can simulated meteorological, concentration, and deposition fields from multiple models in conjunction with available observations best be used to calculate maps of total deposition and critical load exceedances?
- **“One-Hour” Standard Condition 3D CTM Simulations:**
 - How does simulated dry deposition velocity vary across land cover types and between models under “standard meteorological conditions”?
 - What are the effects of three key factors (day vs. night, summer vs. winter, and dry vs. wet) on simulated dry deposition velocity?
 - How large are inter-model dry deposition differences under “standard” conditions compared to inter-model differences with varying meteorology?
- **Box Model Simulations at Selected Measurement Sites:**
 - How and why do current dry deposition models differ under identical environmental conditions?
 - How well do these models predict measured deposition velocity?
 - Quantify the sensitivity of dry deposition velocity to changes in individual environmental factors and surface conditions.



Tentative Timeline

- **August/September 2018: call for participation**
 - **Positive response from 19 groups to date**
- **December 2018 / January 2019: Distribution of boundary condition and emission datasets**
- **January – March 2019: Distribution of the information and specification on output formats, database organization, project timeline and deadlines for the submission of the model results. Begin of simulations.**
- **Beginning in summer 2019: data submission**
- **September 2019: AQMEII workshop in conjunction with ITM Hamburg (discussion of initial simulation results, milestones, outputs)**
- **2020: Submission of journal articles to special issue**