FSU Meteorology Seminar Series, Spring 2021

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Northeast States for Coordinated Air Use Management

Modeling to Inform Decision-Making about the Persistent Ozone Pollution Problem in the LISTOS Region

Abstract

Ambient air pollution in the United States has been improving since the passing of the Clean Air Act in 1970, with increasingly stringent standards leading to cleaner air. However, the NYC metropolitan area and surrounding regions of Connecticut, New Jersey, and eastern Pennsylvania, home to nearly 23 million people, persistently exceed both past and recently revised federal health-based air quality standards for ground-level ozone (O3). In addition, urban residents can be exposed to higher levels of health damaging fine particle and air toxic pollutants concentrated at "hot-spots" in close proximity to high-density traffic and other local air pollution sources. The Long Island Sound Tropospheric Ozone Study (LISTOS) was launched in the summer of 2018 to better understand the complex chemistry and transport of pollution in the region, with a special focus on Long Island Sound (LIS) where a land-sea breeze feature often leads to the highest ozone concentrations occurring along the Connecticut shoreline. LISTOS involved a number of state and federal agencies along with university research groups in a multi-faceted coordinated campaign, with measurements obtained on land, in air, at sea, and from space. We use the coupled Weather Research and Forecasting and Community Mulit-scale Air Quality (WRF-CMAQ) model at a 1.33 km by 1.33 km resolution over the LISTOS region to simulate urban-scale air quality and improve our understanding of the production and transport of O3 and its precursors in the region. We test meteorological model parameters to optimize model performance for NYC and LIS, and we leverage observations gathered during the 2018 LISTOS field campaign for spatiotemporal model evaluation. In ongoing collaborations with LISTOS participants, we conduct sensitivity simulations to understand and evaluate changes in source contributions to O3pollution in the LIS over time and under polluted conditions. With ongoing LISTOS research, we can continue to support decision-making to reduce future O3 air pollution problems for the people in the LISTOS region.

Zoom Link

https://fsu.zoom.us/j/93408670445?pwd=SWlrNzE3L1JHbWxudEh3dkZsalJtdz09

Time:	Thursday, Apr. 8, 2021 @ 3:30 PM
Host:	Dr. Allison Wing
Note:	Meeting the speaker at 3:00 PM. A post-seminar student-speaker session will start immediately after the seminar.