June 5, 2017

Lake Michigan Ozone Study (LMOS 2017)
FAQ

What is LMOS 2017?

- A collaborative, multi-agency field study of ozone chemistry and meteorology along the Wisconsin-Illinois Lake Michigan shoreline using a combination of aircraft, ground-based and ship-based measurements.
- The goal of the study is to better understand ozone formation and transport around Lake Michigan; in particular, why ozone concentrations are generally highest along the lakeshore and drop off sharply inland and why ozone concentrations peak in rural areas far from major emission sources.
- Field activities will be conducted May 22-June 22, 2017.

What are the potential outcomes/benefits of LMOS 2017?

LMOS 2017 measurements will provide critical observations for evaluating a new generation of air quality models attempting to better simulate ozone episodes in the region. Over the long term, the information collected is expected to result in:

- Improved modeled ozone forecasts for this region, which states and EPA use to meet state and federal Clean Air Act requirements.
- Better understanding of the lakeshore gradient in ozone concentrations, which could influence how EPA addresses future regional ozone issues.
- Improved knowledge of how emissions influence ozone formation in the region.

It is likely to take several years to fully analyze the field data collected by LMOS 2017.

What does LMOS 2017 involve?

- Ground-based instrumentation at two locations: Sheboygan, Wisconsin and Zion, Illinois. This includes instruments to study meteorology and chemistry using both remote sensing and direct measurements.
- Instrumented NASA aircraft conducting remote sensing of pollutants along the lakeshore.
- Instrumented small aircraft conducting direct pollutant measurements along the lakeshore.
- NOAA ship taking direct and remote sensing measurements on Lake Michigan.
- EPA Region 5 mobile sampling van measuring lakeshore-inland ozone concentration gradients.
- Additional ground-based instruments to be collocated at several other shoreline locations.
- Air quality and meteorology numerical forecasts providing flight planning guidance and in-field evaluation of model prediction skill.

What institutions are involved in LMOS 2017?

- Researcher institutions: NOAA, NASA, U.S. EPA, University of Wisconsin, University of Iowa, University of Minnesota, University of Northern Iowa, University of Maryland Baltimore County, Scientific Aviation.
- Air quality management agencies: Lake Michigan Air Directors Consortium (LADCO), Wisconsin DNR, Illinois EPA, Indiana DEM.

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Who is funding LMOS 2017?

- This project is a collaborative effort, with institutions combining resources to help address a common problem identified by air quality managers.
- Funding sources (excluding federal civil servant salary) are listed in decreasing order of funding.
    - NASA
    - The National Science Foundation
    - U.S. EPA's Office of Research and Development (and Region 5)
    - NOAA
    - The Electric Power Research Institute
    - LADCO

Where can I learn more:

- The website for the project: https://www-air.larc.nasa.gov/missions/lmos/index.html
- An open house in Sheboygan during the afternoon of Saturday, June 17.

Who can I contact for more information?

- For questions about the research itself:

    Dr. R. Bradley Pierce
    NOAA National Environmental Satellite, Data, and Information Service
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- For questions about how air quality management agencies may use the research:

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Additional contacts:

- For questions about the NASA aircraft and sensors used in the study:

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- For questions about the National Science Foundation funded atmospheric chemistry measurements at Zion, Illinois:

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- For questions about the meteorological and air quality measurements in Sheboygan:

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- For questions about the ship-based component of the study:

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- For questions about the Electric Power Research Institute's efforts to understand ozone formation and transport in the region:

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- For questions about air quality and meteorology numerical modeling for LMOS 2017:

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