

Opportunity Title: Understanding the Role of Monoterpenes in Aerosol and New Particle Formation

Opportunity Reference Code: EPA-ORD-NERL-CED-2018-01

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional references

All documents must be in English or include an official English translation.

If you have questions, send an email to EPArpp@orau.org. Please include the reference code for this opportunity in your email.

Description A postgraduate research opportunity is currently available at the U.S. Environmental Protection Agency's (EPA) Office of Research and Development/National Exposure Research Laboratory (NERL). The appointment will be served with the Computational Exposure Division (CED) in Research Triangle Park, NC.

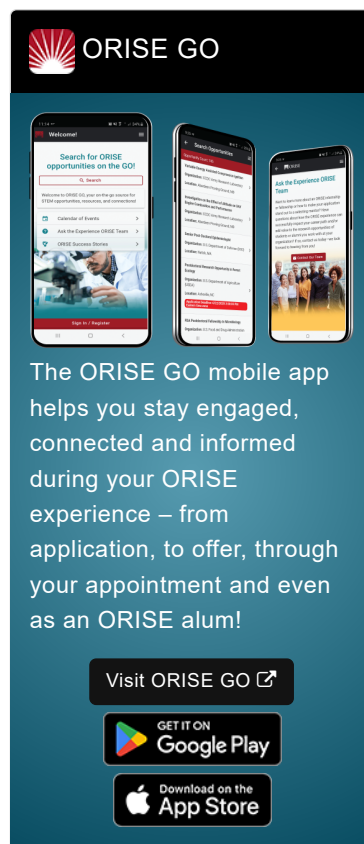
EPA's Computational Exposure Division develops the state-of-the-science Community Multiscale Air Quality (CMAQ) model (<https://www.epa.gov/cmaq>). Algorithms to describe aerosol formation in the ambient atmosphere are developed based on theory and observations and tested against data obtained in the field. The process of developing these algorithms involves literature review, data analysis, and/or box modeling.

In the southeastern United States, oxidation products of monoterpenes are likely the dominant source of organic aerosol (Xu et al., 2018). Monoterpene oxidation leads to rapid formation of low volatility compounds that facilitate not only aerosol mass formation, but new particle formation. This research project will involve collaborating with a team of EPA scientists. The research participant will be involved in the development of scientific hypotheses and in data analysis to investigate monoterpene oxidation on a molecular level. The research participant will also develop an understanding of how monoterpenes interacts with other aerosol systems that are often co-located (e.g. isoprene). This investigation will inform the next generation of secondary organic aerosol and new particle formation algorithms in the CMAQ model. Techniques employed may include box modeling, regional chemical transport modeling, and/or the interpretation of field and laboratory data.

This program, administered by ORAU through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education, was established through an interagency agreement between DOE and EPA.


The appointment is full time for one year and may be renewed upon recommendation of EPA and contingent on the availability of funds. The


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participant will receive a monthly stipend. Funding may be made available to reimburse the participant's travel expenses to present the results of his/her research at scientific conferences. No funding will be made available to cover travel costs for pre-appointment visits, relocation costs, tuition and fees, or participant's health insurance. The participant must show proof of health and medical insurance. **The participant does not become an EPA employee.**

The mentors for this project are Havala Pye (pye.havala@epa.gov) and Ben Murphy (Murphy.Benjamin@epa.gov). The desired start date is March 12, 2018.

Qualifications Applicants must have received a bachelor's, master's or doctoral degree in earth and geosciences, engineering, environmental and marine sciences, life sciences, mathematics and statistics, physical sciences, physics, computer science, or a related field within five years of the desired starting date. Graduate students may also apply. Proof of enrollment will be required each semester. Familiarity with chemical transport modeling, smog chamber experiments, and/or field observations of aerosol processes will enhance the research experience

- Eligibility Requirements**
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree received within the last 60 month(s).
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#))
 - **Communications and Graphics Design** ([1](#))
 - **Computer, Information, and Data Sciences** ([16](#))
 - **Earth and Geosciences** ([21](#))
 - **Engineering** ([27](#))
 - **Environmental and Marine Sciences** ([14](#))
 - **Life Health and Medical Sciences** ([45](#))
 - **Mathematics and Statistics** ([10](#))
 - **Physics** ([16](#))
 - **Social and Behavioral Sciences** ([1](#))