

4 February 2020

## **Lead Mentor for Ice-Nucleating Particle Analysis**

The U.S. Department of Energy (DOE) Atmospheric Radiation Measurement (ARM) user facility ([www.arm.gov](http://www.arm.gov)) is seeking an instrument lead mentor (technical lead) for the collection and processing of aerosol filter samples to obtain distributions of ice-nucleating particles (INPs) at ARM observatories.

ARM operates a network of atmospheric observatories that provide measurements supporting atmospheric research. For some time, ARM has supported the collection and analysis of aerosol particles to obtain INP number distributions as a function of temperature in conjunction with ARM field campaigns. Because INP properties are needed so often in conjunction with ARM field measurements, going forward, ARM seeks to collect and process aerosol particles using a more coordinated approach.

The purpose for this activity is to characterize the distribution of INPs at each ARM observatory unless it is determined that such measurements are not necessary to advance the science goals for a particular location. It is anticipated that samples will be obtained and processed for most ARM Mobile Facility deployments and at ARM fixed-location sites on a rotating basis as funding allows. The baseline target for this activity is to collect aerosol filter samples from two ARM observatory locations each year from ground-based and/or aerial-based impactors. Aerial collection could be from tethered balloon systems (TBS), piloted aircraft, or unmanned aerial systems, though in the near term, only collection from TBS will be conducted. ARM already has a set of Sioutas cascade impactors for use on TBS, and they are being used for aerosol sampling for composition analysis. It is expected that at least initially, these impactors will be used for TBS INP sampling.

We are seeking a mentor for these INP measurements who will:

- provide technical oversight for media preparation and the collection of the INP samples
- provide INP distributions through offline analyses of field-collected filter samples
- deliver the data from these analyses to the ARM Data Center
- manage the physical storage of the samples for possible additional follow-on analysis by the mentor or by a third party.

Responsibilities will also include training for on-site staff for activities associated with sample collection. In addition to submitting data to the ARM Data Center, the INP mentor will be expected to follow standard ARM processes for activities such as change management and documentation of data quality issues.

To apply for this position, prospective candidates should provide a technical proposal for how they will carry out the functions described above and an accompanying cost proposal. Proposals should also include a description of appropriate experience and a CV. For the purpose of the proposal, candidates should assume that ARM will provide the sampling devices; however, the cost proposal should include costs associated with preparing filter media and delivering

4 February 2020

prepared filter media to the ARM sites, shipping the samples from the ARM site to the mentor's institution, and any consumables.

In their proposals, candidates should consider two scenarios: one with 50 filters to be collected at each of two locations—one in the continental United States (assume ARM's Southern Great Plains observatory) and one international location (assume ARM's Eastern North Atlantic observatory)—and one with double that number collected to account for possible intensive operations. Candidates should further assume that samples will be stored at the ARM site in a cold-storage unit provided by ARM and will be shipped back to the mentor's home institution at 3-month intervals.

Candidates should email their applications to ARM Instrument Operations Manager Adam Theisen ([atheisen@anl.gov](mailto:atheisen@anl.gov)) by March 2, 2020.