

Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Characterizing Pollutant Deposition to Rocky Mountain NP
Discipline: Natural
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 8/1/2007-7/31/2008
Funding Amount: \$43,508

Investigators and Agency Representative:

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Project Abstract: The NPS-Air Resources Division will work with Colorado State and Aerosol Dynamics Inc. to develop the following: (1) A new sampling approach, based on the Met One Instruments, Inc. SASS sampler cartridge, will be designed and tested to permit daily measurement of key PM_{2.5} ions and trace gases by the Clean Air Status and Trends Network (CASTNet) program, (2) The modified sampler cartridge design will include extractable denuders for collection of gas phase nitric acid (HNO₃) and ammonia (NH₃), (3) Particle loss information and gas (HNO₃ and NH₃) collection efficiencies for the new denuders will be determined, and (4) The modified sampling system will be performance tested by field intercomparison with URG denuder/filter-pack sampler. Species to be compared will include PM_{2.5} nitrate, sulfate, and ammonium, and gaseous nitric acid and ammonia. This refinement of the sampler design will allow for better estimates of dry deposition at NPS units.

Outcomes with Completion Dates:

1. August - October 2007: Denuder design and laboratory testing
2. November - December 2007: Incorporation of modified cartridge into SASS unit
3. January - February 2008: Sampler intercomparison
4. March - April 2008: Analysis of samples from sampler intercomparison
5. May 2008: Data analysis
6. June - July 2008: Preparation and delivery of project deliverables

Deliverables include:

1. A new SASS sampler cartridge design will be provided, including extractable denuders for collection of nitric acid and ammonia
2. Particle loss information and gas (HNO₃ and NH₃) collection efficiencies for the new denuders will be provided.
3. Results of a sampler intercomparison with a URG denuder/filter-pack sampler will be provided. Species to be compared will include PM_{2.5} nitrate, sulfate, and ammonium, and gaseous nitric acid and ammonia.

Keywords: Colorado State University, NPS-Air Resources Division, air sampler, CASTNet, dry deposition, nitric acid, ammonia, particulate matter

For Administrative Use Only:

Date Annual Report Received:
Date Final Report Received:
Publications, etc. on file: