Is There Something in the Air?

Air Quality Monitoring at Acadia National Park

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Introduction

Acadia National Park (ANP) periodically experiences high concentrations of a variety of air pollutants, primarily as a result of long-range transport by prevailing winds. Located along the mid-coast of Maine, the park is downwind from large urban and industrial areas in states to the south and west.

The National Park Service (NPS) has established a comprehensive Air Resource Management program at ANP, a Class I area under the Clean Air Act (CAA), to better assess air pollution impacts and protect air quality related resources.

The air monitoring program at ANP, which began in the early 1980s, is conducted in cooperation with state and federal agencies. Core program elements include long-term monitoring for gaseous pollutants (such as ozone, sulfur dioxide, nitrogen oxides), volatile organic compounds (VOC's), fine particulates, visibility, mercury deposition, and acid precipitation. In addition, there is an ongoing effort to determine the ecological effects of selected air pollutants on park resources.

Ozone Monitoring

• Operated in cooperation with Maine Department of Environmental Protection (DEP)
• Monitoring began in early 1980s
• Data collected continuously
• Data informs regulatory, ecological, and health uses
• Acadia NP has Air Quality Health Advisory program

Visibility Monitoring

• Interagency Monitoring of Protected Visual Environments (IMPROVE)
• Monitors levels and types of particulates in the air
• Determines the effects of these particulates on visibility conditions.

Visibility fact:
Visibility has been improving at Acadia on both clear and hazy days over the past 20 years!

Atmospheric Deposition

Wet deposition monitoring
• Operated in cooperation with Maine DEP
• National Atmospheric Deposition Program (NADP)
• National Trends Network (NTN) collects acid rain data since early 1980s
  • NTN data: pH, specific conductance, major anions and cations
  • Mercury Deposition Network (MDN) collects mercury data since 1995
  • Samples collected weekly

Dry deposition monitoring
• EPA Clean Air Status and Trends Network (CASTNET) captures dry components of atmospheric deposition
  • Sampler runs continuously
  • Acadia data record begins in 1998
  • Samples (filters) collected weekly

Meteorological Monitoring

• Operated in cooperation with Maine DEP
• Data collected continuously
• Data helps track air masses, aids in development of air quality forecasts
• Data record begins in early 1980s

Meteorology fact:
The wind transports polluted air masses to Acadia from large urban and industrial areas in the states to the south and west.

Air Pollution fact:
Natural and scenic resources in Acadia National Park are susceptible to the harmful effects of air pollution. Sulfur, nitrogen, mercury, ozone, and fine particles impact natural resources including surface water, wildlife, and vegetation, and scenic resources such as visibility.

Visibility webcam and website
• Combines current image (updated every 15 minutes) with air quality and meteorological data
• Site contains links to educational information about air quality
  • http://nature.nps.gov/an/npWebCams/parks/acadcam/acadcam.cfm

Deposition fact:
Precipitation pH is on the rise in Acadia!