

Northern Colorado Plateau Network

Monitoring Brief

National Park Service
U.S. Department of the Interior

Intermountain Region
Inventory & Monitoring Program



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Air Quality Monitoring

Importance

Both the Clean Air Act and the National Park Service (NPS) Organic Act protect air resources in national parks. Understanding changes in air quality can aid in interpreting changes in other monitored vital signs. The Northern Colorado Plateau Network (NCPN) has identified several components of air quality as high-priority vital signs for monitoring. Over the past three decades, the NPS has developed several internal and cooperative programs for monitoring various measures of air quality. These programs are currently monitoring air quality at five NCPN parks (see table). The NCPN will acquire, archive, and analyze data from existing stations, and report on data specific to park units.

Long-term Monitoring

NCPN air quality will be monitored using index sites. Most field collection of air quality samples and data is automated. Field operations consist of weekly visits for inspection, routine equipment maintenance, and sample collection by park staff, and semi-annual to annual equipment maintenance by program specialists. In addition, data are acquired from the web-based program archives of four ongoing air quality monitoring programs: the Clean Air Status and Trends Network (CASTNET), the National Atmospheric Deposition Program (NADP), the National Park Service–Air Resources Division continuous ozone monitoring program, and the Interagency Monitoring of Protected Visual Environments (IMPROVE) Program.

Preliminary objectives for air quality monitoring are:

1. To determine the status and trends in concentrations of visibility-reducing pollutants at select NCPN parks;
2. To determine the status and trends in ozone concentration at select NCPN parks.



NADP air quality site at Repeater Hill, Bryce Canyon National Park.

- a. When identified thresholds are exceeded, to determine the seasonal change (e.g., foliar damage resulting from ozone pollution) in ozone-sensitive vegetation species;
3. To determine the status and trends in concentrations of nitrogen- and sulphur-containing, and other selected ions from wet deposition at select NCPN parks; and
 4. To determine the status and trends in dry-deposition chemistry at select NCPN parks.

Management Applications

Information gathered from this protocol will:

- Support evaluation of compliance with legislative requirements of the Clean Air Act and Regional Haze Guidelines; and
- Facilitate interpretation of other NCPN vital signs, such as vegetation and water quality measurements.

Contact

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Network park units where air quality will be monitored

Black Canyon of the Gunnison National Park
Bryce Canyon National Park
Canyonlands National Park
Capitol Reef National Park
Zion National Park

Air quality monitoring stations in NCPN parks.

Program	No. of stations	No. of parks
Interagency Monitoring of Protected Visual Environments (IMPROVE)	4	4
National Atmospheric Deposition Program (NADP)	2	2
Clean Air Status and Trends Network (CASTNET)	1	1

Internet: <http://science.nature.nps.gov/im/units/ncpn/index.cfm>

Intranet: <http://www1.nrintra.nps.gov/im/units/ncpn/>