NETWORK NEWS

Watercraft emission study performed at Glen Canyon NRA

Personal watercraft (PWC), like Jet Skis and similar products, are becoming increasingly common in park units where traditional motor boat use is allowed. PWCs impact park resources differently than traditional watercraft, and regulations and policies have not yet been developed to adequately address these issues. Although most PWCs direct their exhaust into the water, air quality is still an issue that must be considered and managed.

Researchers at the Glen Canyon National Recreation Area, Nevada, conducted studies this fall to help answer not only the air quality issue, but to assess water quality and noise issues as well. John Ray from the NPS ARD and Mitch Walker from Air Resource Specialists, Inc. made air quality measurements in the Hall's Crossing area of Glen Canyon, Utah. The studies were conducted over the busy Labor Day weekend when PWC use was high. The collected data will be reduced, analyzed, and reported within the next several months. Specific measurements that were taken included ozone, sulfur dioxide, carbon monoxide, nitrogen oxides, meteorology, fine particles, and volatile organic compounds sampling.

ARS awarded 5-year contract with ARD

On August 1, the NPS ARD awarded the five-year Gaseous Pollutant Monitoring Program contract to Air Resource Specialists, Inc. (ARS). ARS will continue to provide twice-annual site servicing, operator training, and data collection. Station operators may contact ARS anytime at:

Telephone: 1-800/344-5434 (Mountain Time)
Fax: 970/484-3423
E-mail: info@air-resource.com

Voicemail is available after regular business hours.

Poker Flat joins NPS monitoring network

The Poker Flat monitoring site, located about 100 miles north of Denali National Park, Alaska, has been added to the joint NPS-CASTNet monitoring network. The station has monitored air quality for the past three years through a grant from the National Park Foundation. As that funding ends, the NPS ARD and EPA will jointly fund the station.

The site is equipped with a CASTNet filter pack and meteorological sensors. It is the only site currently in the NPS ARD network that is remotely operated. Since it doesn't have a direct telephone line, the site operator exchanges data storage modules weekly, downloads the data to his desktop computer, and e-mails the data from his office to the IMC.

Air quality monitoring station at Poker Flat, Alaska.

What's inside:

STATION OPERATOR FOCUS

Mary Sandmann experiences all that Rocky Mountain National Park offers

Rocky Mountain National Park, in the heart of Colorado, has much to offer, including scenic mountain vistas and diverse wildlife and vegetation. Mary Sandmann, Rocky Mountain's ambient air quality station operator, likes to experience all that the park offers.

Mary works for the National Park Service as a part-time Biological Science Technician. She is primarily responsible for the NPS gaseous pollutant monitoring and IMPROVE visibility monitoring stations, but she also lends a hand to other park studies. These other studies usually occur during the summer season, and include ultraviolet (UV) research and vegetation studies. "One vegetation study we participated in a few years ago was the Elk Project," says Mary, "it focused on how elk and elk herds impact vegetation in the park."

Mary has worked as a paid park employee at Rocky Mountain since 1994. Before that she worked as a volunteer responsible for a variety of tasks, including numerous wildlife studies concerning bear and bighorn sheep.

Mary Sandmann services the CASTNet dry deposition filter pack sampler at Rocky Mountain National Park. Estes Cone is visible in the background.

Mary has a B.S. degree in nursing from Florida State University and a B.A. degree in psychology/biology from Bowling Green State University, Ohio. In addition to her part-time work at Rocky Mountain NP, she works part-time as a registered nurse in a Denver hospital operating room.

While traveling the 70 miles from Denver to her home in Estes Park, home of Rocky Mountain National Park, Mary's cat takes care of the homestead. In the meantime, Mary is able to view a variety of scenery, from urban to the pristine environments. "I love to hike, travel, and watch the wildlife here," says Mary -- all of which are easily done in the Rocky Mountains.

DATA COLLECTION SUMMARY

Data collection statistics for January through June 2001 are listed below.

- Sites with final validation of ambient air quality parameter collection greater than 90% include:

Acadia	Joshua Tree
Denali	Mammoth Cave
Everglades	Mount Rainier
Grand Canyon	North Cascades
Great Smoky Mtns. (Cades Cove)	Pinnacles
	Rocky Mountain
Great Smoky Mtns. (Clingman's Dome)	Sequoia-Kings Canyon (Ash Mountain)
Great Smoky Mtns. (Cove Mountain)	Sequoia-Kings Canyon (Lower Kaweah)
Great Smoky Mtns. (Look Rock)	Theodore Roosevelt
Hawaii Volcanoes (Thurston Lava Tubes)	Yellowstone

- Sites with final validation of ambient air quality parameter collection greater than 80% include:

Canyonlands	Lassen Volcanic
Chiricahua	Mesa Verde
Craters of the Moon	Olympic
Death Valley	Shenandoah
Glacier	Virgin Islands
Great Basin	Voyageurs
Hawaii Volcanoes (Visitor's Center)	Yosemite

- The entire network achieved an average of 89.5% final validation of ambient air quality parameters.

OPERATOR'S TOOLBOX
8-day stackplots record operation when you're not there

Stackplots can help you identify problems or anomalies that may have occurred at your station since your last station visit. One stackplot summarizes all data collected at a monitoring site, and easily fits on one sheet of paper. Identifying and rectifying problems early may help reduce data loss and instrument down-time.

Stackplots should be viewed on the DataView laptop and/or printed before you perform any station checks. The plots are graphical representations of all gaseous and meteorological parameters collected at your air quality site over a period of time, and are generated from the database of hourly averages for all parameters at your site. Several plots are stacked vertically on the same time scale for simultaneous viewing.

The example below shows an 8-day stackplot with the 16 air quality parameters commonly collected at monitoring network stations. Separate scales are used on the left and right axes to get all the parameters plotted.

The best way to initiate your weekly station visit is to:

- Logon to DataView.

- Make a log entry of your purpose (for example, "DSmith performing weekly station check").

- Make a comment about the weather.

- View and dismiss any alarms logged since your last visit.

- Choose **StackPlots** from the Data Plots pull-down menu.

Three stackplot time scales are available: 1-day, 8-day, or 15-day. Click on the **8-day** duration and within a minute DataView will display a list of dates. Choosing the 8th day listed will create a stackplot that incorporates your last station visit. Once the plot is displayed you should print it and review it. If you find discrepancies with the plot, refer to the troubleshooting guide on Page 4. This guide lists the normal limits allowed for each parameter collected at air quality stations. You may want to keep Pages 3 and 4 of this newsletter in your shelter as a handy reference guide.

A stackplot displays all parameters collected at a site, for the time period the user enters (1-day, 8-day, or 15-day). The plot can be quickly viewed for missing or out-of-range data.
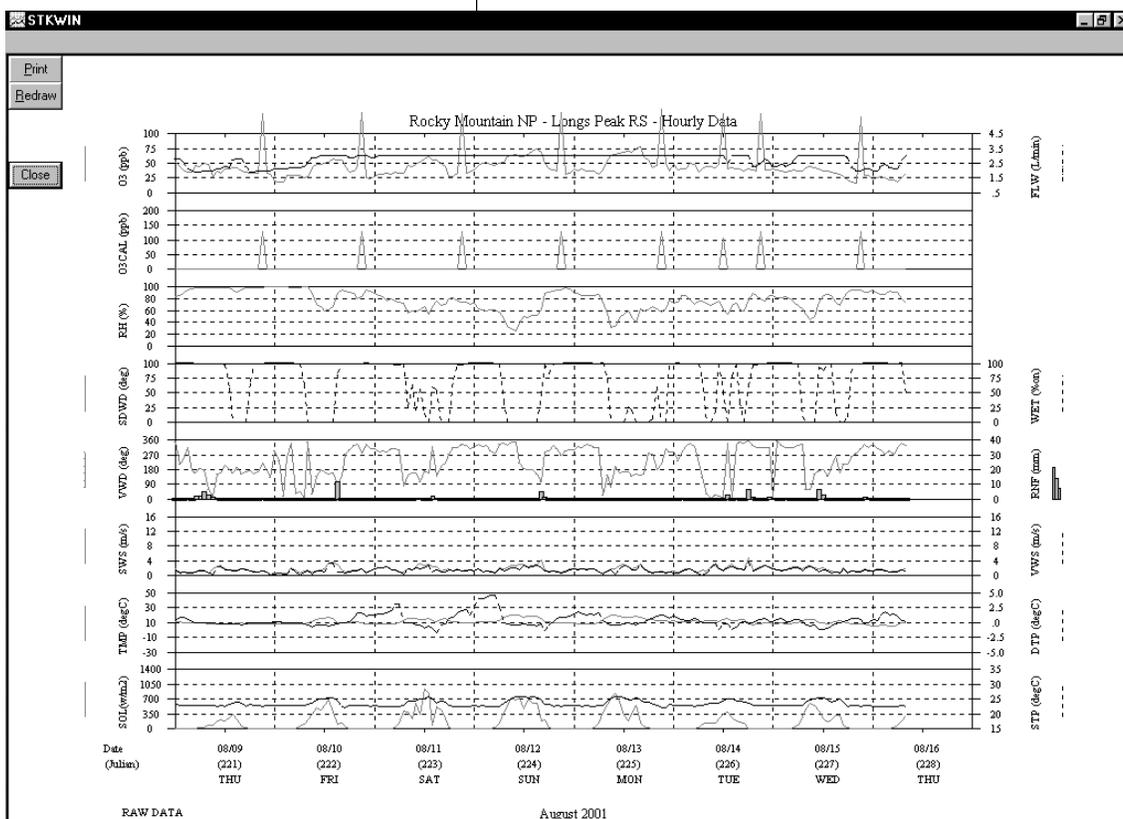
TROUBLESHOOTING GUIDE
Normal air quality parameter limits

The chart below lists the expected values and abnormal conditions for the measured parameters and primary support systems. In all cases you should contact ARS if you have a question about any measurement or procedure. If possible, call ARS from your monitoring station at 1-800/344-5434.

	Normal Condition	Abnormal Condition	Check
Wind Speed	Wind speed value reflects current observed conditions.	Wind speed value steady at 0 or 24 m/s.	Signal conditioning card in Operate? Cups/prop turning?
Wind Direction	Wind direction value reflects current observed conditions.	Wind direction value steady at 0or 360°.	Signal conditioning card in Operate? Vane turning with the wind?
Temperature	Temperature value reflects current observed conditions.	Temperature value steady at -30° or 50°C.	Signal conditioning card in Operate?
Delta Temperature	Delta temperature variable day to night. Negative values on sunny days.	Delta temperature value steady at 5° or -5°C.	Signal conditioning card in Operate? Aspirator fan operating?
Relative Humidity	RH values reflects current observed conditions.	Stuck at 100% or above.	Call ARS.
Wetness	100% during dew or precipitation events. 0% when dry.	Does not respond to moisture.	Wet sensor, call ARS.
Solar Radiation	Upscale values on sunny days. Zero at night.	Value stuck at 0 or 1396.	Signal conditioning card in Operate? Reseat card, exercise selector switch.
Rainfall	Value increments during rain or snowfall.	No value during precipitation events.	10 tip check, does heater melt snow?
Flow	Datalogger valueset at 3.00 lpm or 1.50 lpm may be lower during extended periods of high humidity.	Variable datalogger value or no flow.	Check pump for proper operation. Replace filter pack and recheck values.
Ozone Analyzer	Increasing ozone concentrations with increasing solar radiation. Precision, span, and zero checks are in good agreement with calibrator.	No change in ozone value, poor precision, span and zero agreement.	Check/replace ozone filter. Check all plumbing fittings for tightness.
Datalogger	All active channels reading within expected ranges.	Low or abnormal value.	Check input wiring to datalogger. Power to meteorological mainframe.
DataView Laptop	On and operating.	Locked up.	Check power status. Turn it OFF and then ON.
Printer	Online and operational.	Does not print.	Check the AB switch and verify it is set to the appropriate device; datalogger or laptop.
Telephone	Operational.	Difficulty calling in or out.	Reset the modem and ComSwitch box.

Communications problems

ARS automatically polls stations via telephone every night. Dataloggers are polled for hourly averaged data and DataView laptops are polled for log notes, checklists, and multipoints.

If polling at a station is unsuccessful after several retries, ARS will attempt to call the station manually. Successful connection and communication depends on a working telephone line, synchronized baud rates on the modem and terminal, and numerous other settings.

Shared access to the datalogger, DataView, and the telephone also requires a telephone line-sharing device, the CommSwitch 7500. This unit receives the incoming call and routes it to the intended device depending on the tone code received during the first ring. If this unit malfunctions, communication is often impossible.

When contacted by ARS to troubleshoot a communications problem, you will first be directed to test the telephone service and CommSwitch 7500:

- Can you make an outgoing call? If you can, this is a good sign.

- No dial tone? The problem is likely with the CommSwitch 7500. Reset the CommSwitch by unplugging the power on the back of the unit. Wait 1 minute, then plug it back in.

- Still no dial tone? Test the telephone line at the point where the telephone service enters the building. If there is still no dial tone, contact your local telephone company or your park communications group.

When these initial troubleshooting procedures fail to isolate and correct a communication problem, a baud rate or setting mismatch could be the cause. These problems will be worked out on a case-by-case basis.

Name that park!   (Answer on Page 6)

Rocky Mountain NP receives CASTNet station for collocated quality assurance monitoring

EPA installed a Clean Air Status and Trends Network (CASTNet) monitoring station next to the Rocky Mountain National Park air quality station this past July. EPA operates 52 monitoring stations and NPS operates 27 stations under the CASTNet program.

The NPS and CASTNet stations at Rocky Mountain National Park make simultaneous, duplicate measurements of all the typical parameters including wind, temperature, ozone, and dry deposition, with independent sheltering, sensors, and dataloggers. The collected data will help quantify any measurement or methodology discrepancies between the two networks.

Validated data from the stations will be compared and ideally, very little difference will be realized. Any difference found, however, will initiate an investigation into the methodology or technique. The difference in data will define the precision between the two networks and help data users better interpret the data.

The new CASTNet air quality monitoring shelter sits adjacent to the NPS ARD monitoring shelter at Rocky Mountain National Park, Colorado. Collocated, quality assurance measurements will help researchers determine the precision of collected data.

NPS data now available on the WWW

The NPS Gaseous Pollutant Monitoring Program now provides its data to the public through the World Wide Web. The hourly ozone and meteorological data are available through a query feature at http://www2.nature.nps.gov/ard/gas/netdata1.htm.

Interested parties need only enter the dates, site, and parameters of interest. The validated data are available in HTML (for onscreen viewing) or ASCII (saves as a .csv file) formats. Downloaded .csv files are compatible with Microsoft Excel.

Big Bend NP one of growing trend to display conditions on WWW

The National Park Service operates several real-time cameras that display air quality and visibility conditions on the World Wide Web. Big Bend National Park has one of the systems.

The Web page displays a digital camera image and visibility, air quality, and meteorology data collected in the park. The image is updated every 15 minutes and the data every hour.

Big Bend is part of an expanding Web network hosted by the NPS Air Resources Division that also includes Acadia, Canyonlands, Glacier, Great Smoky Mountains, and Yosemite National Parks. Grand Canyon, Joshua Tree, and Mammoth Cave National Parks are expected to have real-time systems operating in the near future. Web pages for each park with a real-time camera system can be found at http://www2.nature.nps.gov/ard/gas/parkCams.htm.

Current View of Sierra del Carmen in Mexico from Big Bend National Park

OZONE
Current 8-hour average ozone concentration (ppb)   35

0   65   *85   **105ppb
Good   Moderate   Unhealthy

* At or above 85ppb for 8 hours, children, the elderly, and people with respiratory problems should reduce outdoor activity.
** At or above 105ppb for 8 hours, all people should reduce outdoor activity.

Today's maximum 8-hour average ozone concentration (ppb)   38
Yesterday's maximum 8-hour average ozone concentration (ppb) 41
Current 1-hour average ozone concentration (ppb)   36
Today's maximum 1-hour average ozone concentration   40
Yesterday's maximum 1-hour average ozone concentration   43

METEOROLOGY
Current temperature (F)   73
Relative humidity (%)   56
Current wind speed (mph)   8.4
Current wind direction   S
Precipitation in last hour (inches)   0
Precipitation since midnight (inches)   0

Visual range is less than 71 miles
Last updated: 10/5/2001 11:18 AM CDT

Display archived views of Big Bend NP

Big Bend National Park, Texas, displays a current vista and visibility, air quality, and meteorology conditions on the World Wide Web.

Answer: Canyonlands NP

Sequoia-Kings Canyon NP expands monitoring at Ash Mountain

The Ash Mountain station at Sequoia-Kings Canyon National Park is equipped only with an ozone monitor, and collects these data on a seasonal basis. In early October, the station received meteorology sensors (wind speed, wind direction, air temperature, relative humidity, solar radiation, and rainfall) and will monitor on a year-round basis. The park has two other air quality stations, at Lower Kaweah and Lookout Point.

NPS Gaseous Pollutant Monitoring Program Network
http://www2.nature.nps.gov/ard/gas/

North Cascades NP
Olympic NP
Glacier NP
Mount Rainier NP
Voyageurs NP
Theodore Roosevelt NP
Acadia NP
Yellowstone NP
Craters of the Moon NM
Cape Cod NS
Lassen Volcanic NP
Yosemite NP
Great Basin NP
Rocky Mountain NP
Pinnacles NM
Sequoia-Kings Canyon NP
Canyonlands NP
Shenandoah NP
Death Valley NP
Mesa Verde NP
Mammoth Cave NP
Channel Islands NP
Grand Canyon NP
Great Smoky Mountains NP
Joshua Tree NP
Cowpens NB
Saguaro NP
Congaree Swamp NM
Chiricahua NM
Chamizal NM
Hawaii Volcanoes NP
Big Bend NP
Poker Flat
Denali NP
Everglades NP
Virgin Islands NP