

United States Forest Service Helps Communities with AIRSYS Air Quality Communicator

Customer Overview

The United States Forest Service is responsible for maintaining national forests and grasslands. One of its responsibilities is to monitor air quality during prescribed burns and wildfires. With wildfires burning over 5 million acres and additional millions of acres in controlled burns each year, monitoring air quality is a major task that impacts the health and quality of life of millions of people.



The Need

Therefore, the Forest Service needed one solution that's fully mobile, has national coverage and can monitor and report air quality data in near-real time 7 x 24 wherever it's needed. Also, the system must be able to be programmed to collect data from different sensors that measure many particulates. There were three options: landline, cellular and satellite. Landline systems were out of the question. The key problem with cellular is coverage: there is not one network that covered the whole country, and in wide swaths of the West, there is no coverage at all. A satellite-based system is the only viable option.

The Problem

While metropolitan areas have fixed air monitoring stations to alert and protect residents, small and remote communities often do not have smoke monitors in place to measure air pollution. "Smoke monitoring by the Forest Service during wildfires are not mandated by law. However, the Forest Service does have the responsibility to monitor smoke from our prescribed fires," says Andy Trent, Technology Specialist for Smoke Monitoring for the Forest Service based in Missoula, Montana. "Monitoring during controlled burns is definitely stringently mandated by law and we needed a solution to solve that problem," Andy added. If the particulate count exceeds Federal or local standards prior to or during a burn, the burn must be postponed or stopped and resumed only after the air quality is at an acceptable level. Failure to do so can result in a notice of the violation of air quality.

Customer

United States Forest Service

Industry

Environmental Monitoring

Problem

Smoke and Air Quality Monitoring

AIRSIS Benefits

- Preventing adverse health effects from smoke inhalation and bad air
- Improving quality of life
- Ensuring compliance with environmental regulations
- Preventing citations and fines from non-compliance
- Promoting community goodwill

AIRSIS AQ 2400 Ensures Compliance with Timely Data

AIRSIS Solution

Andy's team analyzed numerous alternatives available and found them to be costly and not customizable to what the Forest Service needed. In the end, the AIRSIS AQ 2400 was found to meet all of the requirements and was deployed in the field starting in 1999. The AQ 2400's data collection and reporting features are customizable to suit the Forest Service's needs. Furthermore, the AQ 2400 can be set to send alerts on preset thresholds such as when a particulate count is beyond an acceptable range.

AQ2400 In Action

With an original purchase of 10 units, USFS quickly realized the benefits of the AQ 2400 and has since added over 30 more. Furthermore, the USFS has recommended the product to other organizations including the EPA and state environmental agencies. Its cache of AQ2400s is now shipped to and deployed wherever they are needed. One good illustration of AQ2400's use is during the Biscuit Fire of August, 2002 that damaged nearly 500,000 acres of the southwest Oregon and northern California coasts. With the fire raging, the high school football team of the coastal town of Brookings, Oregon continued to practice to prepare for the fall season. Since the air quality was variable every day, the Forest Service sent an AQ2400 to the school to measure daily air quality. Representatives of the school worked with the Forest Service to determine whether



it was safe to practice outside or if the players should practice in the gym. Another AIRSIS unit was sent to Gold Beach, just north of Brookings, and was available for the local public to observe air quality and react accordingly.

Other agencies are using the product in a similar way. For example, during the post-Hurricane Katrina clean-up effort in New Orleans, AQ2400s were used to monitor the large amount of debris burning.

Detailed Monitoring Report

Voltage	Date Time (GMT)	ConCRT (mg/m ³)	ConcHR (mg/m ³)
13	12-Jul-2005 07:40	-0.004	0.007
13	13-Jul-2005 08:50	-0.005	0.008
13	13-Jul-2005 07:50	-0.000	-0.000
13	12-Jul-2005 07:40	0.002	-0.007
12	12-Jul-2005 07:40	0.133	0.018
13	05-Jul-2005 14:20	0.006	-0.005
13	12-Jul-2005 07:40	0.047	-0.002
13.69	12-Jul-2005 07:40	0.006	-0.005
13	30-Jun-2005 07:40	0.013	0.002
13	12-Jul-2005 07:40	0.013	0.006