

2B Buzz Summer 2012

2B Technologies invents, designs and manufactures highly accurate and portable air monitoring instruments. Our small, light-weight, low-power instruments are used for atmospheric measurements using balloons, kites, UAVs, research aircraft, and at many remote sites around the world. It is because of customers like you that we can continue doing what we love. This newsletter is our way of saying **THANKS** for your unwavering patronage and support.

2B Buzz will be published quarterly. Each issue will feature a Case Study, written by a customer, highlighting how our monitors are being used in the field. There will also be an article discussing Current Events that relate to the atmosphere and a section dedicated to delivering GO3 Project updates. Intermittently, we will include a Monitoring Tip section as well as an Instrument Review where we will discuss new, upcoming projects. We have some unique story ideas as well, so stay tuned for more fun additions! Enjoy!

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Do you have an outdated Ozone Monitor?

Recycle it with us and receive a \$1,000 credit toward a new Ozone Monitor! [Click here for more info.](#)

CASE STUDY

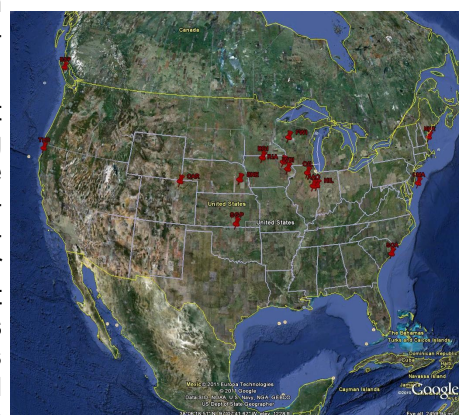
Case Study #1: Aircraft Studies by NOAA/ESRL/GMD

Through collaboration with 2B Technologies, NOAA/ESRL/GMD has successfully completed eight years of recording ozone measurements aloft. Modifying the Model 205 ozone instrument into suitcase packaging has allowed easier transport, and the opportunity to measure ozone profiles via aircraft. With the ability to document and measure Tropospheric Ozone profiles, our sites have provided valuable information to monitor pollution events, background ozone levels, and ozone trends throughout the United States.



humidity and GPS coordinates in addition to ozone by sampling through an inlet line external to the aircraft.

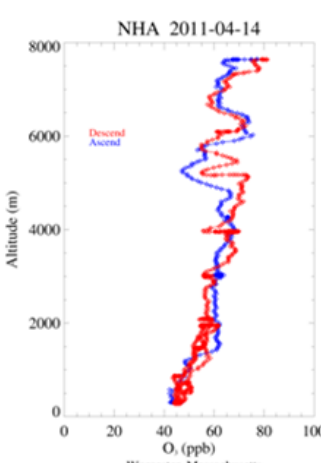
Our post-flight data processing occurs in-house and is later uploaded to the NOAA ftp server where scientist and customers alike can access minute, hour, and hourly-mean data sets with corresponding flight plots. The success of the Tropospheric Ozone Measurement Program has provided and will continue to provide valuable data and information to further the understanding and assessment of ozone pollution throughout the country. NOAA/ESRL/GMD plots and data can be found at <ftp://ftp.cmdl.noaa.gov/ozwv/aircraft> or by visiting the aircraft website at <http://www.esrl.noaa.gov/gmd/ozwv/aircraft/index.html>.



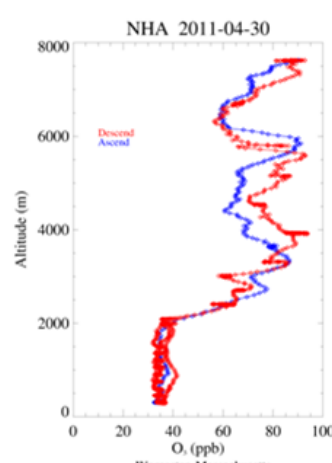
The Ozone and Water Vapor Program at NOAA has a total of 13 aircraft ozone measurement sites using the Model 205 instruments, with measurements being recorded in two-second data with ten-second averaging over the course of a 45-minute flight. Our flights occur on a bi-weekly/monthly basis and measure temperature,

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Aircraft O₃ profile over Worcester, MA on April 14, 2011. Typical Spring vertical profile.



Aircraft O₃ profile over Worcester, MA on April 30, 2011 shows higher O₃ levels aloft.

Air Pollution NEWS

Stressed Out Trees Contribute to Forest Haze

The recent outbreak of mountain pine beetles in US and Canadian forests is causing more than vast, unsightly regions of dead trees. A recent study supported by the National Science Foundation reveals another side-effect of beetle infestations in pine trees – dramatically increased VOC release.

As the mountain pine beetle tries to bore into the bark to lay eggs, the stressed tree releases VOCs as a defense mechanism. Beetle-infested trees are found to release up to 20 times more of these substances than



Pitch oozing out of entrance hole made by beetle

healthy trees. On a large scale, the VOCs from the stressed trees could lead to increased ozone formation causing haze in forests and National Parks.

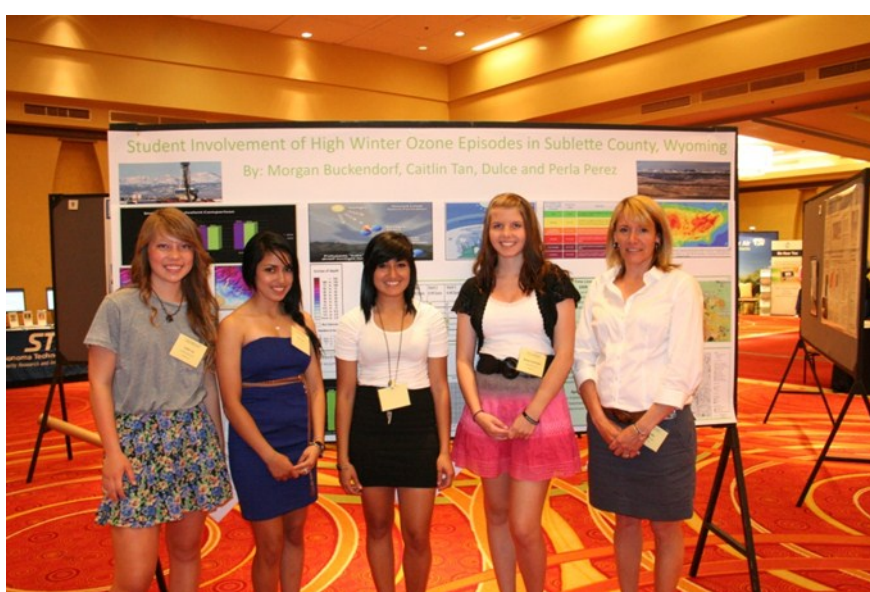
The findings appear in *Environmental Science & Technology*, published by the American Chemical Society. For more information and pictures, visit NSF's press release posted [here](#).

Global Ozone Project

With air pollution and climate change being important global issues, students are eager to participate in the discussion and make meaningful contributions to the science of air pollution. 2B Tech's small, inexpensive ozone monitors and the creation of the Global Ozone (GO3) Project as a 2B outreach program have recently made their involvement possible.

In the GO3 Project, students install ozone and weather monitoring stations at their schools and share their data on Google Earth. There are currently more than 85 schools participating in the project and uploading data in 25 different countries.

GO3 Software automatically uploads the data every 15 minutes and displays it in Google Earth or in an online graphing program at go3project.com. The data have proven to be very accurate, and the EPA's AIRNow program is ingesting all student-collected data for analysis. AIRNow has shown that the additional data reduce model uncertainty and increase the number of people served by accurate pollution forecasts.



Students from Pinedale High School proudly display their poster on wintertime ozone formation at the 2012 EPA National Air Quality Conference

The project provides schools with a full curriculum, activities, technical support, and the GO3 Social Network, very similar to Facebook. The project has also recently added CO₂ and Black Carbon monitoring to address growing student and teacher interest in climate change education and research.

To get involved in the GO3 Project or help a school set up a monitoring station, email go3@go3project.com.