2B Tech

THE 2B BUZZ

Fall 2023 Newsletter

2B Tech Spotlight
Same Team, Different Hats!

We're proud to announce our new management structure at 2B Tech! You will recognize the same familiar faces, now realigned with new responsibilities to bring you even better products and services.

Jessa Ellenburg, well known to many of you as the lead for our outreach and educational efforts, is now our General Manager at 2B Tech. This enables Craig Williford to focus on our product development as our Engineering Manager.

Jessa has a B.S. in Civil Engineering from the University of Colorado, and has been with 2B Tech since 2009. In that time, she's touched the lives of students and citizen-scientists around the world, giving them first-hand experience with air monitoring and sparking their interests in science.

Craig has an even longer history with the company, dating to 2003. Along the way, he's developed the software, firmware, and circuit boards for all of 2B Tech's instruments and has been the brains behind making the instruments perform the kinds of tasks that users need.

Congratulations to both, we think your new hats fit perfectly!

And... speaking of change... watch for our new website launch, coming soon!

Case Study

2B Tech Makes an Appearance on the Today Show!

Our Instruments Help "Ground Truth" the TEMPO Satellite

How can a satellite instrument, orbiting 22,000 miles overhead, tell us what the air pollution levels are at ground level?

Researchers are using several instruments, including 2B Tech's AQSync, POM (Personal Ozone Monitor), and PAM (Personal Air Monitor) to help answer that question. As part of that effort, two researchers gathered ground-truth data (along with curious looks from others!) as they walked the streets of New York City this summer with the very portable POM and PAM in their backpack and long sampling tubes sticking out the tops.

The Today Show's Al Roker caught up with Dr. Audrey Gaudel of CIRES and NOAA, as she gathered ground-truth data using the 2B Tech POM and PAM. You can see Al watching the data come in on the PAM smartphone app, in this segment that aired on 13 September 2023 (click picture to play the 4:50 clip).

The TEMPO satellite instrument was launched in early 2023 to measure ozone, nitrogen dioxide, and other pollutants across North America in one of the most detailed pollution mapping efforts ever undertaken (measurements are hourly, and at the neighborhood scale). The "Sidewalks to Satellites" campaign is a collaboration between NOAA, NASA, and 21 different universities to compare ground-level data in New York City to the TEMPO satellite measurements.

Link to Today Show Video NBC News

2B Tech POM Personal Ozone Monitor

2B Tech PAM Personal Air Monitor

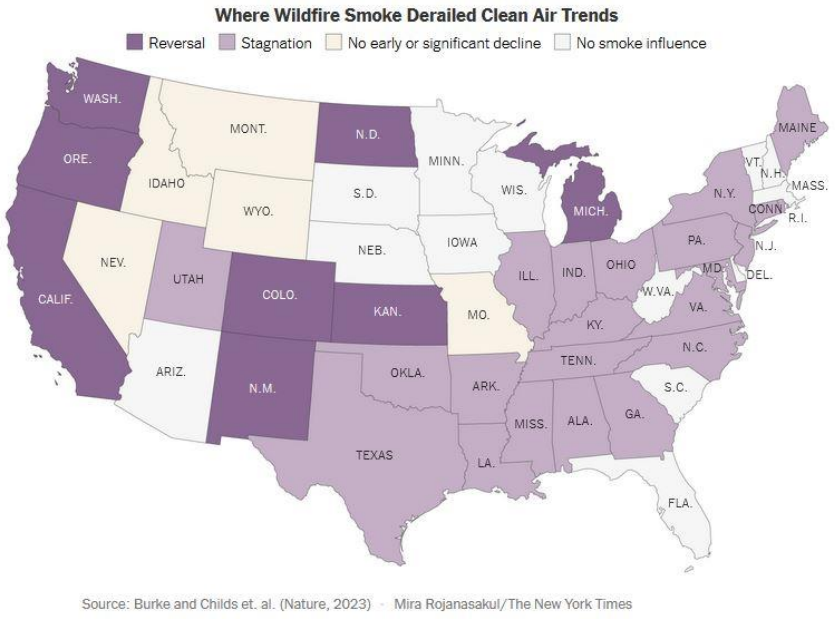
Air Pollution News

Wildfires Are Stalling or Reversing U.S. Air Quality Gains

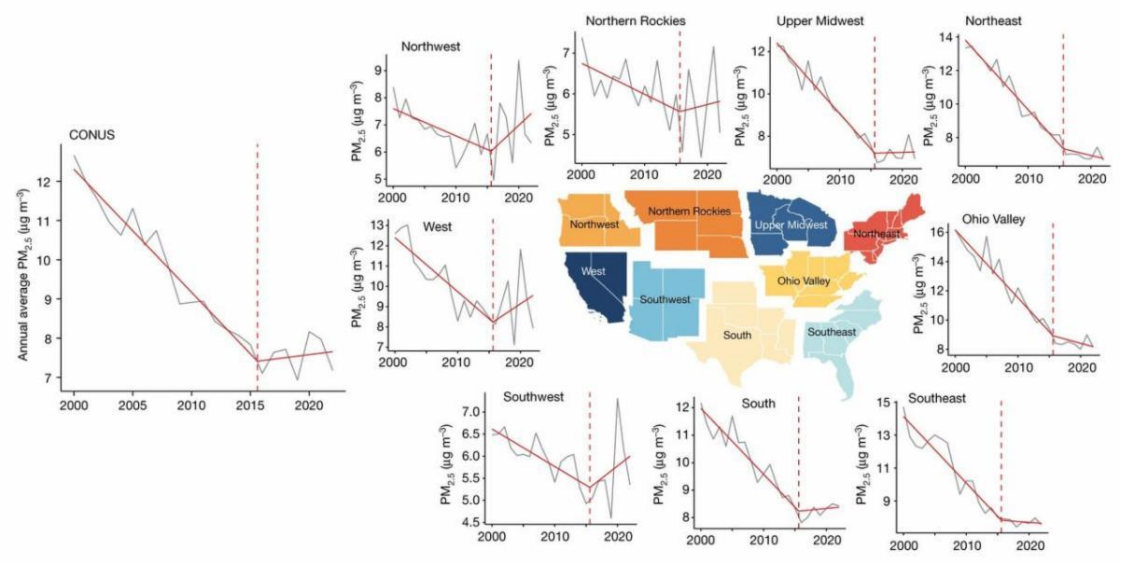
Study Focuses on $PM_{2.5}$ Trends

Our noses, eyes, and lungs tell us that wildfires affect the quality of the air we breathe. But now, a detailed study has quantified the impact of fires on the air quality throughout the continental United States... and the numbers aren't pretty. Looking at data from 2000 to 2022, the study shows that about 25% of the gains made in combating $PM_{2.5}$ fine-particle pollution have been undone across the U.S.

The findings surprised even the researchers. “People have known that it’s becoming a bigger issue in the Western states,” said study coauthor Marissa Childs of Harvard University. “But I was really shocked when we were running some of these estimates and seeing that states all the way to the East Coast were being influenced.”



The researchers used a combination of ground and satellite data to look at the trends in fine particulate matter (PM) with diameters of less than 2.5 micrometers. $PM_{2.5}$ is a regulated pollutant in the U.S. because of its adverse effects on human health and visibility. The data show a break point in about 2016 (see figure below), when downward trends began to stagnate or even reverse in about three-fourths of the states. The most severe effects were in western states, but air quality gains were stalled in a wide swath of states from the southern U.S. to the northeastern states.



It's a thorny problem for air quality managers. (How does one regulate pollution from a wildfire?) And it is perhaps one of the most visible issues at the nexus of climate change and air quality, as a warmer climate leads to drier forests.

Could the graphs above be revealing a tipping point? Unfortunately, the lead author of the study, Marshall Burke of Stanford University, thinks so. As he puts it, “It’s just so clear that, sometime in the last five to 10 years, something’s changed.”

The Contribution of Wildfire to PM2.5 Trends in the USA, M. Burke, M.L. Childs, B. de la Cuesta, M. Qiu, J. Li, C.F. Gould, S. Heft-Neal, and M. Wara, *Nature* (2023), **622**, 761-766.

Link to Nature Article on PM2.5 Trends

Spotlight: Our Distributors

Bringing 2B Tech Products to Customers Worldwide

At 2B Tech, we have long relied on a network of valued distributors to extend our reach globally. Over 30 distributors handle our sales outside of North America, serving customers in more than 25 countries. They account for over 40% of our sales. Well done! And thank you to this group of dedicated distributors!

2B Tech's Hayden Aubermann and Gordon Pierce visit with Joey Hung in October 2023.

Joey Hung, a representative of our Taiwan distributor (Sheng Yi Tech & Analytics Co., Ltd.) recently dropped by our office for a visit. We don't get the opportunity to see our distributors very often, so we were pleased to show Joey our new facility and talk about our latest product innovations with the AQSync and AQLite. We encourage any of our valued partners to stop by if they are traveling our way.

2B Tech Distributors

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