THE 2B BUZZ

Winter 2024 Newsletter

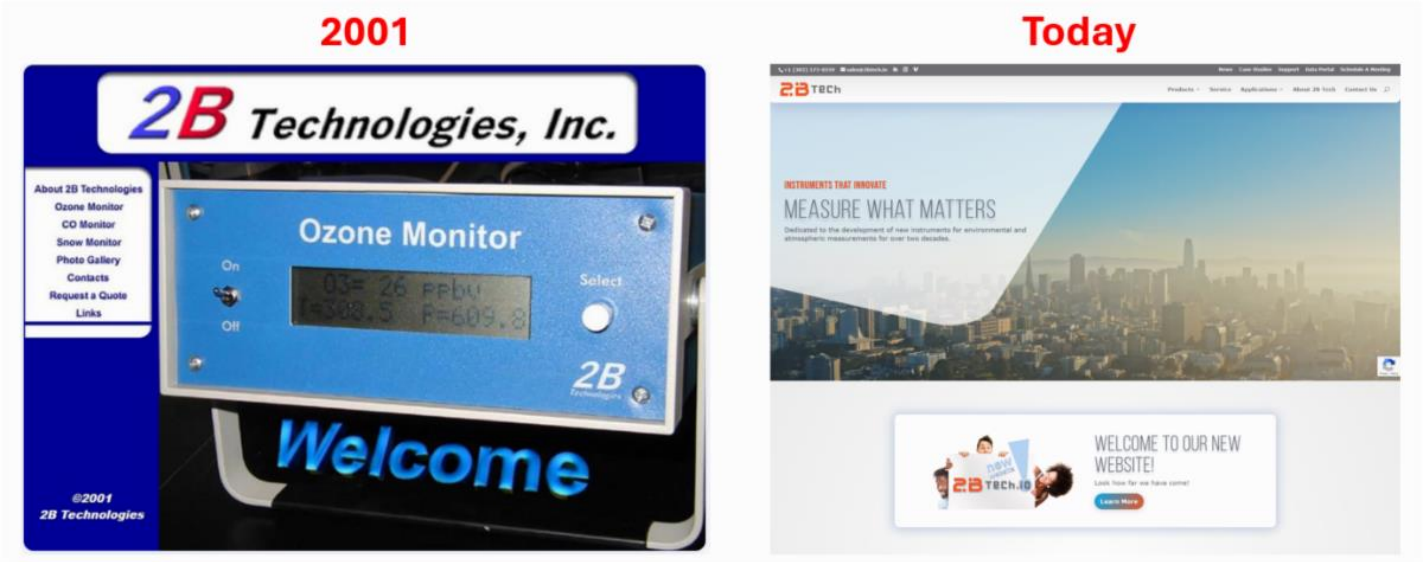
2B Tech Spotlight
We've Launched Our New Website!

If you've visited our website recently, we're sure you noticed some big changes!

The previous "twobtech.com" website URL will now route you to our new website, **2btech.io**.

We have a whole new look in line with our recent rebranding efforts... but more important, we've streamlined the content and updated the layout. You'll find information about each of our products, easy links to our technical support and to request a sales quote, access to our data portal, and examples of how our instruments have been used around the world in research and industry to "Measure What Matters." (And that's only *some* of what's there!)

We hope the changes will enable you--our valued customers--to readily find what you need, along with some interesting tidbits about what's going on in the world of air quality. Let us know what you think!



Case Study

2B Tech's AQSync Extends Air Monitoring to Communities

Data-Sparse Areas Get Needed Information

AQEarth-Atlanta partners Jan-Michael Archer and Gwen Smith (right) are shown with 2B Tech General Manager Jessa Ellenburg (left) and the AQSync Air Monitoring Station they are preparing to install.

Our AQEarth-Atlanta partners were recently featured in an **article** describing their incredible work to assess and address local environmental injustices.

The predominantly Black neighborhoods of northwest Atlanta are co-located with many industrial and transportation-related sources of pollutant emissions, and yet the monitoring of air quality is lacking. Now, thanks to a grant obtained by 2B Tech, the 2B Tech AQSync Air Quality Monitoring Station is providing critical information for community members to understand their levels of exposure to air pollution.

The photo above is of the co-location of the AQSync with the Georgia Environmental Protection Division's reference instruments, for tests demonstrating that the AQSync measurements of ozone and NO_2 are in line with measurements provided by the much more expensive brick-and-mortar monitoring station.

Please check out the newspaper article for a really interesting read on the problems faced by this Atlanta community, and the important role of the AQSync in extending air quality monitoring to areas where information has been lacking.

2B Tech AQSync Air Quality Monitoring Station

Link to Newspaper Article

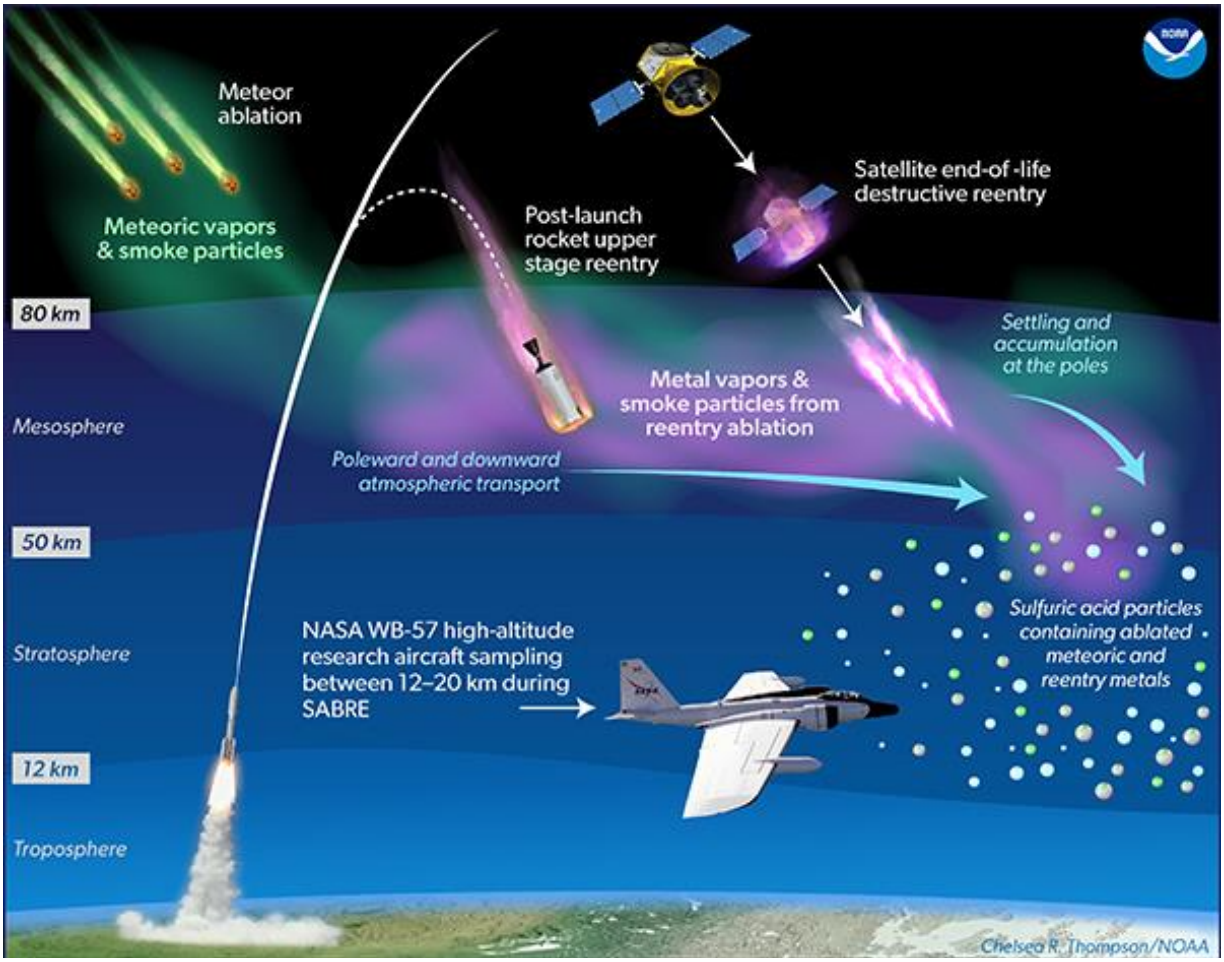
Atmosphere News

Satellite Debris Increasingly Works Its Way into the Air

What Goes Up, Must Come Down

A satellite or rocket launch has always elicited reactions of awe and wonder. Even with the increasing number of launches, that sense of awe will probably never diminish. But now that the satellite numbers are rapidly increasing, so is the awareness that the more-frequent launches, along with the eventual satellite debris that burns up as it descends back toward Earth, are affecting our atmosphere.

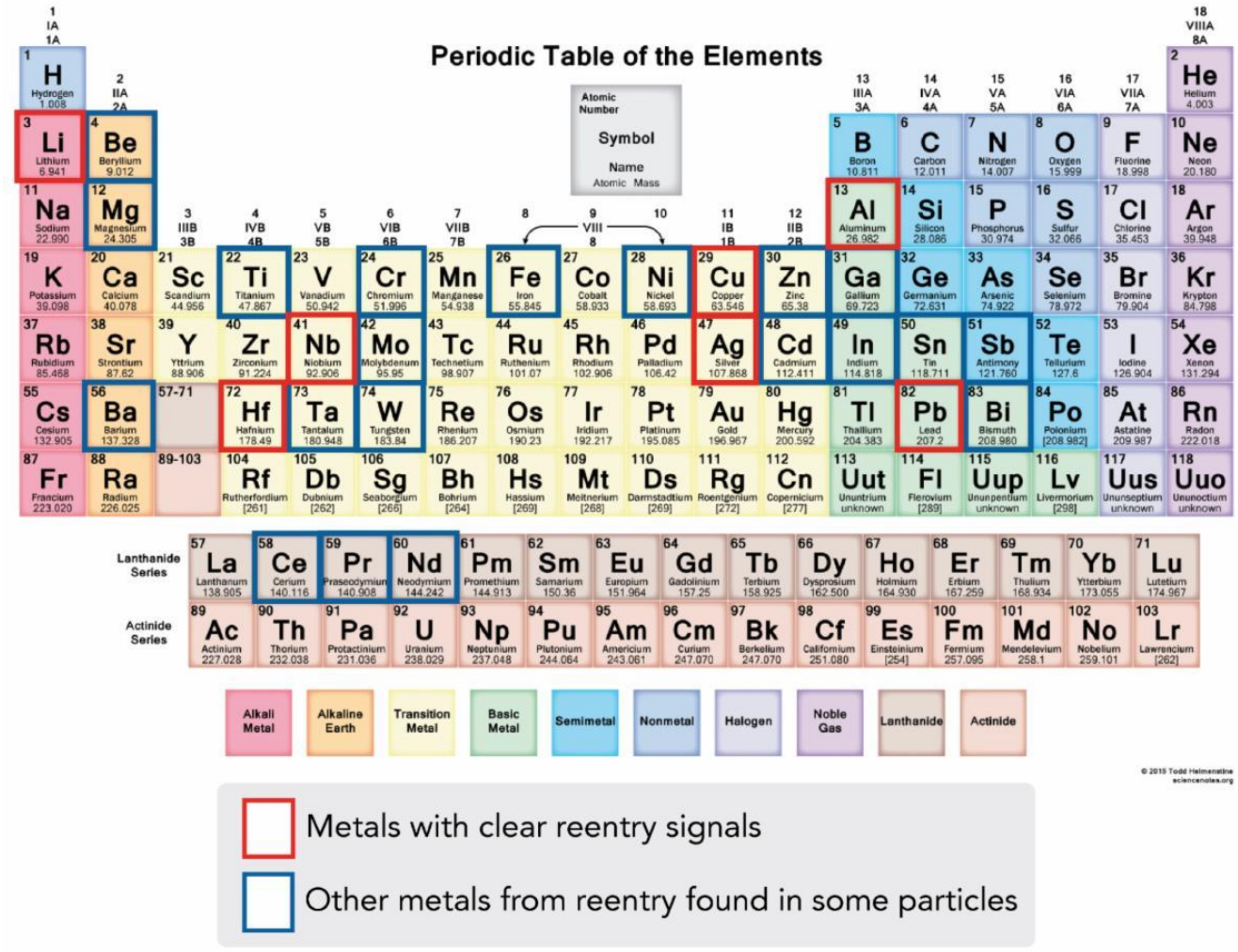
A **new study** published last fall in the *Proceedings of the National Academy of Sciences* looked at the most common type of particles in the stratosphere, using an ultra-sensitive instrument aboard a high-altitude research aircraft to "fingerprint" the particles' chemical composition.



Graphics credit (above and below): Chelsea R. Thompson, NOAA Chemical Sciences Laboratory.

The researchers found that an astonishing number of particles had tell-tale signs of satellite debris. About 10% of the stratospheric sulfuric acid particles contained aluminum and exotic metals, in ratios consistent with the composition of satellite materials. For example, they detected niobium and hafnium, which are used in making semiconductors and alloys and have no other sources in the stratosphere.

The study is the first to definitively link stratospheric pollution to satellite debris. The stratosphere's ozone layer is our planet's "sunglasses," protecting Earth's surface from harmful levels of ultraviolet radiation. It is not yet known how the perturbations from satellite debris might affect the ozone layer or climate.



The PNAS study is intriguing and not altogether surprising, as the number of satellite launches has (literally!) skyrocketed over the last decade. Nearly 9000 satellites are currently in orbit, and most will burn up upon reentry. Over 5000 satellites were launched just within the last 5 years.

Based on filings for radio frequencies (needed in advance of launches), the number of satellites could reach 1 million. For example, one filing request is for over 330,000 satellites, which would dwarf the current 4500-satellite Starlink constellation of Space-X. In such future scenarios, the middle atmosphere could become a much busier place--and the new frontier for studies of atmospheric pollution.

Metals from spacecraft reentry in stratospheric aerosol particles, Murphy, D.M., M. Abou-Ghanem, D.J. Cziczo, K.D. Froyd, J. Jacquot, M.J. Lawler, C. Maloney, J.M.C. Plane, M.N. Ross, G.P. Schill, and X. Shen, *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.2313374120, 2023.

Link to the PNAS Article

Link to New York Times Article

Link to NOAA Write-up of the PNAS Study

Employee Spotlight: Meet Our Production Manager
Logan Miskowiec Brings Wealth of Experience to 2B Tech

In October 2022, two wishes came true when Logan Miskowiec was hired as 2B Tech's Production Manager. First, Logan met his goal of finding a new job before his next birthday (he beat it by a day). Second, 2B Tech met its goal of finding a great Production Manager.

And it's been win-win ever since.

Logan oversees the production of the over 600+ instruments that go out to customers every year. This involves managing the workflow for the staff of 4 manufacturing assistants, maintaining the inventory of the ~2000 different parts that go into our ~20 different instrument models, and taking steps to ensure the quality of the final products that his team assembles. He's very much a hands-on manager, often pitching in to make subassemblies that go into the instruments.

Logan has a degree in chemical engineering from Iowa State University. He worked for 7 years as a Production Supervisor in industrial process settings, starting with an egg-processing plant in Iowa and then moving to Colorado and working for a major manufacturer of plastic bottles for the bottled water industry. 2B Tech is now the direct beneficiary of the leadership skills and process work-flow experience he gained in his previous work. Logan has enjoyed switching to the small-company setting of 2B Tech, and doing work that enables him to make a contribution to environmental issues such as air quality.

Logan has embraced the Colorado lifestyle, and enjoys snowboarding, skateboarding, long-boarding, and playing Magic in his free time. He also knows his way around the kitchen, having spent some of his college years as a cook/chef in a restaurant and in a food truck business. With that and his knowledge of the best craft breweries around town, he definitely contributes more than his share to the 2B Tech gatherings (which he enthusiastically jumps in to help organize). As we said: win-win all around!

Explore Our Website

Check Out Our Team

Request a Quote