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To Whom it May Concern

Atmospheric science is multi-disciplinary. Physics, chemistry, math, computational and engineering skills are needed to test and interpret atmospheric phenomena, and individual research groups within academia cannot do every aspect on their own. **The value of NCAR is in the focused expertise accumulated and shared with researchers at all levels**, as well as the research infrastructure and publicly available datasets NCAR provides that researchers can use to conduct their own investigations. NCAR further provides a unique environment for stimulating new ideas and collaborations needed to undertake major multi-institution projects and field campaigns. Some of my own experiences with NCAR are highlighted in the following examples:

1. My former graduate student worked with NCAR staff via an ACOM visitor fellowship to improve upon and characterize aqueous chemistry in atmospheric models. This long-term collaboration, which began in 2019, was extremely helpful for both me and my student, since I am an experimentalist and my student needed modeling support to help us interpret our in-situ cloud chemistry observations collected at Whiteface Mountain, NY. That student published a research paper on this work in 2024 with two NCAR staff as coauthors, and he successfully defended his doctoral dissertation about a year later, with one of the NCAR staff formally advising him via on dissertation committee. Now, that student has fully embraced modeling in his current postdoc with NASA, using many of the skill sets he gained at NCAR.

2. Another (current) graduate student visited a different research group at NCAR in 2023 via the Ralph Cicerone fellowship. That collaboration allowed us to analyze gas samples collected at Whiteface Mountain for volatile organic compounds, which helped us interpret seasonal relationships in the organic acid measurements we conducted on cloud water samples collected there in 2022 and 2023. Those measurements were included in a different research paper that was accepted for publication in 2026, with three other NCAR staff as coauthors.

3. As a graduate student myself, I benefited substantially by working with NCAR. An ASP graduate fellowship brought me to work at the NCAR Mesa Lab and Foothills Lab in 2004-2007, where I obtained most of my hands-on research training during graduate school. Those 2.5 years were exceptionally impactful for me because of exposure to so many new ideas from all the people I met at NCAR, NOAA, NIST, CU-Boulder and private companies in the Boulder area. **The practical skill sets I developed at NCAR were foundational for my career.** As a Chemical Engineering major in college, I was trained in the theory of heat and mass transfer, but I had very little hands-on experience applying that knowledge. At NCAR, I built an instrument from scratch and participated in field work for the first time, with the guidance and help of former NCAR staff. Several research papers were published based on this collaboration, and substantial contributions were made to the understanding of cloud condensation nuclei and aerosol mixing state, in polluted megacities and remote boreal forests.

I've participated in many field campaigns, both ground-based and airborne, over the past two decades. Many of these field campaigns were either led by NCAR staff or were substantially impacted by collaborations with NCAR staff and/or usage of NCAR facilities to conduct the work. An important mechanism NCAR provides that is currently **available to all researchers** is the ability to submit proposals to use instruments and/or research aircraft, along with the staff needed to run the instruments, operate the aircraft, integrate new instrumentation into the aircraft and visualize and/or archive the acquired datasets, as needed. There are no other programs like this! **The ability for anyone to utilize the Research Aviation Facility enables research that would not otherwise be possible.** It is an extremely valuable program to the atmospheric sciences community because it broadens participation in the formulation of scientific questions and provides opportunities for the next generation of scientists to gain hands-on field experience.

Much of the work I do now revolves around cloud chemistry. The long-term cloud chemistry monitoring program I inherited in 2018 at Whiteface Mountain was initially focused on the formation of "acid rain", which was a major concern for the American public back in the 1970's and 80's and helped motivate the Clean Air Act (CAA). Air quality in the U.S. was so poor prior to the CAA that the public could see it for themselves, hence why the CAA was so popular, ultimately signed into law by Republican president Richard Nixon. **Nobody talks about Acid Rain anymore, and that's because the CAA was a resounding success!** Air quality, visibility, infrastructure integrity and ecosystem health were all protected through the CAA, which was especially impactful in the northeastern U.S., downwind of coal-fired power plants. Thousands of premature deaths were prevented by the CAA, mainly via reductions in fine particulate matter.

When return of coal-fired power plants came into discussion at the Federal level in 2017, many concerns were raised in NY state about return of acid rain and poor air quality to the region. Our measurements showed that those concerns did not end up manifesting: increases in cloud water acidity were shown to be very slight and short-lived. Over the past year, however, the Federal government has introduced an array of new initiatives to bring coal-fired power plants back, in a supposed effort to counter the emerging "U.S. Energy Emergency", while simultaneously canceling renewable energy initiatives. **Doubling down on coal will bring back many of the aforementioned problems Americans had already solved** relating to air quality, visibility, health and infrastructure. Doubling down on fossil fuels will also continue the buildup of atmospheric $CO_2$ concentrations, which have increased from 280ppm in pre-industrial times to over 420ppm in 2025. Meanwhile, organic carbon concentrations in cloud water & precipitation in the northeastern U.S have been dramatically increasing, doubling in absolute concentrations over a 10-year span, for reasons that are not entirely clear. This unexpected trend motivates ongoing work to understand the degree to which these observations reflect ecosystem changes, like increasing wildfire smoke frequency (oftentimes originating from Boreal wildland forests in Canada) or changing biogenic volatile organic compounds emitted by trees due to increasing stressors like heat, drought and invasive insects, or other changing emissions or processes that we have not yet figured out.

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