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To whom it may concern,

We are writing as members of the faculty of the Department of Atmospheric Sciences at the Rosenstiel School of Marine, Atmospheric, and Earth Science at the University of Miami in response to the U.S. National Science Foundation's request for community input regarding the future stewardship of facilities and capabilities currently housed at the NSF National Center for Atmospheric Research (NSF NCAR).

Our department conducts research spanning tropical meteorology, climate dynamics, aerosols and clouds, and regional climate variability, with particular focus on processes relevant to hurricanes, extreme rainfall, heat, and coastal hazards affecting the southeastern United States and the Caribbean. Much of this work depends directly on the shared national infrastructure maintained through NSF NCAR. The value of this infrastructure lies not only in its technical capabilities, but in the collaborative scientific community that has grown around it.

A central part of that infrastructure is NCAR's supercomputing capability, which provides computational resources far beyond what is available to us as an individual department or even, in many cases, as a single university. Our research depends on the ability to run sophisticated numerical experiments, large ensembles, high-resolution simulations, and analyses of complex observational and model datasets at scales that would be difficult or impossible without access to this national resource. For our department, NCAR's computing environment is not an optional enhancement; it is essential infrastructure that enables core research and supports the federal investments already made in our scientific programs.

Equally central to our work are NCAR's community models, particularly the Weather Research and Forecasting model (WRF) and the Community Earth System Model (CESM). These models form the backbone of much of our research and teaching. They allow us to study hurricanes, regional weather systems, cloud and aerosol processes, and climate variability using tools that are continuously improved by a broad community of scientists. Their value lies not only in the code itself, but in the ecosystem of scientific support, documentation, testing, and shared development that NCAR sustains. No single institution could replicate the breadth, continuity, and community investment that make these models so scientifically powerful.

Another critical component is NCAR's observational facilities. These provide capabilities that are likewise beyond the reach of individual universities. Our faculty and students have relied on these aircraft for field campaigns investigating hurricane structure and intensification, tropical cloud organization, and atmospheric processes that shape regional weather and climate. The facilities provide a means to focus attention on leading scientific problems and bring in the next generation of scientists. NCAR's field catalog and data archiving system is comprehensive and unique within the federal agencies, maintaining publicly-available legacy datasets for future researchers. The human infrastructure needed to support NCAR's observational resources, once disbanded, would take at least a decade to rebuild. NCAR's observational facilities program is the only such federal resource accessible to the entire university community. Recent examples of our use of these facilities for cutting-edge research include the Convective Gravity Waves Experiment (CGWaveS), where the NCAR G-V aircraft flew 13 missions out of Des Moines, Iowa, to measure waves in the stratosphere and ionosphere, and the Cold-Air Outbreak Experiment in the Sub-Arctic Region (CAESAR) where the NCAR C-130 flew 8 missions out of Kiruna, Sweden, to study dense low clouds that form over the

ocean during extreme cold weather. This research, performed by our students and faculty, would simply not be possible without these aircraft and the NCAR observational facilities that support them.

These resources are also fundamental to training the next generation of atmospheric scientists. Many of our graduate students use WRF and CESM in their thesis research and depend on NCAR-supported computing, documentation, workshops, and scientific staff expertise to do so effectively. Just as importantly, many of us have advised graduate students who have spent meaningful time at NCAR through visiting scientist programs, summer programs, extended visits, collaborations, or participation in field programs. Those experiences are often transformative: students gain technical skills, scientific confidence, professional networks, and exposure to a culture of shared inquiry that is difficult to reproduce elsewhere.

NCAR's impact extends well beyond facilities and models alone. A defining feature of the institution is the culture of collaboration and scientific excellence that it fosters. NCAR scientists and staff have long invested extraordinary time in mentoring students, supporting early-career researchers, improving community tools, and helping sustain a national scientific enterprise that benefits universities across the country. Many members of our department have likewise volunteered substantial time in support of this shared effort—through model development, testing, workshops, field campaigns, advisory activities, and community working groups. Examples include the Observing Facilities Assessment Panel (OFAP), review activities, and participation/leadership of NCAR-led community workshops.

For these reasons, the continued support and stewardship of the capabilities currently housed at NSF NCAR are of critical importance to our department, to the education of our graduate students, and to the broader scientific enterprise they sustain. Our department is a national leader in tropical research that is impactful to the state of Florida and the entire United States. We rely on NCAR to maintain this leadership role.

Sincerely,

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