

March 12, 2026

## **RE: Response to NSF Dear Colleague Letter — Proposed Restructuring of NSF NCAR/UCAR**

Dear National Science Foundation Leadership,

The American Geophysical Union (AGU), representing more than 60,000 Earth and space scientists worldwide, respectfully submits these comments in response to the Dear Colleague Letter (DCL) regarding the proposed restructuring and potential dismantling of the National Center for Atmospheric Research (NSF NCAR). While we welcome any effort to evaluate and improve scientific institutions, we have serious and substantive concerns about both the underlying assumptions of the DCL and the process by which this proposal is being advanced.

### **I. Questioning the Premise: Why Dismantle What is Working?**

The DCL appears to begin from an assumption that NSF NCAR should be broken apart — yet this assumption is never adequately justified. AGU urges the NSF to step back and ask a more fundamental question: **What problem, precisely, is this restructuring intended to solve?**

Since its founding in 1960, NSF NCAR has delivered transformative results for the American public:

- Vast improvements in weather forecasting that have protected lives and property
- Critical advances in our understanding of Earth as an interconnected system — atmosphere, oceans, land, and Sun
- Pioneering research that identified microbursts as a primary cause of low-level wind shear aviation accidents and led to detection systems that have **drastically reduced fatalities** from a class of accidents responsible for more than 1,400 fatalities worldwide by the mid-1980s
- Developing into a premier training ground for the next generation of scientists, providing graduate students and early-career researchers with access to world-class supercomputing, specialized instrumentation, and a global mentorship network

Breaking apart a proven, integrated institution in the absence of a compelling, evidence-based rationale risks causing serious and irreversible damage to American scientific leadership.

### **II. The Integrated Ecosystem: Why Fragmentation Would be Harmful**

The unique value of NSF NCAR lies in its capacity to treat Earth as a **single, interconnected system**. Its models, observations, computing resources, and interdisciplinary expertise are deeply intertwined — removing any component could

weaken the others. Having experts from across disciplines housed in the same center enables better and more efficient communication and collaboration, allowing for greater progress on today's most pressing scientific challenges.

Consider how this integration operates in practice:

- **Modeling and computing:** Modelers rely on supercomputers and other high-performance computing resources to run increasingly complex simulations and to store and analyze the vast amounts of resulting data. In turn, deep collaboration between modelers and computing experts ensures that next-generation supercomputers are capable to advance Earth system understanding.
- **Observations and models:** Field researchers rely on models to identify the most useful observations before instruments are built and deployed. Models, in turn, depend on field data for inputs and verification.

Three sets of examples illustrate the power of this integration:

#### **Wildfires:**

- Earth system modelers provide knowledge about atmospheric effects on soil moisture and vegetation
- Satellite experts and machine learning scientists apply artificial intelligence to update fuel inventories
- Meteorologists simulate hyper-local weather conditions around fires
- Atmospheric chemists and aviation experts capture airborne observations of smoke plumes to improve predictive models

#### **Hurricanes:**

- Engineers and hurricane experts develop novel dropsondes and airborne radar to improve landfall and intensity predictions
- Hydrologists and meteorologists collaborate on coastal inundation risk models
- Social scientists develop tools to help residents and decision-makers understand storm surge impacts

#### **Severe weather such as tornadoes, hail, and winds:**

- Field campaigns such as Verification of the Origins of Rotation in Tornadoes (VORTEX), which observed tornadoes, and the In-Situ Collaborative Experiment for the Collection of Hail In the Plains (ICECHIP), which observed hailstorms, bring together a variety of experts
- Engineers and technicians build and deploy novel instruments for observing severe weather
- Weather modelers deepen understanding of the fundamental processes of these damaging hazards

- Artificial intelligence experts, using NSF NCAR's supercomputer, are working to provide better forecasts of convective hazards at longer lead times
- Social scientists skilled in risk communication work to ensure that improved forecasts are communicated in the most effective way

Fragmenting this ecosystem would not merely divide NSF NCAR — it would **multiply overhead costs, erect barriers between collaborators, and reduce services** to universities, communities, agencies, and businesses, potentially at greater cost to all.

### III. The Broad Economic Value at Stake

NSF NCAR's work underpins a remarkable range of economic sectors. Disrupting its operations would impose real costs on:

- agriculture — including crop insurance providers, farmers, and anyone relying on weather or water resource data
- water utilities serving local communities
- private weather companies
- airline and aerospace industries (including Leidos, Lockheed Martin, and Northrop Grumman)
- insurance and reinsurance firms such as Nationwide and State Farm
- the financial risk industry
- national security and emergency management agencies that dependent on accurate weather prediction

NSF NCAR's staff include meteorologists, hydrologists, solar physicists, atmospheric chemists, machine learning scientists, oceanographers, cryosphere scientists, engineers, and educators. Their applied work ranges from helping farmers make smarter irrigation decisions and predicting urban wind patterns for drone operators to developing U.S. Army meteorological support systems capable of forecasting atmospheric conditions at sub-city-block scales. This breadth of expertise exists because NSF NCAR was designed as an integrated institution — it cannot simply be replicated by distributing pieces of it elsewhere.

### IV. A Flawed and Rushed Process

AGU is deeply troubled by both the **pace and the procedural design** of this proposal. The DCL explicitly states that comments should not be made regarding the transfer of control of the supercomputer or airline assets. We find this restriction indefensible.

These are among the most consequential elements of NSF NCAR's capacity to deliver for the American public. Shielding their potential transfer from public comment, researcher input, and stakeholder engagement is fundamentally at odds with principles

of good governance and scientific transparency. For the record, AGU regards both assets as vital to NCAR's mission and believes they must remain within NCAR's control.

More broadly, we ask: Where is the consultation with the scientific community and the user stakeholder base that should precede a restructuring of this magnitude? The assumptions embedded in this DCL suggest a timeline driven by urgency rather than evidence — and rushed restructuring of this kind risks self-inflicted harm to American industry, the American public, and American scientific leadership on the world stage.

Splitting up expertise across the components of the Earth system would set American science back decades, **returning us to an era of siloed disciplines** that our understanding of Earth as an interconnected system has long since transcended.

## V. A Path Forward: Reform Without Dismantlement

AGU is not opposed to institutional improvement — we actively support efforts to make NSF NCAR more effective, innovative, and accessible. However, any reform must be guided by what will advance cutting-edge science, ensure accessibility and transparency, and improve outcomes for public safety and welfare, rather than by an effort to pick winners and losers or impose ideological constraints on science funding.

We offer the following constructive suggestions:

- **Foster cutting-edge science:** Create incentives within NSF NCAR for rapid, high-impact research efforts and encourage a more entrepreneurial culture of discovery.
- **Enable responsible commercialization:** Allow researcher-private sector collaborations to spin off into separate ventures, with robust protections for researcher intellectual property and appropriate cost-sharing or royalties for UCAR/NCAR. University IP office models could inform this approach.
- **Establish a centralized federal modeling center:** Rather than fragmenting NSF NCAR, consider expanding its coordinating role with other federal agencies, such as NOAA, and other modeling work to increase collaboration and improve the accuracy of national weather prediction.
- **Develop meaningful performance metrics:** We welcome a transparent conversation about how NSF NCAR's impact can be measured, and we are prepared to work collaboratively with NSF to develop metrics that reflect the full breadth of its scientific and societal contributions.

## VI. Conclusion

NSF NCAR is a national asset — the product of more than six decades of sustained investment in the kind of integrated, interdisciplinary science that no single university, agency, or company could replicate. It strengthens our ability to predict and respond to disasters, powers economic sectors across the country, and trains the scientists who will protect Americans from increasingly severe environmental threats.

AGU respectfully but firmly urges the NSF to reconsider the assumptions underlying this DCL, to broaden and extend the public comment and stakeholder consultation process, and to ensure that any changes to NSF NCAR are driven by evidence, transparency, and a genuine commitment to advancing the public good.

We appreciate the opportunity to provide these comments and stand ready to engage further.

**Respectfully submitted,**

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