

NSF Intent to Restructure Critical Weather Infrastructure

Dear Committee

I am a retired data systems manager. I worked for over 25 years as a NASA contractor operating an environmental data system which distributes satellite and related in-situ data to a wide range of users.

My work put me in contact with NCAR data managers and scientists over the past 40 years. I also benefited with direct interactions with NCAR scientists during my graduate education both in the data management and polar science spheres.

My experience with NCAR staff and scientists has consistently validated statements I have read by others. The statement that follows reflects my experience.

“NCAR’s mission isn’t to sound alarms; it’s to provide dependable information about weather, solar and atmospheric conditions that can be acted on to protect American lives and property, support our military and strengthen our economy.”

I cannot remember hearing any NCAR employee offer a view that contradicted the above assessment. Some of the most gifted and introspective and dedicated individuals I met through my career were at NCAR.

NCAR is a truly unique institution in the atmospheric sciences world – It has the vision, mission and resources to coordinate research in a collaborative way and on a scale unlike any other institution I know. As you consider your options for a future NCAR I urge you to sustain the vision and efforts of the last 50 years. Dr. W. O. Roberts lobbied for that vision 50 years ago and the staff, scientists and administrators have done their best to honor that challenge.

I leave it to others who are currently active in the environmental science research communities to provide you with detailed responses to your request for transformative directions.

However, I do believe you must consider how NCAR has performed in the past and how it has responded to national needs in atmospheric research (such as research on microbursts, severe storms, interactions between agriculture and weather and climate) and how it has adapted to many technological changes over the last 50 years (computing, satellite and airborne data collection, ground based and data networks, etc.) In my view the record is globally outstanding.

To use an adage “don’t throw the baby out with the bath water”

I would like to respond to your questions.

1. Are there areas in which NCAR duplicates activities elsewhere

Of course! That is the nature of scientific investigation. The most important point here is NCAR's ability to interact with those other efforts and to integrate results – both theoretical and practical in the computer modelling and field missions of NCAR. Very few, if any other institution in the US can do this.

You must resist the corporate America approach of takeover and sell off parts just to make it cost less or make a wall street killing. NCAR is a National Center - it must not be balkanized.

2. Are there transformative prospects for observational programs or platforms that are not yet utilized

NCAR's track record of past flexibility in observational programs and technologies is excellent – certainly as good as or better than other institutions in my experience. One extremely important data system constraint which NCAR understands, and implements is maintaining measurement continuity through time and observational system upgrades. NCAR, like all institutions may be improved but breaking it apart and disrupting the coordination efforts at scale is not a good idea.

As a note of concern: AI will contribute to but not provide transformative solutions as AI has no inspiration it only processes what is already known, it does not create the way the human brain can. There's no thinking 'out of the box'.

3. Are there organizational concepts for management and operations for NCAR that differ from the current

Yes, I expect so. All organizations need to be receptive to new management styles and methods of operation. It may be that the governing board needs some tweaking or the internal groups and structures of NCAR itself should be modified. But I urge caution. The overall mission and goals of NCAR are still valid and any changes should reinforce them.

Any organization that is worth anything is a bit messy - we humans create friction. The challenge is to capitalize on that friction but not let it get out of hand. Recognize new breakthroughs and trends and incorporate them in the tasks at hand.

The way my daughter works is different than the way I worked, why would one not expect NCAR to adapt. It should have strong, curious, respected leadership - i.e. one that others want to follow.

4. What would be the performance objectives and metrics for a restructured atmospheric research center.

I'm not able to suggest specifics, but I offer the following thoughts.

In NCAR's case it needs to concentrate on important national needs and at the same time keep working on the long view challenges – better understanding of the stochastic atmosphere and oceans and work to improve our predictive abilities.

This must be done at the highest level of scientific and intellectual activity. Most importantly, NOT hindered by political or economic restrictions. Let the investigations go where they take us, by physics, facts and sound theoretical basis. NCAR's role is to provide understanding and a sound basis for critical decisions about how we as a nation should adapt to our earth's changing surface, atmosphere and oceans.

My perspective about adaptation is influenced by my geology education. Short term and longer-term needs concern me: for example, sea level rise, increasing severe storms, wild fire mitigation, desertification, stresses on agriculture, atmospheric pollutants and related health issues among many others. These all have near term concerns as well as for the 100–1000-year timeframe.

NCAR brings together a wide range of disciplinary experts to expand our collective understanding of the atmosphere and ocean systems that sustain life on this planet. I don't see that rarely duplicated globally.

Thank you for considering my thoughts.

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