NCAR allocations

A new generation of NCAR supercomputing resources began when the Yellowstone system was installed at the NCAR-Wyoming Supercomputing Center (NWSC) in 2012. With the subsequent introduction of the Cheyenne HPC system in 2017, the capabilities and capacity of this resource environment expanded significantly.

NCAR's portion of the Community Computing pool amounts to ~29% of these resources. For the Cheyenne system alone, this represents an estimated 350 million core-hours per year (compared to 170 million on Yellowstone and fewer than 9 million core-hours per year on Bluefire). Similar portions of the data analysis and visualization resources and GLADE storage system also are available to NCAR users.

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Allocation categories

Three categories of allocations are available to NCAR users:

- NCAR Strategic Capability (NSC) Projects
- NCAR Director's Reserve
- NCAR Lab Grants

Joint NCAR/university allocations have been discontinued, although projects with NCAR visitors or university-based collaborators are eligible to use or make requests for all three categories of NCAR allocations. See NCAR and university use below.

NCAR Strategic Capability (NSC) projects

After review of scientific merit, strategic importance, technical readiness, and broader impact, these large-scale, high-priority projects receive 17% of the core-hours available to NCAR.

See the NSC Projects page for details, including the next deadline for submitting requests.

NCAR Director's Reserve

The NCAR Director's Reserve comprises 2% of the available NCAR resources. Access is disbursed at the discretion of the NCAR director and is designed to accommodate work that does not fit within any other allocation mechanism (whether CSL, university, or NCAR).

Director's Reserve requests must meet the following two criteria:

1. The project should have clear relevance to the NCAR mission or strategic priorities.
2. The project will be completed in less than one year and should not be an ongoing or recurring activity.

Reserve requests also should also meet at least some of the following six criteria:

1. The work or project lead does not meet the eligibility criteria for other allocation mechanisms (for example, the work is led by collaborators at or supported by non-NSF agencies or labs).
2. The project has come up unexpectedly and has an urgency that cannot be accommodated by other allocation mechanisms (for example, simulations related to an ongoing wildfire, oil spill, or storm).
3. The project is supported by a funding agency award separate from NCAR Base funding that was awarded at a time incompatible with the NCAR lab or NSC allocation timelines.
4. The work has tangible benefits to NCAR as a whole that do not serve as valued criteria for other allocation opportunities (for example, educational, public outreach/service, political).
5. The work cannot be accommodated within the relevant NCAR Lab Grant but has the backing of the NCAR lab leadership. "Matching" allocations are encouraged. That is, the Director's Reserve allocation will be matched by support from an NCAR Lab Grant.
6. The work involves collaborators from multiple NCAR labs or multiple organizations or institutions outside of NCAR. (Note that a request that meets only this criterion is unlikely to merit a Director's Reserve allocation; typically, other criteria also must be met.)

Projects that may be suitable for an NSC allocation but that cannot wait until the next NSC round can request a startup allocation from the Director's Reserve; such requests still must explain why they satisfy the criteria for a Director's Reserve allocation.

To request a Director's Reserve allocation, the NCAR Lab Allocation administrator should submit a brief write-up (approximately one page) from the prospective project lead that describes the project to be conducted and its computing requirements. The NCAR Lab Allocation administrator should include a statement describing why the work should be considered for a Director's Reserve allocation. The request should be submitted to alloc@ucar.edu.

Director's Reserve requests are reviewed as they are submitted, and decisions generally are made within a few days.

Reporting

Director's Reserve allocations come with commensurate reporting requirements that vary depending on the size of the request and award. At the end of each project, the project lead will document the work conducted, resulting outcomes, and contributions toward the strategic priority.

- For all projects, the project lead should prepare a short write-up, usually less than one page.
- Larger projects also may be asked to produce, in addition to the short write-up, a brief (15-minute) presentation to the Executive Committee. This reporting requirement will be identified at the time of the award.

NCAR Lab Grants

NCAR labs receive 10% of the HPC systems' available core-hours. The allocations are assumed to remain at the same levels while a system is in production. However, a member of the NCAR Executive Committee (EC) can request that the lab allocations be reviewed and potentially revised or adjusted due to changes in lab needs or priorities. The EC member should initiate this process at an EC meeting, which will determine the timeline and process for considering the request.

Within the lab-level "blocks," the labs allocate resources according to their strategic priorities. They are expected to accommodate small- to medium-sized activities within these locally managed allocations, including joint work with collaborators, regularly scheduled workshops and training activities, preparatory work for larger-scale projects, and work by visiting, postdoctoral, or graduate student researchers. (NCAR short-term visitors also may apply for university allocations if they meet all necessary eligibility requirements.)

The only annual reporting requirements for lab allocations are acknowledgement of CISL resources in relevant publications and in the lab's annual report, and citations for those publications to be sent to CISL.

In addition to 10% of the Cheyenne HPC resource, the NCAR labs receive allocations of a similar fraction of analysis and visualization resource use and GLADE project space. Storage space requests and allocations are constrained by the growth supported by CISL budget for system expansion. Within these constraints, NCAR labs and staff will have to make trade-offs and data management decisions, especially when considering storage of data that are generated on resources outside of CISL.

NCAR and university use

The NWSC resources are shared among several allocation "facilities," including the NCAR Community and University Community in addition to the Climate Simulation Laboratory and the Wyoming Community. As in the past, the NCAR and university communities each get an equal portion of the resources, and NCAR and CISL are responsible for maintaining that balance.

To support this NCAR/University balance, we offer the following guidelines for appropriate use of the NCAR and university resource pools.

- NCAR *visitors* (visiting scientists, post-docs, and so on) who are not permanent UCAR staff are eligible to apply for university allocations, subject to the eligibility policies for university allocations.
- UCAR/UCP (that is, non-NCAR) permanent staff may request university allocations, subject to the university eligibility policies.
- NCAR Labs and NSC projects may choose to allow visitors and collaborators to use those allocations as part of collaborative projects.
- For joint university/NCAR work in which permanent NCAR staff will be responsible for a significant amount of computational usage or a significant fraction of the project's total computational work, the preferred approach is for NCAR staff to request the necessary resources from the NCAR pool, while the university researchers request the necessary resources for their activities from the university pool.
- A university principal investigator with a university allocation in support of an NSF award may elect to permit an NCAR collaborator on that award to access an incidental amount of the awarded allocation in support of the collaboration.

NCAR policies and guidelines for co-sponsorship are not affected by these revised allocation policies. Co-sponsorship remains a transaction between a lab and the proposer, and the process is monitored by UCAR Budget and Planning and PACUR. The UCAR B&P office has approved rates for use in the proposal process.