NCAR Strategic Capability (NSC) projects

The next NSC submission deadline is March 12, 2024.

NCAR researchers and computational scientists are encouraged to submit requests for the first NCAR Strategic Capability (NSC) projects to be run on the new Derecho system. Requests will be accepted through March 6. These allocations should target large-scale projects lasting one year and align with NCAR's scientific priorities and strategic plans.

Requests for Cheyenne core-hours will be accepted but they must indicate how the additional allocation is necessary to complete work that is already underway on Cheyenne or be limited to work that can be completed by the end of 2023.

Due to the rapidly growing scale of the data generated by many projects and the constraints on storage available within the CISL environment, the NSC projects review panel is scrutinizing requests for disk and tape storage closely. As with poorly justified requests for computing time, poorly justified requests for storage resources will result in reduced storage allocation awards. See additional guidance in these instructions for preparing proposal documents, which apply to NSC project requests as well as to large university requests.

Long-term storage plans for NSC project data in Campaign Storage should be coordinated with the requester's lab(s). The data management plan section in your NSC request document should describe the arrangements made with your lab.

NCAR computational scientists are encouraged to submit requests for the next round of NCAR Strategic Capability (NSC) projects. These opportunities occur approximately every six months.

Potential submitters are encouraged to consider applying to the opportunity that best aligns with their project's anticipated timetable and readiness. In most cases, a project should consider the opportunity that starts shortly **after** their planned start, so that preliminary and benchmarking results can be submitted as part of the NSC proposal. A project for the same or similar work can receive an allocation only once a year.

Because of the competitive nature of these allocations, labs may have chosen to coordinate submissions from each lab. Potential applicants are encouraged to contact their lab's or division's allocation representative before submitting a request.

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NSC allocations

NCAR Strategic Capability (NSC) project allocations target large-scale projects lasting one year to a few years (but not indefinitely long) that align with NCAR's scientific priorities and strategic plans.

Twice a year, the NCAR Executive Committee (EC) reviews and approves a set of NSC projects for the coming 12-month period. NSC projects requiring more than one year's allocation must submit continuation requests each year to report progress toward the project's objectives.

To be considered for an NSC allocation, a proposed project:

- should directly relate to one or more specific priorities in the **2020-2024 NCAR Strategic Plan**.
- must be technically ready to begin production runs from the start of the allocation period. Requests should provide sufficient details to convince reviewers of the project's readiness; projects may be penalized for delayed progress (see below).
- must require significant computational resources, above and beyond the minimum level defined by the NCAR Executive Committee.
- should have a well-defined scope and completion timeline.
- may be linked to an agency funding award or awards separate from the NCAR Base funding.

The progress of NSC projects will be monitored quarterly to ensure that projects are making sufficient progress and that all projects can complete their work in the remaining allocation period. After each quarter, projects may be subject to losing a portion of their unspent, prorated allocation. Exceptions can be made for projects that identify in their submissions that they have compressed or alternative timetables due to external factors, such as the need to align computations with a planned field campaign or calendar season.

NSC eligibility

All NSC project requests must have a full or part-time regular NCAR staff member with an R or T appointment as project lead. In order for term employees to be eligible as project leads, the period of performance of the project should not extend beyond the employee's term date. Labs may choose to implement policies to coordinate the submissions from the lab in each request period. Joint work with university collaborators is eligible. Projects that span labs are encouraged, though a single project lead should be identified.

NSC allocations have a *minimum* request size of 10 million core-hours; the minimum size may be revised by the NCAR EC, and the EC may choose to permit exceptions for cause. There is no maximum size limit, though in practice the review process will attempt to accommodate approximately a dozen large-scale projects each year. Consistent with the NSC objectives, NSC requests *should not* aggregate many smaller projects out of the same lab to meet the minimum request limit.

Request format

NSC requests must prepare Proposal Documents, which should follow the guidance and structure for large allocation requests for universities. Notably, NSC requests must include a five-page summary along with relevant supporting documentation.

Review process

NSC requests are subject to two-phase review, with final approval by the NCAR EC.

The first phase is a scientific and strategic evaluation of the project. The panel conducting this review is composed of representatives of each NCAR lab and program who are appointed by the lab and program directors. This panel evaluates proposals according to several criteria:

- The three criteria used by the CHAP in its evaluation of large university requests – the effectiveness of the methodology, the appropriateness of the research plan, and the efficiency of resource use. The technical readiness assessment provides input into this aspect of the evaluation.
- The scientific appropriateness of the project and its relationship to NCAR strategic priorities.
- Whether the large-scale computational resources needed are commensurate with the project's strategic priority.

The panel recommends allocation levels and identifies priority ranking for submitted requests. A written review summary is made available to requestors following the final decision on awards. All panel representatives from labs and programs not involved in the proposed project review each request.

In the second phase, the EC approves or agrees to modify the recommendations of the review panel. CISL then establishes the final allocation awards. Should any awarded project encounter issues that require it to stop work or be unable to complete its proposed work, additional allocation awards may be made to unawarded requests in order of priority rank and as resource availability permits.

Review schedule

NSC requests are reviewed twice per year. Projects arising too late for NSC consideration will either need to wait, identify bridging allocations from NCAR labs, or apply for startup allocations via the NCAR Director's Reserve. Such NSC pre-awards must satisfy the criteria for a Director's Reserve award.

Continuation and reporting

NSC allocations come with commensurate reporting requirements. For those projects requiring more than one year's allocation, a continuation request will need to be submitted as part of the next year's NSC request and review process. The continuation request should include a short write-up (approximately one page) for CISL's portion of the NCAR Annual Report.

At the completion of each project, the project lead documents the work conducted, resulting outcomes, and contributions toward the strategic priority by preparing both a short write-up (approximately one page) for CISL's portion of the NCAR Annual Report and a brief, 15-minute presentation to the Executive Committee.