

# NCAR Computing Proposal and Cheatsheet

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# CISL Allocations

← → ↻ 🏠 🔒 Secure | https://www2.cisl.ucar.edu/user-support/allocations

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GETTING STARTED

New user orientation

Best practices

Allocations

- University allocations
- Climate Simulation Laboratory (CSL)
- NCAR Allocations
- Determining computational resource needs
- NWSC science impact

Managing allocations and charges

HOME » USER SUPPORT

Allocations

HPC resources | Climate Simulation Laboratory | University Community  
NCAR Community | Wyoming-NCAR Alliance | Accelerated Scientific Discovery

The Computational and Information Systems Laboratory (CISL) provides large computing resources for university researchers and NCAR scientists in atmospheric and related sciences. To access these supercomputers, storage systems, and other resources, users must apply for allocations, which NCAR makes available through several facilities.

Applications are reviewed and time is allocated according to the needs of the projects and the availability of resources. Send questions about the following allocation opportunities to [alloc@ucar.edu](mailto:alloc@ucar.edu).

Allocations for Cheyenne

The January 2017 deployment of the [Cheyenne environment](#) at the NCAR-Wyoming Supercomputing Center (NWSC) greatly expanded the resources and opportunities

# Small Allocations

Requests for up to 400,000 core-hours on the Cheyenne system are considered **small requests**.

U.S. university researchers who are supported by NSF awards can request a small allocation for each NSF award. University researchers also can request allocations for the use of the Geyser and Caldera clusters as well as the [CMIP Analysis Platform](#).

Small requests typically receive a partial allocation within a few business days. Once the initial allocation is consumed, you can request additional resources by logging in to <https://xras-submit.ucar.edu/login> with your login token and requesting a supplement.

# Large Allocations

<https://www2.cisl.ucar.edu/chap/submission>

## A. Project Information

Includes: Title, NSF Award Title, NSF Award Number, Project Lead, Submission Date

## B. Project Overview

A brief (less than half a page) summary of the science question and computational plan.

## C. Science Objectives

The science objectives should be *briefly* described. This section should give sufficient information for understanding the computational plan in section D; it is not necessary to justify the science objectives as they must have already passed NSF review.

## D. Computational Experiments and Resource Requirements

The bulk of the Request Summary should focus on Section D. Discuss your planned computational experiments and the resources needed to conduct the work in this section.



# PCWG Allocation

- The PCWG receives resources in 2-year intervals.
- All members of the PCWG can propose experiments.
- When they are of general interest to the PCWG, a piece of the allocation can be designated for your use.

# Cheyenne Quick Start

ssh -X / -Y [userid@cheyenne.ucar.edu](mailto:userid@cheyenne.ucar.edu)

/glade/p/cesm/tutorial

cesm2.0.0\_tutorial

tcshrc and bashrc

# Cheyenne Quick Start

Important changes from yellowstone:

## 1. PBS batch system (qsub, qdel, qstat)

```
#PBS -N ice_averages  
#PBS -q regular  
#PBS -l select=8:ncpus=4:mpiprocs=4  
#PBS -l walltime=01:00:00  
#PBS -A P93300665
```

## 2. Compile on compute nodes using qcmd

qcmd -- ./case.build (note the double dash)

## 3. Modules are your friend.

```
module spider  
module avail  
module list  
module load netcdf
```

<https://www2.cisl.ucar.edu/resources/computational-systems/cheyenne/quick-start-cheyenne>

# New Geyser/Caldera Quick Start

Important changes from old geyser/caldera:

## 1. SLURM batch system (sbatch, scancel, squeue)

```
#SBATCH -J getrest  
#SBATCH -n 1  
#SBATCH -N 1  
#SBATCH --ntasks-per-node=16  
#SBATCH -t 12:00:00  
#SBATCH -A P93300665  
#SBATCH -p dav  
#SBATCH -e getrest.err.%J  
#SBATCH -o getrest.out.%J
```

## 2. New scripts to access Geyser/Caldera nodes:

execgy (interactive geyser access)

execca (interactive caldera access)

execdav -a account -n ncores -t hh:mm:ss -m memory -g gpu (generic)

<https://www2.cisl.ucar.edu/resources/computational-systems/geyser-and-caldera>

# Exercises

Your first step is to log into cheyenne:

```
ssh -X/-Y userid@cheyenne.ucar.edu
```

You can then copy the relevant materials from my home directory:

```
cp -r /glade/u/home/dbailey/polar_tutorial ~
```

You should use the tcsh/bash settings from the files:

```
~/polar_tutorial/tcshrc or bashrc
```

# Exercise

1. Set up “out of the box” case from CESM2 tutorial tag.
2. You can use my ascii instructions in:  
`/glade/u/home/dbailey/polar_tutorial/polar1.txt`
3. Build and run for 5 days (default).
4. Set up a second “out of the box” case from CESM2 tutorial tag.
5. You can use my ascii instructions in:  
`/glade/u/home/dbailey/polar_tutorial/polar2.txt`
6. Note the second case will include namelist and code modifications (increase the incoming LW to the sea ice by 50%).

# Questions

1. Where is the short-term archive? That is, where are your history and restart files after your run completes?
2. What is the cost for your 5 day runs? Hint: Look in the timing subdirectory of \$CASEROOT. What would the cost be in PE-HOURS for a full year of simulation?
3. What is the amount of disk space for 5 days of history output? How much would this be for a year?
4. How do these numbers compare to the CESM timing table?

<https://csegweb.cgd.ucar.edu/timing/cgi-bin/timings.cgi>