13 October 2008

Dr. Eric Barron, Director
National Center for Atmospheric Research (NCAR)
Boulder, CO 80307-3000

Dear Eric:

The CISL High-performance Advisory Panel (CHAP) to NCAR met on Thursday, October 9th. We are pleased that you could join us for a significant fraction of the day and evening; and we very much appreciate the chance to engage in a dialogue with you on the future of NCAR and its high-performance computing mission. This is the customary letter to the NCAR Director as a followup to the meeting, and it is being submitted prior to the UCAR Board of Trustees Meeting and the UCAR Members Meeting in order to be timely.

First of all, CHAP members were especially impressed this time with the progress that has been made on all fronts dealing with high-performance computing, as highlighted by Krista Laursen's talk on concrete steps toward an NCAR Supercomputing Center in Wyoming, Rich Loft's talk on an impressive variety of HPC activities, Gary New's amazing story of the installation of the bluefire Power6 computing system, and Tom Bettge's presentation on successfully providing maximal computing resources to atmospheric sciences. The Advisory Panel congratulates CISL on its accomplishments and hopes further progress is forthcoming, in spite of the considerable uncertainly about budget constraints during the present economic hard times, the specifics of which were described in Cliff Jacob's NSF Update.

The Advisory Panel is pleased that you as the new Director of NCAR are fully committed to maintaining a healthy and growing computing environment that is required for continued scientific progress in the atmospheric and related sciences. The CHAP stands ready to assist in any way it can toward that end.

The CHAP serves as a reviewing body for large computing requests from the University Community. This time around, 45 requests totaling 7.2 million GAUs (General Accounting Units) exceeded the available resources by 39 percent. Careful reviewing of each request, focused on the method proposed and the amount of GAUs required, led to a final recommendation to CISL to allocate 97% of the available university resources. The Panel feels that all reasonable requests were able to be honored this time around, although some multi-year requests had to be supported only for the first year or so, with the requestors being asked to submit subsequent extension requests.

The Advisory Panel discussed how to deal with future rounds of reviewing large computing requests. In particular, several requests can sometimes originate from the same sponsoring grant or institution; and the CHAP suggests that future guidance for submissions say that such cases be accompanied by a letter from the PI or institutional manager, telling how the individual components relate to each other and how they have been coordinated in order to avoid duplication of effort.

Obviously, the ability of valid scientific requests to saturate a new computing system almost from the first day of its installation is a matter of concern. The CHAP discussed future options for increased computing power, ultimately through a Tier-2 system at an NCAR Supercomputing Center in Wyoming but perhaps of necessity by an in-house technology upgrade to the Power6 system in the shorter term. The Advisory Panel notes that CISL management is working vigorously to explore all the options; and the CHAP wishes to be kept fully informed about the technology options in general and the specific paths that are available in light of budgetary stringencies as well as NSF approval processes.

The Advisory Panel noted that many of its activities are not visible to the users of NCAR computing resources. Cliff Jacobs suggested, and the Panel concurred, that CISL's website should include user access to some presentations made to the Advisory Panel as well as excerpts from the CHAP letter, to the extent possible without divulging proprietary information, member names, or planning details. The CISL website might also summarize the types of requests that are

being supported in terms of subdisciplinary area, size, and duration, as a guide to prospective users.

The next meeting of the CHAP is scheduled for Thursday, April 16, 2009. We hope that you as NCAR Director will be able to join us, as your busy schedule permits.

Respectfully submitted for the CHAP,

CHAP Chair

cc: Al Kellie, Rich Loft, Tom Bettge, Cliff Jacobs, Rick Anthes, CHAP Members