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A Visit from CISE Assistant Director Peter Freeman

Tours NPACI Facilities at SDSC, CS&E Department, and Cal-(IT)².

"Infrastructure is the main challenge," said new Assistant Director of the Computer and Information Science and Engineering (CISE) Directorate of the National Science Foundation (NSF), Peter A. Freeman, who paid a visit to UCSD on May 23 and 24.

Freeman and Acting Division Director for Advanced Computational Infrastructure and Research, Richard Hirsh, spent May 23 at SDSC. A highlight of the visit was the open Q&A Session hosted by Freeman and Hirsh over the lunch hour, in a packed SDSC Auditorium.

Freeman, who took up his NSF post on May 6, introduced himself as a computer scientist, "largely a software person," although he pointed out that over a long career he had once been involved in hardware system design "with a then largely unknown computer architect named Gordon Bell." Freeman has been at the Georgia Institute of Technology since 1990, where he was the founding Dean of the College of Computing. In the late 1980s, he had been a Division Director for Computer and Computation Research at NSF. Earlier, he was a faculty member in the Department of Information and Computer Science at the UC Irvine.



In the machine room at SDSC (l. to r.), Phil Andrews shows networking equipment to Richard Hirsh, Peter Freeman, Fran Berman, and Richard Moore

Questions to Freeman were focused on a number of issues, notably the challenges and opportunities that are in prospect for the NSF and the CISE Directorate in the coming period. "One of NSF's biggest challenges in the next five to ten years is infrastructure," Freeman said, "not just cyberinfrastructure, but also buildings and major research equipment needed in all fields of science." While noting that there has been some impetus in Congress toward doubling the NSF budget, he cautioned that the real question was not the size of an arbitrary multiplier but what amounts of money and resources are needed to foster the scientific research agenda for the benefit of the nation as a whole. "It is a good sign that there appears to be a strong consensus that the science and engineering research agenda is not as well served as the health science agenda is by NIH," he said. "That bodes well for some increases, and NSF and CISE both have to have a strategy for dealing with those increases as NSF becomes a much bigger agency and as activities like the PACI program can be supported more effectively and efficiently."

Freeman was asked about the proper relationship between computational sciences and the computer sciences in the development of an agenda for the PACI program and beyond. "I confess to some bias, here," he said, "but I think there's a strong positive argument that says you cannot do what is being done here at SDSC by buying it off the shelf. Cutting-edge middleware doesn't come shrink-wrapped. Computational scientists who are not themselves software experts do not want to become computer system experts, so I think the program is appropriately situated within CISE. In addition, some very compelling computer science research problems are embedded in all your efforts, so I will concentrate on linking the computer science and engineering community more closely with what you do here." Both Freeman and Hirsh commented on the usefulness of the Information Technology Research initiative in connecting the aims of computational and computer scientists. "The general approach that I have is bimodal," Freeman said. "On the one hand it is vital to maintain a healthy core of basic computer science and engineering research. On the other, we need to continue to support the kinds of interaction with other disciplines that are represented in the PACI program."

In answer to a question about what SDSC staff might do to assist in reaching these goals, Freeman urged staff members to "continue doing the great job you've been doing -- and I do mean continue! I can't overemphasize the importance of SDSC as a national resource or the growing need for the kinds of services that SDSC provides." In response to another question about NSF budgets, Hirsh quoted again what he had said in opening the NPACI All-Hands Meeting in February: "With the Terascale awards we have made in the past two years, we have a system at Pittsburgh that is one of the fastest in the world, and with the TeraGrid, we have the first step towards what the computing environment will be in the foreseeable future. Everyone has talked about Grid

computing and doing it on a national scale, but next year we will have the first operational national system. As a result," he concluded, "we basically own the present and the near future."

Before the Q&A session, Freeman and Hirsh were welcomed and given an overview of SDSC and NPACI by Fran Berman, director of SDSC and NPACI, and Richard Moore, executive director of NPACI. They toured the Visualization Laboratory with Mike Bailey and heard summaries of NPACI hardware resources by Wayne Pfeiffer and software directions by Carl Kesselman (NPACI chief software architect). In the afternoon, Freeman and Hirsh toured the machine room, heard specific presentations on resource allocation (by Nancy Wilkins-Diehr), on the Protein Data Bank (by Phil Bourne), the Storage Resource Broker (by Reagan Moore), and the problems of information integration in the sciences (by Chaitan Baru), as well as a presentation by Chemistry and Biochemistry Professor J. Andrew McCammon on the dynamics of molecular recognition. They also visited with members of the UCSD administration. On the following day, Freeman met with members of the Computer Science and Engineering Department and the staff of the California Institute for Telecommunications and Information Technology [Cal-(IT)²]. Freeman thanked Berman and the SDSC staff for "a very productive visit. Your presentations, discussions, tours, and general conversation more than met my expectations." --[*Merry Maisel*](#)

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