An Information Technology Infrastructure Plan to Advance Ocean Sciences

Urgent Issues

• Intensive ocean sciences research is expected to require a several fold increase in hardware capacity in the next ten years, with the most critical bottlenecks occurring in the availability of cpu cycles, memory and mass-storage capacity, and network bandwidth.
• There is an extreme shortage of skilled ITI personnel accessible to the ocean sciences community.
• There are significant challenges in the area of software systems for efficient use on massively parallel computers; the requirement for significant advances in visualization techniques to deal effectively with increasing volumes of observations and model output; and the desire for well-designed, documented and tested community models of all types.

Long-Term Recommendations

The Steering Committee recommends a substantial long-term investment in IT Infrastructure for Ocean Sciences deployed in flexible ways and managed by a new entity called Ocean.IT. Ocean.IT will serve four main functions.

1. Improve access to high-performance computational resources across the ocean sciences.
2. Provide technical support for maintenance and upgrade of local IT Infrastructure resources.
3. Provide model, data and software curatorship.
4. Facilitate advanced applications programming.

Ocean.IT Will...

• function like a scientific program office and provide leadership and advocacy for the infrastructure needs in ocean sciences research areas that use and need information technology.
• provide both central and distributed human and technical resources.
• function as a resource center for hardware, software, archiving, data serving, and technical training and consulting.