At the UC-CEIN, says Nel, "We will look at the effects of nanomaterials on cells—yeast, bacteria, embryos—to learn which materials are likely to be dangerous. We will look at terrestrial systems, fresh water, sea water. . . . That will allow us to classify and prioritize in terms of safety. From high-throughput interactions, we hope to develop insight into what nanomaterial properties relate to physical hazards." Most toxicological manifestations are the result of perhaps a dozen common biological pathways or mechanisms, Nel adds. "We use the pathway to test a lot of materials at the same time—you can do thousands of these comparisons in one day—and then build a risk assessment system. This is probably one of the most novel pursuits of the UC-CEIN. High throughput is needed because we do not want to end up with 50 000-plus untested compounds as [is the case with] industrial chemicals."

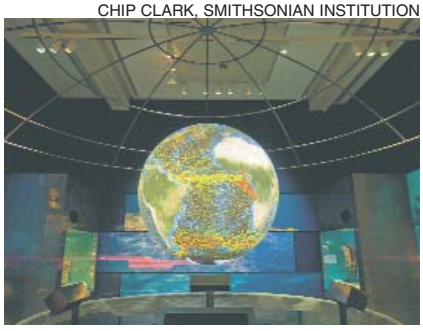
Partners in the California center include several UC campuses, Columbia University, and the University of Texas, El Paso. Both CEINs have international partners that will not receive US funding.

"We are looking at [the centers] as a means to develop nanotechnology responsibly," says Nora Savage, the EPA program officer for the CEINs. "We have had technologies before that resulted in unintended adverse impacts, including CFCs, which are great for refrigeration but ended up doing serious damage to the stratospheric ozone layer, and DDT, which is a great pesticide but ended up causing extensive damage to the ecosystem. So we are trying to understand ahead of time whether potential effects from nanotechnology might arise from a complete life-cycle perspective, and if so, can these be minimized so that we can maximize the benefit of the new technology." **Toni Feder**

news notes

Ocean view. A 45-foot whale replica greets visitors to a new hall at the Smithsonian Institution's National Museum of Natural History in Washington, DC. The 23 000-square-foot Sant Ocean Hall, which opened this fall, contains 674 prehistoric and contemporary marine specimens and models, including a re-created Indo-Pacific reef with about 74 live species. The $49 million project was funded by $15 million from philanthropists Roger and Vicki Sant, $21 million from federal appropriations, and other donors, for what museum director Cristián Samper calls "the most ambitious renovation in the museum's history."

CHIP CLARK, SMITHSONIAN INSTITUTION



Researchers at the National Oceanic and Atmospheric Administration created display software for a 360-degree, six-foot-wide sphere (see figure) that uses animation and narration to show, among other things, how heat and mass transport processes contribute to the ocean's food cycle and how the ocean influences climate change. Interactive exhibits invite visitors to, for example, play the role of an ocean scientist or fisherman or take a virtual underwater dive with a marine scientist.

Mary Glackin, NOAA's deputy undersecretary for oceans and atmosphere, says ocean research and public education are important "if we hope to manage and protect our largely unknown ocean that we rely on for life itself." **JNAM**

Blue Gene by the Red Sea. IBM is building a supercomputer for the King Abdullah University of Science and Technology. The supercomputer—dubbed Shaheen, Arabic for peregrine falcon—is slated to start up in stages at IBM's Thomas J. Watson Research Center in Yorktown Heights, New York, where it will be used for research and training before going online next summer at KAUST's Thuwal, Saudi Arabia, campus.

The 222-teraflop supercomputer is to be a copy of today's sixth most powerful computer, the Blue Gene/P system in Jülich, Germany. Neither KAUST nor IBM will reveal the cost, but other powerful supercomputers have run tens of millions of dollars.

The new supercomputer will be available for research in the university's four thrust areas: Earth and environmental sciences and engineering, life sciences and engineering, math and computer sciences, and physical and chemical sciences and engineering. People "will line up very quickly" to use the supercomputer, predicts Majid Al-Ghaslan, chief information officer for the fledgling KAUST (see PHYSICS TODAY, August 2007, page 33). "This will be a tool to attract the best research minds out there, and it's meant for academic research." IBM is helping KAUST recruit faculty to run and use the supercomputer. **TF**