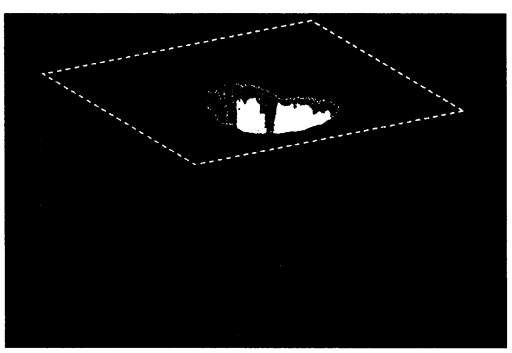
KIF1A data at the meeting. "It's very nice work and leads to new questions," such as what biases KIF1A's movement in one direction, comments David Hackney, a biophysicist at Carnegie Mellon University in Pittsburgh.

Taylor thinks there may be still more kinds of motors chugging away under the hood of the cell. "The mechanisms you can generate from the [general myosin-kinesin] structure are much broader than we had thought," he explains. "There are a whole bunch [of these proteins] out there whose details have not been worked out." **–ELIZABETH PENNISI**

REMOTE SENSING

Satellite Radar Spies City Subsidence

NAPLES, ITALY—For the past 9 years, researchers have been using the European Space Agency's remote-sensing satellites ERS-1 and ERS-2 to detect small movements of Earth's surface caused by earthquakes or volcanic activity, thanks to a technique known as radar interferometry. One team of researchers based here has been studying movements in Campi Flegrei, a volcanic area west of Naples, since 1992, when ERS data for that area became available. Much to their surprise, in recent images the researchers noticed that a well-defined 4-square-kilometer area of Vomero, a part of Naples, appeared to have subsided. "We observed that between 1992 and 1996 there was a rather significant subsidence of 5 to 6 centimeters," says Riccardo Lanari of IRECE, Italy's National Research Council laboratory for research in electromagnetism and electronic components in Naples, noting that this is the first time subsidence has been detected this way in a city.



Sinking feeling. Radar spotted subsidence in Naples that coincided with excavation of a new metro tunnel.

CREDITS: (LEFT TO RIGHT) ESA/IRECE; MALHOTRA *ET AL.*

At first, the team thought this apparent slump was a data error or due to atmospheric effects, until they noticed that it coincided, in both location and time, with the construction of a new underground railway line. The researchers have informed the city administration of Naples, as well as civil protection authorities and the railway company, about their discovery.

The two ERS satellites produce detailed radar images of the ground by bouncing pulses of radar waves off the surface. Radar interferometry involves taking an image of a certain area of terrain and then snapping the same spot some time later. Using a computer, one image is subtracted from the other. If there has been no change in the terrain, the resulting interferogram will be blank, but if the terrain has shifted, some of the reflected waves in the second image will be out of step with the corresponding waves in the first. This "phase" change will show up on the interferogram as interference fringes, each of which corresponds to a displacement of the surface of half the wavelength of the radar waves, which in the case of the ERS satellites would be 2.8 centimeters.

Using this method, the Naples team has detected ground movements in Campi Flegrei of as much as 25 centimeters. At first the team dismissed the much smaller shifts in Vomero as artifacts. However, they kept finding the same fringes consistently in several interferograms generated from data taken over different time spans. Lanari recalls that one of his co-workers said: "Hey, this is the area where they are building the metro."

From a study of 45 interferograms spanning different time periods, the subsidence became apparent in 1992 and coincided with the excavation of the new metro tunnel under Vomero. When the team superimposed the trajectory of the underground line on the interferograms, they found "a very strong correlation between the location of the maximum subsidence and the development of the underground. ... It is clear, and there is no discussion," says Lanari. They also observed that the subsidence gradually slowed after 1996 when excavations were completed.

Team leader Giorgio Franceschetti of the University of Naples says that their fortuitous finding may open up a variety of applications for radar interferometry. It could be used to keep an eye on densely populated areas where human activity may be affecting the stability of surface terrain, such as the Padano area near Venice, where natural gas is being extracted, and an area of Paris where other researchers believe they have already detected subsidence of about 1.5 centimeters. Jean-Claude Souyris of France's space agency, the CNES, in Toulouse confirms that "preliminary results" obtained using the same satellites show subsidence in a 100-meter-square area around the Condorcet metro station in Paris.

–ALEXANDER HELLEMANS

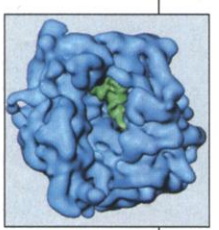
Alexander Hellemans writes from Naples, Italy.

ScienceScope

LOOKING AHEAD

The future may be "made of the same stuff as the present," the French philosopher Simone Weil wrote in the 1940s, but time finds surprising ways to transform the familiar into the fresh. *Science* previews what may be some of 2000's new twists on old tales:

Help Wanted Some plum science policy jobs are open—but who will risk taking them in the last year of the lame-duck Clinton Administration? The answer might come this spring, once search committees are through vetting candidates to replace former National Institutes of Health (NIH) head Harold Varmus and Department of Energy science czar Martha Krebs. The White House Office of Science and Technology Policy (OSTP) is also seeking an infusion of new blood. But according to Duncan Moore, OSTP's associate director for technology, "it's getting harder to attract good people [in the] eighth year of an 8-year administration."



Sharper Focus Cell gazers are anticipating more detailed looks at some of the major molecular complexes that make life possible. Using improved methods and machines, crystallographers may unveil the first high-resolution structure of one of the ribosome's two subunits by year's end, revealing the innards of the cell's protein factory (above). And researchers will get to know other structures—such as the nuclear pore that allows molecules to migrate in and out of the nucleus—in more vivid detail.

Third Time Out The Kyoto Treaty to stem global warming is frozen in political limbo in the United States, where the current Congress is likely to reject the pact—but that won't stop international teams from stepping up work on climate change science and policy. A September deadline looms for what one researcher calls "the climate Bible"—the Intergovernmental Panel on Climate Change's (IPCC's) draft *Third Assessment Report*, a once-every-5-years bid to sum up the state of the world's climate knowledge. But donor nations may have to cough up some cash quickly: The IPCC faces a "dire financial situation" because many nations have stiffed the body, according to chair Robert Watson. The "lack of financial commitment is rather disturbing, given the incredible effort of the experts who give so freely of their time," he says.

university officials defended the practice, they admitted that the system is flawed. "Physicians are also required to work a period of low-paying servitude, for which they are compensated the rest of their lives with higher pay and guaranteed employment," noted H. F. Gilbert of Baylor College of Medicine in Houston. "Unfortunately, we can't do that for postdocs."

Dresselhaus says the guide won't recommend a specific pay floor—"it would be hard to get anything through [NAS] review that was opposed by NIH or the biomedical community," she confesses—or prescribe certain practices. "But we hope people will use it as a basis for further discussion."

–JEFFREY MERVIS

ENDANGERED SALMON

Army Corps Seized by Dam Indecision

PORTLAND, OREGON—For years the Army Corps of Engineers has been chewing over the best way to bring back endangered populations of salmon and steelhead along the Snake River. The most controversial proposal—embraced by environmentalists and bitterly resisted by many local residents—is to breach four hydropower dams on the Snake River, a tributary of the Columbia River in Idaho and Washington state. At a press conference here on 17 December, the corps announced, to the dismay of both sides, that it was delaying a decision until summer.

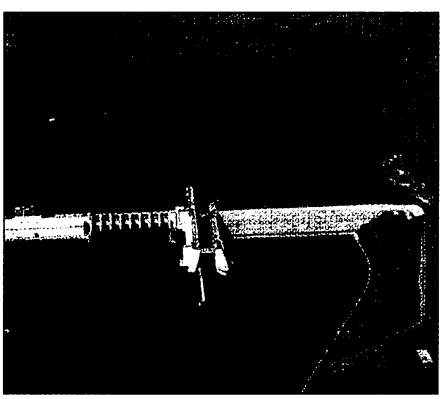
Describing the evidence as "not conclusive," Brigadier General Carl Strock, commander of the corps's Northwestern Division, argued that the economic and social impacts of breaching the dams are so enormous that the corps needs "additional regional dialogue and scientific information" to "arrive at a preferred alternative." As a basis for this discussion, the corps has released its draft environmental impact statement: megabytes upon megabytes on everything from salmon growth rates to analyses of tribal treaties (www.nwd.usace.army.mil).

The delay does not sit well with tribes and environmental groups. Fanning their displeasure, the U.S. Fish and Wildlife Service (FWS) issued a report on the same day asserting that dam breaching "would provide many more benefits to fish and wildlife" than would other options. The "biological conclusion is a no-brainer," says FWS regional administrator Anne Badgley. "A free-flowing river is better than a dammed river."

However, the corps will turn first for advice not to FWS, but to another agency—the National Marine Fisheries Service (NMFS)—which under the Endangered Species Act has the legal mandate to protect endangered migratory fish throughout the Columbia River Basin. Unsatisfied by the prospect of planning tributary by tributary, the NMFS wants to incorporate the recovery of Snake River fish into a basinwide effort. For that reason, says NMFS regional administrator Will Stelle, the agency is examining a "much more complicated" subject than Snake dams versus no Snake dams: the effects on endangered fish throughout the region of habitat degradation, hatcheries, and fishing, in addition to hydropower.

The examination is occurring through a broad new NMFS program called the Cumulative Risk Initiative. CRI—which attempts to integrate the factors determining the species' risk of extinction into a model of population growth—supersedes an effort known as the Plan for Analyzing and Testing Hypotheses, or PATH (*Science*, 23 April, p. 574). PATH was intended to be the sole scientific basis for a Snake River decision, until NMFS concluded that independent scientists would get lost in PATH's complexity.

Using the more transparent CRI model, Stelle says, NMFS scientists have finished an analysis of improvements that might help the Snake River salmon recover. The next step, he says, is to rate each option's feasibility. If what's best for the salmon were the sole criterion for decision-making, Stelle admits, "we should stop all irrigation, terminate all development and inriver uses, take out the dams, and probably move east." But economic and social factors—not just what's best for the salmon—must be considered, NMFS recognizes.



CREDIT: U.S. ARMY CORPS OF ENGINEERS

Breach of faith? Army Corps has yet to rule on fate of this Snake River dam.

Next summer, after the CRI is finished, the corps will identify its "preferred alternative" in a revised draft environmental statement. The final version is expected late in 2000. If the corps endorses dam breaching, the matter will go to Congress for a final decision—suggesting that the resolution on the fate of these controversial fish is a long way off.

–CHARLES C. MANN AND MARK L. PLUMMER

Mann and Plummer are the authors of *Noah's Choice*.

ScienceScope

Science Under Siege When security outfits in three former Soviet countries stepped up their activities in 1999, scientists paid the price. The Cold War games kicked into high gear last July, when Russian ecologist Vladimir Soyfer was accused of mishandling classified documents on nuclear contamination. The Ukrainian KGB charged marine biologist Sergey Piontkovski with diverting Western grant money to foreign accounts. And Belarus got in on the act, reportedly imprisoning a researcher who studies lands blighted by Chernobyl. No matter the outcome of these cases, there's no sign that the attack dogs will be under tighter leash in 2000.

Getting Out the Vote Cutting-edge science promises to be a 2000 election issue—but not in the way many might hope. Antiabortion groups have put a high priority on banning taxpayer funding of promising research using cells and tissues from human fetuses. The Traditional Values Coalition is already running TV ads attacking four senators, including Nebraska's Bob Kerrey (D), for voting against an amendment that would have required scientists to document the source of fetal tissues. Meanwhile, biomedical lobbyists are girding themselves for a bruising congressional debate this spring over legislation that would ban or restrict federal support for fetal tissue studies.

E-Publish or Perish? Web-based scientific publishing will see some major roll-outs this year, as NIH test drives its controversial PubMed Central biomedical journal database and several players develop more preprint sites for posting papers that haven't yet been exposed to a peer reviewer's red pen. And expect universities and research societies to step up their assaults on for-profit journals, founding more low-priced competitors.

Genomaniacs Researchers racing through a trio of high-profile genome sequencing efforts are likely to see some checkered flags soon. First across the finish line should be a complete picture of the fruit fly genome, scheduled for release within a couple of months. But the runner-up will get much more press: a rough first draft of the human genome, due by March. Plant scientists are rooting for a bronze for the humble mustard, whose genome could be sequenced by year's end. The list of organisms that have had their genetic codes cracked could grow to nearly three dozen by year's end.

Contributors: The *Science* News staff.