emphasis on environmental research, Kiper adds that "we reject the idea of a political steering of science." And he says that, although the Greens "are critical of genetic engineering, we do accept the necessity of certain gene-technology methods, especially in basic medical research." –ROBERT KOENIG

Robert Koenig is a writer in Bern, Switzerland.

House Report Takes Middle Ground

The United States must commit to "stable and substantial" funding for basic research if the country is to prosper in a post–Cold War world. That's the main conclusion of a much-anticipated congressional report* released last week by Speaker Newt Gingrich (R–GA) and members of the House Science Committee. Although some observers predict the report will help politicians to focus on the problems facing the scientific community, critics say its three dozen recommendations offer few fresh insights into such thorny issues as guidelines for participating in international projects and improving science education.

Key report. Local students "unlock" the new report by Rep. Ehlers, left, while Speaker Gingrich and George Brown look on.

CREDIT: RICK KOZAK

In June 1997, Gingrich asked committee member Representative Vern Ehlers (R–MI), the first research physicist elected to Congress, to take a fresh look at U.S. science policy (*Science*, 4 July 1997, p. 28). Ehlers's charge was to write a sequel to "Science: The Endless Frontier," the 1945 report by engineer Vannevar Bush that has guided U.S. science policy for decades. Ehlers pledged to "keep it simple" and to avoid the mistakes of an earlier panel that labored in the mid-1980s on a massive report that was never completed. And he kept his word: "Unlocking Our Future" was delivered on time and at a relatively concise 70 pages.

However, the tepid reaction of many veteran policy watchers suggests that the report may still have fallen well short of its mark. "It's an excellent and welcome statement on behalf of basic science, but it falls short of breaking new ground," says Lewis Branscomb, a science policy analyst at Harvard University Kennedy School of Government in Cambridge, Massachusetts.

To be sure, the report does not call for a radical overhaul of the country's approach to supporting science. "The message of this report is that, while not exactly broke, America's science policy is nonetheless in need of some important maintenance," says Representative James Sensenbrenner (R–WI), chair of the House Science Committee. In fact, the panel's ranking Democrat, Representative George Brown (CA), complains that the report's biggest flaw is that "it fails to take on some of the issues I think are most important to the future health of the scientific enterprise," including the need to support engineering and the social sciences and to ensure that all Americans benefit from research advances.

One of the report's more novel suggestions is a proposal to revamp the peer-review system to encourage "creative ... speculative" studies. "There are no rewards for risky science: It is too important to publish," the report quotes one postdoc as saying. But its solution—a new granting process that "depends on peer-review but takes into account the speculative nature of the proposed research"—is seen as lacking sufficient detail to be useful. The report "tries to have it both ways," says one analyst.

Although many recommendations echo a variety of past reports—expanding public-private research partnerships, improving the use of science in the courts and regulatory agencies, and strengthening science and math education at all levels—others tackle issues fresh on the minds of the science committee. For instance, a call for "a clear set of criteria for U.S. entry into, participation in, and exit from an international scientific project" appears to be rooted in the debate over three recent projects: the Large Hadron Collider now being built at Europe's high-energy physics laboratory in Geneva, the moribund International Thermonuclear Experimental Reactor, and the international space station. The focus on developing such "clear, predictable ground rules" for international projects is welcome as scientists grapple to un-

* "Unlocking Our Future: Toward a New National Science Policy," interim report, House Science Committee (www.house.gov/science/science_policy_report.htm)

ScienceScope

SPACE SCIENCE ISN'T FUN ANYMORE, GINGRICH SAYS

Most Americans may be fascinated by space exploration, but U.S. House Speaker Newt Gingrich (R–GA) says America's space bureaucrats have made it dull. "One of NASA's major achievements" has been "making space as boring as possible," the pugnacious politician charged last week at a Capitol press conference unveiling a new science policy report (see story on left). Reeling off a litany of complaints, Gingrich said the agency had become "cumbersome" and sponsors projects that are "the opposite of what you want good science to be." He also took some sharp jabs at the international space station, calling the oft-delayed project "an absolute disaster."

NASA officials declined an opportunity to respond to the attack. But House legislative staff said Gingrich's remarks could foreshadow more trouble from House Republicans for NASA officials, who have watched their budget shrink in recent years and are currently trying to talk Congress into paying for a $660 million space station bailout. Gingrich's rhetoric, one aide says, "sent a pretty unsubtle message."

BIOLOGIST NAMED RUSSIA'S SCIENCE MINISTER

The appointment of a physicist-turned–molecular biologist as Russia's new science minister could help the nation's natural scientists gain a bigger slice of the funding pie. Last week, Prime Minister Evgeny Primakov tapped Mikhail Kirpichnikov, 53, a veteran science administrator, for the top policy post despite opposition from some physicists and chemists, who currently garner the lion's share of Russia's science spending.

Kirpichnikov earned his doctorate at the Moscow Physical and Technological Institute before taking up a career in molecular biology at several prestigious institutes. Despite working for years as a wonk, Kirpichnikov has kept one foot in the research world, heading a lab in the Russian Academy of Sciences' Bioengineering Center. His background, says Mark van Montagu of the University of Gent in Belgium, could signal rising fortunes for Russia's struggling young biotech industry.

Contributors: David Malakoff, Jeffrey Mervis, and Andrey Allakhverdov

derstand global issues such as climate change, says retired Admiral James Watkins, who headed the Energy Department during the rise and fall of another big-science project, the Superconducting Super Collider.

Ehlers hopes that the House will adopt a resolution endorsing the report as a first step toward implementing its recommendations. And although Brown and other key Democrats are already voicing their concerns, many lawmakers have backed the report after being lobbied by university administrators in their districts who like its message. "It's not an especially partisan document, so it could spur a very useful debate," says one House staffer. Most important, he says, Gingrich's support means "it has what most reports lack—a powerful patron." **–DAVID MALAKOFF**

ASTROPHYSICS

Distant Star's Radiation Jolts Earth's Atmosphere

On 27 August at about 3:22 a.m. Pacific Daylight Time, a tidal wave of x-ray and gamma ray radiation washed over Earth, turning night to day in the upper atmosphere and shocking some satellite instruments into a self-preserving "safe hold" mode. The burst was reported at a NASA press conference in Washington, D.C., last Tuesday, but it apparently got its start 20,000 years ago and as many light-years away, when a superdense, supermagnetized neutron star suffered a massive "star-quake." Neutron stars are well-known x-ray sources, but this massive burst is "about the wildest thing in 30 years since we've been monitoring these things," says astrophysicist Kevin Hurley at the University of California, Berkeley.

The intensity of the 5-minute pulse was negligible at Earth's surface, but in space, it "was about a tenth of a dental x-ray dose," Hurley estimates. "It's a hell of a lot of radiation for a source that far away." An astronaut a tenth of a light-year away would have received a fatal dose in less than a second; near Earth the deluge was enough to trigger the momentary shutdown of equipment on NASA's Rossi X-ray Timing Explorer and on the NEAR and Konus-Wind spacecraft. It was also enough to leave its fingerprints on Earth's atmosphere.

One of the many phones that rang that August morning when the satellites felt the assault belonged to Umran Inan, a Stanford University physicist. Inan jumped out of bed to check the state of the ionosphere—the ionized layer of the upper atmosphere. He runs the Holographic Array for Ionospheric Lightning research (HAIL), a string of 50 radio antennas located in the backyards of high schools from Wyoming to New Mexico that monitors very low frequency radio broadcasts (with wavelengths tens of meters long), which the U.S. Navy uses to communicate with ships and submarines. By tracking the strength and the phase of the waves, HAIL can detect changes in the altitude of the ionosphere. A thicker ionosphere tends to act as a large pillow, weakening radio signals as they bounce between it and Earth's surface.

Inan and colleagues found that the strength of Navy radio signals from Hawaii and Seattle suddenly plummeted at the time the pulse swept over Earth. Those signals had bounced off the nighttime ionosphere, which normally hovers some 85 kilometers above Earth's surface. During the day radiation from the sun ionizes more molecules, substantially thickening the ionosphere. The weakening of the signals during the radiation pulse, Inan says, shows that the ionosphere's inner edge briefly plunged to 60 kilometers, about where it sits during the full force of daylight sun. It's the first time a pulse from outside the solar system has had such a drastic effect on the atmosphere, he says. Budding scientists at participating high schools weren't allowed to share in the excitement, however. "We couldn't tell them because of the news release" scheduled for this week, Inan says.

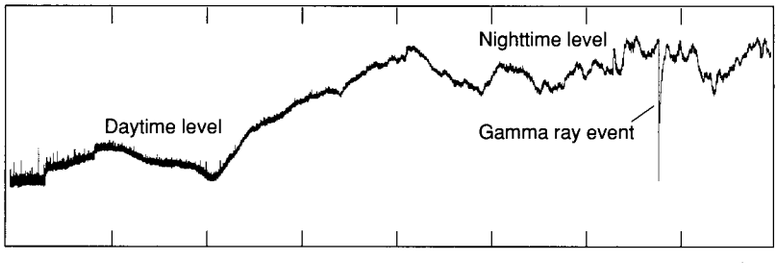
The origin of the pulse became clear when researchers noticed that its intensity varied with a 5.16-second cycle—the exact frequency of the x-ray source SGR 1900+14, located in the constellation of Aquila (the eagle), which had recently been acting up. The relative timing of the wave as it hit each of the satellites also pegged SGR 1900+14 as its origin. The object is thought to be a neutron star, which spews out x-rays from a hot spot as it rotates. "It's an x-ray lighthouse," says Hurley.

The surge, however, pointed to an unusually big convulsion on SGR 1900+14. Neutron stars, the dense embers of burned-out stars, inherit the magnetic fields of their parent stars and can concentrate those fields to enormous strengths. The magnetic field of such a "magnetar" would periodically tear apart the star's hard crust of heavy elements, relieving stress as in an earthquake. Particles shot upward in the quake would be accelerated by the magnetic field, producing a strong wave of radiation. To generate a burst of the magnitude that struck Earth, Hurley says, the field would have to be at least 10^{14} gauss, about 100 trillion times stronger than Earth's.

Could a nearby magnetar threaten the human race? "Yeah, I did that calculation," Hurley says. To trigger chemical reactions that would destroy the ozone layer, the explosion would have had to occur as close as the comet belts that girdle the solar system. A magnetar hiding there would have been sniffed out long ago, he says.

–DAVID KESTENBAUM

Hawaii Transmitter Signal Energy as Received in Colorado



Day for night. Radio signals bouncing off the nighttime ionosphere briefly weakened to daytime levels on 27 August, as a pulse of stellar radiation reached Earth.

CREDIT: STANFORD UNIVERSITY

INFORMATION SCIENCES

Japan Urged to Open Up Planning for Lab

TOKYO—In a country that prizes consensus, a group of university professors is planning to skirt official channels in a bold step to influence plans for a new national laboratory. The researchers fear that plans for the lab, tentatively named the National Informatics Institute, might be overly influenced by one person: electrical engineer Hiroshi Inose, a senior scientist formerly at the University of Tokyo. Meeting informally 2 weeks ago, the group put together a plan to seek government support for a broader review of the field before plans for the institute are finalized. In addition to buying time, the approach is in line with efforts to place all areas of scientific decision-making under closer public scrutiny (*Science*, 4 September, p. 1435).

"We may be losing the chance to set up a truly vibrant new national institute," says Tuneyoshi Kamae, a physicist at the University of Tokyo who has closely followed the planning for the new institute. Adds Hideo Miyahara, a computer scientist at Osaka University, "We are trying to have the opinions of the entire information science community re-