nia. "Basically, we've resolved the solar neutrino problem with a 99% confidence level. It's oscillations."

"This is an absolutely direct measurement," Bahcall says. "Previous results were not so direct." SNO scientists have already added salt to the heavy-water sphere, which will increase the instrument's sensitivity to muon and tau neutrinos and add another level of precision. "That will be a thrill," says Bahcall. –CHARLES SEIFE

U.S. RESEARCH BUDGET

Picture Brightens a Bit As First Bills Advance

U.S. scientists anxious about next year's federal research budget got some good news last week. Several congressional panels approved preliminary 2002 spending bills that restore research programs targeted for cuts by the Bush Administration, while others are considering channeling part of larger budget allocations to science. Pentagon officials also signaled that they may request a significant boost for defense R&D. Congress, however, still has a long way to go before any numbers become final for the fiscal year that begins 1 October.

The first bit of good news came from a panel that oversees the U.S. Geological Survey (USGS). Its members recommended that the agency get an $18 million boost to $901 million, some $87 million above the president's request. The biggest winner was USGS's $203 million Water Resources Division, which would get a 1% increase rather than a 22% cut (*Science*, 13 April, p. 182). "It's essentially a restoration budget, [and] that's a good thing," says lobbyist David Applegate of the American Geological Institute in Alexandria, Virginia, which had lobbied hard against the cuts. He is optimistic that the full House will approve the numbers later this month, and that the Senate will eventually follow suit.

The USGS funding was part of an $18.9 billion bill approved 13 June that funds the Department of Interior and a flock of smaller agencies. One, the Smithsonian Institution, was singled out in the wake of a controversial effort to reshape the museum complex's science programs. The panel ordered Secretary Lawrence Small to tread water until a new external advisory panel makes its report later this year, in effect backing complaints by Smithsonian scientists that Small has ignored their advice (*Science*, 11 May, p. 1034).

Many biomedical scientists were also pleased with language in a $74 billion agriculture spending bill approved by a House panel on 13 June. It would postpone for another year the development of new federal rules for the care of millions of laboratory mice, rats, and birds. Biomedical groups claim the rules would be duplicative and expensive.

Prospects for the Department of Defense's (DOD's) science budget—a mainstay for university math, engineering, and computer science departments—are also looking up. New DOD R&D chief Edward Aldridge told a Senate subcommittee on 5 June that he hoped to spend between 2.5% and 3% of the Pentagon's total budget on basic and applied science, endorsing a goal set by an advisory panel several years ago. That target, if incorporated in a long-delayed DOD budget request later this summer, could generate more than $10 billion for research, a 10% increase over current levels.

National Science Foundation (NSF) officials, meanwhile, are hoping to get a portion of an extra $1 billion allocated to the House and Senate panels that handle its budget, along with those of the Veterans Administration, the Department of Housing and Urban Development, NASA, the Environmental Protection Agency, and several other agencies. Lawmakers from both parties have deplored the Administration's 1.3% increase for NSF, a paltry $56 million, including a cut in its $3.3 billion research account. The House subcommittee will vote on a bill next week. –DAVID MALAKOFF

With reporting by Erik Stokstad and Jeffrey Mervis.

U.S. SCIENCE POLICY

Memo to Congress: Get Better Advice

Add science policy wonks to the list of those hoping to bring extinct species back from the dead. Academics, science lobbyists, and government officials gathered in Washington last week to hash out ideas for reviving Congress's Office of Technology Assessment (OTA), a science advice agency that lawmakers killed in 1995. By the end of the daylong workshop, however, there was no consensus on what might convince Congress to change its mind.

Created in 1972, OTA was known for organizing diverse panels that churned out well-regarded reports on hot policy topics such as genetic engineering. It's also been the inspiration for similar science advisory agencies established in other countries. But

ScienceScope

Banking on Chemicals Gene hunters have GenBank. X-ray crystallographers have their Protein Data Bank. Now Harvard University chemist Stuart Schreiber wants chemists to have a bank of their own to store the wealth of information on new bioactive small molecules.

The notion behind the aptly named Chembank, says Schreiber, is to collect a standard set of information on the way small biologically active molecules affect organisms. Chembank entries would cover both general effects, such as how a molecule might change a developing organism's appearance, and specific effects, such as how it might inhibit a specific protein kinase receptor. Chembank could also allow researchers to pinpoint common structural motifs in bioactive compounds—a feature that Schreiber believes could help synthetic chemists design more potent drugs with fewer side effects.

"It is a terrific plan; it would be a very valuable database," says Kevan Shokat, a chemical biologist at the University of California, San Francisco. But he and other supporters won't know until August if the National Cancer Institute, which is currently reviewing Schreiber's idea, will back the project.

Universities Fall in Line The government's controversial plan to privatize Japan's 99 national universities—and perhaps close or merge as many as two-thirds of them—got a big lift last week when the target population withdrew its opposition.

The Japan Association of National Universities changed its stance after deciding that greater independence is the key to coping with changing demographics, says that group's chair, Makoto Nagao. The association's traditional view that every national university should emulate the others and be treated uniformly, he says, clashes with attempts to meet growing demands on universities to conduct advanced research and provide adult education and other types of real-world training.

At the same time, Nagao remains concerned about local communities that might lose their national university. "Japan's future rides on the shoulders of education and research, and there should be more careful discussion over how to not jeopardize those functions," says Nagao, who is also president of Kyoto University. The association hopes to be consulted as the government makes plans to implement privatization over the next few years.

The huge burst of star formation first caught astronomers' attention last year, when the Very Large Array radio telescope in New Mexico detected a glowing bubble in a dwarf galaxy known as NGC 5253 in the constellation Centaurus. "Back then, I was nervous about calling this a young globular cluster," Turner says. But infrared observations and spectra obtained with the 10-meter Keck telescopes at Mauna Kea, Hawaii, confirmed her original suspicion. By measuring Doppler changes in infrared light from hydrogen in the bubble, Turner and colleagues calculated that the bubble was being blown by stellar winds moving at 5000 kilometers per hour—far stronger than winds astronomers had seen in other bubbles. Massive, powerful young stars, they concluded, must be churning out light and gases vigorously enough to produce 25% of the energy output of the dwarf galaxy. The infrared data also enabled the team to estimate the size of the star-forming region.

The 12-million-year-old newborn could help resolve enigmas in our own galaxy. The 150-odd globular clusters in the Milky Way are billions of years old, so little is known about their origins. According to Turner, similar clusters-in-the-making probably exist in other galaxies, but most are much farther away and harder to study than the one her team found. "I won't call this a Rosetta Stone," she says, "but if astronomers are to understand the birth of these clusters, they will keep getting back to this one."

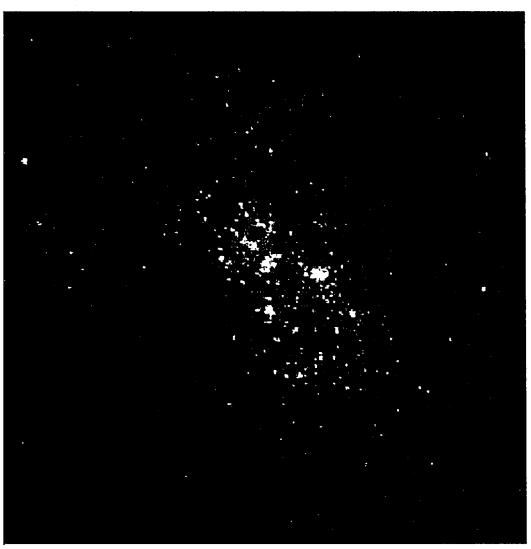
Small galaxies like NGC 5253 are proving fertile breeding grounds for new stars. At the same meeting, Armando Gil de Paz of the Infrared Processing and Analysis Center in Pasadena, California, reported evidence of another huge (though nonglobular) starburst in a dwarf galaxy known as Markarian 86. According to Gil de Paz, the 30-million-year-old burst has triggered the formation of new stars across the galaxy.

Why do dwarf galaxies undergo superstarbursts? Turner says no one knows yet, but in the case of NGC 5253, interaction with a neighboring spiral galaxy may be pumping star-forming material into the dwarf system. "[The luminous bubble] is a short-lived phase in the life of the cluster," she says. "We are lucky that NGC 5253 is at the right place and the right time for us to detect this extraordinary windblown bubble."

–GOVERT SCHILLING

Govert Schilling is an astronomy writer in Utrecht, the Netherlands.

CREDITS: (LEFT TO RIGHT) J. TURNER, RADIO/IR IMAGE; D. CALZETTI AND THE SPACE TELESCOPE SCIENCE INSTITUTE, OPTICAL IMAGE; NOAA



Fireball. One star-filled bubble (false-color red blip) in NGC 5253 radiates 25% of the dwarf galaxy's energy.

CANCER RESEARCH

Why Some Leukemia Cells Resist STI-571

The antileukemia drug known as Gleevec or STI-571 has been heralded as the vanguard of a new generation of cancer chemotherapy agents. Most current cancer drugs were discovered by randomly screening thousands of chemicals to see if any kill cancer cells. But STI-571—which is remarkably effective in treating chronic myeloid leukemia (CML)—was deliberately designed to counteract a specific biochemical change that makes cells cancerous. Yet STI-571 shares an unfortunate characteristic with conventional cancer drugs: Patients with advanced disease often relapse; their tumor cells become resistant and eventually grow out of control. Results published online by *Science* on 21 June (www.sciencexpress.org) now explain why, and perhaps point the way to improved therapies.

STI-571 works by inhibiting an enzyme that fuels cancer cell growth in CML—a kinase enzyme produced by the *BCR-ABL* oncogene. Almost all patients treated in the early stages of CML respond, and some have been in remission for more than 2 years. But the drug has been less effective in patients who are in an advanced phase of the disease called "blast crisis." These individuals sometimes go into remission on the drug—which almost never happens with older treatments—but 80% relapse in less than a year. "As soon as we saw that, it was obvious that the mechanism of relapse would be interesting," recalls Charles Sawyers of the University of California School of Medicine in Los Angeles, a member of the team that performed the clinical trials of STI-571 in CML patients.

To pin down that mechanism, Sawyers and his colleagues first assayed the level of Bcr-Abl kinase activity in tumor cells from 11 patients who had relapsed. They found that it came back in every patient. This was

ScienceScope

Going to Sea A prominent undersea explorer, a retired admiral, and a former top fisheries regulator are among the 16 people that President George W. Bush named last week to a new blue-ribbon Commission on Ocean Policy.

Congress established the government commission last year after lawmakers concluded that U.S. marine policy—on issues ranging from fisheries conservation to sea-lane security—needed a fresh look. They hope the new commission, whose members were chosen by Bush and the leaders of the House and Senate, will follow in the footsteps of a similar 1960s panel that catalyzed a host of marine research and legislative initiatives.

Among those chosen to serve are Robert Ballard, the undersea search wizard who has tracked down the *Titanic* and other sunken treasures; retired Admiral James Watkins, a longtime advocate of marine research; and fisheries scientist Andrew Rosenberg, a University of New Hampshire dean who until recently led the National Marine Fisheries Service. They and the other panel members are expected to meet for the first time within a couple of months, but a final report is at least 18 months away.

Swiss Stem Cells Frozen Switzerland's main researcher funder, the Schweizerische Nationalfonds (SNF), has indefinitely delayed a bid to import human embryonic stem (ES) cells for research. The SNF last week told two Geneva University researchers that—despite a favorable scientific evaluation and positive recommendations from a legal expert and two ethics panels—it will not act on their 15-month-old request until a national bioethics panel debates the issue.

The two researchers—Marisa Jaconi and Karl-Heinz Krause of the university's Louis Jeantet Laboratory for the Biology of Aging—told *Science* that they were pleased that their grant application, the nation's first to request the import of ES cells, had sparked public debate. But they worried that SNF's decision to ignore the positive reviews would "nurture irrational fears" and "unnecessarily" delay research.

SNF officials, however, said they did not want to preempt "the political discussion about this project's ethical and legal aspects." The bioethics panel is expected to take up the issue later this year.

Contributors: Robert F. Service, Charles Whipple, David Malakoff, Robert Koenig