U.S.–RUSSIA COLLABORATION

Russia Removes Obstacles to Projects

Happy endings are rare in Russian science these days, but with his pen and his word Prime Minister Viktor Chernomyrdin appears to have ended a pair of long-running battles that had imperiled major international projects in astrophysics and seismology. Last week, Chernomyrdin pledged that the Russian government would withdraw an earlier threat to sell 60 tons of gallium at the heart of a neutrino detector in southern Russia, and his science minister revealed that a new decree, signed by Chernomyrdin, will end customs snafus that have dogged a global seismic monitoring network.

The revelations added drama to the 10th meeting of the Russian-U.S. Commission on Economics and Technology, headed by U.S. Vice President Al Gore and Chernomyrdin. The Gore-Chernomyrdin Commission (GCC), as it's called, is meant to nurture and troubleshoot joint efforts in such areas as the international space station, nuclear disarmament, and disease surveillance, as well as showcase multimillion-dollar deals between U.S. and Russian companies. While the GCC meeting in Washington, D.C., last week featured some standard fare—including gripes about Russia's failure to keep the first space station component on track for a June launch—Chernomyrdin's commitment to preserve the two high-profile projects stole the show.

The first piece of good news came from Russian science minister Vladimir Fortov, who announced that a 5 March decree will settle a protracted dispute between Russian customs officials and scientists who run 12 seismological monitoring stations in Russia. The sites, some of which were set up in the late 1980s, are part of the Global Seismographic Network and are operated by the Russian Academy of Sciences (RAS), the U.S. Geological Survey, and Incorporated Research Institutions for Seismology (IRIS), a nonprofit university consortium based in Washington, D.C. The Russian sites provide rapid data on earthquakes and for studies of Earth's deep interior and help monitor compliance with the Comprehensive Test Ban Treaty barring nuclear weapons tests.

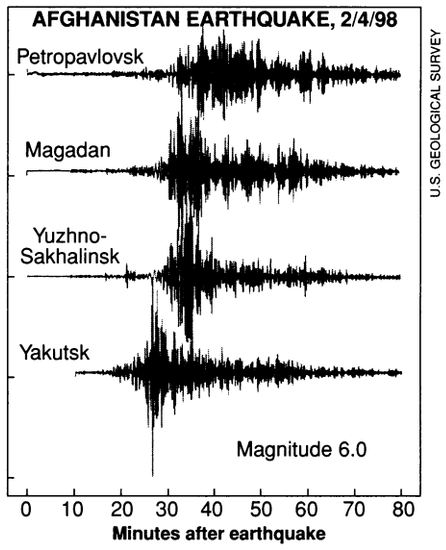
Trouble began soon after the Soviet Union fissioned in 1991, when Russia's fledgling customs bureau set out to collect duties on the country's mushrooming imports and exports. "The biggest problem," says IRIS President David Simpson, was that Russian customs began demanding retroactive duties on equipment already on Russian soil, even though it was exempt under Soviet-era agreements. And it would sometimes take 2 to 3 months to get data tapes through customs in the Russian Far East, he says, diminishing the data's value.

According to Fortov, the decree—stamped confidential by the Russian government—orders the duty-free import of instruments and other materials needed for bilateral research projects, including the seismology network. U.S. officials, who had not seen the decree by the time *Science* went to press, are cautiously optimistic that the problem is solved; Fortov was expected to release more details at an 18 March press conference in Moscow.

Also willing to take a tentative sip of champagne are researchers affiliated with the Soviet-American Gallium Experiment (SAGE), a solar neutrino observatory in the Caucasus mountains that has been in operation since the mid-1980s. SAGE has been beset by troubles of late: Last year the Russian government threatened to sell—and thieves tried and failed to steal—the detector's ultrapure, liquid gallium, prompting 12 Nobel laureates to appeal to Chernomyrdin to save SAGE (*Science*, 19 December 1997, p. 2045).

Responding to a query at the GCC meeting from White House science adviser Jack Gibbons, Chernomyrdin stated unequivocally that the Russian government would not sell the gallium. "This is clearly good news" for neutrino physicists, Gibbons says. Now U.S. and Russian officials are hoping Chernomyrdin will issue a formal decree to change the gallium's status as a national reserve held for Russian industry to an RAS asset, says the Russian head of the SAGE collaboration, Vladimir Gavrin. Until that happens, Gavrin says, the gallium's "long-term future in science will not be assured."

–Richard Stone



News travels faster. Decree should speed data from these seismic stations in the Far East.

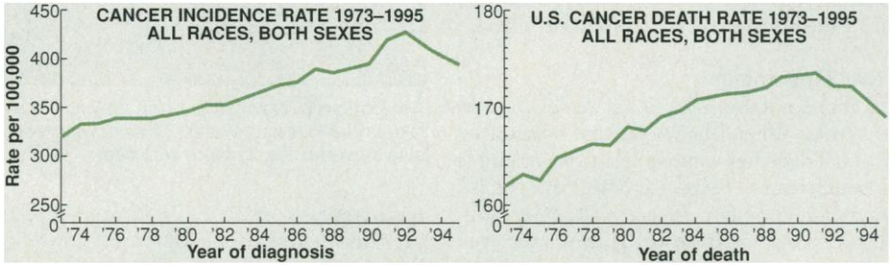
THE WAR ON CANCER

Cancer Warriors Claim a Victory

The news couldn't have come at a better time for cancer researchers: Just as Congress began working on the 1999 biomedical budget, a group of experts announced last week that the United States has "turned the corner in the war on cancer." That was the word from David Rosenthal, president of the American Cancer Society, as he and other public health leaders released encouraging data at a press conference in Washington, D.C. According to their report (published in the 15 March issue of *Cancer*), a sea change occurred in 1992. In that year, cancer rates that had been rising steadily from the 1930s through the 1980s reversed and began to drift downward.

The average death rate for all types of cancer, which had been rising at 0.4% per year from 1973 to 1990, dropped 0.5% per year from 1990 to 1995. At the same time, the incidence of new cases (based on a sample of 9.5% of the population) began to recede. After climbing at an annual rate of 1.2% from 1973 to 1990, cancer incidence has been declining by 0.7% annually in recent years.

Many biostatisticians—including Harry Rosenberg of the National Center for Health Statistics in Hyattsville, Maryland, a co-author of the report—agree that one cancer is driving these overall trends: lung cancer. Aided by a long-term decline in stomach



Turning point. New cancer cases *(left)* and deaths began to decline in 1992.

cancer deaths and more recent declines in deaths from breast and colorectal cancer, the decline in smoking has helped push down average cancer death rates. People began to give up cigarettes after the surgeon general branded them a cancer risk in 1964. The effects of that shift in behavior showed up first in lung cancer rates among men, which have been declining since 1984. For women, who started smoking later, lung cancer incidence is still climbing, although its rate of increase has slowed since 1994. Another factor in the decline in mortality rates for some cancers is the widespread use of improved detection methods, such as mammography, that can catch cancers early.

The importance of smoking trends and early detection means, says John Bailar, a biostatistician at the University of Chicago, that "the government has had little role" in directing the recent improvements, which reflect decisions by millions of individuals to improve their lifestyle. Basic research may have resulted in an explosion of new knowledge about the molecular processes that lead to cancer, but these findings have had little impact on overall cancer figures, Bailar and others argue.

National Cancer Institute (NCI) director Richard Klausner says, however, that the data "do not reveal the real improvements in the quality of life for cancer survivors" made possible by improvements in therapy and medical care. It is very difficult, Klausner argues, to ascribe causes to any changes in cancer rates—other than to those related to tobacco. But "we know that for certain cancers, screening and therapy have made a difference" in prolonging life, he says. For example, he points out that clinical trials have established that surgery plus adjuvant therapy—including tamoxifen, which is designed to block cancer in a second breast, and mixed drug cocktails known as "polychemotherapy"—have reduced deaths from breast cancer. As for contributions from basic research, Klausner predicts that NCI-supported studies of cancer genetics should pay off in the future with improved diagnostics and screening—and, before long, in new methods of targeting chemotherapeutic agents more effectively. But at the moment, he concedes, "this is a hypothesis."

Klausner also cautions that although many trends in the "cancer report card," as the authors called it, are favorable, there's no cause for complacency. The incidence of cancer of the skin and lymph system, for example, continues to increase, and African Americans have not shared in the improvements seen in the Caucasian population—partly because blacks may have poorer access to screening and therapy. Blacks were specifically at greater risk for developing and dying of breast and prostate cancer.

For whites, one of the most dangerous cancers is melanoma, whose incidence is rising at a rate of about 2.5% a year. Despite its lethality, however, melanoma is often manageable if caught early; deaths have been declining at 0.4% a year since 1990, reversing a previous upward trend. But the battle against the lymph disease known as non-Hodgkin's lymphoma has not been going so well. Incidence rose at 3.5% a year in the 1980s; while it slowed after 1990, it continued to climb at a rate of 0.8% per year. It remains lethal: For unknown reasons, the death rate from this cancer actually increased faster—by 1.9% per year—in the 1990s than it did in the 1980s.

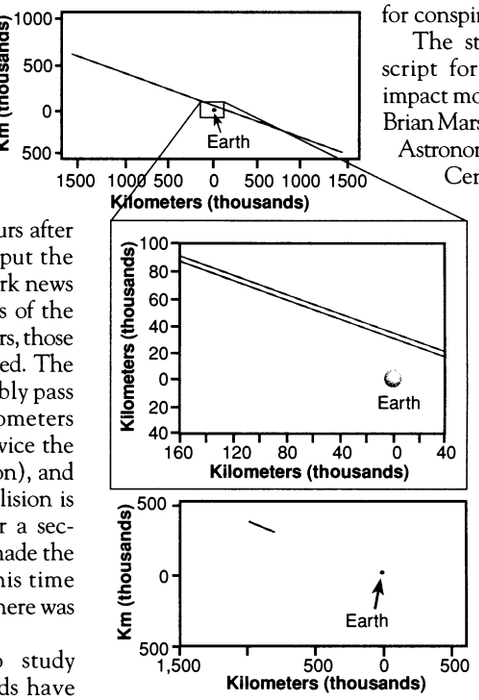
The most likely explanation for the rise in skin cancer, says Brenda Edwards, an NCI statistician and co-author of this report, is that "we have a lot more leisure time to spend at the beach and on the tennis courts," where people get sunburned. There is no consensus on why non-Hodgkin's lymphoma is climbing among older people, says NCI researcher Lynn Ries, adding that "studies are under way." Also targeted for investigation, says Edwards, is a rise in brain cancer among the elderly.

–Eliot Marshall

SCIENCE AND THE PRESS

Asteroid Scare Provokes Soul-Searching

Is a false alarm better than no alarm at all? Astronomers are debating that question this week after their very public reassessment of the threat posed by asteroid 1997 XF11, which is headed for a close encounter with Earth in 2028. On Wednesday, 12 March, initial calculations suggested that there was a small possibility that the object—thought to be at least a kilometer wide—might collide with Earth. But just hours after a press release had put the story on the network news and the front pages of the morning's newspapers, those estimates were revised. The asteroid will probably pass about 950,000 kilometers away (more than twice the distance to the moon), and the chance of a collision is essentially zero. For a second day, the story made the front pages, only this time the news was that there was no need to worry.



SOURCE: P. CHODAS/JPL/NASA/CALTECH

Not to worry. The long, thin region (green) through which the asteroid's orbit will pass in October 2028 *(top)* comfortably misses Earth. Later analysis moved the orbit farther away *(bottom)*.

Scientists who study near-Earth asteroids have been lobbying for more attention and more funding, but some say this is not the kind of spotlight they need. "It reflects horribly on our credibility," says Richard Binzel of the Massachusetts Institute of Technology. "I would rather have the honest answer out there, maybe on page 7. That would be better than coming back the next day [with a revision]." To head off future false alarms, he and others say that before the press is notified of a threatening asteroid or comet, word should go out to a small community of colleagues so that they can come to a consensus before the media storm breaks out. But others, including Steve Maran of the American Astronomical Society, who distributed the press release, counter that the benefits of the publicity outweigh the confusion, and say too much behind-the-scenes conferring is fodder for conspiracy theorists.

The story started out like a script for one of the asteroid-impact movies due out this spring: Brian Marsden of the International Astronomical Union's (IAU's) Central Bureau for Astronomical Telegrams in Cambridge, Massachusetts, a clearinghouse for new discoveries in astronomy, published a notice on the organization's e-mail circular, asking his colleagues to take a closer look at an asteroid that seemed to be headed for a very close encounter with Earth. The latest observations, made a week before, suggested that the object would pass especially near Earth in October 2028, and the uncertainty in Marsden's preliminary calculations seemed to leave room for a collision.

The circular, which included an uncharacteristic exclamation point, was followed by the press release from Marsden (distributed by Maran). Within hours, the news of the close encounter—and the chance of a collision—was all over the media.

But the rest of the story didn't follow the script. A few hours after they received the circular, Paul Chodas and Donald Yeomans