

Climate Talks Reach New Milestone

In early November, 170 countries finally achieved consensus on how to cut global carbon dioxide emissions produced by humankind to 5% below their 1990 levels. The plan is part of the ongoing negotiations for implementing the 1997 Kyoto Protocol to slow down global warming. Nearly 4500 delegates gathered in Marrakech, Morocco, for the seventh session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP7). Negotiations on how to implement the cuts had, until this point, frequently collapsed (see PHYSICS TODAY, November 2000, page 43). So far, only 44 countries have ratified the Kyoto Protocol. Romania is the only industrialized country to have done so.

COP7 covered the right to buy and sell carbon emissions between countries, methodologies for reporting and monitoring emissions, the transfer of energy technology, and mechanisms for enforcing compliance with targets set under the Kyoto Protocol. One stumbling block overcome at the meeting involved natural carbon sinks such as forests. After an 18-hour negotiating session, Russia demanded—and got—a doubling (to 33 million tons) of the amount of carbon it could claim for Russia's forestry sinks. "All the decisions on sinks were, by necessity, a blend of science and politics," says Elliot Diringer, director of international strategies at the Pew Center on Global Climate Change in Arlington, Virginia. "The science simply is not clear enough to provide the firm guidance policy-makers would like."

For the Kyoto Protocol to become international law, countries repre-

senting 55% of global carbon dioxide emissions in 1990 must ratify the treaty. The US, the world's largest emitter, currently refuses to do so. "The emissions targets are not scientifically based or environmentally effective. . . . The protocol is not sound policy," Paula Dobriansky, under secretary for global affairs at the US State Department, told delegates in the closing session. But, even without the US, the treaty could still become law if the European Union, Russia, and Japan ratify it. These three hope to bring the protocol into force by September 2002, when the World Summit on Sustainable Development meets in Johannesburg, South Africa.

PAUL GUINNESSY

NEWS NOTES

Pluto power. The prospects of sending a spacecraft to Pluto look much better now than they did a year or so ago. In fall 2000, NASA stopped work on its Pluto-Kuiper Express mission because of mounting costs (see PHYSICS TODAY, November 2000, page 45). A few months later, the agency opened the mission to competition, stipulating science goals, a cap of \$500 million, and a flyby before 2020.

The turnaround followed outcry by the public and the science community, with the NASA Solar System Exploration Subcommittee's rating a trip to Pluto as its highest priority. Not going now, proponents argued, would mean having to wait a quarter of a millennium until Pluto again comes close enough to the Sun for the planet's atmosphere to thaw.

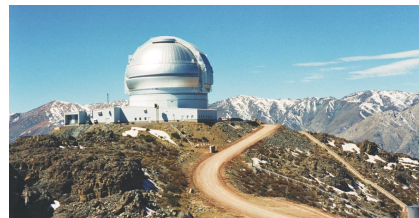
The winning Pluto mission is New Horizons, NASA announced on 29 November. Led by Alan Stern of the Southwest Research Institute in Boulder, Colorado, the spacecraft will be built by the Applied Physics Laboratory at Johns Hopkins University, and involves several other partner institutions.

"It's a mini grand tour," says Stern. "We'll be exploring the frontier worlds near the edge of the planetary system." Among New Horizons' aims are characterizing Pluto's atmosphere and mapping the surface compositions of Pluto, its moon Charon, and other Kuiper Belt objects. The mission is scheduled for launch in January 2006, with a Jupiter flyby and gravity boost in the summer of 2007.

Congress has approved \$30 million for fiscal year 2002 toward a Pluto-Kuiper Belt mission. The

White House, however, does not favor flying to Pluto, so finding funding for the outyears could still be iffy. —TF

Gemini South telescope. Construction of Gemini South in Cerro Pachon, Chile, is complete and will be celebrated by a dedication on 18 January. The telescope has moved into the instrumentation and commissioning



GEMINI/PETER MICHAUD

phase. Once it catches up with its northern twin in Mauna Kea, Hawaii, the two combined will have their optical/infrared eyes on the entire sky. Gemini North and Gemini South were built for \$184 million total, and they are the only telescopes in the 8-meter class that are public, meaning that any astronomer in the seven partner countries—Argentina, Australia, Brazil, Canada, Chile, the UK, and the US—can apply to use them. —TF

Particle physics in Victoria. Richard Keeler took the reins last year as director of Canada's Institute of Particle Physics. A nonprofit organization founded in 1971 and jointly owned by 10 Canadian universities and TRIUMF, Canada's national particle and nuclear physics laboratory, the IPP sets the agenda for Canada's particle physics community and coordinates the country's participation in international particle physics experiments.

During Keeler's five-year directorship, the itinerant IPP will make its home at the University of Victoria, British Columbia, where Keeler is on the physics faculty. As IPP director, Keeler aims to start an invited speaker program, improve outreach efforts in particle physics, and increase the number of researchers on the IPP payroll—they currently number seven, and they are free to work at any Canadian research institute. —TF

Planetary Society officers. Wesley Huntress and Neil deGrasse Tyson have been elected to head the Planetary Society, which works to enthuse the public about exploration of the Solar System and promotes and funds the search for extraterrestrial life.

Huntress, a former NASA associate administrator for space sciences, heads the Carnegie Institution of Washington's geophysical laboratory. On 25 September, he moved from the



ISD/ENB—LEILA MEAD

INTENSE NEGOTIATIONS at COP7: Michael Zammit Cutajar (left) saw success at his final meeting as executive secretary of the United Nations Framework Convention on Climate Change.



TYSON AND HUNTRESS

vice presidency to the presidency of the Planetary Society. Tyson, the society's new vice president, is an astrophysicist and the director of the Hayden Planetarium in New York City.

The Planetary Society was founded in 1980 by Carl Sagan, Louis Friedman, and outgoing president Bruce Murray. It now counts 100 000 members in 40 countries. —TF

Earth and space sciences jobs. Pay increased and job search time decreased for US graduates in Earth and space sciences during the five-year period from 1996 to 2000. These are among the findings of the latest annual survey conducted by the American Geophysical Union, American Geological Institute, and the American Institute of Physics.

Among survey respondents who received their PhDs in 2000, 28% described the job market as good or excellent and 22% said it was bad or hopeless. In 1996, only 4% had a positive perception of the job market and

65% found it dismal.

The recent results show that 97% of the PhD class of the year 2000 were employed in science and engineering and 82% found work in the Earth and space sciences. About half moved directly into full-time positions, while 42% took postdocs.

The recent downturn of the US economy will probably have a slightly negative effect on the job market for the class of 2001, says Roman Czujko, manager of AIP's Statistical Research Center. "It might be a little harder to find permanent positions, and more graduates might end up in postdocs than previous years."

The full report, *Earth & Space Science PhDs, Class of 2000*, is available at <http://www.aip.org/statistics/trends/emp trends.htm>. —ACT

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Web Watch



http://www.ethbib.ethz.ch/exhibit/pauli/pauli_e.html

Last year marked the 100th anniversary of Wolfgang Pauli's birth. To commemorate the occasion, the Swiss Federal Institute of Technology has created **Wolfgang Pauli and Modern Physics**, an online exhibition devoted to Pauli's life and work.

<http://www.nd.edu/~networks/clap>

Zoltán Nédá, a theoretical physicist at Romania's Babes-Bolyai University, is interested in how synchronized clapping emerges from audiences' applause. His Web page, **The Sound of Many Hands Clapping**, includes audio files of clapping, as well as links to the papers he and his collaborators have written about the topic.

<http://survey.nagps.org>

As part of its mission to improve the lot of graduate and professional students, the National Association of Graduate-Professional Students last year surveyed 32 000 current and former students. The results of **The 2000 National Doctoral Program Survey** are now available online. Most of the survey's respondents were happy with the academic aspects of their education, but many wished for more advice for dealing with life after graduation.

To suggest topics or sites for Web Watch, please e-mail us at ptwww@aip.org.

Compiled by CHARLES DAY