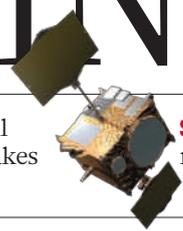


# NEWS IN FOCUS



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**SPACE** Japanese probe misses its date with Venus **p.881**

**CANCER** Hazardous dust raises concerns in Turkey and North Dakota **p.884**

J. BARRETO/AFP/GETTY



Christiana Figueres (left), executive secretary of the UN climate framework, speaks with Mexico's foreign minister Patricia Espinosa during the recent climate-change conference in Cancún.

## ENVIRONMENTAL SCIENCE

# Last-minute deal saves climate talks

*Modest agreement brings developing world into the field.*

BY JEFF TOLLEFSON

International negotiators did what they needed to do in Cancún, Mexico, to keep the United Nations climate talks from collapsing into the failure that many had feared. The true extent of their success, however, will depend on what comes next.

Working into the small hours of 11 December, negotiators agreed that both developed and developing countries will act to reduce greenhouse-gas emissions — and that those actions

will be registered and subjected to some form of international verification. The accord represents a major shift for developing countries, which faced no such commitments under the existing Kyoto Protocol, due to expire in 2012. The conference also reached a historic agreement on forest protection, and advanced programmes to help the developing world adopt clean energy and adapt to climate change.

“It’s not just about process, it’s about substance,” said Connie Hedegaard, the European Union’s top climate official, in a news conference

as the all-night talks wrapped up. “We have proven that multilateralism can create results.”

The negotiators built on the broader framework of last year’s Copenhagen Accord. “Ideas that were just skeletal last year are now approved and elaborated,” says Todd Stern, the chief US climate negotiator. But unlike the Copenhagen document, which was blocked by a few countries in a rowdy final session, the Cancún agreement was adopted unanimously. “It’s a significant step forward,” says Stern.

The agreement sets a goal of limiting average warming to 2°C above preindustrial levels, while acknowledging that current commitments registered under the UN climate framework do not add up to meeting that goal. It also pledges to periodically review the goal on the basis of “the best available scientific knowledge”. Parties agreed to help mitigate emissions according to their own capabilities while a new international reporting system tracks their progress; the burden on developing countries would mainly fall on rapidly emerging economies.

David Victor, director of the Laboratory on International Law and Regulation at the University of California, San Diego, calls the global nature of the agreement “tremendously important”, although it mostly amounts to registering previous progress. “They have managed to reach agreement by moving the goalposts closer to the ball,” he says.

The talks nearly faltered over the future of the Kyoto Protocol, which requires the world’s wealthiest nations — apart from the United States, which has never signed on — to meet specific emissions targets. Japan made waves at the meeting’s outset by announcing it would not support an extension of the treaty after it expires. The final text of the Cancún agreement defers the Kyoto question for another year.

The other major dispute in Cancún was between the world’s two largest greenhouse-gas emitters — the United States and China. With a little help from India, which staked out a position in the middle and softened its rhetoric against binding commitments, both parties were able to agree on some basic requirements for reporting and verifying climate pledges.

Progress on these issues was crucial to keep the talks alive and to open the way to more focused decisions in other areas. First among them was the deforestation agreement, which ▶

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For our full coverage of the Cancún meeting, visit:  
[go.nature.com/9uatzj](http://go.nature.com/9uatzj)

► advocates hailed as a major accomplishment that will bolster bilateral and multi-lateral efforts already under way.

The Cancún agreement establishes a framework that would allow wealthy nations to pay others for “reducing emissions from deforestation and forest degradation” (known as REDD) and augmenting the carbon stocks locked up in forests. Collectively, the programme is called REDD-plus. The agreement requires developing countries to craft a national plan, establish a baseline for historic emissions from forest loss and create a system for monitoring their forests. Just as importantly, says John Niles, director of the Tropical Forest Group in San Diego, California, the agreement calls on an existing technical body to look into the programme rules and requirements and then report back within a year.

“Once we have those requirements, then everybody knows what we have to get to before any money changes hands,” says Niles. “This is the biggest decision we could have asked for.”

**“They have managed to reach agreement by moving the goalposts closer to the ball.”**

Delegates also agreed to establish a Green Climate Fund to be managed by representatives of the developed and developing world to help channel aid; a Cancún Adaptation Framework to help to guide decisions on funding for adaptation measures in the developing world; and a technology-transfer mechanism to supply developing nations with technology for clean energy and adaptation. As promised in Copenhagen, industrialized nations will provide some US\$30 billion for these programmes by 2012, and up to \$100 billion annually by the end of the decade, although where the money would come from remains unclear.

Tim Gore, climate-change adviser for Oxfam International, based in Oxford, UK, lauds the Green Climate Fund but says that countries missed an opportunity to spell out long-term climate funding, perhaps through a levy on international aviation and shipping. Nonetheless, the agreement represents “a solid step”, says Gore. “They are now walking in the right direction, but they need to start running.” ■

## PARTICLE PHYSICS

# No black holes, but extra time at LHC

*Upgrade likely to be delayed in bid to capture Higgs particle.*

BY GEOFF BRUMFIEL

The end of the world is not nigh after all. Flouting predictions from some theorists, microscopic black holes have so far failed to appear inside the Large Hadron Collider (LHC), scientists there have revealed.

The result, which will be posted this week on arXiv.org, comes as researchers make plans to keep the LHC running until the end of 2012, rather than 2011 as previously scheduled. The 27-kilometre collider at the particle-physics laboratory CERN near Geneva, Switzerland, had endured delays and a crippling breakdown before finally surging to life late in 2009, and physicists say it is now performing above expectations.

Predictions of mini black holes forming at collision energies of a few teraelectronvolts (TeV) were based on theories that consider the gravitational effects of extra dimensions of space. Although the holes were expected to evaporate quickly, some suggested that they might linger long enough to consume the planet. But scientists at the Compact Muon Solenoid (CMS) detector now say they found no signs of mini black holes at energies of 3.5–4.5 TeV. Physicist Guido Tonelli, the detector’s spokesperson, says that by the end of the next run, the LHC should be able to exclude the creation of black holes almost entirely.

The find is one of a stream of recent papers from the LHC, made possible by the machine’s unexpectedly high performance. “We were very surprised by how well behaved the

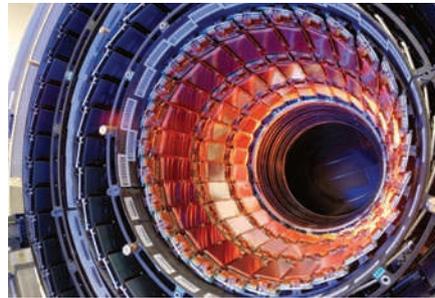
machine was when we started really pushing it to its limit,” says Steve Myers, the CERN physicist who oversaw this year’s LHC operations. As a consequence, physicists are increasingly optimistic that they may be able to detect the elusive Higgs boson earlier than expected. The particle, the LHC’s best-known quarry, and its associated field are thought to endow other particles with mass.

Initially, physicists were not sure that the LHC could create and detect the Higgs at the machine’s current energies, and CERN managers had planned a 15-month hiatus from the start of 2012 for an upgrade that would allow

it to run at higher energies. But a growing consensus holds that even without the upgrade, the LHC will be able to explore most of the energy range in which a standard Higgs particle might be found. Sergio Bertolucci, CERN’s director for research and computing, adds that there are political reasons

to extend the run. The world’s second most powerful accelerator, the Tevatron at Fermilab in Batavia, Illinois, is nipping at the LHC’s heels as it gathers a growing body of data in its own Higgs hunt. Moreover, the potential success of the LHC is likely to influence European plans for high-energy physics, as well as a global plan for a next-generation linear collider. Both face big budget decisions in the next few years.

The plan to extend the LHC’s run will be discussed at a meeting of LHC managers in Chamonix, France, in late January, with a final decision expected shortly after. ■



No black holes here: the Compact Muon Solenoid.

M. BRICE/CERN

  
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