

Joint Media Release by the Authors of The Copenhagen Diagnosis, 2009

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Press Conferences:

Wednesday, 25th November 2009, 11:00 a.m. Australian Eastern Summer Time, Climate Change Research Centre (CCRC) Conference Room, University of New South Wales, Sydney, Australia.

Tuesday, 24th November 2009, 11:00 a.m. Central European Time, Presseclub Concordia, Vienna, Austria

CLIMATE CHANGE ACCELERATING BEYOND EXPECTATIONS, URGENT EMISSIONS REDUCTIONS REQUIRED, SAY LEADING SCIENTISTS

Global ice-sheets are melting at an increased rate; Arctic sea-ice is disappearing much faster than recently projected, and future sea-level rise is now expected to be much higher than previously forecast, according to a new global scientific synthesis prepared by some of the world's top climate scientists.

In a special report called 'The Copenhagen Diagnosis', the 26 researchers, most of whom are authors of published IPCC reports, conclude that several important aspects of climate change are occurring at the high end or even beyond the expectations of only a few years ago.

The report also notes that global warming continues to track early IPCC projections based on greenhouse gas increases. Without significant mitigation, the report says global mean warming could reach as high as 7 degrees Celsius by 2100.

The Copenhagen Diagnosis, which was a year in the making, documents the key findings in climate change science since the publication of the landmark Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report in 2007.

The new evidence to have emerged includes:

- Satellite and direct measurements now demonstrate that both the Greenland and Antarctic ice-sheets are losing mass and contributing to sea level rise at an increasing rate.
- Arctic sea-ice has melted far beyond the expectations of climate models. For example, the area of summer sea-ice melt during 2007-2009 was about 40% greater than the average projection from the 2007 IPCC Fourth Assessment Report.
- Sea level has risen more than 5 centimeters over the past 15 years, about 80% higher than IPCC projections from 2001. Accounting for ice-sheets and glaciers, global sea-level rise may exceed 1 meter by 2100, with a rise of up to 2 meters considered an upper limit by this time. This is much higher than previously projected by the IPCC. Furthermore, beyond 2100, sea level rise of several meters must be expected over the next few centuries.

- In 2008 carbon dioxide emissions from fossil fuels were ~40% higher than those in 1990. Even if emissions do not grow beyond today's levels, within just 20 years the world will have used up the allowable emissions to have a reasonable chance of limiting warming to less than 2 degrees Celsius.

The report concludes that global emissions must peak then decline rapidly within the next five to ten years for the world to have a reasonable chance of avoiding the very worst impacts of climate change.

To stabilize climate, global emissions of carbon dioxide and other long-lived greenhouse gases need to reach near-zero well within this century, the report states.

The full report is available at www.copenhagendiagnosis.org

Statements by Authors

"Sea level is rising much faster and Arctic sea ice cover shrinking more rapidly than we previously expected. Unfortunately, the data now show us that we have underestimated the climate crisis in the past."

Professor **Stefan Rahmstorf**, Professor of Physics of the Oceans and a Department Head at the Potsdam Institute for Climate Impact Research in Germany.

"Carbon dioxide emissions cannot be allowed to continue to rise if humanity intends to limit the risk of unacceptable climate change. The task is urgent and the turning point must come soon. If we are to avoid more than 2 degrees Celsius warming, which many countries have already accepted as a goal, then emissions need to peak before 2020 and then decline rapidly."

Professor **Richard Somerville**, Scripps Institution of Oceanography, University of California, San Diego, USA.

"We have already almost exceeded the safe level of emissions that would ensure a reasonably secure climate future. Within just a decade global emissions need to be declining rapidly. A binding treaty is needed urgently to ensure unilateral action among the high emitters."

Professor **Matthew England**, ARC Federation Fellow and joint Director of the Climate Change Research Centre of the University of NSW, Australia.

"This is a final scientific call for the climate negotiators from 192 countries who must embark on the climate protection train in Copenhagen. They need to know the stark truth about global warming and the unprecedented risks involved."

Professor **Hans Joachim Schellhuber**, Director of the Potsdam Institute for Climate Impact Research (PIK) and Chair of the German Advisory Council on Global Change (WBGU).

"The adjustment of glaciers to present climate alone is expected to raise sea level by approximately 18 centimeters. Under warming conditions glaciers may contribute as much as more than half a meter by 2100."

Dr. **Georg Kaser**, Glaciologist at the University of Innsbruck, Austria

"Warming of the oceans and increased uptake of CO₂ is of increasing concern for the marine environment. The loss of biodiversity due to upper ocean warming, ocean

acidification and ocean de-oxygenation will add dramatically to the existing threads of overfishing and marine pollution”.

Professor **Martin Visbeck**, Professor of Physical Oceanography and Deputy Director of IFM-GEOMAR

“The climate system does not provide us with a silver bullet. There is no escape but to start reducing greenhouse gas emissions as soon as possible.”

Professor **Nicolas Gruber**, Professor for Environmental Physics, ETH Zürich

"Climate change is coming out even clearer and more rapidly in the recent data. The human contribution is not in doubt."

Professor **Corinne Le Quéré**, University of East Anglia School of Environmental Sciences, UK

"Climate change is accelerating towards the tipping points for polar ice sheets. That's why we're now projecting future sea level rise in metres rather than centimeters."

Professor **Tim Lenton**, University of East Anglia School of Environmental Sciences, UK

"Reducing tropical deforestation could prevent up to a fifth of human CO2 emissions, slowing climate change and helping to maintain some of the planet's most important hotspots of biodiversity."

Professor **Peter Cox**, Climate System Dynamics at the University of Exeter, UK

"New ice-core records confirm the importance of greenhouse gasses for past temperatures on Earth, and show that CO2 levels are higher now than they have ever been during the last 800,000 years. The last time Earth experienced CO2 levels this high was millions of years ago."

Professor **Jane Francis**, University of Leeds, UK

"The reconstruction of past climate reveals that recent warming in the Arctic and in the Northern Hemisphere is highly inconsistent with natural climate variability over the last 2000 years."

Dr **Alan Haywood**, Reader in Paleoclimatology, the University of Leeds, UK

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The Copenhagen Diagnosis, 2009: Updating the World on Latest Climate Science. I. Allison, N.L. Bindoff, R.A. Bindaschadler, P.M. Cox, N. de Noblet, M.H. England, J.E. Francis, N. Gruber, A.M. Haywood, D.J. Karoly, G. Kaser, C. Le Quéré, T.M. Lenton, M.E. Mann, B.I. McNeil, A.J. Pitman, S. Rahmstorf, E. Rignot, H.J. Schellnhuber, S.H. Schneider, S.C. Sherwood, R.C.J. Somerville, K. Steffen, E.J. Steig, M. Visbeck, A.J. Weaver. University of New South Wales Climate Change Research Centre (CCRC), Sydney, Australia, 60pp.