

Full details

All details held on the selected case study are shown below.

Went live on	Title	Reference
29 Jul 2011	NERC scientists contribute to Global Carbon Budget calculations 2008 and 2009	SID0351

Synopsis

Scientists from across NERC programmes and centres led, and contributed to, the Global Carbon Budgets for 2008 and 2009, published in Nature Geoscience to wide media and policymaker attention.

Description

NERC scientists made strong contributions to the Global Carbon Budgets for 2008 and 2009, prepared for the Global Carbon Project (see links) and published, to wide acclaim, in Nature Geoscience.

Corinne Le Quéré led the international team reporting on the 2008 Global Carbon Budget. At the time, Professor Le Quéré was with the British Antarctic Survey. She is now Director of the Tyndall Centre, Norwich. She was also a member of the MARQUEST project, part of NERC's QUEST programme.

The paper (see links), published just before the Copenhagen Climate negotiations in 2009, generated over 200 newspaper articles within a week, including a double page spread in the Guardian. 'To talk about the carbon cycle has gone from hard core academic science to main stream interest in a matter of a few years,' comments Josep Canadell from the Global Carbon Project.

The 2008 budget showed how rising carbon dioxide emissions continue to outstrip natural carbon 'sinks'. Despite the global financial crisis, carbon dioxide emissions from human activities rose 2 percent in 2008 compared to the previous year, reaching an all time high of 1.3 tonnes of carbon per capita per year.

And over the last 50 years, the average fraction of global carbon dioxide emissions remaining in the atmosphere each year has risen, probably by around five per cent. This suggests natural sinks are becoming less efficient in response to climate change and variability.

Understanding these sinks will be crucial to international climate negotiations and monitoring. 'If we can reduce the uncertainty about the carbon sinks, our data could be used to verify the effectiveness of climate mitigations policies,' Le Quéré says.

The 2009 Budget, led by Professor Pierre Friedlingstein (now at the University of Exeter and a member of the QUEST DESIRE team), found global carbon dioxide emissions from fossil fuel burning did decrease by 1.3 per cent because of the global economic crisis of 2008. But this was half the decrease predicted in 2008. And substantial falls in Europe, Japan and North America hid increases in total emissions from countries like China, India and South Korea.

The research team predicted that, even if the 'carbon intensity' of world GDP continues to improve, global emissions will have increased again by more than 3 per cent in 2010.

Scientists from across several NERC centres and research programmes contributed to the Budgets, including Corinne Le Quéré and Pierre Friedlingstein (as above), Colin Prentice, Jo House, Pru Foster and Ian Woodward (QUEST), Chris Huntingford and Peter Levy (CEH).

References and links

NORA	<ol style="list-style-type: none"> Trends in the sources and sinks of carbon dioxide Update on CO2 emissions
Hyperlinks	<ol style="list-style-type: none"> BAS - News Story - Global CO2 emissions back on the rise in 2010 Global Carbon Project - Carbon Budget NERC - Fossil fuel CO2 emissions up by 29 per cent since 2000 (press release) Nature Geoscience - Trends in the sources and sinks of carbon dioxide Nature Geoscience - Update on CO2 emissions

Impacts

Actual impacts	Policy
Impact evidence	The 2008 Global Carbon Budget (see links), published just before the Copenhagen Climate negotiations in 2009, generated over 200 newspaper articles within a week, including a double

page spread in the Guardian. Josep Canadell, from the Global Carbon Project, commented, " To talk about the carbon cycle has gone from hard core academic science to main stream interest in a matter of a few years. "

Research and funding

Funding type National Capability, Research Programme

Classification

Science themes Climate system, Earth systems science, Environment, pollution and human health

Science areas Atmospheric, Terrestrial

Policy areas Climate/environmental change and impacts, Natural processes, Pollution

Keywords Carbon cycle, Climate change, Environmental change