

Full details

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

Went live on	Title	Reference
31 Jul 2008	Rapid climate change - advising policy-makers on changes to north-west Europe's climate	SID0075
<p>Synopsis Groundbreaking equipment is monitoring the ocean circulation carrying heat to north-west Europe. In the past, shifts in this circulation have caused the climate to change markedly in a matter of decades.</p>		
<p>Description Findings from NERC's £20 million Rapid Climate Change programme are nationally and internationally significant. A key part of the programme is an array of instruments across the Atlantic Ocean. The array measures and monitors the Atlantic Overturning Circulation. This circulation plays a large role in north-west Europe's temperate climate.</p> <p>The programme has already published two landmark papers in the American journal Science. These results were based on the first year's (2004-05) continuous data from a pilot scheme across the Atlantic.</p> <p>The success of the scheme has led to a further commitment from NERC to fund the array up until 2014. This will give a decade of continuous measurements and could pave the way for a permanent monitoring system.</p> <p>In 2006, independent consultants estimated the economic benefit of the Rapid Climate Change programme to the UK economy to be £32-36 million (see comments).</p> <p>The Rapid Climate Change programme's core team work closely with stakeholders to help inform policy. The programme's steering group contains a stakeholder representative from Defra. Personnel secondments from the programme to Defra's offices have strengthened these links.</p> <p>Because of the secondments, the Rapid team now provides Defra and other stakeholders with all policy-relevant publications from the programme accompanied by summary briefing notes. These help Defra officials prepare ministerial briefings and update knowledge bank entries to aid the policy-forming process.</p> <p>The programme has also built relationships with the financial and private sectors, especially those industries potentially exposed to abrupt climate change. These sectors are particularly interested in the programme's emulator technology. Emulators produce probabilities of events occurring, where chances can be influenced by a large number of variable parameters.</p> <p>The programme developed these emulator technologies to test the sensitivity of the Atlantic Overturning Circulation to a collapse as a result of global warming. But these powerful tools have wider applications. Rapid Climate Change researchers are currently exploring the possibility of working alongside re-insurers to develop applications for use in catastrophe risk pricing.</p> <p>The continuous monitoring shows that the current's strength can vary considerably over the course of a year. Continued monitoring will help detect any major shift in the circulation. Meantime, the measurements give climate modellers a more realistic starting point for climate projections.</p> <p>In the longer term, they will let researchers verify projections about changes to the circulation, such as those made in the UN's Intergovernmental Panel on Climate Change Fourth Assessment Report published in 2007.</p> <p>* The consultants, PwC, used an accepted methodology, known as evidence-based appraisal, which focuses on interviews with key stakeholders. A deliberately cautious approach was taken with regard to the economic modelling - with benefits being annualised over 25 years using a discount rate of 3.5 percent for all case studies. This conforms to HM Treasury appraisal standards and protocols as set out in the "Green Book" on appraisal and evaluation in central government. The benefits are expressed in present value terms.</p>		

References and links	
Hyperlinks	<ol style="list-style-type: none"> 1. NERC - Press releases - RAPID-WATCH 2. NERC - Rapid Climate Change 3. e-Prints Soton - Observed flow compensation associated with the MOC at 26.5°N in the Atlantic 4. e-Prints Soton - Slowing of the Atlantic meridional overturning circulation at 25° N 5. e-Prints Soton - Temporal variability of the Atlantic meridional overturning circulation at

26.5°N

Impacts	
Actual impacts	Policy

Research and funding		
Funding type	Research Programme	
Funding partners	<i>£ Unknown</i>	Met Office
	<i>£ Unknown</i>	Other public sector - RAPID-WATCH is in partnership with Germany, Canada and USA
	<i>£ Unknown</i>	Other third sector - US National Science Foundation

Researchers at Universities		
Grant reference	NER/T/S/2002/00481	
Investigator	Professor HL Bryden	University of Southampton, School of Ocean and Earth Science
Co-investigator	Dr SA Cunningham	Southampton Oceanography Centre, James Rennell Division for Ocean Circula

Research and Collaborative Centres	
Centre	National Oceanography Centre, Southampton Proudman Oceanographic Lab

Classification	
Science themes	Climate system, Earth systems science
Science areas	Atmospheric, Marine, Polar
Policy areas	Climate/environmental change and impacts, Natural processes, Planning, Water
Keywords	Rcc, Thc, Thermohaline circulation