Climate*prediction*.net
Natural Environment Research Council
Oxford University
Embargoed until 1800 hrs (GMT) 26 January, 2005

Bleak first results from the world's largest climate change experiment

Greenhouse gases could cause global temperatures to rise by more than double the maximum warming so far considered likely by the Inter-Governmental Panel on Climate Change (IPCC), according to results from the world's largest climate prediction experiment, published in the journal Nature this week.

The first results from climate*prediction*.net, a global experiment using computing time donated by the general public, show that average temperatures could eventually rise by up to 11°C - even if carbon dioxide levels in the atmosphere are limited to twice those found before the industrial revolution. Such levels are expected to be reached around the middle of this century unless deep cuts are made in greenhouse gas emissions.

Chief Scientist for climate*prediction*.net, David Stainforth, from Oxford University said: "Our experiment shows that increased levels of greenhouse gases could have a much greater impact on climate than previously thought."

Climate*prediction*.net project coordinator, Dr. David Frame, said: "the possibility of such high responses has profound implications. If the real world response were anywhere near the upper end of our range, even today's levels of greenhouse gases could already be dangerously high."

An assessment of the climate response and impacts associated with different greenhouse gas levels is the aim of Stabilisation 2005, next week's international conference proposed by Tony Blair.

The project, funded by the Natural Environment Research Council, is ongoing and involves more than 95,000 people from 150 countries. Schools, businesses and individuals across the globe can download the free climate*prediction*.net software which incorporates the Met Office's climate model and runs in the background when their computers lie idle.

The programme runs through a climate scenario over the course of a few days or weeks, before automatically reporting results back to climate researchers at Oxford University and collaborating institutions worldwide, via the internet.

Participants have simulated over four million model years and donated over 8,000 years of computing time, making climate*prediction*.net easily the world's largest climate modelling experiment, comfortably exceeding the processing capacity of the world's largest supercomputers. This allows the project to explore a wide range of uncertainties, picking up previously unidentified high-impact possibilities.

"Using the technique of distributed computing and the generous support of many thousands of individuals we have been able to carry out an experiment which would otherwise have been impossible," explained Dr. Andrew Martin of the Oxford e-Science Centre.

Scientists at Oxford are urging more people to become involved. Mr. Stainforth said, "Having found that these extreme responses are a realistic possibility, we need people's support more than ever to pin down the risk of such strong warming and understand its regional impacts."

"This ongoing project allows anyone to participate in science that affects us all," he added.

Professor Bob Spicer of the Open University, has developed extensive web-based educational materials around the project. He said, "Schools can run the software and build the experiment into science, geography and maths lessons with help from our new teaching

materials. And everyone can take part in the lively debates on our internet discussion forum that has attracted more than 5,000 people."

In May the Open University will start a distance-learning course based on the project. Anyone can register and learn even more about simulating and predicting climate change.

Ends

Notes to editors

1. The paper, 'Uncertainty in the predictions of the climate response to rising levels of greenhouse gases', appears in Nature, 27 January 2005, vol 433. For more information and high resolution colour images and animations see www.climateprediction.net/press.
   For a pdf of the paper email pressoffice@nerc.ac.uk.

2. Climate*prediction*.net is a collaboration between several UK Universities and The Met Office, led by the University of Oxford and funded by the Natural Environment Research Council and the Department of Trade and Industry's e-Science programme.

3. NERC is one of the UK's seven Research Councils. It uses a budget of about £300 million a year to fund and carry out impartial scientific research in the sciences of the environment. NERC trains the next generation of independent environmental scientists. It is addressing some of the key questions facing mankind such as global warming, renewable energy and sustainable economic development
4. In the summer of 2004 climate*prediction*.net dramatically increased its processing power by joining forces with the world's most powerful computer network, SETI@home, the Search For Extra-Terrestrial Intelligence, based at the University of California in Berkeley. Scientists from Oxford and Berkeley designed new software that allows climate*prediction*.net to run on the SETI platform called BOINC.
5. For more information contact:
   Sylvia Knight, Atmospheric, Oceanic and Planetary Physics, Clarendon Laboratory, Parks Road Oxford. OX1 3PU Tel: +44 (0)1865 272887, 07810 615884 or
   NERC Press Office: Owen Gaffney, 01793 442629, 07775 713203 or Marion O'Sullivan, 01793 411727, 07917 086369 or pressoffice@nerc.ac.uk

   A list of participants available for comment, from across the globe, can be found at: http://cpdncc.comlab.ox.ac.uk:8080/cpdnusers/ with the username 'cpdnmedia', password 'contacts'.

6. Participating institutions:
   University of Oxford, Atmospheric, Oceanic and Planetary Physics: www.atm.ox.ac.uk
   University of Oxford, Computing Laboratory: www.comlab.ox.ac.uk
   London School of Economics: www.lse.ac.uk
   Rutherford Appleton Laboratory, British Atmospheric Data Centre: www.badc.rl.ac.uk
   The Open University, Knowledge Media Institute: kmi.open.ac.uk
   The Open University, Earth Sciences Department: www.open.ac.uk/Earth-Sciences
   The Met Office: www.metoffice.gov.uk
   The University of Reading, Department of Meteorology: www.met.rdg.ac.uk
   Tessella Support Services plc: www.tessella.com
   The Numerical Algorithms Group Ltd. www.nag.co.uk
   Risk Management Solutions Inc. www.rms.com
   Research Systems Inc., www.rsinc.com

7. Participant numbers by country:

Albania	2
American Samoa	1
Andorra	22
Anguilla	1
Antarctica	9
Argentina	113
Armenia	2
Aruba	3
Australia	2441
Austria	791
Azerbaijan	6
Bahama	2
Bahrain	8
Bangladesh	2
Barbados	2
Belarus	27
Belgium	1155
Belize	2
Benin	3
Bermuda	25
Bolivia	4
Bosnia and Herzegovina	7
Botswana	2
Brazil	427
Brunei Darussalam	2
Bulgaria	123
Burkina Faso	2
Burundi	1
Cambodia	4
Cameroon	0
Canada	3641
Cayman Islands	3
Channel Islands	8
Chile	49
China	346
Colombia	24
Congo	1
Costa Rica	13
Croatia	130
Cyprus	41
Czech Republic	1307
Denmark	958
Dominican Republic	9
East Timor	1
Ecuador	5
Egypt	8
El Salvador	3
Estonia	96
Falkland Islands (Malvinas)	2

Faroe Islands	10
Fiji	3
Finland	1608
France	4568
French Guiana	3
French Polynesia	2
French Southern Territories	1
Gambia	1
Gaza Strip	1
Georgia	2
Germany	12562
Gibraltar	4
Greece	432
Greenland	12
Grenada	1
Guam	2
Guatemala	5
Guyana	1
Honduras	4
Hong Kong	191
Hungary	1253
Iceland	26
India	131
Indonesia	35
Iran	21
Iraq	0
Ireland	445
Isle of Man	0
Israel	273
Italy	1815
Jamaica	4
Japan	504
Jordan	5
Kazakhstan	14
Kenya	2
Korea, Republic of	542
Kuwait	5
Kyrgyzstan	6
Lao People's Democratic Republic	1
Latvia	101
Lebanon	6
Libyan Arab Jamahiriya	2
Liechtenstein	3
Lithuania	84
Luxembourg	95
Macau	6
Macedonia	10
Madagascar	1
Malawi	2
Malaysia	73
Malta	12

Martinique	1
Mauritius	4
Mexico	119
Moldova, Republic of	6
Monaco	6
Mongolia	1
Monserrat	2
Morocco	7
Mozambique	3
Namibia	7
Nepal	1
Netherlands	1854
Netherlands Antilles	3
New Caledonia	2
New Zealand	494
Nicaragua	1
Niger	1
Nigeria	2
Northern Mariana Islands	1
Norway	523
Oman	4
Pakistan	13
Palau	1
Panama	10
Paraguay	6
Peru	10
Philippines	52
Pitcairn Islands	3
Poland	1327
Portugal	541
Puerto Rico	54
Qatar	4
Reunion	4
Romania	182
Russian Federation	952
Sao Tome and Principe	2
San Marino	1
Saudi Arabia	6
Senegal	2
Serbia and Montenegro	44
Sierra Leone	1
Seychelles	2
Singapore	104
Slovakia	185
Slovenia	97
South Africa	242
Spain	1900
Sri Lanka	1
Sudan	1
Suriname	1
Sweden	1231

Switzerland	1251
Syrian Arab Republic	1
Taiwan	124
Tanzania, United Republic of	2
Thailand	35
Trinidad and Tobago	11
Tunisia	1
Turkey	83
Uganda	1
Ukraine	186
United Arab Emirates	24
United Kingdom	22630
United States of America	24313
Virgin Islands	4
Uruguay	15
Uzbekistan	3
Vanuatu	1
Venezuela	38
Viet Nam	2
Yugoslavia	13
Zambia	1
Zimbabwe	3

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