

INTERNATIONAL 2007  2008
POLAR YEAR



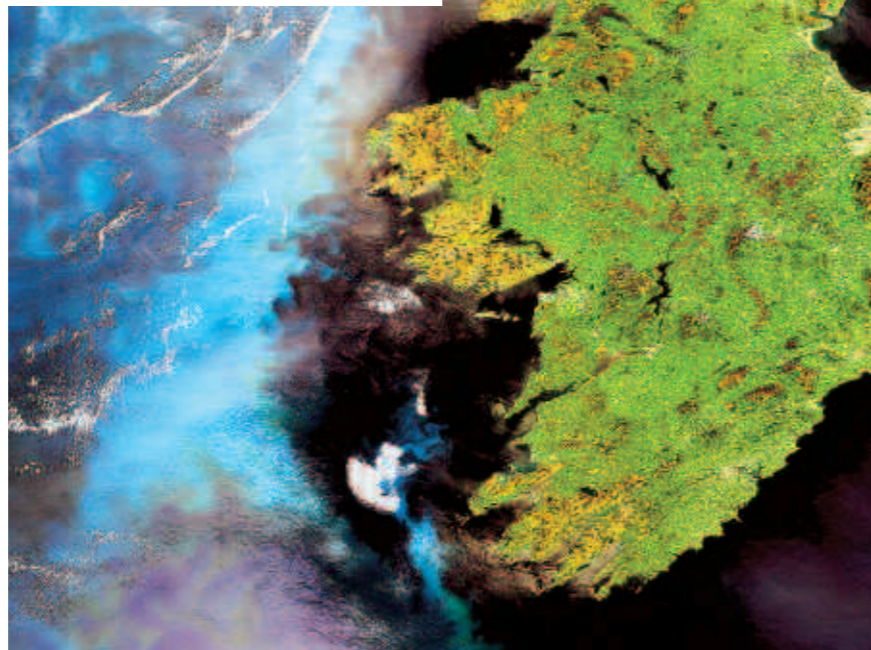
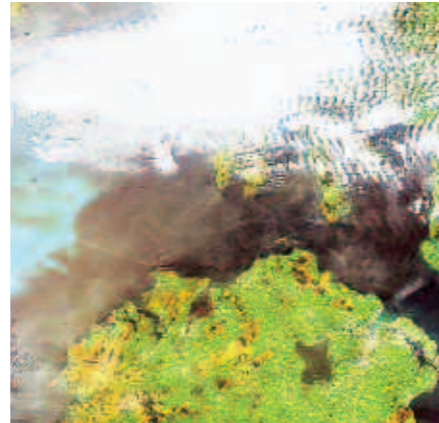
Clockwise from top:

International Polar Year began in March.

Skidoos in the Arctic.

Ian Jackson (left) and organisers of OneGeology: Harvey Thorleifson, Association of American State Geologists, and John Broome, Geological Survey of Canada.

A plankton bloom across Ireland captured by Envisat. © ESA



Providing national and international leadership for the environmental sciences.



International Polar Year

International Polar Year (IPY), the largest scientific programme in 50 years, began in March. The international project office, funded by NERC, is coordinating 50,000 projects involving 63 nations. IPY, conceived by British Antarctic Survey director Chris Rapley and based at its office in Cambridge, has approved 170 scientific projects and 57 educational and outreach plans.

Launch events around the world, including London, caught the attention of the media and the public imagination. Well-wishers included veteran broadcaster Sir David Attenborough, who said, 'Today the polar regions are changing faster than any other part of the world. They can provide us with early warnings of what is likely to happen in the near future. I have no doubt that IPY will reveal some very important questions.'

Launch events were followed by a reception in the Houses of Parliament attended by the Science Minister Malcolm Wicks.

British scientists inform new guidelines on ballast water management

New guidelines on ballast water management for all vessels entering Antarctic waters were passed by the Antarctic Treaty nations at their Edinburgh conference. The British Antarctic Survey and the Maritime and Coastguard Agency (MCA) prepared the draft guidelines to address concerns about invasive marine species entering Antarctic waters from ballast tanks.

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OneGeology

The British Geological Survey is leading the geological surveys of more than 55 nations to create the first global digital geological map and make geological data for the Earth more accessible. The project, known as OneGeology, will deliver a searchable website containing geological map data for the entire planet, initially at a scale of 1:1,000,000.

The plan is to make OneGeology available through Google Earth and other

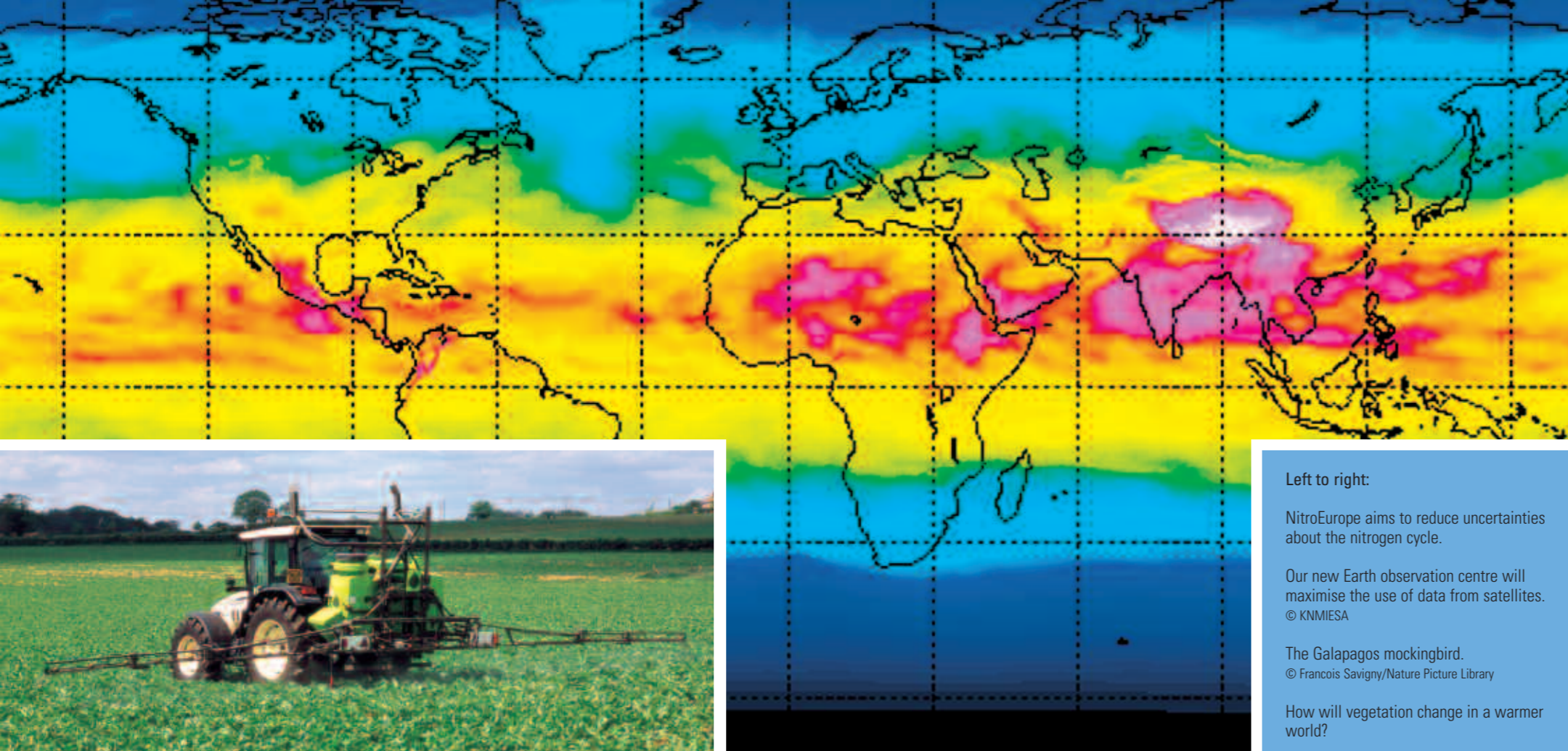
dynamic map browsers. The initiative will start producing results by mid-2008 and grow steadily from there as more countries start to pool data.

This landmark achievement will for the first time allow data from one country to be shared with data from others. The initiative will also transfer much-needed know-how and expertise between nations, allowing developing countries to shorten their digital learning curve and make more accessible the information they hold on, for example, mineral resources and environmental hazards such as earthquakes and subsidence.

*Dr Ian Jackson
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www.onegeology.org*

New project to estimate global water resources

Scientists will directly link a range of hydrological and climate models in a major international project to estimate global water resources for the 21st century. The programme will quantify the changes in mean river flow, floods and droughts as well as assess our



Left to right:

NitroEurope aims to reduce uncertainties about the nitrogen cycle.

Our new Earth observation centre will maximise the use of data from satellites.
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The Galapagos mockingbird.
© Francois Savigny/Nature Picture Library

How will vegetation change in a warmer world?

uncertainties in these estimates. The €13 million Water and Global Change (WATCH) project, co-led by the Centre for Ecology & Hydrology and the Wageningen University and Research Centre in Holland, will assess the vulnerability of the global water cycle to societal and economic pressures.

*Dr Richard Harding
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Training scientists from the Geological Survey of Iran

Earthquakes and ground subsidence due to water extraction are two challenges facing the scientific community in Iran. In 2006 the Centre for Observation and Modelling of Earthquakes and Tectonics (COMET) hosted two researchers from the Geological Survey of Iran and trained them to use satellite techniques to address these issues.

*Professor Barry Parsons
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NitroEurope

The Centre for Ecology & Hydrology is coordinating a major collaborative programme, NitroEurope, to reduce uncertainties about how the nitrogen cycle interacts with greenhouse gases. NitroEurope's main objective is to investigate how 'reactive nitrogen' – nitrogen that is biologically available – affects the production and release of greenhouse gases. It's a five-year EU-funded project involving around 65 institutions across Europe.

*Dr Mark Sutton
www.nitroeuropa.eu*

CarbonFusion

An international effort to quantify the terrestrial carbon cycle, a critical area of uncertainty in global warming predictions, has been set up by two NERC centres, the Centre for Terrestrial Carbon Dynamics (CTCD) and the Data Assimilation Research Centre (DARC).

Soils and vegetation are major carbon stores, currently absorbing around 25 percent of carbon dioxide from burning fossil fuels. It is highly uncertain how

soils will behave in a warmer world.

CTCD director Shaun Quegan said, 'The key output we want from CarbonFusion is a global strategy for combining models and data to quantify the Earth's carbon cycle.'

The UK group are working closely with colleagues at NASA and other US and Australian research institutes.

www.carbonfusion.org

The UK's first national centre for Earth observation

NERC announced the launch of the National Centre for Earth Observation in August 2006. The centre will build on NERC's considerable expertise in this area: NERC is already responsible for the UK's subscription to several European Space Agency programmes, including the Earth Observation Envelope Programme – worth around £38m in 2006-07.

The centre will have responsibility for NERC's Earth observation centres of excellence. These centres use satellite data to monitor global and regional changes in the environment, and to develop a detailed understanding of these changes

so that we can predict future environmental conditions. The centres have already highlighted significant environmental changes – for instance ozone depletion, atmospheric pollution, and melting sea ice.

*Professor Alan O'Neill (director)
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To save a mockingbird

A new scheme to re-introduce the Galapagos mockingbird, which is on the verge of extinction, began in March. The project will use techniques developed from a recent NERC-funded project to reduce inbreeding in the Mauritius kestrel, which has helped bring the species back from the brink of extinction.

Only four species of mockingbird are left on the Galapagos. One species is endangered. It has already gone extinct on the main island and fewer than 200 birds are left on two smaller islands.

Conservation biologists Steve Ewing from the University of Glasgow and Lukas Keller, now at the Zoologisches Museum, Zürich and colleagues want to maximise the genetic diversity of the

mockingbird populations to improve survival rates.

Lukas said, 'We started in March with a workshop in the Galapagos. We will begin moving mockingbirds in 2009.'

'I am convinced if we had not done the work on kestrel inbreeding we would not have credentials to do the Galapagos project,' he added.

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