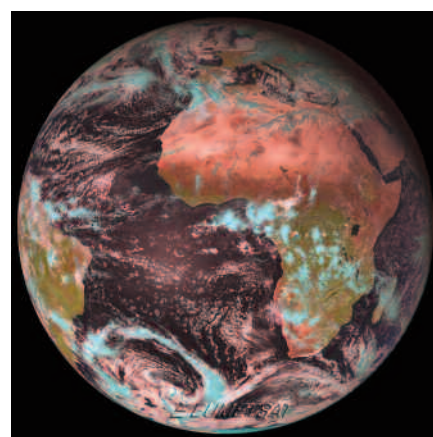
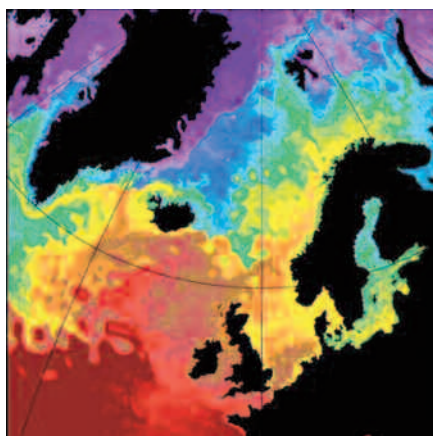


# Next Generation Science for Planet Earth



This autumn NERC launches its new strategy, Next Generation Science for Planet Earth 2007-2012. The strategy emphasises NERC's commitment to funding world-leading, cutting-edge research and will provide knowledge and solutions to crucial environmental challenges.

**N**ERC's new strategy starts with the message that it 'comes at a critical time for planet Earth'. World leaders are now clear that climate change is probably the biggest threat facing society this century. This is part of a much bigger challenge – global environmental change – resulting from increasing pressures on natural resources and global climate.

The UK's research base, and environmental scientists in particular, have a major role to play in providing knowledge and solutions to this challenge, which includes everything from water shortages to biodiversity loss, from natural

hazards to the spread of disease, from climate change to pollution and its effects on human health.

When Chief Executive Alan Thorpe launches Next Generation Science for Planet Earth in November, he will stress how the strategy aims to deliver world-leading environmental research at the frontiers of knowledge. Alan will announce seven new science themes; a new way of allocating funds; a strengthening of communication channels between the research community and policy-makers, industry and the general public; and a drive and commitment to work with all staff and

grant-holders to build vibrant, integrated research communities.

The science themes will be: the climate system; biodiversity; sustainable use of natural resources; Earth systems science; natural hazards; environment, pollution and human health; and technologies. NERC is now appointing seven scientific experts as theme leaders to provide a focus for each of the priorities.

NERC brought together the UK's leading academics to identify the specific challenges within the themes and how they can be addressed. Their views were considered by NERC's Science and

Innovation Strategy Board (SISB). After a full public consultation on a draft of the strategy, NERC's Council subsequently refined and developed further SISB's recommendations.

NERC's Council has recognised that the strategy needs to be flexible enough to adapt to the unexpected – the 'unknown unknowns' – so they have developed a rolling, living strategy to move with changing scientific priorities. This means ensuring that scientists are funded to tackle both the most urgent research priorities and cutting-edge, innovative research that reveals future priority areas. Outcomes of this research will help shape the strategy further down the line. This, and the need for greater research collaboration, has meant a change in the way NERC funds research. Funding will be split into three streams: *national capability*, *research programmes* and *responsive research*.

*National capability* encapsulates the research community's long-term need for surveys, monitoring, data and data storage facilities, technology, research ships, aircraft, bases and other essential support services. These types of facilities also allow researchers to respond to national needs and emergencies, for example, the Buncefield explosion or the major flooding throughout the UK in summer 2007. This is about long-term investment. NERC Council wants to adopt a new method of reviewing these types of services and facilities which takes them out of the traditional funding cycles.

*Research programmes* funding will deliver strategically directed environmental research, training and related knowledge exchange. It is aimed at the science challenges and themes identified by the NERC strategy. This stream will be available to the entire research community. NERC Council wants to encourage more collaboration between the research centres, collaborative centres and universities.

*Responsive research* is not constrained by the science themes and remains unchanged. It will encourage

'adventurous, innovative research that challenges current conventions, explores new boundaries or adapts novel techniques to an entirely different field.' Some ideas may not succeed, but investment in this type of research has in the past led to new areas of science and some astounding discoveries. *Responsive research* will play a vital role in identifying medium and long-term priorities, which can then be fed into the evolving strategy.

“Adventurous, innovative research that challenges current conventions.

NERC's Council has said this strategy's 'most important contribution will be in providing foresight of the future state of the environment to allow business, policy and society to make informed choices.'

The strategy aims to produce some key science outcomes. These include improved climate prediction on regional-to-local and daily-to-decadal scales; better confidence levels on the safety of carbon capture and storage, and nuclear waste disposal; analyses of the impact of environmental change on ecosystem

services such as clean water, air, soil and food; reliable predictions of the intensity and track of wind storms; better knowledge of the underlying processes that cause disease to spread; evaluations of how alternative fuels will affect the environment; and better predictions of flooding in urban areas.

With the new strategy, NERC wants to encourage more collaborations and more multidisciplinary research, including collaborations with other research councils, the Met Office, the Environment Agency, Defra and other UK organisations and government departments, as well as international partners. The strategy highlights the importance of a new initiative, a partnership between many of the UK's leading research funders and government departments, called *Living with Environmental Change*. This programme, starting in 2007, brings together environmental engineering, medical, social and economic research with policy and business needs, to address critical environmental issues. The strategy will be launched at the Methodist Central Hall, Westminster, London on 15 November. ❖

The strategy is available from 15 November. To order a copy visit: [www.nerc.ac.uk/publications](http://www.nerc.ac.uk/publications) or email [requests@nerc.ac.uk](mailto:requests@nerc.ac.uk)

## New science themes:

Climate system

Biodiversity

Sustainable use of natural resources

Earth systems science

Natural hazards

Environment, pollution and human health

Technologies