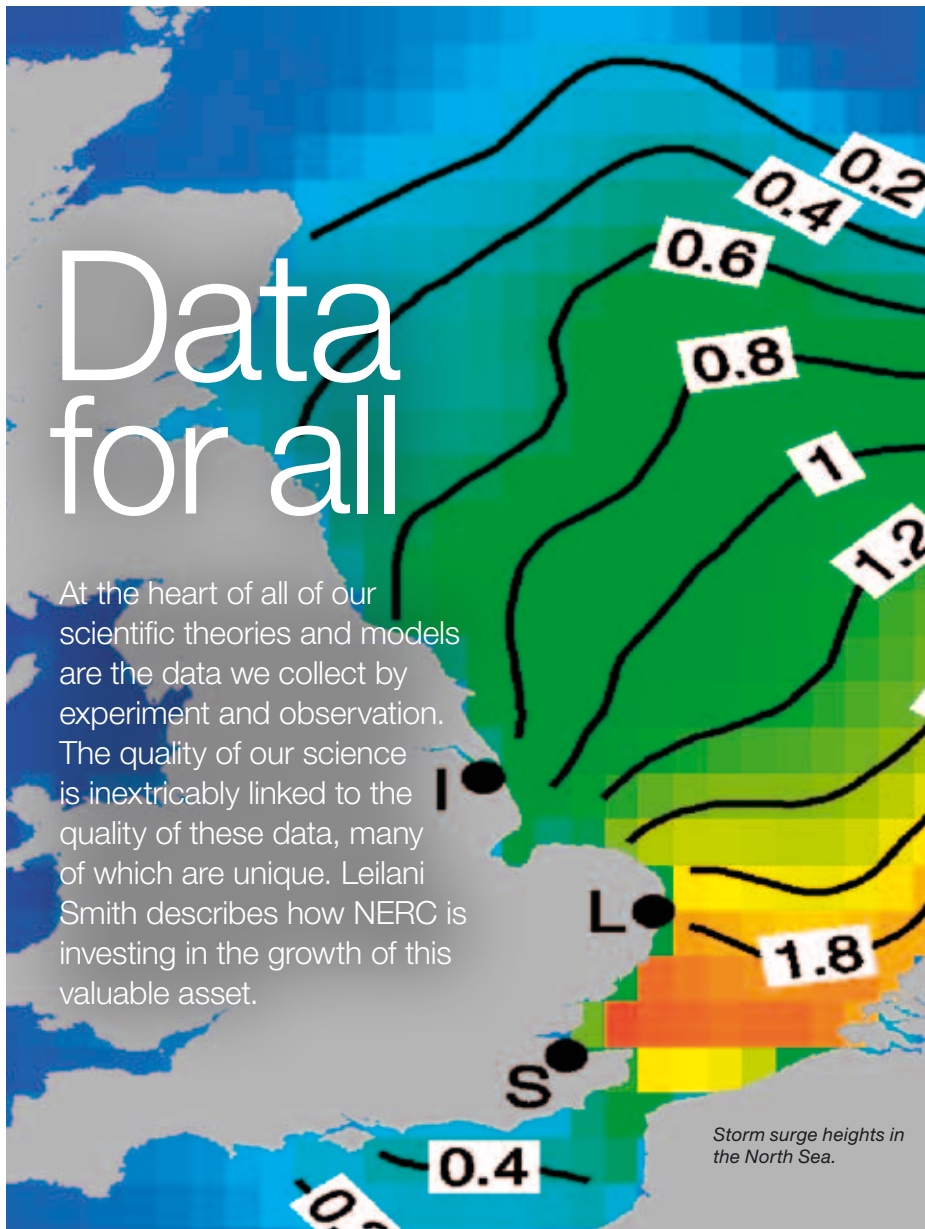


# Data for all

At the heart of all of our scientific theories and models are the data we collect by experiment and observation. The quality of our science is inextricably linked to the quality of these data, many of which are unique. Leilani Smith describes how NERC is investing in the growth of this valuable asset.

## Putting data to work

- Road construction, building foundations and pipeline-laying depend on the detailed data in the National Geoscience Data Centre on the superficial deposits overlying bedrock.
- The Intergovernmental Panel on Climate Change will base its next assessment report on climate model data held at the British Atmospheric Data Centre.
- 60 years of aerial photographs of floating Antarctic ice shelves in the Polar Data Centre provide the information needed to determine how quickly they are retreating as the area warms.
- 30 years of carefully-managed data from the Antarctic first demonstrated that CFCs were destroying ozone in the upper atmosphere.
- Tidal data from the British Oceanographic Data Centre show the pattern of storm surges in the North Sea – information that is critical for deciding on investments in coastal sea defences.
- The Environmental Information Data Centre's records of insects and plants form the basis for evidence of how global change is directly affecting UK biodiversity.



**W**e live in a data-rich age. But to keep the 'knowledge economy' of the 21st century running, to examine questions that cross disciplines and recognise patterns and trends of change, we need to actively manage and conserve our data. We also need to make them accessible, so we can realise their full potential.

NERC has developed a federation of data centres, which is responsible for maintaining its data and making them available to all users, not just NERC researchers but others from science, commerce, government and education as well as the general public. The range of data held is vast, covering all aspects of environmental science from the atmosphere through Earth systems, marine and terrestrial, as well as temperate and polar.

The data come in an amazing variety of forms – from aerial photographs to Arctic plant life, digital data to drill cores, fossils to freshwater samples, maps to monitoring

data. Yet all this is organised, indexed and quality-controlled.

These data holdings provide a resource which is used for new research, investigating key environmental challenges such as climate change, supporting government policy in areas like conservation of endangered species or managing water quality, supporting infrastructure development and commercial enterprise.

Looking after this diverse and vast quantity of data is a challenge, not least in keeping up with changing technologies, devising standard formats to make the data easier to use across different disciplines, and meeting users' expectations for accessing and downloading data on demand.

To meet these challenges, NERC is working with partners including the British Library, higher education institutions, the Digital Curation Centre and international research bodies. With a data policy which provides the foundation for all its data to be used freely, by anyone for any purpose,

NERC is leading the way in publishing data. This includes issuing Digital Object Identifiers (DOIs) to enable data citation which recognises the contribution of its creators. ■

### MORE INFORMATION

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### NERC DATA CENTRES

British Atmospheric Data Centre (BADC)  
National Geoscience Data Centre (NGDC)  
NERC Earth Observation Data Centre (NEODC)  
British Oceanographic Data Centre (BODC)  
Polar Data Centre (PDC)  
Environmental Information Data Centre (EIDC)  
UK Solar System Data Centre (UKSSDC)