

BOSCORF is Britain's national core repository and offers researchers access to the most comprehensive suite of state-of-the-art core logging facilities in the United Kingdom



The British Ocean Sediment Core Research Facility (BOSCORF) is a NERC-funded community resource located at the National Oceanography Centre, Southampton. Widely used by the UK Earth Science community, it provides:

- +4° C temperature storage for sediment cores
- a comprehensive suite of non-destructive core logging instruments to measure physical properties and geochemistry at increments as small as 200 micrometres (dependent on parameter measured)
- in-house expertise in core curation and analysis
- data archiving and access



BOSCORF's ambient temperature sampling laboratory with an area of 60 m²

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BOSCORF's state-of-the-art logging instruments

ITRAX micro-XRF corescanner with X-radiography



Property measured

Element concentrations from Al-U, digital X-radiography

Example applications

- geochemical variability downcore
- identification and application of palaeoenvironmental proxies
- identification and characterisation of climate change
- temporal variability in productivity (e.g. variation in Ba)
- bed provenance and correlation
- identification of chronostratigraphic markers
- identification and characterisation of volcanic ash and ice-rafted debris
- identification and characterisation of palaeosols in lake and delta cores
- redox-related element mobilisation and relocation
- distribution of industrial contaminants

GEOTEK multi-sensor core logger (MSCL-S)



Property measured

Bulk density, P-wave velocity, magnetic susceptibility

Example applications

- porosity evaluation
- water content
- stratigraphic correlation between cores
- seismic correlation
- construction of synthetic seismograms
- core quality assessment
- determination of grain size variations
- terrigenous material indicator
- turbidite identification and correlation
- glacial-interglacial studies

GEOTEK XYZ multi-sensor core logger (MSCL-XYZ)



Property measured

Magnetic susceptibility, spectrophotometry, natural gamma

Example applications

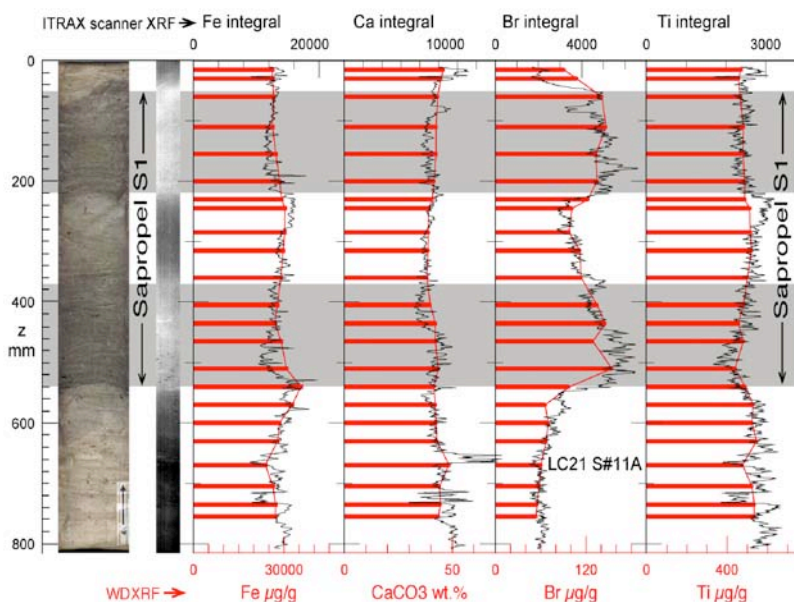
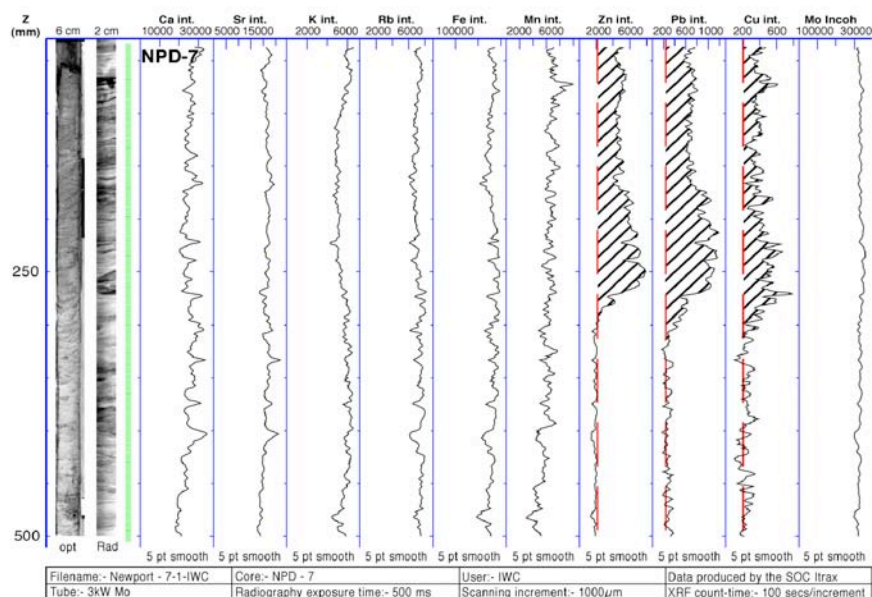
- terrigenous material indicator
- stratigraphic correlation between cores
- turbidite identification and correlation
- climate studies
- quantification of sediment colour and lightness
- detection and quantification of small-scale variability
- determination of lithological character
- radioactive mineral determination and study

BOSCORF has been funded as a NERC facility since April 1997. During this time the BOSCORF core collection has grown more than threefold and its core logging facilities have evolved into some of the most advanced in Europe. Further over this time, its user community has extended beyond geologists and oceanographers to include archaeologists and geographers.

BOSCORF serves four main roles for the scientific community:

- **A custodial role** - preserving cores under optimum conditions and making them available to researchers
- **A service role** - providing the UK science community with access to World-class state-of-the-art core logging instruments and facilities
- **A research role** - pioneering new developments in core logging technology and testing proof of concept
- **An education/training role** - training undergraduate and postgraduate students in core analysis and logging techniques, organising and hosting workshops for academia and industry, and aiding public understanding of science through outreach activities.

Right: Integrated ITRAX optical, radiographic and XRF data for a laminated core section from the Newport Deep, Severn Estuary, UK. Note the increase in anthropogenic pollutant elements Zn, Pb and Cu in the upper 275 mm of the core section. The green line indicates valid ITRAX measurement while the red dashed lines are user-defined reference lines. Image generated using the program Itrax-plot. (From Croudace, I.W., Rindby, A. and Rothwell, R.G. 2006. ITRAX: description and evaluation of a new multi-function X-ray core scanner. In Rothwell R.G. (Ed.) *New Techniques in Sediment Core Analysis*, Geological Society, London, Special Publication, 267, 51-63).

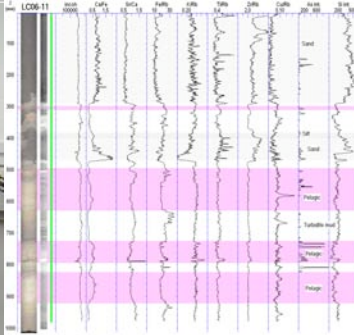


Left: Comparison between WD-XRF data (red bars at 1 cm resolution; scale at bottom) and ITRAX scan elemental integral profiles (continuous black lines; 200 micrometer resolution, scale at top) for an Eastern Mediterranean sediment core containing sapropel S1. (From Croudace, I.W., Rindby, A. and Rothwell, R.G. 2006. ITRAX: description and evaluation of a new multi-function X-ray core scanner. In Rothwell R.G. (Ed.) *New Techniques in Sediment Core Analysis*, Geological Society, London, Special Publication, 267, 51-63).

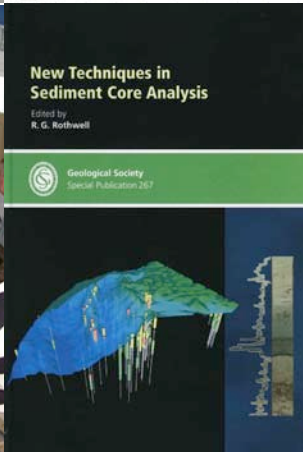
BOSCORF provides



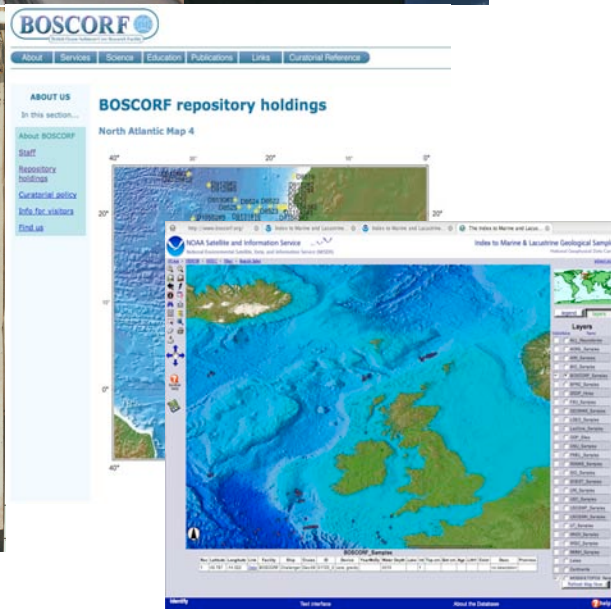
Optimum core storage and preservation



State-of-the-art core logging technology



Workshops and publications



Data archiving
visualisation
and access

More information on BOSCORF can be found at:

www.boscorf.org