BOSCORF

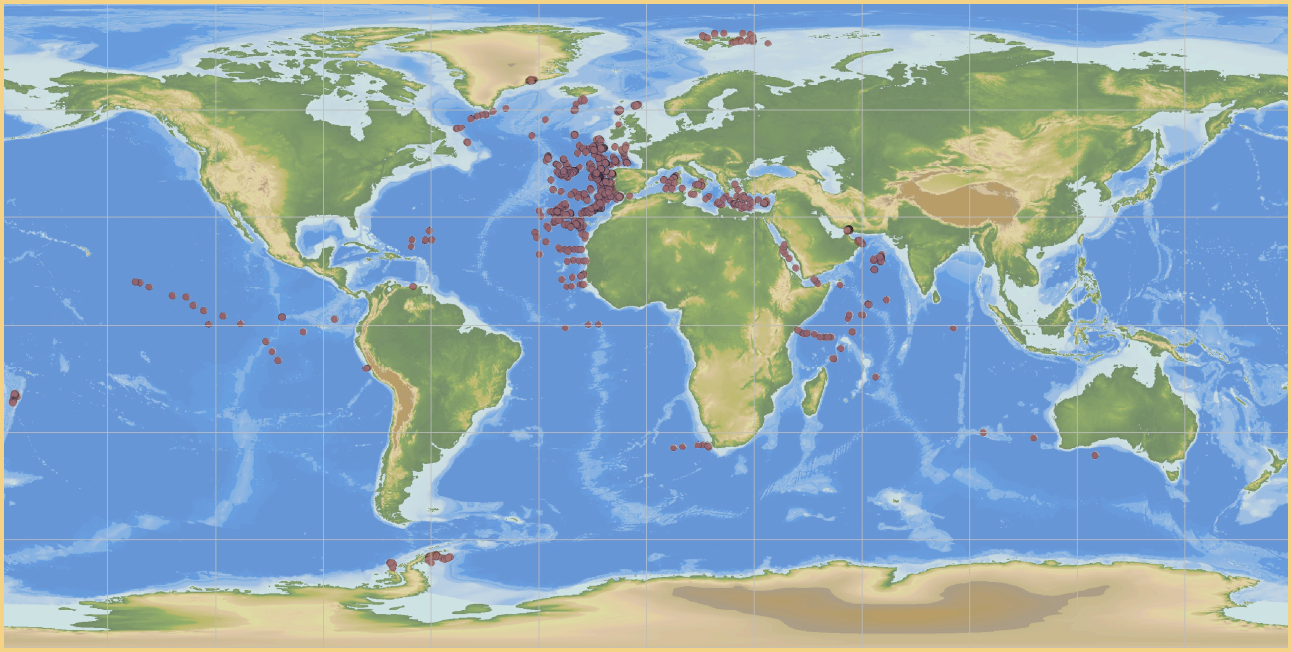
Introduction

- Optimum core storage and preservation
- State-of-the-art core logging technology for community use
- Workshops and publications
- Data archiving, visualisation and access

BOSCORF is the United Kingdom's national core repository and core analysis facility, and provides a unique and strategic service to the UK scientific community. It provides an advanced state-of-the-art non-destructive core logging and analysis capability that is unique in the UK. It also provides specialised long-term core storage facilities, so that sediment cores collected by NERC ships, and NERC-funded researchers, can be kept under optimum conditions to ensure long-term preservation and availability to the scientific community. BOSCORF promotes secondary multiple usage of the core material in its care ensuring cost-effective exploitation of an important national scientific resource. It is also responsible for long-term curation of core-based data relating to its holdings and from core-based national programmes in compliance with NERC data management policy. BOSCORF plays a major role in training Ph.D. students and post-doctoral scientists in sediment core analysis and has a wide user base within the natural sciences, including geographers and archaeologists. No other facility offers community use of equivalent advanced logging tools or sophisticated x-ray analytical facilities. BOSCORF core-logging suite of instruments allows researchers to extract maximum high-resolution environmental information from cored sediments.

BOSCORF operates as a service to the UK scientific community. For more information, please contact Dr Guy Rothwell, BOSCORF, National Marine Facilities Division, National Oceanography Centre, Empress Dock, Southampton, SO14 3ZH, tel: +44 (0) 2380 596567, email: boscorf@noc.soton.ac.uk, or visit our website www.boscorf.org

Natural Environment Research Council



Above: Location of sediment cores held at BOSCORF. Over 1400 sediment cores are held in cold storage (April 2009) and the collection is growing by 100-200 cores per year. Many of the cores are considered internationally important and attract researchers from all over the world. As well as marine cores the collection also holds lake cores and cores collected for archaeological environmental records.

BOSCORF offers a comprehensive, world-class suite of non-destructive core logging instruments to measure physical properties and geochemistry at increments as small as 200 micrometres (dependent on parameter measured). A summary of our key instruments is given below.

ITRAX MICRO-XRF CORESCANNER WITH X-RADIOGRAPHY	GEOTEK MULTI-SENSOR CORE LOGGER (MSCL-S)	GEOTEK XYZ MULTI-SENSOR CORE LOGGER (MSCL-XYZ)
Properties measured: Element concentrations from Si-U, digital X-radiography	**Properties measured:** Bulk density, P-wave velocity, magnetic susceptibility, resistivity	**Properties measured:** Magnetic susceptibility, spectrophotometry, natural gamma
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	**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	**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

Left: ITRAX-generated Ca/Fe profile through interbedded marine sediments of different type and origin. Measurement step-size is 0.5 mm.

Right: BOSCORF's GEOTEK GEOSCAN-III line scanning camera produces high-resolution, evenly-lit, true colour core images, suitable for calibrated sub-millimetric image analysis. True colour separation allows quantitative comparison between cores and other down-core measurements.