

# **National Tidal and Sea Level Facility**



*Annual Report for 2006 for the  
UK National Tide Gauge Network  
and Related Sea Level Science*

*Edited by Elizabeth Bradshaw*

## National Tidal and Sea Level Facility

### Annual Report for 2006 for the UK National Tide Gauge Network and Related Sea Level Science

[Tide gauge instrument information, data processing procedures and gauge location](#)

[Report for 2006 on Data Quality and visits to sites](#)

[Report on 'Monitoring Vertical Land Movements at Tide Gauges' in 2006](#)

[Report on gauges in the South Atlantic](#)

#### Contributors to the Annual Report:

Les Bradley, POL	- Instrument documentation and site information
Dave Smith, POL	- Maps and site information
Peter Foden, POL	- South Atlantic Network Management
Simon Holgate, POL	- South Atlantic Network Management
Steve Loch, BODC	- Calculating statistics in Edteva
Richard Bingley, Univ. Of Nottingham	- Monitoring Vertical Land Movements at Tide Gauges

Editor of the Annual report: Elizabeth Bradshaw, BODC

#### NTSLF Coordination Committee Members and Main Interests:

Colin Bell, POL Applications	- Tide Gauge Data Products
Juan Brown, BODC	- Director BODC
David Blackman, POL	- Tide Gauge Data Products
Libby Macleod, BODC	- Tide Gauge Data Sets
Richard Downer, BODC	- Web Development and Management
Kevin Horsburgh, POL	- Operational Tide-Surge Models and Chair of NTSLF
Peter Foden, POL	- South Atlantic Network Management
Andrew Wilmott, POL	- Director POL
Simon Holgate, PSMSL	- Permanent Service for Mean Sea Level (PSMSL) Aspects
Philip Knight, POL	- Web Management
Lesley Rickards, BODC	- Tide Gauge Data Sets
Dave Smith, POL	- Leader Tide Gauge Inspectorate
Simon Williams, POL	- GPS and Absolute Gravity Networks
Philip Woodworth, POL	- Director of the PSMSL (up to March 2007)

Thanks also to all those involved in the maintenance of the network, the data retrieval, processing, quality control and delivery.

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## Foreword

The National Tidal and Sea Level Facility (NTSLF) is the UK centre of excellence for all scientific matters relating to tides, sea level change, storm surges and coastal flood forecasting. Our coastline is important both economically and environmentally. Tidal processes, increasing mean sea level, and changes to extreme water levels all have implications for coastal protection, sustainable development, and management of the marine environment. The expertise of the NTS LF is therefore of vital importance to government, local authorities, the general public and the academic community. Established in 2002, it brings together skills from the Proudman Oceanographic Laboratory (POL) and the British Oceanographic Data Centre (BODC), with university experts in the fields of sea level and geodesy. This report contains a summary of NTS LF activity for the period January-December 2006.

The NTS LF comprises the UK strategic tide gauge network, geodetic networks for monitoring vertical land movements, and gauges in British Overseas Territories. It is supported by the expertise of BODC in data processing, quality control and dissemination. Practical and scientific applications of the data include tidal prediction, flood warning, navigation and climate change studies. Quality controlled tide gauge data are available free of charge via our web pages. Data from Gibraltar are now available, as are real-time data from Ascension Island and Port Stanley. Information on technological developments, network status, numerical model forecasts and software products for tidal analysis can all be obtained from the web site.

The national tide gauge network records sea level every 15 minutes at 44 sites around the coastline. During 2006 all sites were maintained and geodetic levelling was completed at 14 locations. At Hinkley Point the underwater measuring system was replaced, whilst the Leith site had a complete refurbishment. The POL diving team also carried out inspection and maintenance of measuring systems at Bangor and Portrush. Following the December 2004 Indian Ocean tsunami, the NTS LF assisted Defra in a risk assessment study which recommended suitable detection equipment for tsunamis. A prototype rapid sampling and data acquisition system has been developed, installed and tested at three UK strategic sites. The high frequency sampling will also improve the monitoring of swell waves and storm surges, and will thus improve coastal flood warning systems.

NTSLF scientists continue to upgrade the storm surge models used operationally for flood warning. Major projects in 2006 included an assessment of real-time data assimilation techniques, and a new ensemble forecasting system to quantify uncertainty. Working with partners in the UK Met Office, we have developed a set of probabilistic surge forecasting tools based on a 24 member ensemble.

The UK strategic tide gauge network is owned by the Environment Agency. Maintenance of the network and developments to operational models are also funded by the Agency. We would like to acknowledge the support of all those who contribute scientifically to, and make use of, the NTS LF.

Dr Kevin Horsburgh  
Head of NTS LF