

National Tidal and Sea Level Facility

***Annual Report for 2005 for the
UK National Tide Gauge Network
and Related Sea Level Science***

Edited by Elizabeth Bradshaw

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

[Report for 2005 on Data Quality and visits to sites](#)

[Report on 'Monitoring Vertical Land Movements at Tide Gauges' in 2005](#)

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

[Report on gauges in Mozambique](#)

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Dave Smith, POL	- Maps and site information
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David Blackman, POL	- Tide Gauge Data Products
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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 UK National Tidal & Sea Level Facility (NTSLF) was established in 2002 to reflect the importance of sea level monitoring to the public, the government and the academic community. It brings together sea level expertise from the Proudman Oceanographic Laboratory (POL) and the British Oceanographic Data Centre (BODC), in collaboration with other groups that have scientific skills in sea level and geodesy.

The NTSLF satisfies an important strategic need for the UK where tidal processes, mean sea level and extreme coastal water levels have implications for coastal protection, sustainable housing development, management of the marine environment, industry and leisure. The NTSLF comprises the UK National Tide Gauge Network, geodetic networks for monitoring vertical land movements, and gauges in the British Overseas Territories. It is supported by the skills 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.

All tide gauge data are accessible free of charge via our web pages. We ensure effective knowledge transfer in order to demonstrate value for public money channelled through the Natural Environment Research Council (NERC). This report contains a summary of NTSLF activity for the period January-December 2005. Quality controlled tide gauge data can be downloaded from the BODC web site. Data from Gibraltar are now available, as well as real-time data from Ascension Island and Port Stanley. Information on technological developments, network status, numerical model forecasts and products for tidal analysis and prediction can be obtained from the NTSLF web site.

Over the past year, three sites in Scotland (Ullapool, Kinlochbervie and Leith) have been refurbished with new underwater steelwork. Mid-tide sensors were fitted at Ullapool and Kinlochbervie. A new building was installed at Leith and the float gauge recorder was replaced with a bubbler system. The tide gauge inspectorate is tasked with the continued development of improved data acquisition and site communications systems. GSM and Broadband technologies are currently under evaluation. The tide-surge numerical models used for coastal flood forecasting are also systematically upgraded. These models run four times a day at the Met Office, producing predictions up to two days ahead. The 12 km resolution surge model has been extended south to 40°N and west to 20°W in order to capture wind-generated surges originating in the Bay of Biscay. Research is under way to allow the numerical models to assimilate real-time data from key tide gauges. Fine resolution nested models of the Humber estuary, The Wash, the Thames estuary and Morecambe Bay are planned so as to give improved local forecasts in these regions.

Scientists from the NTSLF have contributed to new research aimed at quantifying the risk to the UK from tsunamis. Computer models were used to simulate tsunamis emanating from an earthquake off the Portuguese coast, similar to that which destroyed the city of Lisbon in November 1755. It was found that the spreading of wave energy resulted in low amplitudes (of the order 50 cm) by the time any tsunami reached the continental shelf break to the southwest of the UK. The rapid change of depth at the shelf break ensures that tsunamis move slowly across the Celtic Sea, thus providing a minimum of three hours warning that would permit well-positioned instruments to generate an effective emergency response.

The UK national Tide Gauge Network and operational model developments are funded by the Environment Agency. We would also like to acknowledge the support of all those who contribute scientifically towards, and make use of, the NTSLF.

Dr Kevin Horsburgh
Chair of NTSLF