

# Sea level data at BODC

BODC is involved in a variety of national, European-wide and international projects covering many aspects of sea level data.

## National Tidal & Sea Level Facility

The UK tide gauge network, part of the National Tide & Sea Level Facility, was set up in 1953, as a response to severe flooding along the east coast of England.

Today the Environment Agency fund a network consisting of over 40 gauges (see location map). Data are collected, processed and banked centrally to provide long time series of reliable and accurate sea levels. The data are used for tidal analysis and prediction, oceanographic research, coastal defence and storm surge warning systems.

Network performance is monitored daily. The British Oceanographic Data Centre (BODC) download the data weekly and archive it after performing quality control.

[www.bodc.ac.uk/data/online\\_delivery/ntslf/](http://www.bodc.ac.uk/data/online_delivery/ntslf/)

Users can:

- Download processed data over three months old (many sites have long time series - going back to 1915 in one case)
- Download unprocessed data for the last month
- Request processed data less than three months old



## European Sea Level delayed mode data portal

The European Sea Level delayed mode data portal exists to:

- Bring together formerly scattered sea level data from governmental and non-governmental organisations operating tide gauges along European coasts
- Provide quality-assured data to a broad range of scientific and non-scientific users

The portal was set up following principles established by the EU ESEAS Research Infrastructure project (ESEAS-RI). It uses a modified version of the data format agreed in the project and provides standardised access to the delayed-mode data and metadata. BODC has developed automatic retrieval and checking software that trawls the originators' FTP sites for new or modified data. The heading metadata is created using controlled vocabularies. The data are loaded into a database, which is searchable via the website.



The Observing Sites are primarily tide gauges providing continuous measurements of the sea level relative to a well-monitored benchmark on land. Some of these tide gauges are located with geodetic techniques such as continuous Global Positioning System or absolute gravity measurements. Sites committed to the European Sea Level portal have to operate according to the accepted standards. These are defined and classified by the Global Sea Level Observing System (GLOSS).

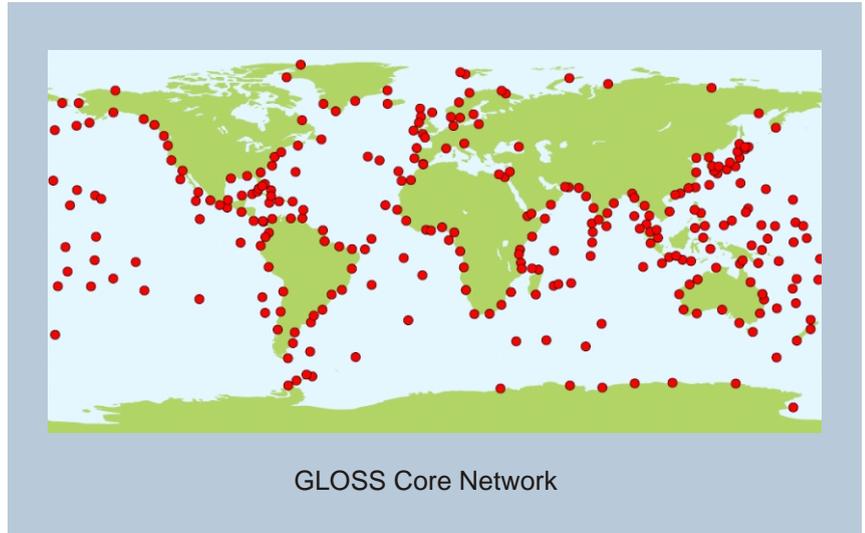
## Global Sea Level Observing System - GLOSS

[www.gloss-sealevel.org](http://www.gloss-sealevel.org)

The Global Sea Level Observing System (GLOSS) is an international programme conducted under the auspices of the Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM) of the World Meteorological Organisation (WMO) and the Intergovernmental Oceanographic Commission (IOC).

GLOSS aims to establish high-quality global and regional sea level networks for climate, oceanographic and coastal sea level research. The programme became known as GLOSS as it provides data for deriving the 'Global Level of the Sea Surface'.

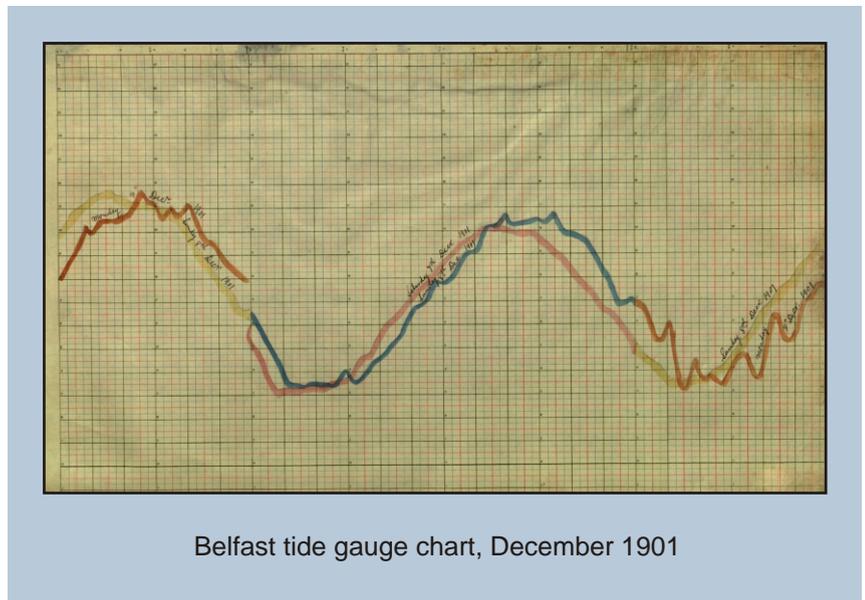
BODC acts as a GLOSS Archiving Centre for delayed-mode high-frequency (hourly, 15 minute, 6 minute or greater) data in partnership with the University of Hawaii 'fast-delivery' centre. BODC also maintains the GLOSS Station Handbook, which provides information on the tide gauges that make up the GLOSS Core Network. BODC also coordinates the GLOSS Sea Level Data Archeology Project, which aims to catalogue and 'rescue' historical sea-level data stored in paper form.



### Sea Level Data Archeology

BODC holds an archive of analogue sea level readings, in the form of paper charts, notebooks and microform negatives. These records contain observations from around the world.

Long-term sea level records are used in climate studies (to monitor sea levels), oceanography (to study ocean currents, tides and storm surges), geophysics and geology (to study coastal land movements) as well as other disciplines. The science of climate prediction requires reliable long-term data to extrapolate from. This is one of the reasons why recovering unique and irreplaceable long-term climate records is crucial. As some records held at BODC go back over 100 years (in one case, as far back as 1832), it's very important that we provide long-term care for our long-term records.



The aim of data archeology projects is to identify and increase long-term historical sea level time series by scanning handwritten ledgers of tidal measurements and digitising historic paper charts, plotted by sea level measuring instruments from a number of sites.

As well as providing more data to the scientific community, BODC will produce educational resources to help inform students about physics, mathematics, tidal science and climate change. The learning activities will encourage students to engage with the data and to explore their role in the wider science of sea level.