Geophysical Research Abstracts
Vol. 20, EGU2018-8108-1, 2018
EGU General Assembly 2018

The challenge of providing metadata for a 200 year long global mean sea level dataset

Andrew Matthews (1), Elizabeth Bradshaw (2), Kathy Gordon (1), Lesley Rickards (1,2)

(1) Permanent Service for Mean Sea Level, National Oceanography Centre, Liverpool, United Kingdom (antt@noc.ac.uk), (2) British Oceanographic Data Centre, Liverpool, United Kingdom

The Permanent Service for Mean Sea Level (PSMSL) is the internationally recognised global sea level data bank for long term sea level change information from tide gauges. Established in 1933, the PSMSL continues to be responsible for the collection, publication, analysis and interpretation of sea level data, and is based in Liverpool, at the UK's National Oceanography Centre. The PSMSL operates under the auspices of the International Council for Science (ICSU), is a regular member of the ICSU World Data System and is associated with the International Association for the Physical Sciences of the Oceans (IAPSO) and the International Association of Geodesy (IAG). The PSMSL continues to work closely with other members of the sea level community through the Intergovernmental Oceanographic Commission's Global Sea Level Observing System (GLOSS).

The PSMSL data bank holds nearly 70000 station-years of monthly and annual mean sea level data from over 2300 tide gauge stations, some dating back to the start of the 19th century. Data from each site are quality controlled and, wherever possible, reduced to a common vertical datum, whose stability is monitored through a network of geodetic benchmarks. All data are freely available from the PSMSL website, and are used in a wide range of disciplines, including oceanography, geology, geodesy and climate change studies.

The sea level record at any given location is the result of many years of effort. Over this period many changes in the method of observation will have been made. Several sensors of different types may have been used, perhaps at different locations, and the organisation responsible for taking the measurements may have changed on one or more occasions.

As a result, providing a coherent set of metadata that summarises the entire history of sea level measurement at a site, including all the caveats that users of our data should be aware of, can be highly challenging, particularly when historical records can be incomplete, vague, or even contradictory.

Here we will present the PSMSL's efforts to provide well structured and standardized metadata, incorporating commonly agreed standards, including the CF metadata conventions, various ISO standards, and the OGC Sensor Web Enablement suite of standards. We will illustrate some of the challenges faced in trying to adopt standards designed to describe 21st century technologies to represent data collected using methods that have been evolving since the 19th century.