Using OGC standards (SOS, O&M) to standardize data flow from cabled marine observatories to the PANGAEA data archive

**Overview**

Two cabled marine observatories were deployed during the EU FP7 HYPOX project – one in Loch Etive, Scotland, and one in the Koljoefjord, Sweden. We will present a data access workflow which was implemented by us, based on a set of OGC standards, namely Sensor Observation Service (SOS) and Observations & Measurements (O&M).

**Location**

The Koljoefjord is located on the Swedish west coast, about 100 km north of Gothenburg. It is connected to the open sea, and the observatory is deployed at around 40 m depth. Loch Etive is located on the west coast of Scotland, about 6 km north of Oban. It is about 30 km long and 150 m deep and is also connected to the ocean. This observatory was deployed at around 130 m water depth. Both observatories are equipped with RDCP and SeaGuard instruments carrying multiple sensors.

**Standardized data transport**

Real-time or near real-time data access as well as data retrieval for archiving purposes at PANGAEA for these two observatories has been achieved by implementing a SOS and two SOS clients. The SOS defines a web service interface which allows for querying of metadata, information about observed features and observations (data) in a standardized way.

A SOS instance deployed at MARUM is constantly retrieving data from the Koljoefjord observatory. One of the implemented SOS clients is used to request real-time data from the SOS and pass it on to an AJAX web client for display on the HYPOX portal page (http://dataportals.pangaea.de/hypox). The second client can be regarded as a harvesting service, requesting data from the SOS once monthly in order to prepare it for semi-automatized archiving in the PANGAEA long-term data archive. In both scenarios, requested data is streamed conforming to OGC’s Observations & Measurements XML implementation standard. Using the described OGC standards allows for managing sensor-/observatory data in an interoperable way.

**Data infrastructure overview**

Observatory data is being pushed to a collection service and stored in a buffer database running at MARUM. A SOS web client immediately publishes data on the HYPOX data portal. A second SOS client harvests the data buffer in regular intervals and prepares the data for the PANGAEA archiving process.

**Connection to GEOSS**

Data archived in the PANGAEA long term data archive is made available to GEOSS (geoportal.org) via OAI-PMH. This interface as well as the applied OGC standards and services are registered with the GEOSS Standards and Service Registries (below).