



**Acquisition system**  
 Low-cost sensors (Atlas Scientific)  
 Measuring seawater physical parameters

- Temperature (°C)
- Acidity (pH)
- Dissolved oxygen (mg/L)
- Electric conductivity (μS/cm)

Control board: Arduino MiniPro 5V 16MHz

**Transmission system (Transpobank)**  
 GSM/GPRS modem  
 GPS + UTC timestamp  
 Near real-time acquisition – every 10 seconds  
 Dataserver with REST API protocol for data access

**Processing server (OGS)**  
 Open source architecture: Linux – Postgres+PostGis – Apache - GeoServer  
 Data quality assessment and validation  
 Window averaging over a spatiotemporal grid of 200m x 200m x 1hour  
 Calculation of derived parameters:

- Salinity (pss)
- AOU (Apparent Oxygen Utilization)

**WEB products**

- WMS, WFS web services (OGC compliant) for M2M data harvesting
- Interactive web page for queries and map visualization (based on OpenStreetMap and OpenLayers). In the example below, averaged temperature measurements in the Gulf of Trieste.

