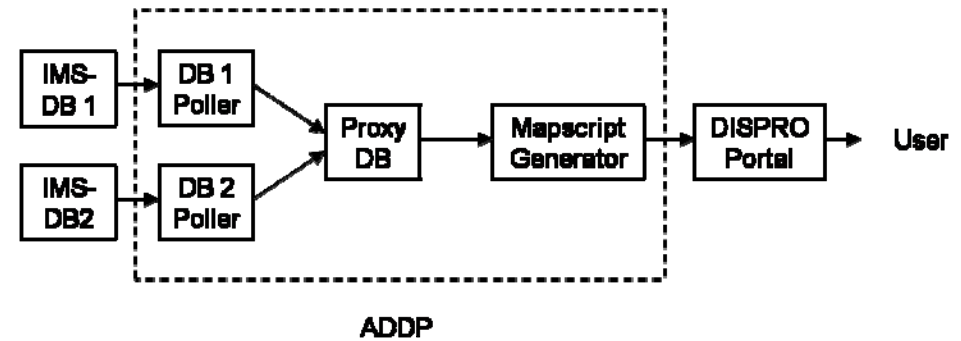


The Aberdeen DISPRO Database Proxy

The ADDP is a DISPRO node with a difference:

- **Collects** IMS measurements from multiple IMS-DB providers (eg. Zetaced)
- **Stores** these measurements locally (speed, reliability)
- **Generates** DISPRO compatible UMN Mapserver maps, including XML metadata files

The ADDP aggregates in-situ measurement data from the IMS DataBases within the data centres. For this aggregation, the ADDP utilises multiple DB Pollers, which periodically check the IMS for new in-situ data. The DB Pollers store new measurement data in the Proxy DB. The DISPRO Node projects the data stored in the Proxy DB onto a map, which is then fused by the DISPRO Portal with remote sensing data.



The database pollers

The DB Pollers have a number of different functions:

- **Retrieve data from IMS DB.** This involves transforming the obtained information into a format suitable for the Proxy DB. A typical example is the conversion of the station location from latitude/longitude format to PostGIS geometry format.
- **Convert between IMS DB ID → Proxy DB ID.** The Proxy DB allows data aggregation from multiple Data Centres by assigning new unique IDs to the data sets.
- **Check for available sensors.**
- **Check for new measurements.**
- **Ensure consistency of the Proxy-DB contents.** The measurement data set refers to the data set describing the sensor that took it: this has therefore to be present in the Proxy DB as well. The system handles this when a DB Poller tries to add a new data set: the system checks whether all data sets referred to are available within the Proxy DB. If a missing data set is discovered, the system requests the DB Poller to add it, before the new data set may be added.
- **Trigger the generation of mapfile and XML metadata files.** If there is a new sensor type, the poller deals with generating a legend image and mapping between measurement value → colour.

Proxy database

The Proxy DB is a spatial enabled (PostGIS) data base (PostgreSQL). The ADDP uses it to store all water quality information that the DB Pollers retrieved from the IMS-DBs. This local storage of water quality information increases system performance and reliability. The Proxy DB uses four tables to hold the retrieved data: Measurements, Sensors, SensorTypes, Stations. There is also a MostRecentValues table.

DISPRO node

The DISPRO Node component of the ADDP interfaces directly to the DISPRO Portal. It provides the portal with the latest in-situ measurements, available in the Proxy DB. The data gets served by UMN MapServer running as a web application within the Apache HTTP server. The MapServer provides specifications of available data layers within a so-called mapfile. In the case of in-situ measurements, each sensor measurement is represented by a coloured symbol, at the location of the IMS. The symbol colour represents the values of the various measured parameters. A mapfile consists of one or more layers. Each layer groups similar information, allowing for different parameters to be presented within the same mapfile. The ADDP uses this feature by grouping all measurements obtained by the same sensor-type within one layer, i.e. all temperature measurements in one layer, all chlorophyll measurements in another layer, and so on. This allows operators to select between the different parameters.

Time series plotting

ADDP time series can be plotted on the fly using a plotting component developed in the FP6 InterRisk project by Plymouth Marine Laboratory, UK. For each instrument on the WARMER buoy, the parameter and time range of interest can be selected, and all observations within the chosen period will be plotted as a function of time.

Future work

The ADDP makes extensive use of Open Source software, and has been designed to be modular and extensible. It will be released as open source, allowing others outside the WARMER project to take advantage of the combination of in-situ and remote sensing data. It is an ideal base for future expansions to support OGC-SOS or other services.

