



Distributed Digital Survey Logbook Built on GeoServer and PostGIS

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Keeping tracks of events that happens during survey (e.g. position and time when instruments goes into the water or come on-board, depths from which samples are taken or notes about equipment malfunctions and repairs) is essential for efficient post-processing and quality control of collected data especially in case of suspicious measurements. Most scientists still using good-old-paper way for such tasks and later transform it into digital form using spreadsheet applications. This approach looks more “safe” (if person is not confident in their computer skills) but in reality it turns to be more error-prone (especially when it comes to position recording and variations of sexagesimal representations or if there are no hints which timezone was used for time recording).

As cruises usually involves various teams not always interested to do own measurements at each station, keeping eye on current position is essential, especially if cruise plan is changed (due to bad weather or discovering of some underwater features that requires more attention than originally planned). Also, position is usually displayed only at one monitor (as most GPS receivers provide just serial connectivity and distribution of such signal to multiple clients requires some devices non-wide-spread on computer equipment market) so it can make messy situation in control room when everybody try to write-down current position and time.

To overcome all mentioned obstacles Distributed Digital Survey Logbook is implemented. It is built on Open Geospatial Consortium (OGC) compliant GeoServer, using PostGIS database. It can handle geospatial content (charts and cruise plans), do recording of vessel track and all kind of events that any member of team want to record. As GeoServer allows distribution of position data to unlimited number of clients (from traditional PC's and laptops to tablets and smartphones), it can decrease pressure on control room no matter if all features are used or just as distant display of ship position. If vessel is equipped with Internet link, real-time situation can be distributed to expert on land, who can monitor progress and advise chief-scientist how to overcome issues.

Each scientist can setup own pre-defined events, and trigger it by one click, or use free-text button and write-down note. Timestamp of event is recorded and in case that triggering was delayed (e.g. person was occupied with equipment preparation), time-delay modifier is available. Position of event is marked based on recorded timestamp, so all events that happens at single station can be shown on chart. Events can be filtered by contributor, so each team can get view of own stations only. ETA at next station and planned activities there are also shown, so crew can better estimate moment when need to start preparing equipment.

Presented solution shows benefits that free software (e.g. GeoServer, PostGIS, OpenLayers, Geotools) produced according to OGC standards, brings to oceanographic community especially in decreasing of development time and providing multi-platform access. Applicability of such solutions is not limited only to on-board operations but can be easily extended to any task involving geospatial data.