webODV – operational and ready for the community

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A tool for the online analysis of marine and environmental data

webODV is based on the Ocean Data View (ODV; https://odv.awi.de) software, which is widely used for the analysis, exploration and visualization of oceanographic and other environmental data. It has been developed in the SeaDataCloud (SDC) project and has reached now a state of maturity for the operational application for marine and environmental online services, portals, data providers and many more.

The concept

webODV comprises a suite of different partly customizable compartments. On the server backend we have the fully functional ODV software additionally equipped with a WebSocket server. On the frontend we have state-of-the-art responsible, interactive browser interfaces. Via the WebSocket technology, which provides a fast bi-directional connection between server (ODV) and client, the browser interface communicates with ODV. Thus we can send WebSocket messages from the browser to ODV requesting for data processing, creating maps, plots, extracting and exporting data and much more.

Operational applications

webODV is deployed operationally until now in three different applications / projects. It is used in the SDC Virtual Research Environment (VRE; https://vre.seadatanet.org) for importing marine data, extracting data, performing quality control and visualization. For the EMODnet Chemistry project it is used as a fast, interactive and easy tool for data extraction shown exemplarily in Fig. 1. Similar extraction services are operational in the GEOTRACES project (https://webodv.awi.de), where we have up to now more than 800 registered users and daily downloads.

Services out of the box

The webODV suite provides three different services out of the box. We have the data extraction, which offers a simple, intuitive, responsive and fast browser interface for the data selection and extraction without requiring any knowledge about the underlying ODV software. Similar we provide the easy to use import service without the need of prior ODV knowledge. An additional application, which we call ODV-online is provided. Here we mimic the original ODV interface in the browser with approximately covering 99 % of the original features, including the interactive generation of publication ready maps and plots. ODV-online is perfectly suited for the large global ODV community, which is already familiar with the desktop standalone version. Detailed documentation is available at https://odv.awi.de.

Figure 1: The EMODnet Chemistry data extractor

webODV deployment for the community

webODV is free software and we provide different packages for the deployment. Here we focus on the webODV docker operational suite, which provides the three mentioned webODV services out of the box and can be deployed easily on common server hardware. Minimal requirements are needed for the setup, which are a Linux server with installed Docker and Docker Compose software and a corresponding domain with SSL certificates. Setting up webODV then includes downloading the needed webODV packages and adapting a handful of configuration files for customizing and of course data in ODV format. The suite comes optionally with a user management system, including state-of-the-art security measures. Thus users have to register and login prior to using webODV.

While the above is the most simple way to get an instance of webODV running on a server, we will also provide a hierarchy of suites, from minimal development setups to the above mentioned Docker package.