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## Blue-Cloud Data Federation

*Thursday, 22 September 2022 11:30 (8 minutes)*

The Blue-Cloud project makes substantial progress providing a collaborative cyber platform with smart federation of an unprecedented wealth of multidisciplinary data, analytical tools, and computing facilities to explore and demonstrate the potential of cloud-based Open Science and address ocean sustainability. Blue-Cloud is undertaken within the “Future of Seas and Oceans Flagship Initiative” of EU HORIZON 2020 programme and is deploying the thematic EOSC for the marine domain.

Federation of data resources has been achieved by developing and deploying the Blue Cloud Data Discovery and Access service (DD&AS). It facilitates sharing of datasets from blue data infrastructures (BDIs) with a common interface. The DD&AS uses web services and APIs, as provided and maintained by BDIs. M-to-M interactions serve harvesting metadata, submitting queries, and retrieving resulting metadata, data sets and data products. The DD&AS has broker components for metadata and data and a common interface for discovery and retrieval of data sets and data products from each of the federated BDIs. The query mechanism has a two-step approach:

- Firstly, interesting data are discovered at collection level in a common metadata format, with free search, geographic and temporal criteria;
- Secondly, users drill down within identified collections to get more specific data at granule level, by including additional search criteria;
- Finally, users can retrieve the data sets using a shopping mechanism.

Currently, the DD&AS gives access to more than 10 Million data sets for physics, chemistry, geology, bathymetry, biology, biodiversity, and genomics from EMODnet, CMEMS, SeaDataNet, Argo, EuroArgo, ICOS, SOCAT, EcoTaxa, ELIXIR-ENA, and EuroBIS.

The DD&AS can be expanded by federating additional BDIs, this way providing a harmonised and easy discovery and access for the European ocean and marine data space. Moreover, it is planned to expand the functionality with sub-setting at data level, require additional APIs at each of the BDIs.

### Any relevant links

<https://data.blue-cloud.org>

### Topic

Data Spaces

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