



## **Dynamic Optimization for Time-critical Data Services: A Case Study in Euro-Argo Research Infrastructure**

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Environmental research infrastructures support their respective communities by acting as data hubs and publishers of scientific data. The Euro-Argo RI is a typical example, being the European contribution to the Argo program. Argo monitors the world's oceans measuring temperature, salinity, pressure, etc. via the distributed deployment of robotic floats. These floats periodically send data back via satellite to data assembly centres, which provide integrated, cleaned data products to various regional centres, archives and research teams; all data is made publicly available via a common portal within 24 hours of acquisition. In contrast to simply providing collected data freely for download and frequent inspection for changes in analysis results, researchers are allowed to subscribe to specific subsets of Argo data and have updates pushed to their own cloud storage, thus streamlining data delivery and accelerating workflows.

Specialised data services for managing data lifecycle, for creating and delivering data products, and for customised data processing, play a crucial role in RI to serve their user communities. We describe our experiences identifying the time-critical requirements of environmental scientists making use of ICT research support infrastructure. We present a microservice based infrastructure optimisation suite called DRIP. We provide a case study whereby DRIP is used to optimise runtime service quality for a data subscription service provided by the Euro-Argo RI using EGI FedCloud and EUDAT's B2SAFE service.