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Breaking the barriers to interdisciplinarity: Contributions from the Environmental Research Infrastructures

Angeliki K. Adamaki¹, Ana Rita Gomes², Alex Vermeulen¹, Ari Asmi³, and Andreas Petzold²

¹ICOS ERIC - Carbon Portal, Department of Physical Geography and Ecosystem Science, Lund University, Lund, Sweden

(angeliki.adamaki@nateko.lu.se, alex.vermeulen@nateko.lu.se)

²Forschungszentrum Jülich - Institute of Energy and Climate Research - Troposphere, Jülich, Germany (a.gomes@fz-juelich.de, a.petzold@fz-juelich.de)

³Institute of Atmospheric and Earth System Sciences, University of Helsinki, Helsinki, Finland (ari.asmi@helsinki.fi)

As science and technology evolve, interdisciplinary targets are anything but static, introducing additional levels of complexity and challenging further the initiatives to break the barriers to interdisciplinary research. For over a decade the community of the Environmental Research Infrastructures, forming the ENVRI cluster, has been building strong foundations to overcome these challenges and benefit the environmental sciences. One of the overarching goals of the ENVRI cluster is to provide more FAIR (Findable, Accessible, Interoperable and Reusable) data and services which will be open to everyone who wishes to get access to environmental observations, from scientists and research communities of scientifically diverse clusters to curious citizens, data scientists and policy makers.

Starting with domain-specific use cases we further explore potential cross-domain cases, e.g. in the form of environmental science stories crossing disciplinary boundaries. A set of Jupyter Notebooks developed by the contributing Research Infrastructures (and accessible from a hub of services called the ENVRI-Hub) are promising tools to demonstrate and validate the capabilities of service provision among ENVRI and across Science Clusters, and act as examples of what a user can achieve through the ENVRI-Hub. In one of the examples we investigate, a user-friendly well-structured Jupyter Notebook that makes use of research infrastructures' application programming interfaces (APIs) jointly plots in a map the geographical locations of several Marine and Atmospheric stations (where the stations in this example are defined as measurement points actively collecting data). The FAIR principles provide a firm foundation defining the layer that supports the ENVRI-Hub structure and the preliminary results are promising. Considering that the APIs can become discoverable via a common ENVRI catalogue, the ENVRI-Hub aims to make full use of the machine-actionability of such a catalogue in the future to facilitate this kind of use case execution in the Hub itself.

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