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The construction of the eLTER Pan-European research infrastructure to support multidisciplinary environmental data integration and analysis

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One of the major goals of the upcoming European integrated Long-Term Ecosystem critical zone and socio-ecological Research Infrastructure (eLTER RI) is to provide reliable and quality-controlled long-term environmental data from various disciplines for scientific analysis as well as the assessment of environmental policy impacts. For this purpose, eLTER has been designing and piloting a federated data infrastructure for integration and dissemination of a broad range of *in situ* observations and related data.

Implementing such a pan-European environmental data infrastructure is a lengthy and complex process driven by user needs, shareholder requirements and general service and technology best practises. The European LTER community has laid the foundations of this eLTER Information System. For further improvements, user needs have recently been collected by (a) targeted interviews with selected stakeholders to identify requirements, (b) workshops mapping requirements to potential RI services, and (c) analysis work for designing the RI service portfolio for. The requirements collections are used to derive functional (i.e. the behaviour of essential features of the system) and non-functional (i.e. the general characteristics of the system) requirements for the IT infrastructure and services. These collected requirements revolve around the development of workflows for the ingestion, curation and publication of data objects including the creation, harvesting, discovery and visualisation of metadata as well as providing means to support the analysis of these datasets and communicating study results.

Considering that downstream analyses of data from both eLTER and other RIs are a key part of the RI's scope the design includes virtual collaborative environments where different data and analyses can be brought together and results shared with FAIR principles as the default for research practice. The eLTER RI will take advantage of data stored in existing partner data systems, harmonised by a central discovery portal and federated data access components providing a common information management infrastructure for bridging across environmental RIs.

This presentation will provide an overview of the current stage of the eLTER RI developments as well as its major components, provide an outlook for future developments and discuss the

technical and scientific challenges of building the eLTER RI for interdisciplinary data sharing.