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# AnaEE ERIC: Advancing Experimental Ecosystem Research through Aligned Research Infrastructures

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Addressing global environmental change requires coordinated, large-scale experimentation and analysis across diverse ecosystems. AnaEE ERIC (Analysis and Experimentation on Ecosystems European Research Infrastructure Consortium) provides a pan-European network of experimental and analytical facilities, including enclosed ecotrons and open-air platforms, covering agricultural, forest, freshwater, and peatland ecosystems across a wide range of climates. These facilities enable controlled manipulation of key ecosystem drivers, such as drought, flooding, elevated CO□, temperature, nitrogen fluxes, and species migration, and support testing of nature-based solutions, including innovative farming and agroforestry practices.

Successful examples from AnaEE ERIC include multi-site experiments on ecosystem responses to drought and warming, as well as mechanistic studies of carbon and nutrient cycling in controlled ecotron facilities. Challenges encountered involve harmonising experimental protocols across facilities, integrating heterogeneous datasets, and scaling site-specific results to regional or European levels. To address these issues, AnaEE ERIC is progressively strengthening shared digital services, including standardised data catalogues and API-based access to data and models, enabling interoperable workflows and cross-platform use of experimental outputs.

Recommendations derived from the AnaEE ERIC experience emphasise the standardisation of protocols, the development of interoperable data platforms, and training programs to enhance cross-facility collaboration. This approach demonstrates how networked experimental infrastructures, supported by AnaEE ERIC, generate actionable knowledge, foster collaboration across disciplines, and inform both science and policy in the context of global environmental change.