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Long-term environmental monitoring infrastructures in Europe - comparability and representativeness

Hannes Mollenhauer (1), Max Kasner (1), Peter Haase (2,3), Johannes Peterseil (4), Christoph Wohner (4), Mark Frenzel (5), Michael Mirtl (4), Robert Schima (6), Jan Bumberger (1), and Steffen Zacharias (1)

(1) Department Monitoring and Exploration Technologies, Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany (hannes.mollenhauer@ufz.de), (2) Department of River Ecology and Conservation, Senckenberg Research Institute and Natural History Museum Frankfurt, Gelnhausen, Germany, (3) Faculty of Biology, University of Duisburg-Essen, Essen, Germany, (4) Department for Ecosystem Research and Monitoring, Environment Agency Austria, Vienna, Austria, (5) Department of Community Ecology, Helmholtz Centre for Environmental Research - UFZ, Halle, Germany, (6) Chair of Ocean Engineering, Faculty of Mechanical Engineering and Marine Technology, University of Rostock, Rostock, Germany

The constantly accelerating and increasing impact on the environment such as climate and land use change are increasingly complex and represent critically growing challenges of global relevance. Therefore, one of the major challenges of modern environmental research is the establishment of an internationally harmonized, integrated, and long-term operated environmental monitoring infrastructure. Increased efforts are currently being made in Europe to establish such a harmonized pan-European observation infrastructure – eLTER RI, the integrated European Long-Term Ecosystem, Critical Zone & Socio-Ecological Research Infrastructure. In a recent study the current state and distribution of long-term environmental research in Europe was evaluated. For this, the formally accredited LTER-Europe sites (about 500 sites) have been taken into account. Information on long-term biotic and abiotic measurements have been compiled and representativeness in terms of continental biogeographical and socio-ecological gradients has been examined. This allowed identifying gaps in both measurements and geographical coverage. Furthermore, the analysis allows describing the current state of the LTER-Europe observation strategies qualitatively. The results provide the basis to evaluate the comparability of existing LTER-Europe monitoring concepts.