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Assessing the biogeographical and socio-ecological representativeness of the ILTER site network

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The challenges posed by climate and land use change are increasingly complex, with rising and accelerating impacts on the global environmental system. Novel environmental and ecosystem research needs to properly interpret system changes and derive management recommendations across scales. This largely depends on advances in the establishment of an internationally harmonised, long-term operating and representative infrastructure for environmental observation. One example for such an infrastructure for environmental observation is the International Long-Term Ecological Research (ILTER) network. ILTER is a global network of networks consisting of research sites in a wide array of ecosystems that focuses on long-term, site-based research, and builds on a “bottom-up” governance structure. To assess the biogeographical and socio-ecological representativeness of the ILTER site network, we analysed all of the 743 formally accredited sites in 47 countries with regard to their spatial distribution. So-called “Representedness” values were computed from six global datasets. The analysis revealed a dense coverage of Northern temperate regions and anthropogenic zones most notably in the US, Europe and East Asia. Notable gaps are present in economically less developed and anthropogenically less impacted hot and barren regions like Northern and Central Africa and inner-continental parts of South America. These findings provide the arguments for our recommendations regarding the geographic expansion for the further development of the ILTER network, most notably in inner continental parts of South America, the Arctic region and Western and Central Africa.