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Analysis and Experimentation on Ecosystems (AnaEE): a new research distributed infrastructure to tackle ecosystem complexity.

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Terrestrial ecosystems represent a critical zone that provide key ecological services to human populations in the form of food, fibre and energy climate protection or nutrient recycling, to name a few. In this critical zone, human activities are directly or indirectly generating major environmental pressures, such as pollution, global warming, and the destruction and alteration of natural habitats. Altogether, these global changes result in a rapid erosion of biodiversity and a major perturbation of ecological systems and services. It is therefore vital to understand how ecological systems respond and adapt to such pressures and perturbations and to test sustainable land use and innovative green technologies in order to address societal challenges. Today, a major focus in ecological and agricultural sciences is on the production of quantitative, experimentally reproducible and testable approaches using advances in our ability to characterize complex ecological systems from genes to ecosystem levels.
The need for experimental approaches that require sophisticated equipment and instruments, technological advances, and strong theoretical foundation through conceptualization and modelling of ecosystem functioning is addressed by a new ESFRI FP7 distributed research infrastructures called AnaEE (Analysis and Experimentation on Ecosystems). Such approaches are the mechanistic bases of adaptation and impacts on eco- and agrosystem functioning to be deciphered. ANAEE is setting up and offers a distributed infrastructure of open-access platforms providing facilities to conduct experiments and analyse and model complex ecological systems.

ANAEE through its integrated and experimental approach to ecosystem functioning will provide a quantum leap in the quality and availability of data and projections on continental ecosystems responses to global changes and to management, enabling policy makers and stakeholders to sustainably manage ecosystem services for all citizens.