



Challenges, insights and perspectives associated with combining observation and experimentation research infrastructure.

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Building an integrated network of research infrastructures in ecosystem science has become a necessity if we are to collectively tackle and forecast the impacts of climate change and land use changes in continental ecosystems. However, without strong alignment and stakeholder engagement a priori with decision-makers, natural resource managers alongside with robust managerial skills meeting such a goal will not happen. To achieve this goal, it is important to develop the planning forums for both scientists and decision-makers to overcome the misalignment among environmental research infrastructures (that strongly impedes scientific opportunities to address global change-related societal impacts). Furthermore integrated environmental research infrastructures must support unprecedented 'early-research' innovation and demonstrate economic relevancy. More implicitly channeling our observational and experimental capabilities would allow us to comprehensively test our hypotheses and fully understand the "why" and the "how" of future change— as opposed to the "what" alone. This would not only determine our innovative design processes, it also leads us to pinpoint the most adequate and cost-effective way society to address a given problem. In doing so, we would rely on the unprecedented bandwidth of research infrastructures to effectively bring together observational and experimental measurements, in a cycle of continuous improvement and interpretation at the frontier of today's environmental science.