



European environmental research infrastructures are going for common 30 years strategy

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Environmental Research infrastructures are facilities, resources, systems and related services that are used by research communities to conduct top-level research. Environmental research is addressing processes at very different time scales, and supporting research infrastructures must be designed as long-term facilities in order to meet the requirements of continuous environmental observation, measurement and analysis. This longevity makes the environmental research infrastructures ideal structures to support the long-term development in environmental sciences.

ENVRI project is a collaborative action of the major European (ESFRI) Environmental Research Infrastructures working towards increased co-operation and interoperability between the infrastructures. One of the key products of the ENVRI project is to combine the long-term plans of the individual infrastructures towards a common strategy, describing the vision and planned actions.

The envisaged vision for environmental research infrastructures toward 2030 is to support the holistic understanding of our planet and its behavior. The development of a 'Standard Model of the Planet' is a common ambition, a challenge to define an environmental standard model; a framework of all interactions within the Earth System, from solid earth to near space. Indeed scientists feel challenged to contribute to a 'Standard Model of the Planet' with data, models, algorithms and discoveries. Understanding the Earth System as an interlinked system requires a systems approach. The Environmental Sciences are rapidly moving to become a one system-level science. Mainly since modern science, engineering and society are increasingly facing complex problems that can only be understood in the context of the full overall system.

The strategy of the supporting collaborating research infrastructures is based on developing three key factors for the Environmental Sciences: the technological, the cultural and the human capital. The technological capital development concentrates on improving the capacities to measure, observe, preserve and compute. This requires staff, technologies, sensors, satellites, floats, software to integrate and to do analysis and modeling, including data storage, computing platforms and networks. The cultural capital development addresses issues such as open access to data, rules, licenses, citation agreements, IPR agreements, technologies for machine-machine interaction, workflows, metadata, and RI community on the policy level. Human capital actions are based on anticipated need of specialists, including data scientists and 'generalists' that oversee more than just their own discipline. Developing these, as interrelated services, should help the scientific community to enter innovative and large projects contributing to a 'Standard Model of the Planet'.

To achieve the overall goal, ENVRI will publish a set of action items that contains intermediate aims, bigger and smaller steps to work towards the development of the 'Standard Model of the Planet' approach. This timeline of actions can be used as reference and 'common denominator' in defining new projects and research programs. Either within the various environmental scientific disciplines or when cooperating among these disciplines or even when outreaching towards other disciplines like social sciences, physics/chemistry, medical/life sciences etc.