



IS-ENES impacts on the path towards the infrastructure sustainability

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IS-ENES is the distributed e-infrastructure of the European Network for Earth System Modelling (ENES).

A complex and heterogeneous infrastructure, IS-ENES encompasses models and tools development, documentation, deployment and sharing (including HPC aspects), data storage, processing and distribution as well as the interface with climate impact science and climate services, therefore serving climate science and the users of climate data. This direct impact has a path to many socio-economic sectors (energy, agriculture, transport, water management, health, safety...), as well as national and international policy makers. IS-ENES' third phase (H2020 funded I3 European project H2020 2019-2022) IS-ENES3 starts as the European climate modelling community faces the challenges of contributing to the next IPCC assessment report through the 6th phase of the Coupled Model Intercomparison Project (CMIP). IS-ENES3 addresses these challenges by developing services to deal with unprecedented data volumes and model complexity. The infrastructure delivers the European part of the Earth System Grid Federation and a central point of entry to services providing access to new data, software, models and tools.

IS-ENES3 will further stimulate collaboration, disseminate software and data, and integrate and expand Europe wide its user base. Moreover it will find innovative ways of working with the Copernicus programme, already relying on IS-ENES ESGF services, and with other parts of the European data infrastructure, and with the high performance computing and data analytics industries.

We propose to employ a blend of indicators to show the advancement of key aspects/activities toward the achievement of the project's manifold short and long-term impacts. Besides relying on indicators used so far to measure software uptake and use and data processing and download, including the reliability of help and documentation services, we plan in IS-ENES3 to add ways to measure contributions to joint development activities (e.g. for new model modules), map applications for Trans National Access and the landscape of national and international science projects relying on the infrastructure. Targeting infrastructure openness and outreach toward adjacent communities, we deem important to map participation in interoperability initiatives, as well as involvement per community and career stage in IS-ENES outreach and training initiatives. We also aim at discussing ways on how to measure tangible outcomes resulting from engagement with Copernicus, EOSC, other European infrastructures, as well as with the industry.

We offer a retrospective analysis of the methodology used in the previous phases of IS-ENES to measure impacts and an outlook of what IS-ENES3 proposes to increase and optimize them. In the crucial moment of preparing sustainability of a mature, heterogeneous, acknowledged yet expanding infrastructure, estimates of the extent of impacts (including financial ones when applicable) and return of target communities might ultimately feed back into infrastructure architecture decisions.