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## **The DRIHM (Distributed Research Infrastructure for Hydro-Meteorology) project and the study of flash-flood producing storms**

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Predicting weather and climate and its impacts on the environment, including hazards such as floods and landslides, is still one of the main challenges of the 21st century with significant societal and economic implications. At the heart of this challenge, as also suggested by the DRIHMS (Distributed Research Infrastructure for Hydro-Meteorology Study) project, lies the ability to have easy access to hydrometeorological data and models, and facilitate the collaboration between meteorologists, hydrologists, and Earth science experts for accelerated scientific advances in hydrometeorological research (HMR).

The DRIHM (Distributed Research Infrastructure for Hydro-Meteorology) project intends to develop a prototype e-Science environment to facilitate this collaboration and provide end-to-end HMR services (models, datasets and post-processing tools) at the European level, with the ability to expand to global scale. The objectives of DRIHM are to lead the definition of a common long-term strategy, to foster the development of new HMR models and observational archives for the study of severe hydrometeorological events, to promote the execution and analysis of high-end simulations, and to support the dissemination of predictive models as decision analysis tools.

DRIHM combines the European expertise in HMR, in Grid and High Performance Computing (HPC). Joint research activities will improve the efficient use of the European e-Infrastructures, notably Grid and HPC, for HMR modelling and observational databases, model evaluation tool sets and access to HMR model results. Networking activities will disseminate DRIHM results at the European and global levels in order to increase the cohesion of European and possibly worldwide HMR communities and increase the awareness of ICT potential for HMR. Service activities will deploy the end-to-end DRIHM services and tools in support of HMR networks and virtual organizations on top of the existing European e-Infrastructures.

The innovative nature of the forthcoming DRIHM services is shown in relationship with a sequence of flash-flood producing storms that deeply affected, during last fall season, the Cinqueterre area in Liguria, the Genoa city again in Liguria, and finally southern France.

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