



## **e-Collaboration for Earth observation (E-CEO): the Cloud4SAR interferometry data challenge**

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The e-Collaboration for Earth Observation (E-CEO) project addresses the technologies and architectures needed to provide a collaborative research Platform for automating data mining and processing, and information extraction experiments. The Platform serves for the implementation of Data Challenge Contests focusing on Information Extraction for Earth Observations (EO) applications.

The possibility to implement multiple processors within a Common Software Environment facilitates the validation, evaluation and transparent peer comparison among different methodologies, which is one of the main requirements rose by scientists who develop algorithms in the EO field.

In this scenario, we set up a Data Challenge, referred to as Cloud4SAR (<http://wiki.services.eoportal.org/tiki-index.php?page=ECEO>), to foster the deployment of Interferometric SAR (InSAR) processing chains within a Cloud Computing platform. While a large variety of InSAR processing software tools are available, they require a high level of expertise and a complex user interaction to be effectively run. Computing a co-seismic interferogram or a 20-years deformation time series on a volcanic area are not easy tasks to be performed in a fully unsupervised way and/or in very short time (hours or less). Benefiting from ESA's E-CEO platform, participants can optimise algorithms on a Virtual Sandbox environment without being expert programmers, and compute results on high performing Cloud platforms.

Cloud4SAR requires solving a relatively easy InSAR problem by trying to maximize the exploitation of the processing capabilities provided by a Cloud Computing infrastructure. The proposed challenge offers two different frameworks, each dedicated to participants with different skills, identified as Beginners and Experts. For both of them, the contest mainly resides in the degree of automation of the deployed algorithms, no matter which one is used, as well as in the capability of taking effective benefit from a parallel computing environment.