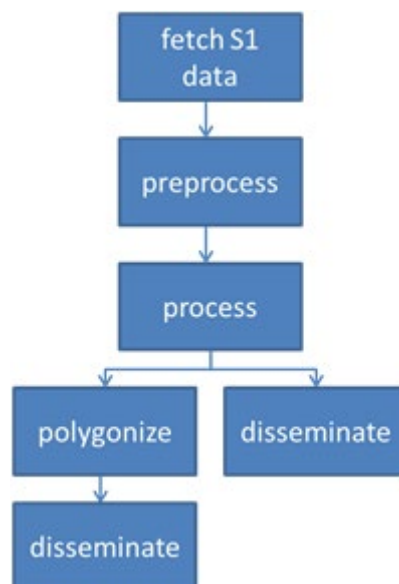


## Copernicus Sentinel-1 for near-real time water monitoring

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*The European Copernicus program provides satellite data and products suitable for a variety of environmental and security applications. The Sentinel-1 radar satellites, can be used e.g. for the detection of water bodies, the mapping of its seasonal dynamics and for the monitoring of floods. They record approx. 1200 scenes per day, creating a daily amount of data in the order of 800 GB. This application facilitates the near-real time detection of flooded areas and can therefore provide vital information during crisis situations.*

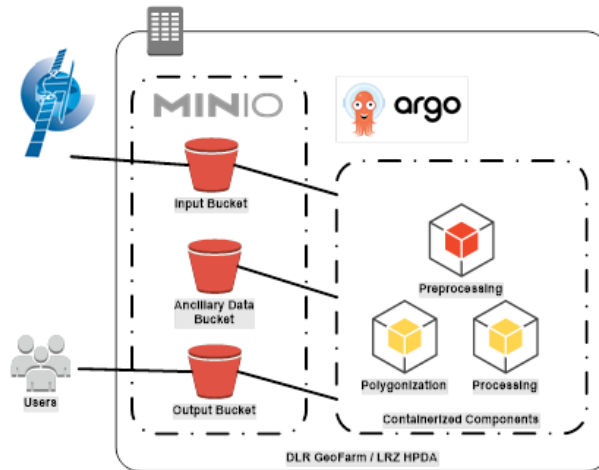
*Currently a near-real time[1] monitoring system for the provision of Sentinel-1 based global water products is under development.*



*The processing chain can be divided into pre-processing (internal calibration and terrain correction) and the thematic processing (derivation of water bodies, dynamic and flood extent). Hereby the algorithm detects potential water bodies, including a refinement by a fuzzy-logic-approach.*

*The results are disseminated as raster and vector files.*

*Processing is performed in a cloud environment. Argo Workflows are orchestrating docker container native workflows in a Kubernetes environment.[TR1] Using Kubernetes and Argo allows an easy evolution of the processing system and the implementation and adapting of other thematic processing tasks in the future.*



*The physical infrastructure currently used is the DLR-DFD multi purpose processing Environment GeoFarm. The application is planned to be ported to DLRs new High performance data analytics (HPDA) -Infrastructure at the Leibnitz Rechenzentrum (LRZ) in Munich.*

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[1] Time between sensing and product delivery should be below a boundary of 3 hours.

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