Objective

Earth observation (EO) satellites yield a wealth of data for scientific, operational and commercial exploitation. However, the redistribution of environmental mass is not yet part of the EO data products to date. These observations, derived from the Gravity Recovery and Climate Experiment (GRACE) mission and in future by GRACE-FO (Follow-on), deliver fundamental insights into the global water cycle. Changes in continental water storage control the regional water budget and can, in extreme cases, result in floods and droughts that often claim a high toll on infrastructure, economy and human lives. The aim of this proposal is to demonstrate that mass redistribution products open the door for innovative approaches to flood and drought monitoring and forecast.

The timeliness and reliability of information is the primary concern for any early-warning system. We aim to increase the temporal resolution from one month, typical for GRACE products, to one day and to provide gravity field information within 5 days (near real-time). Early warning indications derived from these products are expected to improve the timely awareness of potentially evolving hydrological extremes and to help in the scheduling of high-resolution follow-up observations. We will provide adequate data products and indicators for tentative integration into the work of the Center for Satellite Based Crisis Information (ZKI, operated by the German Aerospace Center) and its future use within international initiatives such as the Copernicus Emergency Management Service and the International Charter “Space and Major Disasters”. The performance of our products will be assessed with complementary data and post-processed mass products derived from the combined knowledge of the entire European GRACE community.
unified in our consortium. Our efforts thus culminate in three dedicated services: 1) a scientific combination service, 2) a near real-time service and 3) a hydrological/early warning service.

Field of Science

/natural sciences/physical sciences/astronomy/planetary science/satellites
/social sciences/sociology/governance/public services

Programme(s)

H2020-EU.2.1.6. - INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies – Space

Topic(s)

EO-1-2014 - New ideas for Earth-relevant space applications

Call for proposal

H2020-EO-2014

See other projects for this call

Funding Scheme

RIA - Research and Innovation action

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