

# CGI- eSURGE

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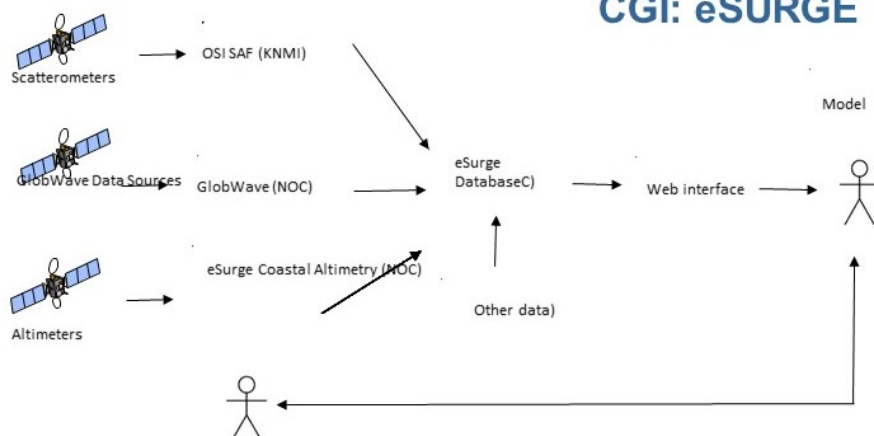
A storm surge is an unexpectedly high water level brought on by unusual atmospheric conditions. The ability to model and forecast storm surges can support preparation and mitigation activities, bringing enormous benefits, including to some of the world's poorest countries. Earth Observation data from satellites has an important role to play in surge monitoring and forecasting, but the full uptake of these data by users such as environmental agencies and tidal prediction centres has not been as high as it might be. This is especially true for newer data types such as coastal altimetry and high resolution scatterometry. Recognising this, the European Space Agency is funding the eSurge project, which will both make access to such data easier than it has been, including providing new data types (see below).

The project will also run demonstration experiments, as well as providing training for users and doing outreach activities to advertise the data and to encourage people to make full use of it. The project is led by CGI (UK), with NOC (UK), DMI (Denmark), CMRC (Ireland) and KNMI (Netherlands) as scientific partners. Starting from mid-2013, eSurge has operated an eSurge Live service to demonstrate the feasibility of providing suitable data in near real time, to support future operational storm surge forecasting services. This service will operate in the European coasts and North Indian Ocean.

### How satellite data are utilized

Altimetry data derived from Jason 1&2, Envisat, Cryosat II and other missions is processed and fused into a consolidated data product by eSurge, which also draws in data from GlobWave and scatterometers OSCAT & ASCAT. Moreover, added value is further attained by also including in the eSurge database in-situ data where infrastructure is lacking, post event model reassessment, better wind fields data, and a facility to prune across the amalgamated eSurge data.

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### Key factors for success

eSurge provides a means of consolidating all relevant data together to form an aggregated data product. eSurge is the first systematic attempt to use Earth Observation data within modelling and forecasting. eSurge brings together storm surge data, experts, and end users conducting forecasts.

eSurge processing and consolidation with other data sources is conducted under supervision of experts. Users have eSurge data available to them from a web portal ([www.storm-surge.info/data-access](http://www.storm-surge.info/data-access)) and liaise with eSurge experts for support.

### Ripple effect

Much of the world's coastline is at risk of storm surges, which are among the most devastating of natural catastrophes, posing a threat to life and property.

eSurge proves the concept that satellite data improves storm surge forecasts, in such a manner that the project is working towards supporting users for operational forecasts.

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