PROJECT FACTSHEET

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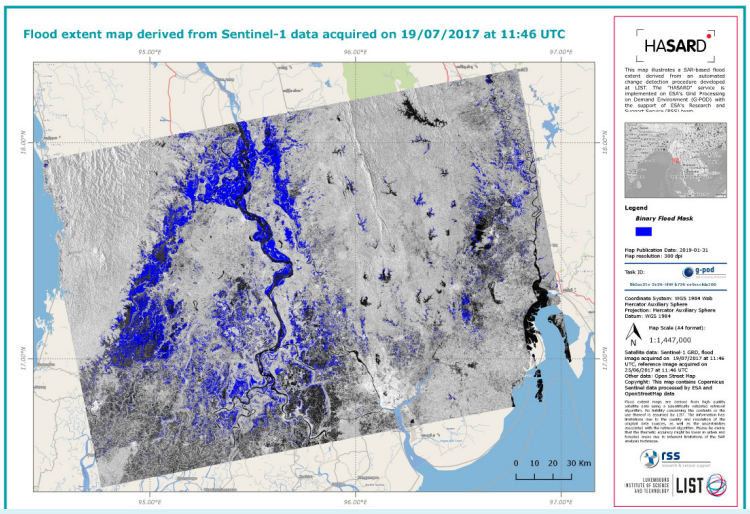
EDRIFT

Near real-time monitoring of flood risk in South East Asia using satellite remote sensing and hydraulic modelling



Inspiration

In South-East Asia, the risks associated with natural disasters, such as floods, are currently not well-known, mostly due to a lack of observation records. As a result, the further development of the disaster risk financing industry in this area relies on a better assessment of the risks.

Earth Observation (EO) satellites operated by the European Space Agency (ESA) provide a wealth of flooding-related data at unprecedented frequency and quality. The Synthetic Aperture Radar (SAR) images represent a most useful data source as they provide information on the extent of water bodies regardless of weather conditions and day and night.

In order to provide efficient support to people that would be victim of natural disaster, insurance companies do not necessarily indemnify the pure loss, but may agree to make a payment upon the occurrence of a triggering event. However, they need to have a good understanding of the risks in a certain region at a given time to support their decision-making.

Innovation

The objective of EDRIFT is to enhance the capacity within disaster risk financing industry in using cutting edge technology to significantly improve flood risk assessment. This will be achieved through the provision of an innovative combination of automated, satellite data extraction capacities with large-scale hydrodynamic modelling.

With proven experience in remote sensing, LIST will be in charge of satellite data processing. In parallel, its partners will focus on hydraulic modelling at a large scale. Moreover, satellite EO data will be analysed to estimate the population density in all areas exposed to flooding risk. The new product, which estimates the number of persons affected by a given flood event, will follow the requirements given by reinsurance companies, who will afterwards test its usefulness.

LIST researchers will make benefit of a new image processing technology they recently developed for the retrieval of flood hydrology information from different types of satellite data. They will build up a new near real time flood monitoring capacity in several regions of South East Asia by using the quasi continuous stream of EO data from the region. Data sets will be processed with their existing algorithm. However, the latter will be adapted to this new environment and, in particular to the challenging conditions of rice cultivations.

Impact

EDRIFT will enable the creation of new near real time flood monitoring capacity in the South-East Asia, giving accurate information on the extent of flooding, as well as the number of affected persons in risk prone areas of Myanmar, Vietnam and Cambodia. It will provide reliable and useful input data for the parametric insurance model of the insurance companies, allowing them to better anticipate risk of natural disasters.

In addition, the integration of these two complementary data sets will allow improving the model and reducing the uncertainties of its predictions, thereby offering a more reliable flood forecast of that region to insurance companies. As a result, the positive impact of the EO data on the simulations will help insurance companies to improve their emergency response.

Partners

CIMA Research Foundation (IT) , Deltares (NL) , FadeOut (IT) , RMS (CA) , Swiss Re (CH)

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