Geophysical Research Abstracts
Vol. 12, EGU2010-2339, 2010
EGU General Assembly 2010

Potentialities and uncertainties of coarse resolution SAR imagery to support flood inundation modelling

Giuliano Di Baldassarre (1), Guy Schumann (2), Luigia Brandimarte (3), and Paul Bates (2)

(1) Hydroinformatics and Knowledge Management, UNESCO-IHE, Delft, Netherlands (g.dibaldassarre@unesco-ihe.org), (2) School of Geographical Sciences, University of Bristol, Bristol, UK, (3) Water Engineering, UNESCO-IHE, Delft, The Netherlands

Nowadays, it is widely recognised that remote sensing can support flood monitoring, modelling and management. In particular, satellites carrying Synthetic Aperture Radar (SAR) sensors are valuable as radar wavelengths can penetrate cloud cover and are insensitive to daylight. However, given the strong inverse relationship between spatial resolution and revisit time, monitoring floods from space in near real time is currently only possible through low (about 100m) resolution SAR imagery. For instance, ENVISAT-ASAR revisit times are in the order of 3 days and can be quickly obtained. Hence, this type of space-borne data can be used for monitoring major floods on large rivers where the inundation width is generally more than one order of magnitude larger than the image resolution. This presentation aims at showing and discussing potentialities and uncertainties of coarse resolution SAR imagery to support flood inundation modelling. Initially, the presentation describes the potential of coarse resolution imagery to support hydraulic modelling in near real time. Then, the uncertainty of SAR-derived flood extent maps is investigated and, finally, the need to move from deterministic binary maps (wet/dry) of flood extent to uncertain flood inundation maps is discussed.