



Airborne SAR imagery to support hydraulic models

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Satellite images and airborne SAR (Synthetic Aperture Radar) imagery are increasingly widespread and they are effective tools for measuring the size of flood events and for assessment of damage. The Hurricane Katrina disaster and the tsunami catastrophe in Indian Ocean countries are two recent and sadly famous examples. Moreover, as well known, the inundation maps can be used as tools to calibrate and validate hydraulic model (e.g. Horritt et al., Hydrological Processes, 2007). We carry out an application of a 1D hydraulic model coupled with a high resolution DTM for predicting the flood inundation processes. The study area is a 16 km reach of the River Severn, in west-central England, for which, four maps of inundated areas, obtained through airborne SAR images, and hydrometric data are available. The inundation maps are used for the calibration/validation of a 1D hydraulic model through a comparison between airborne SAR images and the results of hydraulic simulations. The results confirm the usefulness of inundation maps as hydraulic modelling tools and, moreover, show that 1D hydraulic model can be effectively used when coupled with high resolution topographic information.