



Impact of the SAR acquisition timing on the calibration of a flood inundation model

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Synthetic Aperture Radar (SAR) data have proven to be a very useful source of information for the calibration of flood inundation models. The impact of different properties of calibrating models with SAR data has been investigated in several studies. However, none of these models has focused on the acquisition timing of the data. This presentation investigates whether the timing of a SAR acquisition of a flood has an important impact on the calibration of a flood inundation model. Because only one SAR satellite image of the flood for the considered case study is available, we instead opt to generate SAR observations, through the use of a synthetic framework. Synthetic observations at different times during the flood event were used to calibrate the flood inundation model. The results of this study indicate that the uncertainty in the roughness parameters is lower when the model is calibrated with an image taken before rather than after the flood peak. The results also show that the error on the modelled extent can be up to 24 times higher when the model is calibrated with a post-flood peak image data than when the model is calibrated with a pre-flood peak image. It is concluded that the acquisition timing of the flood by SAR has a clear impact on the model calibration and consequently on the precision of the predicted flood extent.