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Global scale water stages from space imagery to support global flood forecasting

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Despite the success of studies attempting to integrate remotely sensed data and flood modelling and the need to provide near-real time data routinely on a global scale as well as setting up online data archives, there is to date a lack of spatially and temporally distributed hydraulic parameters to support ongoing efforts in modelling. Therefore, the objective of this project is to provide a global evaluation and benchmark data set of floodplain water stages with uncertainties and assimilation in a large scale flood model using space-borne radar imagery. An algorithm is developed for automated retrieval of water stages with uncertainties from a sequence of radar imagery and data are assimilated in a flood model using the Tewkesbury 2007 flood event as a feasibility study. The application is then extended to a global scale using wide swath radar imagery and a simple global flood forecasting model thereby providing improved river discharge estimates to update the latter.