



Incorporating remotely sensed flood records into a global flood modelling framework

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Despite the prevalence of flood risk in every country, flooding is an extremely localised process in space with direct impacts limited to the land adjacent to rivers or topographic low points where runoff can accumulate. To understand flood risk it is necessary to map how frequently floodplains inundate and what the consequence of that inundation might be at hyper-resolution (<100 m). Such mapping is now routine in the developed world, but elsewhere requires a substantially shift from the current data and modelling methods available.

Emerging methods for global scale flood inundation modelling show much promise. However, they lack the uniqueness of place because the spatial variability in the relationship between the size of rivers and extreme flood generating flows is unknown. This research will make a first attempt to recognise uniqueness of place by using the earth observation record to help identify how frequently the land adjacent to rivers has inundated, and then use this information to resize rivers in the global inundation model.

We present progress towards this aim by using the flood record provided by MODIS and Landsat to estimate the frequency of overbank conditions. A method for converting the inundation frequency information to river bathymetry for use in a global flood hazard model is also presented.