Estimating flood behaviour on a global scale

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Characterising flood behaviour for any river in the world is now becoming a possibility, according to new research from the University of Bristol published this month in *Water Resources Research*.

The study, which deals with the difficulty of estimating flooding risk in data-poor areas, finds that it is now possible to make accurate predictions using only remotely sensed data.

Estimating areas at risk from flooding is a difficult undertaking, particularly since meteorological data is not available in many

developing regions. The research suggests that for many data-poor regions, simple regional climate and local topographical data can be used to provide estimates of flood magnitude.

"With future work, robust estimates of extreme river flow may be possible for any location," said lead author, Dr Andrew Smith of the University of Bristol's Hydrology Research Group.

Previous estimates of flood risk have relied on hard to obtain rainfall data. By sorting the globe into five climate groups, the Bristol scientists were able to estimate flooding risk for poorly sampled areas based on the rainfall data from the well-sampled areas and on local geographical characteristics. Although the researchers acknowledge that local studies are always preferable, this approach can highlight flood risk where no such studies exist.

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The team behind the research are also part of the University of Bristol-associated company SSBN. The company aims to keep their tools as accessible as possible, allowing their data to be applied by a wide range of users.

Currently they are collaborating with several organisations including the World Bank and insurers. A recent collaboration with Google has also led to development of a global flood map via Google Earth. For this work, the team have recently been shortlisted for the Natural Environment Research Council Impact Award 2015.

  More information: Smith, A., C. Sampson, and P. Bates (2015), "Regional flood frequency analysis at the global scale," *Water Resour.*

Provided by University of Bristol