



Precipitation and floodiness: forecasts of flood hazard at the regional scale

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In 2008, a seasonal forecast of an increased likelihood of above-normal rainfall in West Africa led the Red Cross to take early humanitarian action (such as prepositioning of relief items) on the basis that this forecast implied heightened flood risk. However, there are a number of factors that lead to non-linearity between precipitation anomalies and flood hazard, so in this presentation we use a recently developed global-scale hydrological model driven by the ERA-Interim/Land precipitation reanalysis (1980–2010) to quantify this non-linearity.

Using these data, we introduce the concept of floodiness to measure the incidence of floods over a large area, and quantify the link between monthly precipitation, river discharge and floodiness anomalies. Our analysis shows that floodiness is not well correlated with precipitation, demonstrating the problem of using seasonal precipitation forecasts as a proxy for forecasting flood hazard.

This analysis demonstrates the value of developing hydrometeorological forecasts of floodiness for decision-makers. As a result, we are now working with the European Centre for Medium-Range Weather Forecasts and the Joint Research Centre, as partners of the operational Global Flood Awareness System (GloFAS), to implement floodiness forecasts in real-time.