Crowdsourcing detailed flood data

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Over the last decade the average annual loss across the European Union due to flooding has been 4.5bn Euros, but increasingly intense rainfall, as well as population growth, urbanisation and the rising costs of asset replacements, may see this rise to 23bn Euros a year by 2050. Equally disturbing are the profound social costs to individuals, families and communities which in addition to loss of lives include: loss of livelihoods, decreased purchasing and production power, relocation and migration, adverse psychosocial effects, and hindrance of economic growth and development. Flood prediction, management and defence strategies rely on the availability of accurate information and flood modelling. Whilst automated data gathering (by measurement and satellite) of the extent of flooding is already advanced it is least reliable in urban and physically complex geographies where often the need for precise estimation is most acute.

Crowdsourced data of actual flood events is a potentially critical component of this allowing improved accuracy in situations and identifying the effects of local landscape and topography where the height of a simple kerb, or discontinuity in a boundary wall can have profound importance. Mobile 'App' based data acquisition using crowdsourcing in critical areas can combine camera records with GPS positional data and time, as well as descriptive data relating to the event. This will automatically produce a dataset, managed in ArcView GIS, with the potential for follow up calls to get more information through structured scripts for each strand. Through this local residents can provide highly detailed information that can be reflected in sophisticated flood protection models and be core to framing urban resilience strategies and optimising the effectiveness of investment. This paper will describe this pioneering approach that will develop flood event data in support of systems that will advance existing approaches such as developed in the in the UK in the more generalised RASP project (DEFRA and the Environment Agency), and in line with the expressed needs of the ABI (Association of British Insurers) and National Flood Forum. The detailed data produced will also support improved flood risk assessment for the provision of affordable insurance.