

WEDNESDAY 21 JUNE 2006

PRESIDENTIAL ADDRESS AND SUPPORTING PROGRAMME

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The flood estimation handbook: recent developments in rainfall and flood risk analysis – Dr Lisa Stewart, Centre for Ecology and Hydrology – ejs- at -ceh.ac.uk

Flooding is a natural phenomenon which regularly brings disruption and damage to different parts of the UK. The consequences of flooding can be enormous as demonstrated by the widespread flooding experienced in Autumn 2000 which cost an estimated £1 billion. The presentation reviews recent research at CEH Wallingford on flood risk assessment, and highlights recent research which has introduced some enhancements to various aspects of the methods presented in the Flood Estimation Handbook (FEH) which was originally published in 1999. Current research aiming to assign average recurrence intervals to very extreme storm events is described, together with the development of so-called ‘next generation’ approaches to generalised flood frequency estimation.

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Operational prediction of storm surges for the UK coast – Dr Kevin Horsburgh, Proudman Oceanographic Laboratory – kevinh - at - pol.ac.uk

The Proudman Oceanographic Laboratory (POL) develops and maintains tide-surge models used to forecast storm surges around the coastline of the UK. These models are run in real-time as part of an operational forecast suite of models at the UK Met Office. Together with data from the National Tidal and Sea Level Facility (NTSLF) the model predictions are used for coastal flood warning. This talk will describe the evolution of the system, known as the Storm Tide Forecasting Service (STFS). The surge models run four times per day producing forecasts up to two days ahead. The system is constantly upgraded in light of scientific and computing developments, and most recently we have extended the domain of the outer coarse resolution model to facilitate tsunami warning for the UK as well as capture far-field meteorological effects. At the coast, a series of fine grid models are nested in order to provide the correct spatial resolution for local processes.

Presidential Address: Flash flood forecasting: what are the limits of predictability? – Christopher G Collier President RMetS and Professor of Environmental Remote Sensing, Telford Institute of Environmental Systems, University of Salford

c.g.collier - at - salford.ac.uk

Flash floods may occur suddenly and be accompanied by other hazards such as landslides mud flows, damage to infrastructure and even death. In the UK such events are comparatively rare occurring an average only once or twice per year. Warning systems must depend upon the accurate real-time provision of rainfall information, high resolution Numerical Weather Prediction forecasts and the operation of hydrological model systems in addition to forecast delivery procedures not discussed in this paper. In this paper we review how flash floods are forecast considering the limitations and uncertainty involved in both the meteorological and hydrological aspects of forecasting systems. Data assimilation and the use of ensembles are both key elements across disciplines. Assessing the susceptibility of river catchments to extreme flooding is considered and statistical methods of estimating the likelihood of extreme rainfall and floods within a changing climate are examined. Ways of constraining flash flood forecasts are noted as one way to improve forecast performance in the future.