A Vision for Environmental Prediction, Science and Services

G. Brunet, J. Slingo, and H. Lewis

United Kingdom (huw.lewis@metoffice.gov.uk)

It has long been understood that accurate prediction and warning of the impacts of most severe weather events, including flooding, drought, storm surge and pollution episodes, requires a more integrated approach to forecasting. As the societal impacts of hazardous weather and other environmental pressures grow, the need for a more complete prediction of our complex and interdependent environment is greater than ever.

To address this need, the Met Office and its partners in the UK are embarking on a scientific journey to achieve its long term vision to develop a fully coupled high resolution atmosphere-coastal-hydrology-chemistry ensemble prediction system. This builds on the strong foundations of the flagship ∼1km resolution UKV ensemble weather forecast system, and leading expertise within the UK in hydrological, ocean and chemistry modelling.

The scientific collaborative development is also closely linked to the prospering operational collaborative developments, through initiatives such as the Natural Hazards Partnership and Environmental Science to Services Partnership. This ensures that development priorities are strongly rooted in operational requirements.

This presentation will describe the vision for Environmental Prediction at the kilometre-scale. It will also discuss the approach to achieve this vision, and the challenges to building and evaluating this system.