

**flood risk**
management
research consortium





Offshore wind, waves, tides and storm surges

Chris Wilson

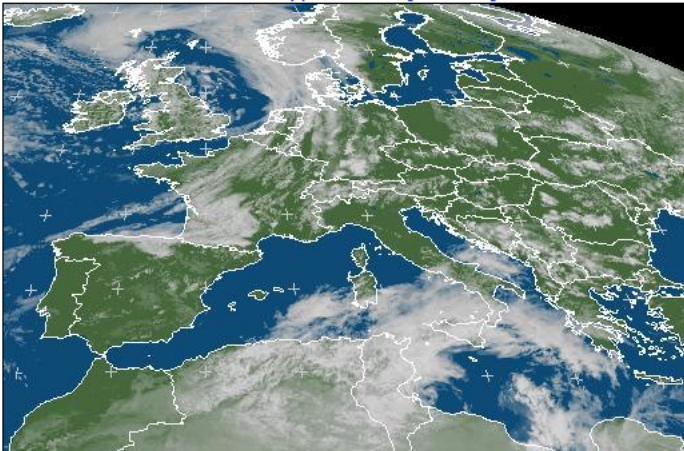


www.floodrisk.org.uk


**flood risk**
management
research consortium

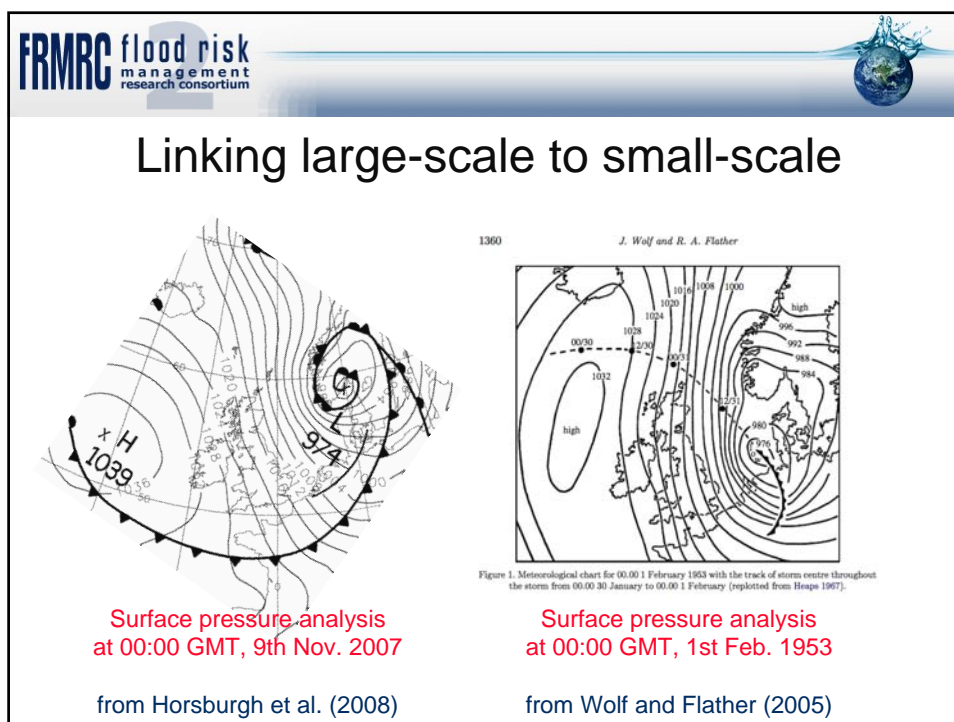
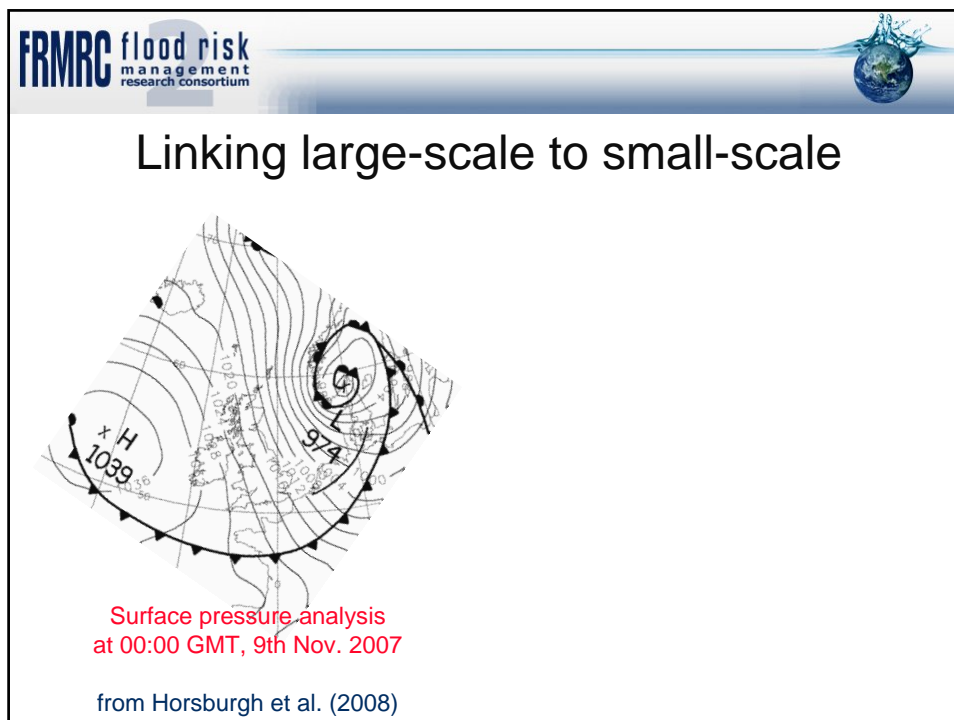


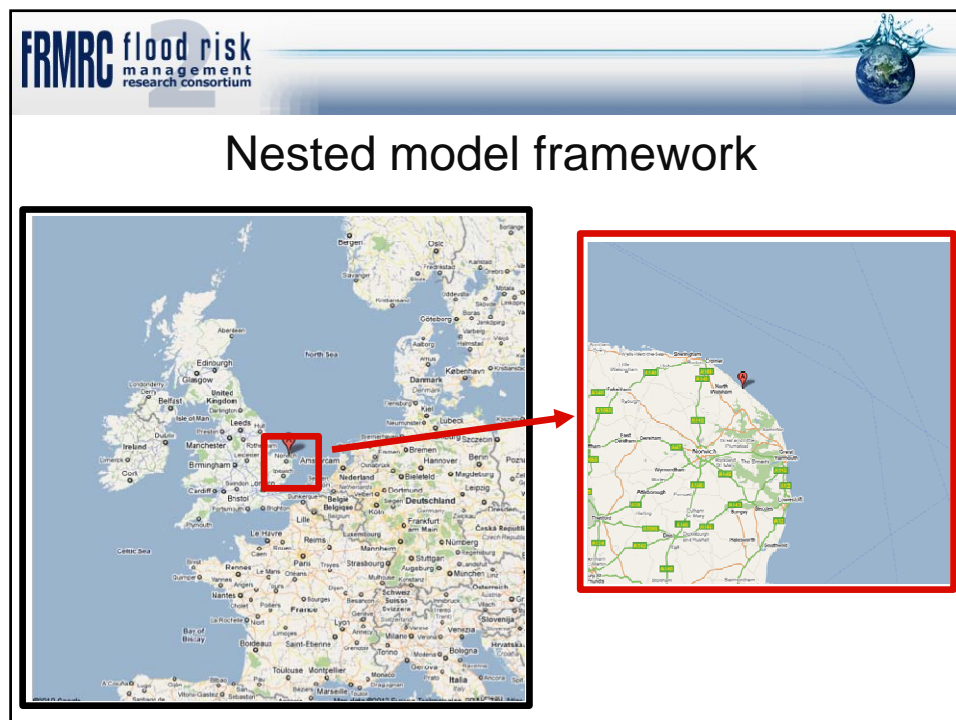
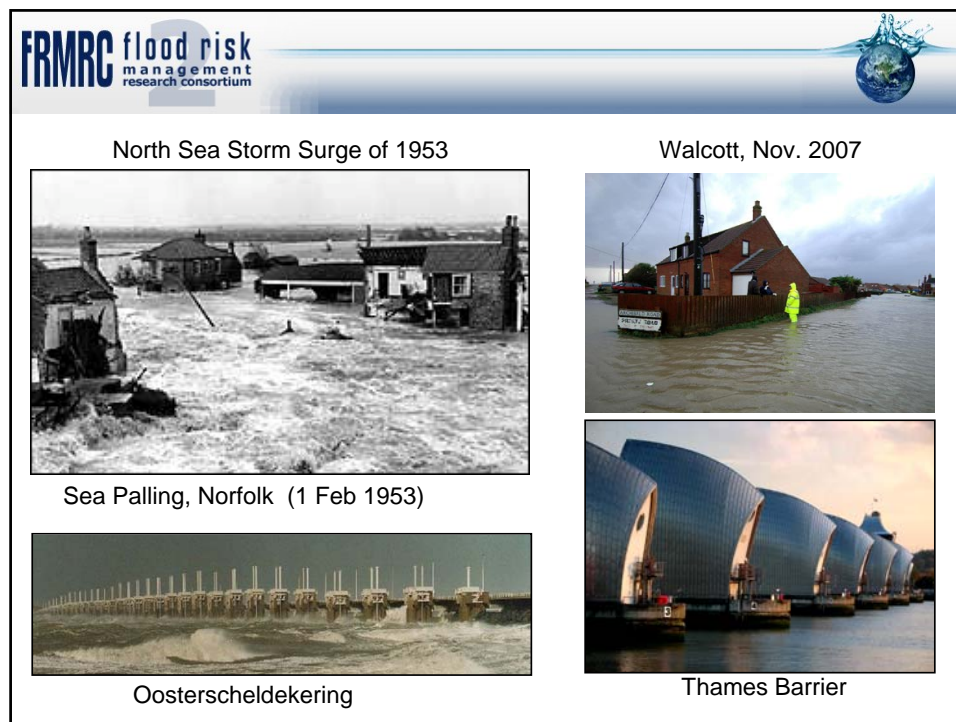
Linking large-scale to small-scale

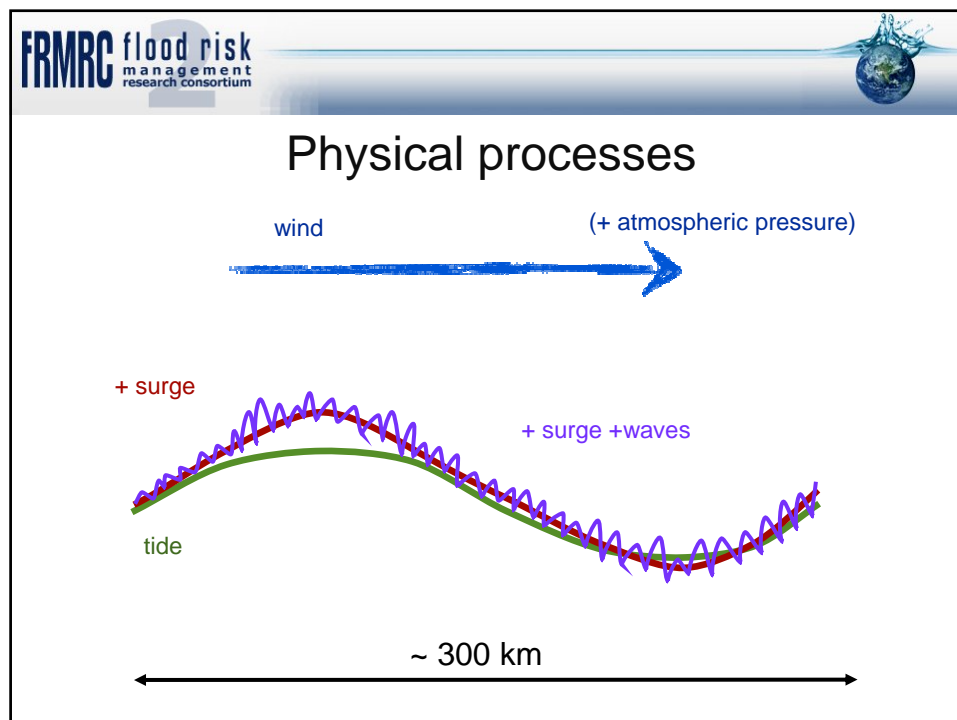
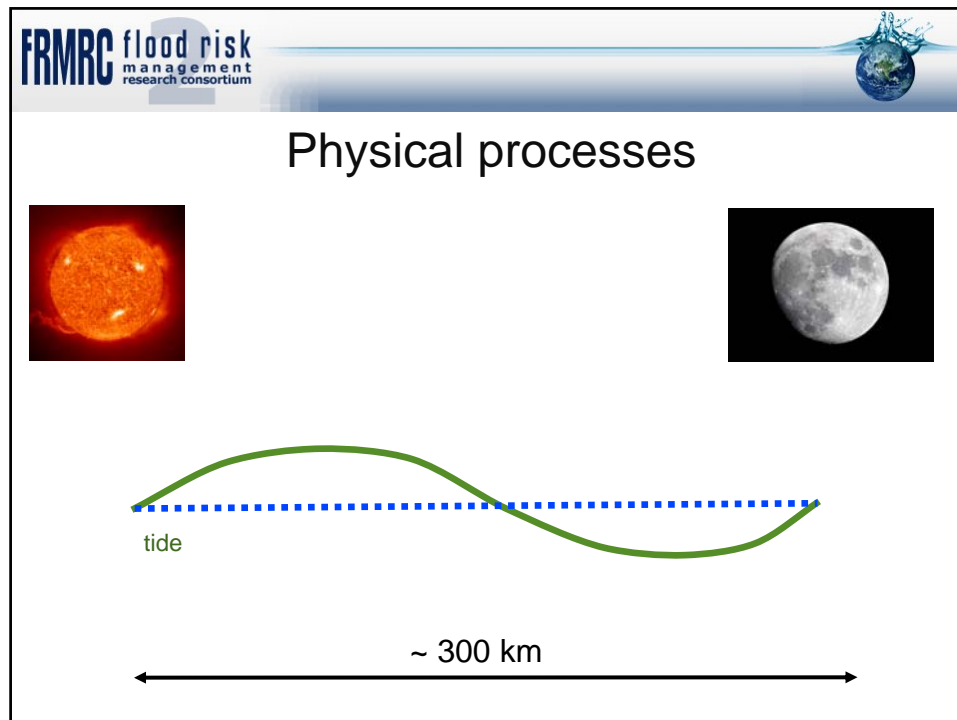


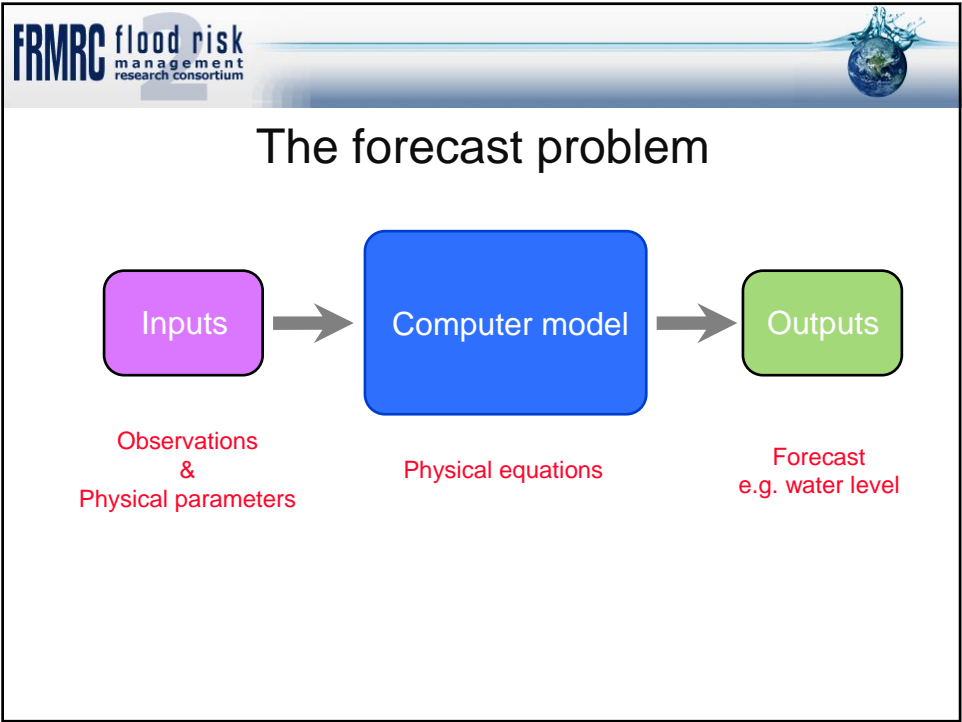
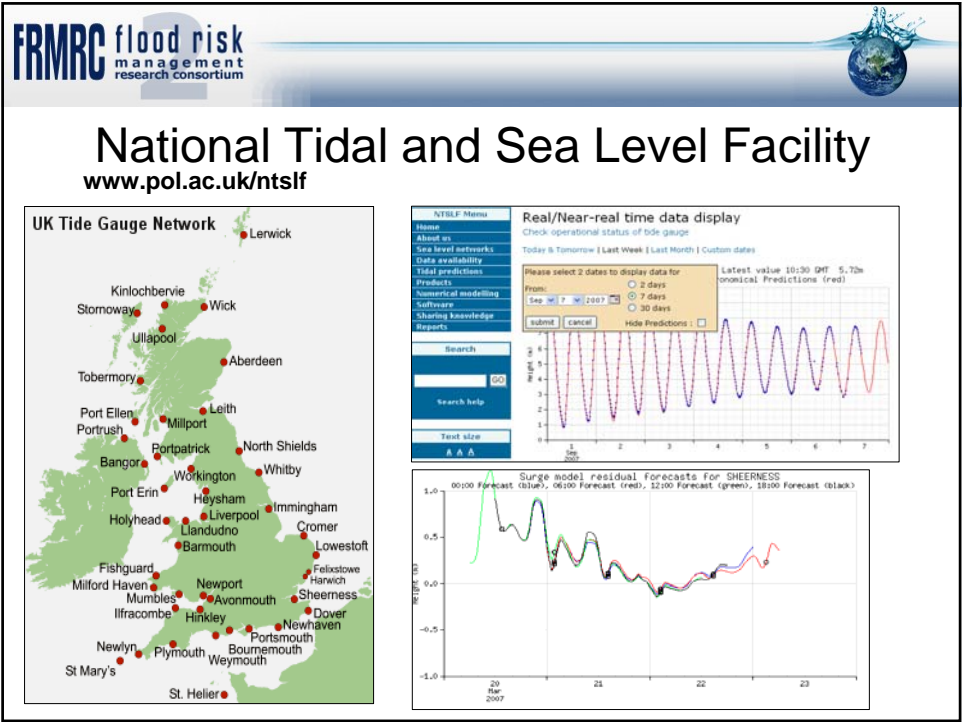
MET9 VIS006 2011-05-22 11:00 UTC

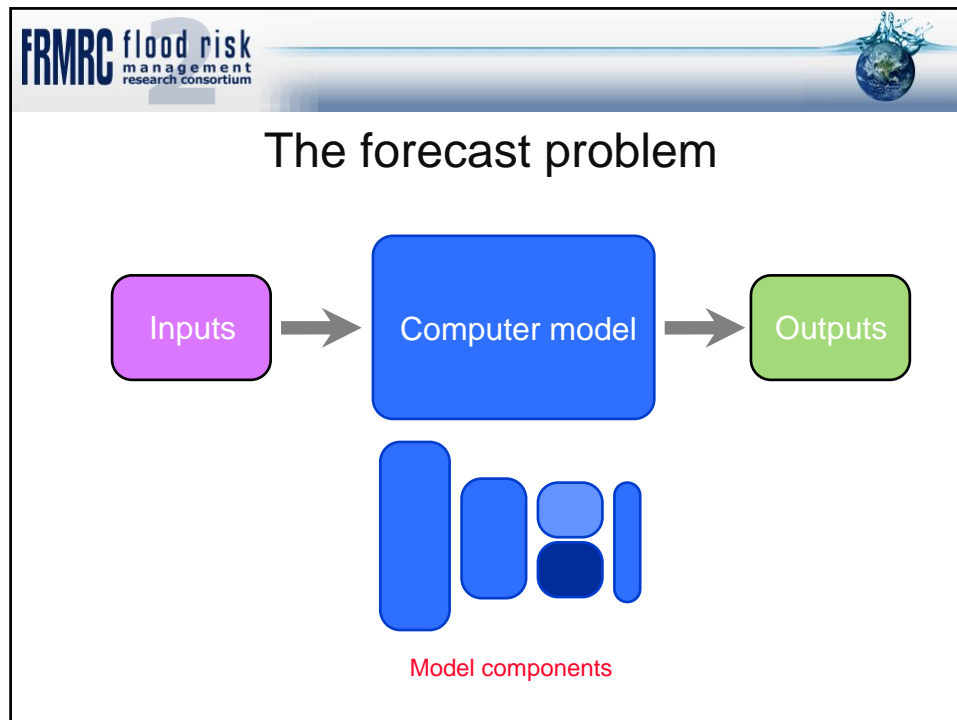


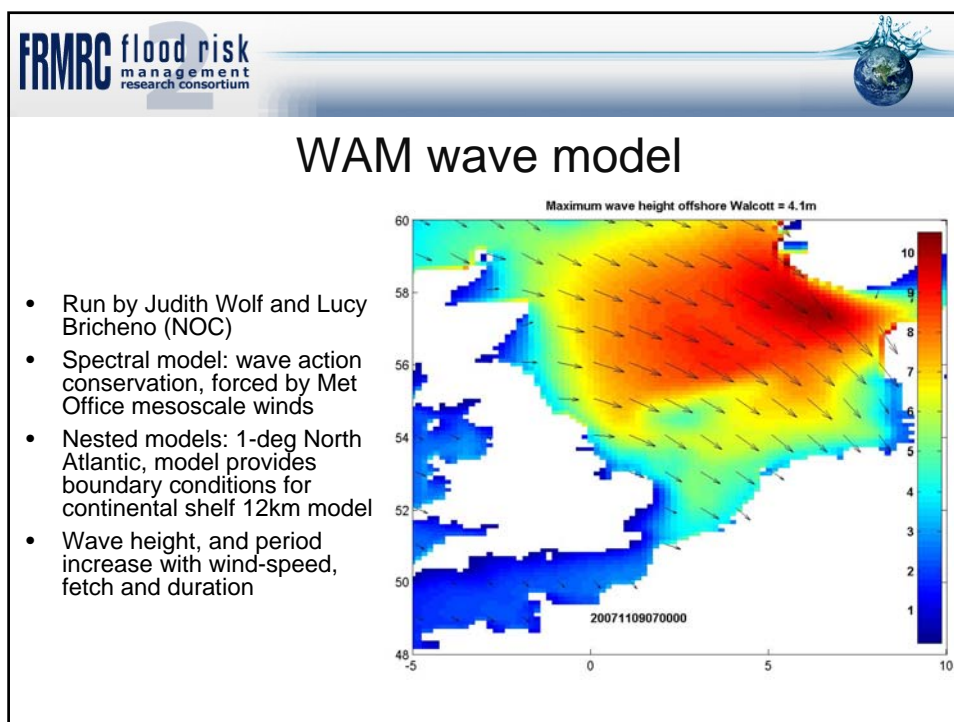
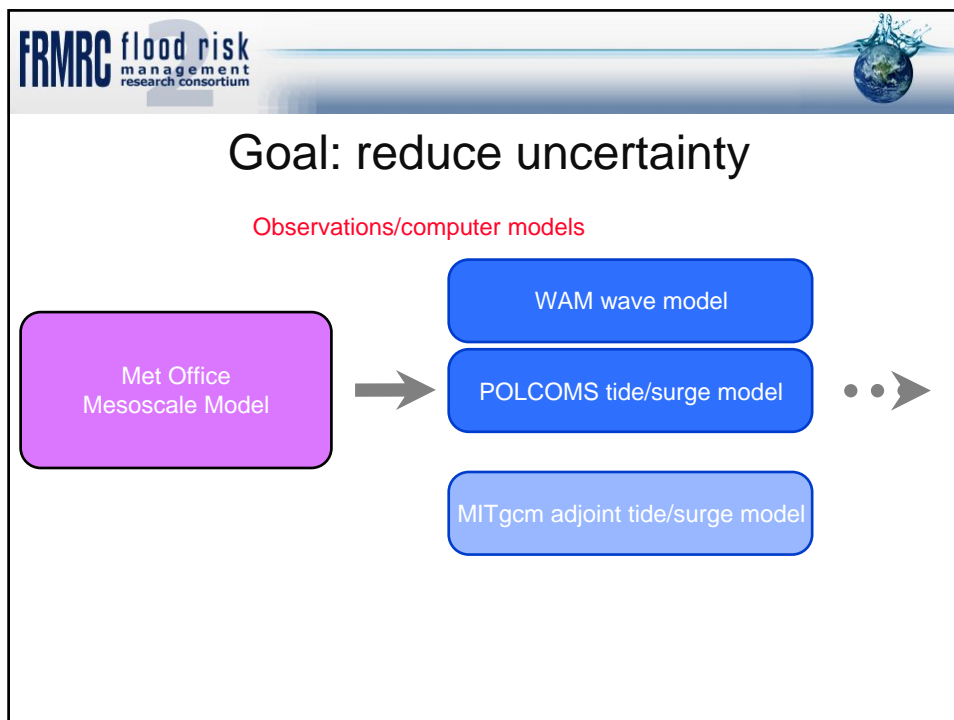


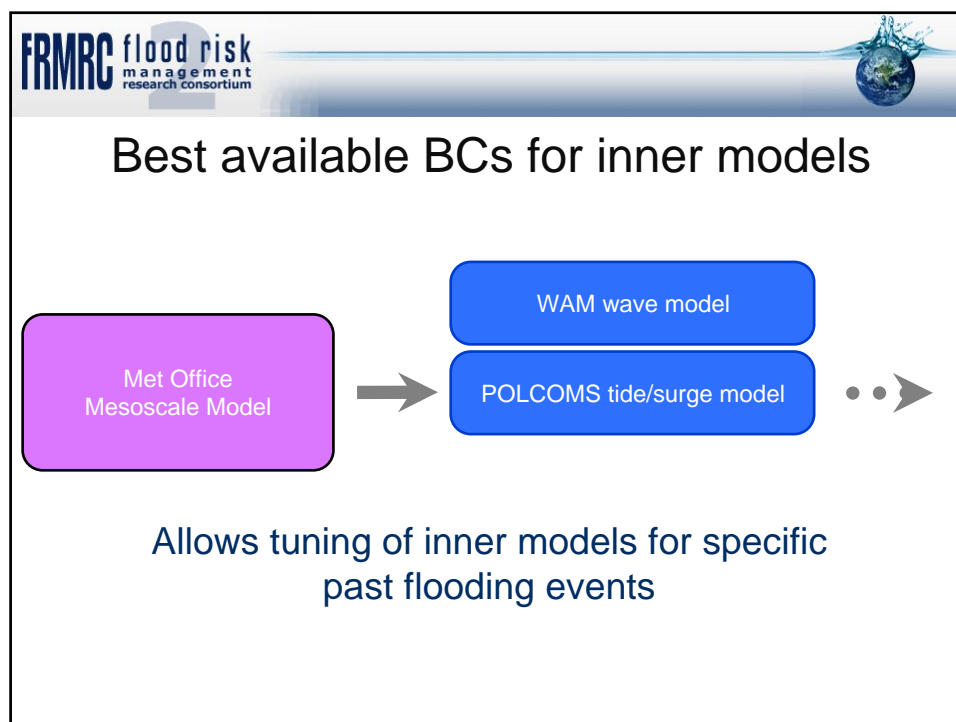
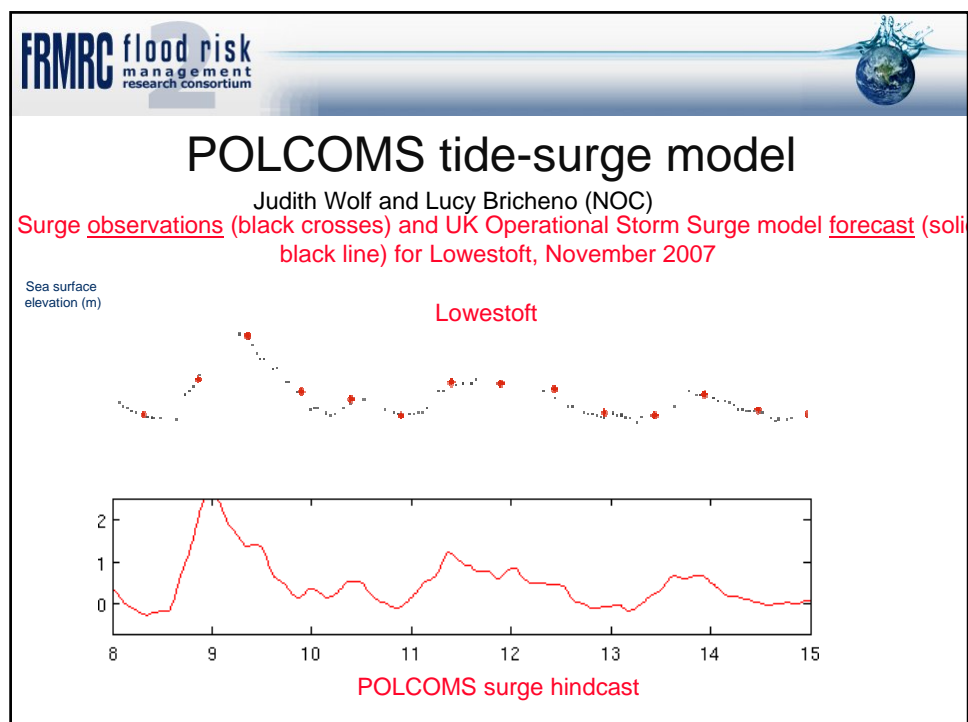




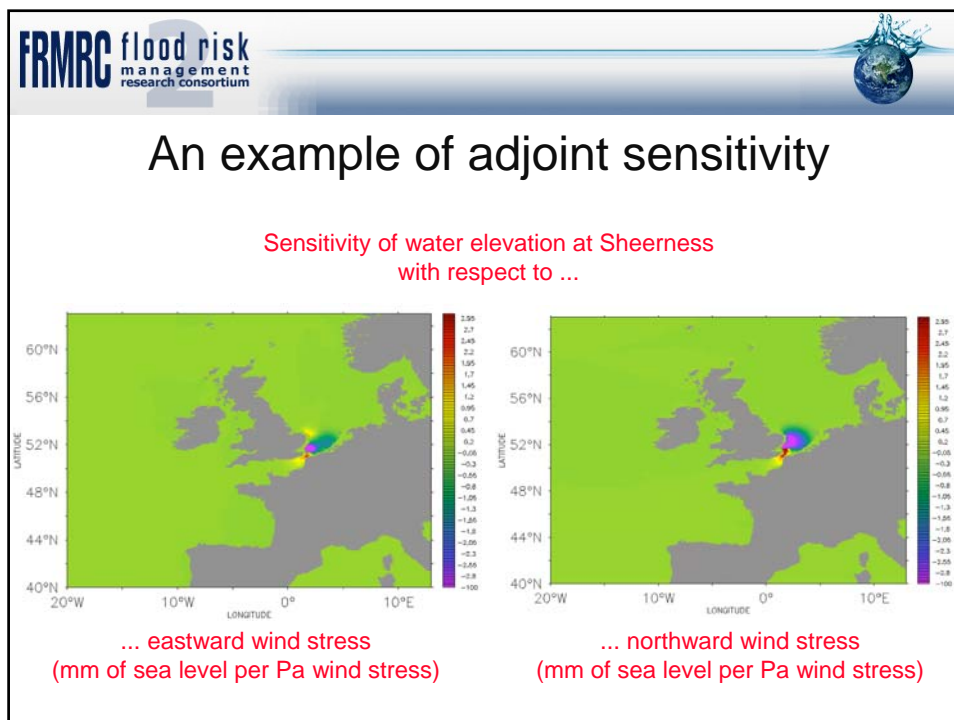
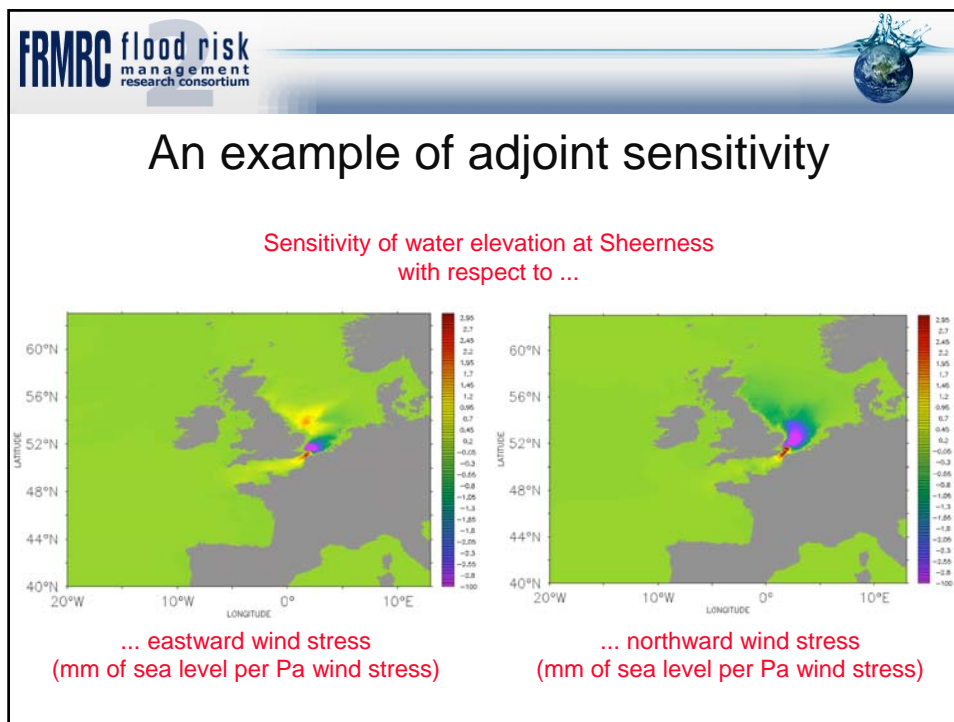










The figure displays a map of the North Atlantic region, bounded by 40°N to 60°N latitude and 20°W to 10°E longitude. The map shows sea surface elevation anomalies (SSE) in meters, with a color scale ranging from -5 m (dark blue) to 5 m (dark red). The map includes contour lines and a color bar on the right side. The text 'MITgcm adjoint tide-surge model' is prominently displayed above the map. The logo for the 'FRMRC flood risk management research consortium' is in the top left corner, and a small globe icon is in the top right corner.





Summary

1. Forecasting coastal flood risk depends on physical processes on a wide range of scales
2. Require nested models
3. Constrain uncertainty: traditional methods and development of new methods (e.g. adjoint)
4. Climate change: UKCP09
<http://ukclimateprojections.defra.gov.uk>

Acknowledgements WP 2.3: Kevin Horsburgh, Judith Wolf, Lucy Bricheno, Matt Lewis, Samantha Royston, Jonathan Lawry, Laure Zanna



Acknowledgement

The research reported in this presentation was conducted as part of the Flood Risk Management Research Consortium with support from the:

- **Engineering and Physical Sciences Research Council**
- **Department of Environment, Food and Rural Affairs/Environment Agency Joint Research Programme**
- **United Kingdom Water Industry Research**
- **Office of Public Works Dublin**
- **Northern Ireland Rivers Agency**

Data were provided by the EA and the Ordnance Survey.

www.floodrisk.org.uk**EPSRC Grant:**
EP/FP202511/1