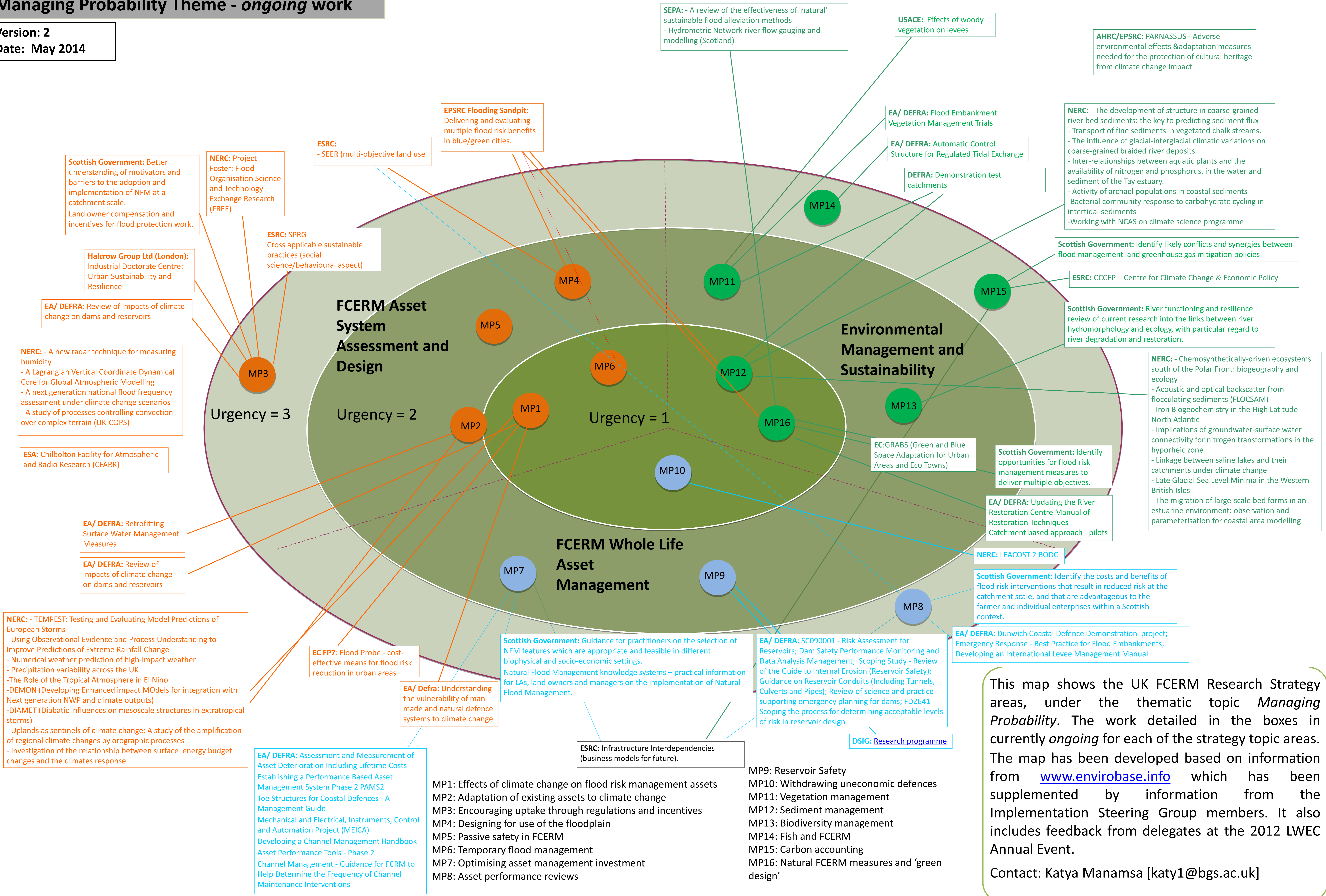


LWEC FCERM Research Managing Probability Theme - *ongoing work*

Version: 2
Date: May 2014



NERC: - TEMPEST: Testing and Evaluating Model Predictions of European Storms
 - Using Observational Evidence and Process Understanding to Improve Predictions of Extreme Rainfall Change
 - Numerical weather prediction of high-impact weather
 - Precipitation variability across the UK
 -The Role of the Tropical Atmosphere in El Nino
 -DEMON (Developing Enhanced impact MODEls for integration with Next generation NWP and climate outputs)
 -DIAMET (Diabatic influences on mesoscale structures in extratropical storms)
 - Uplands as sentinels of climate change: A study of the amplification of regional climate changes by orographic processes
 - Investigation of the relationship between surface energy budget changes and the climates response

ESA: Chilbolton Facility for Atmospheric and Radio Research (CFARR)

NERC: - A new radar technique for measuring humidity
 - A Lagrangian Vertical Coordinate Dynamical Core for Global Atmospheric Modelling
 - A next generation national flood frequency assessment under climate change scenarios
 - A study of processes controlling convection over complex terrain (UK-COPS)

EA/ DEFRA: Review of impacts of climate change on dams and reservoirs

Halcrow Group Ltd (London): Industrial Doctorate Centre: Urban Sustainability and Resilience

Scottish Government: Better understanding of motivators and barriers to the adoption and implementation of NFM at a catchment scale. Land owner compensation and incentives for flood protection work.

EA/ DEFRA: Assessment and Measurement of Asset Deterioration Including Lifetime Costs
 Establishing a Performance Based Asset Management System Phase 2 PAMS2
 Toe Structures for Coastal Defences - A Management Guide
 Mechanical and Electrical, Instruments, Control and Automation Project (MEICA)
 Developing a Channel Management Handbook
 Asset Performance Tools - Phase 2
 Channel Management - Guidance for FCERM to Help Determine the Frequency of Channel Maintenance Interventions

EC FP7: Flood Probe - cost-effective means for flood risk reduction in urban areas

EA/ Defra: Understanding the vulnerability of man-made and natural defence systems to climate change

EPSRC Flooding Sandpit: Delivering and evaluating multiple flood risk benefits in blue/green cities.

ESRC: - SEER (multi-objective land use)

ESRC: SPRG
 Cross applicable sustainable practices (social science/behavioural aspect)

ESRC: Infrastructure Interdependencies (business models for future).

- MP1: Effects of climate change on flood risk management assets
- MP2: Adaptation of existing assets to climate change
- MP3: Encouraging uptake through regulations and incentives
- MP4: Designing for use of the floodplain
- MP5: Passive safety in FCERM
- MP6: Temporary flood management
- MP7: Optimising asset management investment
- MP8: Asset performance reviews

- MP9: Reservoir Safety
- MP10: Withdrawing uneconomic defences
- MP11: Vegetation management
- MP12: Sediment management
- MP13: Biodiversity management
- MP14: Fish and FCERM
- MP15: Carbon accounting
- MP16: Natural FCERM measures and 'green design'

SEPA: - A review of the effectiveness of 'natural' sustainable flood alleviation methods
 - Hydrometric Network river flow gauging and modelling (Scotland)

USACE: Effects of woody vegetation on levees

AHRC/EPSC: PARNASSUS - Adverse environmental effects & adaptation measures needed for the protection of cultural heritage from climate change impact

EA/ DEFRA: Flood Embankment Vegetation Management Trials

EA/ DEFRA: Automatic Control Structure for Regulated Tidal Exchange

DEFRA: Demonstration test catchments

NERC: - The development of structure in coarse-grained river bed sediments: the key to predicting sediment flux
 - Transport of fine sediments in vegetated chalk streams.
 - The influence of glacial-interglacial climatic variations on coarse-grained braided river deposits
 - Inter-relationships between aquatic plants and the availability of nitrogen and phosphorus, in the water and sediment of the Tay estuary.
 - Activity of archaeal populations in coastal sediments
 -Bacterial community response to carbohydrate cycling in intertidal sediments
 -Working with NCAS on climate science programme

Scottish Government: Identify likely conflicts and synergies between flood management and greenhouse gas mitigation policies

ESRC: CCCEP – Centre for Climate Change & Economic Policy

Scottish Government: River functioning and resilience – review of current research into the links between river hydromorphology and ecology, with particular regard to river degradation and restoration.

NERC: - Chemosynthetically-driven ecosystems south of the Polar Front: biogeography and ecology
 - Acoustic and optical backscatter from flocculating sediments (FLOCSAM)
 - Iron Biogeochemistry in the High Latitude North Atlantic
 - Implications of groundwater-surface water connectivity for nitrogen transformations in the hyporheic zone
 - Linkage between saline lakes and their catchments under climate change
 - Late Glacial Sea Level Minima in the Western British Isles
 - The migration of large-scale bed forms in an estuarine environment: observation and parameterisation for coastal area modelling

EC:GRABS (Green and Blue Space Adaptation for Urban Areas and Eco Towns)

Scottish Government: Identify opportunities for flood risk management measures to deliver multiple objectives.

EA/ DEFRA: Updating the River Restoration Centre Manual of Restoration Techniques
 Catchment based approach - pilots

NERC: LEACOST 2 BODC

Scottish Government: Identify the costs and benefits of flood risk interventions that result in reduced risk at the catchment scale, and that are advantageous to the farmer and individual enterprises within a Scottish context.

EA/ DEFRA: Dunwich Coastal Defence Demonstration project; Emergency Response - Best Practice for Flood Embankments; Developing an International Levee Management Manual

DSIG: Research programme

This map shows the UK FCERM Research Strategy areas, under the thematic topic *Managing Probability*. The work detailed in the boxes in currently *ongoing* for each of the strategy topic areas. The map has been developed based on information from www.envirobase.info which has been supplemented by information from the Implementation Steering Group members. It also includes feedback from delegates at the 2012 LWEC Annual Event.
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