



### **Academic Outputs**

- Numerous journal articles and conference papers
- Doctoral Theses from multiple individuals

### **Books and Book Chapters**

- Flood Risk Science and Management (Pender and Faulkner, 2010)
- Flood Risk: Planning, design and management of flood defence infrastructure (Sayers, 2012)
- 20 Research fact Sheets
- 10 User-focused FRMRC Reports and Guides
- 4 Construction Industry Research & Information Association Technical Reports

### **Tools**

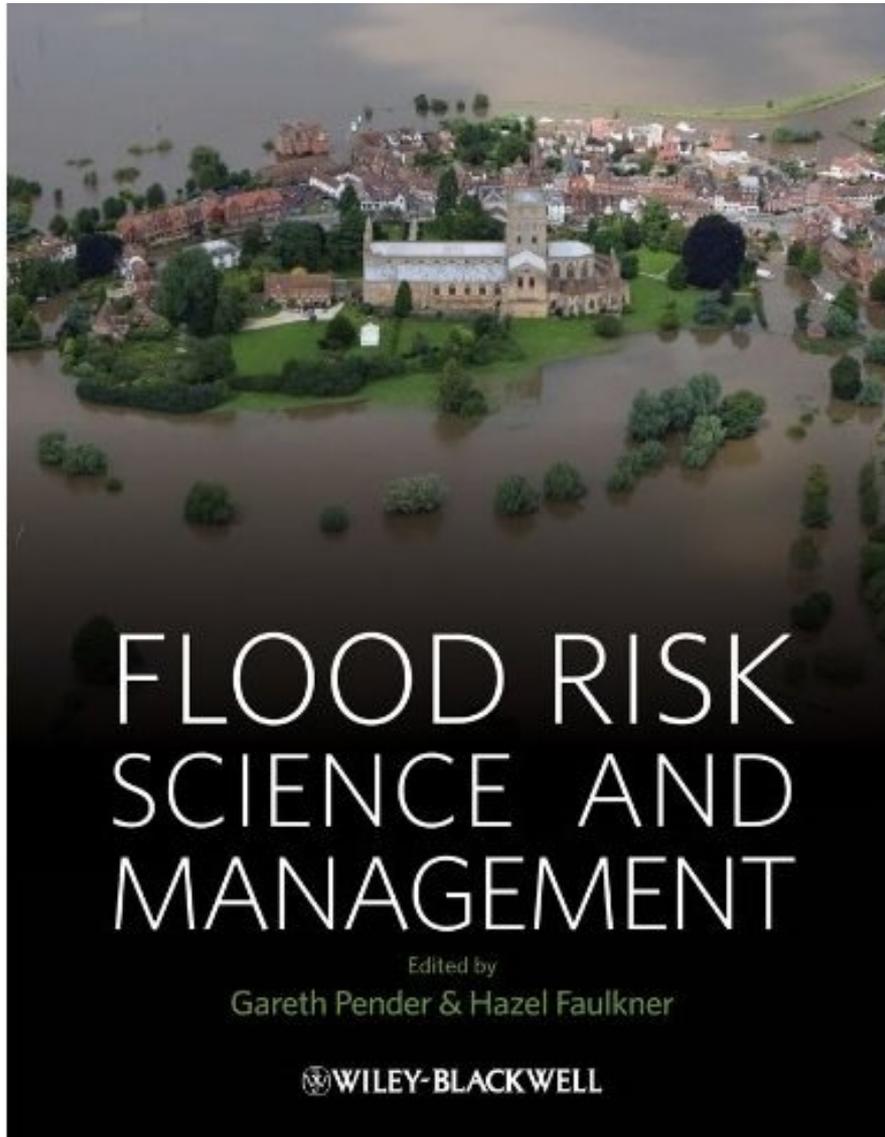
- Models, code, algorithms
- Optimisation methods, risk analysis frameworks, uncertainty analyses, sediment toolbox

### **Data**

- All datasets (with meta-data where available) are free to download

### **Practitioner and Stakeholder Events**

- 9 Practitioner and Stakeholder Workshops
- 8 International Research Dissemination Conferences – including this one



Pender G. and  
Faulkner H. (2010)

Flood Risk Science  
and Management

Wiley Blackwell,  
Chichester, UK



**ice**  
Institution of Civil Engineers

publishing

## Flood Risk

Planning, design and management  
of flood defence infrastructure



Edited by Paul B. Sayers

Sayers P. (2012)

Flood Risk:  
Planning, design  
and management of  
flood defence  
infrastructure

Thomas Telford,  
London



## Construction Industry Research Information Association

### Technical Reports:

1. Framework for assessing uncertainty in fluvial flood risk mapping
2. Predicting and managing flood risk associated with debris at structures
3. Performance based inspection of flood defences
4. Land use management and flooding – guidance on prediction and implementation



# Catchment Inundation Modelling

- Modelling of flood risk to people and property
- Visualizing uncertainty: Organization and communication of probabilistic flood inundation data
- Strategic planning: Decision analysis for strategic planning
- Inundation modelling: parallelisation of two dimensional hydraulic models
- Inundation modelling: benchmarking a new fast inundation model to support uncertainty analysis
- Coping with sea level rise uncertainties in the Thames Estuary
- Rapid flood inundation modelling



## Coastal Inundation Modelling

- Coastal processes and flooding: From offshore waves to coastal overtopping
- Coastal processes and flooding: Long term cliff erosion modelling
- Coastal processes and flooding: Dredging impact analysis
- Beach profile prediction: Use of advanced statistical techniques
- Inundation modelling – coastal flooding: Improved storm surge forecasting



## Urban Flood Modelling

- Urban flooding: Health impacts of urban flooding
- Urban pluvial flood modelling: Improved short term rainfall & urban flood prediction
- Urban flood modelling: Improved simulation of gully hydraulics
- Urban flooding: Feasibility of whole life costing of non-structural measures
- Integrating urban flood modelling & social vulnerability at the local scale: GIS-based Flood Risk Assessment Tool



## Infrastructure

- Infrastructure monitoring: Quantitative assessment of asset surface topography
- Infrastructure management: Predicting and managing flood risk associated with debris at structures
- Flood risk asset management: Optimised flood risk management strategies
- Infrastructure management: Broad scale integration of coastal flood and erosion risk models
- Breach formation: Rapid methods of assessment



## Land use, Sediment and Flood Risk

- Effects of rural land management on flood risk: New simulation methods to quantify local and catchment scale impacts
- Catchment sediment dynamics and flood risk: Impacts of upland agricultural land management on catchment sediment dynamics at Pontbren, mid-Wales
- Wetland land use management: Modelling approaches for a multi-scaled, nested catchment



# FRMRC End-user Workshops

ID	Event Topic	Target audience	Content
1 ✓	Urban flood risk – preparation and response (SWP3)	LA (EA, consultants), IDB, Water authorities	People behaviour, health, preparation, response
2 ✓	Knowledge transfer: FRMRC2 outputs for EA policy/evidence needs (range of SWPs)	EA	Interactive - identify how FRMRC findings can help emerging EA needs. May identify further work. Special workshop – restricted attendees
3 ✓	Flood mapping – improving & comm. confidence (SWP1)	SEPA, others in Scotland	Advice on uncertainty in mapping, communicating confidence. Modelling.
4 ✗	Flood forecasting (SWP3)	EA, FFC, SEPA,	Uncertainty in forecasting, pluvial forecasting, weather radar urban areas
5 ✓	Asset management UK workshop (SWP4)	Practitioners & academics	Condition assessment (remote sensing, visual tools/techniques), predicting debris blockage at structures etc



## FRMRC End-user Workshops

6 ✓	Coastal flood risk – from storm surge & waves to inundation  (SWP2)	Operating authorities with coastal responsibilities (consultants)	Offshore waves to coastal overtopping, long term cliff erosion modelling, dredging impact analysis, beach profile prediction
7 ✓	Land use management  (SWP5)	EA/Defra/Scot Gov, consultants, land custodians, etc	Land management impacts: flood risk, sediment
8 ✓	General – Ireland (all SWPs)	OPW, NIRA, LA, Cons.	Overview of SWPs plus sessions on most relevant WPs
9 ✓	Final conference 'crown jewel outputs' of FRMRC (all SWPs)	Funders, LREC, NERC, operating authorities, SAB	Overview of all research



# FRMRC Collaborative Workshops

A ✓	Advances in river science 2011	Academics and Practitioners	4-day workshop with 15 international and national invited speakers show casing FRMRC research along with wider topics.
B ✓	Eden co-location workshop	FRMRC researches + others	
C ✓	One day seminar (SWP3)		YW Industry Forum (2 talks are FRMRC)
D ✓	International workshop (Invitation only) (SWP5)	International Experts	"Modelling land use change impacts on flood responses",
E ✓	Co-location workshop (SWP3)		Co-location workshop linking outputs from EU project 'Flood Resilience Cities' with FRMRC2 Urban
F	Stakeholder Event: Managing Flood Risk in the Parrett Catchment	Stakeholders in the Parrett Catchment	One day stakeholder event with inputs from EA, LA's and IDBs.
G ✓	SWP4 international experts meeting		Asset Management Science: International Workshop