

Flood 2013 in Rhyl



Sea Level Rise in Wales



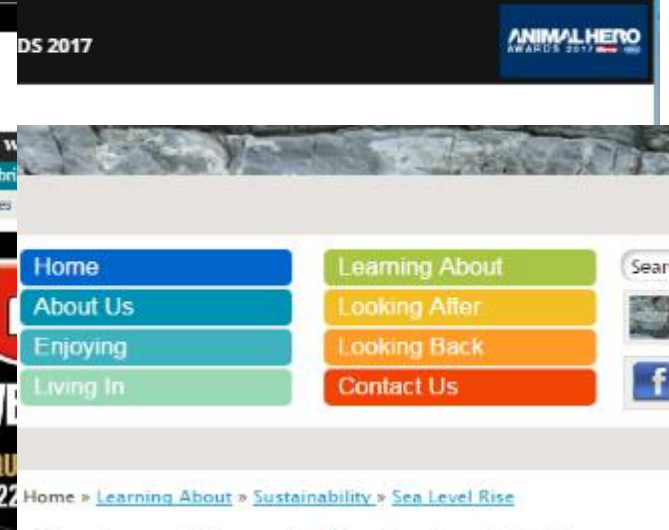
WalesOnline website header. The top navigation bar is red with the WalesOnline logo and social media icons for Facebook, Twitter, Pinterest, and YouTube. Below this is a white bar with a weather icon showing 19°C and a menu of categories: NEWS, WHAT'S ON, RUGBY, FOOTBALL, SWANSEA, CARDIFF, SPORT, BUSINESS, IN Y. A large blue banner below the navigation bar reads "Brent Thomas Coaches Summer Breaks 2017".



The Guardian website header and article snippet. The header is blue with the Guardian logo and navigation links for sign in, search, jobs, more, and UK edition. Below the header is a breadcrumb trail: home > environment > wildlife > energy > pollution > climate change. The article title is "Erosion and rising seas threaten Wales's most beautiful beaches". A sub-headline reads: "Historic sites at risk from storms and tidal surges" and "National Trust report calls for action to tackle crisis".



The Telegraph website header and article snippet. The header is black with the Telegraph logo and navigation links for Privacy and cookies, Jobs, Dating, Offers, Shop, Puzzles, and Investor. Below the header is a breadcrumb trail: Home > Video > News > World Sport > Business > Money > Comment > Culture > Travel > Life > W. The article title is "Welsh village to sue government over 'alarmist' rising sea level claim". A sub-headline reads: "Residents of Fairbourne, in Gwynedd, say predictions of that the sea level will rise by a metre a year have hit house prices and investment".



Navigation menu and article snippet. The navigation menu is on the right side of the page, featuring buttons for Home, About Us, Enjoying, Living In, Learning About, Looking After, Looking Back, and Contact Us. Below the navigation menu is a breadcrumb trail: Home > Learning About > Sustainability > Sea Level Rise. The article title is "Sea Level Rise - A Pembrokeshire Perspective".



BBC News website header and article snippet. The header is red with the BBC logo and navigation links for News, Sport, Weather, iPlayer, TV, Radio, CBBC, and More. Below the header is a breadcrumb trail: HOME > NEWS > EARTH > ENVIRONMENT > CLIMATE CHANGE. The article title is "Sea level threat to force retreat of communities in Wales". A sub-headline reads: "Residents of Fairbourne, in Gwynedd, say predictions of that the sea level will rise by a metre a year have hit house prices and investment".



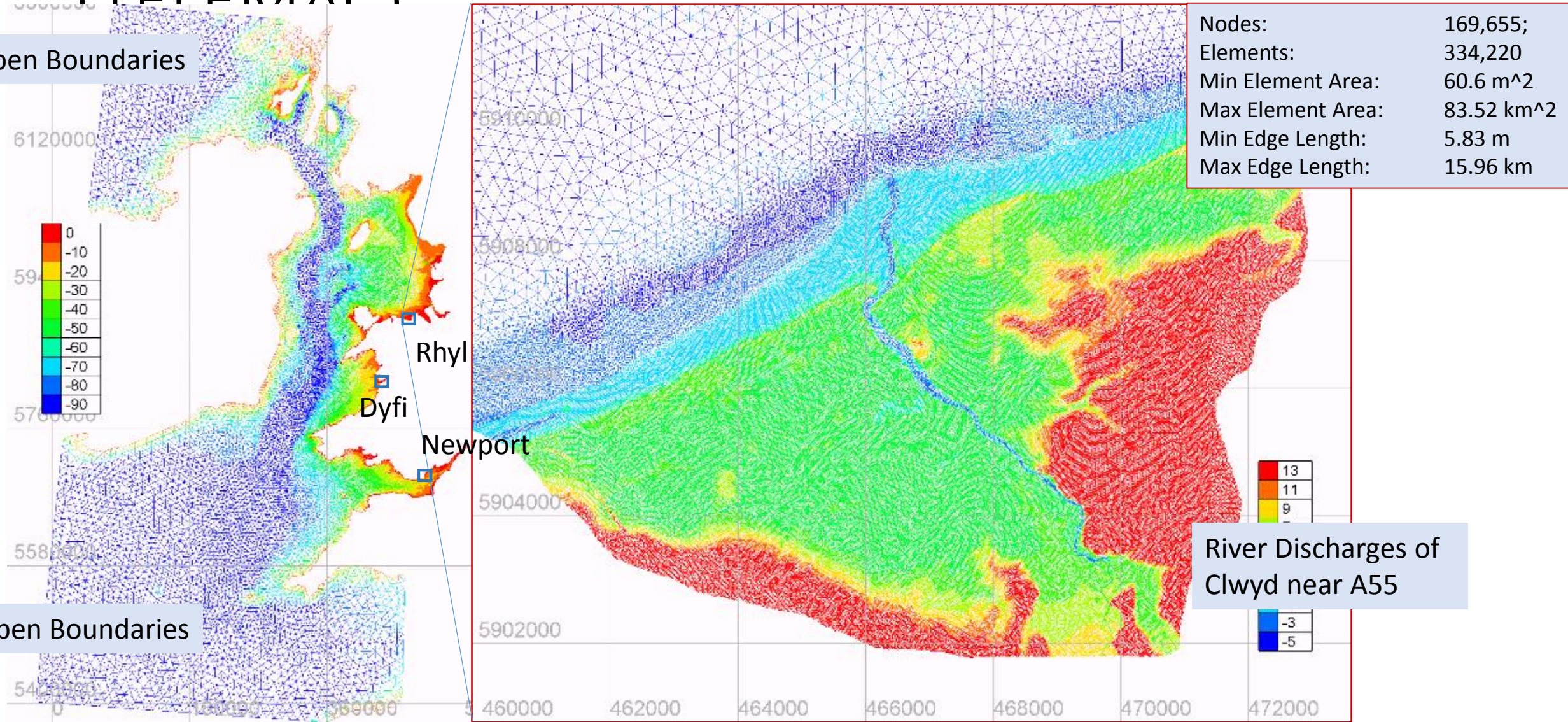
Aerial view of a coastal town, likely Fairbourne, showing the sea level rise threat. The image shows a coastal town with houses and buildings, surrounded by a large area of water. The sea level is rising, and the town is being threatened by the water. The image is part of an article snippet from the BBC News website.



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What is Sea Level Rise?

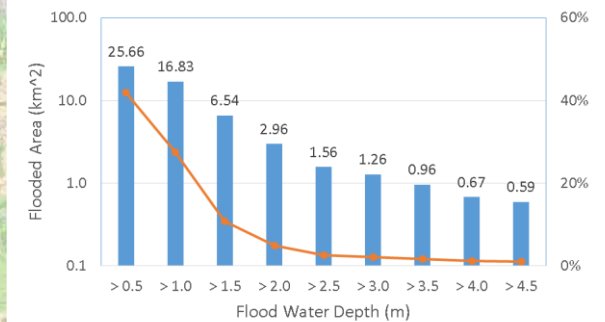
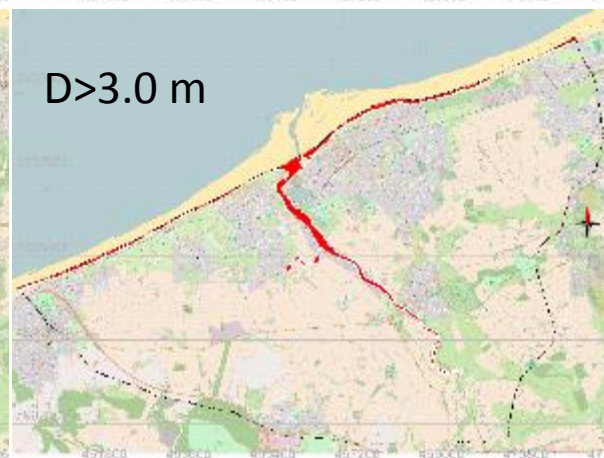
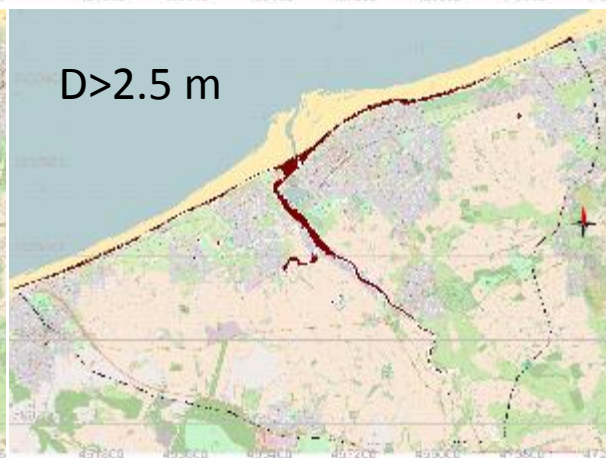
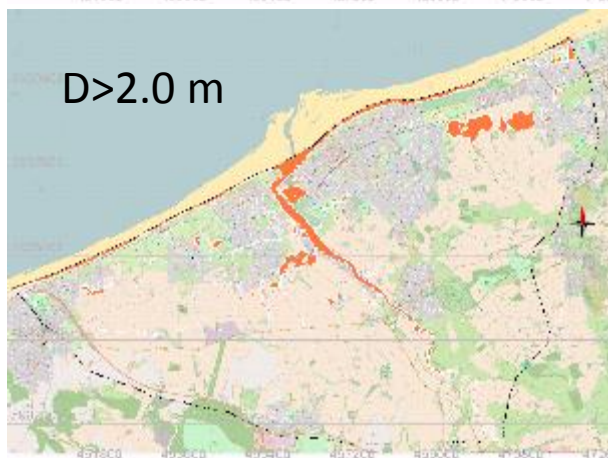
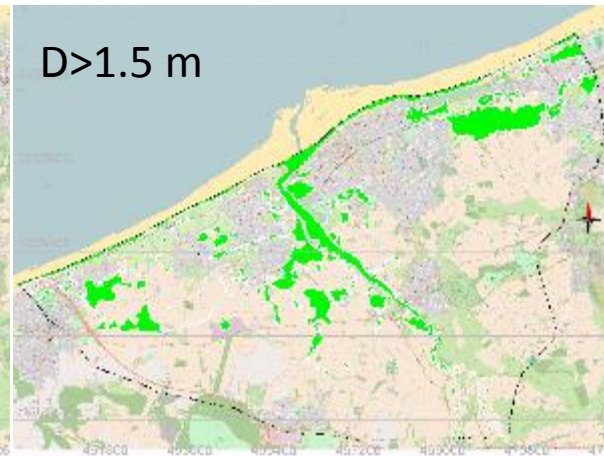
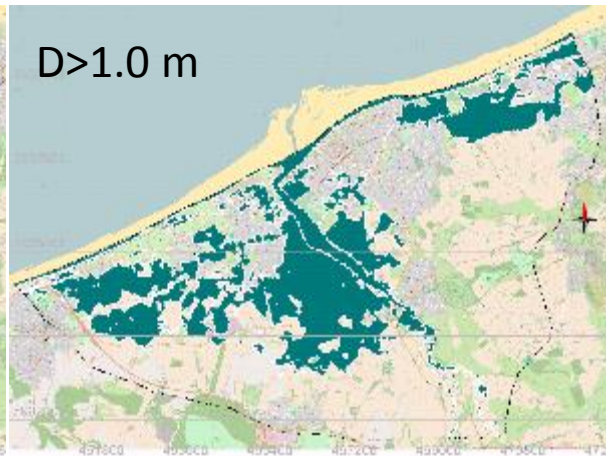
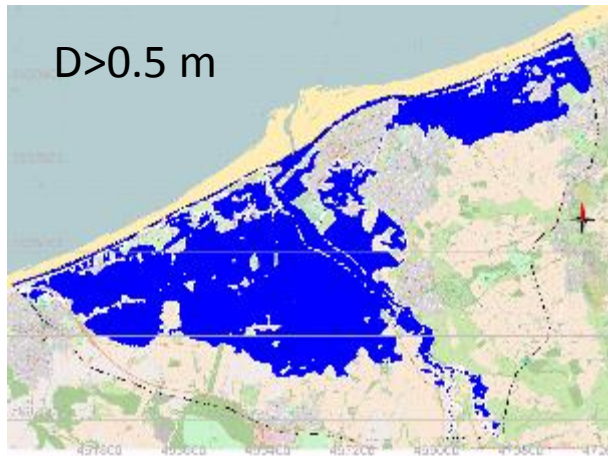
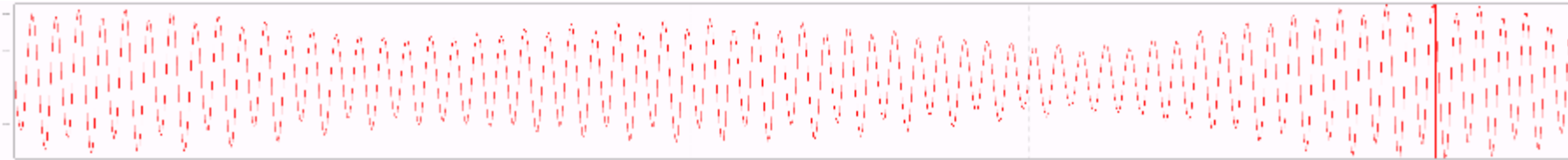
Model Setup & Computational Mesh (TELEMAC)



Model Conditions

River Discharge (m ³ /s)			Sea Level Rise (m)			
Conditions	West	East	0.0	0.5	1.0	2.0
No River Discharge	0.0	0.0	Case00	Case10	Case20	Case30
Multi-Year Mean	6.5	8.5	Case01	Case11	Case21	Case31
Annual Maxima Mean	45.0	43.0	Case02	Case12	Case22	Case32
100 YRT	105.0	93.0	Case03	Case13	Case23	Case33

Flooded Area (at high tides)



Flood Hazard Rating

- Flood Hazard Rating (HR) Mapping (based on EA's Guidance Document)

- Flood depth: D (m)
- Flood velocity: V (m/s)
- Flood-induced debris: F_{deb} (0 - 1)

$$HR = D * (V + 0.5) + F_{deb}$$

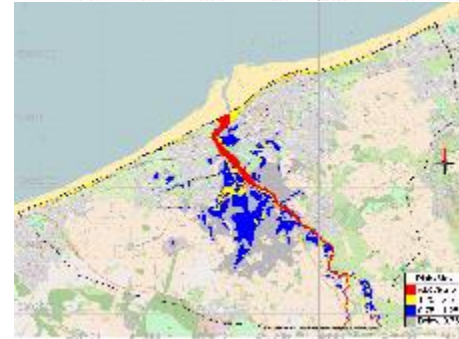
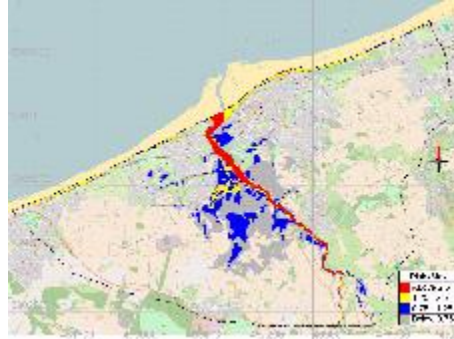
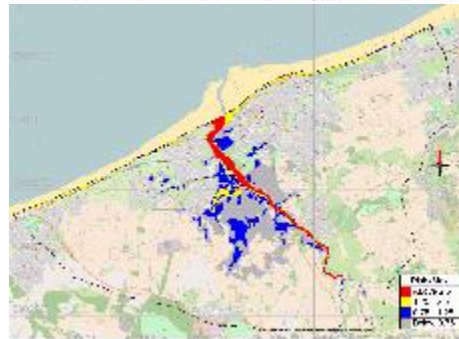
HR	Level	Description
<0.75	L	Flood zone with shallow flowing water or deep standing water
0.75 – 1.25	M	Moderate dangerous for some (i.e. children) “Danger: Flood zone with deep or fast flowing water”
1.25 - 2.50	H	Significant dangerous for most people “Danger: flood zone with deep fast flowing water”
>2.50	E	Extreme dangerous for all “Extreme danger: flood zone with deep fast flowing water”

Flood Hazard Rating Maps

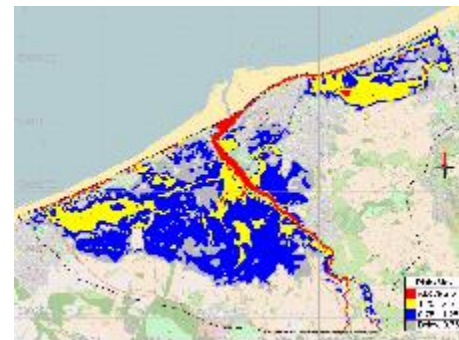
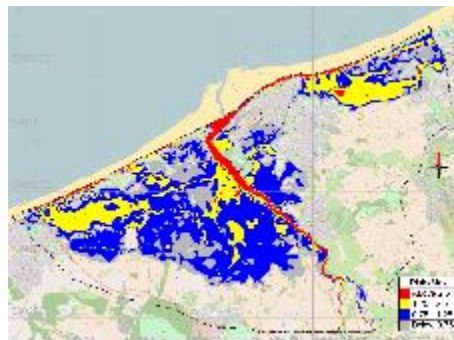
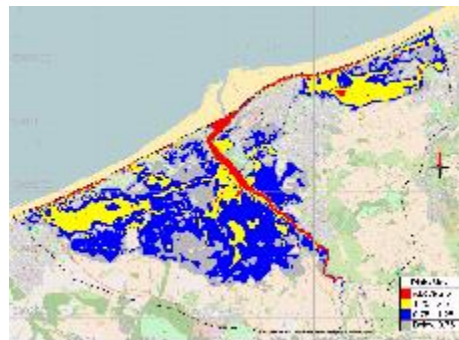
- SLR = 0 m



- SLR = 1.0 m



- SLR = 2.0 m



Thank you - Questions?



Blogs *Professor Shunqi Pan*

PANS2@CARDIFF.AC.UK
HTTP://BLOGS.CARDIFF.AC.UK/SHUNQIPAN

Welcome

Research

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Community

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Comments

Welcome

Welcome to my research blog, which is intended to provide you with information related to my academic activities, in particular my research activities. I started my research career on coastal engineering at University of Liverpool over 20 years ago, and have continued at Plymouth University and currently at Cardiff University.

My research interests are on physical and numerical modelling of coastal & estuarine processes, particularly related to offshore sandbanks, inlet/lagoon systems, nearshore coastal defense structures, beach nourishment and, in recent years, modelling of large-scale waves/tides/surge prediction under extreme conditions, resource characterization for marine renewable energy and the impact of climate change on coasts and estuaries.

Since 2000, I have been Principal Investigator or Co-investigator for some 22 research projects funded by various sources secured more than £3m research funds, and have published more than 120 papers in international journals and conferences. My current Google Scholar h-index is 14 with over 1000 citations. I received the Halcrow Prize for the Institution of Civil Engineers (ICE) in 2007.



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