

Peter Bowyer, Seamode Oceanographic

Profile

A Physical Oceanographer with 30 years' experience in research and modelling of coastal processes, waves, tides, air sea interaction and lake circulation.

Career History

Irish Marine Institute (July 2016-July 2017)

Validating biogeochemical model for EU Copernicus project. 2 and 3d tidal and surge models for locations in W of Ireland

Seamode Oceanographic (2015-present)

Validating biogeochemical model for EU Copernicus project. 2 and 3d tidal and surge models for locations in W of Ireland
Modelling surges in Pentland Firth. Effect of wind on extremes and resource at tidal sites.

Metocean study for floating wind site off Dounreay, Scotland.

RES Offshore (2011-2014)

Lead physical oceanographer & marine energy resource modeller. Also responsible for Data analysis and commissioning/planning instrument deployments/surveys.

Environmental Research Institute, Thurso (2010-2011)

Senior Research Fellow within ERI Energy & Environment Centre (part of UHI), modelling and monitoring the tidal flows and waves in the Pentland Firth. Assessing the impact of large scale extraction of marine energy (MaREE project). Salmon migration studies.

Modelling work used POM, ADCIRC and Gerris. Data collection included adcp and tide gauge deployments and wave measurements.

Seamode Oceanographic (2003-2010)

Self-employed consultant in oceanographic, harbour and lake/river monitoring and simulation, Development of a variety of surge and tidal databases for use in flood and environmental studies., Coastal process studies (outfalls, plumes, pollutant dispersion, 2D and 3D) and wave generation & propagation.

Galway University (1991-2003)

Lecturer in Oceanography, teaching 1st to 4th year undergraduates and supervising

MSc/PhD research degree students. Coordinator and principal investigator on a number of EU and Irish projects looking at coastal and deep water oceanography, sea level, air-sea interaction, pollution dispersal, remote sensing, regional circulations, lake circulation, etc.

Assessor, EU (1999-2003, 2weeks/yr)

Scientific assessment of proposals for various EU projects.

Southampton University (1986-1991)

Postdoctoral Research Fellow: studies into surface turbulent processes, wave breaking, bubble particle interactions, mixed layer dynamics, surface layer modelling. Measurement and prediction of surge tides and measurement of surface currents.

Selected Projects

Copernicus model Validation (2016-present)

Assembly of comprehensive biogeochemical dataset for the Iberia-Biscay-Ireland regional Copernicus model. Validation of model results; improvement in validation process in shallow seas and coastal areas. Analysis of model results for trends and regional patterns. Intercomparison with other modelling systems (Mediterranean, North West Shelf).

Argyll tidal (2011-2013)

Modelling tidal flow, tidal resource and waves off the Mull of Kintyre.

2d regional and 3d local tidal resource model of proposed tidal site. Use of this model to assess local and far field effects of tidal array at Torr Head.

Wave modelling of the site; modification of wave model to include fast flows.

Assisted in the deployment of instrumentation at the site; data processing from the site.

Pentland Firth Orkney Waters modelling (2012-2016).

(With ABP MER for Crown Estate) assisted in the formulation of wave and tidal models of the Pentland Firth and Orkney waters by ABP MER for the Crown estate. Assisted TCE in model choice, assessed model performance, provided calibration/validation data for the area (tidal elevation, adcp,..)

(with ERI) formulated models of PFOV including the effects of met a forcing (surge and wave) to assess effect of surge on extreme flows and resource.

Andritz Hammerfest (2013-2014)

Extraction of flow velocity, wave information and turbulence parameters from adcp data at EMEC site.

Modelling of local flow patterns and turbulence; wake studies.

Tidal analysis of flow data; assessment of significant non-tidal signals in the resource (large and small scale turbulence, waves, surge).

Calibrated 2d regional model and 3d local model of site. Inclusion of devices into Telemac3d and Fluidity using blade approach.

Publications

Numerous journal and conference papers on a variety of oceanographic topics, in particular coastal oceanography, air sea interaction and limnology.

Personal Details

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Languages

English - native
French - fluent

Qualifications

- Ph.D. Physical Oceanography, Galway University
- M.Sc. Physical oceanography University College of North Wales.
- M.A. Experimental physics, Cambridge

Key skills

- Mathematical modeller; 2 and 3d circulation models (Telemac/ Princeton, ADCIRC, ..); CFD models (Fluidity)
- Wave modeller (Tomawac, Swan)
- Ocean data analysis (Matlab, GMT, Fortran, python..)
- Sediment modeller (Telemac/ Sisyphé)
- Field work: deployment of adcp, tide gauges, etc