



Francois Flocard

Principal Engineer

Francois has over 14 years of applied experience working on a range of consulting engineering projects in the marine renewable energy sector, coastal engineering, and the oil and gas industry. Francois is an expert in the field of marine renewables; he has managed the installation of a 250 kW pilot device in Victoria and led several large studies related to wave dynamics and wave energy conversion. Francois brings to WRL the combined attributes of a practical engineering background

and academic analysis to resolve complex coastal and hydraulic problems.

He also has extensive experience in accurate data management, processing and analysis (i.e. time series, statistical and spectral analysis methods) as well as geographic information systems (GIS). Francois is an expert in 2D and 3D physical modelling with expertise in the application of over 20 physical models for assessing coastal, marine structures and wave energy devices.

Francois is an active member of the marine renewable energy and coastal engineering communities, regularly publishing work in technical conferences and journals. He is an active member of PIANC and was also a committee member of the Australian Wave Energy Atlas project in 2015 and 2016.

Qualifications

BSc (Mechanical Engineering), Ecole Nationale des Arts et Metiers, France
MEngSc (Hydraulics), Ecole Nationale des Arts et Metiers, France
PhD (Civil Engineering), University of Sydney

Professional history

2017-Current: Principal Engineer, UNSW WRL
2015-2017: Senior Engineer, BPS Pty Ltd
2011-2015: Senior Project Engineer, UNSW WRL
2008-2011: Mechanical Engineer, BPS Pty Ltd
2005-2007: Project Engineer, Beicip Franlab, Paris
2004-2005: Reservoir Engineer, Total, Cameroon

Expertise

- Wave energy conversion
- Physical model design, construction and testing
- Renewable energy resource assessment
- Numerical wave modelling

- Coastal processes and hazards
- Wave loading analysis
- Geo-spatial data analysis and planning
- Field investigations and data collection

Summary of relevant experience

Coastal and Offshore Physical Modelling Studies

2011: Browse LNG terminal port and facilities, WA
2012: Geotextile revetment stability testing
2012: Rarotonga, Cook Islands
2013: Craigie Beach, seawall climate change adaptation, VIC
2013: Toogoom rock wall, QLD
2013: Royal Yacht Club of Victoria Marina, VIC
2014: Clump Point breakwater mobile bed 3D mode, QLD
2014: Coffs Harbour Northern Breakwater Upgrade, NSW
2015: Large scale modelling of sandy beaches under SLR
2015: Tiwi Islands, floating pontoons, NT
2017: Clump Point breakwater, QLD
2018: Auckland America's Cup Upgrades, NZ

Coastal Processes and Numerical Modelling Studies

2004: Rio del Rey, Cameroon, reservoir modelling
2005: Sirri, Iran, oil field simulation
2007: GTFT, Algeria, gas field simulation
2008-2010: Wave-structure hydrodynamic modelling
2012: Seawall Assessment and Adaptation strategies

2012: Generic coastal setbacks for Australia
2013: National Framework for Management of Coastal Erosion
2012: Batemans Bay, NSW, coastal inundation study
2012: Port Fairy, VIC, coastal hazard assessment
2014: Coastal Adaptation for extreme events, Cook Islands
2015: Sediment transport assessment in Port Philip Bay
2016: Automated wave forecasting system for Western Victoria
2018: Okines Beach, TAS, coastal adaptation solutions

Marine Renewable Energy

2002: Development of an experimental OWC turbine
2007-2010: PhD (ocean wave energy conversion by pitching cylinders)
2008-2011: Development of a wave energy converter pilot device
2012: Port Fairy, VIC, wave power resource analysis
2014: Marine spatial planning for Wave Energy Projects in Western Victoria
2015-2016: BioWAVE 250 kW pilot deployment & commissioning
2017: Assessment of coastal protection benefits from marine renewable project