



Mitchell Harley

Scientia Fellow and Senior Lecturer

Mitchell specialises in the field of coastal morphodynamics, wave climatology, coastal modelling and early warning systems for coastal hazards. His research has led to a number of seminal publications in distinguished journals such as the *Journal of Geophysical Research*, the *International Journal of Climatology*, *Coastal Engineering*, *Geomorphology* and *Natural Hazards Earth System Sciences*, and is cited in the latest IPCC report on impacts, adaption and vulnerability

to climate change.

Mitchell completed his doctorate in Environmental Engineering at UNSW in 2004 and, in 2005, relocated to Italy to undertake research as part of several key European Union research projects on coastal hazards and coastal storm risks. In 2013, he was invited to lead an international short course on coastal modelling and coastal geohazards at the Korean Institute of Geosciences and Mineral Resources (KIGAM) in Daejeon, South Korea.

Recently, he has been working on an Australian Research Council project on measuring and modelling coastal storm erosion and recovery using process-based and behavioural numerical models. [Google Scholar Profile](#) [Researchgate Profile](#)

Qualifications

BE Hons 1 (Environmental), UNSW, 2004
BSc (Oceanography/Meteorology), UNSW, 2004
PhD (Environmental Engineering), UNSW, 2009

Professional history

2019-: Scientia Fellow & Senior Lecturer, UNSW WRL
2015-2018: Senior Research Associate, UNSW WRL
2010-2015: Postdoctoral Research Fellow, Department of Physics and Earth Sciences, University of Ferrara, Italy
2009-2010: Research Associate, UNSW WRL
2001-2002: Trainee Project Engineer, Parsons Brinckerhoff

Expertise

- Embayed beach morphodynamics
- Remote sensing applications to nearshore environments
- Coastal numerical model development
- Early warning systems for coastal storm risk
- Unmanned aerial vehicles (certified operator)

Selected publications

Journals

- Harley, M. D.**, I. L. Turner, A. D. Short (*in press*), New insights into embayed beach rotation: the role of wave exposure and cross-shore processes, *Journal of Geophysical Research – Earth Surface*.
- Harley, M. D.**, A. Valentini, C. Armaroli, L. Perini, L. Calabrese, P. Ciavola (2015), Can an early warning system help minimize the impacts of coastal storms? A case study of the 2012 Halloween storm, Northern Italy, *Natural Hazards Earth Systems Science Discussions*, 3, 3409-3448, doi:[10.5194/nhessd-3-3409-2015](https://doi.org/10.5194/nhessd-3-3409-2015).
- Harley, M. D.**, P. Ciavola (2013), Managing localized coastal inundation risk using real-time forecasts and artificial dune placements, *Coastal Engineering*, 77, 77-90, doi:[10.1016/j.coastaleng.2013.02.006](https://doi.org/10.1016/j.coastaleng.2013.02.006).
- Harley, M. D.**, I. L. Turner, A. D. Short, R. Ranasinghe (2011), A reevaluation of coastal embayment rotation: The dominance of cross-shore versus alongshore sediment transport processes, Collaroy-Narrabeen Beach, southeast Australia, *Journal of Geophysical Research – Earth Surface*, 116, F4, doi:[10.1029/2011JF001989](https://doi.org/10.1029/2011JF001989).
- Harley, M. D.**, I. L. Turner, A. D. Short, R. Ranasinghe (2011), Assessment and integration of conventional, RTK-GPS and image-derived beach survey methods for daily to decadal coastal monitoring, *Coastal Engineering*, 58 (2), 194-205, doi: [10.1016/j.coastaleng.2010.09](https://doi.org/10.1016/j.coastaleng.2010.09).
- Harley, M. D.**, I. L. Turner, A. D. Short, R. Ranasinghe (2010), Interannual variability and controls of the Sydney wave climate, *International Journal of Climatology*, 30, 1322-1355, doi:[10.1002/joc.1962](https://doi.org/10.1002/joc.1962).
- Harley, M. D.**, I. L. Turner, A. D. Short, R. Ranasinghe (2008), A simple data transformation technique for pre-processing survey data at embayed beaches, *Coastal Engineering*, 55 (1), 1322-1355, doi:[10.1002/joc.1962](https://doi.org/10.1002/joc.1962).

Selected book chapters

- Ciavola, P., O. Ferreira, A. Van Dongeren, J. Van Thiel De Vries, C. Armaroli, **M. D. Harley** (2014), Prediction of storm impacts on beach and dune system, in [P. P. Quevauviller](#) (ed), *Hydrometeorological hazards: interfacing science and policy*, John Wiley and Sons, 227-252.
- Harley, M. D.**, I. L. Turner, A. D. Short, R. Ranasinghe (2007), Monitoring beach processes using conventional, RTK-GPS and video image-derived survey methods: Narrabeen Beach, Australia, in Woodroffe C. D., E. Bruce, M. Puotinen (eds), *GIS for the coastal zone: a selection of papers from Coast GIS 2006*, University of Wollongong, 151-164.