

Marissa L. Yates

Research topics

- Modeling highly nonlinear and dispersive waves in the nearshore and coastal zone for coastal engineering and renewable marine energy applications
- Developing equilibrium beach shoreline change models
- Evaluating morphological change observations and the impacts of climate change on coastal environments

Education

- 2009 **PhD Oceanography**, *Scripps Institution of Oceanography, UCSD*, La Jolla, CA, USA,
Seasonal Sand Level Changes on Southern California Beaches: Observations and Modeling
Thesis director: Dr. Bob Guza.
- 2003 **B.S. Environmental Engineering**, *MIT*, Cambridge, Massachusetts, USA.

Positions

- 2017 **Visiting academic**, *Cambridge Coastal Research Unit, Department of Geography, University of Cambridge*, Cambridge, UK.
- 2011–present **Researcher**, *Saint Venant Hydraulics Laboratory, DTecEMF, Cerema*, Chatou, France.
- 2010–2011 **Geological engineer**, *Coastal Risks Group, BRGM*, Orléans, France.
- 2009–2010 **Postdoctoral researcher**, *Scripps Institution of Oceanography*, La Jolla, CA, USA.
- 2003–2009 **Graduate student researcher**, *Scripps Institution of Oceanography*, La Jolla, CA, USA.
- 2002 **Research internship**, *Research Experience for Undergraduates, Horn Point Laboratory, University of Maryland*, Cambridge, MD, USA.
- 2002 **Research internship**, *MIT*, Cambridge, MA, USA.
- 2001 **Research internship**, *Consorzio Venezia Nuova*, Venice, Italy.

Teaching experience

- 2016–present **Maritime Works**, *Lecturer*, ENPC, Champs-sur-Marne, France.
- 2013–present **Sea State, Coastal Waves and Morphodynamics**, *Lecturer*, ENSTA, Palaiseau, France.
- 2011–2013 **Scientific English**, *Lecturer*, ENS Cachan, Cachan, France.
- 2007 **The Oceans**, *Teaching assistant*, University of California, San Diego, La Jolla, CA, USA.
- 2003–2009 **Physics and mathematics tutor (high school level)**, *Breyer's Branches*, Solana Beach, CA, USA.
- 2002 **Waste Containment and Remediation Technology**, *Teaching assistant*, MIT, Cambridge, MA, USA.

Advising experience

- 2017–2018 **Post-doctoral researcher**, *C. Papoutsellis*, IRPHE, Marseille & LHSV, Chatou, France, Wave breaking in a fully nonlinear and dispersive potential flow model (*co-advised with M. Benoit*).
- 2017 **Masters intern**, *M. De Carlo*, LHSV, Chatou, France, Validating the morphological change model XBeach to simulate submerges breakwater beach erosion reduction experiments (*co-advised with D. Pham Van Bang*).
- 2017 **Engineering intern**, *ENTPE, G. Bouvard*, UBO, Brest, France, Application and calibration of an equilibrium model applied to a beach-dune system at Guisseny beach (*co-advised with N. Le Dantec, F. Floc'h*).

- 2014–2016 **Thesis student**, C. Raoult, LHSV, Chatou, France, Modeling nonlinear waves in the coastal zone (*co-advised with M. Benoit*).
- 2016 **Masters intern**, D. Tasing, LHSV, Chatou, France, Optimization of the wave propagation model Misthyc.
- 2016 **Masters intern**, C. Ghitui, LHNE, EDF R&D, Chatou, France, Comparing wave propagation models (*co-advised with M. Andreevsky, A. Joly*).
- 2016 **Masters intern**, M. C. Lemos Rodríguez, UBO, Brest, France, Predicting shoreline change using equilibrium models: Porsmilin, France (*co-advised with N. Le Dantec, F. Floc'h*).
- 2015 **Post-doctoral researcher**, M. Gervais, LHSV, Chatou, France, Mitigating beach erosion in storm conditions with a submerged breakwater (*co-advised with D. Pham Van Bang*).
- 2013, 2015 **Tutor for internships abroad**, 2-3 students per year, ENPC.
- 2014 **Intern, ENPC**, P. Desbrières, LHSV, Chatou, France, Modeling waves in the coastal zone (*co-advised with M. Benoit*).
- 2011 **Masters intern**, E. Salaï, BRGM, Orléans, France, Multidecadal shoreline change of atolls: Manihi and Scilly (*co-advised with G. Le Cozannet*).

Funding

- 2016 **ANR-FEM**, *Modeling and observation of extreme sea states with wave breaking for Renewable Marine Energy applications (DiMe)*, Cerema Scientific coordinator.
- 2017 **ANR Labex MEC**, *Wave breaking: physical, mathematical and numerical studies (DE-PHYMAN)*, Participant, post-doctoral researcher co-advisor.

Refereed Publications

- [1] M. Benoit, C. Raoult, and **Yates, M. L.** Analysis of the linear version of a highly dispersive potential water wave model using a spectral approach in the vertical. *Wave Motion*, 74C:159–181, 2017.
- [2] A. Doria, R. T. Guza, W. C. O'Reilly, and **Yates, M. L.** Observations and modeling of san diego beaches during el niño. *Cont. Shelf Res.*, 124:153–164, 2016.
- [3] C. Raoult, M. Benoit, and **Yates, M. L.** Validation of a fully nonlinear and dispersive wave model with laboratory non-breaking experiments. *Coast. Eng.*, 114:194–207, 2016.
- [4] B. Ludka, R. Guza, W. C. O'Reilly, and **Yates, M. L.** Field evidence of beach profile evolution toward equilibrium. *J. Geophys Res.*, 120(11):7574–7597, 2015.
- [5] **Yates, M. L.** and M. Benoit. Accuracy and efficiency of two numerical methods of solving the potential flow problem for highly nonlinear and dispersive water waves. *Intl. J. Num. Meth. Fluids*, 77:616–640, 2015.
- [6] G. Le Cozannet, M. Garcin, **Yates, M.**, D. Idier, and B. Meyssignac. Approaches to evaluate the recent impacts of sea-level rise on shoreline changes. *Earth Science Reviews*, 138:47–60, 2014.
- [7] G. Le Cozannet, M. Garcin, L. Petitjean, A. Cazenave, M. Becker, B. Meyssignac, P. Walker, C. Devilliers, O. Le Brun, S. Lecacheux, A. Baills, T. Bulteau, **Yates, M.**, and G. Wöppelmann. Exploring the relation between sea level rise and shoreline erosion using sea level reconstructions: an example in French Polynesia. *J. Coast. Res.*, SI 65:2137–2142, 2013.
- [8] G. Le Cozannet, M. Garcin, T. Bulteau, **Yates, M. L.**, M. Méndez, A. Baills, D. Idier, and C. Oliveros. An AHP-derived method for mapping the physical vulnerability of coastal areas at regional scales. *Nat. Hazards Earth Syst. Sci.*, 13:1209–1227, 2013.
- [9] **Yates, M. L.**, G. Le Cozannet, M. Garcin, E. Salaï, and P. Walker. Multidecadal atoll shoreline change on Manihi and Manuae, French Polynesia. *J. Coast. Res.*, 29(4):870–882, 2013.

- [10] **Yates, M. L.** and G. Le Cozannet. Evaluating european coastal evolution using bayesian networks. *Nat. Hazards Earth Syst. Sci.*, 12:1173–1177, 2012.
- [11] **Yates, M. L.**, G. Le Cozannet, and N. Lenôtre. Quantifying errors in long-term coastal erosion and inundation hazard assessments. *J. Coast. Res.*, SI 64:260–264, 2011.
- [12] **Yates, M. L.**, R. T. Guza, W. C. O'Reilly, J. E. Hansen, and P. L. Barnard. Equilibrium shoreline response of a high wave energy beach. *J. Geophys. Res.*, 116(C04014), 2011.
- [13] **Yates, M. L.**, R. T. Guza, and W. C. O'Reilly. Equilibrium shoreline response: Observations and modeling. *J. Geophys. Res.*, 114(C09014), 2009.
- [14] **Yates, M. L.**, R. T. Guza, W. C. O'Reilly, and R. J. Seymour. Overview of seasonal sand level changes on southern California beaches. *Shore & Beach*, 77(1):39–46, 2009.
- [15] **Yates, M. L.**, R. T. Guza, W. C. O'Reilly, and R. J. Seymour. Seasonal persistence of a small southern California beach fill. *Coast. Eng.*, 56:559–564, 2009.
- [16] **Yates, M. L.**, R. T. Guza, R. Gutierrez, and R. Seymour. A technique for eliminating water returns from lidar beach elevation surveys. *J. Atmos. Oc. Tech.*, 25(9):1671–1682, 2008.

Conference Proceedings

- Lemos, C., Floc'h, F., **Yates, M.**, Le Dantec, N., Marieu, V., Hamon, K., Cuq, V., Suanez, S., Delacourt, C., 2017. *Equilibrium modeling of the shoreline position on a macrotidal embayed beach*, Proc. Coastal Dynamics, Helsingør, Denmark, 12p.
- Raoult, C., **Yates, M. L.**, Benoit, M., 2016. *Modeling viscous effects in a fully nonlinear and dispersive potential model*, Proc. 15èmes Journées de l'Hydrodynamique, Brest, France, 16p.
- Raoult, C., Benoit, M., **Yates, M. L.**, 2016. *Développement d'un modèle numérique non-linéaire et dispersif pour la propagation des vagues en zone côtière*, Proc. GCGC, Toulon, France, 12p.
- Gervais, M., Pham Van Bang, **Yates, M.**, D., Vidal, V., Benoit, M., 2016. *Réduire l'érosion des plages lors des tempêtes grâce à des structures immergées : une étude expérimentale comparative en canal à houle*, Proc. GCGC, Toulon, France, 9p.
- Gervais, M., Pham Van Bang, D., Vidal, V., **Yates, M.**, Benoit, M., 2015. *Mitigating beach erosion in storm conditions with a submerged breakwater: an experimental study*, Coastal and Maritime Mediterranean Conference, Ferrara, Italie, 5p.
- **Yates, M. L.**, Benoit, M., Raoult, C., 2015. *Fully nonlinear and dispersive of nearshore wave modeling: accuracy and efficiency of two methods of solving the potential flow problem*, Proc. IWWWFB, Bristol, UK, 4p.
- Raoult, C., Benoit, M., **Yates, M. L.**, 2014. *Etude et qualification d'un modèle numérique complètement non-linéaire et dispersif pour les vagues en zone côtière*, Proc. GCGC, Dunkerque, France, 10p.
- Benoit, M., Raoult, C., **Yates, M. L.**, 2014. *Fully nonlinear and dispersive modeling of surf zone waves: non-breaking tests*, Proc. ICCE, Seoul, South Korea, 10p.
- Benoit, M., **Yates, M. L.**, Chazel, F., 2013. *A comparison of simulation approaches based on the Zakharov equations*, Proc. IWWWFB, Le Croisic, France, 4p.
- **Yates, M. L.**, Benoit, M., 2012. *Modélisation Non-linéaire et Dispersive des Vagues en Zone Côtière : Étude Comparative de Deux Méthodes de Simulation Précises*, Proc. 13èmes Journées de l'Hydrodynamique, Chatou, France, 13p.
- Le Cozannet, G., Cazenave, A., Garcin, M., Becker, M., Donato, V., Rogel, P., Salas Y Melia, D., Walker, P., Woppelmann, G., **Yates, M.**, 2011. *L'élévation récente du niveau marin et l'érosion côtière : le cas d'îles océaniques du Pacifique*. Geosciences, 14, 92-99.
- Le Cozannet, G., N. Lenôtre, **M. Yates**, P. Nacass, B. Colas, C. Pérherin, C. Peinturier, C. Vanroye, C. Hajji, B. Poupat, C. Azzam, J. Chemitte, and F. Pons, 2010. Climate Change impact, adaptation and associated costs for coastal risk in France. *Littoral 2010, Conference Proceedings*, London, UK, 21-23 September 2010.
- Sanford, L.P., P. Dickhudt, L. Rubiano-Gomez, **M. Yates**, S. Suttles, C.T. Friedrichs, D. Fugte, and H. Romaine, 2005. Variability of suspended particle concentrations, sizes and settling velocities in the Chesapeake Bay turbidity maximum. *In Flocculation in Natural and Engineered Environmental Systems*. I.G. Droppo, G. G. Leppard, P. Liss, and T. Milligan, Eds. Boca Raton, Florida, CRC Press, LLC: 221-236. UMCES Contribution No. 3597.

Conferences

- De Carlo, M., **M. L. Yates**, D. Pham Van Bang, M. Gervais, V. Vidal. Evaluating Storm Erosion on Beaches Protected by Submerged Structures with XBeach, *XBeach X Users Conference*, Delft, Netherlands, 2017.
- **Yates, M. L.**, M. Benoit, C. Raoult. Fully nonlinear and dispersive nearshore wave modeling: accuracy and efficiency of two methods of solving the potential flow problem, *IWWWFB*, Bristol, UK, 2015.
- **Yates, M. L.**, M. Benoit. Accurate modeling of nonlinear and dispersive waves in the coastal zone, *WISE*, College Park, MD, USA, 2013.
- **Yates, M. L.**, M. Benoit. Modélisation Non-linéaire et Dispersive des Vagues en Zone Côtière : Étude Comparative de Deux Méthodes de Simulation Précises, *Journées de l'Hydrodynamique*, Chatou, France, 2012.
- **Yates, M. L.**, G. Le Cozannet, N. Lenôtre. Quantifying errors in long-term coastal erosion and inundation hazard assessments. *International Coastal Symposium*, Szczecin, Poland, 2011.
- Le Cozannet, G., N. Lenôtre, **M. Yates** (presenter), P. Nacass, B. Colas, C. Pérherin, C. Peinturier, C. Vanroye, C. Hajji, B. Poupat, C. Azzam, J. Chemitte, F. Pons. Climate change impact, adaptation and associated costs for coastal risks in France. *Littoral 2010*, London, UK, 2010.
- **Yates, M.L.**, J.E. Hanson, W.C. O'Reilly, P.L. Barnard, and R.T. Guza (presenter). Equilibrium Shoreline Change at Ocean Beach, San Francisco, CA. *Ocean Sciences Meeting*, Portland, OR, 2010.
- **Yates, M.L.**, R.T. Guza, R.J. Seymour, W.C. O'Reilly, and A. Young. Alongshore Variability of Shoreline Change and Geologic Factors. *AGU, Fall Meeting*, San Francisco, CA, 2008.
- **Yates, M.L.**, R.T. Guza, W.C. O'Reilly, and R.J. Seymour. Overview of Seasonal Sand Level Changes on Southern California Beaches, *ASBPA National Coastal Conference: Sustainable Shorelines*, Chicago, IL, 2008.
- **Yates, M.L.**, and R.T. Guza. Seasonal Sand Level Changes on Southern California Beaches: Observations and Modeling, *Physical Oceanography Dissertation Symposium*, Honolulu, HI, 2008.
- **Yates, M.L.**, R.T. Guza, R.J. Seymour, and W.C. O'Reilly. Sand Level Changes and Beach Equilibrium Concepts, *International Conference of Coastal Engineering*, Hamburg, Germany, 2008.
- **Yates, M.L.**, R.T. Guza, R.J. Seymour, and W.C. O'Reilly. Seasonal Beach Changes and Equilibrium Concepts. *AGU, Ocean Sciences Meeting*, Orlando, FL, 2008.
- **Yates, M.L.**, R.T. Guza, R.J. Seymour, and W.C. O'Reilly. Seasonal Sand Level and Wave Variability on Southern California Beaches. *California and the World Ocean*, Long Beach, CA, 2006.
- **Yates, M.L.**, R.T. Guza, R.J. Seymour, W.C. O'Reilly, and J.O. Thomas. Seasonal Sand Level and Wave Variability on Southern California Beaches. *International Conference of Coastal Engineering*, San Diego, CA, 2006.
- **Yates, M.L.**, R. Guza, R. Seymour, W. O'Reilly, and R. Gutierrez. Seasonal Changes in Sand Level and Wave Energy on Southern California Beaches. *Ocean Sciences Meeting*, Honolulu, HI, (poster), 2006.
- Madsen, O.S. and **Yates, M.L.**. On Wave Reflection from Beaches. *International Conference of Coastal Engineering*, Lisbon, Portugal, 2004.
- **Yates, M.L.**, Sanford, P., Dickhudt, P., and Suttles, S. E. Video In Situ Settling Tube Apparatus Characterization of Sediments in the Estuarine Turbidity Maximum Zone of the Chesapeake Bay. *ASLO, Aquatic Sciences*, (poster), 2003.

Seminars

- 2017 **CCRU**, Department of Geography, Cambridge, UK.
- 2016 **GDR TransNat**, Roscoff, France.
- 2015 **ANGE**, Université Pierre et Marie Curie, Paris, France.
- 2012 **CETMEF**, Compiègne, France.
- 2011 **LNHE**, EDF R&D, Chatou, France.
- 2009 **BRGM**, Orléans, France.
- 2009 **L'OCEAN**, Université Pierre et Marie Curie, Paris, France.
- 2008 **COM**, Université de la Méditerranée, Marseille, France.
- 2008 **EPOC**, Université de Bordeaux 1, Bordeaux, France.

Workshops

- 2016 **B'WAVES 2016**, *University of Bergen*, Bergen, Norway.
- 2015 **GLADYS-Littoral workshop**, Allègre-les-Fumades, France.
- 2015 **Wave propagation in complex media**, Cargèse, Corse, France.
- 2013 **HYDRALAB Young Researchers Conference on Floating Bodies**, *IFREMER*, Plouzané, France.
- 2012 **Parallel Computing: MPI**, *IDRIS*, Orsay, France.
- 2010 **ArcGIS**, *BRGM*, Orléans, France.

Field work

- 2009 **Imperial Beach Field Experiment**, Imperial Beach, California, USA, Large scale observations of chlorophyll, bacteria, passive tracer and drifter dispersion in the surf zone.
- 2006 **Huntington Beach Field Experiment**, Huntington Beach, California, USA, Observations of currents and chlorophyll, bacteria, passive tracer and drifter dispersion in the surf zone.
- 2002 **R/V Cape Henlopen**, Chesapeake Bay, MD, USA, Cruise observations of suspended sediments in the turbidity maximum zone of the Chesapeake Bay.

Awards and Honors

- 2008 American Shore and Beach Preservation Association Educational Award
- 2007–2008 Achievement Rewards for College Scientists Scholar
- 2007 California Shore and Beach Preservation Associate Weigel Scholarship
- 2004–2007 National Defense Science and Engineering Graduate Fellowship
- 2003–2004 T.R. and Edith Folsom Graduate Fellowship
- 2003 Outstanding Student Poster Award, ASLO Aquatic Sciences Meeting
- 2001 Gilbert Winslow Scholarship

Service

Reviewer

- Delaware Sea Grant
- Earth Surface
- EWTEC
- Geo-Marine Letters
- Journal of Coastal Research
- Journal of Geophysical Research–Earth
- Journal of Geophysical Research–Oceans
- Journal of Marine Systems
- Journal of Waterway, Port, Coastal, and Ocean Engineering
- Marine Geology
- Ocean Dynamics
- Ocean Engineering
- Ocean Modelling

Administrative responsibilities

- Co-leader of the *Waves and coastal and maritime risks* research group of the LHSV (since 2015)
- Coordinator of the *Journée des doctorants LHSV 2016, 2017*
- LNHE and LHSV Free surface hydraulics classes, 2 sessions about waves (2016)
- Co-designer of the LHSV website
- Participant in the Work Group: Research and Innovation, Direction technique Eau, mer et fleuves, Cerema