

## CURRICULUM VITAE

### Andrew Dale Ashton

Coastal Geomorphologist  
Associate Scientist  
Geology and Geophysics Department  
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### Research Interests:

Coastal geomorphology  
Development of numerical and conceptual models of the formation and evolution of coastal sedimentary environments  
Coastal response to climate change, sea-level rise, and anthropogenic activities  
Evolution and formation of coastal barriers, deltas, spits, and carbonate environments  
Application of 'reduced complexity' morphodynamic models to study earth-surface evolution

### Education:

Duke University; Durham, North Carolina 1999 - 2005  
Ph.D. – Division of Earth & Ocean Sciences,  
Nicholas School of the Environment & Earth Sciences  
Certificate in Nonlinear and Complex Systems  
Concentration: Coastal Processes and Geomorphology

Cornell University; Ithaca, New York 1991 - 1995  
B.S. – School of Civil and Environmental Engineering  
Concentration: Water Quality, Hydraulics, and Hydrology

### Professional Experience:

Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 2007 - present  
Associate Scientist (2011-present)  
Assistant Scientist (2007-2011)  
Geology and Geophysics Department

Woods Hole Oceanographic Institution and USGS Woods Hole Field Center 2005 - 2007  
Woods Hole, Massachusetts  
USGS Postdoctoral Scholar

David J. Newton Associates; Portland, Oregon 1997 - 1999  
Civil Engineer focusing on hydrology and hydrodynamics  
Hydraulic and hydrologic design of gravel mining sites and water systems, including dams, culverts, storm drainage systems, water supply systems, and stormwater retention ponds.

Dewberry & Davis; Fairfax, VA 1996 - 1997  
Civil Engineer working on technical evaluation contract with Federal Emergency Management Agency (FEMA), for the National Flood Insurance Program (NFIP).

## Educational Activities:

Postdocs: Jorge Lorenzo Trueba, WHOI (2011-2013)  
Ph.D. Students: Alejandra Ortiz, MIT-WHOI JP (2010-2015)  
Jaap Nienhuis, MIT-WHOI JP (2012-2015)  
James Bramante MIT-WHOI JP (co-advisor) (2015-)  
Masters Students: Emily Carruthers, MIT-WHOI JP (2009-2011)  
Committee member: Kim Huppert, MIT (2012-)  
Michael Toomey, MIT-WHOI JP (2008-2013)  
Phil Lane, MIT-WHOI JP (2007-2010)  
Summer Student Fellows: Andrew Delman, Yale University, 2008  
Cherie Meyer, Columbia University, 2010  
Summer Guest Students: Nick Magliocca, Duke University, 2008  
Anastasia Pilliouras, University of Pennsylvania, 2009  
Holly Taylor, Northeastern University, 2009  
Luis Boilchi, 2015  
Other advising: Jaap Nienhuis, University of Twente (M.S., 2011)  
Selorm Ababio, University of Ghana (Ph.D., ongoing)  
Courses Taught: 12.717 Coastal Geomorphology (instructor), Spring 2012, Spring 2015.  
12.753 Geodynamics Seminar: The Anthropocene (co-instructor) Spring 2014. Led Study Tour visiting developed coastlines along the Eastern Seaboard: Long Island to the Outer Banks.  
12.710 Marine Geology & Geophysics I (co-instructor), Fall 2009, Fall 2011, Spring 2014.

## Major Funding Awarded

NSF-CNH AGS-1518503. Lead PI: **A.D. Ashton**. Co-PI: P. Hoagland, D. Jin, H. Kite-Powell, A. Solow, J. Duff (UMass Boston), J. Lorenzo-Trueba (Montclair State University); Period August 10, 2015 – July 31, 2019: “CNH-L: Coastal Processes and Human Response to Shoreline Change.” \$1,799,958.  
NSF-GLD EAR-0824728. Lead PI: **A.D. Ashton**; Period: September 1, 2014 – August 31, 2016: “Controls on the Shape and Reshaping of Sandy Spits,” \$264,495.  
SERDP RC-2336. Lead PI: J.P. Donnelly. Co-PI: **A.D. Ashton**, K. Karnauskas, N. Lin, K. Emanuel; Period: March 1, 2013 – February 28, 2017: “Impacts of Changing Climate on Pacific Island-based Defense Installations,” \$2,450,747.  
NSF-GLD EAR-0952146. Lead PI: **A.D. Ashton**. Co-PI: L. Giosan; (Collaboration with Albert Kettner, INSTAAR, University of Colorado); Period: January 1, 2010 – June 30, 2013: “Collaborative Research: Investigating Human and Climate Influences on Delta Evolution Using Fluvial Discharge and Coastal Evolution Models,” \$291,378.  
SERDP RC-1702. Lead PI: R. Evans. Co-PI: **A.D. Ashton**, J. Donnelly, K.F. Cheung (U. Hawaii); Period: January 1, 2009 – January 31, 2013: “Shoreline Evolution and Coastal Resiliency at Two Military Installations: Investigating the Potential for and Impacts of Loss of Protecting Barriers, \$1,797,000.  
NSF-CNH GEO-0815875. Lead PI: **A.D. Ashton**. Co-PI’s: R. Evans, D. Jin, P. Hoagland & J. Donnelly; Period: 09/01/08 to 08/31/13: “CNH: Drowning of Developed Coastal Barriers: Investigating the Threshold Rates of Sea-Level Rise of the Geologic-Human System,” \$1,399,921.

### Submitted and In Revision Papers:

- <sup>S</sup> Nienhuis, J., **Ashton, A.D.**, Giosan, L., Fagherazzi, S., Nardin, W., *in revision*. Alongshore sediment bypassing as a control on river mouth morphodynamics. Submitted to *J. Geophys. Res. Earth Surface*. *Accepted pending revisions 1/15*.
- Toomey, M.R., **Ashton, A.D.**, Raymo, M.E., and Perron, J.T., *in revision*. Late Cenozoic Sea Level and the Rise of Modern Rimmed Atolls. *Submitted to Palaeogeography, Palaeoclimatology, Palaeoecology*. *Accepted pending revisions 11/15*.
- Toomey, M.R., Woodruff, J., Donnelly, J.P., **Ashton, A.D.**, and Perron, J.T., *submitted*. Seismic evidence of glacial age river incision into the Tahaa barrier reef, French Polynesia. Submitted to *Marine Geology* 10/15.

### Papers in refereed journals or books (<sup>S</sup> = student advised, <sup>P</sup> = postdoc advised):

28. **Ashton, A.D.**, Nienhuis, J.H., and Ells, K., *in press*. On a Neck, On a Spit: Controls on the Shape of Sandy Spits. *Earth Surface Dynamics*, 3, 515-560. doi:10.5194/esurfd-3-515-2015 (doi for discussion paper), *in press*.
27. <sup>S</sup> Ortiz, A.C. and **Ashton, A.D.**, *in press*. Exploring a Mechanistic Explanation for the Morphodynamic Depth of Closure. *J. Geophys. Res. Earth Surface*, *in press*.
26. Rogers, L.J., Moore, L.J., Goldstein, E.B., Hein, C.J., Lorenzo-Trueba, J., and **Ashton, A.D.**, 2015. Anthropogenic controls on overwash deposition: Evidence and Consequences. *J. Geophys. Res. Earth Surf.*, doi.org/10.1002/2015JF003634.
25. <sup>S</sup> Nienhuis, J.H., **Ashton, A.D.**, and Giosan, L., 2015. What makes a delta wave-dominated? *Geology*, 43(6), 511-514, doi:10.1130/G36518.1.
24. <sup>P</sup> Lorenzo-Trueba, J., and **Ashton, A.D.**, 2014. Rollover, Drowning, and Discontinuous Retreat: Distinct modes of barrier response to sea-level rise produced by a simple morphodynamic model. *J. Geophys. Res. Earth Surf.*, 119, 779-801, doi:10.1002/2013JF002941.
23. Xing, F., Kettner, A.J., **Ashton, A.D.**, Giosan, L., and Ibanez, C., 2014. Fluvial response to climate variations and anthropogenic perturbations for the Ebro River, Spain in the last 4,000 years. *Science of the Total Environment*, 473-4, P. 20-31, doi:10.1016/j.scitotenv.2013.11.083.
22. Hapke, C.J., Adams, P., **Ashton, A.D.**, Griggs, G., Hampton, M., Kelly, J., Young, A., 2014. The rock coast of the USA, in *Rocky Coast Geomorphology: A Global Synthesis – The USA*. *Rock Coast Geomorphology: A Global Synthesis*, ed. Kennedy, D.M., Stephenson, W.J. & Naylor, L.A. Geological Society of London Memoirs, 40, 137-154, doi.org/10.1144/M40.9.
21. **Ashton, A.D.**, Hutton, E.W.H., Kettner, A.J., Xing, F., Kallumadikal, J., <sup>S</sup>Nienhuis, J., and Giosan, L., 2013. Progress in Coupling Models of Coastline and Fluvial Dynamics, *Computers & Geosciences*, 53, 21-29, doi.org/10.1016/j.cageo.2012.04.004.
20. <sup>S</sup> Nienhuis, J.H., **Ashton, A.D.**, Roos, P.C., Hulscher, S.J.M.H., and Giosan, L., 2013. Wave reworking of abandoned deltas. *Geophysical Research Letters*, 40 5899–5903, doi:10.1002/2013GL058231.
19. <sup>S</sup> Ortiz, A.C., **Ashton, A.D.**, and Nepf, H., 2013. Mean and Turbulent Velocity Fields Near Rigid and Flexible Plants and the Implications for Deposition. *J. Geophys. Res.*, 118 2585-2599. doi:10.1002/2013JF002858.
18. <sup>S</sup> Carruthers, E.A., Lane, D.P., Evans, R.L., Donnelly, J.P., and **Ashton, A.D.**, 2013. Quantifying overwash flux in barrier systems: An example from Martha's Vineyard, Massachusetts, USA. *Marine Geology* 343, 15-28. doi.org/10.1016/j.margeo.2013.05.013.
17. Jin, D., **Ashton, A.D.**, and Hoagland, P., 2013. Optimal Responses to Shoreline Changes: An Integrated Economic and Geological Model with Application to Curved Coasts. *Natural Resource Modeling*, doi:10.1111/nrm.12014.
16. <sup>S</sup> Toomey, M., **Ashton, A.D.**, and Perron, J.T., 2013. Profiles of ocean island coral reefs controlled by sea-level history and carbonate accumulation rates. *Geology*, 41(7), 731-734, doi:10.1130/G34109.1.

15. Murray, A.B., and **Ashton, A.D.**, 2013. Instability and finite-amplitude self-organization of large-scale coastline shapes. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 371. doi:10.1098/rsta.2012.0363.
14. Lazarus, E., **Ashton, A. D.**, and Murray, A. B., 2012. Large-scale patterns in hurricane-driven shoreline change, in *Extreme Events and Natural Hazards: The Complexity Perspective*, A. S. Sharma, V. P. Dimri, and A. Bunde (eds.), Geophysical Monograph Series 196, American Geophysical Union.
13. **Ashton, A.D.** and Giosan, L., 2011. Wave-influenced delta evolution controlled by wave approach angle. *Geophysical Research Letters*, 38:L13405, doi:10.1029/2011GL047630.
12. **Ashton, A.D.**, Walkden, M., and Dickson, M., 2011. Equilibrium responses of cliffed coasts to changes in the rate of sea level rise. *Marine Geology*, 284: 217-229, doi:10.1016/j.margeo.2011.01.007. (*Top ten downloaded articles in Marine Geology during 2011*)
11. Lazarus, E., **Ashton, A.D.**, Murray, A.B., Tebbens, S., and Burroughs, S., 2011. Cumulative versus transient shoreline change: Dependencies on temporal and spatial scale, *J. Geophys. Res.*, 116, F02014, doi:10.1029/2010JF001835.
10. Thieler, E. R. and **Ashton, A.D.**, 2011. Cape capture: Geologic data and modeling results suggest the Holocene loss of a Carolina Cape. *Geology*, 39: 339-342, doi:10.1130/G31641.1.
9. Slott, J, Murray, A.B., and **Ashton, A.D.**, 2010. Large-Scale responses of complex-shaped coastlines to local shoreline stabilization and climate change, *J. Geophys. Res.*, 115, F03033, doi:10.1029/2009JF001486.
8. **Ashton, A.D.**, Murray, A.B., Littlewood, R., Lewis, D.A. and Hong, P., 2009. Fetch-limited self-organization of elongate water bodies. *Geology*, 37(2): 187-190, doi: 10.1130/G25299A.1. (*featured in Research Highlights: Nature 457, p.938*).
7. Murray, A.B., E. Lazarus, **A. Ashton**, A. Baas, G. Coco, T. Coulthard, M. Fonstad, P. Haff, D. McNamara, C. Paola, J. Pelletier, and L. Reinhardt, 2009. Geomorphology, complexity, and the emerging science of the Earth's surface. *Geomorphology*, 103(3): 496-505, doi:10.1016/j.geomorph.2008.08.013.
6. **Ashton, A.D.**, Evans, R.L. and Donnelly, J.P., 2007. A Discussion of the Potential Impacts of Climate Change on the Shorelines of the Northeastern USA. *Mitigation and Adaptation Strategies for Global Change*, doi:10.1007/s11027-007-9124-3.
5. **Ashton, A.D.**, and A. B. Murray, 2006. High-angle wave instability and emergent shoreline shapes: 1. Modeling of sand waves, flying spits, and capes, *J. Geophys. Res.*, 111, F04011, doi:10.1029/2005JF000422.
4. **Ashton, A.D.**, and A. B. Murray, 2006. High-angle wave instability and emergent shoreline shapes: 2. Wave climate analysis and comparisons to nature, *J. Geophys. Res.*, 111, F04012, doi:10.1029/2005JF000423.
3. Slott, J.M., Murray, A.B., **Ashton, A.D.**, and Crowley, T.J, 2006. Coastline responses to changing storm patterns, *Geophysical Research Letters*, Vol. 33, L18404, doi:10.1029/2006GL027445.
2. Valvo, L.M., Murray, A.B., and **Ashton, A.D.**, 2006. How Does Underlying Geology Affect Coastline Change? An Initial Modeling Investigation. *Journal of Geophysical Research - Earth surface*, 111, F02025, doi:10.1029/2005JF000340.
1. **Ashton A.**, Murray A. B., & Arnoult, O., 2001. Formation of coastline features by large-scale instabilities induced by high-angle waves. *Nature*, 414, pp. 296-300, doi:10.1038/35104541.

## Other Publications:

- Ashton, A.D.** and Lorenzo Trueba, J., 2015. Complex responses of Barriers to Sea-level Rise Emerging from a Simple Model of Alongshore-Coupled Dynamic Profile Evolution. Coastal Sediments '15. San Diego, CA, 7pp.
- <sup>S</sup> Nienhuis, J.H., **Ashton, A.D.**, Giosan, L., Nardin, W., and Fagherazzi, S., 2015. Breaking-wave-driven Sediment Bypassing of River Mouths: Mechanisms and Effects on Delta Evolution. Coastal Sediments '15. San Diego, CA, 11pp.
- <sup>S</sup> Ortiz, A.C., **Ashton, A.D.**, and Donnelly, J.P., 2015. Modeling Motu Profile Response to Varying Wave Climate. Coastal Sediments '15. San Diego, CA, 12pp.
- Elko, N., Feddersen, F., Foster, D., Hapke, C., McNinch, J., Mulligan, R., Özkan-Haller, H.T., Plant, N., and Raubenheimer, B. eds. (with contributing authors including **A.D. Ashton**), 2014. The Future of Nearshore Processes Research. White Paper from the Nearshore Community.
- Evans, R.L., Donnelly, J.P., **Ashton, A.D.**, Cheung, K.F., and Roeber, V., 2014. Shoreline Evolution and Coastal Resiliency at Two Military Installations: Investigating the Potential for and Impacts of Loss of Protecting Barriers. SERDP Project RC-1702. (Awarded SERDP & ESTCP 2014 Project of the Year for Resource Conservation and Climate Change)
- Ashton, A.D.**, and <sup>S</sup>Ortiz, A., 2011. Overwash controls coastal barrier response to sea-level rise, 2011. Coastal Sediments '11. Miami, Florida, ASCE, 13pp.
- Ashton, A.D.** and Murray, A.B., 2010. Wave Processes and Shoreline Change, in *McGraw-Hill Yearbook of Science & Technology, 2010*, McGraw-Hill, p. 412-415.
- Ashton, A.D.** and Giosan, L., 2007. Investigating plan-view asymmetry in wave-influenced deltas. 5th IAHR Symposium on River, Coastal, and Estuarine Morphodynamics. International Association of Hydraulic Researchers, Enschede, Netherlands, p. 681-688.
- Ashton, A.D.**, Murray, A.B., and Littlewood, R., 2007. The response of spit shapes to wave-angle climates. Coastal Sediments '07, New Orleans, Louisiana, ASCE, p. 351-363.
- List, J.H. and **Ashton, A.D.** A circulation modeling approach for evaluating the conditions for shoreline instabilities. Coastal Sediments '07, New Orleans, Louisiana, ASCE, p. 327-340.
- Littlewood, R., Murray, A.B., and **Ashton, A.D.** An alternative explanation for the shape of 'log-spiral' bays. Coastal Sediments '07, New Orleans, Louisiana, ASCE, p. 341-350.
- Murray, A.B., Valvo, L., Slott, J, **Ashton, A.**, Crowley, T. Variable shoreline responses to sea-level rise and climate change. Coastal Sediments '07, New Orleans, Louisiana, ASCE, p. 1214-1226.
- Ashton, A.D.**, and Murray, A.B., 2005. Delta simulations using a one-line model coupled with overwash. Coastal Dynamics '05, Barcelona, Spain, ASCE.
- Valvo, L., Murray, A.B., and **Ashton, A.D.**, 2005, Investigating shoreface lithology effects in a process-based model of coastal change, Coastal Dynamics '05, Barcelona, Spain, ASCE.
- Ashton, A.D.**, Murray, A.B. and Ruessink, B.G., 2003. Initial tests of a possible explanation for alongshore sandwaves on the Dutch coast, 3rd IAHR Symposium on River, Coastal and Estuarine Morphodynamics, International Association of Hydraulic Researchers, Barcelona, Spain.
- Murray, A.B. and **Ashton, A.**, 2004. Extending a 1-line modeling approach to explore emergent coastline behaviors, Proceedings of the 29th International Conference on Coastal Engineering, Lisbon, Portugal.
- Ashton, A.**, List, J.H., Murray, A.B. and Farris, A.S., 2003. Links between erosional hotspots and alongshore sediment transport, Proceedings of the International Conference on Coastal Sediments 2003, Clearwater Beach, Florida, ASCE.
- Murray, A.B. & **Ashton, A.**, 2003. Sandy-coastline evolution as an example of pattern formation involving emergent structures and interactions, Proceedings of the International Conference on Coastal Sediments 2003, Clearwater Beach, Florida, ASCE.
- Murray, A.B., **Ashton, A.**, and Arnoult, O., 2001. Large-scale morphodynamic consequences of an instability in alongshore transport. Proceedings of the International Association for Hydraulic Research Symposium on River, Coastal, and Estuarine Morphodynamics, Obohiro, Japan, Sept 10-14.

Murray, A.B., **Ashton, A.**, and Arnoult, O., 2001. An instability in shoreline shape, and connections with eolian morphodynamics. Proceedings of the 2<sup>nd</sup> International Conference on Dune Formation and Migration, Nouachott, Mauritania, February, 2001.

**Published Abstracts:**

- Ortiz, A.C., **Ashton, A.D.**, and Donnelly, J.D., 2014. Modeling Motu Profile Response to Varying Wave and Storm Climate. Eos Trans. AGU Fall Meet. Suppl., Abstract EP31B-3537.
- Nienhuis, J., **Ashton, A.D.**, Giosan, L., Nardin, W., and Fagherazzi, S., 2014. Sediment Bypassing of River Mouths: Mechanisms and Effects on Delta Evolution. Eos Trans. AGU Fall Meet. Suppl., Abstract EP31B-3532.
- Toomey, M., Perron, J.T., Raymoe, M., and **Ashton, A.D.**, 2014. Miocene to Present Sea Level and the Origin of Modern Rimmed Atoll Morphology. Eos Trans. AGU Fall Meet. Suppl., Abstract PP33B-1230.
- Thomas, C., Murray, A.B., Hurst, M., Barkwith, A., **Ashton, A.D.**, and Ellis, M., 2014. Morphological Inheritance in Sandy Coastline Morphologies Subject to Long-Term Changes in Wave Climate: Surprising Insights from a Coastline Evolution Model. Eos Trans. AGU Fall Meet. Suppl., Abstract EP24A-05.
- Ashton, A.D.**, Ortiz, A.C., Lorenzo Trueba, J., Donnelly, J.P., and Evans, R.L., 2013. Punctuated events and long-term barrier evolution in a rising-sea-level world. Eos Trans. AGU Fall Meet. Suppl., Abstract EP21A-02. Oral Presentation, *Invited*.
- Ashton, A.D.**, Nienhuis, J., Ortiz, A.C., Lorenzo Trueba, J., and Giosan, L., 2013. Left Behind: Effects of marine reworking and sea-level rise on deltas of the 21st century. Eos Trans. AGU Fall Meet. Suppl., Abstract EP33D-06. Oral presentation, *Invited*.
- Lorenzo Trueba, J., **Ashton, A.D.**, and Donnelly, J.P. Exploring a morphodynamic modeling framework for reef island evolution under sea-level rise. Eos Trans. AGU Fall Meet. Suppl., Abstract EP13A-0856.
- Ashton, A.D.**, Lorenzo-Trueba, J., and Ortiz, 2013. Comparing and Contrasting the Response of Coastal Barriers and Carbonate Cays to Sea-level Rise. The 8<sup>th</sup> Symposium on River, Coastal, and Estuarine Morphodynamics, Santander, Spain, June 9-13. Oral presentation.
- Ortiz, A. C., and **Ashton, A.D.**, 2013. A Morphodynamic Explanation for the Shoreface Depth of Closure. The 8<sup>th</sup> Symposium on River, Coastal, and Estuarine Morphodynamics, Santander, Spain, June 9-13. Oral presentation.
- Nienhuis, J.H., **Ashton, A.D.**, and Giosan, L., 2013. Using numerical models to constrain the evolution of the Ebro Delta. The 8<sup>th</sup> Symposium on River, Coastal, and Estuarine Morphodynamics, Santander, Spain, June 9-13. Oral presentation.
- Ells, K., Murray, A.B., **Ashton, A.D.**, 2013. Coupled Headland-Spit Dynamics. The 8<sup>th</sup> Symposium on River, Coastal, and Estuarine Morphodynamics, Santander, Spain. oral presentation.
- Ashton, A.D.**, Nienhuis, J., 2012. On a Neck, On a Spit. Eos Trans. AGU Fall Meet. Suppl., Abstract EP33B-0855.
- Nienhuis, J., **Ashton, A.D.**, Giosan, L., 2012. Quantifying the transition from fluvial- to wave-dominance for river deltas with multiple active channels, Eos Trans. AGU Fall Meet. Suppl., Abstract EP33B-0854.
- Lorenzo-Trueba, J., **Ashton, A.D.**, Jin, D., Hoagland, P., Kite-Powell, H., 2012. Can human activities alter the drowning fate of barrier islands? Eos Trans. AGU Fall Meet. Suppl., Abstract EP23E-0865.
- Ware, M., **Ashton, A.D.**, Hoagland, P., Jin, D., Kite-Powell, H., Lorenzo-Trueba, J., 2012. Modeling the Economics of Beach Nourishment Decisions in Response to Coastal Erosion. Eos Trans. AGU Fall Meet. Suppl., Abstract OS31A-1701.
- Ashton, A.D.**, Ortiz, A., Lane, P., Donnelly, J., 2011. Characteristic Timescales of Shoreface Response to Sea-Level Rise. Eos Trans. AGU Fall Meet. Suppl., Abstract OS43D-05. (Oral Presentation)
- Ashton, A.D.**, Giosan, L., Nienhuis, J., Kettner, A., and Ibanez, C., 2011. Modeling the evolution of wave-dominated deltas: influence of wave angle distribution and sediment supply variation

- on plan-view morphologies, with application to the Ebro Delta, Spain. DeltaNet International Conference, June 6-10, Ebro Delta, Catalonia, Spain.
- Ashton, A.D.**, Giosan, L., Kettner, E., Hutton, E., Ibanez, C., 2011. Influence of wave angle distribution and sediment supply variation on plan-view delta morphology: application to the Ebro Delta, Spain. Geophysical Research Abstracts Vol. 13, EGU2011-5305, 2011, EGU General Assembly 2011. (Oral presentation)
- Ashton, A.D.**, and Ortiz, A., 2011. Overwash controls of basic barrier response to sea-level rise and the potential for transgressive instabilities. Geophysical Research Abstracts Vol. 13, EGU2011-5335, 2011, EGU General Assembly 2011.
- Kettner, A., Xing, F., **Ashton, A.D.**, Hannon, M., Ibañez, Giosan, L., 2011. Unraveling the impact of humans versus climate on the morphological evolution of the Ebro Delta, Spain. Geophysical Research Abstracts, Vol. 13, EGU2011-7081, 2011, EGU General Assembly 2011
- Ashton, A.D.**, Walkden, M., and Dickson, M., 2010. Theoretical equilibrium responses of rocky coasts to changes in the rate of sea level rise. Eos Trans. AGU, 91(26), Ocean Sci. Meet. Suppl., Abstract GO51A-07. (Oral Presentation)
- Ashton, A.D.**, Carruthers, E., Piliouras, A., Taylor, H., 2009. Overwash controls coastal barrier response to sea-level rise, Eos Trans. AGU, 90(52), Abstract EP31C-07. (Oral Presentation)
- Ashton, A.D.**, Walkden, M., and Dickson, M., 2008. non-Bruun shoreline response to sea-level rise: simple models of the dynamic behavior of overwashing barriers and soft rock shores. American Geophysical Union Fall Meeting, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract OS23A-1252.
- Lazarus, E., **Ashton, A.D.**, Murray, A.B., Tebbens, S., Burroughs, S., 2008. Exploring the relationship between large-scale shoreline changes and wave climate. American Geophysical Union Fall Meeting, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract OS23A-1247.
- Ashton, A.D.**, 2008. Barrier response to sea-level rise: complex behaviors arising from a simple geomorphologic model. American Quaternary Association (AMQUA) Biennial Meeting, State College, PA. (Oral presentation)
- Ashton, A.D.**, 2008. Shoreface profile evolution on human timescales: morphodynamic versus morphokinematic approaches. 2008 Ocean Sciences Meeting, Orlando, FL, Meeting Abstracts p. 16. (Oral Presentation)
- Ashton, A.D.** and Giosan, L., 2006. Emergent shoreline behaviors reflected in the depositional history of wave-dominated deltas. American Geophysical Union Fall Meeting, EOS Trans. AGU, 87(52), Fall Meet. Suppl., abstract NG53A-02.
- Ashton A.D.**, Littlewood, R., & Murray, A.B., 2006. Emergent interactions and self-organization in the shape evolution of enclosed water bodies, European Geosciences Union Spring Meeting, Geophysical Research Abstracts, Vol. 8, 08612.
- Slott, J., Murray, A. B., Valvo, L., **Ashton, A.**, 2006. Shoreline response to climate change in a model of large-scale coastal change, European Geosciences Union Spring Meeting, Geophysical Research Abstracts, Vol. 8, 05057.
- Ashton, A.** Murray, B., & Giosan, L., 2005. Wave-Dominated Delta Evolution: New Insights From One-Line Numerical Simulations. American Geophysical Union Fall Meeting, EOS Transactions 86(52), H51D-0400.
- Tebbens, S.F., Murray, A.B., and **Ashton, A.**, 2005, Quantifying coastal change patterns using LIDAR, *Eos Trans. AGU*, Fall Meet. Suppl.
- Slott, J.M., Murray, A.B., Valvo, L., and **Ashton, A.**, 2005, Shoreline responses to climate change and human manipulations in a model of large-scale coastal change, *Eos Trans. AGU*, Fall Meet. Suppl.
- Ashton, A.** Murray, B., 2004. Alongshore coastline instability: wave climate analysis and comparisons to nature. American Geophysical Union Fall Meeting, EOS Transactions 85(45), H41C-0317.
- Ashton, A.** & Murray, A.B, 2004. Self-organized behavior of modeled shoreline shapes. Dynamics Days 2004: 23<sup>rd</sup> Annual Conference on Nonlinear Dynamics and Complex Systems, 0Chapel Hill, NC. (contributed talk)

- Ashton, A.**, List, J.H., Murray, A.B., & Farris, A.S., 2002. Are There Connections Between Erosional Hot Spots and Alongshore Sediment Transport Along the North Carolina Outer Banks? American Geophysical Union Fall Meeting, Eos Trans. AGU, 83(47), Fall Meet. Suppl., Abstract OS52F-09.
- Ashton, A.**, Murray, B., 2001. Responses of simulated and natural shorelines to high-angle waves: Perturbation growth and long-range interactions. American Geophysical Union Fall Meeting, EOS Transactions 82, p. F623.
- Ashton, A.**, Murray, A.B., & McNinch, J., 2000. Modeling large scale coastal morphodynamics. American Geophysical Union Fall Meeting, EOS Trans. AGU 81(48), p. F681. Also presented at Dynamics Days 2001, Chapel Hill, NC.

### Conference/Workshop Presentations

- Ashton, A.D.** Corals, Reefs, Islands, and Sea-Level Rise, 2015. Invited presentation at Workshop: The Role of Oceanographic Processes on the Response of Tropical Coral Reef Ecosystems to Ocean Acidification & Ocean Warming, Academia Sinica, Taiwan, June 29-July 1, 2015.
- Ashton, A.D.**, Murray, A.B., 2015. Workshop on the Coastline Evolution Model (CEM). Community Surface Dynamic Modeling System Meeting 2015: "Models meet data, data meet models," May 26-28, Boulder, CO, 2015.
- Ashton, A.D.**, 2014. The effect of waves on the shape of deltas. Invited presentation at conference: Deltas: Genesis, Dynamics, Modeling and Sustainable Development, 21-25 July, 2014, IEEC "Istomino," Russian Federation.
- Ashton, A.D.**, 2013. Beyond the Bathtub: Modeling the Morphologic Response of Coasts. Invited presentation at Joint Penrose/Chapman Conference: Coastal Processes and Environments Under Sea-Level Rise and Changing Climate: Science to Inform Management, April 14-19, Galveston, USA
- Lorenzo-Trueba, J., **Ashton, A.D.**, 2013. A simple morphodynamic model of coastal barrier response to rising sea level. Invited presentation at Joint Penrose/Chapman Conference: Coastal Processes and Environments Under Sea-Level Rise and Changing Climate: Science to Inform Management, April 14-19, Galveston, USA
- Ashton, A.D.** The nearshore environment: Signal sink? Signal source? Meeting of Young Researchers in Earth Sciences (MYRES) V: The Sedimentary Record of Landscape Dynamics, Aug 8-12, 2012, Salt Lake City, UT. Oral presentation.
- Ashton, A.D.**, Murray, A.B., 2011. Workshop on the Coastline Evolution Model (CEM). Community Surface Dynamic Modeling System Meeting 2011: "Impact of Time and Process Scales", Oct. 28-30, Boulder, CO.
- Ashton, A.D.** et al., Coupling between Coastline and Fluvial Dynamics. Community Surface Dynamic Modeling System Meeting 2010: "Modeling for Environmental Change", Oct. 14-17, San Antonio, TX. (Keynote presentation).
- Ashton, A.D.** et al. Africa Partnership Station: Developing Coastal Research Capabilities in Ghana. ONR Coastal Geosciences Review. June 2-4, 2010, Chicago, IL.
- Ashton, A.** Shoreline Shape Instability: Large-Scale Behavior (and Implications). Invited oral presentation at Workshop on Linear stability analysis in coastal morphodynamics: essential or useless? Barcelona, Spain, January 21-22, 2010. (Invited presentation)
- Ashton, A.**, Beyond the 'Bruun rule': dynamic shoreline responses to sea-level rise. Presented at: PALSEA: Understanding future sea level rise: The challenges of dating past interglacials, Woods Hole Oceanographic Institution, September 21-25 2009. (Morss Presentation and panel discussion)

### Invited Talks:

- Penn State University, Department of Geosciences, 2015  
 Harvard University, Solid Earth Seminar, 2013  
 Boston College, Earth and Environmental Sciences, 2012  
 Institute of Arctic and Alpine Research, Colorado University, 2010



Massachusetts Institute of Technology, Earth, Atmosphere & Planetary Science, 2009  
University of Pennsylvania, Department of Earth and Environmental Science, 2008  
Provincetown Center for Coastal Research, 2008  
Rice University, Department of Earth Sciences, 2007  
Woods Hole Oceanographic Institution, Coastal and Ocean Fluid Dynamics Laboratory (COFDL) Seminar, 2007, 2008, 2010, 2012, 2014  
Tulane University, Department of Earth and Environmental Sciences, 2007  
University of Virginia, Department of Environmental Sciences, 2007  
Woods Hole Oceanographic Institution, Geology and Geophysics Department, Geophysics Seminar, 2007, 2011  
Naval Research Laboratory, Marine Geosciences, Stennis, Mississippi, 2007  
University of Michigan, Department of Geological Sciences, 2007  
University of Texas, Jackson School of Geosciences, 2006  
Woods Hole Oceanographic Institution, Applied Ocean Physics and Engineering Department Seminar, 2006  
Massachusetts Institute of Technology, Department of Civil & Environmental Engineering, Environmental Fluid Mechanics Seminar, 2006  
USGS Woods Hole Field Center, 2006  
Boston University, Department of Earth Sciences, 2006  
Naval Research Laboratory, Washington DC, 2005  
US Army Corps of Engineers Field Research Facility, Duck, North Carolina, 2004

#### **Professional Activities:**

Associate Editor: Journal of Geophysical Research- Earth Surface (appointment 2012-2014).  
Member: Community Surface Dynamics Modeling System (CSDMS): Coastal, Terrestrial, Carbonate, and Marine Working Groups  
Convener: Special Session “The Future of Human-Landscape Systems”, AGU Fall meeting, 2012  
Convener: Special Session “Coastal Geomorphology and Morphodynamics”, AGU Fall meeting, 2006  
Participant and Breakout Scribe: The Past and Future of Nearshore Processes Research: Reflections on the Sallenger Years and New Visions for the Future. Duck, NC, April 20-May 2, 2014.  
Workshop Participant: Best Practices for the Formulation of Localized Sea Level Rise/Coastal Inundation ‘Extremes’ Scenarios in the Pacific Islands– 2nd Technical Workshop. Honolulu, HI, November 6-7, 2013.  
Workshop Participant: Community Surface Dynamics Modeling System Annual Meeting: CSDMS 2.0: Moving Forward. Boulder, Colorado, March 23-25, 2013.  
Workshop Participant: The Art and Science of Reduced-Complexity Modeling in the Environmental Sciences. Boulder, Colorado, 27-29 March, 2013.  
Technical Abstract Review Committee: Coastal Dynamics 2013.  
Deltas breakout facilitator, keynote presentation: Community Surface Dynamic Modeling System Meeting 2010: “Modeling for Environmental Change”, Oct 14-17, San Antonio, TX.  
Co-led ONR-sponsored ‘Coastal Erosion’ workshop as part of the Africa Partnership Station, February 2009, University of Ghana, Accra, Ghana  
Led and helped conduct workshop: “Discussing the Long-term Effects of Human Activities on Barrier Islands”, December 2008, Woods Hole Oceanographic Institution.  
Participant: Meeting of Young Researchers in Earth Sciences (MYRES) V: The Sedimentary Record of Landscape Dynamics, Aug 8-12, 2012, Salt Lake City, UT.  
Participant: Meeting of Young Researchers in Earth Science 2008 (MYRES) III, “Dynamic Interactions of Life and its Landscape, May 2008, Tulane University, New Orleans, LA.  
Participant: NE Airborne Lidar Workshop for the Coastal Zone, USGS Woods Hole Field Center, 2009.  
Participant: NSF-sponsored workshop (hosted by CSDMS), “Community Sedimentary Model for Carbonate Systems”, February 2008, Golden, Colorado.

Participant: National Center for Earth-Surface Dynamics Working Group: Field, Experimental, Modeling and Computational Issues Related to Moving Boundaries in the Environment, Massachusetts Institute of Technology, Cambridge MA, July, 2005; Woods Hole Oceanographic Institution, July, 2008 (local host).  
Participant: USACE workshop on coastal erosion hotspots, Duck, NC. 2002.

**Journal Reviewer:**

Computers & Geoscience  
Continental Shelf Research  
Earth Surface Dynamics  
Earth Surface Processes and Landforms  
Ecological Engineering  
Estuarine, Coastal and Shelf Science  
Geology  
Geophysical Research Letters  
Geomorphology  
GSA Bulletin  
Journal of Coastal Research  
Journal of Geophysical Research- Earth Surface  
Journal of Geophysical Research- Oceans  
Journal of Geophysical Research- Planets  
Marine Geology  
Nonlinear Processes in Geophysics  
Ocean Engineering

**Proposal Reviewer:**

International Ocean Discovery Program  
National Science Foundation:  
    CNH- Dynamics of Coupled Natural and Human Systems  
    EAR-PF- Postdoctoral Fellows  
    FESD- Frontiers in Earth Systems Dynamics  
    GLD- Geomorphology and Land Use Dynamics  
    P2C2- Paleo Perspectives on Climate Change Program  
    SGP- Sedimentary Geology and Paleobiology  
National Environmental Research Council (NERC), United Kingdom  
National Institute for Climate Change Research (NICCR), Department of Energy  
Netherlands Organisation for Scientific Research (NOW)  
    Veni, Vidi, Vici, Council for the Earth and Life sciences (ALW)  
    Building With Nature (BWN), Council for the Earth and Life sciences (ALW)  
Petroleum Research Fund  
Seagrant

**Outreach Activities:**

Expert Peer Reviewer: Massachusetts Coastal Erosion Commission Report, 2015.  
Panel Speaker: Sea Change: An Ocean Conservation Film Series, Wellfleet Harbor Actors Theatre. Hosted by Mass Audubon, Wellfleet Bay Wildlife Sanctuary, January 20, 2013; March 1, 2014.  
Presenter: WHOI Ocean Science Journalism Fellows program, 2013. "Sea-level rise and coastal change."  
Invited Speaker: Waquoit Bay Reserve Coastal Training Program, Rising Waters, Rising Challenges: Sea Level Rise and Implications for the Cape & Islands, February 15, 2012.  
Advisory Panel Reviewer: Pew Charitable Trust Sea-Level Rise Mapping Project, 2011.  
Advisory Reviewer: COMET online science course: The Changing Ocean- Past, Present, & Future, B. The Coast to Come: What to Expect and When, 2010.  
Author: Union of Concerned Scientists Northeast Climate Change Impact Report, 2007.

**Institution Activities:**

Coastal Ocean Institute Advisory Committee, 2008-present  
Geology and Geophysics Department Seminar Series Organizer, 2008-2009  
Geology and Geophysics Department Curriculum Committee, 2010-2011  
Host, Mary Sears Visiting Scholar Selorm Ababio, University of Ghana, 2009

**Cruises/ Fieldwork:**

Marshall Islands, November 3-17, 2015. Cruise to Mili and Jaluit atolls for vibracore collection of sediment cores, land-based trenching and surveying, in situ wave and current measurements, and sediment data collection.

Dongsha Atoll, Taiwan, June 18-25, 2015. Reef and reef flat reconnaissance and in-situ current measurements.

Mana Plain, Kauai, Hawaii, November 2-5, 2013. Field reconnaissance and GPR data collection across the Mana Plain.

Ebro Delta, Spain, June 5-9, 2013. Collection of sediment samples for OSL dating.

Volta Delta, Ghana, November 7-13, 2011. Collection of sediment samples for OSL dating.

Destin, Florida, January 3-13, 2011. Collection of sediment samples of Santa Rosa Island using Geoprobe MC5 system. Also GPR and GPS surveys.

Ghana coast, June 20-July 1, 2010. Reconnaissance survey of entire coast, collection of geomorphic data and sediment samples. Also conducted workshop on development of coastal research capabilities (with Hapke, USGS).

Ebro Delta, Spain, May 2-12, 2010. Investigation of Ebro River delta and floodplain, including GPR surveys and sediment core collection.

Barbados, April 9-16, 2010. High-resolution GPS surveys of coral sample outcrops for sea-level reconstruction (with Bill Thompson).

Destin, Florida, January 13-19, 2010. Reconnaissance and GPR and GPS survey of Santa Rosa Barrier Island.

Martha's Vineyard and Cape Cod. June-August, 2009. Led GPR investigations of barrier architecture and overwash, developing techniques for 3-D sampling.

Martha's Vineyard, July 13-15, 2009. *R.V. Tioga*. Geophysical surveying (CHIRP) and Rossfelder vibracoring of offshore deposits (Chief Scientist for one leg).

Ghana, Feb 19-28, 2009. Reconnaissance GPR investigations of sedimentary coastal landforms along central and western Ghanaian coast.

French Polynesia, January 7-24, 2009. *Robert C. Seamans*. Vibracoring and CHIRP investigations of back-reef environments. Investigations and sediment sampling of reef and back-reef regions.

Martha's Vineyard, June 16-19, 2007. *R.V. Tioga*. Geophysical surveying (EM and CHIRP) and Rossfelder vibracoring of offshore deposits.

Danube Delta, Romania, September 1-14, 2006. Vibracoring, CHIRP surveying, and gravity coring of Danube river floodplain and Danube Delta to locate recent flood deposits and to further develop age models of the Danube Delta formation.

Massachusetts/Rhode Island, summer 2006. Vibracoring and geophysical surveying (CHIRP, GPR) of multiple coastal ponds, lagoons, and marshes.