

Sergio Fagherazzi

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Sergio Fagherazzi

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Education

Doctoral Degree in Hydrodynamics, Ph.D. (February 1999), Department of Environmental, Maritime, Geotechnical, and Hydraulic Engineering, University of Padua (Italy) Title: *Tidal channel networks*. Advisor: A. Rinaldo

Degree in Hydraulic Civil Engineering, B.S. and M.S., (March 1995, Summa cum Laude), University of Padua (Italy) Title : *Dispersion and diffusion of passive contaminants in tidal basins*. Advisors L. D'Alpaos and A. Defina.

Academic Appointments

Associate Professor (July 2012 - present), Department of Earth and Environment, Boston University, Boston MA.

Associate Professor (September 2010 – July 2012), Department of Earth Sciences, Boston University, Boston MA.

Associate (September 2007 – present), Marine Program, Boston University, Boston MA

Associate (January 2007 – present), Center for Computational Science, Boston University, Boston MA

Assistant Professor (January 2007 – September 2010), Department of Earth Sciences, Boston University, Boston MA.

Assistant Professor (August 2002 – December 2006), Department of Geological Sciences, Florida State University, Tallahassee FL.

Associate (August 2002 – December 2006), School of Computational Science, Florida State University, Tallahassee FL.

Associate (March 2004- December 2006), Geophysical Fluid Dynamics Institute, Florida State University, Tallahassee FL.

Postdoctoral Research Associate (April 2001 – August 2002), Department of Environmental Sciences, University of Virginia, Charlottesville VA.

Postdoctoral Research Associate (April 1999 – April 2001), Department of Geological Sciences and School of Computational Science & Information Technology, Florida State University, Tallahassee, FL.

Visiting Positions

Visiting Associate in Geology (January 2014 – April 2014). Division of Geology and Planetary Science, California Institute of Technology.

Research Visiting Scholar, Department IMAGE, University of Padua, May 2011

Visiting Scholar, Department IMAGE, University of Padua, May 2010

Research Fellow (June 1998- November 1998), Department of Earth and Planetary Sciences, University of California, Berkeley, CA.

Fellowships and Awards

Augusto Ghetti Prize for scientific studies on the Venice Lagoon, Italy. Venetian Academy of Arts and Sciences 2014

Editors' Citation for Excellence in Refereeing, Journal of Geophysical Research, American Geophysical Union, 2004

Prof. Aldo Gini Fellowship (April 2000-April 2001) for studies and research abroad, Gini Foundation, Padua, Italy.

Borsa di studio per perfezionamento all'estero (April 1999-April 2000) Fellowship for studies and Research abroad, Università degli Studi di Padova Italy.

Prof. Aldo Gini Fellowship (April 1999 - April 2000) for studies and research abroad, Gini Foundation, Padua, Italy.

Summa Cum Laude distinction University of Padua, Italy, 1995.

Editorial Boards

Advances in Water Resources, Elsevier, Editorial Board 2014 - present

Earth Surface Processes and Landforms, Wiley Pub., Editorial Advisory Board 2008 – present

Special Issue Guest Editor

Torres R., Hopkinson C., Fagherazzi S., and van Proosdij D., (Eds.) Salt Marsh Geomorphology: Physical and Ecological Effects on Landform, Special Issue, *Estuarine, Coastal and shelf Science* Vol. 69, Issue 3-4 Pages 309-437.

Guest Editor

Proceedings of the National Academy of Sciences

International Meetings Organized

AGU Chapman Conference on Salt Marsh Geomorphology: Physical and Ecological Effects on Landform, with R. Torres, D. van Proosdij, and C. Hopkinson, Halifax, Nova Scotia, Canada 9-13 October 2004

Program Committee AGU Chapman Conference Hydrogeomorphic Feedbacks and Sea Level Rise in Tidal Freshwater River Ecosystems, Reston Virginia USA 13-16 November 2012

Professional Activities

Convener (with W Nardin and G. Okin) Session: “Ecogeomorphology: feedbacks between biota and sediment transport at the earth surface”, Fall meeting AGU, San Francisco, 2014

NSF panelist Geomorphology and Land-use Dynamics 2014

Program Committee. AGU Chapman Conference Hydrogeomorphic Feedbacks and Sea Level Rise in Tidal Freshwater River Ecosystems, Reston Virginia USA 13-16 November 2012

Convener (with G Mariotti and E. Istanbulluoglu) Session: “Ecogeomorphology: Footprints on a Landscape”, Fall meeting AGU, San Francisco, 2012

NSF panelist Sustainability Network Research SNR 2012

AGU Fall Meeting 2011 Program Committee for EPSP

NSF Sustainable Energy Pathways Workshop, Minneapolis, Minnesota, October 5-7, 2011

U.S. Department of Energy's Office of Nonproliferation and Verification Research and Development, independent reviewer, Savannah River National Laboratory, 2011.

Convener (with C Palinkas) Session: “Geomorphological and Ecological Processes in Tidal Flats and Wetlands”, Fall meeting AGU, San Francisco, 2010

Executive Committee, Earth and Planetary Surface Processes Focus Group, American Geophysical Union

Member, NSF Community Surface Dynamics Modeling System (CSDMS) Coastal Working Group 2007-present

NSF panelist EAR Geomorphology and Land Use Dynamics 2010

Student Travel Award Committee, Fall Meeting 2010, American Geophysical Union

Reviewer: NSF report from the NRC - Committee on Challenges and Opportunities in Earth Surface Processes

Convener (with M Kirwan; P Barnard), Special Session, “Coastal Geomorphology and Morphodynamics”, Fall meeting AGU, San Francisco, 2008

Chair Session IV – Sediment Transport, AGU Chapman Conference on Physics of Wave-Mud Interaction, Amelia Island, Florida, USA, 17–20 November 2008

Convener (with Zoe Hughes and Britt Argow) Session 141 “Hydrodynamics and Morphodynamics of Marshes and Shallow Coastal Environments” 2008 Ocean Sciences Meeting, Orlando Florida, March 2-7.

Convener (with S. Lanzoni) Session D1.b “Hydrodynamics and morphodynamics of estuarine systems” 32 Congress IAHR, Venice, July 1-6 2007

Convener (with S. Tao), Special Session, “Physical Processes in Salt Marshes and Barrier Islands”, Spring meeting AGU, Washington, 2002

Reviewer for: Science, Nature, Reviews in Geophysics, Geology, Water Resources Research, Geophysical Research Letters, Earth Surface Processes and Landforms, Mechanics Research Communications, Journal of Sedimentary Research, Journal of Geophysical Research, Journal of Hydraulic Engineering ASCE, Journal of Marine Systems, Advances in Water Resources, Revista de la Asociacion Argentina de Sedimentologia, Journal of Engineering Mathematics, Ecological Applications, National Science Foundation, U.S. Civilian Research and Development Foundation, Dutch Technology Foundation STW

Registered Professional Engineer, Venice Province, Italy

Students and Postdoctoral Associates

Supervised Students

Florida State University: Muriel Hannion (MS), Anthony Priestas (MS)

Boston University: Christine Harrington (MA), Giulio Mariotti (PhD), Tammy Viggato (MA), Anthony Priestas (PhD)

International Students: Luca Carniello (PhD, University of Padua, Italy) Andrea D'Alpaos (PhD, University of Padua, Italy) Giorgia Fosser (MS, University of Padua Italy) Riccardo Masetti (MS, University of Bologna, Italy) Carmen Palermo (MS, Polytechnic of Milan, Italy), Alberto Canestrelli (PhD, University of Padua, Italy) Mara Tonelli (PhD, University of Udine, Italy), William Nardin (PhD, University of Rome, Italy), Luca Baticci (MS, Polytechnic of Milan, Italy), Nicoletta Leonardi (MS, University of Pisa, Italy), Daniele La Cecilia (MS University of Trento, Italy), Hongyi Yao (PhD East China Normal University, China)

Undergraduate Honor Thesis

Kendall Valentine (BUMP)

Current Students

Nicoletta Leonardi (PhD, Boston University), William Kearney (PhD, Boston University)

Supervised Postdoctoral Associates

Federico Falcini, Alberto Canestrelli, William Nardin

List of Publications

Edited Books

Fagherazzi S., Marani M., and Blum L.K. (Editors) , *The Ecogeomorphology of Tidal Marshes*, American Geophysical Union Coastal and Estuarine Studies, Washington DC, Volume 59, 266 pages, 2004

Invited Review Papers

Fagherazzi S., Kirwan M.L., Mudd S.M., Guntenspergen G.R., Temmerman S., D'Alpaos A., van de Koppel J., Rybczyk J.M., Reyes E., Craft C., Clough J., (2012). Numerical Models of Salt Marsh Evolution: Ecological and Climatic Factors, *Reviews of Geophysics* 50, 1, doi:10.1029/2011RG000359

Fagherazzi S., Overeem I., Models of Deltaic and Inner Continental Shelf Landform Evolution, *Annual Review of Earth and Planetary Sciences* Vol. 35: 685-715, 2007

Special Issue Guest Editor

Torres R., Hopkinson C., Fagherazzi S., and van Proosdij D., (Eds.) Salt Marsh Geomorphology: Physical and Ecological Effects on Landform, Special Issue, *Estuarine, Coastal and shelf Science* Vol. 69, Issue 3-4 Pages 309-437.

Journals

(* denotes student or postdoc co-author)

Submitted or in preparation:

Ritter A.N. et al Benthic microalgae production in natural and nutrient enriched salt marsh creeks: A landscape-scale assessment"

Mudd S.M. and S. Fagherazzi Salt marsh ecosystems: tidal flow, vegetation, and carbon dynamics, *Ecosystems: A Biogeoscience Approach*; Chapter 16.

Nardin W, S. Locatelli, V. Pasquarella, M.C. Rulli, C.E. Woodcock and S. Fagherazzi, Dynamics of a fringe mangrove forest detected by LANDSAT images in the Mekong delta, Vietnam

Kirwan M.L., S. Fagherazzi, G.R. Guntenspergen, E.E. Skeehan, S. Temmerman, Overestimation of marsh vulnerability to sea level rise

Yao H., N. Leonardi, S. Fagherazzi, Sediment transport in a surface-advected estuarine plume

Leonardi N., A.S. Kolker, and S. Fagherazzi, Tidal Pulses in Delta Tributaries

Vieillard A.M., T. Viggato, S. Fagherazzi, R.W. Fulweiler Spatial variability of nitrogen cycle dynamics and microphytobenthos activity in an intertidal mudflat

Viggato T., S. Fagherazzi, A.M. Vieillard, R.W Fulweiler The effect of evaporation and nutrient enrichment on the erodability of mudflats in a mesotidal estuary

Fagherazzi S., L. Baticci, C.M. Brandon, M.C. Rulli, D.R. Marchant, Bedrock erosion in subglacial channels

Garcia-Garcia et al.; Evolution and Paleochannels of Western Louisiana Shelf

Published:

68. Mariotti G*., K. Valentine*, and S. Fagherazzi (2014), Time-dependent behavior of a placed bed of cohesive sediment subjected to erosion and deposition cycles, *Ocean Dynamics*, DOI 10.1007/s10236-014-0798-2
67. Walters, D., L. J. Moore, O. Duran Vinent, S. Fagherazzi, and G. Mariotti* (2014), Interactions between barrier islands and backbarrier marshes affect island system response to sea level rise: Insights from a coupled model, *J. Geophys. Res. Earth Surf.*, 119, doi:10.1002/2014JF003091.
66. Leonardi N.*, S. Fagherazzi (2014), How waves shape salt marshes, *Geology*, 42(10) 887-890 doi: 10.1130/G35751.1
65. Leonardi N.*, T. Sun, S. Fagherazzi (2014), Modeling tidal bedding in distributary-mouth bars, *Journal of Sedimentary Research*, 84, 499–512, DOI: <http://dx.doi.org/10.2110/jsr.2014.42>
64. Fagherazzi S., G. Mariotti*, A.T. Banks, E.J. Morgan, R.W. Fulweiler (2014), The relationships among hydrodynamics, sediment distribution, and chlorophyll in a mesotidal estuary *Estuarine, Coastal and Shelf Science*, 144, 54-64.
63. Valentine K.*, G. Mariotti* and S. Fagherazzi (2014) Repeated erosion of cohesive sediments with biofilms, *Adv. Geosci.*, 39, 9–14
62. Canestrelli A.*, Nardin W.*, Edmonds D., Fagherazzi S., Slingerland R. (2014) Importance of frictional effects and jet instability on the morphodynamics of river mouth bars and levees *J. Geophys. Res.*, 119, 509–522, doi:10.1002/2013JC009312
61. Canestrelli A.*, S. Lanzoni, and S. Fagherazzi (2014), One-dimensional numerical modeling of the long-term morphodynamic evolution of a tidally-dominated estuary: The Lower Fly River (Papua New Guinea), *Sedimentary Geology*, 301, 107-119, 10.1016/j.sedgeo.2013.06.009.
60. Mariotti G.*, F. Falcini, N. Geleynse, M. Guala, T. Sun and S. Fagherazzi (2013) Sediment eddy diffusivity in meandering turbulent jets: Implications for levee formation at river mouths *J. Geophys. Res.*, 118(3), 1908–1920, doi:10.1002/jgrf.20134
59. Leonardi N.*, Canestrelli A.*, Sun T., and S. Fagherazzi (2013). Effect of tides on mouth bar morphology and hydrodynamics *J. Geophys. Res.*, 118(9) 4169-4183, doi:10.1002/jgrc.20302

58. McGlathery, K.J., M.A. Reidenbach, P. D'Odorico, S. Fagherazzi, M.L. Pace, and J.H. Porter (2013) Nonlinear Dynamics and Alternative Stable States in Shallow Coastal Systems, *Oceanography*, 26(3) 220-231.
57. Mariotti G.* and S. Fagherazzi (2013) A Two-point dynamic model for the coupled evolution of channels and tidal flats, *J. Geophys. Res.* 118(3). 1387-1399
doi:10.1002/jgrf.20070
56. Fagherazzi S., Mariotti G.*, Wiberg P.L., and K.M. MacGlathery (2013) Marsh collapse does not require sea-level rise, *Oceanography*, 26(3) 70-77.
55. Mariotti G.*, S. Fagherazzi, (2013) Wind waves on a mudflat: The influence of fetch and depth on bed shear stresses, *Continental Shelf Research*, 60, Supp. 15, S99-S110 DOI: 10.1016/j.csr.2012.03.001.
54. Nardin W.*, G. Mariotti*, D. A. Edmonds, R. Guercio, and S. Fagherazzi (2013) Growth of river mouth bars in sheltered bays in the presence of frontal waves, *J. Geophys. Res.* 118(2), 872-886, doi:10.1002/jgrf.20057
53. Mariotti G.* and Fagherazzi S. (2013) Critical width of tidal flats triggers marsh collapse in the absence of sea-level rise, *Proceeding of the National Academy of Sciences*, 110(14) 5352-5356 doi:10.1073/pnas.1219600110
52. Fagherazzi S., Wiberg P.L., Temmerman S., Struyf E., Zhao Y. and Raymond P.A. (2013) Fluxes of water, sediments, and biogeochemical compounds in salt marshes *Ecological Processes*, 2:3 doi:10.1186/2192-1709-2-3
51. Mariotti G.* and S. Fagherazzi (2012) Modeling the effect of tides and waves on benthic biofilms, *J. of Geophys. Res.* 117, G04010, doi:10.1029/2012JG002064.
50. Deegan LA, Johnson DS, Warren RS, Peterson BJ, Fleeger JW, Fagherazzi S, Wollheim WM (2012) Coastal eutrophication as a driver of salt marsh loss, *Nature* 490 388-392
49. Fagherazzi S. and G. Mariotti* (2012) Mudflat runnels: Evidence and importance of very shallow flows in intertidal morphodynamics, *Geophys. Res. Lett.*, 39, L14402, doi:10.1029/2012GL052542
48. Nardin W.*, Fagherazzi S. (2012) The effect of wind waves on the development of river mouth bars, *Geophys. Res. Lett.*, 39, L12607, doi:10.1029/2012GL051788
47. Canestrelli A.*, Fagherazzi S., Lanzoni S. (2012) A mass-conservative centered finite volume model for solving two-dimensional two-layer shallow water equations for fluid mud propagation over varying topography and dry areas, *Advances in Water Resources*, Volume 40, Pages 54-70

46. Mariotti G.* and Fagherazzi S. (2012). Channels-tidal flat sediment exchange: The channel spillover mechanism. *J. Geophys. Res.*, 117, C3, doi:10.1029/2011JC007378
45. Fagherazzi S., A.M. Priestas*, (2012). Backbarrier Flooding by Storm Surges and Overland Flow. *Earth Surface Processes and Landforms* 37, 400–410.
44. Falcini F.*, Fagherazzi S., Jerolmack D.J., (2012) Wave-supported sediment gravity flows currents: Effects of fluid-induced pressure gradients and flow width spreading *Continental Shelf Research*, 33, 37-50.
43. Fagherazzi S. Kirwan M.L., Mudd S.M., Guntenspergen G.R., Temmerman S., D'Alpaos A., van de Koppel J., Rybczyk J.M., Reyes E., Craft C., Clough J., (2012). Numerical Models of Salt Marsh Evolution: Ecological and Climatic Factors, *Reviews of Geophysics* 50, 1, doi:10.1029/2011RG000359
42. Perron J.T., S. Fagherazzi (2012) The Legacy of Initial Conditions in Landscape Evolution. *Earth Surface Processes and Landforms*, 37, 52–63
41. Priestas A.M.*, S. Fagherazzi (2011), Morphology and hydrodynamics of wave-cut gullies, *Geomorphology*, Volume 131, Issues 1-2, 1 August 2011, Pages 1-13
40. Mariotti G.*, Fagherazzi S. (2011), Asymmetric fluxes of water and sediments in a mesotidal mudflat channel, *Cont. Shelf Res.* 31 23-36, doi:10.1016/j.csr.2010.10.014
39. Fagherazzi, S., G. Mariotti, J. H. Porter, K. J. McGlathery, and P. L. Wiberg (2010), Wave energy asymmetry in shallow bays, *Geophys. Res. Lett.*, 37, L24601, doi:10.1029/2010GL045254.
38. Canestrelli, A.*, S. Fagherazzi, A. Defina, and S. Lanzoni (2010), Tidal hydrodynamics and erosional power in the Fly River delta, Papua New Guinea, *J. Geophys. Res.*, 115, F04033, doi:10.1029/2009JF001355.
37. Mariotti, G.*, S. Fagherazzi, P. L. Wiberg, K. J. McGlathery, L. Carniello, and A. Defina, Influence of storm surges and sea level on shallow tidal basin erosive processes, *J. Geophys. Res.*, 115, C11012, doi:10.1029/2009JC005892, 2010.
36. Tonelli, M.*, S. Fagherazzi, and M. Petti, Modeling wave impact on salt marsh boundaries, *J. Geophys. Res.*, 115, C09028, doi:10.1029/2009JC006026, 2010.
35. Fagherazzi S., Priestas A.M.*, Sediments and water fluxes in a muddy coastline: interplay between waves and tidal channel hydrodynamics, *Earth Surface Processes and Landforms* 35(3) 284-293, 2010
34. Mariotti, G.*, and S. Fagherazzi, A numerical model for the coupled long-term evolution of salt marshes and tidal flats, *J. Geophys. Res.*, 115, F01004, doi:10.1029/2009JF001326, 2010

33. Priestas A.M.*, Fagherazzi S., Morphological barrier island changes and recovery of dunes after Hurricane Dennis, St. George Island, Florida, *Geomorphology*, 114(4) pp 614-626, 2010.
32. Fagherazzi, S., and P. L. Wiberg, Importance of wind conditions, fetch, and water levels on wave-generated shear stresses in shallow intertidal basins, *J. Geophys. Res.*, 114, F03022, doi:10.1029/2008JF001139, 2009.
31. Fagherazzi S., Self-organization of tidal deltas, *Proceeding of the National Academy of Sciences*, vol. 105 (48): 18692–18695, 2008.
30. Fagherazzi, S., M. Hannion*, and P. D'Odorico, Geomorphic structure of tidal hydrodynamics in salt marsh creeks, *Water Resour. Res.*, 44, W02419, doi:10.1029/2007WR006289, 2008.
29. Masetti* R. , Fagherazzi S., Montanari A. Application of a barrier island translation model to the millennial-scale evolution of Sand key, Florida, *Continental Shelf Res.* 28, 1116-1126, 2008.
28. Fagherazzi S., Du X*. Tsunamigenic incisions produced by the December 2004 earthquake along the coasts of Thailand, Indonesia, and Sri Lanka *Geomorphology* 99, 120-129, 2008.
27. Fagherazzi S, Howard AD, Niedoroda A, Wiberg PL, Controls on fluvial incision of continental shelves, *Computers & Geosciences*, 34(10), 1381-1393, 2008.
26. Defina A., Carniello L.*, Fagherazzi S., and D'Alpaos L., Self organization of shallow basins in tidal flats and salt marshes *J. Geophys. Res.* 112, F03001, doi:10.1029/2006JF000550, 2007.
25. Fagherazzi, S., C. Palermo*, M. C. Rulli, L. Carniello*, and A. Defina, Wind waves in shallow microtidal basins and the dynamic equilibrium of tidal flats, *J. Geophys. Res.*, 112, F02024, doi:10.1029/2006JF000572, 2007.
24. Fagherazzi S., Overeem I., Models of Deltaic and Inner Continental Shelf Landform Evolution, *Annual Review of Earth and Planetary Sciences* Vol. 35: 685-715, 2007
23. Torres R., Fagherazzi S., vanProosdij D., and Hopkinson C., Salt marsh geomorphology: Physical and ecological effects on landform *Estuarine, Coastal and Shelf Science* 69(3-4), 309-310, 2006
22. D'Alpaos A.*, Lanzoni S., Mudd S.M., Fagherazzi S., Modeling the influence of hydroperiod and vegetation on the cross-sectional formation of tidal channels *Estuarine, Coastal and Shelf Science* 69(3-4), 311-324, 2006

21. Fagherazzi S., Carniello L.*, D'Alpaos L., Defina A., Critical bifurcation of shallow microtidal landforms in tidal flats and salt marshes *Proceeding of the National Academy of Sciences*, 103 (22): 8337-8341, 2006
20. Niedoroda A.W., Reed C.W., Das H., Fagherazzi S., Donoghue J.F., and Cattaneo A., Analyses of a large-scale depositional clinof orm along the Italian Adriatic coast, *Marine Geology*, 222-223, 179-192, 2005
19. Carniello L.*, Defina, A., Fagherazzi, S., D'Alpaos, L., A combined wind wave–tidal model for the Venice lagoon, Italy *J. Geophys. Res.*, Vol. 110, No. F4, F04007 10.1029/2004JF000232, 2005
18. Fagherazzi S., Fosser G.*, D'Alpaos L., D'Odorico P., Climatic oscillations influence the flooding of Venice, *Geophys Res. Lett.* 32, 19, L19710 10.1029/2005GL023758, 2005
17. D'Alpaos A.*, Lanzoni S., Marani M., Fagherazzi S., and Rinaldo A., Tidal network ontogeny: Channel initiation and early development, *J. Geophys Res. Earth Surface*, Vol. 110, No. F2, F02001 10.1029/2004JF000182, 2005.
16. D'Odorico, P., Fagherazzi, S., Rigon, R., Potential for landsliding: Dependence on hyetograph characteristics, *J. Geophys. Res.*, Vol. 110, No. F1, F01007 10.1029/2004JF000127, 2005.
15. Fagherazzi, S., Sun, T. A stochastic model for the formation of channel networks in tidal marshes, *Geophys. Res. Lett.*, Vol. 31, No. 21, L21503 10.1029/2004GL020965, 2004
14. Fagherazzi, S.; Howard, A.D.; Wiberg, P.L. Modeling fluvial erosion and deposition on continental shelves during sea level cycles *J. Geophys. Res.*, Vol. 109, No. F3, F03010 10.1029/2003JF000091, 2004.
13. Fagherazzi, S., Gabet, E.J. and Furbish, D.J. The effect of bidirectional flow on tidal planforms, *Earth Surface Processes and Landforms* 29, 295-309, 2004.
12. Fagherazzi, S., Furbish, D.J., Rasetarinera, P. and Hussaini, M.Y. Application of the local discontinuous Galerkin approximation to groundwater flow. *Advances in Water Resources*, 27(2), 129-140, 2004.
11. Fagherazzi, S., Rasetarinera, P., Furbish, D.J. and Hussaini, M.Y. Numerical solution of the dam break problem with a discontinuous Galerkin method. *Journal of Hydraulic Engineering ASCE* 130(6) 532-539, 2004.
10. Fagherazzi S., Sun T., Numerical simulations of transportational cyclic steps *Computers & Geosciences*, 29(9), 1071-1201, 2003.

9. D'Odorico P., Fagherazzi S., A probabilistic model of rainfall-triggered shallow landslides in hollows: A long-term analysis, *Water Resour. Res.*, 39(9), 1262, 10.1029/2002WR001595, 2003.
8. Fagherazzi S., Wiberg P.L., Howard A.D., Tidal flow field in a small basin *J. Geophys. Res.*, 108, C3, 3071, 10.1029/2002JC001340, 2003.
7. Fagherazzi S., Basic flow field in a tidal basin, *Geophysical Res. Lett.*, 29,(8) art. no. 1221, 2002.
6. Fagherazzi S., Howard A.D., Wiberg P.L., An implicit finite-difference method for drainage-basin evolution, *Water Resour. Res.* 38(7) art. no. 1116, 2002.
5. Furbish D.J. and Fagherazzi S., Stability of creeping soil and implications for hillslope evolution, *Water Resour. Res.* 37(10), 2607-2618, 2001.
4. Fagherazzi, S. and Furbish, D. J., On the shape and widening of salt marsh creeks *J. Geophys. Res.*, 106, C1 , 991-1005, 2001.
3. Fagherazzi S., Bortoluzzi A., Dietrich W.E., Adami A., Lanzoni S., Marani M. and Rinaldo A., Tidal networks 1. Automatic network extraction and preliminary scaling features from Digital Elevation Maps, *Water Resour. Res.*, 35(12), 3891-3904, 1999.
2. Rinaldo A., Fagherazzi S., Lanzoni S. Marani M. and Dietrich W.E., Tidal networks 2. Watershed delineation and comparative network morphology, *Water Resour. Res.*, 35(12), 3905-3917, 1999.
1. Rinaldo A., Fagherazzi S., Lanzoni S., Marani M. and Dietrich W.E., Tidal networks 3. Landscape-forming discharges and studies in empirical geomorphic relationships, *Water Resour. Res.*, 35(12), 3919-3929, 1999.

News, Forum, Perspectives

Fagherazzi S. (2014) Coastal processes: Storm-proofing with marshes *Nature Geoscience* 7, 701–702 doi:10.1038/ngeo2262

Fagherazzi S. (2013) The ephemeral life of a salt marsh, *Geology*, 41 943-944, doi: 10.1130/focus082013.1

Priestas A.M., S. Fagherazzi, C.A. Wilson, and D.M. FitzGerald (2012) Rapid wetland expansion during European settlement and its implication for marsh survival under modern sediment delivery rates: COMMENT *Geology*, v. 40, p. e284-e285, doi:10.1130/G32597C.1

Ensign, S. H., G. B. Noe, C. R. Hupp, and S. Fagherazzi (2012), A meeting of the waters: Interdisciplinary challenges and opportunities in tidal rivers, *Eos Trans. AGU*, 93(45), 455, doi:10.1029/2012EO450004.

Fagherazzi S., Torres R., Hopkinson C., and van Proosdij D., Salt Marsh Geomorphology: Physical and Ecological Effects on Landform, *Eos, Transactions, American Geophysical Union*, Vol. 86 N6 pp 57-58, 8 Feb. 2005.

In the News

Il clima della Russia influisce su S.Marco, Italian Newspaper Gazzettino, Page II, Thursday 10/13/2005.

The big picture of marsh loss (News and Views article in *Nature* by Steve Pennings) 2012

Why are our salt marshes falling apart? (Press release by the Marine Biological Laboratory; re-posted on many sites) 2012

Why are coastal salt marshes falling apart? (Press release by the National Science Foundation; re-posted on many sites) 2012

Research shows negative impact of nutrients on coastal ecosystems (Louisiana State U. press release re-posted on many sites) 2012

Fertilizer harming Plum Island salt marsh, study finds (Boston Globe, 18 October 2012)

Scientists solve mystery of disappearing marshes (NPR story on Morning Edition, 18 October 2012)

Nutrient runoff turns useful salt marshes into useless mudflats, long-term study finds [Nashua (NH) Telegraph, 18 October 2012]

Scientists: Fertilizers are killing salt marshes [Newburyport (MA) Daily News, 19 October 2012]

Local study spotlights decay of salt marshes [Gloucester (MA) Times, 22 October 2012]

Mother Earth's 'kidneys' are failing (Cape Cod Times, 23 October 2012)

Marsh basin Dynamics (Editor's choice Science 340 5 April 2013)

Book Chapters

1. Fagherazzi S., FitzGerald D.M., Fulweiler R.W., Hughes Z., Wiberg P.L., McGlathery K.J., Morris J.T., Tolhurst T.J., Deegan L.A., and Johnson D.S. (2013) Ecogeomorphology of Tidal Flats. In: John F. Shroder (ed.) *Treatise on Geomorphology*, Volume 12, pp. 201-220. San Diego: Academic Press.
2. Fagherazzi S., FitzGerald D.M., Fulweiler R.W., Hughes Z., Wiberg P.L., McGlathery K.J., Morris J.T., Tolhurst T.J., Deegan L.A., and Johnson D.S. (2013) Ecogeomorphology of Salt Marshes. In: John F. Shroder (ed.) *Treatise on Geomorphology*, Volume 12, pp. 182-200. San Diego: Academic Press.

3. Fagherazzi S, Marani M., and Blum L.K., Introduction: The coupled evolution of geomorphological and ecosystem structures in salt marshes, in Fagherazzi S, Marani M., and Blum L.K., (Eds.) *The Ecogeomorphology of Salt Marshes*, Estuarine and Coastal Studies Series, American Geophysical Union, Washington D.C., pp. 1-5, 2004.
4. Mudd S.M., Fagherazzi S., Morris J.T., and Furbish D.J., Flow, sedimentation, and biomass production on a vegetated salt marsh in South Carolina: toward a predictive model of marsh morphologic and ecologic evolution, in Fagherazzi S, Marani M., and Blum L.K., (Eds.) *The Ecogeomorphology of Salt Marshes*, Estuarine and Coastal Studies Series, American Geophysical Union, Washington D.C., pp. 165-187, 2004.
5. Fagherazzi S., Lanzoni S., Marani M, e Rinaldo A., Reti a marea, *Atti dell' Istituto Veneto di Scienze Lettere ed Arti*, Tomo CLVII, p 161-230, (in Italian) 1998-1999.

Proceedings (Refereed)

1. Canestrelli A., Fagherazzi S., Defina A. and Lanzoni S., Erosional power and morphodynamic tendencies in the Fly River Delta, Papua New Guinea. Proceedings of the 8th Conference on River, Coastal and Estuarine Morphodynamics, RCEM 2009
2. Fagherazzi S., Carniello L., Defina A., D'Alpaos L., Wind waves in shallow microtidal basins and the transition from tidal flats to salt marshes, IAHR, Venice, July 1-6 2007
3. Carniello L., D'Alpaos L., Defina A., Fagherazzi S., A conceptual model for the long term evolution of tidal flats in the Venice lagoon, 8 pp., 5th IAHR Symposium on river, coastal and estuarine morphodynamics, Enschede, The Netherlands, 17-21 September 2007.
4. D' Alpaos A.*, S. Fagherazzi, & S. Lanzoni, On the cross-sectional evolution of tidal channels, Proceedings of the 4th Conference on River, Coastal and Estuarine Morphodynamics, RCEM 2005 - Parker & Garcia (eds), Taylor and Francis Group, London, pp 617-628. 2006

Proceedings (Non Refereed)

1. Fagherazzi S. Mariotti G.; Sun T., Morphodynamics and Sedimentology of Channels in Tidal Bars and Tidal Flats AAPG-ICE, Milan 23-26 October 2011 7pp (extended abstract)
2. Masetti R. *, Fagherazzi S., and Montanari A., Analisi numerica del processo di evoluzione di un'isola di barriera in ambiente marino (in Italian), *XXX° Convegno di Idraulica e Costruzioni Idrauliche* - IDRA 2006, ROMA 10-15 SETTEMBRE 2006 (13pp. in Italian)
3. Fagherazzi S., Wiberg P.L., and Howard A.D., Modeling barrier island formation and evolution, *Coastal Sediments 2003*, May 18-23 Clearwater Beach, Florida, 9 pp., 2003

4. D'Odorico P., Fagherazzi S., e Rigon R., Frane superficiali e idrologia dei versanti: un possibile metodo di indagine, *Atti del 28 Convegno di Idraulica e Costruzioni Idrauliche*, 8pp (In Italian) Potenza 16-19 settembre 2002

Keynote Presentations

Una, Dieci, Cento Lagune, Cerimonia di conferimento del Premio Augusto Ghetti, Istituto Veneto di Scienze, Lettere e Arti October 9 2014

The Tide Rises, the Tide Falls: Morphodynamics of Lagoons, The 8th Symposium on river, Coastal and Estuarine Morphodynamics, Santander, June 9-13 2013

The Tide Rises, the Tide Falls: Morphodynamics of Lagoons, Gilbert Club 2012, UC Berkeley Saturday, December 8, 2012

Geomorphology of tidal freshwater wetlands: conceptual basis and ecological implications. AGU Chapman Conference Hydrogeomorphic Feedbacks and Sea Level Rise in Tidal Freshwater River Ecosystems, Reston Virginia USA 13-16 November 2012

An Interdisciplinary Framework for Coastal Processes: Risk, Management and Protection, NSF Workshop: Process-Driven Risk Assessment and Sustainable Mitigation Strategies Vanderbilt University, Nashville, Tennessee, September 11-14, 2005.

Invited Colloquia

The tide Rises the Tide Falls: Geomorphology of Intertidal Areas, Earth Observatory of Singapore, Nanyang Technological University, November 2014

Marsh Collapse Does Not Require Sea Level Rise, Earth Observatory of Singapore, Nanyang Technological University, November 2014

Marsh Collapse does not require Sea Level Rise, Coastal & Ocean Fluid Dynamics Laboratory, Woods Hole Oceanographic Institution, May 2014

Marsh Collapse does not require Sea Level Rise, Department of Environmental Science and Engineering, California Institute of Technology, January 2014

Nonlinear dynamics and alternative stable states in shallow bays, department of Geological Sciences, Indiana University, November 2013

The Tide Rises, the Tide Falls: Morphodynamics of Lagoons, Nicholas School of the Environment, Duke University February 2013

The Tide Rises, the Tide Falls: Morphodynamics of Lagoons, Department of Geological Sciences, U North Carolina February 2013

The Tide Rises, the Tide Falls: Morphodynamics of Lagoons, Department of Geography, UC Berkeley January 2013

The coupled morphological and biological evolution of intertidal landscapes, Department of Geosciences, Marine Biological Laboratory, February 2012

The Fly River and related coastal system, Papua New Guinea, Department IMAGE University of Padua, Italy, May 2011

The coupled morphological and biological evolution of intertidal landscapes, Department of Geosciences, University of Massachusetts Amherst, November 2010

The morphological evolution of intertidal landscapes, Department of Civil and Coastal Engineering, University of Florida, October 2010

Erosion of Salt Marsh Boundaries, Department of Earth Sciences, University of New Hampshire, October 2010

Morphodynamics of tidal channels in muddy coastlines, Department IMAGE University of Padua, Italy, May 2010

The coupled morphological and biological evolution of intertidal landscapes, Department of Civil and Environmental Engineering, Louisiana State University, April 2010

Geomorphic Structure of Tidal Hydrodynamics in Salt Marsh Creeks, Coastal & Ocean Fluid Dynamics Laboratory, Woods Hole Oceanographic Institution, June 2009

Drivers and disturbance on coastal landscapes Department of Earth Sciences, Boston University, April 2009

Self-organization of shallow basins in tidal flats and salt marshes, Department of Earth Science, University of California, Santa Barbara April 2009

Coastal Ecogeomorphology Department of Earth Science, University of California, Santa Barbara April 2009

The ecogeomorphology of salt marshes, Department of Biology, Boston University, January 2009

Controls on fluvial incision of continental shelves, Geology & Geophysics, Woods Hole Oceanographic Institution, August 2008

Long-Term Environmental Change at the Virginia Coast Reserve, Department of Environmental Sciences, Parma University, Italy June 2008

Long-Term Environmental Change at the Virginia Coast Reserve, ISMAR-CNR, Venice, Italy, June 2008

Long-Term Environmental Change at the Virginia Coast Reserve, Department IMAGE, University of Padua, Italy, June 2008

Physical and biological drivers of intertidal morphodynamics, Department of Earth and Environmental Science, University of Pennsylvania, April 2008

Self-organization of shallow basins in tidal flats and salt marshes, Ralph M. Parsons Laboratory, Massachusetts Institute of Technology, September 2007

Critical bifurcation of shallow intertidal landscapes in tidal flats and salt marshes, Coastal & Ocean Fluid Dynamics Laboratory, Woods Hole Oceanographic Institution, August 2007

Models of Deltaic and Inner Continental Shelf Landform Evolution, Center for Computational Science, Boston University, March 2007

Critical bifurcation of shallow intertidal landscapes in tidal flats and salt marshes, St. Anthony Falls Laboratory, University of Minnesota, September 2006

Physical and biological Drivers of intertidal morphodynamics, Department of Environmental Sciences, University of Virginia, April 2006

Critical bifurcation of coastal landscapes in tidal flats and salt marshes, Department of geology, University of South Florida, March 2006

Critical bifurcation of coastal landforms in tidal flats and salt marshes, Department of Earth Sciences, Boston University, February 2006

Coupling fluvial incision and coastal processes on continental shelves during sea-level cycles, Department of Earth Sciences, Boston University, February 2006

Critical bifurcation of coastal landscapes in tidal flats and salt marshes, Earth and Ocean Sciences Division Nicholas School, Duke University, February 2006

Physical and Biological Effects on Tidal Channels Morphodynamics, Department of Geological Sciences, Florida State University, February 2005

Physical and Biological Effects on Tidal Channels Morphodynamics, Department of Civil and Environmental Engineering, University of California, Berkeley, February 2005

Geomorphological and Ecological Models for Salt Marsh Evolution Department of Geology, University of Florida, September 2004

Tidal flow field in a small basin Geophysical Fluid Dynamics Institute, Florida State University FL, September 2004

Tidal flow field in a small basin, Dipartimento di Ingegneria Ambientale, Genoa University, Italy, 2003.

An implicit finite-difference method for predicting fluvial erosion of continental shelves during sea level low stands Department of Civil and Environmental Engineering, University of Connecticut, CT, 2003.

Physical Processes in Salt Marshes, Department of Physical Sciences, Virginia Institute of Marine Sciences, Gloucester Point, VA, 2002.

Modeling Fluvial Erosion of Continental Shelves Dipartimento di Ingegneria Idraulica, Ambientale, Infrastrutture viarie, e Rilevamento, Politecnico di Milano, Italy, 2002.

Modeling Fluvial Erosion of Continental Shelves, Department of Geology, University of Delaware, Newark, DE, 2002.

Modeling Fluvial Erosion of Continental Shelves, Department of Geological Sciences, Florida State University, Tallahassee, FL, 2001.

Geomorphology of Salt Marshes Department of Oceanography, Florida State University FL, February 2004

Geomorphology of Salt Marshes Department of Environmental Sciences, University of Virginia, Charlottesville, VA, 2001.

Geomorphology of Salt Marshes Department of Geological Sciences, University of South Carolina, Columbia, SC, 2000.

Geomorphology of Salt Marshes Department of Plants, Soils, and Biometeorology, Utah State University, Logan, UT, 2000.

Geomorphology of Salt Marshes Dipartimento di Ingegneria Civile e Ambientale, Università degli studi Di Trento, Italy, 2000.

Geomorphology of Salt Marshes Department of Geological Sciences, Florida State University, Tallahassee, FL, 2000.

Tidal Networks Department of Civil and Environmental Engineering, University of California, Davis, CA, 1998.

Tidal Networks Department of Geology and Geophysics, University of California, Berkeley, CA, 1998.

Invited Conference Presentations

Mariotti G, Fagherazzi S. Salt marsh loss: drowning or retreat. GSA Annual Meeting in Vancouver, British Columbia 19–22 October 2014

Fagherazzi S. Marsh Collapse does not require sea level rise, 2nd Biennial Conference of the Coastal and Estuarine Research Federation 3-7 November San Diego, 2013

Moore L.J., Duran Vincent O., Walters D., Fagherazzi S., Mariotti G., Young D., Wolner C.V., Biological-Physical Feedbacks Determine Coastal Environmental Response to Climate Change (Invited), American Geophysical Union, Transactions, Fall Meeting, 2012

Fagherazzi, S., Self-organization of tidal deltas (Invited), American Geophysical Union, Transactions, Fall Meeting, 2011

Perron T, Fagherazzi S, The legacy of initial conditions in evolving landscapes, American Geophysical Union, Transactions, Fall Meeting, 2009

Fagherazzi S. Coastal System, Papua New Guinea, NSF-MARGINS Integration and Synthesis of S2S Research, Gisborne, New Zealand, April 5 - 9, 2009

Fagherazzi S., Masetti R.*, Montanari A., A Process Based Numerical Model for the Evolution of a Barrier Island in a Wave Dominated Shelf (Invited) American Geophysical Union, Transactions, Fall Meeting, 2006

Fagherazzi S., Carniello L.*, D'Alpaos L., Defina A., Critical Bifurcation of Shallow Microtidal Landforms in Tidal Flats and Salt Marshes, (Invited) American Geophysical Union, Transactions, Fall Meeting, 2006

Fagherazzi S., Howard A.D., Wiberg P.L., Coupling fluvial incision, delta deposition, and coastal processes on continental shelves during sea-level cycles, (Invited) American Geophysical Union, Transactions, Fall Meeting, 2005

D'Odorico P., and Fagherazzi S., Landslide Frequency in Colluvial Deposits: Hollow Infilling Time Scale and Frequency of Triggering Rainfalls, American Geophysical Union, Transactions, Spring Meeting, (*invited, Surface Water Hydrology and Water Resources Posters*), 2002.

Furbish D.J. and Fagherazzi S., the stability of creeping soil, American Geophysical Union, Transactions, Fall Meeting, (*invited, Fans, Flows, and Glaciers: A Special Session in Honor of roger L. B. Hooke*), 1999.

Conference Presentations and Posters

Fagherazzi S. Cu Lao Dung mangrove studies, ONR Mekong Workshop San Francisco, Marriott Marquis 13-14 Dec 2014

Moore L.J., J. Bruno, O. Duran Vinent, S. Fagherazzi, E.B. Goldstein, T. Jass, R. Lauzon, G. Mariotti, A. B. Murray D. Walters, D. Young, Ecomorphodynamic Feedbacks and Couplings Between Landscape Subsystems Influence Barrier Island Response to Changing Climate, American Geophysical Union, Transactions, Fall Meeting, 2014

S. Fagherazzi, T. Viggato, A.M. Vieillard, R.W Fulweiler, The effect of evaporation and nutrient enrichment on the erodability of mudflats in a mesotidal estuary, American Geophysical Union, Transactions, Fall Meeting, 2014

Lauzon R., L. Moore, A.B. Murray, D. Walters, S. Fagherazzi, G. Mariotti, Marsh edge erosion effects in coupled barrier island-marsh systems, American Geophysical Union, Transactions, Fall Meeting, 2014

Nardin W. Edmonds D. Fagherazzi S. Growth and evolution of river mouth bars under wave attack, American Geophysical Union, Transactions, Fall Meeting, 2014

Leonardi N. Fagherazzi S., Ecogeomorphic Heterogeneity Sculpts Salt Marshes, American Geophysical Union, Transactions, Fall Meeting, 2014

Nienhuis J., Ashton A., Giosan L., Nardin W., S Fagherazzi, Sediment bypassing of river mouths: mechanisms and effects on delta evolution, American Geophysical Union, Transactions, Fall Meeting, 2014

Walters D., L.J. Moore, O. Duran, S. Fagherazzi, G. Mariotti, and M. Kirwan How much is too much: The impact of overwash deposition on backbarrier marsh vegetation. GSA Annual Meeting in Vancouver, British Columbia 19–22 October 2014

Fagherazzi S., Edmonds D.A., Nardin W.*, Leonardi N.*, Canestrelli A.*, Falcini F., Jerolmack D., Mariotti G.*, Rowland J.C., Slingerland R.L., Building land: modelling the dynamics of river mouth deposits, Deltas: Genesis, Dynamics, and Ecology, July 21-24, Istomino Russia, 2014

Fagherazzi S. Feedbacks between intertidal landscape and ecosystems' patchiness, Plum Island Ecosystems LTER Site Review, May 6-7, Parker River National Wildlife Headquarters, Newburyport MA, 2014

Teper S.H.*. R. Murillo*, R. Schosberg*, N. Leonardi*, S. Fagherazzi. Impacts of Hurricane Sandy on Marsh Boundary in Plum Island Sound, MA, Plum Island Ecosystems LTER Site Review, May 6-7, Parker River National Wildlife Headquarters, Newburyport MA, 2014

Margolis S.*. D. Scolaro*, M. Wafapoor*, N. Leonardi*, S. Fagherazzi. Vegetation and Sediment Characteristics Following Hurricane Sandy in Plum Island Sound, MA, Plum Island Ecosystems LTER Site Review, May 6-7, Parker River National Wildlife Headquarters, Newburyport MA, 2014

Fagherazzi S., C.E. Woodcock Feedbacks between vegetation cover, hydrodynamics, and sediment transport in tidally dominated tropical deltas: a remote sensing approach, The Vietnam-United States cooperation program on the Mekong Delta dynamics Can Tho University, College of Environmental and Natural Resources, Vietnam, February 12, 2014.

Fagherazzi S., C.E. Woodcock Feedbacks between vegetation cover, hydrodynamics, and sediment transport in tidally dominated tropical deltas: a remote sensing approach, The cooperative workshop on mangrove studies. Ho Chi Minh City, University of Science, Vietnam, February 14, 2014.

Canestrelli A., W. Nardin, D.A. Edmonds, S. Fagherazzi; R.L. Slingerland. Three dimensional numerical modeling of shallow jets: importance of frictional effects on the morphodynamics of river mouth bars and levees. American Geophysical Union, Transactions, Fall Meeting, 2013

Carr J.A., G. Mariotti; P. Wiberg, S. Fagherazzi, K. McGlathery, How do how internal and external processes affect the behaviors of coupled marsh mudflat systems; infill, stabilize, retreat, or drown? American Geophysical Union, Transactions, Fall Meeting, 2013

Walters D., L.J. Moore, O. Duran; S. Fagherazzi; G. Mariotti, Overwash Deposition Stabilizes Backbarrier Marshes as Sea Level Rises: Insights from Experiments Conducted using a Coupled Barrier Island-Marsh Model. American Geophysical Union, Transactions, Fall Meeting, 2013

Valentine K*, G* Mariotti, and S. Fagherazzi. Cumulative effect of erosive events on the erodability of consolidated mud, 12th International Conference on Cohesive Sediment Transport Processes (INTERCOH) Gainesville, Florida, October 21-24, 2013

Fagherazzi S., Marsh collapse does not require sea-level rise, 22nd Biennial Conference of the Coastal and Estuarine Research Federation 3-7 November San Diego, 2013

Leonardi N*, S Fagherazzi Effect of tides on mouth bar morphology and hydrodynamics, 22nd Biennial Conference of the Coastal and Estuarine Research Federation 3-7 November San Diego, 2013

Johnson D., L. Deegan, S. Warren, B. Peterson, J. Fleeger, S. Fagherazzi, W. Wollheim. Coastal eutrophication as a driver of salt marsh loss, 22nd Biennial Conference of the Coastal and Estuarine Research Federation 3-7 November San Diego, 2013

Spangler J, Woehrle K, Yoshimura K, Zollner S, Fagherazzi S. Salt Marsh Channel Nutrient Enrichment and Erosion. Plum Island Long-term Ecological Research All-Scientists Meeting, March 21, Woods Hole, MA. Poster 2013

Parker K, Pinheiro T, Thistle M, Fagherazzi S An Analysis of the Sedimentary Facies of Plum Island Sound, MA: Evidence of Channel Migration. Plum Island Long-term Ecological Research All-Scientists Meeting, March 21, Woods Hole, MA. Poster 2013

Chudolij D, Haskins S, Jalette K, Sarkis S, Fagherazzi S Dune Morphology and Vegetation on Crane Beach, MA. Plum Island Long-term Ecological Research All-Scientists Meeting, March 21, Woods Hole, MA. Poster 2013

Smith C, Hayward J, Leonardi N, Fagherazzi S Erosion and changing vegetation boundaries in Plum Island Sound, MA. Plum Island Long-term Ecological Research All-Scientists Meeting, March 21, Woods Hole, MA. Poster 2013

Aderhold K, Madan R, Souza P, Fagherazzi S Comparison of Measured and Modeled Erosion in Plum Island Sound, MA. Plum Island Long-term Ecological Research All-Scientists Meeting, March 21, Woods Hole, MA. Poster 2013

Fagherazzi S. Priestas A.M. Overland flow in sand dunes: feedbacks between aeolian and hydrological processes, American Geophysical Union, Transactions, Fall Meeting, 2012

Alberto Canestrelli; Sergio Fagherazzi; Stefano Lanzoni, Numerical modeling of the morphodynamic evolution of long tidally-dominated river estuaries. American Geophysical Union, Transactions, Fall Meeting, 2012

Mariotti G., Falcini F., Geleynse N., Guala M., Sun T., Fagherazzi S. Sediment eddy diffusivity in meandering turbulent jets: implications for levee formation at river mouths. American Geophysical Union, Transactions, Fall Meeting, 2012

Walters D., Moore L.J., Duran Vinent O, Mariotti G, Fagherazzi S. Dynamic interactions and feedbacks between barrier and back-barrier environments, and their role in barrier-marsh co-evolution. American Geophysical Union, Transactions, Fall Meeting, 2012

Walters, D.C., Moore, L.J. Duran Vinent, O., Fagherazzi, S., and Mariotti, G., Modeling dynamic interactions and feedbacks between barrier islands and fringing back-barrier marshes 2012 GSA Annual Meeting in Charlotte 4-7 November 2012

Fagherazzi S., Numerical Models of Salt Marsh Evolution: Ecological, Geomorphic, and Climatic Factors, ECSA 50 Venice, Italy, June 3-7 2012

Forest D, Janaszak M, McLean E, O'Boyle M., Creek erosion and the effects of nutrient enrichment in salt marshes. Plum Island Long-term Ecological Research All-Scientists Meeting, March 29, Woods Hole, MA. Poster 2012

Vieillard A, Viggato T, Luthringer J, Rogener MK, Schweiker R, Tidflat Fertilization: A Study in Biogeomorphology. Plum Island Long-term Ecological Research All-Scientists Meeting, March 29, Woods Hole, MA. Poster 2012

King E, Lauzon R, Law K, Sediment Analysis of the Salt Marsh Edge of Plum Island Sound, MA. Plum Island Long-term Ecological Research All-Scientists Meeting, March 29, Woods Hole, MA. Poster 2012

Stone H, Valentine K, Wylie B, Erosional Patterns of Marsh Boundaries in Plum Island Sound, MA. Plum Island Long-term Ecological Research All-Scientists Meeting, March 29, Woods Hole, MA. Poster 2012

Falcini F., Fagherazzi S., Jerolmack D. Wave-supported sediment gravity flows currents: effects of fluid-induced pressure gradients European Geosciences Union General Assembly, Vienna, Austria, 22 – 27 April 2012

Fagherazzi S. Landforms evolution in a nutrient enriched salt marsh. PIE-LTER all scientists meeting, MBL Woods Hole, MA, March 29 2012

Fagherazzi S. Monitoring coastal erosion with “in situ” high resolution instruments. Workshop on Use of Real-Time Networked Cameras for Monitoring, Modeling and Prediction of Coastal Environmental Processes, UMass Boston, March 23 2012.

Mariotti G.; S. Fagherazzi, Channels-tidal flat sediment exchange: the channel spillover mechanism. American Geophysical Union, Transactions, Fall Meeting, 2011

Canestrelli A.; S. Lanzoni; S. Fagherazzi. Hydrodynamic and Morphodynamic indicators in a long tidal river: the Fly River example. American Geophysical Union, Transactions, Fall Meeting, 2011

Ana Garcia-Garcia; Sergio Fagherazzi; Daniel Orange, Paleochannels and Sediment Characteristics of the Chenier Plain Inner Shelf, Louisiana, American Geophysical Union, Transactions, Fall Meeting, 2011

Fagherazzi S. Mariotti G.; Sun T., 2011. Morphodynamics and Sedimentology of Channels in Tidal Bars and Tidal Flats AAPG-ICE, Milan 23-26 October Poster

Grunin J., Nielsen K., Miñana C., 2011. Correlation between vegetation and sand dune topography at Crane Beach, Massachusetts. Plum Island Long-term Ecological Research All-Scientists Meeting, March 1, Woods Hole, MA. Poster.

Gifford S. and Di Santo V., 2011. Depth and spatial variation of sediment chlorophyll a concentration in the Plum Island Sound estuary. Plum Island Long-term Ecological Research All-Scientists Meeting, March 1, Woods Hole, MA. Poster.

Rosenberg A., Sargent S., 2011. Analysis of Sediment Composition and Density Variation of Tidal Bars in Plum Island Sound Estuary, Massachusetts. Plum Island Long-term Ecological Research All-Scientists Meeting, March 1, Woods Hole, MA. Poster.

Fagherazzi, S., Mariotti G., Bottom Shear Stresses in Runnels Flanking a Mudflat Channel, American Geophysical Union, Transactions, Fall Meeting, 2010

Canestrelli, A., S. Fagherazzi, A. Defina, and S. Lanzoni. Tidal hydrodynamics and erosional power in the Fly River delta, Papua New Guinea, CSDMS Meeting 2010: Modeling for Environmental Change, San Antonio, Texas, October 14-17, 2010

Fagherazzi S.; Modeling the Coupled Evolution of Salt Marshes and Tidal Flats, VCR-LTER Modeling Meeting, Virginia Commonwealth University, November 12, 2010

McLoughlin S.; P. L. Wiberg; K. McGlathery; S. Fagherazzi; G. Mariotti, Mechanisms of erosion along salt marsh edges: the interplay of invertebrates, vegetation, and sediment properties, American Geophysical Union, Transactions, Fall Meeting, 2010

Mariotti G., S. Fagherazzi, P.L. Wiberg, K.J. McGlathery, L. Carniello, A. Defina, Influence of storm surges and sea level on shallow tidal basin erosive processes, American Geophysical Union, Transactions, Fall Meeting, 2010

Morrison A., J. Orlosk, S. Randall, 2010. Correlation between vegetation and sand dune topography at Crane Beach, Massachusetts. Plum Island Long-term Ecological Research All-Scientists Meeting, April 8, Woods Hole, MA. Poster.

Fagherazzi S., Mariotti G., Priestas A, 2010, Intertidal Morphodynamics at The PIE LTER. Plum Island Long-term Ecological Research All-Scientists Meeting, April 8, Woods Hole, MA. Oral Presentation.

A. Cazeault, C. Marmet, B. Tousley, J. Walker, 2010. The Effects of Nutrient Enrichment on Plant Biomass and Soil Geotechnical Properties of Salt Marsh Creeks. Plum Island Long-term Ecological Research All-Scientists Meeting, April 8, Woods Hole, MA. Poster.

K. Tomecek, A. Joshi, and A. Winchester, 2010. Creek erosion in nutrient enriched salt marshes. Plum Island Long-term Ecological Research All-Scientists Meeting, April 8, Woods Hole, MA. Poster.

Hedquist D. Keeney N., 2010, Annual Retreat of Erosional Marsh Boundary in Plum Island Sound MA. Plum Island Long-term Ecological Research All-Scientists Meeting, April 8, Woods Hole, MA. Poster.

Fagherazzi S. 2010 Hydrodynamics and morphodynamics of tidal channels in muddy coastlines, ONR Coastal Geosciences Review Chicago, June 2-4

McLoughlin S, P L Wiberg, K McGlathery, S Fagherazzi, G Mariotti Erosional Processes Along Marsh Edges on the Eastern Shore of Virginia, Ocean Sciences Meeting, Portland 22-26 February 2010

Fagherazzi S, The boundary between salt marshes and tidal flats. VCR-LTER All Scientists Meeting, Oyster VA, January 5-6, 2010

Mariotti G, Fagherazzi S, A numerical model for the coupled long-term evolution of salt marshes and tidal flats, Ocean Sciences Meeting, Portland 22-26 February 2010

Fagherazzi S, Mariotti G, Tidal channel hydrodynamics in mesotidal mudflats, Ocean Sciences Meeting, Portland 22-26 February 2010

Fagherazzi S, Mariotti G, Tidal channels in muddy environments. ONR Tidal Flats Workshop, Boston MA October 28-30 2009

Mariotti G, Fagherazzi S, Tidal flat and tidal channel hydrodynamics: what happens on the edge? ONR Tidal Flats Workshop, Boston MA October 28-30 2009

Gorman C, Iveson A, and Ryan T, Dune topography and vegetation gradients on Crane Beach, Massachusetts. PIE-LTER All Scientists Meeting, Woods Hole MA, March 9-10, 2009 (BU undergraduates poster)

Mariotti G, William R. DeCarvalho, Carey Claire Archer, Adam Shifrin The Effects of Nutrient Enrichment on Erosion of Salt Marsh Creek Beds. PIE-LTER All Scientists Meeting, Woods Hole MA, March 9-10, 2009 (BU undergraduates poster)

Chen H., Raphael Fennimore, and Erin McDougal A Survey of Topography and Wave Patterns along a Marsh Shoreline in Plum Island Sound, MA. PIE-LTER All Scientists Meeting, Woods Hole MA, March 9-10, 2009 (BU undergraduates poster)

Fagherazzi S., Priestas A.M*., Mariotti G.*, Wiberg PL, McGlathery K., Ecogeomorphic models for the Virginia Coastal Reserve, VCR-LTER All Scientists Meeting, Oyster VA, January 7-8, 2009

Fagherazzi S., Priestas A.M*., Tonelli M.*, Mariotti G.*, Modeling Marsh Boundary Evolution, USGS Marsh Modeling Workshop, San Francisco, December 11-12, 2008

Priestas A.M.* and S. Fagherazzi, Non-uniform Salt Marsh Boundary Erosion by Wave Impact in Coastal Louisiana and Virginia: Implications for Salt Marsh Stability, AGU Chapman

Conference on Physics of Wave-Mud Interaction, Amelia Island, Florida, USA 17–20 November 2008

Fagherazzi S., Priestas A.M.*, Sediments and water fluxes in a muddy coastline: interplay between waves and tidal channels. AGU Chapman Conference on Physics of Wave-Mud Interaction, Amelia Island, Florida, USA 17–20 November 2008

Fagherazzi, S., D'odorico, P., Geomorphic Structure of Tidal Hydrodynamics in Salt Marsh Creeks, American Geophysical Union, Transactions, Fall Meeting, 2008

Wiberg, P. Fagherazzi, S., Importance of wind, fetch and water levels on waves and wave-generated shear stresses in a shallow coastal lagoon, American Geophysical Union, Transactions, Fall Meeting, 2008

Harrington, C.M*., Fagherazzi S., Marchant, D. Numerical Modeling of Sub-glacial Bedrock Channels in the Labyrinth, Antarctica, American Geophysical Union, Transactions, Fall Meeting, 2008

Fagherazzi S., Wiberg, P.L., On the distribution of shear stresses in a tidal basin caused by wind waves, 2008 LTER VCR All Scientists Meeting, Oyster Point VA, January 6-10

Fagherazzi S., Hannion M*., D'Odorico P., A Geomorphic Framework for the Estimation of Biogeochemical Fluxes in Tidal Marshes, MYRES2008: Dynamic Interactions of Life and its Landscape, New Orleans, May 20-23, 2008

Fagherazzi S., Wiberg, P.L., On the distribution of shear stresses in a tidal basin caused by wind waves, 2008 LTER VCR All Scientists Meeting, Oyster Point VA, January 6-10

Du, X.*, Fagherazzi, S., Tsunami incisions produced by the December 2004 earthquake along the coasts of Thailand, Indonesia, and Sri Lanka, 2008 Ocean Sciences Meeting Orlando FL March 2-7.

Fagherazzi S., Carniello L.*, Defina A., D'Alpaos L., Wind waves in shallow microtidal basins and the transition from tidal flats to salt marshes, *32 Congress IAHR*, Venice, July 1-6 2007

Fagherazzi S, Howard AD, Niedoroda A, Wiberg PL, Controls on fluvial incision of continental shelves, *AAPG Annual Convention* Long Beach, CA, April 1-4, 2007

Fagherazzi S., Overeem I., Tidal Landforms in the Gulf of Papua: Sediment Transport and Morphology, Margins Workshop San Francisco S2S TEI: Teleconnections Between Source and Sediment Dispersal Systems — Eel River System, N. California, September 17-21, 2006

Defina, A., Carniello, L. *, Fagherazzi, S, D'Alpaos, L., Self Organization of Shallow Basins in Tidal Flats and Salt Marshes, American Geophysical Union, Transactions, Fall Meeting, 2006

Hannion M.*, Fagherazzi S., Velocity Asymmetry in Salt Marsh Channels, AWRA Florida section Meeting, Tallahassee March 17 2006

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Carniello L.*, D'Alpaos L., Defina A., Fagherazzi S., Tidal flat-salt marshes transition in shallow tidal lagoons, *European lagoons and their watersheds: function and biodiversity* Klaipeda, Lithuania, October 4-9, 2005

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Alan W. Niedoroda, Christopher W. Reed, Himangshu Das, Joseph Donoghue, Sergio Fagherazzi, Zheng B. Wang, and Marcel Stive, Numerical Modeling of the Sedimentary Systems of Large-scale Coastal System Tracts, in "Analogue and Numerical Forward Modelling of Sedimentary Systems; from Understanding to Prediction" Utrecht, Netherlands, October 9-11, 2003.

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Alan D. Howard, Sergio Fagherazzi, and Patricia L. Wiberg, Fluvial erosion of continental shelves during sea level low stands, American Geophysical Union, Transactions, Spring Meeting, 2002.

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Fagherazzi S., Furbish D.J., Jobard B., Erlebacher G., Rasetarinera P. and Hussaini M.Y., Application of the Discontinuous Galerkin method to groundwater flow and streamline visualization, American Geophysical Union, Transactions, Fall Meeting, 2000.

Sun T., Fagherazzi S., Parker G. and Furbish J.D., Cyclic Steps: Theory and computer simulations, American Geophysical Union, Transactions, Fall Meeting, 2000.

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Rinaldo A., Fagherazzi S., Lanzoni S. Marani M. and Dietrich W.E., Watershed delineation and comparative network morphology, American Geophysical Union, Transactions, Fall Meeting, 1999.

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Contracts and Grants

20. Impact of hurricane Sandy on the salt marshes of Chincoteague Bay, Virginia, and Barnegat Bay, New Jersey, (Non-Competitive Assistance) USGS, 01/01/14 - 12/31/15 \$ 99,903

19. Ecosystem evolution and sustainability of nutrient enriched coastal saltmarshes, (PI lead institution MBL) NSF, 03/15/14 - 02/28/17 \$ 108,262

18. Feedbacks between vegetation cover, hydrodynamics, and sediment transport in tidally dominated deltas: a remote sensing approach, ONR (PI with Curtis Woodcock) 01/01/14 - 12/31/16 \$ 221,799

17. Long-Term Nonlinear Dynamics of a Coastal Barrier System - VCR LTER VI (CoPI) NSF through U Virginia, 12/01/12 - 11/30/18, \$210,000

16. Evolution of Mouth Bars and Salt Marshes in Deltas: Implications for Sedimentary Deposits and Stratigraphy (PI), PRF, 01/09/2010-01/09/2013 \$100,000

15. Morphodynamics and Sedimentology of Tidal Bars in Deltas and Estuaries (PI) Exxon-Mobil 11/22/2009-11/23/2010 \$199,595

14. Tidal Dynamics and Muddy Substrates: A Comparison Between A Wave Dominated and A Tidal Dominated System (PI) ONR 11/1/09-10/31/2011 \$83,266.

13. Margins Post-Doctoral Fellowship: A Synthesis Model for the Fly River Dispersal System, Papua New Guinea NSF-OCE 4/2/2010-3/31/ 2012 (PI) \$187,509

12. Ebc Collaborative Research: Feedbacks Between Nutrient Enrichment and Intertidal Sediments; Erosion, Stabilization and Landscape Evolution NSF-OCE-EAR (PI with R.W. Fulweiler and D.C. FitzGerald) 09/01/2009-08/31/2012 \$897,134

11. Quantifying the variations of salt marsh area in the intertidal zone produced by climate change (PI with Wiberg, McGlathery U Virginia), DOE-NICCR BU) 10/1/06 09/30/09 \$164,413

10. Predicting the evolution of tidal channels in muddy coastlines (PI) ONR 10/1/06 09/30/09 \$163,472

9. Long-Term Ecological Research On Disturbance, Succession, And Ecosystem State Change At The Virginia Coast Reserve: VCR LTER V, NSF (subcontract BU) 11/1/06-10/31/12 \$119,982
8. Modeling the Morphology and Stratigraphy of the Northwestern Shelf of Florida, The Petroleum Research Fund (PI) 09/01/05 – 08/31/07 (Grant 42633-G8) \$35,000
7. ACS PRF SUMMER RESEARCH FELLOWSHIP Modeling the Morphology and Stratigraphy of the Northwestern Shelf of Florida, (PI with Houser U West Florida) 05/01/2006 09/01/2006 \$8000
6. Small Grant for Exploratory Research: Channel Incisions Produced by Tsunami Waves along the Coasts of Indonesia and Thailand, NSF (PI) 05/01/05 - 04/30/06 \$14,717
5. Collaborative Research: Modeling sediment delivery and related stratigraphy in a tidal dominated delta, the Fly River, Papua New Guinea, SPECIAL FOCUS INITIATIVE: Source-to-Sink Experiment (S2S), NSF, (PI, with Overeem, Peckham (Colorado) 05/01/05-04/30/07 \$69,330
4. Modellazione matematica e fisica di alcuni processi di sedimentazione nella Laguna di Venezia (linea 3.14) “Mathematical modelling of some sedimentation processes in the Venice Lagoon” Italian Agency Co.Ri.La. \$4,000.
3. Predicting Distribution and Properties of Buried Submarine Topography on Continental Shelves, Office of Naval Research 2004-2005 (PI), Budget Number: 2601-563-27-014400 \$23,801
2. Modeling Sedimentary Deposits on the Adriatic Continental Margin, EuroSTRATAFORM (with Niedoroda A., Reed C., Donoghue J., Stive M.) 2003-2004, (PI, subcontract FSU). Budget Number: 132367542 \$20,000
1. Modeling the Development of Tidal Channels in Wetlands, Florida State University FYAP (PI). Budget Number : 20038099 \$12,000