

## Curriculum Vitae

### Jeff Hansen

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## Appointments

- 2013 - Present      Lecturer  
School of Earth and Environment  
University of Western Australia
- 2014 - Present      Adjunct Scientist  
Applied Ocean Physics and Engineering  
Woods Hole Oceanographic Institution
- 2011 - 2013        Postdoctoral Scholar  
Applied Ocean Physics and Engineering  
Woods Hole Oceanographic Institution

## Education

- 2007 - 2011        Ph.D., Earth and Planetary Sciences  
University of California, Santa Cruz
- 2005 - 2007        Master of Science, Applied Geosciences  
San Francisco State University
- 1998 - 2002        Bachelor of Science, Earth Sciences  
University of California, Santa Cruz

## Refereed Publications

1. Buckley, M.L., Lowe, R.J., **Hansen, J.E.**, van Dongeren, A.R., Storlazzi, C.D., 2018-in press. Mechanisms of wave-driven water level variability on reef-fringed coastlines. *Journal of Geophysical Research: Oceans*.
2. Segura, L.E., **Hansen, J.E.**, Lowe, R.J., 2018. Seasonal Shoreline Variability Induced by Subtidal Water Level Fluctuations at Reef-Fringed Beaches. *Journal of Geophysical Research: Earth Surface*.
3. Cuttler, M.V.W., **Hansen, J.E.**, Lowe, R.J., Drost, E.J.F., 2018. Response of a fringing reef coastline to the direct impact of a tropical cyclone. *Limnology and Oceanography Letters* 3, 31-38.
4. Segura, L.E., **Hansen, J.E.**, Lowe, R.J., Symonds, G., Contardo, S., 2018. Shoreline variability at a low-energy beach: Contributions of storms, megacusps and sea-breeze cycles. *Marine Geology* 400, 94-106.

5. **Hansen, J. E.**, B. Raubenheimer, S. Elgar, J. H. List, and T. C. Lippmann (2017), Physical linkages between an offshore canyon and surf zone morphologic change, *Journal of Geophysical Research: Oceans*, 122, 3451–3460
6. Winter, G., Lowe, R.J., Symonds, G., **Hansen, J.E.**, and van Dongeren, A.R., 2017, Standing infragravity waves over an alongshore irregular rocky bathymetry, *Journal of Geophysical Research: Oceans*, 122, 4868–4885.
7. Sharyn M. Hickey, S.M, Phinn, S.R., Callow, N.J., Van Niel, KP., **Hansen, J.E.** and Duarte, C.M., 2017, Is Climate Change Shifting the Poleward Limit of Mangroves? *Estuaries and Coasts*.
8. Buckley, M. L., Lowe, R.J., **Hansen, J.E.**, and Van Dongeren, A. R., 2016, Wave setup over a fringing reef with large bottom roughness. *Journal of Physical Oceanography*, 46, 8, 2317-2333.
9. Buckley, M. L., Lowe, R.J., **Hansen, J.E.**, and Van Dongeren, A. R., 2015, Dynamics of wave setup over a steeply-sloping fringing reef, *Journal of Physical Oceanography*, 45, 12, 3005-3023.
10. Barnard, P.L., Short, A., Harley, M., Splinter, K., Vitousek, S., Turner, I., Allan, J., Banno, M., Bryan, K., Doria, A., **Hansen, J.E.**, Kato, S., Kuriyama, Y., Randall-Goodwin, E., Ruggiero, P., Walker, I., and Heathfield, D., 2015, Coastal vulnerability across the Pacific dominated by El Niño-Southern Oscillation, *Nature Geoscience*, 8(10), 801-807.
11. **Hansen, J.E.**, Raubenheimer, B., List, J.L, Elgar, S., 2015, Modeled alongshore circulation and force balances onshore of a submarine canyon, *Journal of Geophysical Research-Oceans*, 120, 1887-1903.
12. **Hansen, J.E.**, Janssen, T.T., Raubenheimer, B., Shi, F., Barnard, P.L., Jones, I.S., 2014, Observations of surfzone alongshore pressure gradients onshore of an ebb-tidal delta, *Coastal Engineering*, 91, 251-260.
13. Buckley, M., Lowe, R.J. and **Hansen, J.E.**, 2014, Evaluation of nearshore wave models in steep reef environments. *Ocean Dynamics*, 64(6): 847-862.
14. **Hansen, J.E.**, Elias, E., List, J.H., Erikson, L.H., Barnard, P.L., 2013, Tidally influenced alongshore circulation at an inlet-adjacent shoreline, *Continental Shelf Research*, 56, 26-38.
15. **Hansen, J.E.**, Elias, E., Barnard, P.L., 2013, Changes in surfzone morphodynamics driven by multi-decadal contraction of a large ebb-tidal delta, *Marine Geology*, 345, 221-234.
16. Elias, E.P.L., **Hansen, J.E.**, 2013, Understanding processes controlling sediment transports at the mouth of a highly energetic inlet system (San Francisco Bay, CA), *Marine Geology*, 345, 07-220.
17. Barnard, P.L., **Hansen, J.E.**, Erikson, L.H., 2012, Synthesis Study of an Erosion Hot Spot, Ocean Beach, California, *Journal of Coastal Research*, 28, 4, 903-922.
18. Barnard, P.L., Allan, J., **Hansen, J.E.**, Kaminsky, G.M., Ruggiero, P., Doria, A., 2011, The impact of the 2009-10 El Niño Modoki on U.S. West Coast beaches, *Geophysical Research Letters*, 38, L13604, 1-7.

19. Yates, M.L., Guza, R.T., O'Reilly, W.C., **Hansen, J.E.**, Barnard, P.L., 2011, Equilibrium shoreline response of a high wave energy beach, *Journal of Geophysical Research-Oceans*, 116, 1-13.
20. **Hansen, J.E.**, Barnard, P.L., 2010, Sub-weekly to interannual variability of a high-energy shoreline, *Coastal Engineering*, 57, 11-12, 959-972.

### Conference and Professional Publications

1. Rijnsdorp, D. P., **Hansen, J.E.**, and Lowe, R.J. 2017, A phase-resolving wave model to simulate the interactions between waves and wave energy converters, *Proceedings of Coast and Ports 2017*, Cairns, Australia.
2. Risandi, J., **Hansen, J.E.**, and Lowe, R.J. 2017, Wave dynamics withing a reef-fringed pocket beach, *Proceedings of Coast and Ports 2017*, Cairns, Australia.
3. van Rooijen, A., **Hansen, J.E.**, and Lowe, R.J. 2017, Application of XBeach to model erosion of a beach ronted by aquatic vegetation, *Proceedings of Coast and Ports 2017*, Cairns, Australia.
4. **Hansen, J.E.**, 2016, The use of modelling tools to assess local scale inundation and erosion risk. CoastAdapt, *National Climate Change Adaptation Research Facility*, Gold Coast.
5. van Rooijen, A., Lowe, R., Ghisalberti, M., **Hansen, J.E.**, McCall, R. and van Dongeren, A., 2016. Physical and Numerical Modelling of Wave Transformation through a Coastal Canopy. *Proceedings of the 2016 Australasian Fluid Mechanics Conference*, Perth, Western Austraiia.
6. Cuttler, M., Lowe, R., **Hansen, J.**, Falter, J., Pomeroy, A. 2015, Grainsize, composition, and bedform patterns in a fringing reef system, *Proceedings of Coastal Sediments 2015*, World Scientific, San Diego, Ca.
7. **Hansen, J.E.**, Elias, E., List, J.H., and Barnard, P.L. 2011, A numerical model investigation of the formation and persistence of an erosion hotspot, *Proceedings of Coastal Sediments 2011*, World Scientific, Miami, Fl.
8. Barnard, P.L., Hoover, D.J. and **Hansen, J.E.** 2011. Nearshore bathymetric evolution on a high-energy beach during the 2009–10 El Niño winter, *Proceedings of Coastal Sediments 2011*, World Scientific, Miami, Fl.
9. Barnard, P.L., Erikson, L.H., **Hansen, J.E.** 2009, Monitoring and Modeling Shoreline Response Due to Shoreface Nourishment on a High-Energy Coast, *Journal of Coastal Research*, 56, pp. 29-33.
10. **Hansen, J.E.**, Barnard, P.L. 2009, The observed relationship between wave conditions and beach response, Ocean Beach, San Francisco, CA, *Journal of Coastal Research*, 56, pp. 1771-1775.

### Presented Abstracts

1. **Hansen, J.E.**, Cuttler, M.V.W, Rijnsdorp, D.P., 2018, The role of lagoon width in determining coastal impacts from tropical cyclones along reef-fringed coastlines. *Ocean Sciences Meeting*. (Oral)

2. **Hansen, J.E.**, Lowe, R.L, Baldock, T., Turner, I.L., Babanin, A., Hemer, M., and Greenslade, D., 2017. Challenges and advances in predicting waves in the nearshore. *Forum on Operational Oceanography*. (Oral)
3. Segura, L., **Hansen, J.E.**, Lowe, R., Symonds, G. and Contardo, S., 2016. Beach Morphodynamics in Response to Sea-Breeze Cycles in Southwestern Australia. *Eos Trans. AGU, Fall Meet. Suppl.* (Oral)
4. **Hansen, J.E.**, Cuttler, M., Traykovski, P., Lowe, R., Buckley, M., Storlazzi, C. and Rosenberger, K., 2016. Mechanisms of sediment transport to shoreline salients onshore of fringing coral reefs. *Eos Trans. AGU, Fall Meet. Suppl.* (Poster)
5. Buckley, M., Lowe, R., **Hansen, J.E.** and Van Dongeren, A., 2016. Dynamics of wave setup across a steeply-sloping reef with large bottom roughness. *Eos Trans. AGU, Fall Meet. Suppl.* (Oral)
6. Barnard, P.L., Short, A., Harley, M., Splinter, K., Vitousek, S., Turner, I., Allan, J., Banno, M., Bryan, K., Doria, A., **Hansen, J.E.**, Kato, S., Kuriyama, Y., Randall-Goodwin, E., Ruggiero, P., Walker, I., and Heathfield, D., 2016. Recent Pacific Ocean basin coastal response to inter-annual climate variability with implications for future climate change impacts. *Eos Trans. AGU, Fall Meet. Suppl.* (Oral)
7. **Hansen, J.E.**, Raubenheimer, B., Elgar, S., 2014, Surfzone alongshore advective accelerations: observations and modeling. *Eos Trans. AGU, Fall Meet. Suppl.* (Poster)
8. **Hansen, J.E.**, Raubenheimer, B., List, J.H., Elgar, S., 2014, Surfzone morphologic change onshore of a submarine canyon. *Ocean Sciences Meeting*. (Oral)
9. **Hansen, J.E.**, Elias, E. and Barnard, P.L., 2013, Changes in surfzone morphodynamics driven by multi-decadal contraction of a large ebb-tidal delta. *Institute of Australia Geographers conference*.(Oral)
10. **Hansen, J.E.**, Janssen, T.T., Raubenheimer, B., Shi, F., Barnard, P.L., Jones, I.S., 2013, Observations of pressure-gradient dominated alongshore circulation at an exposed ocean beach. *Australian Wind Waves Symposium*. (Oral)
11. **Hansen, J.E.**, Raubenheimer, B., List, J.H., Elgar, S., Guza, R.T., Lippmann, C., 2012, Modeled alongshore circulation and morphologic evolution onshore of a large submarine canyon. *Eos Trans. AGU, Fall Meet. Suppl.* (Poster)
12. **Hansen, J.E.** and Barnard, P.L., 2012, Changes in surf zone morphodynamics driven by multi-decadal contraction of a large ebb-tidal delta. *Eos Trans. AGU, Fall Meet. Suppl.* (Oral, Invited)
13. **Hansen, J.E.**, Janssen, T.T., Jones, I.S., and Barnard, P.L., 2012, Observations of pressure-gradient dominated alongshore circulation at an exposed ocean beach. *Ocean Sciences Meeting*. (Oral)
14. George, D., Erikson, L., Barnard, P., Battalio, B., Elias, E., **Hansen, J.E.**, Sheehan, L. and White, L., 2011. Coastal Processes and Geomorphology along Crissy Beach and Inside San Francisco's Golden Gate. *Eos Trans. AGU, Fall Meet. Suppl.* (Oral)
15. Hanes, D.M., Barnard, P.L., Dallas, K., Elias, E., Erikson, L.H., Eshleman, J., **Hansen, J.E.**, Hsu, T.J. and Shi, F., 2011. Recent scientific advances and their implications for sand

management near San Francisco, California: the influences of the ebb tidal delta, *7th International Symposium on Coastal Engineering and Science of Coastal Sediment Processes*. (Oral)

16. **Hansen, J.E.**, Elias, E., List, J.H., Erikson, L.H. and Barnard, P.L., 2010, Sediment transport processes at Ocean Beach, San Francisco, CA. *Ocean Sciences Meeting*. (Oral)
17. **Hansen, J.E.** and Barnard, P.L., 2010, Sub-weekly to interannual variability of a high-energy shoreline. *Eos Trans. AGU, Fall Meet. Suppl.* (Oral, Invited)
18. Jones, I., Janssen, T., **Hansen, J.E.** and Barnard, P., 2010. Observations of wave-driven surf-zone dynamics on a high-energy beach, Ocean Beach, San Francisco. *Eos Trans. AGU, Fall Meet. Suppl.* (Poster)
19. **Hansen, J.E.** and Barnard, P.L., 2009, A simple model for predicting shoreline position at monthly to multi-year timescales. *Eos Trans. AGU, Fall Meet. Suppl.* (Oral)
20. **Hansen, J.E.** and Barnard, P.L., 2008, The spatial and temporal variability of a high energy beach: Insight gained from over 50 high-resolution sub-aerial surveys. *Eos Trans. AGU, Fall Meet. Suppl.* (Oral)
21. **Hansen, J.E.**, Erikson, L.H., Barnard, P.L., and Eshleman, J.L., 2007, Correlation of sub-aerial beach change with numerical model derived nearshore wave conditions. *Eos Trans. AGU, Fall Meet. Suppl.* (Poster)
22. **Hansen, J.E.**, Barnard, P.L. and Eshleman, J.E., 2006, Quantifying beach response to episodic large wave events, a predictive empirical model, Ocean Beach, San Francisco, California. *Eos Trans. AGU, Fall Meet. Suppl.* (Poster)
23. **Hansen, J.E.**, Ho, T., Li, A., Perez, A., Wong, Y., and Bissell, M., 2006, Variation of the beach profile, Ocean Beach, San Francisco. *Eos Trans. AGU, Fall Meet. Suppl.* (Poster)

### Invited Seminars

1. Observations of pressure-gradient dominated alongshore circulation at an exposed ocean beach. 2011, *Applied Ocean Physics and Engineering*, Woods Hole Oceanographic Institution.
2. High-resolution modeling at Ocean Beach, San Francisco, CA: Implications for regional sediment management. 2010, *US Army Corps of Engineers Coastal Hydraulics Laboratory*, Vicksburg, MS.

### Funding received

1. Christophe Gaudin, Ryan Lowe, Jeff Hansen, Scott Draper, Conleth O'Loughlin, Hugh Wolgamott, Britta Bienen, 2017, Wave Energy Research Centre in Albany, Western Australia, Western Australia Department of Primary Industries and Regional Development.
2. Jeff Hansen, Ryan Lowe, Michael Cuttler, 2017, Peron Naturalist Partnership Regional Coastal Monitoring Program, Peron Naturaliste Partnership.
3. Christophe Gaudin, Ryan Lowe, Jeff Hansen, Conleth O'Loughlin, Yinghui Tian, Mark Cassidy, Ashkan Rafiee, Jonathan Fievez, 2015, From single to multiple wave energy converters: Cost reduction through location and configuration optimization, Australian Renewable Energy Agency.

4. Jeff Hansen, 2015, Morphodynamics of a semi-sheltered lagoon, Shire of Augusta/Margaret River/WA Department of Transport.
5. Ryan Lowe, Jeff Hansen, 2014, Nearshore dynamics of complex coastlines, UWA Research Collaboration Awards.
6. Jeff Hansen, 2014, Quinns Beach and Two Rocks coastal monitoring, City of Wanneroo.
7. Jeff Hansen, Britt Raubenheimer, Steve Elgar, 2013, Beach and surfzone circulation and sediment dynamics, UWA Research Collaboration Awards.
8. Britt Raubenheimer, Jeff Hansen, Steve Elgar, 2013, Alongshore advective acceleration in the surf zone. United States National Science Foundation.
9. Jeff Hansen, 2008, High-resolution shoreline mapping at Ocean Beach, San Francisco, CA. California Department of Boating and Waterways.

### **Editorial activity**

Peer reviewer for: Journal of Geophysical Research, Geophysical Research Letters, Earth Surface Processes and Landforms, Ocean Engineering, Environmental Modeling and Software, Marine Geology, Journal of Coastal Research, Marine Geophysical Research. I am also an assessor for the US National Science Foundation.

### **Student and post-doctoral supervision**

Dirk Rijnsdorp (postdoc, 2016-present)  
Michael Cuttler (postdoc, 2017-present)  
Johan Risandi (PhD, 2016-present)  
Arnold van Rooijen (PhD, 2016-present)  
Sharyn Hickey (PhD, 2016-present, submitted)  
Michael Cuttler (2013-2017, completed)  
Gundula Winter (PhD, 2013-2017, completed)  
Laura Segura (PhD, 2013-2017, completed)  
Mark Buckley (PhD, 2013-2016, completed)  
+5 Honours and Masters students

### **Current Teaching**

- Coastal Environments (Coordinator), a third year undergraduate introductory unit on coastal processes including waves, tides and coastal morphology.
- Coastal and Estuarine Processes (Coordinator), a fourth year (Honours/Masters) unit covering linear wave theory, nearshore currents, sediment transport and estuary mechanics.
- Field Techniques in Marine Science, a third year unit in which students in groups of 10-12 design and conduct a field experiment, analyze the data and prepare a final presentation and report.