

Curriculum Vitae
THOMAS H. C. HERBERS

Date of Birth July 20, 1960

Place of Birth Rotterdam, The Netherlands

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Education Technische Universiteit Delft, The Netherlands
Kandidaats (B.S.), Civil Engineering, 1982
Ingenieurs (M.S.), Hydraulic Engineering, 1984

University of California-Scripps Institution of Oceanography
Ph.D., Oceanography, 1990

Positions NorthWest Research Associates
2015-Present Senior Research Scientist

Naval Postgraduate School
2014-Present Professor Emeritus
2002-2014 Professor
1997-2002 Associate Professor
1993-1997 Assistant Professor

Scripps Institution of Oceanography
1990-1993 Post Graduate Researcher

Graduate Students and Postdoctoral Fellows Advised **M.S. Degree:** 1994 W. S. Dickson (with E. Thornton); 1995 M. C. Burton; 1996 E. J. Hendrickson, D. A. Evangelidis; 1997 C. A. Norheim; 1998 N. R. Russnogle, M. I. Borbash; 1999 N. A. Sarap, R. K. Constantian; 2000 C. V. Tinder; 2001 M. O. Balolong, D. M. Ruth, K. M. Wingart; 2003 T. A. Ray, K. P. Watts; 2004 S. D. Peak; 2005 A. Semedo (with W. Nuss), M. S. Cushmanick, C. Fernandes; 2006 A. Laird, J. Boyd; 2009 L. Trainor, G. Coll; 2010 D. Colbert; 2012 M. Khalid; 2013 S. A. McIntyre, C. Zuniga (with Q. Wang), J. Portell; 2014 J. Oxendine, C. Johnston

Ph.D. Degree: 2001 F. Arduin; 2006 T. T. Janssen (with J. A. Battjes); 2014 D. W. Pearman

Postdoc: R. D. Pierce (1996-1999); T. T. Janssen (2006-2008)

Awards The Carl E. and Jessie W. Menneken Faculty Award for Excellence in Scientific Research (1996)

**Professional Societies/
Boards**

Editor - Journal of Geophysical Research – Oceans (2010-2014)
Associate Editor - Journal of Physical Oceanography (2007-Present)
Editorial Board - Continental Shelf Research (2005-Present)

Current Research

Ocean surface waves, Near-shore and continental shelf processes,
Data analysis methodology

Refereed Journal Publications

1. Holthuijsen, L. H., and T. H. C. Herbers, Statistics of breaking waves observed as whitecaps in the open sea, *J. Phys. Oceanogr.*, **16**(2), 290-297, 1986.
2. Herbers, T. H. C., and R. T. Guza, Estimation of wave radiation stresses from slope array data, *J. Geophys. Res.*, **94**(C2), 2099-2104, 1989.
3. Holthuijsen, L. H., N. Booij, and T. H. C. Herbers, A prediction model for stationary, short-crested waves in shallow water with ambient currents, *Coastal Eng.*, **13**, 23-54, 1989.
4. Herbers, T. H. C., and R. T. Guza, Estimation of directional wave spectra from multicomponent observations, *J. Phys. Oceanogr.*, **20**(11), 1703-1724, 1990.
5. Herbers, T. H. C., and R. T. Guza, Wind-wave nonlinearity observed at the sea floor, Part I: Forced-wave energy, *J. Phys. Oceanogr.*, **21**(12), 1740-1761, 1991.
6. Herbers, T. H. C., R. L. Lowe, and R. T. Guza, Field verification of acoustic Doppler surface gravity wave measurements, *J. Geophys. Res.*, **96**(C9), 17023-17035, 1991.
7. Herbers, T. H. C., and R. T. Guza, Wind-wave nonlinearity observed at the sea floor, Part II: wavenumbers and third-order statistics, *J. Phys. Oceanogr.*, **22**(5), 489-504, 1992.
8. Elgar, S., T. H. C. Herbers, M. Okinaka, J. Oltman-Shay, and R. T. Guza, Observations of infragravity waves, *J. Geophys. Res.*, **97**(C10), 15573-15577, 1992. [Correction *J. Geophys. Res.*, **98**(C1), 991, 1993]
9. Herbers, T. H. C., R. L. Lowe, and R. T. Guza, Field observations of orbital velocities and pressure in weakly nonlinear surface gravity waves, *J. Fluid Mech.*, **245**, 413-435, 1992.
10. Herbers, T. H. C., and R. T. Guza, Comment on "Velocity observations above a rippled bed using laser Doppler velocimetry" by Y. C. Agrawal and D. G. Aubrey, *J. Geophys. Res.*, **98**(C11), 20331-20333, 1993.
11. Herbers, T. H. C., S. Elgar, and R. T. Guza, Infragravity-frequency (0.005-0.05 Hz) motions on the shelf, Part I: Forced waves, *J. Phys. Oceanogr.*, **24**(5), 917-927, 1994.
12. Elgar, S., T. H. C. Herbers, and R. T. Guza, Reflection of ocean surface gravity waves from a natural beach, *J. Phys. Oceanogr.*, **24**(7), 1503-1511, 1994.
13. Herbers, T. H. C., and R. T. Guza, Nonlinear wave interactions and high-frequency seafloor pressure, *J. Geophys. Res.*, **99**(C5), 10035-10048, 1994.

14. Herbers, T. H. C., S. Elgar, R. T. Guza, and W. C. O'Reilly, Infragravity-frequency (0.005-0.05 Hz) motions on the shelf, Part II: Free waves, *J. Phys. Oceanogr.*, **25**(6), 1063-1079, 1995.
15. Elgar, S., T. H. C. Herbers, V. Chandran, and R. T. Guza, Higher-order spectral analysis of nonlinear ocean surface gravity waves, *J. Geophys. Res.*, **100**(C3), 4977-4983, 1995.
16. Dickson, W. S., T. H. C. Herbers, and E. B. Thornton, Wave reflection from breakwater, *J. Waterway, Port, Coastal, and Ocean Eng.*, **121**(5), 262-268, 1995.
17. Herbers, T. H. C., S. Elgar, and R. T. Guza, Generation and propagation of infragravity waves, *J. Geophys. Res.*, **100**(C12), 24863-24872, 1995.
18. O'Reilly, W. C., T. H. C. Herbers, R. J. Seymour, and R. T. Guza, A comparison of directional buoy and fixed platform measurements of pacific swell, *J. Atmos. Oceanic Technology*, **13**(1), 231-238, 1996.
19. Elgar, S., R. T. Guza, B. Raubenheimer, T. H. C. Herbers, and E. L. Gallagher, Spectral evolution of shoaling and breaking waves on a barred beach, *J. Geophys. Res.*, **102**(C7), 15797-15805, 1997.
20. Herbers, T. H. C., and M. C. Burton, Nonlinear shoaling of directionally spread waves on a beach, *J. Geophys. Res.*, **102**(C9), 21101-21114, 1997.
21. Norheim, C. A., T. H. C. Herbers, and S. Elgar, Nonlinear evolution of surface wave spectra on a beach, *J. Phys. Oceanogr.*, **28**(7), 1534-1551, 1998.
22. Feddersen, F., R. T. Guza, S. Elgar, and T. H. C. Herbers, Alongshore momentum balances in the nearshore, *J. Geophys. Res.*, **103**(C8), 15667-15676, 1998.
23. Lippmann, T. C., T. H. C. Herbers, and E. B. Thornton, Gravity and shear wave contributions to nearshore infragravity motions, *J. Phys. Oceanogr.*, **29**(2), 231-239, 1999.
24. Herbers, T. H. C., S. Elgar, and R. T. Guza, Directional spreading of waves in the nearshore, *J. Geophys. Res.*, **104**(C4), 7683-7693, 1999.
25. Lentz, S., R. T. Guza, S. Elgar, F. Feddersen, and T. H. C. Herbers, Momentum balances on the North Carolina inner shelf, *J. Geophys. Res.*, **104**(C8), 18205-18226, 1999.
26. Herbers, T. H. C., N. R. Russnogle, and S. Elgar, Spectral energy balance of breaking waves within the surf zone, *J. Phys. Oceanogr.*, **30**(11), 2723-2737, 2000.
27. Feddersen, F., R. T. Guza, S. Elgar, and T. H. C. Herbers, Velocity moments in alongshore bottom stress parameterizations, *J. Geophys. Res.*, **105**(C4), 8673-8686, 2000.
28. Herbers, T. H. C., E. J. Hendrickson, and W. C. O'Reilly, Propagation of swell across a wide continental shelf, *J. Geophys. Res.*, **105**(C8), 19729-19737, 2000.
29. Elgar, S., R. T. Guza, W. C. O'Reilly, B. Raubenheimer, and T. H. C. Herbers, Wave energy and direction observed near a pier, *J. Waterway, Port, Coastal, and Ocean Eng.*, **127**(1), 2-6, 2001.
30. Ardhuin, F., T. H. C. Herbers, and W. C. O'Reilly, A hybrid Eulerian-Lagrangian model for spectral wave evolution with application to bottom friction on the continental shelf, *J. Phys. Oceanogr.*, **31**(6), 1498-1516, 2001.

31. Lentz, S., M. Carr, and T. H. C. Herbers, Barotropic tides on the North Carolina shelf, *J. Phys. Oceanogr.*, **31**(7), 1843-1859, 2001.
32. Ardhuin, F., and T. H. C. Herbers, Bragg scattering of random surface gravity waves by irregular sea bed topography, *J. Fluid Mech.*, **451**, 1-33, 2002.
33. Herbers, T. H. C., S. Elgar, N. A. Sarap, and R. T. Guza, Nonlinear dispersion of surface gravity waves in shallow water, *J. Phys. Oceanogr.*, **32**(4), 1181-1193, 2002.
34. Noyes, T. J., R. T. Guza, S. Elgar, and T. H. C. Herbers, Comparison of methods for estimating nearshore shear wave variance, *J. Atmos. Oceanic Technology*, **19**(1), 136-143, 2002.
35. Sheremet, A., R. T. Guza, S. Elgar, and T. H. C. Herbers, Observations of nearshore infragravity waves. Part 1: Seaward and shoreward propagating components, *J. Geophys. Res.*, **107**(C8), 10.1029/2001JC000970, 2002.
36. Ardhuin, F., T. G. Drake, and T. H. C. Herbers, Observations of wave-generated vortex ripples on the North Carolina continental shelf, *J. Geophys. Res.*, **107**(C10), 3143, doi:10.1029/2001JC000986, 2002.
37. Herbers, T. H. C., M. Orzech, S. Elgar, and R. T. Guza, Shoaling transformation of wave frequency-directional spectra, *J. Geophys. Res.*, **108**(C1), 3013, doi:10.1029/2001JC001304, 2003.
38. Elgar, S., B. Raubenheimer, and T. H. C. Herbers, Bragg reflection of ocean waves from sandbars, *Geophys. Res. Lett.*, **30**(1), 1016, doi:10.1029/2002GL016351, 2003.
39. Ardhuin, F., W. C. O'Reilly, T. H. C. Herbers, and P. F. Jessen, Swell transformation across the continental shelf. Part I. Attenuation and directional broadening, *J. Phys. Oceanogr.*, **33**(9), 1921-1939, 2003.
40. Ardhuin, F., T. H. C. Herbers, P. F. Jessen, and W. C. O'Reilly, Swell transformation across the continental shelf. Part II. Validation of a spectral energy balance equation, *J. Phys. Oceanogr.*, **33**(9), 1940-1953, 2003.
41. Noyes, T. J., R. T. Guza, S. Elgar, and T. H. C. Herbers, Field observations of shear waves in the surf zone, *J. Geophys. Res.*, **109**, C01031, doi:10.1029/2002JC001761, 2004.
42. Ardhuin, F., and T. H. C. Herbers, Numerical and physical diffusion: Can wave prediction models resolve directional spread? *J. Atmos. Oceanic Technology*, **22**(7), 886-895, 2005.
43. Sheremet, A., R. T. Guza, and T. H. C. Herbers, A new estimator for directional properties of nearshore waves, *J. Geophys. Res.*, **110**, C01001, doi:10.1029/2003JC002236, 2005.
44. Sun, J., S. P. Burns, D. Vandemark, M. A. Donelan, L. Mahrt, T. L. Crawford, T. H. C. Herbers, G. H. Crescenti, and J. R. French, Measurement of directional wave spectra using aircraft laser altimeters, *J. Atmos. Oceanic Technology*, **22**(7), 869-885, 2005.
45. Noyes, T. J., R. T. Guza, F. Feddersen, S. Elgar, and T. H. C. Herbers, Model-data comparisons of shear waves in the nearshore, *J. Geophys. Res.*, **110**, C05019, doi:10.1029/2004JC002541, 2005.

46. Thomson, J., S. Elgar, and T. H. C. Herbers, Reflection and tunneling of ocean waves observed at a submarine canyon, *Geophys. Res. Lett.*, **32**, L10602, doi:10.1029/2005GL022834, 2005.
47. Magne, R., F. Ardhuin, V. Rey, and T. H. C. Herbers, Topographical scattering of waves: Spectral approach, *J. Waterway, Port, Coastal, and Ocean Eng.*, **131**(6), 311-320, 2005.
48. Thomson, J., S. Elgar, B. Raubenheimer, T. H. C. Herbers, and R. T. Guza, Tidal modulation of infragravity waves via nonlinear energy losses in the surfzone, *Geophys. Res. Lett.*, **33**, L05601, doi:10.1029/2005GL025514, 2006.
49. Henderson, S. M., R. T. Guza, S. Elgar, and T. H. C. Herbers, Refraction of surface gravity waves by shear waves, *J. Phys. Oceanogr.*, **36**(4), 629-635, 2006.
50. Janssen T. T., T. H. C. Herbers, and J. A. Battjes, Generalized evolution equations for nonlinear surface gravity waves over two-dimensional topography, *J. Fluid Mech.*, **552**, 393-418, 2006.
51. Henderson, S. M., R. T. Guza, S. Elgar, T. H. C. Herbers, and A. J. Bowen, Nonlinear generation and loss of infragravity wave energy, *J. Geophys. Res.*, **111**, C12007, doi:10.1029/2006JC003539, 2006.
52. Magne, R., K. A. Belibassakis, T. H. C. Herbers, F. Ardhuin, W. C. O'Reilly, and V. Rey, Evolution of surface gravity waves over a submarine canyon, *J. Geophys. Res.*, **112**, C01002, doi:10.1029/2005JC003035, 2007.
53. Ardhuin, F., T. H. C. Herbers, G. Ph. van Vledder, K. P. Watts, R. Jensen, and H. C. Graber, Swell and slanting-fetch effects on wind wave growth, *J. Phys. Oceanogr.*, **37**(4), 908-931, 2007.
54. Thomson, J., S. Elgar, T. H. C. Herbers, B. Raubenheimer, and R. T. Guza, Refraction and reflection of infragravity waves near submarine canyons, *J. Geophys. Res.*, **112**, C10009, doi:10.1029/2007JC004227, 2007.
55. The WISE Group, Wave modelling – The state of the art, *Progress in Oceanography*, **75**(4), 603-674, 2007.
56. Janssen T. T., T. H. C. Herbers, and J. A. Battjes, Evolution of ocean wave statistics in shallow water: Refraction and diffraction over seafloor topography, *J. Geophys. Res.*, **113**, C03024, doi:10.1029/2007JC004410, 2008.
57. Janssen T. T. and T. H. C. Herbers, Nonlinear wave statistics in a focal zone, *J. Phys. Oceanogr.*, **39**(8), 1948-1964, 2009.
58. Herbers, T. H. C., and S. J. Lentz, Observing directional properties of ocean swell with an Acoustic Doppler Current Profiler (ADCP), *J. Atmos. Oceanic Technology*, **27**(1), 210-225, 2010.
59. Herbers, T. H. C., P. F. Jessen, T. T. Janssen, D. B. Colbert, and J. H. MacMahan, Observing ocean surface waves with GPS-tracked buoys, *J. Atmos. Oceanic Technology*, **29**(7), 944-959, 2012.
60. Engelstad, A., T. Janssen, T. H. C. Herbers, G. van Vledder, S. Elgar, B. Raubenheimer, L. Trainor, and A. Garcia-Garcia, Wave evolution across the Louisiana shelf, *Cont. Shelf Res.*, **52**, 190-202, 2013.
61. Ardhuin, F. and T. H. C. Herbers, Noise generation in the solid Earth, oceans, and atmosphere, from nonlinear interacting surface gravity waves in finite depth, *J. Fluid Mech.*, **716**, 316-348, 2013.

62. Pearman, D. W., T. H. C. Herbers, T. T. Janssen, H. D. van Ettinger, S. A. McIntyre, and P. F. Jessen, Drifter observations of the effects of shoals and tidal-currents on wave evolution in San Francisco Bight, *Cont. Shelf Res.*, **91**, 109-119, 2014.
63. Lund, B., C. O. Collins, H. C. Graber, E. Terrill, and T. H. C. Herbers, Marine radar ocean wave retrieval's dependency on range and azimuth, *Ocean Dynamics*, **64**(7), 999-1018, 2014.
64. de Bakker, A. T. M., T. H. C. Herbers, P. B. Smit, M. F. S. Tissier, and B. G. Ruessink, Nonlinear infragravity-wave interactions on a gently sloping laboratory beach, *J. Phys. Oceanogr.*, **45**(2), 589-605, doi:10.1175/JPO-D-14-0186.1, 2015.
65. Smit, P. B., T. T. Janssen, and T. H. C. Herbers, Stochastic modeling of coherent wave fields over variable depth, *J. Phys. Oceanogr.*, **45**(4), 1139–1154, doi: <http://dx.doi.org/10.1175/JPO-D-14-0219.1>, 2015.
66. Smit, P. B., T. T. Janssen, and T. H. C. Herbers, Stochastic modeling of inhomogeneous ocean waves, *Ocean Modelling*, **96**(1), 26-35, <http://doi.org/10.1016/j.ocemod.2015.06.009>, 2015.
67. Herbers, T. H. C. and T. T. Janssen, Lagrangian surface wave motion and Stokes drift fluctuations, *J. Phys. Oceanogr.*, **46**(4), 1009–1021, <http://dx.doi.org/10.1175/JPO-D-15-0129.1>, 2016.
68. Smit, P. B., T. T. Janssen, and T. H. C. Herbers, Nonlinear wave kinematics near the ocean surface, *J. Phys. Oceanogr.*, **47**(7), 1657–1673, doi: <http://dx.doi.org/10.1175/JPO-D-16-0281.1>, 2017.