**STEPHAN D. HOWDEN**

Professor, School of Ocean Science and Engineering
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## EDUCATION

Ph.D., Oceanography 1996, University of Rhode Island — Kingston, RI
Dissertation: Processes Associated with Steep Meander Development in the Gulf Stream.
Advisor: D. Randolph Watts
M.S., Physics 1989, Michigan State University — East Lansing, MI
B.S., Physics 1986, State University of N.Y. at Buffalo — Buffalo, NY

## PROFESSIONAL EXPERIENCE

The University of Southern Mississippi — Hattiesburg, MS
Professor — 08/2019-present
Associate Professor — 08/2006-present
Assistant Professor — 08/2000-08/2006
Division of Marine Science

University of Maryland — College Park, MD
Research Associate Scientist — 02/1999- 07/2000
Earth Science Interdisciplinary Center

Anne Arundel Community College — Arnold, MD
Instructor — 01/1999-05/1999

Raytheon ITSS — Greenbelt, MD
Senior Scientist — 06/1998-02/1999

Universities Space Research Association — Greenbelt, MD
Visiting Fellow, USRA Goddard Visiting Scientist Program — 06/1996-06/1998

University of Rhode Island — Kingston, RI
Graduate Research Assistant — 01/1990-05/1996

Michigan State University — East Lansing, MI
Graduate Research Assistant — 06/1987-12/1989
Graduate Teaching Assistant — 09/1986-06/1987

## SCHOLARSHIP

Books & Book Chapters

Kobara, S., C. Simoniello, R. Mullins-Perry, A. E. Jochens, M. K. Howard, S. M. Watson, and S. Howden. (2015). Near Real-Time Oceanic Glider Missions, in Ocean Solutions Earth Solutions, 315-336, ESRI Press, Redlands, CA.

Glonthier, P.L., Lenters, J.D., Vonk, M.T., Bleitz, D., Koppenol, T., Cebra, D.A., Koenig, Z.M., Wilson, K., Fox, D., Howden, S., Nadasen, A., Vander Molen, A., Winfield, J.S., &

Westfall, G.D. Bauer, W., & Back, B. (Eds.). (1992). Projectile breakup at 35 and 50 MeV/nucleon. United States: World Scientific Publishing Co Pte Ltd.

Westfall, G.D., D.A. Cebra, J. Clayton, P. Danielewizc, S. Howden, J. Karn, C.A. Ogilvie, A. Nadasen, A. Vander Molen, W.K. Wilson and J.S. Winfield (1989). 4π Fragment Measurements at MSU and the Nuclear Equation of State, in The Nuclear Equation of State, p. 97-113, Springer, US, doi: 10.1007/978-1-4613-0583-5_7

Peer refereed articles

Arbic, B. K., Adjetey, J., Agyekumhene, A., Akinwunmi, M. F., Akita, L. G., Anderson, L., ... & Vagenas, G. (2025). The Coastal Ocean Environment Summer School in Nigeria and Ghana. Oceanography, 38(1), 40-45.

Oviedo-Prada, K., Muñoz-Perez, J. J., Escobar-Olaya, G., Osorio-Granada, A. M., Howden, S., Torrecillas-Lozano, C., ... & Jigena-Antelo, B. (2024). Results of high-resolution technologies applied in the acquisition of seafloor information in the Colombian Caribbean Sea. Geocarto International, 39(1), 2321365.

Jigena-Antelo, B., Estrada-Ludeña, C., Howden, S., Rey, W., Paz-Acosta, J., Lopez-García, P., ... & Muñoz-Pérez, J. J. (2023). Evidence of sea level rise at the Peruvian coast (1942–2019). Science of the Total Environment, 859, 160082.

Oguntuase, J. O., Howden, S. D., & Nwankwo, U. (2023). Affordable GNSS PPP Results as Constraints for Pressure Time Series Offshore. FIG Peer Review Journal, ISSN No 2412-916X. https://www.fig.net/resources/publications/prj/showpeerreviewpaper.asp?pubid=11890.

Nwankwo, U., Howden, S., Nechaev, D., & Dzwonkowski, B. (2023). Subinertial sea surface heights anomalies estimated using high frequency radar surface current data in the Mississippi bight. Journal of Geophysical Research: Oceans, 128(3), e2022JC019055.

Savoie, A. M., Moody, A., Gilbert, M., Dillon, K. S., Howden, S. D., Shiller, A. M., & Hayes, C. T. (2022). Impact of local rivers on coastal acidification. Limnology and Oceanography, 67(12), 2779-2795.

Nwankwo, U. C., Howden, S., Wells, D., & Connon, B. (2021). Validation of VDatum in Southeastern Louisiana and Western Coastal Mississippi. Marine Geodesy, 44(1), 1-25.

Sutton, A. J., R. A. Feely, S. Maenner-Jones, S. Musielwicz, J. Osborne, C. D., N. Monacci, J. Cross, R. Bott, A. Kozyr, A. J. Andersson, N. R. Bates, W.-J. Cai, M. F. Cronin, E. H. De Carlo, Bu. Hales, S. D. Howden, C. M. Lee, D. P. Manzello, M. J. McPhaden, M. Meléndez, J. A. Newton, S. E. Noakes, J. H. Noh, S. R. Olafsdottir, J. E. Salisbury, U. Send, T. W. Trull, D. C. Vandemark, R. A. Weller (2018), Autonomous seawater pCO2 and pH time series from 40 surface buoys and the emergence of anthropogenic trends, *Earth System Science Data, 11(1), 421-439.*

Ho, P., M.-J. Shim, S. Howden and A. Shiller (2018), Temporal and spatial distributions of trace elements (Ba, Cs, Cr, Fe, Mn, Mo, U, V and Re) in Mississippi coastal waters: influence of hypoxia, submarine groundwater, and episodic events in a river-dominated system, *Submitted* to Continental Shelf Research, June 21, 2018.

Lohrenz, S.E., Cai, W.J., Chakraborty, S., Huang, W.J., Guo, X., He, R., Xue, Z., Fennel, K., Howden, S. and Tian, H., 2018. Satellite estimation of coastal pCO 2 and air-sea flux of carbon dioxide in the northern Gulf of Mexico. Remote Sensing of Environment, 207, 71-83, https://doi.org/10.1016/j.rse.2017.12.039

Inia M. Soto, Mustafa Kemal Cambazoglu, Adam D. Boyette, Kristina Broussard, Drew Sheehan, Stephan D. Howden, Alan M. Shiller, Brian Dzwonkowski, Laura Hode, Patrick J.

Fitzpatrick, Robert A. Arnone, Paul F. Mickle, Kimberly Cressman, Advection of Karenia brevis blooms from the Florida Panhandle towards Mississippi coastal waters, Harmful Algae, Volume 72, 2018, Pages 46-64, ISSN 1568-9883, https://doi.org/10.1016/j.hal.2017.12.008.

Greer, A.T., A.M. Shiller, E.E. Hofmann, J.D. Wiggert, S.J. Warner, S.M. Parra, C. Pan, J.W. Book, D. Joung, S. Dykstra, J.W. Krause, B. Dzwonkowski, I.M. Soto, M.K. Cambazoglu, A.L. Deary, C. Briseño-Avena, A.D. Boyette, J.A. Kastler, V. Sanial, L. Hode, U. Nwankwo, L.M. Chiaverano, S.J. O'Brien, P.J. Fitzpatrick, Y.H. Lau, M.S. Dinniman, K.M. Martin, P. Ho, A.K. Mojzis, S.D. Howden, F.J. Hernandez, I. Church, T.N. Miles, S. Sponaugle, J.N. Moum, R.A. Arnone, R.K. Cowen, G.A. Jacobs, O. Schofield, and W.M. Graham. 2018. Functioning of coastal river-dominated ecosystems and implications for oil spill response: From observations to mechanisms and models. Oceanography 31(3), https://doi.org/10.5670/oceanog.2018.302

Dzwonkowski, B. A. Greer, C. Briseno-Abeno, J. Krause, I. Sato Ramos, F. Hernandez, J. Wiggert, D.J. Joung, P. Fitzpatrick, S. O'Brien, S. Dykstra, Y. Lau, M. Cambazoglu, G. Lockridge, S. Howden, A. Shiller, W. M. Graham (2017), Estuarine influence on biogeochemical properties of the Alabama shelf during the fall season, Cont. Shelf Res., 140, 96-109.

Cambazoglu, M. K., I. M. Soto, S. D. Howden, B. Dzwonkowski, P. J. Fitzpatrick, R. A. Arnone, G. A. Jacobs, Y. H. Lau (2017), Inflow of shelf waters into the Mississippi Sound and Mobile Bay estuaries in October 2015, J. Appl. Remote Sens. 11 (3), 032410, doi: 10.1117/1.JRS.11.032410.

Gough, M. K., A. J. H. M. Reniers, J. H. MacMahan, and S. D. Howden (2016), Resonant near-surface inertial oscillations in the northeastern Gulf of Mexico, J. Geophys. Res. Oceans, 121, doi:10.1002/2015JC011372.

Kil, B., J. D. Wiggert, S. D. Howden (2104), Evidence that an optical tail in the Gulf of Mexico after Tropical Storm Isaac was the result of offshore advection of coastal water. J. Mar. Tech. Soc., 48(4), 27-35.

Carmichael, R. H., W. M. Graham, G. Worthy, S. Howden. (2012). Were Multiple Stressors a 'Perfect Storm' for Northern Gulf of Mexico Bottlenose Dolphins (Tursiops truncates) in 2011? PLoS ONE 7(7): e41155. doi:10.1371/journal.pone.0041155.

Harlan, J., E. Terrill, L. Hazard, C. Keen, D. Barrick, C. Whelan, S. Howden and J. Kohut (2010). The Integrated Ocean Observing System High-Frequency Radar Network: Status and Local, Regional, and National Applications, Marine Technology Journal, 44, pp 122-132.

Bender, L.C. III, N. L. Guinasso Jr., J. N. Walpert, S. D. Howden (2010): Comparison of Methods for Determining Significant Wave Heights—Applied to a 3-m Discus Buoy during Hurricane Katrina, Journal of Atmospheric and Oceanic Technology, Volume 27, Issue 6 (June 2010) pp. 1012-1028 doi: 10.1175/2010JTECHO724.1.

Howden, S. D., D. Gilhousen, N. Guinasso, J. Walpert, M. Sturgeon and Les Bender (2007): Hurricane Katrina winds measured by a buoy mounted sonic anemometer. J. Atmos. and Oceanic Tech, 25,(4), pp. 607-616.

Bisnath, S., D. Wells, S. Howden, D. Dodd, D. Wiesenburg and G. Stone, Development of an operational RTK GPS-Equipped Buoy for Tidal Datum Determination. The International Hydrographic Review. 5 (1), 2004.

Bingham, F. M., S. D. Howden and C. J. Koblinsky, 2002. Sea surface salinity measurements in the historical database, J. Geophys. Res., 107, C12, 8012, doi:10.1029/2000JC000767, 2002.

Howden, S.D. and R. Murtugudde, Effects of River Inputs into the Bay of Bengal, J. Geophys, Res., 106, 19825-19843, 2001.

Wang, L.P., C.J. Koblinsky, and S. Howden, Annual Rossby wave in the southern Indian Ocean: Why does it "appear" to break down in the middle ocean?, J. Phys. Oceanogr., 31, 54-74, 2001.

Kim, H-S., C. Flagg, and S.D. Howden, Northern Arabian Sea variability from TOPEX/Poseidon altimetry data: an extension of the US JGOFS shipboard ADCP study, Deep Sea Res., Pt II, 48, 1069-1096, 2001.

Howden, S.D., The three-dimensional secondary circulation in developing Gulf Stream Meanders, J. of Phys. Oceanog., 30, 5, 888-915, 2000.

Wang, L., C.J. Koblinsky, and S.D. Howden, Mesoscale variability in the South China Sea from the TOPEX/Poseidon altimetry data. Deep Sea Res. Pt I 47, (4), 681-708, 2000.

Wang, L.P, Y. Chao, C. Koblinsky, and S. Howden, Influence of lateral boundaries on mesoscale variability, Geophys. Res. Let., 27, 709-712, 2000.

Yeah, S., W. Wilson, F. Li and S. Howden, Ocean Surface Salinity Remote Sensing with a Passive/Active L-/S-Band Microwave Instrument, Geophys. Res. Let., 27, 709-712, 2000.

Wang, L.P., C. Koblinsky, S. Howden, and N. Huang, Interannual variability in the South China Sea from expendable bathythermograph data, J. Geophys. Res., 104, 23509-23523, 1999.

Howden, S.D., and D.R. Watts, Jet streaks in the Gulf Stream, J. of Phys. Oceanog., 29, 1910--1924, 1999

Wang, L., C.J. Koblinsky, S.D. Howden, and B. Beckley, Intermittence and modulation of mesoscale variability, Geophys. Res. Let., 25, 4365-4368, 1998.

Wang L.P., C.J. Koblinsky, and S.D. Howden, Annual and intra-annual sea level variability in the region of the Kuroshio Extension from TOPEX/POSEIDON and Geosat altimetry, J. Phys. Oceanog, 28, 692--711,1998.

Wang, L., C.J. Koblinsky, S.D. Howden, and B. Beckley, Large scale Rossby wave in the mid-latitude South Pacific from altimetry data using, Geophys. Res. Let., 25, 179-182, 1998.

Tracey, K.L., S. D. Howden, and D.R. Watts, IES calibration and mapping procedures, J. Atmos. Oceanic Tech., 14(6), 1483--1493, 1997.

Howden, S. D., D. R. Watts and H. T. Rossby, An Acoustic Telemetry System for Real--Time Monitoring of the Gulf Stream Path, J. Atmos. Oceanic Tech., 11(2), 567--571, 1994.

Krofcheck, D., W. Bauer, G.M. Crawley, C. Djalali, S. Howden, C.A. Olgivie,A. Vander Molen, G.D. Westfall, W.K. Wilson, and R.S. Tickle, Disappearance of Flow as a Probe of the Nuclear Equation of State, Physical Review C, 46, 4, 1416--1424, 1992.

Reposeur, T., J. Clayton, W. Benenson, M. Cronqvist, S. Hannuschke, S. Howden, J. Karn, D. Krofcheck, A. Nadasen, C. Olgivie, R. Pfaff, J.D. Stevenson, A. Vandermolen, G.D. Westfall, K. Wilson, J.S. Winfield, B. Young, M.~F. Mohar, D.~J. Morrissey, Impact Parameter Dependence of High-Energy Gamma-Ray Production in Heavy-Ion Collisions, Physics Letters B, 276(4), 418--422, 1992.

Cebra, D.A., S. Howden, J. Karn, D. Kataria, M. Maier, A. Nadasen, C.A. Olgivie, N. Stone, D. Swan, A. Vandermolen, W.K. Wilson, J.S. Winfield, J. Yurkon, G.D. Westfall, E. Norbeck, Bragg Curve Spectroscopy in a 4 PI Geometry, Nuclear Instruments & Methods in Physics Research Section A-Accelerators Spectrometers Detectors and Associated Equipment, 300(3), 518--521, 1991.

Gunthier, P.L., J.D. Lenters, M.T. Vonk, D. Bleitz, T. Koppenol, D.A. Cebra, W. K. Wilson, A. Vandermolen, J. Karn, S. Howden, A. Nadasen, J. S. Winfield, G. D. Westfall, Sources of Light Particles in Peripheral Collisions, Physical Review C-Nuclear Physics, 43(4), R1504--R1508, 1991.

Pruneau, C. A., G.C. Ball, E. Hagberg, D. Horn, S. Gilbert, L. Potvin, C. Rioux, C. St-Pierre, T.E. Drake, A. Galindo-Uribarri, G. Zwartz, D.A. Cebra, S. Howden, J. Karn, C.A. Olgivie, A. Vander-Molen, G.D. Westfall, W.K. Wilson, J.S. Winfield, Impact-Parameter Independence of Participant Energy Spectra Measured in Symmetric Heavy-Ion Collisions, Nuclear Physics A, A534, 204--220, 1991.

Wilson, W. K., D. Cebra, S. Howden, J. Karn, D. Krofcheck, R. Lacey, T. Li, A. Nadasen, T. Reposer, A. Vandermolen, C. A. Olgivie, G. D. Westfall, J. S. Winfield, Mean Field Deflection in Peripheral Heavy-Ion Collisions, Physical Review C-Nuclear Physics, 43(6), 2696--2703, 1991

Glonthier, P. L. , J. D. Lenters, M. T. Vonk, D. Bleitz, T. Koppenol, D. A. Cebra, W. K. Wilson, A. Vander Molen, J. Karn, S. Howden, A. Nadasen, J. S. Winfield, and G. D. Westfall, Sources of light particles in peripheral collisions, Phys. Rev. C 43, R1504(R) doi: 10.1103/PhysRevC.43.R1504

Cebra D. A., S. Howden, J. Karn, A. Nadasen, C. A. Olgivie, A. Vander Molen, G. D. Westfall, W. K. Wilson, J. S. Winfield. Event Shape Analysis: Sequential Versus Simultaneous Multifragment Emission, Physical Review Letters, 64(19), 2246--2249, 1990.

Krofcheck, D., W. Bauer, G. M. Crawley, C. Djalali, S. Howden, C. A. Olgivie, A. Vander Molen, G. D. Westfall, W.K. Wilson, and R. S. Tickle, Automated Analysis of CCD Recorded Nuclear Collisions in a Streamer Chamber, Nuclear Instruments and Methods in Physics Research, A288, 497--506, 1990.

Olgivie, C. A., D.A. Cebra, J. Clayton, P. Danielewicz, S. Howden, J. Karn, A. Nadesen, A. VanderMolen, G.D. Westfall, W.K. Wilson, J.S. Winfield, Disappearance of Flow and its Relevance to Nuclear Matter Physics, Physical Review C, 42(1), R10--R14, 1990.

Westfall, G. D., W. Bauer, D. A. Cebra, G. M. Crawley, P. Danielewicz, C. Djalali, S. Howden, J. Karn, D. Krofcheck, A. Nadasen, C. A. Olgivie, A. Vandermolen, J. S. Winfield, W. K. Wilson, R. S. Tickle, C. Gale, Directed Transverse-Momentum and Multiparticle Emission in Intermediate Energy Nucleus Nucleus Collisions, Physica Scripta, T32, 202-207,1990.

Westfall, G. D., C. A. Olgivie, D. A. Cebra, W. K. Wilson, A. Vandermolen, W. Bauer, J. S. Winfield, D. Krofcheck, J. Karn, S. Howden, T. Li, R. Lacey, K. Tyson, M. Cronqvist, Collective Flow, Multi-Fragment Emission and Azimuthal Asymmetries in Intermediate Energy Nucleus-Nucleus Collisions, Nuclear Physics A, 519(1-2), C141-156, 1990.

Wilson, W. K., W. Benenson, D.A. Cebra, J. Clayton, S. Howden, J. Karn, T. Li, C.A. Olgivie, A. Vander Molen, G.D. Westfall, J.S. Winfield, B. Young, A. Nadasen, Azimuthal Asymmetry In Ar+V Collisions From E/A = 35 To 85 MeV, Physical Review C, 41, R1881-R1884, 1990.

Krofcheck, D., W. Bauer, G. M. Crawley, C. Djalali, S. Howden, C. A Olgivie, A. Vandermolen, G. D. Westfall, W. K. Wilson, R. S. Tickle, C.Gale, Disappearance of Flow in Heavy-Ion Collisions, Physical Review Letters , 63(19), 2028--2031, 1989.

Olgivie, C. A., D. A. Cebra, J. Clayton, P. Danielewicz, S. Howden, J. Karn, A. Nadasen, A. Vander Molen, G. D. Westfall, W. K. Wilson, J. S. Winfield, Longitudinal Collective Motion in Intermediate-Energy Heavy-Ion Collisions, Physics Letters B, v231, n1,2 35-38, 1989.

Olgivie, C. A., D.A. Cebra, J. Clayton, P. Danielewicz, S. Howden, J. Karn, A. Nadesen, A. VanderMolen, G.D. Westfall, W.K. Wilson, J.S. Winfield, Transverse Collective Motion in Intermediate-Energy Heavy-Ion Collisions. Physical Review C, 40(6), 2592--2599, 1989.

Olgivie, C. A., D.A. Cebra, J. Clayton, S. Howden, J. Karn, A. Vandermolen, G.D. Westfall, W.K. Wilson, J.S. Winfield, Determination of the Impact Vector in Intermediate Energy Heavy Ion Collisions, Physical Review C, 140(2), 654--663, 1989.

Conference proceedings

Howden, S., Change, G., Currier, B., Grant, C., Jurisich, J., Kim, M., ... & Spada, F. (2023, September). Offshore Demonstration of an Unmanned Surface Vehicle for Autonomous Hypoxia Monitoring. In OCEANS 2023-MTS/IEEE US Gulf Coast (pp. 1-5). IEEE.

Nwankwo, U., Oguntuase, J., Howden, S., & Wells, D. (2023, September). Checking VDatum Offshore with Bottom Mounted Pressure Gauge Geodetically Referenced with GNSS ASV. In OCEANS 2023-MTS/IEEE US Gulf Coast (pp. 1-4). IEEE.

Islam, T., Howden, S. D., Diercks, A. R., & Cambazoglu, M. K. (2022, October). Comparison of Ocean Model and HF Radar Surface Currents. In OCEANS 2022, Hampton Roads (pp. 1-5). IEEE.

Smith, M., Glenn, S., Mertz, C., Liu, Y., Weisberg, R., Shay, L., Howden, S. D., & Knapp, A. (2021, September). A unified approach to HF radar radial quality control for understanding gulf ocean systems. In OCEANS 2021: San Diego–Porto (pp. 1-5). IEEE.

Tsei, S., Howden, S., Diercks, A., Zhang, J., Miles, T., & Martin, K. (2023, September). An Examination of Salinity Effect on Hurricane Sally (2020). In OCEANS 2023-MTS/IEEE US Gulf Coast (pp. 1-4). IEEE.

Perry, R., Howden, S. D., Petraitis, D. C., Kirkpatrick, B. A., DiMarco, S. F., & Leung, P. (2020). Building Ocean Observing Partnerships with the Energy Industry to Understand Gulf of Mexico Mesoscale Dynamics. Ocean Sciences Meeting 2020. Published. https://agu.confex.com/agu/osm20/meetingapp.cgi/Paper/656768

Ogle, M. T., Smith, R., Williams, B., Schiller, R., Perry, R., Leung, P., DiMarco, S. F., Howden, S. D., & others. (2019). Four Years of Metocean Support to the Shell Stones Field: From Asset Integrity to Collaborative Research. Offshore Technology Conference. Published. https://doi.org/https://doi.org/10.4043/29392-MS

Ogle, M. T., Hetland, R. D., DiMarco, S. F., Howden, S. D., & Williams, B. (2020). Closing the Gaps: A Public/Private Partnership for Coastal HF Radar Coverage along the Louisiana Coast. Ocean Sciences Meeting 2020. Published. https://agu.confex.com/agu/osm20/meetingapp.cgi/Paper/652420

Nwankwo, U., S. Howden and D. Wells (2018), Utilization of U.S. Geodetic Service coastal water level gauges in Mississippi to check VDatum tidal datum to NAD83 vertical separations, Proceedings of the Joint Canadian Hydrographic and National Surveyor's Conference, March 26-29, Victoria, BC.

Capron, M. E., R. Blaylock, K. Lucas, M. D. Chambers, J. R. Stewart, S. F. DiMarco, K. Whilden, B. Wang, M. H. Kim, Z. Moscicki, C. Sullivan, I. Tsukrov, M. R. Swift, S. C. James, M. Brooks, S. Howden (2018), Ocean Forests: Breakthrough Yields for Macroalgae, Proceedings of Oceans 2018, Charleston, SC.

Perry, R.L., W. McCall, R. Green, S. Howden, N. Slowey, S. Watson, B. Kirkpatrick, P. T. Leung, L. Brzuzy, K. Satterlee, R. Raye, I. Vaporil, M. Vogel, and R. Abadie (2015) Gulf of Mexico Environmental Monitoring Through Federal-Academic-Industry Partnerships, Society of Petroleum Engineers, Society of Petroleum Engineers E&P Health, Safety, Security & Environmental Conference-Americas, 16-18 March, 2015, Denver, CO, SPE-173518-MS, dos: http://dx.doi.org/10.2118/173518-MS.

Perry, R., W. McCall, P.T. Leung, K. Martin, R. Vandermulen, S. Howden, S. Watson, B. Kirkpatrick, K. Saterlee, M. Vogel, L. Brzuzy, I. Vaporil, R. Raye, and R. Abadie (2015), Autonomous Underwater Vehicle Collaborations to Improve Hurricane Forecasting and Environmental Monitoring in the Gulf of Mexico, Offshore Technology Conference, 4-5 May, 2015, Houston, TX, doi: Offshore Technology Conference, http://dx.doi.org/10.4043/26012-MS.

Kil, B., D. Burrage, J. Wesson, and S. Howden, (2013). Sea surface signature of tropical cyclones using microwave remote sensing, in Ocean Sensing and Monitoring V, edited by Weilin W. Hour and Robert A. Arnone, Proceedings of SPIE Vol. 8724, (SPIE, Bellingham, WA, 2013) Article 872413, Doi 10.1117/12.2019112

Kil, B., D. Burrage, J. Wesson and S. Howden (2014), Relationship between sea surface salinity from L-band radiometer and optical features in the East China Sea, Proc. SPIE Vol 9111, Ocean Sensing and monitoring VI, W. Hou and R. A. Arnone, Eds. doi: 10.1117/12.205951

Howden, S. D. and A. Kern (2013). Circulation within the continental shelf of the Mississippi Bight, in Ocean Sensing and Monitoring V, edited by Weilin W. Hour and Robert A. Arnone, Proceedings of SPIE Vol. 8724, (SPIE, Bellingham, WA, 2013) Article 87240C, Doi 10.1117/12.2018079

Howden, S. D. and A. Kern (2012), Surface Currents from High Frequency Radar in Support of Ports and Harbours, Proceeding of the Canadian Hydrographic Conference 2012, Niagara Falls, Canada.

Howden, S. D., D. Barrick and H. Aguilar (2011). Applications of High Frequency Radar for Emergency Response in the Coastal Ocean: Utilization of the Central Gulf of Mexico Ocean Observing System during the Deepwater Horizon Oil Spill and Vessel Tracking, in Ocean Sensing and Monitoring III, edited by Weilin W. Hou, Robert Arnone, Proceedings of SPIE Vol. 8030 (SPIE, Bellingham, WA, 2011) doi: 10.117/12.884047

Wesson, J., D. Burrage, V. Maisonet and S. Howden (2010). Aircraft and In Situ Salinity and Ocean Color Measurements: Bridging the Satellite Salinity Coastal Gap. IGARRS 2010, July 25-30, Honolulu, Hawaii

Maisonet, V. J. , J. Wesson, D. Burrage and S. Howden, "Measuring coastal sea-surface salinity of the Louisiana shelf from aerially observed ocean color," *OCEANS 2009*, Biloxi, MS, 2009, pp. 1-4.doi: 10.23919/OCEANS.2009.5422288.

Howden, S. D. , S. Lohrenz and V. Asper, "The central Gulf of Mexico Ocean Observing System: Development, resiliency and lessons learned," *OCEANS 2009*, Biloxi, MS, 2009, pp. 1-5.doi: 10.23919/OCEANS.2009.5422305

Bender, LC, NL Guinasso, JN Walpert, and SD Howden (2009), A comparison of two methods for determining wave heights from a discus buoy with a strapped-down accelerometer, Proceedings of the 11th International Workshop on Wave Hindcasting and Forecasting and Second Coastal Hazard Symposium, Halifax, Nova Scotia, October 2009, JCOMM Technical Report No. 52, IOC Workshop Report No. 232, WMO/TD-No. 1533, 2009.

Bender. L. C., III, N. L. Guinasso, J. N. Walpert, and S. Howden (2008), Wave Heights from a 3m Discus Buoy During Hurricane Katrina, Oceans 2008, MTS/IEEE Quebec City, Canada, 15-18 September, pages 1-7. Paper 080519-004, Digital Object Identifier 10.1109/OCEANS.2008.5152077

Wesson, J., D. Burrage, C. Osburn, V. Maisonet, S. Howden, and X. Chen (2008), Aircraft and In Situ Salinity and Ocean Color Measurements and Comparisons in the Gulf of Mexico, Geoscience and Remote Sensing Symposium, 2008. IGARSS 2008. IEEE International Volume

4, 7-11 July 2008 Page(s):IV - 383 - IV - 386 Digital Object Identifier 10.1109/IGARSS.2008.4779738.

Dodd, D. S. Bisnath, and S. Howden (2006): Implementation of Ionosphere and Troposphere Models for High-Precision GPS Positioning of a Buoy During Hurricane Katrina. Proceedings of the 19th International technical Meeting of the Satellite Division of the Institute of Navigation ION GNSS, p 2006-2016, 26-29 September, 2006 Fort Worth, Texas.

Howden, S., S. Bisnath, D. Dodd, D. Wells, and D. Wiesenburg, (2004): Long-baseline PPK GPS in the Marine Environment: An Ocean Buoy, proceedings of the Canadian Hydrographic Conference 2004, Ottawa, Canada, CDROM.

Wells, D., S. Bisnath, S. Howden, D. Dodd, M. Santos and K. Cove, Prospects for extended-range marine PPK. The International Navigation Conference MELAHA. 13-15 April 2004, Cairo Egypt.

Bisnath, S., Wells, D., Howden, S., Dodd, D., Wiesenburg, D., Stone, G., "Development of an Operational RTK GPS-Equipped Buoy for Water Level Recovery," Proceedings of the 16th International Technical Meeting of the Satellite Division of The Institute of Navigation (ION GPS/GNSS 2003), Portland, OR, September 2003, pp. 59-66.

Bisnath, S., D. Dodd, D. Wells, S. Howden and D. Wiesenburg (2003) Water Level Recovery with an RTK GPS-Equipped Buoy. U.S. Hydrographic Conference, Proceedings, CDROM.

Bisnath, S., D. Wells, S. Howden, and G. Stone, (2003): The Use of a GPS-Equipped Buoy for Water Level Determination, OCEANS 2003. Proceedings Volume 3, 22-26 Sept. 2003 Page(s):1241 - 1246 Vol.3 Digital Object Identifier 10.1109/OCEANS.2003.1282544.

Dodd, D., S. Howden, D. E. Wells, Denis Wiesenburg, and HYD Class of 2002 (2003), A Student Initiated Hydrographic Survey in Riverine Environment, the Pearl River 2002 Field Project Experience, 8.3 U.S. Hydrographic Conference, Proceedings, CDROM.

Monahan, D., J. Chance, P. Dare, S. Dijkstra, D. Dodd, S. Howden, F. Richer, M. Santos, D. Wells, and D. Wiesenburg (2003), Hydrographic Learning 24/7 4B.4, U.S. Hydrographic Conference, Proceedings, CDROM.

Wells, D., J. Richer, M. Santos, P. Dare, I. Allen, D. Weisenburg, D. Dodd, S. Howden, J. Davis, A. Armstrong, S. Dijkstra, L. Alexander, D. Monohan, A. Godin, J. Chance, and B. Fruge, Open Access learning at Sea, Oceans 2002, MTS/IEEE, Biloxi, MS 2002. (IF:** 3.3% Howden)

Dodd, D., K. Barbor, S. Howden, C. Meador and D. Wells (2002). Continuing Development of the FIG/Approved Category A" Master of Science Degree in Hydrographic Science" Program at The University of Southern Mississippi, Proc. Canadian Hydrographic Conf., Toronto, Canada.

Wilson, W.J., S. H. Yueh, F. K. Li, S. Dinardo, Y. Chao, C. Koblinsky, G Lagerloef, and S. Howden, Ocean Surface Salinity Remote Sensing with the JPL Passive/Active L-/S-band (PALS) Microwave Instrument, Geoscience and Remote Sensing Symposium, 2001. IGARSS '01. IEEE 2001 International Volume 2, 9-13 July 2001 Page(s):937 - 939 vol.2 Digital Object Identifier 10.1109/IGARSS.2001.976686.

Li, F.K.; Wilson, W.J.; Yueh, S.H.; Dinardo, S.J.; Howden, S. Passive active L/S-band microwave aircraft sensor for ocean salinity measurements. In Proceedings of the IEEE 2000 International Geoscience and Remote Sensing Symposium, Honolulu, HI, USA, 24–28 July 2000; pp. 2540–2542.

Le Vine, D.M.; Koblinsky, C.; Howden, S.; Haken, M.; Goodberlet, M. (2000). Salinity measurements during the Gulf Stream Experiment, in Geoscience and Remote Sensing

Symposium, 2000. Proceedings. IGARSS 2000. IEEE 2000 International , vol.6, no., pp.2537-2539 vol.6, 2000 doi: 10.1109/IGARSS.2000.859632.

Wang, L. C. J. Koblinsky, S. Howden, and N. Huang, Interannual and decadal variability in the South China Sea, Proceedings COAA '97 –First Interannual Ocean-Atmosphere Conference, 18-19 October, Washington, D. C., 95-98, 1997.

Li., F.K., W.J. Wilson, S.H. Yueh, S. Dinardo, and S. Howden. Passive/Active L/S-band Microwave Aircraft Sensor for Ocean Salinity Measurements, IGARSS 2000, 00.1390.

Wilson, W. K., R. Lacey, D. Cebra, M. Cronqvist, S. Howden, J. Karn, D. Krofcheck, T. Li, A. Nadasen, C.A. Ogilvie, T. Reposeur, A. Vander Molen, J. S. Winfield, Y. Lee and G. D. Westfall (1991). Azimuthal Distributions: A Probe For The Collision Dynamics In 40Ar And 12C Induced Reactions. Advances in Nuclear Dynamics: Proceedings of the 7th Winter Workshop on Nuclear Dynamics, Key West, Florida, USA, January 26-February 2, 1991. World Scientific Pub Co Inc.

Ogilvie, C., Westfall, G., Cebra, D., Clayton, J., Howden, S., Karn, J., Vander Molen, S., Nadasen, A., Wilson, K., & Winfield, J. (1989). Extraction of global variables from intermediate energy nucleus-nucleus collisions. Paper NUCL 93; American Chemical Society; Washington, DC (USA); Symposium on nuclear dynamics and nuclear disassembly; Dallas, TX (USA); 9-14 Apr 1989; CONF-8904153--; American Chemical Society, Division of Nuclear Chemistry ampersand Technology, 1155 16th St., NW, Washington, DC 20036

Ogilvie, C. A., D. A. Cebra, J. Clayton, P. Danielewicz, S. Howden, J. Karn, A. Nadasen, A. Vander Molen, G.D .Westfall, W.K. Wilson, J.S. Winfield (1989). Directed collective motion in intermediate-energy heavy-ion collisions. In Proceedings of the Symposium on Nuclear Dynamics and Nuclear Disassembly (p. 183).

Other articles

Bernard, L., S. Watson, C. Simoniello and S. Howden (2015), The GCOOS Build-Out Plan and Gulf Restoration, MTS Oceans in Action, 20 August, 2015, Stennis Space Center, MS.

Howden, S.D, R.A. Arnone, J. Brodersen, S.F. DiMarco, L.K. Dixon, H.E. Garcia, M.K. Howard, A.E. Jochens, S.E. Ladner, C.E. Lembke, A.P. Leonardi, A. Quaid, and N.N. Rabalais. 2014. Glider Implementation Plan for Hypoxia Monitoring in the Gulf of Mexico. Edited by A.J. Lewitus, S.D. Howden, and D.M. Kidwell. White Paper from the Gulf Hypoxia Glider Application Meeting, 17-18 April 2013 at the Mississippi State University Science and Technology Center at NASA's Stennis Space Center in Mississippi, 21 pages

Howden, S. D., K. T. Tracey, and D. R. Watts, Assessment of the Accuracy of Dynamic Height Measurements by the SYNOP IESs, The SYNOPtician, 3(3), 4--6, 1992.

Howden, S. D., K. L. Tracey and D. R. Watts, IES Telemetry System Report, The SYNOPtician, 2(4), 5--6, 1991.

Howden, S. D., K. L. Tracey and D. R. Watts, Telemetry of IES Data from Cape Hatteras, The SYNOPtician, 1(3), 9, 1990.

**Selected Professional Service**

Boards and Committees

United States Geological Survey and the National Park Service

Board of Advisors, Project: Analysis of coastal acidification monitoring data from two Gulf of Mexico National Parks: Gulf Islands National Seashore and Padre Island National Seashore (August 2024 - Present).

Gulf of Mexico Coastal Ocean Observing System

Executive Committee of the Board of Directors (January 1, 2022 - Present).
Board of Directors (2010 - Present).
Committee Member, Gulf Ocean Acidification Network (G-CAN). (2017 - Present).
Committee Member, Gulf Glider Group. (May 2020 - Present).
Committee Member, High Frequency Radar Group. (May 2020 - Present).
Committee Chair, Glider Task Team. (2012 - 2014).
Committee Chair, Ocean Observing Committee. (2006 - 2014).
Committee Chair, Business Plan Working Group (2004 - 2005).
Member, Governing Plan Working Group, Gulf of Mexico Ocean Observing System, 2004-2005.

NOAA Integrated Ocean Observing System

Committee Member, Hurricane Gliders Coordination Group. (2019 - Present).
HFR National Steering Team & HFR Working Group. (2010 - 2021).
Committee Member, Planning Committee 8th EGO Meeting and International Glider Workshop, (March 5, 2019 - June 1, 2019).
Member, Review Panel for the IOOS Plan for a National HF Radar Surface Current Capability, 19-21 August, 2008, Keystone, CO.

Office of Naval Research

Member, Steering Committee for IOOS Data Standards Working Group. (2003 - 2004).

National Science Foundation

Member, Program Advisory Committee for Oceans Observatories Initiative. (2012 - 2015).
Chosen participant, Ocean Observatories Initiative/ Pioneer Array Innovations Lab. (February 12, 2021 - March 19, 2021).

International Hydrographic Organization

Member, U.S. Delegation to the 2023 Assembly
Committee Member, Science on a Sphere. (November 22, 2022 - May 7, 2023).
Served as a representative for a capacity building site visit to Ghana (March 23, 2019 - April 2019).

North American Hub of the Global Ocean Acidification

Member, Observing Network. (January 2017 - Present).

Committee Member, NOAA/Steering Committee for Hypoxia Workshop. (2015 - 2016).

Mississippi Academy of Sciences

Chair, Marine and Atmospheric Sciences Division (2006).

Northern Gulf Institute (NOAA Cooperative Institute)

Member, Executive Council for the Northern Gulf Institute (2007-2011)

Ocean Exploration Cooperative Institute (NOAA Cooperative Institute)

Member, Council of Fellows (2023-present)

<u>Reviewer/Referee: Proposals</u>

Gulf of Mexico Coastal Ocean Observing System, Louisiana Board of Regents Support Fund, National Aeronautics and Space Administration, National Council of Humanities, Sciences, and Technologies (Mexico), National Oceanic and Atmospheric Administration, National Science

Foundation, Northern Gulf Institute, Research Grants Council of Hong Kong , Southeast Coastal Ocean Observing Regional Association.

Reviewer/Referee: Journals

Applied Sciences, Atmosphere, Continental Shelf Research, Deep Sea Res I. , Environmental Science & Technology, International Journal of Climatology, Journal of Applied Remote Sensing, Journal of Atmospheric and Oceanic Technology, Journal of Coastal Oceanography, Journal of Coastal Research, Journal of Geophysical Letters, JGR-Oceans, Journal of Marine Systems , Journal of Physical Oceanography, Journal of Remote Sensing, Marine Technology Society Journal, Marine Geodesy, Oceanography, Ocean Engineering, Ocean Modelling, PeerJ, Scientific Reports/Nature.

Media Appearances and Interviews

"Unlocking the Secrets Buried Deep in the Gulf of Mexico," Popular Mechanics. (March 27, 2017).

New York Times interview 2010: http://www.nytimes.com/gwire/2010/06/03/03greenwire-federal-funding-cuts-leave-oceanographers-spil-74436.html?pagewanted=all

"Space Shuttle Tests: Whole lotta Quaking," National Public Radio. (August 18, 2006).

**Academic Mentoring**

Doctoral Students

Nwankwo, Uchenna, 2022, *Characterization of Sea level Changes along the Louisiana/Florida Shelf Using High Frequency (HF) Radar Data and Sea level Measurements*. Dissertations. 1987.

https://aquila.usm.edu/dissertations/1987

Laura Hode, PhD, Graduated 2019 (Phys. Ocean. Emphasis). *Establishing the Role of the Mississippi-Alabama Barrier Islands in Mississippi Sound and Bight Circulation Using Observational Data Analysis and a Coastal Model.* Dissertations. 1737.

https://aquila.usm.edu/dissertations/1737

Max Salazar, PhD, 2018 (Phys. Ocean. Emphasis). Dissertation: *Predicted Deepwater Bathymetry from Satellite Altimetry: Non-Fourier Transform Alternatives*

Sarah Epps, Ph.D., 2018 (Hydro. Ocean. Emphasis). Dissertation: *The Feasibility of using Inherent Optical Properties and the Apparent Optical Property Remote Sensing Reflectance to estimate Suspended Particulate Matter, Particularly for use in Airborne Hydrographic Surveys.*

Bumjun Kil, Ph.D., Graduated 2015 (Phys. Ocean. Emphasis). Dissertation: *Improved Monitoring of the Changjiang River Plume in the East China Sea During the Monsoon Season Using Satellite Borne L-Band Radiometers. Dissertations. 90.*

*https://aquila.usm.edu/dissertations/90*

Virgilio Maisonet-Montoyo, Master of Science, Graduated 2010 (Phys. Ocean. Emphasis). Thesis: *Ocean color estimation of sea-surface salinity in Louisiana coastal waters.*

Michael Gonsalves, Graduated 2010 (Ph.D., Hydro Emphasis). Dissertation: *A Comprehensive Uncertainty Analysis and Method of Geometric Calibration for a Circular Scanning Airborne Lidar.*

David Dodd, Ph.D., Graduated 2007 (Phys. Ocean. Emphasis). Dissertation: *Utility of ionosphere and troposphere models for extending the range of high accuracy GPS.*

Masters Students

Islam, Tasnim, *Understanding the Physical Oceanography of the Mississippi Sound: Observational Climatologies, Trends and Relationships in the Sound and Comparison of the Surface Currents of Ocean Models with High Frequency Radar Data* (2023). Master's Theses. 1004.

https://aquila.usm.edu/masters_theses/1004

Andrea Braatz, Master of Science, Graduated Summer 2011 (Phys. Ocean. Emphasis). Thesis: *An Analytic Study of Air-Sea CO2 Gas Exchange in the Northwest Mississippi Bight Region.*

Colleen Finnegan, Master of Science, Graduated 2009 (Phys. Ocean. Emphasis). Thesis: Mid-shelf current characterization in the Mississippi Bight: A statistical analysis and case study.

Michael Michalski, Master of Science, Graduated 2007 (Phys. Ocean. Emphasis). Thesis: *Variations of phytoplankton chlorophyll alpha as a response to cyclonic eddy presence within the Gulf of Mexico.*

Jeffrey Johnson, Master of Science, Graduated August 2003 (Phys. Ocean. Emphasis). Thesis: *Passive microwave remote sensing of sea surface salinity: application of the Scanning Low Frequency Microwave Radiometer in a coastal zone environment.*