

BIOGRAPHICAL SKETCH

NAME: Bao, Shaowu

POSITION TITLE & INSTITUTION: Associate Professor, Coastal Carolina University

(a) PROFESSIONAL PREPARATION -(see PAPPG Chapter II.C.2.f.(a))

INSTITUTION	LOCATION	MAJOR / AREA OF STUDY	DEGREE (if applicable)	YEAR YYYY
Nanjing Institute of Meteorology	Nanjing, Jiangsu	Atmospheric Physics	BS	1993
Chinese Academy of Meteorological Sciences	Huairou District, Beijing	China, Atmospheric Sciences	MS	1996
North Carolina State University	Raleigh, NC	Atmospheric Sciences	PHD	2003

(b) APPOINTMENTS -(see PAPPG Chapter II.C.2.f.(b))

2019 - present Associate Professor, Coastal Carolina University, Department of Marine Science, Conway, SC

2013 - 2019 Assistant Professor, Coastal Carolina University, School of Coastal and Marine System Science, Conway, SC

2008 - 2013 Research Scientist, University of Colorado, Cooperative Institute for Research in Environmental Sciences, Boulder, CO

2003 - 2008 Research Associate, North Carolina State University, Department of Marine, Earth and Atmospheric Sciences, Raleigh, NC

1999 - 2003 Research Assistant, North Carolina State University, Earth and Atmospheric Sciences, Raleigh, NC

(c) PRODUCTS

2022

- Bao, S, Z. Zhang, E. Kalina, and B. Liu, 2022: The Use of Composite GOES-R Satellite Imagery to Evaluate a TC Intensity and Vortex Structure Forecast by an FV3GFS-Based Hurricane Forecast Model. *Atmosphere*, **13**, 126.
- Shen, D, S. Bao, L. J. Pietrafesa, and P. Gayes, 2022: Improving Numerical Model Predicted Float Trajectories by Deep Learning. *Earth Space Sci.*, **9**, e2022EA002362.
- Zhang, H., D. Shen, S. Bao, L. Pietrafesa, P. T. Gayes, and H. Majidzadeh, 2022: Quantifying Aggravated Threats to Stormwater Management Ponds by Tropical Cyclone Storm Surge and Inundation under Climate Change Scenarios. *Climate*, **10**, 157.

2021

- Shen, D, X. Li, J. Wang, S. Bao, and L. J. Pietrafesa, 2021: Dynamical ocean responses to Typhoon Malakas (2016) in the vicinity of Taiwan. *J. Geophys. Res. Oceans*, **126**, e2020JC016663.
- Viner, B., S. Noble, J.-H. Qian, D. Werth, P. Gayes, L. Pietrafesa, and S. Bao, 2021: Frequency and Characteristics of Inland Advecting Sea Breezes in the Southeast United States. *Atmosphere*, **12**, 950.

2020

- Bao, S, L. Bernardet, G. Thompson, E. Kalina, K. Newman, and M. Biswas, 2020: Impact of the Hydrometeor Vertical Advection Method on HWRF's Simulated Hurricane Structure. *Weather Forecast.*, **35**, 723–737.
- Majidzadeh, H., Uzun, H., Chen, H., Bao, S., Tsui, M.T.K., Karanfil, T. and Chow, A.T., 2020. Hurricane resulted in releasing more nitrogenous than carbonaceous disinfection byproduct precursors in coastal watersheds. *Science of The Total Environment*, **705**, p.135785.
- Harvey, J., S. Kumar, and S. Bao, 2020: Machine Learning-Based Models for Assessing Physical and Social Impacts Before, During and After Hurricane Michael. *2020 IEEE Symposium Series on Computational Intelligence (SSCI)*, IEEE, 1356–1362.
- Majidzadeh, H, H. Uzun, H. Chen, S. Bao, M. T.-K. Tsui, T. Karanfil, and A. T. Chow, 2020: Hurricane resulted in releasing more nitrogenous than carbonaceous disinfection byproduct precursors in coastal watersheds. *Sci. Total Environ.*, **705**, 135785.
- Tsui, M. T.-K., and Coauthors, 2020: Concentration and isotopic composition of mercury in a blackwater river affected by extreme flooding events. *Limnol. Oceanogr.*, **65**, 2158–2169.

- Zhang, H., S. Bao, L. Pietrafesa, and P. Gayes, 2020: Toward Forecasting the Coastal Compound Hazard Caused by River Flooding and Storm Surge during Extreme Weather Events. *100th American Meteorological Society Annual Meeting*, AMS.
- 2019
- Kumar, S. A., S. Bao, V. Singh, and J. Hallstrom, 2019: Flooding disaster resilience information framework for smart and connected communities. *J. Reliab. Intell. Environ.*, **5**, 3–15.
 - Pietrafesa, L. J., H. Zhang, S. Bao, P. T. Gayes, and J. O. Hallstrom, 2019: Coastal flooding and inundation and inland flooding due to downstream blocking. *J. Mar. Sci. Eng.*, **7**, 336.
- 2018
- Bao, S, P. Gayes, and L. Pietrafesa, 2018: The need and rationale for a coastal flood risk index. *OCEANS 2018 MTS/IEEE Charleston*, IEEE, 1–4.
 - Gayes, P. T., L. J. Pietrafesa, S. Bao, J. Hallstrom, and D. Stirling, 2018: On the Observational Network Needed to Support Modeling Architecture Necessary for Coastal and Inland Flooding Prognostication. *AGU Fall Meeting Abstracts*, Vol. 2018 of, OS51D-1275.
 - Jisan, M, S. Bao, and L. J. Pietrafesa, 2018a: Ensemble projection of the sea level rise impact on storm surge and inundation at the coast of Bangladesh. *Nat. Hazards Earth Syst. Sci.*, **18**, 351–364.
 - Jisan, M, S. Bao, L.J. Pietrafesa, D. Shen, P. T. Gayes, and J. Hallstrom, 2018b: Hurricane Matthew (2016) and its impact under global warming scenarios. *Model. Earth Syst. Environ.*, **4**, 97–109.
 - Yu X., S. Ladewig, S. Bao, C. A. Toline, S. Whitmire, and A. T. Chow, 2018: Occurrence and distribution of microplastics at selected coastal sites along the southeastern United States. *Sci. Total Environ.*, **613**, 298–305.
 - Zang, Z., Z. G. Xue, S. Bao, Q. Chen, N. D. Walker, A. S. Haag, Q. Ge, and Z. Yao, 2018: Numerical study of sediment dynamics during hurricane Gustav. *Ocean Model.*, **126**, 29–42.
- 2017
- Jisan, M. A., S. Bao, L. Pietrafesa, and J. Pullen, 2017: Hurricane Matthew (2016) and its Storm Surge Inundation under Global Warming Scenarios: Application of an Interactively Coupled Atmosphere-Ocean Model. *AGU Fall Meeting Abstracts*, Vol. 2017 of, NH52A-07.
 - Li, X., 2017: Application sentinel-1 SAR data for ocean research and operation. *2017 Progress in Electromagnetics Research Symposium-Fall (PIERS-FALL)*, IEEE, 2098–2101.
 - Majidzadeh, H., and Coauthors, 2017: Extreme flooding mobilized dissolved organic matter from coastal forested wetlands. *Biogeochemistry*, **136**, 293–309.
 - Shen, D., X. Li, L. Pietrafesa, and S. Bao, 2017: Geostationary satellite observations and numerical simulation of typhoon-induced upwelling to the Northeast of Taiwan. *2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, IEEE, 3552–3555.
- 2016
- Bao, S, X. Li, D. Shen, Z. Yang, L. J. Pietrafesa, and W. Zheng, 2016: Ocean upwelling along the Yellow Sea coast of China revealed by satellite observations and numerical simulation. *IEEE Trans. Geosci. Remote Sens.*, **55**, 526–536.
 - Chow, A. T., S. Bao, H. Zhang, M. Tsui, A. Ruecker, H. Uzun, and T. Karanfil, 2016: Dissolved Organic Carbon and Mercury Exports during Extreme Flooding in South Carolina induced by Hurricane Joaquin, 2015. *AGU Fall Meeting Abstracts*, Vol. 2016 of, B13C-0592.
 - Xu, Q., X. Li, S. Bao, and L. J. Pietrafesa, 2016: SAR observation and numerical simulation of mountain Lee Waves near Kuril Islands forced by an extratropical cyclone. *IEEE Trans. Geosci. Remote Sens.*, **54**, 7157–7165.
 - Xu, Q, X. Li, S. Bao, and G. Zhang, 2017: Tropical Cyclone Eye Morphology and Extratropical-Cyclone-Forced Mountain Lee Waves on SAR Imagery. *Hurricane Monitoring with Spaceborne Synthetic Aperture Radar*, Springer, Singapore, 373–398.
 - Yu, X., J. Peng, J. Wang, K. Wang, and S. Bao, 2016: Occurrence of microplastics in the beach sand of the Chinese inner sea: the Bohai Sea. *Environ. Pollut.*, **214**, 722–730.
- Prior to 2016
- Bao, S, S. Raman, and L. Xie, 2003: Numerical simulation of the response of the ocean surface layer to precipitation. *Pure Appl. Geophys.*, **160**, 2419–2446.
 - Bao, S, L. Xie, and S. Raman, 2004: A numerical study of a TOGA-COARE squall-line using a coupled mesoscale atmosphere-ocean model. *Adv. Atmospheric Sci.*, **21**, 708–716.
 - Bernardet, L., and Coauthors, 2015: Community support and transition of research to operations for the hurricane weather research and forecasting model. *Bull. Am. Meteorol. Soc.*, **96**, 953–960.
 - Ladewig, S. M., S. Bao, and A. T. Chow, 2015: Natural fibers: a missing link to chemical pollution dispersion in aquatic environments.

- Liu, H., L. Xie, L. J. Pietrafesa, and S. Bao, 2007: Sensitivity of wind waves to hurricane wind characteristics. *Ocean Model.*, **18**, 37–52.
- Nance, L., and Coauthors, 2010: The HFIP High Resolution Hurricane Forecast Test. *AGU Fall Meeting Abstracts*, Vol. 2010 of, A41B-0082.
- Xie, L., S. Bao, L. J. Pietrafesa, K. Foley, and M. Fuentes, 2006: A real-time hurricane surface wind forecasting model: Formulation and verification. *Mon. Weather Rev.*, **134**, 1355–1370.
- Xie, L., H. Liu, B. Liu, and S. Bao, 2011: A numerical study of the effect of hurricane wind asymmetry on storm surge and inundation. *Ocean Model.*, **36**, 71–79.
- Yu, Z., C. Ji, J. Xu, S. Bao, and J. Qiu, 2015: Numerical simulation and analysis of the Yangtze River Delta Rainstorm on 8 October 2013 caused by binary typhoons. *Atmospheric Res.*, **166**, 33–48.

(d) Recent Projects

Title	Time	Award to CCU (\$)	Funding agency
Advance Riverine-Coastal Model Coupling and Forecast Verification for Total Water Quantity and Water Quality Prediction	2022-2025	727259	NOAA/UA
Use Satellite Data to Evaluate the Connections Between the Radiation, Cumulus Convection, and Microphysics Parameterization Schemes and Their Scale Sensitivity for FV3-GFS.	2018-2021	208345	NOAA
The Impacts of Future Sea Level Rise on the Flood Vulnerability of SC and the Function of Stormwater Management Ponds	2019-2020	23159	Sea Grant
Sensing and Modeling Infrastructure for Storm Surge Monitoring and Forecasting in Coastal Zones	2018-2019	99395	NSF
Mobile Infrastructure for Monitoring, Modeling, and Forecasting of Coastal Weather Events	2016-2017	99672	NSF