

Shiqiu Peng

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Research interests

Atmospheric/oceanic data assimilation; Air-sea interaction and air-sea coupled modeling; Physical parameterizations in numerical modeling; Real-time forecasting system for coastal Atmospheric/oceanic environments; Atmospheric/oceanic teleconnection, ENSO and global climate change

Work Experience

- **Senior Scientist**

South China Sea Institute of Oceanography

Oct 2009 – present

Guangdong, China

- **Scientist**

EMC/NCEP/NOAA

Feb 2009 – Sep 2009

Silver Spring, MD, US

- **Research Assistant Professor**

Department of Marine, Earth & Atmospheric Sciences, North Carolina State

Jan 2008 – Jan 2009

Raleigh, NC, US

- **Research Associate**

Department of Marine, Earth & Atmospheric Sciences, North Carolina State

Aug 2004 – Dec 2007

Raleigh, NC, US

Education

- **Florida State University**

Doctor of Philosophy (Ph.D.) Meteorology

1998 – 2004

- **Nanjing Institute of Meteorology & Chinese Academy of Meteorological**

Master's degree Atmospheric Sciences and Meteorology

1991 – 1994

● **Ocean University of China**

Bachelor's degree Marine Meteorology

1987 – 1991

Publications

1. Shiqiu Peng*, Xuezhi Zeng, and Zhijin Li, 2016: A Three-Dimensional Variational Data Assimilation System for the South China Sea: Preliminary Results from Observing System Simulation Experiments. *Ocean Dynamic*, 66(5), 737-750.
2. Xiaowei Wang, Shiqiu Peng*, Zhiyu Liu, Rui Xin Huang, Yu-Kun Qian and Yineng Li, 2016: Tidal Mixing in the South China Sea: An Internal-Tide-Energetics-Based Estimate. *Journal of Physical Oceanography*, 46(1), 107-124.
3. Yu-Kun Qian, C X Liang, Shiqiu Peng*, S. Chen, and S. Wang, 2016: A Horizontal Index for the Influence of Upper-level Environmental Flow on Tropical Cyclone's Intensity. *Weather and Forecasting*, 31, 237-253.
4. Qian, Y.-K., C.-X. Liang, Z. Yuan, S. Peng, J. Wu, and S. Wang, 2016: Upper-tropospheric environment–tropical cyclone interactions over the western North Pacific: A statistical study. *Adv. Atmos. Sci.*, 33, 614-631.
5. Shiqiu Peng* and Yineng Li, 2015: A parabolic model of drag coefficient for storm surge simulation in the South China Sea. *Scientific Reports*. DOI: 10.1038/srep15496.
6. Shiqiu Peng*, Yu-kun Qian, Rick Lumpkin, Yan Du, Dongxiao Wang and Ping Li, 2015 : Characteristics of the Near-Surface Currents in the Indian Ocean as Deduced from Satellite-Tracked Surface Drifters. Part I: Pseudo-Eulerian Statistics. *Journal of Physical Oceanography*, 45 (2) : 441-458.
7. Shiqiu Peng*, Yu-kun Qian, Rick Lumpkin, Ping Li, Dongxiao Wang and Yan Du, 2015 : Characteristics of the Near-Surface Currents in the Indian Ocean as Deduced from Satellite-Tracked Surface Drifters. Part II: Lagrangian Statistics. *Journal of Physical Oceanography*, 45 (2) : 459-477.
8. Shiqiu Peng*, Yineng Li, Xiangquan Gu, Shumin Chen, Dongxiao Wang, Hui Wang, Shuwen Zhang, Weihua Lv, Chunzai Wang, Bei Liu, Duanling Liu, Zhijuan Lai, Wenfeng Lai, Shengan WANG, Yerong Feng, Junfeng Zhang, 2015: A real-time regional forecasting system in the South China Sea and its performance in the track forecasts of tropical cyclones during 2011-2013. *Weather and Forecast*, 30,471-485.
9. S. Chen, S., Y.-K. Qian, and Shiqiu Peng*, 2015 : Effects of various combinations of boundary layer schemes and microphysics schemes on the track forecasts of tropical cyclones over the South China Sea. *Natural Hazards*, 78,61-74.

10. Xuezhi Zeng , Shiqiu Peng*, Zhijin Li , Yiquan Qi , Rongyu Chen,2014, A reanalysis dataset of the South China Sea. *Scientific Data* : 40052, DOI: 10.1038/sdata.2014.52.
11. Shiqiu Peng*, Xiangde Xu, Yu-Kun Qian, Zhijuan Lai, Sai Hao, Shumin Chen, Hongxiong Xu, Dongxiao Wang, Johnny C. L. Chan, Hao Zhou, & Duanling Liu, 2014: On the mechanisms of the recurvature of super typhoon Megi. *Scientific Reports*. DOI :10.1038/srep04451.
12. Yu-Kun Qian and Shiqiu Peng*, Chang-Xia Liang and Rick Lumpkin, 2014, On the Estimation of Lagrangian Diffusivity, 2014: Influence of Nonstationary Mean Flow. *Journal of Physical Oceanography* , 44 (10) : 2796-2811.
13. Yineng Li, Shiqiu Peng*, Jia Wang, and Jing Yan, 2014, Impacts of non-breaking wave-stirring-induced mixing on the upper ocean thermal structure and typhoon intensity in the South China Sea. *Journal of Geophysical Research*, 119 (8) : 5052-5070.
14. Lei Liu, Shiqiu Peng*, Jinbo Wang and Rui Xin Huang, 2014: Retrieving density and velocity fields of the Ocean's Interior from Surface Data. *Journal of Geophysical Research*, 119 (12) : 8512-8529.
15. Yineng Li, Shiqiu Peng* and Duanling Liu, 2014: Adaptive Observation in the South China Sea using CNOP approach based on a 3-D ocean circulation model and its adjoint model. *Journal of Geophysical Research*, 119(12): 8973-8986.
16. Xuezhi Zeng, Igor M. Belkin, Shiqiu Peng*, and Yineng Li, 2014: East Hainan upwelling fronts detected by remote sensing and modelled in summer. *International Journal of Remote Sensing*. DOI :10.1080/01431161.2014.916443
17. Zhijuan Lai, Sai Hao, Shiqiu Peng*, Bei Liu, Xiangqian Gu and Yu-Kun Qian, 2014: On improving Tropical Cyclone Track Forecasts Using a Scale-Selective Data Assimilation Approach: A Case study. *Natural Hazards*. DOI :10.1007/s11069-014-1155-y
18. Yineng Li, Shiqiu Peng*, Jing Yan, Lian Xie, 2013, On improving storm surge forecasting using an adjoint optimal technique. *Ocean Modelling*. 72, 185-197.
19. Peng S.*, Y. Li, & L. Xie, 2013, Adjusting the wind stress drag coefficient in storm surge forecasting using an adjoint technique, *Journal of Atmospheric and Oceanic Technology*. 30,590-608.
20. Qian Y., Shiiqu Peng*, and Y. Li, 2013, Eulerian and Lagrangian statistics in the South China Sea as deduced from surface drifters. *J. Phys. Oceanogr.* 43(4), 726-743.
21. Xu Xiangde, Shiqiu Peng*, Yang Xiangjing, Xu Hongxiong, Daniel Q Tong, Wang Dongxiao, Guo Yudi, Johnny C L Chan, Chen Lianshou, Yu Wei, Li Yineng, Lai Zhijuan, Zhang Shengjun,

2013. Does warmer China land attract more super typhoons? *Scientific Reports* 3 : 1522 | DOI: 10.1038/srep01522

22. Lichuan Wu, Yuanqiao Wen, Shiqiu Peng*, Jinfeng Zhang and Changshi Xiao, 2013, Optimizing the routing of ship's tropical cyclone avoidance based on the numerical forecasts. *Natural Hazards*. VOLUME 67. | DOI: 10.1007/s11069-013-0729-4.

23. Li, Y.N., S.Q. Peng*, Yang, W., Wang, D.X., 2012, Numerical simulation of the structure and variation of upwelling off the east coast of Hainan Island using QuikSCAT winds. *Chinese Journal of Oceanology and Limnology* 30, 1068-1081.

24. Li Yineng, S. Q. Peng*, Zeng Xuezhong, 2012. Observations and Simulations of the Circulation and Mixing around the Andaman-Nicobar Submarine Ridge. *Atmospheric and Oceanic Science Letters* 5(4):319-323.

25. Peng S.*, Liu D., Sun Z., and Li Y., 2012, Recent advances in regional air-sea coupled models. *Sci China Earth Sci*, 55, 1391–1405, doi:10.1007/s11430-012- 4386-3

26. Yang, L., Wang, D.X.*, Peng, S.Q., 2012, Comparison between MM5 simulations and satellite measurements during Typhoon Chanchu (2006) in the South China Sea. *Acta Oceanol Sin* 31, 33-44.

27. Zeng Xuezhong, Li Yineng, Shiqiu Peng*, 2012. Analysis of Equatorial Currents Observed by Eastern Indian Ocean Cruises in 2010 and 2011. *Atmospheric and Oceanic Science Letters* 5(4):280-283.

28. Ye Qiang Shu, Dongxiao Wang, Jiang Zhu, Shiqiu Peng*, The 4-D structure of upwelling and Pearl River plume in the northern South China Sea during summer 2008 revealed by a data assimilation model, *Ocean Modelling*, 36, pp. 228-241, 2011, DOI information: 10.1016/j.ocemod.2011.01.002.

29. Lian Xie, Bin Liu, and Shiqiu Peng, 2010: Application of scale-selective data assimilation to tropical cyclone track simulation. *J. Geophys. Res.*, 115, D17105, doi:10.1029/2009JD013471.

30. Peng, S.*, and Zou X. (2010), Impact on quantitative precipitation forecasts of 4D-Var rainfall data assimilation with a modified digital filter in favor of mesoscale gravity waves: A case study, *J. Geophys. Res.*, 115, D23111, doi:10.1029/2010JD013993.

31. Peng, S., Xie L.*, Liu B., and F. Semazzi, (2010), Application of Scale-Selective Data Assimilation to Regional Climate Modeling and Prediction, *Monthly Weather Review*, 138(4), 1307-1318.

32. Xie, L., Liu B.*, and S. Peng, 2010, Application of scale-selective data assimilation to tropical cyclone track simulation. *J. Geophys. Res.*, 115, D17105, doi:10.1029/2009JD013471.

33. Peng, S., Xu X.*, Shi X., Wang X., Zhu Y., and Pu J, (2009), The early-warning effects of assimilation of the observations over the large-scale slope of the “world roof” on its downstream weather, *Chin. Sci. Bull.*, 54(4), 706-710.
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35. Peng, S.-Q., and L. Xie, 2006: Effect of Determining Initial Conditions by Four-Dimensional Variational Data Assimilation on Storm Surge Forecasting. *Ocean modelling*, Vol. 14, Issues 1-2, 1-18.
36. Peng, S.- Q., and X. Zou, 2004: Assimilation of Ground-Based GPS Zenith Total Delay and Rain Gauge Precipitation Observations Using 4D-Var and Their Impact on Short-Range QPF. *J. Met. Soc. Japan*, 82, 491-506.
37. Peng, S.- Q. , and X. Zou, 2002: Assimilation of NCEP Multi-Sensor Hourly Rainfall Data Using 4D-Var Approach: A Case Stud of the Squall Line on 5 April 1999. *J. Met. Atm. Phy.*, Vol. 81, No. 3-4, 237-255.
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40. Xu, Xiangde, S.- Q. Peng, and Q.- J. Miao, 1997: The Three-dimensional Structure of the Soil Moisture over North China, *The Progress of Study on Agricultural Drought in North China*, Chinese Meteorological Press.
41. Peng, S.- Q., and Jijia Zhang, 1996: The Relationships between the Teleconnection Patterns of Northern Hemisphere and the Precipitation in China, *A Collection of Research Thesis on Long-rang Forecast*, Chinese Meteorological Press.
42. Zhang, Jijia, and S.- Q. Peng, 1993: The Numerical Experiment on the Teleconnection Patterns of Northern Hemisphere, *Journal Applied Meteorology*.