Guangzhen Jin

Postdoctoral Researcher

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1. EDUCATIONS

Doctorate of Philosophy	Ocean University of China	Physical Oceanography	2012-2017
Advisor: Xianqing Lv, *Thesis: Application of an isopycnic-coordinate internal tidal model with the adjoint method*			
Bachelor of Science	Ocean University of China	Applied Mathematics	2008-2012

2. EMPLOYMENT

Postdoctoral Researcher	Shanghai Ocean University, China	2020-Now
Research Associate	Sun Yat-Sen University, China	2017-2020
Research Associate	Southern Marine Science and Engineering Guangdong Laboratory (Zhuhai)	2019-Now

3. RESEARCH INTERESTS

My main research interests are storm surges, coastal circulations and especially internal waves, including internal tides, near-inertial waves and nonlinear internal waves in the ocean. With several approaches including numerical models, data assimilations, in-situ and remote sensing data analysis, I investigated the generation and propagation process of internal waves in terms of dynamics and energetics. My recent ongoing work also includes data analysis on image transformation and microplastic spreading from coastal area in a Lagrangian view.

4. PROFESSIONAL ABILITIES

OS & Software	MacOS, Windows, Linux, LaTex, ArcGIS, SNAP	**Programming**	MATLAB, C, C++, Fortran, FoxPro, Python, Shell Script, Markdown

Numerical Model	FVCOM, ROMS, MITGCM	**Certificate**	Open Water and Advanced Open Water Diver

5. PUBLICATIONS

1) **Jin G**, Lai Z, Shang X. Numerical study on the spatial and temporal characteristics of nonlinear internal wave energy in the northern South China Sea. *Deep-Sea Research Part I: Oceanographic Research Papers.* **2020**. Under review.
2) Gao Y, **Jin G***, Liu J. Inbetweening auto-animation via Fokker-Planck dynamics and thresholding. *Inverse Problems and Imaging.* **2020**. **(Corresponding author)** https://arxiv.org/abs/2005.08858
3) Lai Z, **Jin G**, Huang Y, Chen H, Shang X, Xiong X. The generation of nonlinear internal waves in the South China Sea: A three-dimensional, nonhydrostatic numerical study. *Journal of Geophysical Research: Oceans*. **2019**. (**Co-first author**, https://doi.org/10.1029/2019JC015283)
4) Wang D, Pan H, **Jin G,** et al. Seasonal variation of the main tidal constituents in the Bohai Bay. *Ocean Sciences*. **2019**. 16, 1–14. https://doi.org/10.5194/os-16-1-2020
5) **Jin G,** Pan H, Zhang Q, Lv X, Zhao W, Gao Y. Determination of Harmonic Parameters with Temporal Variations: An Enhanced Harmonic Analysis Algorithm and Application to Internal Tidal Currents in the South China Sea. *Journal of Atmospheric and Oceanic Technology* **2018**, 35(7): 1375-1398. https://doi.org/10.1175/JTECH-D-16-0239.1
6) Pan H, Lv X, Wang Y, Matte P, Chen H, **Jin G**. Exploration of Tidal-Fluvial Interaction in the Columbia River Estuary Using S_TIDE. *Journal of Geophysical Research: Oceans* **2018**, 123(9): 6598-6619. https://doi.org/10.1029/2018JC014146
7) Jiang D, Chen H, **Jin G,** Lv X. Estimating smoothly varying open boundary conditions for a 3D internal tidal model with an improved independent point scheme. *Journal of Atmospheric and Oceanic Technology* **2018,** 35 (6): 1299–1311. https://doi.org/10.1175/JTECH-D-17-0155.1
8) Zhao J, Cao W, Xu Z, Ai B, Yang Y, **Jin G,** et al. Estimating CDOM Concentration in Highly Turbid Estuarine Coastal Waters. *Journal of Geophysical Research: Oceans* **2018**, 123(8): 5856-5873. https://doi.org/10.1029/2018JC013756
9) **Jin G,** Cao A, Lv X. On the Equilibration of Numerical Simulation of Internal Tide: A Case Study around the Hawaiian Ridge. *Journal of Atmospheric and Oceanic Technology* **2017**, 34(7): 1545-1563. https://doi.org/10.1175/JTECH-D-16-0207.1

10) Gao D, **Jin G*,** Lü X. Temporal variations in internal tide multimodal structure on the continental shelf, South China Sea. *Journal of Oceanology and Limnology* **2017**, 35(1): 70-78. **(Corresponding author)** https://doi.org/10.1007/s00343-016-5168-0

11) **Jin G,** Liu Q, Lv X. Inversion Study of Vertical Eddy Viscosity Coefficient Based on an Internal Tidal Model with the Adjoint Method. *Mathematical Problems in Engineering* **2015**, 2015(1): 1-14. https://doi.org/10.1155/2015/915793

12) Gao Y, **Jin G,** Chen H, Lv X. Estimation of Open Boundary Conditions Based on an Isopycnic-Coordinate Internal Tidal Model with Adjoint Assimilation Method. *Mathematical Problems in Engineering* **2013**, 2013(10): 461-461. https://doi.org/10.1155/2013/321387

6. FUNDED PROJECTS

China Postdoctoral Science Foundation	80,000	**PI**	2021-2022
Natural Science Foundation of Guangdong Province	100,000	**PI**	2020-2022
Fundamental Research Funds for the Central Universities	150,000	**PI**	2019-2021
The Three Big Constructions of Sun Yat-Sen University	300,000	**PI**	2019-2021
Project on Youth Breakthrough Group	150,000	**Co-PI**	2019-2020

7. SERVICES

Research Assistant	Numerical Storm Surge Forecast System	North China Sea Marine Forecasting Center of State Oceanic Administration	2016
Research Assistant	Marine Chemistry Data Analysis	Key Laboratory of Marine Chemistry Theory and Technology, China	2012
President	Association of Mathematical Modeling	Ocean University of China	2011
Team Leader	C++ Training Program	NEUSOFT, China	2010

Reviewer for Professional Journals:

Journal of Geophysical Research:Oceans; Ocean Dynamics; Journal of Oceanography

Teaching:

Advanced Physical Oceanography (For Graduate Students)

Research Cruises:

Deployment of SeaGliders	Northern South China Sea	2017
Team Leader in the Comprehensive Cruise of the Sun Yat-Sen University	Northern South China Sea	2018

8. KEYNOTE AND POSTER PRESENTATIONS

The Generation of Nonlinear Internal Waves in the South China Sea	Shanghai Jiaotong University	China	2020
Numerical simulations of Internal Solitary Waves in the Ocean	Duke Kunshan University	China	2019
Three-dimensional generation mechanisms for nonlinear internal waves in the Luzon Strait	Zhejiang University	China	2019
Different generations of type-A and type-B nonlinear internal waves in the South China Sea	North Carolina State University	USA	2019
Poster on an advanced harmonic analysis method	AGU Fall Meeting	USA	2018
Talk on generation mechanism of nonlinear internal waves	Ocean University of China	China	2018
Poster on determination of harmonic parameters	Hohai University	China	2018
Talk on internal tides and data assimilations	North China Sea Marine Forecasting Center	China	2016
Talk on the Post-Graduate Mathematical Modeling	Ocean University of China	China	2013

9. AWARDS AND HONORS

1st prize of **Doctoral Thesis**	Ocean University of China	2018
Outstanding Graduates of Shandong Province	China	2017
Valedictorian at the Graduate Commencement	Ocean University of China	2017
Excellent Graduate Student	Ocean University of China	2013 and 2016
Zhangzidao Scholarship Award for Excellent Students	Ocean University of China	2016
Outstanding Student of Extracurricular Activities	Ocean University of China	2015
President Scholarship for PhD Student	Ocean University of China	2014
National Scholarship for Graduate student	China	2013
1st prize at **National Post-Graduate Mathematical Contest in Modeling**	China	2012
Outstanding Graduates of Shandong Province	China	2012
Outstanding Graduates	Ocean University of China	2012
1st prize at **National Undergraduate Mathematical Contest in Modeling**	China	2010
Outstanding Student	Ocean University of China	2010
Outstanding Class Cadres	Ocean University of China	2009