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研究方向 深海动力学

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个人简介

现担任中国科学院海洋研究所所务委员、海洋环流与波动实验室主任。主要从事深海动力学和海洋观测研究。多次担任首席科学家组织大洋科考航次，作为执行负责人自主建成热带西太平洋科学观测网并实现稳定运行，20 余套深海潜标连续获取 10 年海洋环境数据，实现 5000 米大水深数据长时序实时传输，使我国在该海域定点实时观测能力形成区域主导优势，获授权发明专利 10 余项。深度挖掘观测数据，揭示太平洋赤道中层流多时间尺度变异规律及其动力学机制，绘制出西太平洋深层环流结构和流量分布图，阐明了大洋全水体能量关联和传递的新机制，丰富发展了大洋环流理论，发表了 60 余篇学术论文。先后主持国家自然科学基金青年 A 类、青年 B 类和重大研究计划重点项目、国家重点研发项目课题等，获海洋工程科技奖一等奖、中国科学院杰出科技成就奖、曾呈奎海洋青年科技奖、中国科学院青年促进会优秀会员等，成果入选“伟大历程辉煌成就”中华人民共和国成立 70 周年大型成就展。

教育背景

2008.09 - 2013.06	中国海洋大学	物理海洋学专业	理学博士
2004.09 - 2008.06	中国海洋大学	海洋科学专业	理学学士

工作经历

2023.07 - 今	中国科学院海洋研究所	所务委员
2021.07 - 今	中国科学院海洋环流与波动重点实验室	副主任、主任(2023.04 起)
2019.04 - 今	中国科学院海洋研究所	研究员、博士生导师(2021.04 起)
2016.01 - 2019.04	中国科学院海洋研究所	副研究员、特聘研究员(2018.01 起)
2013.07 - 2015.12	中国科学院海洋研究所	助理研究员

招生专业及方向

物理海洋学 (物理海洋/数学/物理/计算机等相关专业背景)

博士招生: 海洋环流与气候环境变化

硕士招生: 海洋环流与气候环境效应 / 环境工程

论文著作 (第一或通讯作者)

- [1] Hang Zhang, **Jianing Wang***, Zhixiang Zhang, Weidong Ma, Fan Wang, Yan Du, Observed deep intraseasonal variability in the western equatorial Pacific Ocean: Yanai waves originated from the western boundary. *Journal of Physical Oceanography*, 2025, 55(12): 2421-2431.
- [2] Weidong Ma, **Jianing Wang***, Fan Wang, Hang Zhang, Deep eddy energy in the southern Philippine basin. *Journal of Geophysical Research: Oceans*, 2025, 130(7): e2024JC021495.
- [3] Zhixiang Zhang, Jing Gao, **Jianing Wang***, Fan Wang, Contributions of tropical cyclones and internal tides to deep near-inertial kinetic energy under eddy modulation. *Geophysical Research Letters*, 2024, 51: e2024GL111330.
- [4] **Jianing Wang**, Lingling Liu*, YongFu Lin, JinYi Yu, Fan Wang, A see-saw of subduction rate in the North Pacific western and eastern subtropical mode water formation areas induced by the Aleutian Low. *Geophysical Research Letters*, 2024, 51: e2024GL110837.
- [5] Zhixiang Zhang, **Jianing Wang***, Fan Wang*, A new subsurface precursor across the spring predictability barrier for the ENSO prediction, *Deep-Sea Research Part I*, 2024, 203: 104213.
- [6] Weidong Ma, **Jianing Wang***, Fan Wang*, Zhixiang Zhang, Qiang Ma, The vertical structure and intraseasonal variability of the deep currents in the southern Philippine basin, *Deep-Sea Research Part I*, 2023, 197: 104043. <https://doi.org/10.1016/j.dsr.2023.104043>.
- [7] **Jianing Wang***, Fan Wang*, Youyu Lu, Hang Zhang, Qiang Ma, Larry J. Pratt, Zhixiang Zhang, Abyssal circulation from the Yap-Mariana Junction to the Northern Philippine Basin, *Geophysical Research Letters*, 2023, 50(6): e2022GL100610. <https://doi.org/10.1029/2022GL100610>.
- [8] Hang Zhang, **Jianing Wang***, Fan Wang, Zhixiang Zhang, Qiang Ma, Observed upper deep branch of the Pacific meridional overturning circulation north of New Guinea, *Journal of Physical Oceanography*, 2023, 53: 1375-1386. <https://doi.org/10.1175/JPO-D-22-0180.1>.
- [9] Duhan Shen, **Jianing Wang***, Zhiyu Liu, Fan Wang*, Mixing in the upper western equatorial Pacific driven by westerly wind event, *Frontiers in Marine Science*, 2023, 9: 907699. <https://doi.org/10.3389/fmars.2022.907699>.

- [10] Zhixiang Zhang, **Jianing Wang***, Fan Wang*, Qiang Ma, Intraseasonal, annual, and interannual variabilities of subsurface currents at 4.7°N in the western Pacific Ocean. *Journal of Geophysical Research: Oceans*, 2022, 127(4): e2021JC017969. <https://doi.org/10.1029/2021JC017969>.
- [11] Qiang Ma, **Jianing Wang***, Fan Wang*, Yilong Lyu, Zhixiang Zhang, Interdecadal modulation of ENSO-related anomalous equatorial intermediate currents in the western Pacific by the PDO. *Geophysical Research Letters*, 2022, 49(6): e2022GL098409. <https://doi.org/10.1029/2022GL098409>.
- [12] Ying He, **Jianing Wang***, Fan Wang*, Toshiyuki Hibiya, Spatial distribution of turbulent diapycnal mixing along the Mindanao current inferred from rapid-sampling Argo floats. *Journal of Oceanography*, 2022, 78: 35-48. <https://doi.org/10.1007/s10872-021-00624-3>.
- [13] **Jianing Wang**, Qiang Ma, Fan Wang*, Dongxiao Zhang, Linking seasonal-to-interannual variability of intermediate currents in the southwest tropical Pacific to wind forcing and ENSO. *Geophysical Research Letters*, 2021, 48, e2021GL092440. <https://doi.org/10.1029/2021GL092440>.
- [14] **Jianing Wang**, Fan Wang*, Youyu Lu, Qiang Ma, Larry J. Pratt, Zhixiang Zhang, Pathways, volume transport, and seasonal variability of the lower deep limb of the Pacific meridional overturning circulation at the Yap-Mariana Junction. *Frontiers in Marine Science*, 2021, 8: 672199. <https://doi.org/10.3389/fmars.2021.672199>.
- [15] **Jianing Wang**, Qiang Ma, Fan Wang*, Youyu Lu, Larry J. Pratt, Seasonal variation of the deep limb of the Pacific meridional overturning circulation at Yap-Mariana Junction. *Journal of Geophysical Research: Oceans*, 2020, 125(7), e2019JC016017. <https://doi.org/10.1029/2019JC016017>.
- [16] Zhixiang Zhang, Larry J. Pratt, Fan Wang, **Jianing Wang***, Shuwen Tan, Intermediate intraseasonal variability in the western tropical Pacific Ocean: meridional distribution of equatorial Rossby waves influenced by a tilted boundary. *Journal of Physical Oceanography*, 2020, 50(4): 921-933.
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- [18] Jing Gao, **Jianing Wang***, Fan Wang*, Response of near-inertial Shear to Wind Stress curl and Sea Level. *Scientific Reports*, 2019, 9(1): 1-11.
- [19] Qiang Ma, Fan Wang*, **Jianing Wang***, Yilong Lyu, Intensified deep ocean variability induced by Topographic Rossby Waves at the Pacific Yap-Mariana Junction. *Journal of Geophysical Research: Oceans*, 2019, 124(11): 8360-8374.

- [20] **Jianing Wang**#, Youyu Lu#, Fan Wang*, Rong-Hua Zhang, Surface current in “hotspot” serves as a new and effective precursor for El Niño prediction, *Scientific Reports*, 2017, 7(1): 1-9.
- [21] **Jianing Wang**, Liang Zhao, Renfu Fan, Hao Wei*, Scaling relationships for diffusive boundary layer thickness and diffusive flux based on in situ measurements in coastal seas. *Progress in Oceanography*, 2016, 144: 1-14.
- [22] Fan Wang#, **Jianing Wang**#, Cong Guan, Qiang Ma, Dongxiao Zhang, Mooring observations of equatorial currents in the upper 1000 m of the Western Pacific Ocean during 2014, *Journal of Geophysical Research: Oceans*, 2016, 121 (6): 3730-3740.
- [23] **Jianing Wang**, Blair JW. Greenan*, Youyu Lu, Neil S. Oakey, William J. Shaw, Layered mixing on the New England Shelf in summer. *Journal of Geophysical Research: Oceans*, 2014, 119 (9): 5776-5796.
- [24] **Jianing Wang**, Hao Wei*, Youyu Lu, Liang Zhao, Diffusive boundary layer influenced by bottom boundary hydrodynamics in tidal flows. *Journal of Geophysical Research: Oceans*, 2013, 118(11): 5994-6005.
- [25] **Jianing Wang**, Liang Zhao, Hao Wei*, Variable diffusion boundary layer and diffusion flux at sediment-water interface in response to dynamic forcing over an intertidal mudflat. *Chinese Science Bulletin*, 2012, 57 (13), 1568-1577.
- [26] 赵秋雅, **汪嘉宁***, 张航, 张志祥, 马强, 马卫东, 王凡, 杨红卫, 雅浦-马里亚纳海沟连接区深层流季节内变异的特征和机制. *海洋与湖沼*, 2023.
- [27] 何英, **汪嘉宁***, 王凡, 基于数值模式评估细尺度参数化方案在南大洋背风波生成源地的适用性. *海洋与湖沼*, 2023.
- [28] **汪嘉宁***, 马强, 王凡, 刘彤, 张航, 张志祥, 西太平洋深层西边界流研究进展. *地球科学进展*, 2022, 37(1), 26-36. doi: 10.11867/j.issn.1001-8166.2021.107.
- [29] **汪嘉宁**, 王凡*, 张林林, 西太平洋深海科学观测网的建设和运行. *海洋与湖沼*, 2017, 48(6): 1471-1479.
- [30] 马强, **汪嘉宁***, 王凡, 六套海洋模式模拟热带西太平洋深层环流结果的对比分析, *海洋与湖沼*, 2017, 48(6): 1302-1317.

项目课题

1. 国家自然科学基金青年科学基金项目 (A类) : 西太平洋中深层环流动力学, 2026/01-2030/12, 主持
2. 国家自然科学基金重大研究计划重点项目: 西太平洋复杂地形下深海动力过程和与上层海洋的联系, 2020/01-2023/12, 主持
3. 中国科学院战略性先导科技专项子课题: 深海地形关键区水文动力环境特征与多尺度物质能量交换, 2019/07-2023/12, 主持

4. 国家自然科学基金面上项目：西太平洋深层西边界流的结构特征和变异规律，2018/01-2021/12，主持

学术兼职

- 2025.04 - 今 中国海洋湖沼学会深海科学分会副主任委员
2024.12 - 今 中国海洋发展研究会常务理事
2021.12 - 今 中国海洋研究委员会青年委员会委员
2020.11 - 今 “2029 年世界海洋观测大会”青年规划委员会委员

荣誉奖励

- 2024 曾呈奎海洋青年科技奖
2023 中国科学院青年创新促进会优秀会员
2022 山东省 TS 学者青年专家
2020 海洋工程科学技术奖一等奖“西太平洋实时科学观测网的建设运行和数据应用”，排名 2/15
2018 中国科学院青年创新促进会会员
2017 中国科学院杰出科技成就奖“热带西太平洋西边界流研究集体”，排名 8/17
2017 中国科学院海洋研究所汇泉学者
2016 中国海洋与湖沼十大科技进展

承担课程

研究生课程：热带海洋环流与气候、海洋大数据分析与应用