

## BIOGRAPHICAL SKETCH

### Jiandong Liu

Ph.D of Astrometry  
Planetary Climate Model Developer  
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Skill: FORTRAN, PYTHON, MATLAB, LINUX

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#### (a) Education & Training

LMD,CNRS	Paris, FR	Atmospheric Dynamics	Postdoc Fellow, 2025.2-now
LPC2E,CNRS	Orleans, FR	Atmospheric Dynamics	Postdoc Fellow, 2024-2025.12
LMD/IPSL,CNRS	Paris, FR	Atmospheric Dynamics	Postdoc Fellow, 2021-2024
SHAO, UCAS	Shanghai, China	Astrometry	Ph.D., 2016-2019
Wuhan University	Wuhan, China	Geodesy	M.S. , 2013-2016

#### (b) Research & Professional Experience

2024 – Present	Postdoc Researcher of Atmospheric Dynamics, LPC2E, CNRS, FR
2023.10 – 2023.11	Visitor for Radiative Transfer, IAA, CSIC, ES
2021 – 2024	Postdoc Researcher of Atmospheric Dynamics, LMD/IPSL, CNRS, FR
2019 – 2022	Assistant Professor of Geodesy (Tenure-tracked), NUIST, China
2016 – 2019	Research Assistant of Astrometry, SHAO, CAS, China

#### (c) Publications

##### *Featured*

1. Jiandong Liu, Ehouarn Millour, François Forget, and Jean-Yves Chauray, A stochastic parameterization of non-orographic gravity waves induced mixing for mars planetary climate model, *Journal of Geophysical Research: Planets* **130**, e2025JE009188 (2025).
2. Jiandong Liu, Ehouarn Millour, François Forget, Gabriella Gilli, François Lott, Deborah Bardet, Francisco González Galindo, Antoine Bierjon, Joseph Naar, Antoine Martinez, *et al.*, A surface to exosphere non-orographic gravity wave parameterization for the mars planetary climate model, *Journal of Geophysical Research: Planets* **128**, e2023JE007769 (2023).

##### *Most closely related*

1. Jiandong Liu, Ehouarn Millour, François Forget, Gabriella Gilli, François Lott, Deborah Bardet, and González Galindo, Diurnal cycle of non-orographic gravity waves' source altitudes and its impacts: Tests with mars planetary climate model, *Journal of Geophysical Research: Planets* **130**, e2024JE008880 (2025).
2. Jiandong Liu, Shuanggen Jin, and Yawen Li, Seasonal variations and global wave distributions in the mars thermosphere from maven and multisatellites accelerometer-derived mass densities, *Journal of Geophysical Research: Space Physics* **124**, 9315–9334 (2019).
3. Yawen Li, Jiandong Liu, and Shuanggen Jin, Horizontal internal gravity waves in the mars upper atmosphere from maven acc and ngims measurements, *Journal of Geophysical Research: Space Physics* **126**, e2020JA028378 (2021).
4. Peng Han, Shuanggen Jin, Jiandong Liu, and Yawen Li, Thermospheric density responses to martian dust storm in autumn based on maven data, *Geodesy and Geodynamics* **13**, 595–601 (2022).

5. Siteng Fan, François Forget, Michael D Smith, Sandrine Guerlet, Khalid M Badri, Samuel A Atwood, Roland MB Young, Christopher S Edwards, Philip R Christensen, Justin Deighan, Jiandong Liu, and Millour Ehouarn, Migrating thermal tides in the martian atmosphere during aphelion season observed by emm/emirs, *Geophysical Research Letters* **49**, e2022GL099494 (2022).
6. Siteng Fan, François Forget, Michael D Smith, R John Wilson, Sandrine Guerlet, Khalid M Badri, Samuel A Atwood, Roland MB Young, Christopher S Edwards, Philip R Christensen, Jiandong Liu, and Millour Ehouarn, Diurnal temperature variations and migrating thermal tides in the martian lower atmosphere observed by the emirates mars infrared spectrometer, *Journal of Geophysical Research: Planets* **130**, e2025JE009092 (2025).

#### ***Other significant publications***

1. Jiandong Liu, Erhu Wei, and Shuanggen Jin, Mars cruise orbit determination from combined optical celestial techniques and x-ray pulsars, *The Journal of Navigation* **70**, 719–734 (2017).
2. Jiandong Liu, Erhu Wei, Shuanggen Jin, and Jingnan Liu, Absolute navigation and positioning of mars rover using gravity-aided odometry, *The Journal of Navigation* **71**, 530–546 (2018).
3. Jiandong Liu and Shuanggen Jin, Evaluation of mars probe positioning using x-ray pulsars, celestial, gravity-aided and ground-based measurements, *Planetary and Space Science* **163**, 14–34 (2018).
4. Erhu Wei, Cuijun Dong, Yali Yang, Shenquan Tang, Jiandong Liu, Guangyu Gong, and Zhihong Deng, A robust solution of integrated sitan with tercom algorithm: weight-reducing iteration technique for underwater vehicles' gravity-aided inertial navigation system, *NAVIGATION: Journal of the Institute of Navigation* **64**, 111–122 (2017).
5. Wentao Duan, Jiandong Liu, Qingyun Yan, Haibing Ruan, and Shuanggen Jin, The effect of spatial resolution and temporal sampling schemes on the measurement error for a moon-based earth radiation observatory, *Remote Sensing* **13**, 4432 (2021).

#### **(d) Synergistic Activities**

1. Regular referee for GRL, JGR, Icarus, PSJ, Satellite Navigation, etc.
2. Teaching experiences
  - Geodesy (2019.9-2021.9), Lecturer. Foundation courses for students whose majors are Geomatics, Geodesy, or Remote Sensing.
  - Introduction to Geosciences (2019.9-2021.9), Lecturer. Introduction courses for students whose majors are Geomatics, Geodesy, and Remote Sensing.
  - Space Geodesy (2013-2016), Teaching Assistant. Foundation courses for Master/Ph.D students majoring in Geodesy.
  - Celestial Navigation (2015-2016), Lecturer. Foundation courses for students majoring in navigation engineering.
3. Conference services
  - 2018.7, International Workshop on GNSS Ionosphere (IWGI2018), member of LOC.
  - 2016.6, IGC+2016, member of LOC.
4. Scientific Projects
  - 2022-2026, National Natural Science Foundation of China (NSFC) Project (Grant No. 42241115), China (co-PI)

- 2021-2024, Jiangsu Natural Science Foundation (BK20210636), "Martian ionospheric responses to the surface dust storms", China, (PI)
  - 2020-2022, Jiangsu Innovation Foundation for Younger Scientists, "Dust impact on the thermosphere of Mars by observations", China, (PI)
  - 2019-2021, Startup Foundation for Introducing Talent of NUIST (Grant No:2019r089), "Mars thermosphere density variations from MAVEN observations", China (PI)
  - 2016-2017, CAS Key Laboratory of Planetary Sciences Project (Grant No. PSL16-07): "Martian atmospheric density estimation and its variation characteristics", China (PI)
5. ESA technique report
- Finalization of the GCM version 6: Deliverable Document D2 - Part 4: Non-orographic Gravity Waves Parameterization
  - Mars Climate Database: Validation and Improvements for Surface Operations