Research Field: PLANETARY ATMOSPHERE
Focused Field: Climate of Mars

SHORT BIO

Dr. Xiao has been trained for many years in numerical simulation and dynamic analysis about the atmosphere of Earth at Nanjing University. Then her research scope extended to Mars since she joined the MUST in 2016. The subjects includes:

- **Topographic convections and precipitation**
- **Convective structure and dynamics of spiral rainbands in tropical cyclone (TC)**
- **Dust climate on Mars and related dynamical processes**
- **High-resolution numerical simulation of the Martian atmospheric conditions for (Entrance, Descending and Landing) EDL process of China's First Mars Mission (2020)**

Dr. Xiao and her group have been participated in the first Mars exploration mission of China (Tianwen-1). The Mars climate model MarsWRF was used to perform series of five-domain nesting simulations (finest grid size ~3.6 km) to provided the thermal and wind fields around the preferred landing area. Our results validated the reference conditions (provided by engineering models) and further gave the mesoscale flow structures and convective activities.

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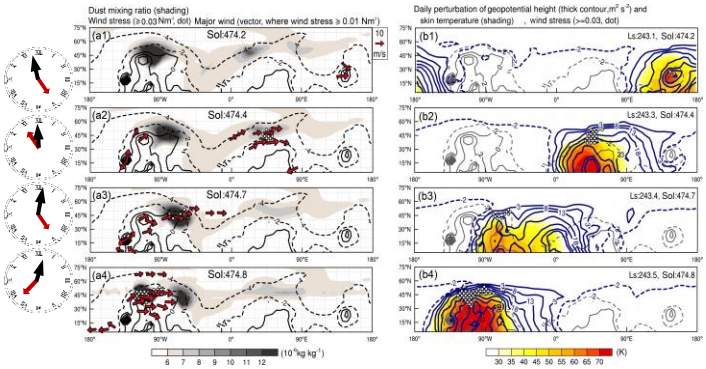

Dynamical processes of dust lifting on Mars (Xiao et al., 2019)

KEY PUBLICATIONS (*first / corresponding author*)

1. **Xiao, J.**, K. C. Chow, K. L. Chan, 2019: Dynamical Processes of Dust Lifting in the northern Mid-latitude region of Mars during the Storm Season. *Icarus*, **317**, 94 - 103.
2. **Xiao, J.**, Z.-M. Tan, and K.-C. Chow, 2018: Convective structure and formation of secondary rainbands in a simulated typhoon Jangmi (2008), *Meteorol. Atmos. Phys.*, **131**, 713-737.
3. Wang Y. M., Chow, K. C., **J. Xiao**, C. F. Wong, 2021: Effect of dust particle size on the climate of Mars. *Planetary and Space Science*, **208**, 105346.
4. Liu, J., K.-C. Di, S. Gou, Z.Y. Yue, B. Liu, **J. Xiao**, Z.Q. Liu, 2020: Mapping and spatial statistical analysis of Mars Yardangs. *Planetary and Space Science,* **192**, 105035.
5. Chow, K. C., **J. Xiao**, K. L. Chan, C. F. Wong, 2019: Flow associated with the condensation and sublimation of polar ice caps on Mars. *Journal of Geophysical Research – Planets*, **124**, 1570-1580.
6. Chow, K. C., Chan, K. L., **Xiao, J**., 2018: Dust Activity over the Hellas Basin of Mars during the Period of Southern Spring Equinox. *Icarus*, **311**, 306 - 316.

PROFESSIONAL EXPERIENCE

Oct. 2018 – *Postdoc, Macau University of Science and Technology.*
Jan. 2019 – Apr. 2019*: Visiting scholar, University of California in Los Angeles (UCLA).*
Oct. 2016 – Sep. 2018*: Research assistant, Macau University of Science and Technology.*

TEACHING EXPERIENCDE

Spring 2018: Instructor of the graduate course "Atmospheric physics and dynamics", Space Science Institute, Macau University of Science and Technology.

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