

# CHONGXING FAN

[https://cxfan1997.github.io/cxfan\\_starfan/](https://cxfan1997.github.io/cxfan_starfan/)

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## EDUCATION

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**University of Michigan, Ann Arbor**

*September 2019 – Present*

Ph.D. Candidate in Climate and Space Sciences and Engineering

Certificate of Graduate Studies (Computational Discovery and Engineering; conferred in 2022)

GPA: 4.00/4.00 (*as of Winter 2023*)

**Nanjing University**

*September 2015 – July 2019*

Bachelor of Science in Atmospheric Sciences

GPA: 3.95/4.00

## HONORS AND AWARDS

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Richard and Eleanor Towner Prize for Distinguished Academic Achievement Award (UM) 2023

Future Investigators in NASA Earth and Space Science and Technology Fellowship (\$150,000, NASA) 2022  
*Title: Impacts of Solar Farming on Surface Energy Budget and Climate from Long-Term NASA Satellite Observations*

Rackham International Students Fellowship (UM) 2020

MICDE Fellowship (UM) 2019

Honorable Mention in the Mathematical Contest in Modeling (MCM, COMAP) 2018

Chow Tai Fook Scholarship (Top 1%, NJU) 2018

China's National Scholarship (Top 1%, NJU) 2017

Scholarship of Mr. Liao (Top 1%, NJU) 2016

## PEER-REVIEWED PUBLICATIONS

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### Published manuscripts:

1. Huang, X., Chen, X., **Fan, C.**, Kato, S., Loeb, N., Bosilovich, M., et al. (2022). A synopsis of AIRS global-mean clear-sky radiance trends from 2003 to 2020. *Journal of Geophysical Research: Atmospheres*, 127, e2022JD037598.  
<https://doi.org/10.1029/2022JD037598>.
2. **Fan, C.**, & Huang, X. (2021). Direct impact of solar farm deployment on surface longwave radiation. *Environmental Research Communications*, 3(12), 125006.  
<https://doi.org/10.1088/2515-7620/ac40f1>

3. **Fan, C.,** & Huang, X. (2020). Satellite-observed changes of surface spectral reflectances due to solar farming and the implication for radiation budget. *Environmental Research Letters*, 15(11), 114047. <https://doi.org/10.1088/1748-9326/abbdea>
4. **Fan, C.,** Wang, M., Rosenfeld, D., Zhu, Y., Liu, J., & Chen, B. (2020). Strong precipitation suppression by aerosols in marine low clouds. *Geophysical Research Letters*, 47(7), e2019GL086207. <https://doi.org/10.1029/2019GL086207>

Submitted manuscripts:

5. **Fan, C.,** Chen, Y.-H., Chen, X., Lin, W., Yang, P., & Huang, X. A refined understanding of the cloud longwave scattering effects in climate model. (*submitted to Journal of Advances in Modeling Earth Systems*)
6. **Fan, C.,** & Huang, X. Infrared scattering of cloud in an isothermal atmosphere. (*submitted to Journal of the Atmospheric Sciences*)

## PROFESSIONAL SERVICES

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1. **Peer reviewer** for *Advances in Atmospheric Sciences*
2. **Peer reviewer** for *Journal of Climate*
3. **Peer reviewer** for *Journal of Geophysical Research - Atmospheres*

## CONFERENCES, PROCEEDINGS, AND ABSTRACTS

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[O] Oral Talks; [P] Posters

1. [O] Huang, X., Chen, X., Strow, L., **Fan, C.,** Loeb, N., Kato, S., Yue, Q. The Insights from Twenty Years of AIRS Radiances and an Outlook for the Incoming Decade: A Climate Perspective. 20<sup>th</sup> Annual Meeting of the Asia Oceania Geosciences Society. Singapore. July 30 - August 4, 2023.
2. [P] **Fan, C.,** & Huang, X. Understanding How Solar Farms Modify Radiation Budget and Regional Climate Based on Satellite-observation Constrained Climate Modeling. 20<sup>th</sup> Annual Meeting of the Asia Oceania Geosciences Society. Singapore. July 30 - August 4, 2023.
3. [O] **Fan, C.,** Chen, Y., Chen, X., Lin, W., Huang, X., & Yang, P. Including Ice-cloud Longwave Scattering and Surface Spectral Emissivities in Climate Models Leads to More Impacts on Mean-state Climate Than Climate Feedbacks. 20<sup>th</sup> Annual Meeting of the Asia Oceania Geosciences Society. Singapore. July 30 - August 4, 2023.
4. [P] **Fan, C.,** Chen, Y., Chen, X., Lin, W., Huang, X., & Yang, P. Ice-Cloud Longwave Scattering in Climate Models Leads to More Impacts on Mean-State Climate than Climate Feedbacks. GRC Radiation and Climate. Lewiston, Maine, USA. July 23-28, 2023.
5. [O] **Fan, C.,** Chen, Y., Chen, X., Lin, W., Huang, X., & Yang, P. Including Ice-Cloud Longwave Scattering and Surface Spectral Emissivities in Climate Models Leads to More Impacts on Mean-State Climate than Climate Feedbacks. EGU General Assembly 2023.

Vienna, Austria. April 23-28, 2023.

6. **[O] Fan, C.,** Chen, Y., Jing, X., Chen, X., Lin, W., Huang, X., & Yang, P. An Overall Assessment of the Ice-Cloud Longwave Scattering Effects on the Simulated Global Climate. 36th Conference on Climate Variability and Change, 103<sup>rd</sup> AMS Annual Meeting. Denver, CO, USA. January 8-12, 2023.
7. **[O] Fan, C., & Huang, X.,** Satellite-observed changes of surface reflectance, emissivity, and temperature due to solar farming and the implication for radiation budget. 14th Conference on Weather, Climate, and the New Energy Economy, 103<sup>rd</sup> AMS Annual Meeting. Denver, CO, USA. January 8-12, 2023.
8. **[O] Fan, C.,** Chen, Y., Jing, X., Chen, X., Lin, W., Huang, X., & Yang, P. An Overall Assessment of the Ice-Cloud Longwave Scattering Effects on the Simulated Global Climate. AGU Fall Meeting 2022. Chicago, IL, USA. December 12-16, 2022.
9. **[P] Fan, C., & Huang, X.,** Satellite-Observed Changes of Surface Radiative Properties due to Solar Farming and the Implication for Radiation Budget. Midwest Student Conference on Atmospheric Research 2022. Urbana, IL, USA. October 1-2, 2022.
10. **[P] Fan, C.,** Chen, Y., Jing, X., Chen, X., Lin, W., Huang, X., & Yang, P., Cloud scattering and surface spectral emissivities in climate model: Performance evaluation and feedback analysis. 2022 CFMIP Meeting on Clouds, Precipitation, Circulation and Climate Sensitivity. Seattle, WA, USA. July 19-22, 2022
11. **[O] Fan, C., & Huang, X.,** Satellite-Observed Changes of Surface Radiative Properties due to Solar Farming and the Implication for Radiation Budget. 2022 International Radiation Symposium. Thessaloniki, Greece. July 4-8, 2022.
12. **[P] Fan, C., & Huang, X.,** Solar Farm as an ideal test bed for satellite surface emissivity and temperature retrieval algorithms. AGU Fall Meeting 2021. New Orleans, LA, USA. December 13-17, 2021.
13. **[O] Fan, C., & Huang, X.,** Use different machine-learning algorithms for clear-sky detections in infrared hyperspectral observations: assessment and physical interpretability. 3rd NOAA Workshop on Leveraging AI in Environmental Sciences. Online. September 13-17, 2021.
14. **[P] Fan, C., & Huang, X.,** Satellite-observed changes of surface spectral reflectances due to solar farming and the implication for radiation budget. AGU Fall Meeting 2020. Online. December 1-17, 2020.

## INTERNSHIP EXPERIENCE

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### Globalink Research Internship

*July 2018 – October 2018*

- Project Title: Evaluation of quantitative precipitation estimation from model, satellite and radar
- Advisor: Prof. Yongsheng Chen (York University, Canada)

**Meteorological Bureau of Hunan Province, China**

*February 2018*

- Weather forecast intern

## **TEACHING EXPERIENCE**

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**Grader for CLIMATE 586 (Advanced Data Analysis)**

*Fall 2022*

- Responsibility: grading assignments

## **EXTRA-CURRICULUM ACTIVITIES**

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**Daily Email Group for International Students**

*October 2019 – October 2020*

- Created and organized the group where members write emails to other group members at any frequency they like to share their life, experiences, and stories.
- Named to be the English Language Institute (ELI) Student of the Month in December 2019. <https://lsa.umich.edu/eli/news-events/all-news/dec19studentofthemonth.html>

## **SKILLS**

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### **Computer Skills**

- Programming languages: C/C++, Fortran, Visual Basic, Python, NCL
- Platforms: Windows, Linux, macOS
- Applications: Excel, MindMaster, Git, Adobe Premiere Pro, Adobe Audition, OBS

### **Certifications**

- Jiangsu Computer Rank Examination Certificate of Level Two: C Language (Excellent Grade, 2017)
- National Computer Rank Examination Certificate of Level Two: C Language (Excellent Grade, 2017)
- Jiangsu Computer Rank Examination Certificate of Level Two: Visual Basic (Excellent Grade, 2016)