Julia Kukulies

Education

2018–2023 **Ph.D. in Natural Sciences, Advisor: Prof. Deliang Chen**,
Regional Climate group, Department of Earth Sciences, University of Gothenburg, Sweden,
Project: Observing and Modeling Precipitation in the Tibetan Plateau region.

2017–2018 **M. Sc. in Atmospheric Sciences**, *Final grade: VG (Excellent)*,
Department of Earth Sciences, University of Gothenburg, Sweden,
Project: Temporal and spatial variability of convection, clouds and precipitation over the Tibetan Plateau derived from recent satellite retrievals.

2013–2016 **B. Sc. in Earth Sciences with Major in Climatology**, *Final grade: VG (Excellent)*,
Department of Earth Sciences, University of Gothenburg, Sweden,
Project: Major ion deposition in the accumulated winter snowpack in northern Sweden.

Research positions

Oct 2023–Oct 2025 **ASP Postdoctoral Fellow**, *Meso- and Microscale Meteorology Lab*,
National Center for Atmospheric Research, Boulder, Colorado..

Mar–Jul 2023 **Research assistant in Mesoscale Meteorology**, *Regional Climate Group*,
Department of Earth Sciences, University of Gothenburg, Sweden.

Research visits

Oct 2021–May 2022 **National Center for Atmospheric Research, Boulder, Colorado, USA**,
ASP Graduate visitor program, Host: Dr. Andreas Franz Prein,
Project: Ensemble-based convection-permitting simulations in the Third Pole region.

Sep–Dec 2017 **School of Atmospheric Sciences, Nanjing University, China**,
Research visit in Aerosol-cloud research group, Host: Prof. Minghuai Wang,
Project: Satellite observations of convective clouds over the Tibetan Plateau.

Jun–Sep 2016 **Max Planck Institute for Meteorology, Hamburg, Germany**,
Internship in Hydrological group, Host: Dr. Tobias Stacke,
Project: Validation of a global dynamical wetland scheme in land-atmosphere coupled simulations.

Jun–Aug 2014 **Helmholtz Centre for Ocean Research, Kiel, Germany**,
Internship in Paleoclimatology and Natural Resources, Host: Dr. rer. nat. Warner Brückmann.

Awards and Grants

2023 **Faculty of Science Doctoral Thesis Award**,
Gothenburg, Sweden.

2022 **SciPy Financial Aid Scholarship**,
Texas, USA.

2021 **NCAR Advanced Study Program for graduate visitors**,
Colorado, USA.

2019 **Travel fund to International Conference on Regional Climate-CORDEX 2019**,
China.

2018 **Research Fund Adlerbertska Stiftelse**,
Sweden.

2018 **Sven Lindqvists forskningsstiftelse**,
Sweden.

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Outreach and Engagement

2018–2021 **Coordinator in GAC (Gothenburg Air and Climate Network) Board**.

2018–2021 **Executive Secretary of APECS (Association of Polar and Alpine Early Career Scientists)**.

Contributions to research community

Reviewer for the following scientific journals,
JGR Atmosphere, Journal of Climate, Journal of Applied Meteorology and Climatology, International Journal of Climatology.

Presentations at conferences

2022 **Process-oriented evaluation of kilometer-scale simulations of mesoscale convective systems**, *Swedish Climate Symposium, Sweden*.

2022 **The Role of Mesoscale convective systems in Precipitation in the Tibetan Plateau region**, *American Meteorological Society Annual meeting, Texas, USA*.

2021 **Mesoscale weather systems and their interaction in the Tibetan Plateau region**, *European Geoscience Union, Austria*.

2019 **Convective precipitation cells over the Tibetan Plateau in a high-resolution regional reanalysis**, *International Conference on Regional Climate-CORDEX, China*.

2019 **Spatial and temporal dynamics of convective precipitation cells on the Tibetan Plateau**, *European Meteorological Society, Denmark*.

2019 **Vertical cloud structures over the Tibetan Plateau as seen by spaceborne cloud radar measurements**,
8th Third Pole Environment workshop, Sweden.

International research schools

Jan 2020 **ERCA: European Research School on Atmospheres**,
Grenoble, France.

Sep 2019 **Max Planck Research School on Earth System Modeling**,
Hamburg, Germany.

Mar 2019 **Arctic in a changing climate (ClimbEco course)**,
Gothenburg, Sweden.

Oct 2018 **NEGI course on E-Science tools for Climate Research**,
Andoya, Norway.

Aug 2018 **Helsinki Summer school on Air quality in China**,
Helsinki, Finland.

Jun 2018 **ITPCAS Summer School on Climate Modeling**,
Beijing, China.

Sep 2016 **Baltic Earth Summer school on Atmosphere-Ocean climate models**,
Asko, Sweden.

Skills

Computer Python (*Advanced*), Linux and Bash scripting (*Good*), NCO/CDO (*Good*), R (*Basic*), Matlab (*Basic*)

Utilities Anaconda, Git, Jupyter Notebook, Slurm

Languages German (*Mothertongue*), English (*Fluent*), Swedish (*Fluent*), French (*Good*), Spanish (*Basic*)

Numerical Models Weather Research and Forecasting (WRF) Model, Model Prediction Across Scales (MPAS)

Research Interests

Convective storms and their impact on precipitation

Climate change effects on mesoscale atmospheric processes

Process-oriented model evaluation

Publications

Minola, L., Zhang, G., Ou, T., **Kukulies, J.**, Curio, J., Guijarro, J. A. and Chen, D. (2023). Climatology of near-surface wind speed from observational, reanalysis and high-resolution regional climate model data over the Tibetan Plateau. *Climate Dynamics*, 1-21.

Freeman, S. W., Brunner, K., Jones, W. K., **Kukulies, J.**, Senf, F., Stier, P. and van den Heever, S. C., (2023). Advancing our Understanding of Cloud Processes and Their Role in the Earth System through Cloud Object Tracking. *Bulletin of the AMS*.

Kukulies, J., Prein, A. F., Curio, J., Yu, H. and Chen, D. (2023). Kilometer-scale multi-model and multi-physics ensemble simulations of a mesoscale convective system in the lee of the Tibetan Plateau: Implications for climate simulations. *Journal of Climate*, 1-56.

Kukulies, J., Lai, H. W., Curio, J., Feng, Z., Lin, C., Li, P., Sugimoto, S., and Chen, D. Mesoscale convective systems in the Third Pole region: Characteristics, mechanisms and impact on precipitation. *Frontiers in Earth Science*, 11, 469.

Ou, T., Chen, D., Tang, J., Lin, C., Wang X., **Kukulies, J.** and Lai, H (2023). Wet bias of summer precipitation in the northwestern Tibetan Plateau in ERA5 is linked to weakened lower-level southerly wind over the plateau. *Climate Dynamics*, 1-1

Prein, A. F., Ban, N., Ou, T., Tang, J., Sakaguchi, K., Collier, E., Jayanarayanan, S., Sobolowski, S., Li, L., Chen, X., Zhou, X., Lai, H., Sugimoto, S., Zhou, L., Hasson, S., Ekstrom, M., Pothapakula, P., Ahrens, B., Stuart, R., Steen-Larsen, H. C., Leung, R. Belusic, D., **Kukulies, J.** , Curio, J. and Chen, D. (2022). Towards Ensemble-Based Kilometer-Scale Climate Simulations over the Third Pole region. *Climate Dynamics*, 1-27.

Kukulies, J., Chen, D. and Curio, J. (2021). The Role of Mesoscale Convective Systems in Precipitation in the Tibetan Plateau Region.*Journal of Geophysical Research: Atmospheres*, 126(23), e2021JD035279.

Zhang, X., Yin, Y., **Kukulies, J.**, Li, Y., Kuang, X., He, C., and Chen, J. (2021). Revisiting Lightning Activity and Parameterization Using Geostationary Satellite Observations. *Remote Sensing*, 13(19).

Lai, H. W., Chen, H. W., **Kukulies, J.**, Ou, T. and Chen, D. (2020). Regionalization of seasonal precipitation over the Tibetan Plateau and associated large-scale atmospheric systems. *Journal of Climate*, 1-45.

Kukulies, J., Chen, D. and Wang, M. (2020). Temporal and spatial variations of convection and precipitation over the Tibetan Plateau based on recent satellite observations. Part II: Precipitation climatology derived from GPM. *International Journal of Climatology.*

Kukulies, J., Chen, D. and Wang, M. (2019). Temporal and spatial variations of convection and precipitation over the Tibetan Plateau based on recent satellite observations. Part I: Cloud climatology derived from CloudSat and CALIPSO. *International Journal of Climatology.*