

Simon Mischel

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Education

- **M.Sc. Geophysics**, Ludwig Maximilian University of Munich & Technical University of Munich, 10.2023 – 08.2025
- **B.Sc. Geophysics**, Ludwig Maximilian University of Munich & Technical University of Munich, 10.2018 – 09.2023

Work Experience

- **Research Assistant**, Ludwig Maximilian University of Munich
Supervised by PD Dr. Elena A. Kronberg, 05.2023 – 09.2025
Working on ESA-funded research focused on predicting and evaluating proton intensities for the SMILE mission to support radiation risk assessment and mission planning.
 - First author of published research on proton intensity predictions:
Mischel, S., Kronberg, E. A., & Escoubet, C. P. (2024). *Evaluating proton intensities for the SMILE mission*. Space Weather, 22, e2024SW003934. doi: 10.1029/2024SW003934.
 - Presented research findings at the Smile SWT 22, 24, and 23 Mission Meetings (2023 & 2025) as well as at the EGU25 conference (2025) and the LMAG25 workshop (2025).
 - Developed a solar cycle-based extrapolation methodology to simulate space weather conditions relevant to the SMILE mission.
 - Applied the Tsyganenko 1996 model to determine magnetic field line configurations and assess their impact on proton intensities.
 - Built and optimized an XGBoost-based predictive model utilizing NASA's OMNI and Cluster RAPID datasets to improve proton intensities estimations.
 - Developed a machine learning-based decision support system to optimize the shutter operations of the SMILE SXI telescope, mitigating soft proton contamination risks.

Research Skills

- **Python Programming:** Experienced in scientific computing using NumPy, pandas, Matplotlib, SciPy, scikit-learn, and XGBoost for machine learning.
- **High-Performance Computing:** Experience with CUDA for running computationally intensive code on GPUs.
- **Data Science and Machine Learning:** Skilled in data analysis, predictive modeling, and time-series forecasting.
- **Space Weather Data Processing:** Expertise in constructing and merging large datasets.
- **Version Control (Git & GitHub):** Experienced in managing research code repositories, collaboration, and workflow optimization.
- **Scientific Communication:** Proficient in writing peer-reviewed papers and presenting research findings at conferences.
- **LaTeX:** Experienced in creating professional academic and technical reports.

Languages

- German (Native)
- English (Fluent)

References

- PD Dr. Elena A. Kronberg
Ludwig Maximilian University of Munich