

# UTE AMERSTORFER

## Curriculum Vitae

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### Summary

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I am a research scientist at the Austrian Space Weather Office. My expertise ranges from theoretical space plasma physics, MHD and Monte-Carlo simulations, and atmospheric evolution of planets to the interplanetary evolution of coronal mass ejections. My recent interests focus on the prediction of the magnetic field of coronal mass ejections and on their effects at Earth.

I monitor and forecast space weather conditions for the multi-hazard initiative AMAS operated by GeoSphere Austria, and inform the Austrian public about possible impacts of space weather events, such as northern lights visibility. My role at the Austrian Space Weather Office also includes the managing of our space weather services and products and their embedding in commercial space weather services as well as in a wider European environment, e. g. via ESA's space weather service network.

Additionally, I have held lectures in the master's and PhD programmes at the Institute of Physics of the University of Graz and have been supervising several bachelor's and master's students.

### I. Personal Data

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Employment: Research scientist, Austrian Space Weather Office, GeoSphere Austria

Place of Birth: Wels, Austria

### II. Education

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2007: PhD dissertation, University of Graz, Austria (with distinction)

2004: Diploma in physics, University of Graz, Austria (with distinction)

2001–2002: Course of studies abroad (ERASMUS), University of Leipzig, Leipzig, Germany

1999-2004: Studies of physics, University of Graz, Austria

### III. Professional History

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since 2022: Research scientist at Austrian Space Weather Office, GeoSphere Austria

2020–2022: Work package lead of workpackage "Machine Learning Solutions for Data Analysis and Exploitation in Planetary Science" in EU Horizon 2020 Project "Europlanet Research Infrastructure 2024", Space Research Institute, Austrian Academy of Sciences, Graz, Austria

2015–2020: Postdoctoral researcher, FWF-Projects P24247 and P31659, Space Research Institute, Austrian Academy of Sciences, Graz, Austria (2017–2018: maternity leave)

- 2011–2015: University assistant, Institute of Physics, University of Graz, Austria  
2008–2011: Postdoctoral researcher, FWF-Project P21051-N16, Space Research Institute, Austrian Academy of Sciences, Graz, Austria  
2005–2007: Doctoral research fellow, Doc-fORTE scholarship, Space Research Institute, Austrian Academy of Sciences, Graz, Austria

#### **IV. Main Areas of Research and Expertise**

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- Team leading and management
  - co-lead of an ISSI team
  - work package lead in an EU Horizon 2020 project (coordinating eight partner institutes)
  - several successful applications and executions of research projects
  - supervision of bachelor's and master's theses
- Space weather
  - applied space weather forecasting in a multi-hazard context
  - operational forecasting of magnetic flux ropes in interplanetary coronal mass ejections
  - evolution of coronal mass ejections and their magnetic field structures
- Planetary atmospheres and evolution
  - development of a Monte-Carlo model to simulate the production and loss of energetic atoms of terrestrial atmospheres
- MHD instabilities at boundary layers
  - development of a 2.5 MHD code to simulate the Kelvin-Helmholtz instability in space plasmas

#### **V. Teaching and Supervision**

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- Lecturer of several master's and PhD level courses
  - "Hydrodynamics"
  - "Magnetohydrodynamics and solar-terrestrial modeling"
  - "Numerical modeling in magnetohydrodynamics"
  - "Selected problems in astrophysical data analysis"
  - "Physics of stellar atmospheres"
- Supervisor of three bachelor's and four master's theses at the University of Graz

#### **VI. Awards and Scholarships**

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- 2008: Female Junior Scientist, Award by the Faculty of Natural Sciences of the University of Graz
- 2007–2008: L'ORÉAL Austria For Women in Science, Scholarship by L'ORÉAL Austria in cooperation with the Austrian UNESCO-Commission and the Austrian Academy of Sciences, with support by the Federal Ministry of Science and Research
- 2005–2007: DOC-fORTE [Women in Science and Technology], Scholarship for PhD students by the Austrian Academy of Sciences

#### **VII. Acquisition of Research Funding**

Project title	Funding agency	Duration	Total (Euro)
ESA Space Weather Alert System (co-proposer)	ESA	2026	194,980.00
NAWI Graz Research Support for Master's Thesis (for one of my students)	NAWI Graz	2013-2014	3,000.00
Flapping Oscillations in the Magnetotail Current Sheet (co-proposer)	Bilateral FWF-RFBR	2010-2015	309,351.00
Non-linear FLR and Hall MHD Kelvin-Helmholtz Instability (co-proposer)	FWF	2009-2013	187,467.00
L'Oréal Austria For Women in Science, Scholarship for women in basic research (medicine, natural sciences, mathematics)	L'Oréal Österreich, Österr. UNESCO-Kommission, ÖAW	2007-2008	15,000.00
DOC-fORTE PhD Scholarship	ÖAW	2005-2007	24,000.00

### VIII. Additional notes on professional career

- 45 peer-reviewed publications in international scientific journals
- Co-author of chapters in 6 books
- Over 100 contributions to international conferences (talks and posters)
- Member of the science team of NASA SMEX mission "ESCAPE" (mission concept phase)
- Reviewer for scientific journals (e.g. Journal of Geophysical Research, Geophysical Research Letters, Physics of Plasmas, Icarus, Astrophysical Journal), as well as for research institutions (e.g. Israel Science Foundation, University of Helsinki)
- Organizer and chair of sessions and workshops at conferences
- Public outreach
  - Lectures for the public and in schools
  - Discussions in expert panels
  - Organization of and participation in workshops
  - Supervision and execution of ESA's Moon Camp Challenge in a primary school class (building a Moon surface with a Moon camp, making a stop motion video of astronauts living and working in that Moon camp, learning about hazards of working and living in space)

### IX. Additional qualifications

Languages: German, *mother tongue*  
English, *fluent in spoken and written*

Programming: Python, FORTRAN, C, IDL, Matlab