

Dr. Therese Moretto Jorgensen

Space Plasma Physics Group, Department of Physics and Technology
University of Bergen, Bergen, Norway

History of employment

- 2017-present: Senior Advisor, University of Bergen, Norway
- 2015-2017: Head, Geospace Science Section, NSF, USA
- 2004-2015 Program Director, National Science Foundation, USA
- 2000-2004: Senior research scientist, NASA GSFC, USA
- 1998-2001: Senior scientist, Danish Space Research Institute, Denmark
- 1994-1998: Research scientist, Danish Meteorological Institute, Denmark
- 1993-1994: Postdoctoral fellow, Nordic Institute for Theoretical Physics, Denmark

Graduate degrees

Doc. Scient. Degree (PhD), Theoretical physics (Thesis: "Structure and Properties of Hadrons at Zero and Finite Temperature"), University of Oxford, UK (1993); Cand. Scient. Degree (MSc), Physics and Mathematics (Thesis: "Microscopic calculations of energy levels and widths, including their fine and hyperfine structure, for antiprotonic atoms"), Aarhus University, Denmark (1988)

Research experience

Currently I am a senior scientist and adviser on **research management and planning** at the Department of Physics and Technology, University of Bergen. I am attached to the Space Plasma Physics group and participate in the research activities of the group. As Head of the Geospace Sciences Section at the National Science Foundation I led the foundation's **research and education activities in Geospace science** and served as the principal spokesperson at the foundation in this area of research. Significant achievements during my tenure at NSF include: founding the CubeSat program at NSF, for which I received the Director's Award for Excellence in Program Management in 2008; defining and leading the implementation of a new dedicated program for space weather research, established in 2013; instituting a program in collaboration with NASA to foster the development of integrative space science models; establishing extended network observing capabilities, prominent examples of which are AMPERE and SuperDARN; increasing diversity of NSF staff, review panels, and award recipients; promoting science to a broad audience through high-visibility interviews and keynote presentations. **My scientific interest** concerns the understanding of the coupled solar wind - magnetosphere - ionosphere system based on the analysis and interpretation of large datasets from a wide variety of sources, counting ground-based ionospheric measurements, low-altitude polar orbiting magnetic satellite observations, plasma and field measurements from a large number of satellites in the solar wind and magnetosphere, and results from global magneto-hydro-dynamic simulations of the system. Specific accomplishments include ground-breaking results related to the nature and origin of traveling convection vortices in the high latitude ionosphere. I have also obtained important results on the dynamics of ionospheric current systems, including investigations related to space weather effects. I am author or co-author of 50 publications in international refereed journals and have given more than 30 invited presentations at international conferences. My h-index is 19. (**Google Scholar:** <https://scholar.google.com/citations?user=P4c0KbcAAAAJ&hl=en>); OrcID: <https://orcid.org/0000-0002-2403-5561>

Selected publications

1. Moretto, T., Hesse, M., Vennerstrøm, S., & Tenfjord, P. (2018). Estimating the rate of cessation of magnetospheric activity in AMPERE field-aligned currents. *Geophysical Research Letters*, 45, 12,713– 12,719. <https://doi.org/10.1029/2018GL080631>
2. Vennerstrom, S. & Moretto, T. (2013). Monitoring auroral electrojets with satellite data. *Space Weather*, 11(9), 509–519. <https://doi.org/10.1002/swe.20090>
3. Moretto, T. & Robinson, R. (2008). Small satellites for space weather research. *Space Weather*, 6(5). <https://doi.org/10.1029/2008SW000392>
4. Moretto, T., Vennerstrom, S., Olsen, N., Rastatter, L. & Raeder, J. (2006). Using global magnetospheric models for simulation and interpretation of swarm external field measurements. *Earth Planets and Space*, 58(4), 439–449.
5. Moretto, T., Sibeck, D. G., Lavraud, B., Trattner, K. J., Reme, H. & Balogh, A. (2005). Flux pile-up and plasma depletion at the high latitude dayside magnetopause during southward interplanetary magnetic field: A cluster event study. *Annales Geophysicae*, 23(6), 2259–2264. <https://doi.org/10.5194/angeo-23-2259-2005>
6. Moretto, T., Hesse, M., Yahnin, A., Ieda, A., Murr, D. & Watermann, J. F. (2002). Magnetospheric signature of an ionospheric traveling convection vortex event. *Journal of Geophysical Research-Space Physics*, 107(A6). <https://doi.org/10.1029/2001ja000049>
7. Moretto, T. & Yahnin, A. (1998). Mapping travelling convection vortex events with respect to energetic particle boundaries. *Annales Geophysicae-Atmospheres Hydrospheres and Space Sciences*, 16(8), 891–899. <https://doi.org/10.1007/s005850050659>

Awards

2008: National Science Foundation Director's Award for Excellence in Program Management.

Selected commissions

2019: Member of the committee for the report on Next Steps Space Weather Benchmarks, commissioned by NSF and NASA

2018 – now: Member of the Daedalus EE10 candidate Mission Advisory Group for ESA Earth Observation Program and co-lead on the Phase-0 science study for the mission

2018 – now: Member of Technical Evaluation Boards for the ESA Swarm DISC program

2018: Expert panelist for ESA Earth Observation Program

2018: Expert reviewer for European Commission H2020 Program

2015 – 2017: US President's Office of Science and Technology Policy: National Science and Technology Council Subcommittee on Space Weather Operations, Research, and Mitigation

2010: United Nations Office of Outer Space Affairs: US representative at the symposium on Small Satellite Programmes for Sustainable Development. Graz, 2010

2008 – 2017: US Department of Defense Space Test Program: Government Rideshare Working Group

2008 – 2017: US National Reconnaissance Office: Annual Government CubeSat Technical Interchange Meetings

2006 – 2015: US National Space Weather Program: Committee for Space Weather

1996 – 2004: Geospace Environment Modeling Program, United States: International representative to the Steering Committee

Memberships

AGU since 1995; EGU since 1995; COSPAR since 1996