Ivana Kolmašová

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Education

Ph.D. Physics of plasmas, 2014, Czech Technical University, Prague, Czechia
Ing. Radioelectronics, 1987, Czech Technical University, Prague, Czechoslovakia

Professional experience

Current employer and position
From 2020 Institute of Atmospheric Physics of the Czech Academy of Sciences, Senior Research Scientist
From 2015 Charles University, Prague, Research Scientist
Previous employer and position
2014-2019 Institute of Atmospheric Physics, Czech Acad. Sci., Research Scientist
1994-2014 Institute of Atmospheric Physics Czech Acad. Sci., Research engineer
1987-1994 Geophysical Institute Czechoslovak Acad. Sci., Research engineer
Research visits
2017, 2018, 2019 University of Iowa, visiting research scientist (5 months)
2017, 2018 University of Mississippi, visiting research scientist (2 months)

Dr. Kolmašová worked as a research engineer involved in the development of satellite and ground based instruments from 1987 to 2014. Dr. Kolmašová switched from engineering to scientific position in 2014, after defending her Ph.D. She is now active in the research areas of atmospheric electricity and space plasma physics. She works on ground-based and spacecraft data analysis and interpretation with a focus on lightning processes, electromagnetic waves in space plasmas, and related phenomena. Recent research topics include electromagnetic waves generated by lightning discharges in the Earth's and Jovian magnetospheres. She worked as a technical manager of the IME-HF analyzer for the CNES Taranis mission. After the failure of the launch of Taranis she contributes to the effort to build an instrument dedicated for measurements of lightning related signals onboard stratospheric balloons and nanosatellites. She also serves as a product assurance person of all instruments which are being developed at the Department of Space Physics (RPWI for the ESA JUICE mission to the Jovian system, TDS for the ESA Solar Orbiter mission, DAPU for ESA Comet Interceptor mission).

Teaching and student supervision activities

Dr. Kolmašová led several student projects, two bachelor thesis, one master thesis and now is she leading two doctoral students. All students were working on analysis of electromagnetic signals generated by lightning discharges.

Professional Outreach and Professional Society Service

Dr. Kolmašová serves as associate editor for "Scientific Reports" from the Springer-Nature journals group. She serves as a reviewer for international scientific journals (Geophysical Research Letters, Journal of Geophysical Research, Atmospheric Research, Radio Science, Journal of Atmospheric and Solar-Terrestrial Physics, Atmospheres, Review of Scientific Instruments).

Committee Service

- A member of the evaluation panel P209 Atmospheric Sciences, Hydrology, Physical Geography and Geophysics of the Czech Science Foundation (GACR), since 2021
- A member of the World Meteorological Organization (WMO) Commission for Climatology ad-hoc Weather and Climate Extremes evaluation committee for lightning extremes, since 2021

- Deputy Chair of the Supervisory Board of the Institute of Atmospheric Physics of the Czech Academy of Sciences, from 2012 to 2022
- A member of the Board of the Geophysical Institute of the Czech Academy of Sciences since 2022
- President of The Czech URSI (International Union of Radio Science) National Committee, since 2016; The Czech URSI National Committee member, since 2014
- Council for Space Activities of CAS, member, since 2013
- Advisory group for the Space Horizon 2020 and Horizon Europe, Ministry of Transportation, member, since 2014

Professional membership: AGU (American Geophysical Union) member, URSI Senior Member, EGU (European Geophysical Union) member

Public outreach activities: Dr. Kolmašová is active in science popularization with approximately 5 public talks yearly dedicated to atmospheric electricity, thunderstorms and lightning topics. During the pandemic, she took part in the project "Invite a scientist to the school" by talking about lightning and thunderstorms in more than 20 online school classes.

Invited talks: 10 invited talks including the Centennial talk at AGU Fall meeting 2019 entitled *Lightning across the Solar System*

List of publications includes 47 papers in international peer-reviewed journals (27 in AGU journals)

List of selected publications:

Kolmašová, I., O. Santolík, and K. Rosická (2022), Lightning activity in northern Europe during a stormy winter: disruptions of weather patterns originating in global climate phenomena, *Atmos. Chem. Phys.*, 22, 1–11

Kolmašová, I., Soula, S., Santolík, O. et al. (2022), A frontal thunderstorm with several multi-cell lines found to produce energetic preliminary breakdown, *J. Geophys. Res. Atmospheres*, 127, 4, e2021JD03578.

Kolmašová, I., Santolík, O., Kašpar, P., Popek, M., Pizzuti, A., Spurný, P., et al. (2021). First observations of elves and their causative very strong lightning discharges in an unusual small-scale continental spring-time thunderstorm. *J. Geophys. Res. Atmospheres*, 126, e2020JD032825.

Kolmašová, I., Santolík, O., Defer, E. et al. (2020). Two propagation scenarios of isolated breakdown lightning processes in failed negative cloud-to-ground flashes. *Geophys. Res. Lett.*, 47, e2020GL090593

Kolmašová, I., Marshall, T., Bandara, S., Karunarathne et al. (2019). Initial breakdown pulses accompanied by VHF pulses during negative cloud-to-ground lightning flashes. *Geophys. Res. Lett., 46*.

Imai, M., **Kolmašová, I**., Kurth, W.S., Santolík, O. et al. (2019), Evidence for low density holes in Jupiter's ionosphere. *Nat. Commun. 10, 2751*.

Kolmašová, I., M. Imai, O. Santolík, W. Kurth, et al. (2018), Discovery of rapid whistlers close to Jupiter implying similar lightning rates to those on Earth, *Nature Astronomy*, 2, 7, pp. 544-548.

Brown, S., M. Janssen, V. Adumitroaie, S. Atreya, S.Bolton, S. Gulkis, A. Ingersoll, S. Levin, Ch. Li, L. Li, J. Lunine, S. Misra, G. Orton, P. Steffes, F. Tabataba-Vakili**, I. Kolmašová** et al. (2018), Detection of Lightning Sferics on Jupiter from Pole to Pole, *Nature*, 558, 87, pp. 87-90.

Kolmašová, I., O. Santolík, E. Defer et al. (2018), Lightning initiation: Strong VHF radiation sources accompanying preliminary breakdown pulses during lightning initiation, *Scientific Reports 8*, 3650.

Kolmašová, I., O. Santolík, T. Farges, et al. (2016), Subionospheric propagation and peak currents of preliminary breakdown pulses before negative cloud-to-ground lightning discharges, *Geophys. Res. Lett., 43, 1382–1391*.

Kolmašová, I., O. Santolík, T. Farges, et al. (2014), Properties of the unusually short pulse sequences occurring prior to the first strokes of negative cloud-to-ground lightning flashes, *Geophys. Res. Lett., 41, 5316–5324*.

Kolmašová, I., and O. Santolík (2013), Properties of unipolar magnetic field pulse trains generated by lightning discharges, *Geophys. Res. Lett., 40*.