

Curriculum vitae

Keren Duer–Milner

Contact information

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Professional experience

Sep. 24 – present: **SRON Netherlands Institute for Space Research, Leiden, the Netherlands**

Postdoctoral fellow (Exoplanets group)

Advisor: Dr. Yamila Miguel

Sep. 24 – present: **Leiden Observatory, Leiden University, Leiden, the Netherlands**

Guest postdoc researcher

2021 – present: **NASA Juno Science team**, member

Mar. 23– Aug. 24: **Weizmann Institute of Science, Rehovot, Israel**

Postdoctoral fellow (Department of Earth and Planetary Science)

Oct. 22–Feb. 23, Mar.–Jul. 21, Oct. 18–Feb. 19:

Weizmann institute of science, Rehovot, Israel

Teaching assistant for the course “Mathematical Methods for Modeling and Data Analysis”.

Aug. 2021: **Davidson institute**

Teaching assistant for the course “Brief introduction to basic research”.

Mar.–Jul. 20: **Weizmann institute of science, Rehovot, Israel**

Teaching assistant for the course “Introduction to the Global Climate System”.

- Aug. 2017:* **Davidson institute**
Instructor of high-school students in a summer project.
- 2015–2016:* **The Hebrew university of Jerusalem, Israel**
Research worker (during BSc)
Advisor: Prof. Hezi Gildor
Research focus: The different tidal components in the eastern Mediterranean using data analysis tools and winADCP.
- 2015–2016:* **The Virtual High School**
Physics tutor (during BSc)
Teaching assistant for virtual physics course in an all-girls religious high school as part of the formal studies in Israel.
- 2009–2011:* **Israeli air force**
Teaching assistant for physics, mathematics, and aerodynamics courses in the Israeli flight school, in cooperation with Ben Gurion university, Be'er sheva, Israel.

Education

- 2018–2023:* **Weizmann Institute of Science, Rehovot, Israel**
PhD (Department of Earth and Planetary Science)
Advisor: Prof. Yohai Kaspi
Thesis title: Deep atmospheric jets and circulation on giant planets
- 2016–2018:* **Weizmann institute of science, Rehovot, Israel**
MSc (Department of Earth and planetary science)
Advisor: Prof. Yohai Kaspi
Thesis title: The interaction between the magnetic field and the atmospheric circulation on giant planets
- 2013–2016:* **The Hebrew University of Jerusalem, Israel**
BSc (Department of Earth sciences)
Majored in atmosphere science and geology
Graduated with honors (GPA 93.6)

Honors and awards

- ◇ Next-gen Environmental Sustainability Postdoc award (2024–2025)
- ◇ CHE/PBC Fellowship Program for Outstanding Female Postdoctoral Students (2024–2026)
- ◇ Fulbright Postdoctoral Fellowship Recipient (24/25)
 - *Awarded but declined in favor of a postdoctoral position at Leiden, the Netherlands*
- ◇ The Israel Dostrovsky Memorial Prize of Excellence (2023)
- ◇ Best oral presentation award, American Meteorological Society AOFD meeting (2022)
- ◇ Best poster presentation award, American Meteorological Society AOFD meeting (2019)
- ◇ Schulich scholarship for a field oceanography course at Dalhousie university, Halifax, Canada (2016)
- ◇ BSc graduating with honor (2013–2016)
- ◇ Dean's honor list (2014–2015)
- ◇ Dean's honor list (2013–2014)

Publications

Duer, K., Gavriel, N., Galanti, E., and Kaspi Y., From Gas to Ice Giants: A Unified Mechanism for Equatorial Jets (2025). *Sci, Adv.*, *In Review*. [link](#)

Yoffe, G., **Duer, K.**, Nordheim T.~A., Halevy, I., and Kaspi, Y., Fluorescent Biomolecules Detectable in Near-Surface Ice on Europa (2025). *Astrobiology*, 25(5). [link](#)

Duer, K., Galanti, E., and Kaspi Y., Depth Dependent Dynamics Explain the Equatorial Jet Difference Between Jupiter and Saturn (2024). *Geophys. Res. Lett.*, 51(6). [link](#)

Duer, K., Galanti, E., and Kaspi Y. (2023). Gas giant simulations of eddy-driven jets accompanied by deep meridional circulation (2023). *AGU adv.*, 4(6). [link](#)

Kaspi, Y., Galanti, E., Park, R. S., **Duer, K.**, Gavriel, N., Guillot, T., Iess, L., Durante, D., Parisi, M., Buccino, D. R., Stevenson, D., and Bolton, S. J. Observational evidence for cylindrically oriented zonal flows on Jupiter (2023). *Nat. Astro.* 1–10 [link](#)

Duer, K., Gabriel N., Galanti, E., Kaspi Y., et al. Evidence for multiple Ferrel-like cells on Jupiter (2021). *Geophys. Res. Lett.*, 48(23). [link](#)

Galanti, E., Kaspi Y., **Duer, K.**, et al. Constraints on the Latitudinal Profile of Jupiter's Deep Jets (2021). *Geophys. Res. Lett.*, 48(9) [link](#)

Fletcher, L. N., Oyafo, F. A., Allison, M., Ingersoll, A., Li, L., Kaspi, Y., Galanti, E., Wong, M. H., Orton, G. S., **Duer, K.**, Zhang, Z., Li, C., Guillot, T., Levin, S. M., Bolton, S. Jupiter's Temperate Belt/Zone Contrasts Revealed at Depth by Juno Microwave Observations (2021). *J. Geophys. Res. (Planets)*, 126(10) [link](#)

Duer, K., Galanti, E., and Kaspi Y. The range of Jupiter's flow structures fitting the Juno asymmetric gravity measurements (2020). *J. Geophys. Res. (Planets)*, 125(8) [link](#)

Duer, K., Galanti, E., and Kaspi, Y. Analysis of Jupiter's deep jets combining Juno gravity and time-varying magnetic field measurements (2019). *Astrophys. J. Let.*, 879(2) [link](#)

Invited seminars and international meetings and schools

University of Zurich, Zurich, Swiss. "Deep jets and circulation on Giant (exo)Planets" (Invited seminar). 12/2025.

EPSC-DPS meeting, Helsinki, Finland. "From Gas to Ice Giants: A Unified Mechanism for Equatorial Jets" (Oral) and "Implications of a Radiative Zone on Jupiter's Gravity Field and Atmospheric Dynamics" (Oral). 09/2025 (upcoming).

Exoclines VII, Montréal, Canada. "Atmospheric Dynamics of the Solar System Giant Planets" (Invited review talk). 07/2025.

Parameterizations for global dynamical models in Climatology, Astrophysics and Planetology Workshop, Les Houches school of physics, France. "Zonal jets of Gas Giants, through observations and numerical simulations" (contributed talk). 03/2025.

Celebration Event for Professor Chris Jones, Leeds, UK. "Unified dynamics of equatorial jets on the four Jovian planets" (Oral). 09/2024.

The Hebrew University, Jerusalem, Israel. "Deep jets and circulation on giant planets" (Invited seminar). 06/2024.

AOFD meeting, Burlington, Vt, USA. "Gas Giant Simulations of Eddy-Driven Jets Accompanied by Deep Meridional Circulation" (Oral), and session chair. 06/2024.

Bar Ilan University, Bar Ilan, Israel. "Simulations of deep jets and circulation on giant planets" (Invited seminar). 04/2024.

EGU meeting, Vienna, Austria. “What determines the extent and strength of the equatorial zonal flows on Jupiter and Saturn?” (Poster). 04/2024.

AGU fall meeting, San Francisco, CA. “Gas giant simulations of eddy-driven jets and deep meridional circulation” (Poster). 12/2023 .

EGU meeting, Vienna, Austria. “Simulations of eddy-driven jets and circulation on gas giants” (Oral). 04/2023.

EPSC meeting, Granada, Spain. “Numerical GCM simulations for gas giants: Eddy-driven jets and meridional circulation cells” (Oral). 09/2022.

NASA Juno science meeting, Pasadena, Ca, USA. 06/2022.

University of Colorado and SWRI, Boulder, Co, USA. “Eddy-driven circulation on Jupiter as revealed by Juno data and numerical simulations” (Invited seminar). 06/2022.

AOFD meeting, Breckenridge, Co, USA. “Evidence for multiple Ferrel-like cells on Jupiter” (Oral), and session chair. 06/2022.

EGU meeting, Vienna, Austria. “Evidence for Multiple Ferrel-Like Cells on Jupiter” (Oral). 05/2022.

AGU fall meeting, New Orleans, USA. “Jupiter’s Deep Meridional Circulation as Inferred from Juno’s MWR” (Oral). 12/2021.

NASA Juno press conference, live broadcast on NASA TV. 10/2021. [link](#)

EGU meeting, virtual. “The relation between the zonal jets and ammonia anomalies in Jupiter” (Oral). 05/2021.

IPS meeting, virtual. “The relation between the zonal jets and ammonia anomalies in Jupiter” (Oral). 02/2021.

AGU fall meeting, virtual. “The statistical probability of deep flow structures that fit Jupiter’s asymmetric gravity field” (Oral). 12/2020.

EPSC meeting, virtual. “The range of flow structures fitting Jupiter’s asymmetric gravity field” (Oral). 09/2020. [link](#)

EGU meeting, virtual. “The range of flow structures fitting Jupiter’s asymmetric gravity field” (Oral). 05/2020.

EPSC–DPS meeting, Geneva, Swiss. “New insight on Jupiter’s deep flows using a combination of Juno gravity and magnetic field measurements” (Oral). 09/2019.

AOFD meeting, Portland, Me, USA. “Analysis of Jupiter’s deep jets combining Juno gravity and time-varying magnetic field measurements”, and session chair (Poster). 06/2019.

EGU meeting, Vienna, Austria. “New insight on Jupiter’s deep jets using the Juno gravity and magnetic field measurements” (Oral). 04/2019.

GTP workshop, Boulder, USA. “The interaction between the flow and the magnetic field in atmospheres of gas-giants” (Oral). 09/2018.

Fluid Mechanics of Planets and Stars, Udine, Italy. International course held in CISM center. 04/2018.

AGU fall meeting, New Orleans, USA. “Investigating Jupiter’s Deep Flow Structure using the Juno Magnetic and Gravity Measurements” (Poster). 12/2017.

AOFD meeting, Portland, Or, USA. 06/2017.