

Tom Dror

CLIMATE CHANGE · CLOUDS AND RADIATION · LAND ATMOSPHERE INTERACTION

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Education

Weizmann Institute of Science

PH.D. DEPARTMENT OF EARTH AND PLANETARY SCIENCES

Israel

2018 - 2023

- Dissertation title: On the properties of *greenCu*: continental, organized shallow clouds
- Advisor: Prof. Ilan Koren

Weizmann Institute of Science

MSC. DEPARTMENT OF EARTH AND PLANETARY SCIENCES

Israel

2015 - 2018

- Dissertation title: Timescale analysis of environmental controls on Sea Spray Aerosol production over the South Pacific Subtropical Gyre
- Advisor: Prof. Ilan Koren

Hebrew University of Jerusalem

BSC. INSTITUTE OF EARTH SCIENCE

Israel

2009 - 2012

- Climate, Atmospheric Science and Oceanography

Professional Experience

- 2026-present **Research Scientist I**, Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado Boulder & NOAA Chemical Sciences Laboratory (R/CSL9)
- 2024-2026 **CIRES postdoctoral visiting fellow**, Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado Boulder & NOAA Chemical Sciences Laboratory (R/CSL9)
- 2023-2024 **Postdoctoral fellow**, Weizmann Institute of Science
- 2018-2024 **CloudCT**, Member of the CloudCT project, a unique interdisciplinary Israeli-German collaboration between the Weizmann Institute, the Technion, and ZFT, aimed at launching a formation of ten tiny satellites that will utilize medically-inspired computed tomography (CT) techniques to address critical climate questions ([link](#)).
- 2013-2015 **Project manager and environmental planner**, Ethos Architecture Planning and Environment. Managing planning teams in master and outline plans. A member of the integrating team of the *Israeli Marine Plan*.

Publications

PUBLISHED & IN PRESS

- Dror, T.**, & Feingold, G. (2026). Deforestation triggers state-dependent cloud regimes in the Amazon. *Earth's Future*, 14, e2026EF008515. [link](#).
- Dror, T.**, & Feingold, G. (2026). Amazon forest loss: An all-sky biophysical top-of-atmosphere cooling feedback. *Science*, 392(6796), 429-432. [link](#).
- Roth, H., **Dror, T.**, Altaratz, O., & Koren, I. (2026). Morphology-Driven Ternary Pattern Space Spans Shallow Marine Clouds. *Journal of Geophysical Research: Atmosphere*, in press. [link](#).
- Chekroun, M. D., **Dror, T.**, Koren, I., & Honghu, L. (2026). Resolving emergent beat patterns through hybrid bayesian learning of multilayered stochastic hierarchical delay models. *npj Complexity*, in press. [link](#).
- Zhang, J., Painemal, D., **Dror, T.**, Lim, J.-S., Sorooshian, A., & Feingold, G. (2026). Inferring processes governing cloud transition during mid-latitude marine cold-air outbreaks from satellite. *Atmospheric Chemistry and Physics*, 26, 6015-6034. [link](#).
- Dror, T.**, Flores, J. M., & Koren, I. (2025). Global diurnal sea surface temperature variability and the role of ocean-atmosphere interactions. *Journal of Geophysical Research: Oceans*, 130(8), e2025JC022862. [link](#).
- Koren, I., **Dror, T.**, Shechter E. R., & Altaratz, O. (2025). Not as random: The stable dynamics controlling shallow convective clouds. *npj Clim Atmos Sci* 8, 43. [link](#).
- Koren, I., **Dror, T.**, Altaratz, O., & Chekroun, M. D. (2024). Cloud versus void chord length distribution (LvL) as a measure for cloud field organization. *Geophysical research letters*. [link](#).

- Dror, T.**, Koren, I., Liu, H., & Altaratz, O. (2023). Convective steady state in shallow cloud fields. *Physical Review Letters*, 131(13), 134201. [link](#).
- Chekroun, M. D., **Dror, T.**, Altaratz, O., & Koren, I. (2023). Equations discovery of organized cloud fields: Stochastic generator and dynamical insights. *arXiv preprint arXiv:2304.12199*. [link](#).
- Dror, T.**, Silverman, V., Altaratz, O., Chekroun, M. D., & Koren, I. (2022). Uncovering the large-scale meteorology that drives continental, shallow, green cumulus through supervised classification. *Geophysical research letters*, 49(8), e2021GL096684. [link](#).
- Dror, T.**, Chekroun, M. D., Altaratz, O., & Koren, I. (2021). Deciphering organization of GOES-16 green cumulus through the empirical orthogonal function (EOF) lens. *Atmospheric chemistry and physics*, 21(16), 12261-12272. [link](#).
- Dror, T.**, Koren, I., Altaratz, O., & Heiblum, R. H. (2020). On the abundance and common properties of continental, organized shallow (green) clouds. *IEEE Transactions on Geoscience and Remote Sensing*. [link](#).
- Dror, T.**, Flores, J. M., Altaratz, O., Dagan, G., Levin, Z., Vardi, A., & Koren, I. (2020). Sensitivity of warm clouds to large particles in measured marine aerosol size distributions – a theoretical study, *Atmospheric Chemistry & Physics*, 20, 15297–15306. [link](#).
- Dror, T.**, Lehahn, Y., Altaratz, O., & Koren, I. (2018). Temporal-scale analysis of environmental controls on sea spray aerosol production over the South Pacific Gyre. *Geophysical Research Letters*, 45(16), 8637-8646. [link](#).
- Chemke, R., **Dror, T.**, & Kaspi, Y. (2016). Barotropic kinetic energy and enstrophy transfers in the atmosphere. *Geophysical Research Letters*, 43(14), 7725-7734. [link](#).

SUBMITTED

- Dror, T.**, Zhang, J., & Feingold, G. (2026). Amazon darkening mitigated by all-sky biophysical feedbacks. Submitted to *Nature Climate Change*.

Awards & Fellowships

2026	Women's Postdoctoral Career Development Award in Science , Weizmann Institute of Science	Israel
2024	The CHE/PBC Fellowship Program for Outstanding Female Postdoctoral Students , Higher Education Council	Israel
2024	CIRES Postdoctoral Visiting Fellowship , Cooperative Institute for Research in Environmental Sciences at the University of Colorado Boulder	Boulder, CO, USA
2023	Next-gen Environmental Sustainability Postdoc award , Institute for Environmental Sustainability, Weizmann Institute of Science	Israel
2021	PhD Research Fellowship , Weizmann Data Science Research Center	Israel
2021	Outstanding Student and Ph.D. candidate Presentation Award , European Geosciences Union (EGU)	Vienna, Austria

Presentations at conferences and seminars

INVITED TALKS AND SEMINARS

- NOAA Oceanic and Atmospheric Research (OAR)**, Boundary layer / surface interactions seminar, June 2026.
- NOAA Boulder**, Chemical Sciences Laboratory (CSL) Seminar Series, May 2026.
- University of Colorado, Boulder**, Boase Hydrologic Sciences and Water Resources Engineering Seminar Series, February 2026.
- The Weizmann Institute of Science**, The Institute for Environmental Sustainability (IES), January 2026.
- The Hebrew University of Jerusalem**, Institute of Earth Sciences seminar, January 2026.
- AMS annual meeting: joint session of the 17th Symposium on Aerosol-Cloud-Climate Interactions and the Second Symposium on Cloud Physics**, January 2025.
- Technion – Israel Institute of Technology**, Environmental Engineering seminar, March 2024.
- Tel Aviv University**, Geophysics colloquium, February 2024.
- The Hebrew University of Jerusalem**, Institute of Earth Sciences seminar, January 2024.
- Israel Meteorological Service**, IMS colloquium, January 2024.

Batsheva de Rothschild Seminar on Cloud-Climate Interactions Across Scales, March 2023. *Green Cumulus clouds throughout the world's continents*. Eilat, Israel.

CONFERENCES

AMS Madison Summit, 17th Conference on Atmospheric Radiation, 2026. *The All-Sky Radiative Response to Amazon Deforestation: The Role of Low-Level Clouds in Local Biophysical TOA Cooling*. Madison, WI, U.S.A.

AMS Madison Summit, 17th Conference on Cloud Physics, 2026. *Atmospheric Control of Deforestation-Induced Cloud Regimes*. Madison, WI, U.S.A.

Global Monitoring Annual Conference (GMAC), 2026. *Deforestation-Driven Clouds Amplify Top-of-Atmosphere Cooling in the Amazon*. Boulder, CO, U.S.A.

American Geoscience Union (AGU) Fall Meeting, 2025. *Cooling Feedbacks from Amazon Deforestation: an All-Sky Biophysical Perspective*. New Orleans, LA, U.S.A.

Gordon Research Conference, Radiation and Climate, 2025. *Amazon Forest Loss: an All-Sky Biophysical Cooling Feedback*. Maine, U.S.A.

AGU Fall Meeting, 2024. *On the Stable Dynamical Machinery that Dictates Trade Cumulus Cloud Properties*. Washington, D.C., U.S.A.

AGU Fall Meeting, 2023. *Convective steady state in shallow, boundary-layer cloud fields*. San Francisco, CA, U.S.A. & online.

Workshop on Cloud Organisation and Precipitation Extremes, 2023. *Organized patterns in greenCu; continental shallow convective clouds*. Trieste, Italy.

The European Geoscience Union (EGU) General Assembly, 2023. *On the properties of greenCu: continental, organized shallow clouds*. Vienna, Austria.

International Conference on Clouds and Precipitation, 2021. *Organized shallow continental (green) Cumulus*. Pune, India (virtual).

The EGU General Assembly, 2021. *EOF analysis of Green Cumulus mesoscale organization*. Vienna, Austria & online.

AGU Fall Meeting, 2021. *On the universal properties of Green Cumulus*. New Orleans, LA, U.S.A. & online.

The EGU General Assembly, 2019. *Environmental controls on sea spray aerosol production*. Vienna, Austria.

Workshop on Eulerian vs. Lagrangian methods for cloud microphysics, 2019. *Ultra-giant CCN's effect on warm clouds*. Krakov, Poland.

Teaching Experience

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| 2025–2026 | CSL Science Social Weekly Seminar , NOAA Chemical Sciences Laboratory, Co-organizer |
| 2023 | Cloud physics across scales - a guided reading course , Weizmann Institute of Science, Co-lecturer |
| 2017 | EPScon, Student Conference on Research in Environmental, Earth and Planetary Sciences , Weizmann Institute of Science, Organizer |

Mentoring

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| 2025–present | Lukas Rudaitis, M.Sc. Candidate , Member of the Supervisory and Examining Committee, Department of Physics and Atmospheric Science, Dalhousie University, Canada. |
| 2023 | Hadar Roth , Young Weizmann scholars, Weizmann Institute of Science. |
| 2021 | Toviah Aaronson , Undergraduate student, scientific project at the Weizmann Institute of Science. |
| 2020 | Noga Liberty , Amos de-Shalit summer school, Weizmann Institute of Science. |