Tom Dror

Climate Change · Cloud Physics · Land Atmosphere Interaction

NOAA Chemical Sciences Laboratory, 325 Broadway, Boulder, CO 80305 USA

tom.dror@noaa.gov | https://tomadror.github.io/tomdror/ | tom-dror-schwartz

Education

Weizmann Institute of Science *Israel*

Ph.D. Department of Earth and Planetary Sciences *2018 - 2023*

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

Weizmann Institute of Science *Israel*

MSc. Department of Earth and Planetary Sciences *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 *Israel*

BSc. Institute of Earth Science *2009 - 2012*

- Climate, Atmospheric Science and Oceanography

Professional Experience

2024-present	**CIRES Postdoctoral 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

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.**, Shehter 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.

Under Review

Dror, T., & Feingold, G. (2025). Amazon Forest Loss: an All-Sky Biophysical Cooling Feedback. Under review in Science.

Zhang. J., Painemal. D., **Dror. T**., Lim. J.S., Sorooshian. A., & Feingold. G. (2025). Inferring processes governing cloud transition during mid-latitude marine cold-air outbreaks from satellite. Under review in ACP.

Awards & Fellowships

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*
2018	**A Travel award**, Weizmann Women in science	*Israel*

Presentations at conferences and seminars

Invited Talks

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

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

The American Geoscience Union General Assembly, 2024. *On the Stable Dynamical Machinery that Dictates Trade Cumulus Cloud Properties*. Washington, D.C., U.S.A.

The American Geoscience Union General Assembly, 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 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 European Geoscience Union General Assembly, 2021. *EOF analysis of Green Cumulus mesoscale organization*. Vienna, Austria & online.

The American Geoscience Union General Assembly, 2021. *On the universal properties of Green Cumulus*. New Orleans, LA, U.S.A. & online.

The European Geoscience Union 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

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

2025	**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.