**CURRICULUM VITAE**

**Name**: Guy Dagan

**Date of Birth:** Feb. 3, 1986

**Place of Birth**: Jerusalem, Israel

**Address:** Faculty of Sciences, Institute of Earth Sciences, Office 202, The Hebrew University of Jerusalem, Israel

**E-mail:** guy.dagan@mail.huji.ac.il

**Updated**: 13/02/2022

**Education**

2014-2018 PhD, Weizmann Institute of Science, Department of Earth and Planetary Sciences. Supervisor: Prof. Ilan Koren.

Field of study: Aerosol-cloud interactions in warm convective clouds.

2012-2014 MSc, Weizmann Institute of Science, Department of Earth and Planetary Sciences. Supervisor: Prof. Ilan Koren

Field of study: Aerosol-cloud interactions in warm convective clouds.

2009-2012 BSc, Hebrew University of Jerusalem

 Atmospheric sciences

 Graduated with honors (Magna cum-laude)

**Professional Experience**

2021-present Senior lecturer (equivalent to tenure-track assistant professor), Faculty of Sciences, Institute of Earth Sciences, The Hebrew University of Jerusalem, Israel. Golda Meir fellow.

2018-2021 Postdoctoral research assistant, Department of Physics, University of Oxford. Host: Philip Stier

**Teaching Experience**

Fall 2021 Teaching, The Hebrew University of Jerusalem.

 Thermodynamics of the Atmosphere and Oceans

2017-2018 Teaching assistant, Weizmann Institute of Science.

Global Warming Debates.

2015-2018 Teaching high-school students at Davidson Institute of Science.

**Funded Grants**

2021-2025 Israeli Science Foundation: Adopting an atmospheric water and energy budgets perspective to narrow-down uncertainties in the clouds’ role in climate change

 990,000 NIS

2021 Israeli Science Foundation - equipment for new faculty members 835,000 NIS

**Honors and Awards**

2022 Golda Meir Fellowship, Hebrew University of Jerusalem

2019-2022 Junior Research Fellowship, Kellogg College, University of Oxford

2018 CIRES postdoctoral Fellowship (declined)

2018 Professor Shimon Reich Memorial Prize for outstanding students, WIS

2017-2018 Rieger Foundation-Jewish National Fund Fellow in Environmental Studies

2016-2017 Rieger Foundation-Jewish National Fund Fellow in Environmental Studies

2016 IMS Travel Grant for Young Scientists

2015 Rachel and Salim Benin fellowships

2011 Dean’s List, Hebrew University of Jerusalem

2010 Dean’s List, Hebrew University of Jerusalem

**Publications**

38) Philip Stier, Susan van den Heever, Matthew Christensen, Edward Gryspeerdt, **Guy Dagan**, Massimo Bollasina, Leo Donner, Kerry Emanuel, Annica Ekman, Graham Feingold, Paul Field, Piers Forster, Jim Haywood, Ralph Kahn, Ilan Koren, Christian Kummerow, Tristan L'Ecuyer, Ulrike Lohmann, Yi Ming, Gunnar Myhre, Johannes Quaas, Daniel Rosenfeld, Bjørn Samset, Axel Seifert, Graeme Stephens and Wei-Kuo Tao: Multifaceted Aerosol Effects on Precipitation, submitted.

37) **Guy Dagan**, Philip Stier, Beth Dingley and Andrew Williams: Examining the regional co-variability of the atmospheric water and energy imbalances in different model configurations - linking clouds and circulation, submitted.

36) Andrew Williams, Philip Stier, **Guy Dagan** and Duncan Watson-Parris: Strong control of effective radiative forcing by the spatial pattern of absorbing aerosol, in revision.

35) **Guy Dagan**, Philip Stier, George Spill, Ross Herbert, Max Heikenfeld, Susan C. van den Heever and Peter J. Marinescu: Boundary conditions representation can determine simulated aerosol effects on convective cloud fields, in press.

34) Matthew Christensen, Andrew Gettelman, Jan Cermak, **Guy Dagan**, Michael Diamond, Alyson Douglas, Graham Feingold, Franziska Glassmeier, Tom Goren, Daniel P. Grosvenor, Edward Gryspeerdt, Ralph Kahn, Zhanqing Li, Po-Lun Ma, Florent Malavelle, Isabel McCoy, Daniel McCoy, Greg McFarquhar, Johannes Mülmenstädt, Sandip Pal, Anna Possner, Adam Povey, Johannes Quaas, Daniel Rosenfeld, Anja Schmidt, Roland Schrödner, Armin Sorooshian, Philip Stier, Velle Toll, Duncan Watson-Parris, Robert Wood, Mingxi Yang and Tianle Yuan: Opportunistic experiments to constrain aerosol effective radiative forcing, *Atmospheric* *Chemistry and Physics*, 2022. [[Link](https://acp.copernicus.org/articles/22/641/2022/)]

33) Shipeng Zhang, Philip Stier, **Guy Dagan** and Minghuai Wang:Anthropogenic aerosols modulated twentieth-century Sahel rainfall variability, *Geophysical Research Letters*, 2021. [[Link](https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2021GL095629?af=R)]

32) Beth Dingley, **Guy Dagan** and Philip Stier: Forcing convection to aggregate using diabatic heating perturbations, *Journal of Advances in Modeling Earth Systems*, 2021. [[Link](https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2021MS002579)]

31) Michel Flores, Guillaume Bourdin, Alex Kostinski, Orit Altaratz, **Guy Dagan**, Fabien Lombard, Nils Haentjens, Emmanuel Boss, Matthew B. Sullivan, Gabriel Gorsky, Naama Lang-Yona, Miri Trainic, Sarah Romac, Christian R. Voolstra, Yinon Rudich, Assaf Vardi, and Ilan Koren: Diurnal cycle of large sea spray aerosols over the tropical Pacific Ocean and Caribbean Sea, *Nature Communications*, 2021. [[Link](https://www.nature.com/articles/s41467-021-25579-3)]

30) George Spill, Philip Stier, Paul Field and **Guy Dagan**: Contrasting responses of idealised and realistic simulations of shallow cumuli to aerosol perturbations, *Geophysical Research Letters*, 2021. [[Link](https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2021GL094137)]

29) Ross Herbert, Philip Stier and **Guy Dagan**:Isolating large-scale smoke impacts on cloud and precipitation processes over the Amazon with convection permitting resolution, *Journal of Geophysical Research: Atmosphere*,2021. [[Link](https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2021JD034615)]

28) **Guy Dagan**, Philip Stier and Duncan Watson-Parris: An energetic view on the geographical dependence of the fast aerosol radiative effects on precipitation, *Journal of Geophysical Research: Atmosphere*, 2021. [[Link](https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2020JD033045)]

27) **Guy Dagan**, Philip Stier and Duncan Watson-Parris: Aerosol forcing masks and delays the formation of the North-Atlantic warming hole by three decades, *Geophysical Research Letters*, 2020. [[Link](https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2020GL090778)]

26) Tom Dror, Michel Flores, Orit Altaratz, **Guy Dagan**, Zev Levin, Assaf Vardi and Ilan Koren: Sensitivity of warm clouds to large particles in marine aerosol size distributions, *Atmospheric* *Chemistry and Physics*, 2020 [[Link](https://acp.copernicus.org/articles/20/15297/2020/acp-20-15297-2020.pdf)].

25) **Guy Dagan** and Philip Stier: Constraint on precipitation response to climate change by combination of atmospheric energy and water budgets, *npj Climate and Atmospheric Science*, 2020. [[Link](https://www.nature.com/articles/s41612-020-00137-8)]

24) **Guy Dagan** and Philip Stier: Ensemble daily simulations for elucidating cloud-aerosol interactions under a large spread of realistic environmental conditions, *Atmospheric* *Chemistry and Physics*, 2020. [[Link](https://www.atmos-chem-phys.net/20/6291/2020/acp-20-6291-2020.html)]

23) **Guy Dagan**, Philip Stier, Matthew Christensen, Guido Cioni, Daniel Klock and Axel Seifert: Atmospheric energy budget response to idealized aerosol perturbation in tropical cloud systems, *Atmospheric Chemistry and Physics*, 2020. [[Link](https://www.atmos-chem-phys.net/20/4523/2020/)]

22) George Spill, Philip Stier, Paul Field and **Guy Dagan**: Effects of aerosol on shallow cumulus cloud fields, *Atmospheric Chemistry and Physics*, 2019*.* [[Link](https://www.atmos-chem-phys.net/19/13507/2019/)]

21) **Guy Dagan**, Philip Stier and Duncan Watson-Parris: Analysis of the atmospheric water budget for elucidating the spatial scale of precipitation changes under climate change, *Geophysical Research Letters*, 2019*.* [[Link](https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2019GL084173)]

20) Reuven Heiblum, Lital Pinto, Orit Altaratz, **Guy Dagan**, and Ilan Koren: Core and margin in warm convective clouds. Part I: core types and evolution during a cloud's lifetime, *Atmospheric Chemistry and Physics*,2019. [[Link](https://www.atmos-chem-phys.net/19/10717/2019/)]

19) Reuven Heiblum, Lital Pinto, Orit Altaratz, **Guy Dagan**, and Ilan Koren: Core and margin in warm convective clouds. Part II: aerosol effects on core properties, *Atmospheric Chemistry and Physics*,2019. [[Link](https://www.atmos-chem-phys.net/19/10739/2019/)]

18) **Guy Dagan**, Philip Stier and Duncan Watson-Parris: Contrasting response of precipitation to aerosol perturbation in the tropics and extra-tropics explained by energy budget considerations, *Geophysical Research Letters*, 2019*.* [[Link](https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2019GL083479)]

17) Huan Liu, Ilan Koren, Jianping Guo, Orit Altaratz, **Guy Dagan**, Yuan Wang, Jonathan Jiang, Panmao Zhai and Yuk Yung: Non-monotonic aerosol effect on precipitation of deep convective clouds over tropical oceans, *Scientific Report*,2019. [[Link](https://www.nature.com/articles/s41598-019-44284-2)]

16) Pavel Khain, Reuven Heiblum, Ulrich Blahak, Yoav Levi, H. B. Muskatel1, Elyakom Vadislavsky, Orit Altaratz, Ilan Koren, **Guy Dagan**, Jacob Shpund and Alexander Khain: Governing mirophysical parameters of shallow cumulus cloud ensembles and their parameterization using LES with bin microphysics, *Journal of the Atmospheric Sciences*, 2019. [[Link](https://journals.ametsoc.org/doi/abs/10.1175/JAS-D-18-0046.1)]

15) **Guy Dagan**, Ilan Koren, Orit Altaratz andYoav Lehahn: Shallow convective cloud field lifetime as a key factor for evaluating aerosol effects, *iScience*, 2018. [[Link](https://www.sciencedirect.com/science/article/pii/S2589004218302220)]

14) **Guy Dagan,** Ilan Koren, Alex Kostinski and Orit Altaratz: Organization and oscillations in simulated shallow convective clouds, *Journal of Advances in Modeling Earth Systems*, 2018. [[Link](https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2018MS001416?af=R)]

13) Rei Chemke and **Guy Dagan**: The effects of the spatial distribution of anthropogenic aerosols radiative forcing on atmospheric circulation, *Journal of climate*, 2018. [[Link](https://journals.ametsoc.org/doi/abs/10.1175/JCLI-D-17-0694.1)]

12) **Guy Dagan**, Ilan Koren, Orit Altaratz: Quantifying the effect of aerosol on vertical velocity and effective terminal velocity in warm convective clouds, *Atmospheric Chemistry and Physics*, 2018. [[Link](https://www.atmos-chem-phys.net/18/6761/2018/acp-18-6761-2018.pdf)]

11) **Guy Dagan**, Ilan Koren, Orit Altaratzand Graham Feingold: Feedbacks of warm convective clouds in a warmer climate as demonstrated by changes in buoyancy, *Environmental Research Letters*, 2018. [[Link](http://iopscience.iop.org/article/10.1088/1748-9326/aac178)]

10) Qian Chen, Ilan Koren, Orit Altaratz, Reuven H. Heiblum, **Guy Dagan** and Lital Pinto: How do changes in warm phase microphysics affect deep convective clouds? *Atmospheric Chemistry and Physics,* 2017. [[Link](https://www.atmos-chem-phys.net/17/9585/2017/acp-17-9585-2017.pdf)]

9) **Guy Dagan**, Ilan Koren, Orit Altaratz and Reuven H. Heiblum: Time dependent, non-monotonic response of warm convective cloud fields to changes in aerosol loading, *Atmospheric Chemistry and Physics*, 2017. [[Link](http://www.atmos-chem-phys.net/17/7435/2017/acp-17-7435-2017.html)]

8) **Guy Dagan**, Ilan Koren, Orit Altaratz and Reuven H. Heiblum: Aerosol effect on the evolution of the thermodynamic properties of warm convective cloud fields, *Scientific Report,* 2016. [[Link](https://www.nature.com/articles/srep38769)]

7) **Guy Dagan**, and Rei Chemke: The effect of subtropical aerosol loading on equatorial precipitation, *Geophysical Research Letters*, 2016. [[Link](http://onlinelibrary.wiley.com/doi/10.1002/2016GL071206/full)]

6) Reuven Heiblum, Orit Altaratz, Ilan Koren, Graham Feingold, Alex Kostinski, Alexander Khain, Mikhail Ovchinnikov, Eric Fredj, **Guy Dagan**, Lital Pinto, Ricki Yaish, Qian Chen: Characterization of cumulus cloud fields using trajectories in the center-of-gravity vs. water mass phase space. Part I: Cloud tracking and phase space description*.* *Journal of Geophysical Research: Atmosphere*, 2016*.* [[Link](http://onlinelibrary.wiley.com/doi/10.1002/2015JD024186/full)]

5) Reuven Heiblum, Orit Altaratz, Ilan Koren, Graham Feingold, Alex Kostinski, Alexander Khain, Mikhail Ovchinnikov, Eric Fredj, **Guy Dagan**, Lital Pinto, Ricki Yaish, Qian Chen: Characterization of cumulus cloud fields using trajectories in the center-of-gravity vs. water mass phase space. Part II: Aerosol effects on warm convective clouds*. Journal of Geophysical Research: Atmosphere,* 2016*.* [[Link](http://onlinelibrary.wiley.com/doi/10.1002/2015JD024193/abstract)]

4) **Guy Dagan**, Ilan Koren, Orit Altaratz: Aerosol effects on the timing of warm rain processes. *Geophysical Research Letters*, 2015. [[Link](http://onlinelibrary.wiley.com/doi/10.1002/2015GL063839/epdf)]

3) Ilan Koren, Orit Altaratz, **Guy Dagan**: Aerosol Effect on the Mobility of Cloud Droplets. *Environmental Research Letters*, 2015. [[Link](http://iopscience.iop.org/article/10.1088/1748-9326/10/10/104011/pdf)]

2) **Guy Dagan**, Ilan Koren, Orit Altaratz*:* Competition between core and periphery-based processes in warm convective clouds – from invigoration to suppression*.* *Atmospheric Chemistry and Physics*, 2015. [[Link](http://www.atmos-chem-phys.net/15/2749/2015/acp-15-2749-2015.html)]

1) Ilan Koren**, Guy Dagan**, Orit Altaratz: From aerosol-limited to invigoration of warm convective clouds*.* *Science,* 2014. [[Link](http://science.sciencemag.org/content/sci/344/6188/1143.full.pdf?ijkey=Elq/v07C1r5n2&keytype=ref&siteid=sci)]

**Professional Activities**

* Organizer of the department seminar, AOPP, University of Oxford (2019 - 2021).
* Organizer of the ICON-HAM developers’ workshop, University of Oxford (July, 2019).
* Co-supervising of 4 Ph.D. students (George Spill, Elisabeth Dingley, Shipeng Zhang and Andrew Williams), University of Oxford (2018-2021).
* College advisor of nine graduate students, Kellogg College, University of Oxford (2019 – 2021).
* Organizer of the Cloud tracking workshop, University of Oxford (September 2018).
* Peer-review journal reviewer: PNAS, Nature Climate Change, Nature communications, Geophysical Research Letters, Atmospheric chemistry and physics, Journal of Geophysical Research – Atmosphere, Journal of Advances in Modeling Earth Systems, Journal of Climate, Journal of Atmospheric Science, Remote Sensing, Journal of Applied Remote Sensing, Atmosphere, International Journal of Remote Sensing, Annals of the New York Academy of Sciences, Hydrology and Earth System Sciences.

**Conference Proceedings and Presentations**

* AMS annual meeting, virtual conference (January 2022). *The representation of the boundary conditions can determine the simulated aerosol effects on convective cloud fields.* Oral.
* AGU annual meeting, virtual conference (December 2021). *Idealized cloud resolving simulations tend to overestimate the effect of aerosol on the thermodynamic environment and convective clouds.* Oral.
* International Conference on Clouds & Precipitations (ICCP), virtual meeting (August, 2021). *Combined constraint of the atmospheric energy and water budgets on the special scale of precipitation changes under climate change*, Oral.
* ACPC annual meeting, virtual meeting (May 2021). *Idealized cloud resolving simulations overestimate the effect of aerosol on the environment,* Oral.
* AMS annual meeting, virtual conference (January 2021). *Energy budget considerations explain contrasting response of precipitation to aerosol perturbation in the tropics and extratropics in idealised and realistic simulations,* Oral.
* AOPP annual meeting, University of Oxford, Oxford, UK (October 2020). *What sets the amount of precipitation in our current and future warming climate?* Oral.
* ICON-HAM workshop, virtual meeting (April, 2020). Examining precipitation changes due to aerosol forcing using an atmospheric energy budget perspective, Oral.
* 36th International Geological Congress, New Delhi, India (March, 2020). Constraining the

spatial scale of precipitation changes due to anthropogenic forcing using an atmospheric water and energy budget perspective, Invited talk (postponed due to COVID-19).

* Radiation and climate Gordon Research Seminar (GRS), Bates College, Maine, USA (July, 2019). *Identifying the spatial scales in aerosol-precipitation interactions from a water and energy budget perspective,* Oral.
* Radiation and climate Gordon Research Conference (GRC), Bates College, Maine, USA (July, 2019). *Identifying the spatial scales in aerosol-precipitation interactions from a water and energy budget perspective,* Poster.
* Cloud modeling workshop, Kraków, Poland (April, 2019). *Atmospheric energy budget perspective on clouds-aerosol interactions*, Oral.
* Cloud tracking workshop, University of Oxford, Oxford, UK (September, 2018). *Tracing of convection in models,* Oral.
* AOPP annual meeting, University of Oxford, Oxford, UK (September 2018). *Cloud field lifetime as a key factor for evaluating aerosol effects on climate*, Oral.
* The Annual Conference for Science and the Environment; The Israeli Society of Ecology and Environmental Science, Rehovot, Israel (June, 2018). *Cloud field lifetime as a key factor for evaluating aerosol effects on climate,* Oral.
* Keynote lecture in the Riger Foundation-Jewish National Fund Fellow in Environmental Studies ceremony, Tel-Aviv, Israel (September, 2017), Oral.
* Fourth International Conference on Earth System Modelling, Hamburg, Germany (August, 2017). *Non-monotonic, time dependent aerosol effect on warm convective clouds and its dependency on the environmental thermodynamic conditions,* Poster.
* The Israeli aerosol conference, Israel Institute of Technology, Haifa, Israel (February, 2017). *Time dependent, non-monotonic response of warm convective cloud fields to changes in aerosol loading,* Oral.
* Model Hierarchies Workshop, Princeton University, USA (November, 2016).
* International Conference on Clouds & Precipitations (ICCP), Manchester, UK (July, 2016). *From invigoration to suppression – the aerosol effect on warm convective clouds,* Poster.
* International Cloud modeling workshop, Met office, Exeter, UK (July, 2016), Oral.
* The Israeli Metrology Society conference, The Open University, Tel Aviv, Israel (February, 2016). *Warm convective clouds response to changes in aerosol loading,* Oral.

**Seminars**

* Climate, Atmosphere, and Ocean (CAO) seminar, The Hebrew University, Jerusalem, Israel (January, 2022). *Understanding the clouds’ role in climate change – main issues and possible solutions.*
* Earth and planetary science, Weizmann Institute of Science, Israel, (February, 2020). *What sets the amount of precipitation in our current and future warming climate?*
* The Earth science institute department seminar, The Hebrew University, Jerusalem, Israel (January, 2020).*What sets the amount of precipitation in our current and future warming climate?*
* The Earth science institute department seminar, The Hebrew University, Jerusalem, Israel (December, 2019).*Examining precipitation changes due to anthropogenic forcing using an atmospheric water and energy budget perspective.*
* Geoscience department seminar, Tel-Aviv University, Tel-Aviv, Israel (December, 2019).*What sets the amount of precipitation in our current and future warming climate?*
* Department of Meteorology, Reading University, UK (November, 2019). *Constraining the spatial scale of precipitation changes due to anthropogenic forcing using an atmospheric water and energy budget perspective.*
* Atmospheric, ocean and planetary physics department seminar, University of Oxford, UK (July, 2019). *Water and energy budget constrain on precipitation changes due to anthropogenic forcing.*
* The German weather service, Germany (June, 2019). *Water and energy budget constrain on precipitation changes due to anthropogenic forcing.*
* Earth and planetary science, Weizmann Institute of Science, Israel, (June, 2018). *Exploring the interplay between key processes in warm convective clouds.*
* The Israeli Meteorological Service seminar, Bet Dagan, Israel (May, 2018).*Cloud field lifetime as a key factor for evaluating aerosol effects on climate.*
* Geoscience department seminar, Tel-Aviv University, Tel-Aviv, Israel (May, 2018).*Cloud field lifetime as a key factor for evaluating aerosol effects on climate.*
* The Earth science institute department seminar, The Hebrew University, Jerusalem, Israel (January, 2018).*Time dependent aerosol effect on warm convective clouds.*
* School of marine sciences department seminar, Haifa University, Haifa, Israel (January, 2018). *Non-monotonic aerosol effect on warm convective clouds.*
* The Porter School of Environmental Studies department seminar, Tel Aviv University, Israel (November, 2017). *Time dependent, non-monotonic aerosol effect on warm convective clouds and its dependency on the environmental thermodynamic conditions.*
* The Earth science institute department seminar, The Hebrew University, Jerusalem, Israel (March, 2017). *Aerosol effect on warm convective cloud fields and its dependency on the environmental thermodynamic conditions.*
* GFDL department seminar, Princeton University, USA (November, 2016). *Non-monotonic response of warm convective clouds to changes in aerosol loading.*
* Earth and planetary science, Weizmann Institute of Science, Israel, (December, 2014). *Aerosol effect on warm convective clouds under different environmental conditions.*