*Curriculum Vitae*

# Eli Galanti

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## Personal details:

Department of Earth and Planetary Sciences
Weizmann Institute of Science
Tel: 972-52-5448122 Fax: 972-8-924-4124
e-mail: eli.galanti@weizmann.ac.il

## Employment:

- Assistant Staff Scientist (with Dr. Yohai Kaspi). Department of Earth and planetary Sciences, Weizmann Institute of Science. April 2016 – present.
- Research Scientist (with Dr. Yohai Kaspi). Department of Earth and planetary Sciences, Weizmann Institute of Science. September 2014 – March 2016.
- Research Scientist (with Dr. Yohai Kaspi). Department of Earth and planetary Sciences, Weizmann Institute of Science. September 2012 –August 2014.
- Research Scientist (with Prof. Colin Price). Department of Geophysics and Planetary Sciences, Tel Aviv University. April 2007 –August 2014.
- Fellow. The Porter School of Environmental Studies and Department of Geophysics, Tel Aviv University. April 2005 – March 2007.
- Research Coordinator. The Porter School of Environmental, Tel Aviv University. April 2007 – September 2012.

## Education:

- Postdoctoral Research Scientist -Department of Geophysics, Tel Aviv University. Field: prediction of air pollution transport. September 2004 -March 2005.
- Postdoctoral Research Scientist -International Research Institute for Climate Prediction, Columbia University. Field: Seasonal SST prediction. Advisor – Dr. Steve Zebiak. October 2002 - July 2004.
- Ph.D. Weizmann Institute of Science. Thesis: Dynamics and predictability of ENSO. Advisor – Prof. Eli Tziperman. March 2003.
- B.Sc. Geophysics and planetary sciences, Tel Aviv University. Field: geophysics and atmospheric dynamics. Magna Cum Laude. August 1996.

## **Other Appointments**:

Teaching

- 'Introduction Earth Climate System' – Weizmann Institute of Science. 2017. (3hr, one semester)
- 'Mathematical modeling in Earth Sciences' - Weizmann Institute of Science. 2016. (3hr, one semester)
- 'Great Papers in Earth Sciences' - Weizmann Institute of Science. 2014. (2hr, one semester)
- 'Introduction Earth Climate System' – Weizmann Institute of Science. 2014. (2hr, one semester)
- 'Environmental Challenges in Israel – Field tours' – The Porter School of Environmental Studies, Tel Aviv University. 2009-2013. (3hr, one semester).
- 'The oceans and mankind – between struggle and cooperation' – The Porter School of Environmental Studies, Tel Aviv University. 2008-2012. (2hr, one semester).
- 'Climate and the Human environment' – Department of Geography and Human Environment, Tel Aviv University. 2008-2012 (4hr, one semester)
- 'Introduction to Climate' – Department of Geography, Hebrew University. 2010. (3hr, one semester)
- 'Master students forum' – The Porter School of Environmental Studies, Tel Aviv University. 2010 (1hr, two semesters)
- 'Introduction to Climate' – Israel Maritime College, Ruppin Academic Center. 2006. (2hr, one semester)

Peer review

- J. of Climate, J. of Atmospheric sciences, Environmental Modelling and Software, Atmospheric Research, J. Atmos. Solar-Terrestrial Phys, Physica A., MNRAS.

Review boards

- Expert evaluator for the European Union 7th framework program (FP7). Leading a review panel (in Brussels) of large scale collaborative projects in the field of oceanic response to climate change. March 2012.

Awards:

- Rieger-JNF fellowship for Environmental studies. 1999-2001.

## Publications:

1) **Galanti, E.** and E. Tziperman, 2000. On ENSO's phase locking to the seasonal cycle in the fast SST, fast wave, and mixed mode regimes. *Journal of the Atmospheric Sciences*. 57, 2936-2950. (Times cited: **38**)

2) Harrison, M. J., A. Rosati, B. J. Soden, **E. Galanti,** and E. Tziperman, 2002: An examination of air-sea coupling for ENSO simulation and prediction. *monthly Weather Review*, 130 (3), 723-732. . (Times cited: **23**)

3) **Galanti, E.,** E. Tziperman, M. Harrison, A. Rosati, R. Giering, Z. Sirkes, 2002. The equatorial thermocline outcropping - A seasonal control on the tropical Pacific ocean-atmosphere instability. *Journal of Climate*, 15 (19), 2721-2739. (Times cited: **36**)

4) **Galanti, E.,** and E. Tziperman, 2003: A Mid-Latitude -ENSO teleconnection mechanism via baroclinically unstable long Rossby waves. *Journal of Physical Oceanography*. 33 (9), 1877-1888. . (Times cited: **31**)

5) **Galanti, E.,** E. Tziperman, M. Harrison, A. Rosati, and Z. Sirkes, 2003: A study of ENSO prediction using a hybrid-coupled model and the adjoint method for data assimilation. *monthly Weather Review*, 131 (11), 2748-2764. . (Times cited: **17**)

6) Haikin, N., I. Mahrer, T. Reisin, **E. Galanti**, and P. Alpert, 2010: A high resolution study of Atmospheric dispersion over a coastal urban area with complex terrain*. Air Pollution Modeling and Its Application XX*, 75-80. Springer.

7) Kohn, M., **E. Galanti**, C. Price, K. Lagouvardos and V. Kotroni, 2011: Now-Casting Thunderstorms in the Mediterranean Region using Lightning Data, Atmos. Res., 100, 489-502.

8) Price, C., Y. Yair, A. Mugnai, K. Lagouvardos, M. C. Llasat, S. Michaelides, U. Dayan, S. Dietrich, **E. Galanti**, L. Garrote, N. Harats, D. Katsanos, M. Kohn, V. Kotroni, M. Llasat-Botija, B. Lynn, L. Mediero, E. Morin , K. Nicolaides, S. Rozalis, K. Savvidou, B. Ziv, 2011: The FLASH Project: Using lightning data to better understand and predict flash floods, Environ. Sci. & Policy, 14, 898-911.

9) Price, C., Y. Yair, A. Mugnai, K. Lagouvardos, M. C. Llasat, S. Michaelides, U. Dayan, S. Dietrich, F. Di Paola, **E. Galanti**, L. Garrote, N. Harats, D. Katsanos, M. Kohn, V. Kotroni, M. Llasat-Botija, B. Lynn, L. Mediero, E. Morin , K. Nicolaides, S. Rozalis, K. Savvidou, B. Ziv, 2011: Using lightning data to better understand and predict flash floods in the Mediterranean, Surveys in Geophysics, 32(6), 733-751.

10) Harnik, N., **E. Galanti**, O. Martius, and O. Adam. 2014. The anomalous merging of the African and North Atlantic jet streams during Northern Hemisphere winter of 2010. Journal of Climate, 27(19), 7319-7334.

11) Mezuman, K, C. Price, and **E. Galanti**. 2014. On the spatial and temporal distribution of global thunderstorm cells. Environ. Res. Lett. 9(12), 124023.

12) N.Haikin, N, T. Reisin, **E.Galanti.**, I. Mahrer, P. Alpert, 2015: Inner-structure of Atmospheric Inversion Layers in the Eastern Mediterranean. Boundary-Layer Meteorology. 156(3), 471-487.

13) Silver, I., C. Price, **E. Galanti**, and A. Shuval: 2015: Anomalously strong vertical magnetic fields

from distant ELF/VLF sources. JGR – space physics. 120(7), 6036-6044.

14) Helled, R., **E. Galanti**, and Y. Kaspi. 2015. A fast spinning Saturn as determined from its gravitational field and oblateness. Nature, 520, 202-204.

15) Parisi M., **E. Galanti.,** S. Finocchiaro, L. Iess, and Y. Kaspi, 2016. Probing the depth of Jupiter's Great Red Spot with the Juno gravity experiment. Icarus, 267, 232-242.

16) **Galanti, E**. and Y. Kaspi, 2016: An adjoint based method for the inversion of the Juno and Cassini gravity measurements into wind fields. The Astrophysical Journal, 820(2), 91.

17) Kaspi Y., J.E. Davighi, **E. Galanti** and W.B. Hubbard, 2016: The gravitional signature of internal flows in giant planets: Comparing the thermal wind approach with barotropic potential-surface methods. Icarus, 276, 170-181.

18) **Galanti, E.,** Y. Kaspi, and E. Tziperman, 2017: A full, self-consistent treatment of thermal wind balance on oblate fluid planets. Journal of Fluid Mechanics. 810, 175–195.

19) **Galanti, E.** and Y. Kaspi, 2017: Decoupling Jupiter's deep and atmospheric flows using the upcoming Juno gravity measurements and a dynamical inverse model. Icarus, 286, 46-55.

20) Wahl, S. M., W. B. Hubbard, B. Militzer, T. Guillot, Y. Miguel, N. Movshovitz, Y. Kaspi, R. Helled, D. Reese, **E. Galanti,** S. Levin, J.E. Connerney, S.J. Bolton, 2017: Comparing Jupiter interior structure models to Juno gravity measurements and the role of a dilute core. Geophysical Research Letters, 44.

21) **Galanti, E.,** D. Durante, S. Finocchiaro, L. Iess, and Y. Kaspi, 2017: Estimating Jupiter gravity field using Juno measurements,trajectory estimation analysis, and a flow model optimization. The Astronomical Journal, 154(2).

22) Kaspi, Y., T. Guillot, **E. Galanti,** Y. Miguel, R. Helled, W.B. Hubbard, B. Militzer, and S.M. Wahl, 2017: The effect of differential rotation on Jupiter's low-order even gravity moments. Geophysical Research Letters, 44.

23) **Galanti, E.** and Y. Kaspi, 2017: Prediction for the flow-induced gravity field of Saturn: implications for Cassini's Grande Finale. The Astrophysical Journal Letters, in press.

Submitted:

24) **Galanti, E.,** H. Cao, and Y. Kaspi, 2017: Constraining Jupiter's internal flows using Juno magnetic and gravity measurements. Geophysical Research Letters, in revision.

Other publications:

25) **Galanti, E.**, 2003: Dynamics and predictability of ENSO -a study using a hybrid-coupled model and the adjoint method. *Ph.D. Thesis*.

## Presentations at international meetings

- AOGS meeting, Singapore. Determining the Depth of Atmospheric and Interior Flows on Jupiter from the Juno Gravity Measurements. 08/17. (Oral). **Invited.**
- AOFD meeting, Portland, USA. Determining the Depth of Jupiter's Zonal Flows Using Gravity Measurements: Results from Juno's First Year Orbiting Jupiter. 06/2017. (Oral)*
- AOFD meeting, Portland, USA. Thermal Wind Balance of Fluid Planets: The Effects of Oblateness, Centrifugal Forces, and Self-Gravitation. 06/2017. (Poster)
- EGU meeting, Vienna, Austria. A new approach for estimating the Jupiter and Saturn gravity fields using Juno and Cassini measurements, trajectory estimation analysis, and a dynamical wind model optimization. 04/2017. (Oral)
- EGU meeting, Vienna, Austria. Juno's first peek at Jupiter's interior. 04/2017. (Oral)*
- EGU meeting, Vienna, Austria. Initial results for the depth of atmospheric and interior flows on Jupiter as inferred from the Juno gravity measurements. 04/2017. (Poster)*
- AGU meeting, San Francisco, USA. Slantwise convection on fluid planets: Interpreting convective adjustment from Juno observations. 12/2016. (Poster)*
- DPS meeting, Pasadena, USA. Unfolding the atmospheric and deep internal flows on Jupiter and Saturn using the Juno and Cassini gravity measurements. 10/2016. (Oral)
- DPS meeting, Pasadena, USA. Slantwise convection on fluid planets: Interpreting convective adjustment from Juno observations. 10/2016. (Oral)*
- Symposium on Climate Dynamics, Sde Boker, Israel. Thermal wind balance on fluid planets: corrections due to oblateness and wind induced gravity perturbations. 01/2016. (oral)
- AGU meeting, San Francisco, USA. Deep Plume Interaction with Gas Giant Weather Layers: Applications to Jupiter and Saturn. 12/2015. (Poster)*
- AGU meeting, San Francisco, USA. The possibility of inferring the depth of Jupiter's Great Red Spot with the Juno gravity experiment. 12/2015. (Poster)*
- DPS meeting, National Harbor, USA. Deciphering Jupiter's complex flow dynamics using the upcoming Juno gravity measurements and an adjoint based dynamical model. 11/2015. (Oral)
- DPS meeting, National Harbor, USA. Saturn's fast spin determined from its gravitational field and oblateness. 11/2015. (Poster)*
- DPS meeting, National Harbor, The gravity signature of atmospheric dynamics on giant planets: comparing the potential-theory and thermal-wind approaches. 11/2015. (Oral)*
- DPS meeting, National Harbor, USA. Coupled Gas Giant Atmospheres: Solar Heating vs. Interior Heating. 11/2015. (Oral)*
- DPS meeting, National Harbor, USA. Determining the vertical extent of Jupiter's Great Red Spot with the Juno gravity measurements. 11/2015. (Oral)*
- IUGG meeting, Prague, Czech Republic. Inferring the depth of the atmospheric circulation on Jupiter and Saturn through gravity measurements by Juno and Cassini. 06/2015. (Oral)
- EGU meeting, Vienna, Austria. "Revealing Saturn's Rotation Period from its Gravitational Field". 04/2015. (Poster)*
- AGU meeting, San Francisco, USA. . Inverting Juno Gravity Field Measurements into the Atmospheric Dynamics of Jupiter. 12/2014. (Poster)*

- AGU meeting, San Francisco, USA. Utilizing the Upcoming Gravity Measurements from Cassini's Proximal Orbits for Studying the Atmospheric Dynamics of Saturn - How Deep Do the Winds Penetrate? 12/2014. (Poster)*
- DPS meeting, Tucson, USA. Inversion of Jupiter and Saturn gravity field into the atmospheric circulation on these planets - using the gravity measurements by Juno and Cassini and an adjoint based dynamical model. 11/2014. (oral).
- Latsis Symposium, Zurich, Switzerland. A study of the depth of the atmospheric circulation on Jupiter and Saturn using gravity measurements by Juno and Cassini and an adjoint based dynamical model. 06/2014. (poster)
- Latsis Symposium, Zurich, Switzerland. Inferring the depth of Jupiter's vortices by the Juno gravity measurements. 06/2014. (poster)*
- ICEA meeting, Oklahoma, USA. Vertical Magnetic Field Measurements of ELF and VLF radio signals. 06/2014. (oral)*
- EGU meeting, Vienna, Austria. "Inferring the depth of the atmospheric circulation on Jupiter and Saturn through gravity measurements by Juno and Cassini and an adjoint based dynamical model". 05/2014. (oral)*
- Symposium on Climate Dynamics, Sde Boker, Israel. Estimating Jupiter's winds using the Juno expected measurements, a trajectory estimation model, and an adjoint based thermal wind model. 01/2014. (oral)
- AGU meeting, San Francisco, USA. . Estimating Jupiter's winds using the Juno expected measurements, a trajectory estimation model, and an adjoint based thermal wind model. 12/2013. (poster)*
- AGU meeting, San Francisco, USA. Estimating the depth of the jet streams on Jupiter and Saturn through gravity measurements by Juno and Cassini: comparing the thermal wind and potential theory approaches. 12/2013. (poster)*
- DACA-13, Davos, Switzerland. The number of active global thunderstorms. 07/2013. (oral)*
- EGU meeting, Vienna, Austria. The anomalously zonal structure of the Atlantic jet during winter of 2009-10 - possible causes and implications. 04/2011. (oral)
- IUGG meeting, Melbourne, Australia. "The anomalously zonal structure of the Atlantic jet during winter of 2009-10 - possible causes and implications". 07/2011 (oral)*
- EGU meeting, Vienna, Austria. How many thunderstorms are active at any moment? 04/2011. (oral)*
- EGU meeting, Vienna, Austria. "Now-Casting Thunderstorms in the Mediterranean Region using Lightning Data". 04/2010. (oral)
- EGU meeting, Vienna, Austria. Now-casting of Flashfloods in the Mediterranean Area using Lightning Data and the Warning Decision Support System (WDSS-II)". 04/2009. (oral)
- Plinius 11$^{th}$ meeting, Barcelona, Spain. "Tracking and Now-casting Intense Lightning Activity in the Global Tropics". 09/2009. (oral)
- Plinius 10$^{th}$ meeting, Nicosia, Cyprus. "Now-casting of Flashfloods in the Mediterranean Area using Lightning Data and the Warning Decision Support System (WDSS-II)". 09/2008. (poster)
- EGU meeting, Vienna, Austria. "Measuring the impact of a new observing system lifetime on ENSO prediction -between ideas and reality". 04/2005. (oral)
- EGU meeting, Nice, France. "A study of ENSO prediction using a hybrid-coupled model and the adjoint method for data assimilation". 04/2004. (oral)
- Climate Diagnostics and Prediction Workshop, Reno, NV. "A study of ENSO prediction using a

hybrid-coupled model and the adjoint method for data assimilation". 10/2003. (oral)

- Tropical Biases Workshop, GFDL, Princeton University, NJ. "Sensitivity of the equatorial Pacific to mid-Lat processes using an ocean GCM and its adjoint". 05/2003. (oral)
- Coupled Data Assimilation Workshop, Portland, Oregon. "Coupled model initialization in a hybrid-coupled model". 04/2003. (oral)
- EGS-AGU-EUG, Nice, France. "A Mid-Latitude -ENSO tele-connection mechanism via baro-clinically unstable long Rossby waves", and "A study of ENSO prediction using a hybrid-coupled model and the adjoint method for data assimilation". 04/2003. (oral)
- AGU Ocean Science meeting, Honolulu, Hawaii. "The equatorial thermocline outcropping: a seasonal control of the tropical Pacific ocean-atmosphere instability strength". 02/2002. (oral)
- Z-model Ocean Meeting, GFDL, Princeton University, NJ. "The generation of an adjoint code to MOM4 -current state and future plans". 11/1999. (oral)
- 12th AMS Conference on Atmospheric and Oceanic Fluid Dynamics, New York, NY. "On ENSO's phase locking to the seasonal cycle in the fast SST, fast wave, and mixed mode regimes". 06/99. (poster)
- Initiation and organization of the first CARESS (Conference of Active Research of Environmental Sciences Students) conference, Weizmann Institute of Science. 05/98.

* Presented by collaborators