

CURRICULUM VITAE

Yochanan Kushnir

Lamont-Doherty Earth Observatory (LDEO)

Columbia University | Earth Institute

61 Route 9W, Palisades, NY 10964-8000

Tel. (845) 365 8669 / Cellular: (845) 652-3612 /Fax: (845) 365 8736

e-mail: kushnir@ldeo.columbia.edu

1. PROFESSIONAL PREPARATION:

1971 B.Sc. Physics. Department of Physics, Technion - Israel Institute of Technology, Haifa, Israel

1980 M.Sc. Meteorology. Department of Geophysics and Planetary Sciences, Tel-Aviv University, Tel-Aviv, Israel, *Thesis Advisors:* N. Levanon and G. Ohring, *Thesis Title:* "The 150 mb Summer Circulation over the Southern Hemisphere High Latitudes. A Study Using TWERLE Data."

1985 Ph.D. Atmospheric Sciences. Department of Atmospheric Sciences, Oregon State University, Corvallis, Oregon, USA, *Thesis advisor:* S. K. Esbensen, *Thesis Title:* "Sub-Seasonal Variability in a Two-Level General Circulation Model."

1985-1988 Postdoctoral Research Fellow, The Joint Institute for the Study of the Atmosphere and Ocean (JISAO)/NOAA and the Department of Atmospheric Sciences, University of Washington, Seattle, Washington, USA. Mentor: J. M. Wallace.

2. PROFESSIONAL EMPLOYMENT:

Since Dec. 2010 Columbia University Earth Institute Faculty

Since July 2010 Lamont Research Professor, LDEO

7/2003 – 6/2014 Director, Cooperative Institute for Climate Applications and Research (CICAR)

9/00 – 6/10 Doherty Senior Research Scientist, LDEO

8/96 – 9/00 Senior Research Scientist, LDEO

7/93 – 7/96 Research Scientist, LDEO

9/89 – 6/93 Associate Research Scientist, LDEO

1988 – 1989 Visiting Research Scientist, AOS Program, Princeton University, Princeton, NJ, USA

3. TEACHING AND OTHER PROFESSIONAL EXPERIENCE:

Nov 2011-

Jan 2012 Visiting Lady Davis Professor, lecturing at the Fredy and Nadine Herrmann Institute of Earth Sciences, Hebrew University, Jerusalem

2004-2007 Adjunct Professor, Columbia University, School of International and Public Affairs, MPA in Earth System Science, Policy and Management

1998-2005 Adjunct Ass. Professor and Adjunct Professor, Barnard College, Dept. of Environmental Sciences

1998, 2000, 2003 Visiting Lecturer, the Feinberg School for Graduate Studies, Weizmann Institute of Science, Rehovot, Israel

1997/98 Visiting Scholar, Department of Environmental Sciences and Energy Research and the Feinberg School for Graduate Studies, Weizmann Institute of Science, Rehovot, Israel

1993 - 1996 Instructor and research advisor, International Research Institute for Climate Prediction Pilot Project, LDEO

1968 - 1979 Marine weather forecaster, instructor of marine meteorology, IDF Navy.

4. PROFESSIONAL AFFILIATION

American Meteorological Society

American Geophysical Union

5. FELLOWSHIPS AND HONORS:

- December 2015* Yuval Ne'eman Distinguished Lecturer in Geophysics, Atmosphere and Space Sciences Endowed by Raymond and Beverly Sackler
- October 2013* Elected Fellow of the American Meteorological Society
- Fall 2011* "Lady Davis Professorship" at the Faculty of Science, the Hebrew University of Jerusalem, Israel (1 November 2011 to 3 February 2012)
- Winter 1998* Gertrude and Edward Swartz Visiting Scientist, Technion, Israel Institute of Technology, Haifa, Israel
- 1985-1987* Post-Doctoral Fellowship JISAO/University of Washington
- 1982* Inducted into the Phi-Kappa-Phi Society, Oregon State University Chapter

6. RECENT EXTERNAL PANELS AND COMMITTEES:

- March-September 2016:* CLIVAR Open Science Conference: Co-Convener of the Decadal Variability session.
- Since July 2015* Co-Leader of the WCRP Grand Challenge on Near-Term Climate Prediction Concept (GC-NTCP).
- Since June 2014* Co-Chair, CLIVAR Working Group on Decadal Climate Variability and Predictability (DCVP) Research Foci (RF).
- Since April 2014* Member of the WCRP Decadal Climate Prediction Project (DCPP) committee.
- Since Aug 2014* Science advisor and member of a panel on earth science proposals for the U.S.-Israel Bi-National Science Foundation
- Since Mar 2014* Member of World Climate Research Project Decadal Climate Prediction Project (DCPP).

9. PUBLICATIONS

- Kushnir, Y.**, U. Dayan, B. Ziv, E. Morin, and Y. Enzel, 2017: Climate of the Levant: phenomena and mechanisms. In: *Quaternary of the Levant: Environments, Climate Change, and Humans*, Y. Enzel and O. Bar-Yosef (Ed). Cambridge University Press, in press.
- Kiro Y, Goldstein S.L, Garcia-Veigas J., Levy E., **Kushnir Y.**, Stein M., Lazar B., 2017, Relationships between lake-level changes and water and salt budgets in the Dead Sea during extreme aridities in the Eastern Mediterranean, *Earth Pla. Sci. Lett.*, **464**, 211–226, doi: 10.1016/j.epsl.2017.01.043 (Published on line 07-Mar-2017).
- Gill, E. C., B. Rajagopalan, P. H. Molnar, **Y. Kushnir**, and T. M. Marchitto, 2017: Reconstruction of Indian summer monsoon winds and precipitation over the past 10,000 years using equatorial pacific SST proxy records. *Paleoceanogr.*, **32**, 195-216 (Published online 24 FEB 2017)
- Marvel, K., M. Biasutti, C. Bonfils, K. E. Taylor, **Y. Kushnir**, and B. I. Cook, 2017: Observed and Projected Changes to the Precipitation Annual Cycle. *J. Climate*, doi: 10.1175/JCLI-D-16-0572.1 (Published Online: 21 February 2017)
- Boer, G. J., D. M. Smith, C. Cassou, F. Doblas-Reyes, G. Danabasoglu, B. Kirtman, **Y. Kushnir**, M. Kimoto, G. A. Meehl, and R. Msadek, 2016: The Decadal Climate Prediction Project (DCPP) contribution to CMIP6. *Geosci Model Dev*, **9**, 3751, doi: 10.5194/gmd-9-3751-2016.
- Booth, J. F., H. E. Rieder, and **Y. Kushnir**, 2016: Comparing hurricane and extratropical storm surge for the Mid-Atlantic and Northeast Coast of the United States for 1979–2013. *Environ. Res. Lett.*, **11**, 094004, doi: 10.1175/JAMC-D-14-0320.1.
- Pomposi, C., A. Giannini, and **Y. Kushnir**, 2016: Understanding Pacific Ocean influence on interannual precipitation variability in the Sahel. *Geophys. Res. Lett.*, **43**, doi:[10.1002/2016GL069980](https://doi.org/10.1002/2016GL069980).
- Robertson, A. W., **Y. Kushnir**, U. Lall, and J. Nakamura, 2015: Weather and Climatic Drivers of Extreme Flooding Events over the Midwest of the United States. In: *Extreme Events: Observations, Modeling, and Economics*, M. Chavez, M. Ghil, and J. Urruita-Fukugauchi (Ed.), 113-124.

- Kushnir, Y.**, 2015: Mediterranean climate future: an insightful look into the Basin's precipitation response to greenhouse gas forcing. *Environ Res Lett*, **10**, 111001.
- Cook, E. R., R. Seager, **Y. Kushnir**, K. R. Briffa, U. Büntgen, D. Frank, P. J. Krusic, W. Tegel, G. van der Schrier, L. Andreu-Hayles, M. Baillie, C. Baittinger, N. Bleicher, N. Bonde, D. Brown, M. Carrer, R. Cooper, K. Čufar, C. Dittmar, J. Esper, C. Griggs, B. Gunnarson, B. Günther, E. Gutierrez, K. Haneca, S. Helama, F. Herzig, K.-U. Heussner, J. Hofmann, P. Janda, R. Kontic, N. Köse, T. Kyncl, T. Levanič, H. Linderholm, S. Manning, T. M. Melvin, D. Miles, B. Neuwirth, K. Nicolussi, P. Nola, M. Panayotov, I. Popa, A. Rothe, K. Seftigen, A. Seim, H. Svarva, M. Svoboda, T. Thun, M. Timonen, R. Touchan, V. Trotsiuk, V. Trouet, F. Walder, T. Wążny, R. Wilson, and C. Zang, 2015: Old World megadroughts and pluvials during the Common Era. *Science Advances*, **1**, doi: 10.1126/sciadv.1500561.
- Munoz, A. G., A. Robertson, L. Goddard, **Y. Kushnir**, and W. Baethgen, 2015: Climate Predictability of rainfall extreme events in South East South America for the austral summer. Part I: Physical mechanisms. *J. Climate*, **28** (19), 7894-7913, doi: 10.1175/JCLI-D-14-00693.1.
- Torfstein, A., S. L. Goldstein, Y. Kushnir, Y. Enzel, G. Haug, M. Stein, 2015: Response to comment on: "Dead Sea drawdown and monsoonal impacts in the Levant during the last interglacial", *Earth Pla. Sci. Lett.*, **427**, 306-308.
- Booth, J. F., H. E. Rieder, D.-E. Lee and **Y. Kushnir**, 2015: The Paths of Extratropical Cyclones Associated with Wintertime High-Wind Events in the Northeastern United States, *J. Appl. Meteorol. Climatol.*, **54** (9), 1871-1885, doi: 10.1175/JAMC-D-14-0320.1.
- Seager, R., **Y. Kushnir**, M. Ting, N. Naik, and J. Nakamura, 2015: Decadal hydroclimate variability across the Americas. *World Scientific Series on Weather and Climate*, World Scientific. C.P. Chang, M. Ghil, M. Latif, and J. M., Wallace (Ed), 235-254.
- Winter, A., D. Zanchettin, T. Miller, **Y. Kushnir**, D. Black, G. Lohmann, A. Burnett, G. H. Haug, J. Estrella-Martínez, and S. F. Breitenbach, 2015: Persistent drying in the tropics linked to natural forcing. *Nature communications*, **6**, doi: 10.1038/ncomms8627.
- Nakamura, J., U. Lall, **Y. Kushnir**, and B. Rajagopalan, 2015: HITS: Hurricane Intensity and Track Simulator with Atlantic Ocean applications for risk assessment. *J. Appl. Meteorol. Climatol.*, **54**(7), 1620-1636, doi: 10.1175/JAMC-D-14-0141.1.
- Enzel, Y., **Y. Kushnir** and J. Quade, 2015: The middle Holocene climatic records from Arabia: Reassessing lacustrine environments, shift of ITCZ in Arabian Sea, and impacts of the southwest Indian and African monsoons, *Global Plan. Change*, **129**, 69-91, doi: 10.1016/j.gloplacha.2015.03.004.
- Ting, M., S. J. Camargo, C. Li, and **Y. Kushnir**: Natural and Forced North Atlantic Hurricane Potential Intensity Change in CMIP5 Models. *J. Climate*, in press, doi: 10.1175/JCLI-D-14-00520.1.
- Kelley, C. P., S. Mohtadi, M. A. Cane, R. Seager, and **Y. Kushnir**, 2015: Climate change in the Fertile Crescent and implications of the recent Syrian drought. *Proc. Amer. Acad. Sci.*, **112**(11), 3241-3246, doi: 10.1073/pnas.1421533112.
- Rivera-Collazo, I., A. Winter, D. Scholz, A. Mangini, T. Miller, **Y. Kushnir**, and D. Black, 2015: Human adaptation strategies to abrupt climate change in Puerto Rico 3.7ka, *The Holocene*, **25**, 627-640, doi: 10.1177/0959683614565951.
- Torfstein, A., S. L. Goldstein, M. Stein, **Y. Kushnir**, Y. Enzel, G. Haug, 2015: Aridity cycles in the Levant and Dead Sea dry-down during the last interglacial period. *Earth Pla. Sci. Letter.*, **412**, 235-244.
- Pomposi, C., **Y. Kushnir**, and A. Giannini, 2015: Moisture budget analysis of SST-driven decadal Sahel precipitation variability in the twentieth century. *Clim. Dyn.*, **44**, 3303-3321, doi: 10.1007/s00382-014-2382-3.
- Ballard, T., R. Seager, J. Smerdon, B. Cook, A.J. Ray, B. Rajagopalan, **Y. Kushnir**, J. Nakamura and N. Henderson, 2014: Hydroclimate Variability and Change in the Prairie Pothole Region, the "Duck Factory" of North America. *Earth Interactions*, **18** (14), 1-28.

- Seager, R., D. Neelin, I. Simpson, H. Liu, N. Henderson, T. Shaw, **Y. Kushnir**, M. Ting and B.I. Cook, 2014: Dynamical and thermodynamical causes of large-scale changes in the hydrological cycle over North America in response to global warming. *J. Climate.*, **27**, 7921-7948.
- Seager, R., H. Liu, N. Henderson, I. Simpson, C. Kelley, T. Shaw, **Y. Kushnir** and M. Ting, 2013: Causes of increasing aridification of the Mediterranean region in response to rising greenhouse gases. *J. Climate*, **27**, 4655-4676.
- Ting, M., **Y. Kushnir**, and C. Li, 2013: North Atlantic multidecadal SST oscillation: External forcing versus internal variability. *J. Marine Sys.*, **133**, 27-38, DOI: 10.1016/j.jmarsys.2013.07.006
- Kushnir, Y.**, 2013: Atmospheric Science: Volcanic rain shift. *Nature Climate Change*, **3(7)**, 619-620.
- Li, W., Li, L., Ting, M., Deng, **Y.**, **Kushnir**, Y., Liu, Y., Lu, Y., Wang, C. and Zhang, P., 2013: Intensification of the Southern Hemisphere summertime subtropical anticyclones in a warming climate. *Geophys. Res. Letters*, **40(22)**, doi: 2013GL058124.10.1002/2013GL058124.
- Nakamura, J., U. Lall, **Y. Kushnir**, A. W. Robinson, and R. Seager, 2013: Dynamical structure of major spring floods in the U.S. Midwest. *J. Hydrometeorology*, **14(2)**, 485-504, doi: 10.1175/JHM-D-12-059.1
- Ziv, B., **Y. Kushnir**, J. Nakamura, N. H. Naik, and T. Harpaz, 2013: Coupled Climate Model Simulations of Mediterranean winter cyclones and related large-scale flow anomalies. *Nat. Haz. Earth Sys. Sci.*, **13**, 779-793.
- Zhang, R., T. L. Delworth, R. Sutton, D. L. R. Hodson, K. W. Dixon, I. M. Held, **Y. Kushnir**, J. Marshall, Y. Ming, R. Msadek, J. Robson, A. J. Rosati, M. Ting, and G. A. Vecchi, 2013: Have Aerosols Caused the Observed Atlantic Multidecadal Variability? *J. Atmos. Sci.*, **70(4)**, 1135-1144.
- Camargo, S. J., M. Ting, and **Y. Kushnir**, 2013: Influence of local and remote SST on North Atlantic tropical cyclone potential intensity, *Clim. Dyn.*, **40(5-6)**, 1515-1529, doi: 10.1007/s00382-012-1536-4.
- Kelley, C., M. Ting, R. Seager, and **Y. Kushnir**, 2012: Mediterranean precipitation climatology, seasonal cycle, and trend as simulated by CMIP5, *Geophys. Res. Lett.*, **39**, L21703, doi:10.1029/2012GL053416.
- Goddard, L., A. Kumar, A. Solomon, D. Smith, G. Boer, P. Gonzalez, C. Deser, S. Mason, B. Kirtman, R. Msadek, R. Sutton, E. Hawkins, T. Fricker, S. Khari, W. Merryfield, G. Hegerl, C. Ferro, D. Stephenson, G.A. Meehl, T. Stockdale, R. Burgman, A. Greene, **Y. Kushnir**, M. Newman, J. Carton, I. Fukumori, D. Vimont, T. Delworth, 2012: A Verification Framework for Interannual-to-Decadal Predictions Experiments. *Clim. Dyn., Climate Dynamics*, **40(1-2)**, 245-272, doi: 10.1007/s00382-012-1481-2
- Seager, R., N. Pederson, **Y. Kushnir**, J. Nakamura, and S. Jurburg, 2012: The 1960s drought and the subsequent shift to a wetter climate in the Catskill Mountains region of the New York City watershed. *J. Climate*, **25**, 6721-6741, doi: 10.1175/JCLI-D-11-00518.1
- Ruff, T. W., **Y. Kushnir**, and R. Seager, 2012: Comparing 20th and 21st century patterns of interannual precipitation variability over the western United States and northern Mexico. *J. Hydrometeorology.*, **13**, 366-378, doi: 10.1175/JHM-D-10-05003.1
- Li, L., W. Li, and **Y. Kushnir**, 2012: Variation of the North Atlantic subtropical high western ridge and Its implication to southeastern U.S. summer precipitation, *Clim. Dyn.*, **39(6)**, 1401-1412.
- Kelley, C., M. Ting, R. Seager, **Y. Kushnir**, 2012: The relative contributions of radiative forcing and internal climate variability to the late 20th Century winter drying of the Mediterranean region. *Clim. Dyn.*, **38(9-10)**, 2001-2015.
- Ting, M., **Y. Kushnir**, R. Seager, and C. Li, 2011 Robust features of Atlantic multi-decadal variability and its climate impacts, *Geophys. Res. Lett.*, **38**, L17705, doi:10.1029/2011GL048712.
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- Winter, A., L. Stott, **Y. Kushnir**, A. Sinha, A. Timmermann, M.R. Jury, T. Miller, C. Gallup, H. Cheng,

- and R.L. Edwards, 2010: Evidence for 800 years of North Atlantic multi-decadal variability from a Puerto Rican speleothem. *Earth Pla. Sci. Lett.*, **308**, 23–28.
- Kushnir, Y.**, R. Seager, M.F. Ting, N.H. Naik and J. Nakamura, 2010: Mechanisms of Tropical Atlantic SST Influence on North American Hydroclimate Variability, *J. Climate*, **23**, (21), 5610–5628.
- Seager, R., N. Naik, W. Baethgen, A. Robertson, **Y. Kushnir**, J. Nakamura, and S. Jurburg, 2010: Tropical oceanic causes of interannual to multidecadal precipitation variability in southeast South America over the past century, *J. Climate*, **23** (20), 5517-5539.
- Kushnir, Y.** and M. Stein, 2010: North Atlantic influence on 19th - 20th century rainfall in the Dead Sea watershed, teleconnections with the Sahel, and implication for Holocene climate fluctuations. *Quart. Sci. Rev.*, **29**, 3843-3860, doi:10.1016/j.quascirev.2010.09.004.
- Seager, R., **Y. Kushnir**, J. Nakamura, M. Ting and N. Naik, 2010: Northern hemisphere winter snow anomalies: ENSO, NAO and the winter of 2009/10. *Geophys. Res. Lett.*, **37**, L14703, doi:10.1029/2010GL043830.
- Tourre, Y. M., S. Paz, **Y. Kushnir**, and W. B. White, 2010: Low-frequency climate variability in the Atlantic Basin during the 20th century. *Atmos. Sci. Let.*, **11** (3), 180–185.
- Seager, R., N.H. Naik, M.F. Ting, M.A. Cane, N. Harnik, **Y. Kushnir**, 2010: Adjustment of the atmospheric circulation to tropical Pacific SST anomalies: Variability of transient eddy propagation in the Pacific-North America sector, *Quart. J. Roy. Meteorol. Soc.*, **136**, 277-296.
- Nakamura, J., U. Lall, **Y. Kushnir**, and S. J. Camargo, 2009: Classifying North Atlantic Tropical Cyclone Tracks by Mass Moments. *J. Climate*, **22**, 5481-5494.
- Karnauskas, K. B., R. Seager, A. Kaplan, **Y. Kushnir**, and M. A. Cane, 2009: The evolution of the equatorial Pacific zonal SST gradient during the twentieth century. *J. Climate*, **22**, 4316-4321.
- Ihara, C., and **Y. Kushnir**, 2009: Changes in climatological midlatitude westerlies over the Pacific between the 20th century and 21st century, 2009. *Geophys. Res. Lett.*, **36**, L13701, doi: 10.1029/2009GL037674.
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- Seager, R, **Y. Kushnir**, M. Ting, M. Cane, N. Naik, J. Miller, 2009: Would Advance Knowledge of 1930s SSTs Have Allowed Prediction of the Dust Bowl Drought? *J. Climate*, **22** (1), 193-199.
- Seager, R., R. Burgman, **Y. Kushnir**, A. Clement, E. Cook, N. Naik, and J. Nakamura, 2008: Tropical Pacific forcing on North American Medieval megadroughts: Testing the concept with an atmosphere model forced by coral-reconstructed SSTs. *J. Climate*, **21**, 6175-6190.
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