

EFRAT MORIN

Date of place of birth: 14/1/1964, Israel
Affiliation: The Fredy & Nadine Herrmann Institute of Earth Sciences,
The Hebrew University of Jerusalem
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EDUCATION

BSc- 1991, Hebrew University of Jerusalem, Faculty of Science, Mathematics and Computer Sciences, "Amirim" Excellency Program; MSc- 1996, Hebrew University of Jerusalem, Faculty of Science, Department of Atmospheric Sciences; PhD- 2002, Hebrew University of Jerusalem, Faculty of Science, Institute of Earth Sciences; post-doc; 2000-2003, University of Arizona, Tucson, Department of Hydrology and Water Resources

APPOINTMENTS

Hebrew University: Lecturer-2003, Senior lecturer-2009, Associate Professor-2012; Full Professor-2018

Administrative appointments (Hebrew U and others):

2013-2016 Chair, Geography department
2013-2016 Chair, Hydrology and Water Resources program
2017-2020 Chair, Environmental Sciences program

AWARDS AND HONORS

1995 Shindel Award, Institute of Earth Sciences, Hebrew University of Jerusalem
1997 Goldshmidt Award, Israeli Association for Water Resources
2000-2002 The Vaadia-BARD Postdoctoral Fellowship
2004 Golda Meir Foundation Fellow
2015 The Rector's Award for outstanding researchers

SELECTED PROFESSIONAL ACTIVITY

2008-2013 Journal of Hydrology, Editorial Board
2009-2014, 2021-to date Hydrology and Earth System Sciences, Editorial Board
2021-to date, Advances in Water Resources, Editorial Board
2015 Special Issue on Hydrologic Applications of Weather Radar, Journal of Hydrology
2009-to date Member of the international working group of HyMeX (HYdrological cycle in the Mediterranean Experiment)
2015-2018 Member of the precipitation committee of the hydrology section of AGU
2012-2013 Adjunct Research Scientist, Lamont-Doherty Earth Observatory, Columbia University
2020-2021 Visiting researcher, Google research

TEACHING- general field and/or courses names if wishes

Processes of the hydrological cycle, Surface water hydrology, Modeling environmental systems, Machine learning in earth and environmental sciences

LIST OF PUBLICATION**BOOKS/EDITED VOLUMES:****JOURNAL ARTICLES:**

1. **Morin E.**, Enzel Y., Shamir U. and Garti R. (2001) The characteristic time scale for basin hydrological response using radar data. *J. Hydrol.*, 252, 85-99.
2. Dayan U., Ziv B., Margalit A., **Morin E.** and Sharon D. (2001) A severe autumn storm over the middle-east: synoptic and mesoscale convection analysis. *Theor. Appl. Climatol.*, 69(1/2), 103-122.
3. **Morin E.**, Georgakakos K. P., Shamir U., Garti R. and Enzel Y. (2002) Objective, observations-based, automatic estimation of the catchment response timescale. *Water Resour. Res.*, 38(10), 1212-1227.
4. **Morin E.**, Krajewski W. F., Goodrich D. C., Gao X., and Sorooshian S. (2003) Estimating rainfall intensities from weather radar data: The scale-dependency problem. *J. Hydrometeorol.*, 4(5), 782-797.
5. **Morin E.**, Georgakakos K. P. Shamir U., Garti R., and Enzel Y. (2003) Investigating the effect of catchment characteristics on the response time scale using distributed model and weather radar information. In: Y. Tachikawa, B. E. Vieux, K. P. Georgakakos & Eiichi Nakakita (eds). *Weather Radar Information and Distributed Hydrological Modeling*. IAHS Publ. no. 282. pp. 177–185.
6. Ben David-Novak H., **Morin E.** and Enzel Y. (2004) Modern extreme storms and the rainfall thresholds for initiating debris flows on the hyperarid western escarpment of the Dead Sea, Israel. *Geol. Soc. Am. Bull.*, 116, 718-728.
7. Amitai E., Nystuen J. A., Liao L., Meneghini R., and **Morin E.** (2004) Uniting Space, Ground, and Underwater Measurements for Improved Estimates of Rain Rate. *IEEE Geosci. Remote Sens.*, 1(2), 35-38.
8. Shamir E., Imam B., **Morin E.**, Gupta H. V. and Sorooshian S. (2005) The role of hydrograph indices in parameter estimation of rainfall-runoff models. *Hydrol. Process.*, 19, 2187–2207.
9. **Morin E.**, Maddox R. A., Goodrich D. C., and Sorooshian S. (2005) Radar Z-R relationship for summer monsoon storms in Arizona. *Weather Forecast.*, 20(4), 672-679.
10. **Morin E.**, Goodrich D. C., Maddox R. A., Gao X., Gupta H. V., and Sorooshian S. (2005) Rainfall Modeling for Integrating Radar Information into Hydrological Model. *Atmos. Sci. Lett.*, 6(1), 23-30.
11. **Morin E.**, Goodrich D. C., Maddox R. A., Gao X., Gupta H. V., and Sorooshian S. (2006) Spatial patterns in thunderstorm rainfall events and their coupling with watershed hydrological response. *Adv. Water Resour.*, 29, 843–860.
12. Dayan U. and **Morin E.** (2006) Flash flood-producing rainstorms over the Dead Sea: A review. In: Enzel, Y., Agnon, A., and Stein, M., (Editors). *New Frontiers in Dead Sea Paleoenvironmental Research*, Geological Society of America Special Paper 401, 53-62.
13. Karklinsky M. and **Morin E.** (2006) Spatial characteristics of radar-derived convective rain cells over southern Israel. *Meteorol. Z.*, 15(5), 513-520.
14. **Morin E.** and Gabella M. (2007) Radar-based quantitative precipitation estimation over Mediterranean and dry climate regimes. *J. Geophys. Res.* 112, D20108, doi:10.1029/2006JD008206.
15. **Morin E.**, Harats N, Jacoby Y., Arbel S., Getker M., Arazi A., Grodek T., Ziv B. and Dayan U. (2007) Studying the extremes: Hydrometeorological investigation of a flood-causing rainstorm over Israel. *Adv. Geosci.*, 12, 107–114.
16. **Morin E.** Jacoby Y., Navon S., Bet-Halachmi E. (2009) Towards flash-flood prediction in the dry Dead Sea region utilizing radar rainfall information. *Adv. Water Resour.* 32, 1066-1076.
17. **Morin E.**, Grodek T., Dahan O., Benito G., Kulls C., Jacoby Y, Van Langenhove G., Seely M., and Enzel Y. (2009) Flood routing and alluvial aquifer recharge along the ephemeral arid Kuiseb River, Namibia. *J. Hydrol.*, 368, 262–275.
18. Bahat Y., Grodek T., Lekach J., and **Morin E.** (2009) Rainfall-runoff modeling in a small hyperarid catchment. *J. Hydrol.*, 373, 204-217.

19. Kurtzman D., Navon S. and **Morin E.** (2009) Improving interpolation of daily precipitation for hydrologic modelling: spatial patterns of preferred interpolators. *Hydrol. Process.*, doi: 10.1002/hyp.7442.
20. Benito G., Rohde R., Seely M., Kulls C., Dahan O., Enzel Y., Todd S., Botero B., **Morin E.**, Grodek T. and Roberts C. (2010) Management of alluvial aquifers in two southern African ephemeral rivers: Implications for IWRM. *Water Resour. Manage.*, 24, 641–667, doi: 10.1007/s11269-009-9463-9.
21. Yair Y., Lynn B., Price C., Kotroni V., Lagouvardos K., **Morin E.**, Mugnai A. and Llasat M. C. (2010) Predicting the potential for lightning activity in Mediterranean storms based on the Weather Research and Forecasting (WRF) model dynamic and microphysical fields. *J. Geophys. Res.*, 115, D04205, doi: 10.1029/2008JD010868.
22. Sheffer N. A., Dafny E., Gvirtzman H., Navon S., Frumkin A. and **Morin E.** (2010) Hydrometeorological daily recharge assessment model (DREAM) for the Western Mountain Aquifer, Israel: Model application and effects of temporal patterns. *Water Resour. Res.*, 46, W05510, doi: 10.1029/2008WR007607.
23. Rozalis S., **Morin E.**, Yair Y., and Price C. (2010) Flash flood prediction using an uncalibrated hydrological model and radar rainfall data in a Mediterranean watershed under changing hydrological conditions. *J. Hydrol.*, 394, 245–255.
24. Gabella M., **Morin E.** and Notarpietro R. (2011) Using TRMM spaceborne radar as a reference for compensating ground-based radar range degradation: Methodology verification based on rain gauges in Israel. *J. Geophys. Res.*, 116, D02114, doi:10.1029/2010JD014496.
25. Yakir H. and **Morin E.** (2011) Hydrologic response of a semi-arid watershed to spatial and temporal characteristics of convective rain cells. *Hydrol. Earth Syst. Sci.*, 15, 393–404, doi:10.5194/hess-15-393-2011.
26. Sheffer N. A., Cohen M., **Morin E.**, Grodek T., Gimburg A., Magal E., Gvirtzman H., Nied M., Isele D., and Frumkin A. (2011) Integrated cave drip monitoring for epikarst recharge estimation in a dry Mediterranean area, Sif Cave, Israel. *Hydrol. Process.*, 25, 2837–2845, doi: 10.1002/hyp.8046.
27. Price C., Yair Y., Mugnai A., Lagouvardos K., Llasat M. C., Michaelides S., Dayan U., Dietrich S., Galanti E., Garrote L., Harats N., Katsanos D., Kohn M., Kotroni V., Llasat-Botija M., Lynn B., Mediero L., **Morin E.**, Nicolaidis K., Rozalis S., Savvidou K., and Ziv B. (2011) The FLASH Project: using lightning data to better understand and predict flash floods. *Environ. Sci. Policy*, 14, 898–911.
28. **Morin E.** (2011) To know what we cannot know: Global mapping of minimal detectable absolute trends in annual precipitation. *Water Resour. Res.*, 47, W07505, doi:10.1029/2010WR009798.
29. Price C., Yair Y., Mugnai A., Lagouvardos K., Llasat M. C., Michaelides S., Dayan U., Dietrich S., Galanti E., Garrote L., Harats N., Katsanos D., Kohn M., Kotroni V., Llasat-Botija M., Lynn B., Mediero L., **Morin E.**, Nicolaidis K., Rozalis S., Savvidou K., and Ziv B. (2011) Using lightning data to better understand and predict flash floods in the Mediterranean. *Surv. Geophys.* 32, 733–751, doi:10.1007/s10712-011-9146-y.
30. Shohami D., Dayan U. and **Morin E.** (2011) Warming and drying of the eastern Mediterranean: Additional evidence from trend analysis. *J. Geophys. Res.*, 116, D22101, doi:10.1029/2011JD016004.
31. **Morin E.** and Yakir H. (2012) The flooding potential of convective rain cells. *IAHS-AISH Publ. no. 351*, 607–613.
32. Peleg N., **Morin E.**, Gvirtzman H. and Enzel Y. (2012) Rainfall, spring discharge and past human occupancy in the Eastern Mediterranean. *Climatic Change*, 112, 769–789, doi: 10.1007/s10584-011-0232-4.
33. Grodek T., Jacoby Y., **Morin E.** and Katz O. (2012) Effectiveness of exceptional rainstorms on a small Mediterranean basin. *Geomorphology*, 159, 156–168.
34. Tarolli P., Borga M., **Morin E.** and Delrieu G. (2012) Analysis of flash flood regimes in the North-Western and South-Eastern Mediterranean regions. *Nat. Hazard Earth Sys.*, 12, 1255–1265.
35. Flaounas E., Drobinski P., Borga M., Calvet J. C., Delrieu G., **Morin E.**, Tartari G. and Toffolon R. (2012) Assessment of gridded observations used for climate model validation in the Mediterranean

- region: the HyMeX and MED-CORDEX framework. *Environ. Res. Lett.*, 7, 024017, doi:10.1088/1748-9326/7/2/024017.
36. Peleg N. and **Morin E.** (2012) Convective rain cells: Radar-derived spatiotemporal characteristics and synoptic patterns over the eastern Mediterranean. *J. Geophys. Res.*, 117, D15116, doi:10.1029/2011JD017353.
 37. Gabella M., **Morin E.**, Notarpietro R., and Michaelides S. (2013) Winter precipitation fields in the Southeastern Mediterranean area as seen by the Ku-band spaceborne weather radar and two C-band ground-based radars, *Atmos. Res.*, 119, 120-130, doi: 10.1016/j.atmosres.2011.06.001.
 38. Shamir E., Ben-Moshe L., Ronen A., Grodek T., Enzel Y., Georgakakos K. P., and **Morin E.** (2013) Geomorphology-based index for detecting minimal flood stages in arid alluvial streams. *Hydrol. Earth Syst. Sci.*, 17, 1021–1034, doi:10.5194/hess-17-1021-2013.
 39. Peleg N., Ben-Asher M., and **Morin E.** (2013) Radar subpixel-scale rainfall variability and uncertainty: lessons learned from observations of a dense rain-gauge network, *Hydrol. Earth Syst. Sci.*, 17, 2195–2208, doi:10.5194/hess-17-2195-2013.
 40. **Morin E.** and Yakir H. (2014) Hydrological impact and potential flooding of convective rain cells in a semi-arid environment, *Hydrolog. Sci. J.*, doi: 10.1080/02626667.2013.841315.
 41. Karran D., Adamowski, J. F. and **Morin E.** (2014) Multi-step streamflow forecasting using data-driven non-linear methods in contrasting climate regimes, *J. Hydroinformatics*, 16, 671-689, doi: 10.2166/hydro.2013.042.
 42. Rinat Y., Matmon A., Arnold M., Aumaitre G., Bourles D., Keddadouche K., Porat N., **Morin E.**, Finkel R. C. (2014) Holocene rockfalls in the southern Negev Desert, Israel and their relation to Dead Sea fault earthquakes. *Quaternary Res.*, 81, 260-273, doi: 10.1016/j.yqres.2013.12.008.
 43. Peleg N., and **Morin E.** (2014) Stochastic convective rain-field simulation using a high-resolution synoptically conditioned weather generator (HiReS-WG). *Water Res. Res.*, 50, 2124-2139, doi: 10.1002/2013wr014836.
 44. Peleg N., Bartov M., and **Morin E.** (2015) CMIP5-predicted climate shifts over the East Mediterranean: implications for the transition region between Mediterranean and semi-arid climates. *Inter. J. Clim.*, 35, 2144-2153, doi: 10.1002/joc.4114.
 45. Saaroni H., Ziv B., Lempert J., Gazit Y., and **Morin E.** (2015) Prolonged dry spells in the Levant region: climatologic-synoptic analysis. *Inter. J. Clim.*, 35, 2223-2236, doi: 10.1002/joc.4143.
 46. Peleg N., Shamir E., Georgakakos K. P., and **Morin E.** (2015) A framework for assessing hydrological regime sensitivity to climate change in a convective rainfall environment: a case study of two medium-sized eastern Mediterranean catchments, Israel. *Hydrol. Earth Syst. Sci.*, 19, 567–581 doi:10.5194/hess-19-567-2015.
 47. Seo D. J., Habib E., Andrieu H., and **Morin E.** (2015) Hydrologic applications of weather radar., *J. Hydrol.*, 531, 231-233, doi: 10.1016/j.jhydrol.2015.11.010.
 48. Marra F. and **Morin E.** (2015) Use of radar QPE for the derivation of Intensity–Duration–Frequency curves in a range of climatic regimes. *J. Hydrol.*, 531, 427-440, doi: 10.1016/j.jhydrol.2015.08.064.
 49. Zidon R., Tsueda H., **Morin E.**, and Morin S. (2016) Projecting pest population dynamics under global warming: the combined effect of inter- and intra-annual variations. *Ecol. Appl.*, 26(4), 1198–1210, doi: 10.1890/15-1045.
 50. Kottmeier C., Agnon A., Al-Halbouni D., Alpert P., Corsmeier U., Dahm T., Eshel A., Geyer S., Haas M., Holohan E., Kalthoff N., Kishcha P., Krawczyk C., Lati J., Laronne J. B., Lott F., Mallast U., Merz R., Metzger J., Mohsen A., **Morin E.**, Nied M., Rödiger T., Salameh E., Sawarieh A., Shannak B., Siebert C., and Weber M. (2016) New perspectives on interdisciplinary earth science at the Dead Sea: the DESERVE project, *Sci. Total Environ.*, 544, 1045-1058, doi: 10.1016/j.scitotenv.2015.12.003.
 51. Ziv B., Harats N., **Morin E.**, Yair Y. and Dayan U. (2016) Can severe rain events over the Mediterranean region be detected through simple numerical indices? *Nat Hazards*, 83, 1197-1212, doi: 10.1007/s11069-016-2385-y.
 52. Drobinski P., Da Silva N., Panthou G., Bastin S., Muller C., Ahrens B., Borga M., Conte D., Fosser G., Giorgi F., Guttler I., Kotroni V., Li L., **Morin E.**, Onol B., Quintana-Segui P., Romera R., Zsolt Torma C. (2016) Scaling precipitation extremes with temperature in the Mediterranean: past climate

- assessment and projection in anthropogenic scenarios. *Clim. Dyn.*, 51, 1237-1257, doi: 10.1007/s00382-016-3083-x.
53. Marra F., **Morin E.**, Peleg N., Mei Y. and Anagnostou, E. N. (2017) Intensity–Duration–Frequency curves from remote sensing rainfall estimates: Comparing satellite and weather radar over the eastern Mediterranean. *Hydrol. Earth Syst. Sci.*, 21(5), 2389-2404. doi: 10.5194/hess-21-2389-2017.
 54. Belachsen I., Marra F., Peleg N. and **Morin E.** (2017) Convective rainfall in a dry climate: relations with synoptic systems and flash-flood generation in the Dead Sea region. *Hydrol. Earth Syst. Sci.*, 21, 5165-5180. doi:10.5194/hess-21-5165-2017.
 55. Oriani F., Ohana-Levi N., Marra F., Straubhaar J., Mariethoz G., Renard P., Karnieli A. and **Morin E.** (2017) Simulating small-scale rainfall fields conditioned by weather state and elevation: A data-driven approach based on rainfall radar images. *Water Res. Res.*, 53, 8512-8532, doi: 10.1002/2017WR020876.
 56. Yang L., Smith J., Baeck M. L., **Morin E.** and Goodrich D. C. (2017) Flash flooding in arid/semi-arid regions: Dissecting the hydrometeorology and hydrology of the 19 August 2014 storm and flood hydroclimatology in Arizona. *J. Hydrometeorol.*, 18, 3103-3123, doi: 10.1175/JHM-D-17-0089.1.
 57. Marra F. and **Morin E.** (2018) Autocorrelation structure of convective rainfall in semiarid-arid climate derived from high-resolution X-Band radar estimates. *Atmos. Res.*, 200, 126-138, doi: 10.1016/j.atmosres.2017.09.020.
 58. Dente E., Lensky N. G., **Morin E.**, Grodek T., Sheffer N. A. and Enzel Y. (2018) Geomorphic response of a low-gradient channel to modern, progressive base-level lowering: Nahal HaArava, the Dead Sea. *J. Geophys. Res. Earth Surf.*, 122, 2468-2487. doi: 10.1002/2016JF004081.
 59. Ahlborn M., Armon M., Ben Dor Y., Neugebauer I., Schwab M. J., Tjallingii R., Shoqeir J. H., **Morin E.**, Enzel Y. and Brauer A. (2018) Increased frequency of torrential rainstorms during a regional late Holocene eastern Mediterranean drought. *Quaternary Res.*, 89, 425-431. doi: 10.1017/qua.2018.9.
 60. Peleg N., Marra F., Faticchi S., Molnar P., **Morin E.**, Sharma A. and Burlando P. (2018) Intensification of convective rain cells at warmer temperatures observed from high-resolution weather radar data. *J. Hydrometeorol.*, 19, 715-726. doi: 10.1175/JHM-D-17-0158.1.
 61. Quade J., Dente E., Armon M., Ben Dor Y., **Morin E.**, Adam O. and Enzel Y. ^{PI} (2018) Megalakes in the Sahara? A Review. *Quaternary Res.* doi:10.1017/qua.2018.46. accepted for publication.
 62. Ben Dor Y., Armon M., Ahlborn M., **Morin E.**, Erel Y., Brauer A., Schwab M. J., Tjallingii R. and Enzel Y. (2018) Changing flood frequencies under opposing late Pleistocene eastern Mediterranean climates. *Scientific Reports*, 8. doi: 10.1038/s41598-018-25969-6.
 63. Armon M., Dente E., Smith J. A., Enzel Y. and **Morin E.** (2018) Synoptic-scale control over modern rainfall and flood patterns in the Levant drylands with implications for past climate. *J. Hydrometeorol.*, 19, 1077-1096. doi: 10.1175/JHM-D-18-0013.1.
 64. Marra F., Nikolopoulos, E. I. and Anagnostou, E. N. **Morin E.** (2018) Metastatistical Extreme Value analysis of hourly rainfall from short records: Estimation of high quantiles and impact of measurement errors. *Adv. Water Resour.* 117, 27-39. doi: <https://doi.org/10.1016/j.advwatres.2018.05.001>.
 65. Rinat Y., Marra F., Zoccatelli D., **Morin E.** (2018) Controls of flash flood peak discharge in Mediterranean basins and the special role of runoff-contributing areas. *J. Hydrol.*, 565, 846-860, doi: <https://doi.org/10.1016/j.jhydrol.2018.08.055>.
 66. **Morin E.**, Ryb T., Gavrieli I. and Enzel Y. (2018) Mean, variance and trends of Levant precipitation over the past 4500 years from reconstructed Dead Sea lake levels and stochastic modeling. In press, *Quaternary Res.* doi:10.1017/qua.2018.98.
 67. Amponsah W., Ayrál P. A., Boudevillain B., Bouvier C., Braud I., Brunet P., Delrieu G., Didon-Lescot J. F., Gaume E., Lebouc L., Marchi L., Marra F., **Morin E.**, Nord G., Payrastre O., Zoccatelli D., Borga M. (2018) Integrated high-resolution dataset of high-intensity European and Mediterranean flash floods. In press, *Earth Syst. Sci. Data.* 10, 1783-1794, <https://doi.org/10.5194/essd-10-1783-2018>.

68. Dente E., Lensky N. G., **Morin E.**, Dunne T., and Enzel Y. (2018) Sinuosity evolution along an incising channel: Newinsights from the Jordan River response to the Dead Sea level fall. *Earth Surf. Process. Landf.* doi: 10.1002/esp.4530.
69. Miller O., Helman D., Svoray T., **Morin E.**, and Bonfil D. (2019) Explicit wheat production model adjusted for semi-arid environments High-resolution spatially and temporally explicit integrated wheat production model. *Field Crop. Res.* 231, 93–104, <https://doi.org/10.1016/j.fcr.2018.11.011>.
70. Marra F., Zoccatelli D., Armon M., and **Morin E.** (2019) A simplified MEV formulation to model extremes emerging from multiple nonstationary underlying processes. *Adv. Water Resour.* doi: <https://doi.org/10.1016/j.advwatres.2019.04.002>.
71. Marra F., Nikolopoulos E. I., Anagnostou E. N., Bardossy A., and **Morin E.** (2019) Precipitation frequency analysis from remotely sensed datasets: A focused review. *J. Hydrol.*, 574, 699-705. doi: <https://doi.org/10.1016/j.jhydrol.2019.04.081>.
72. Armon M., **Morin E.**, and Enzel Y. (2019) Overview of modern atmospheric patterns controlling rainfall and floods into the Dead Sea: Implications for the lake's sedimentology and paleohydrology. *Quat. Sci. Rev.*, 216, 58-73. doi: <https://doi.org/10.1016/j.quascirev.2019.06.005>.
73. Yang L., Smith J., Baeck M. L., Morin E. (2019) Flash flooding in arid/semi-arid regions: Climatological analyses of flood-producing storms in central Arizona during north American monsoon, *J. Hydrometeorol.* doi:10.1175/JHM-D-19-0016.1.
74. Zoccatelli D., Marra F., Armon M., Rinat Y., Smith J. A., and Morin E. (2019) Contrasting rainfall-runoff characteristics of floods in desert and Mediterranean basins, *Hydrol. Earth Syst. Sci.*, doi: <https://doi.org/10.5194/hess-23-1-2019>.
75. Smith J. A., Baeck M. L., Yang L., Signell J., **Morin E.** and Goodrich D. C. (2019) The paroxysmal precipitation of the desert: Flash floods in the Southwestern United States. *Water Resour. Res.*, 55(12), 10218-10247, doi: <https://doi.org/10.1029/2019WR025480>
76. Garfinkel C. I., Adam O., **Morin E.**, Enzel Y., Elbaum E., Bartov M., Rostkier-Edelstein D. and Dayan U. (2020) The role of zonally averaged climate change in contributing to intermodel spread in CMIP5 predicted local precipitation changes. *J. Climate*, 33(3), 1141-1154, doi: <https://doi.org/10.1175/JCLI-D-19-0232.1>
77. Grodek T., **Morin E.**, Helman D., Lensky I., Dahan O., Seely M., Benito G. and Enzel Y. (2020). Eco-hydrology and geomorphology of the largest floods along the hyperarid Kuiseb River, Namibia. *J. Hydrol.*, 582, 124450. doi: <https://doi.org/10.1016/j.jhydrol.2019.124450>
78. Armon M., Marra F., Enzel Y., Rostkier-Edelstein D. and **Morin E.** (2020) Radar-based characterisation of heavy precipitation in the eastern Mediterranean and its representation in a convection-permitting model. *Hydrol. Earth Syst. Sci.*, 24(3), doi: <https://doi.org/10.5194/hess-24-1227-2020>
79. Shmilovitz Y., **Morin E.**, Rinat Y., Haviv I., Carmi G., Mushkin A. and Enzel, Y. (2020) Linking frequency of rainstorms, runoff generation and sediment transport across hyperarid talus-pediment slopes. *Earth Surf. Process. Landf.*, 45, 1644–1659, doi: <https://doi.org/10.1002/esp.4836>
80. Zoccatelli D., Marra F., Smith J., Goodrich D., Unkrich C., Rosensaft M. and **Morin E.** (2020) Hydrological modelling in desert areas of the eastern Mediterranean. *J. Hydrol.*, 587, 124879. doi: <https://doi.org/10.1016/j.jhydrol.2020.124879>
81. Armon M., Dente E., Shmilovitz Y., Mushkin A., Cohen T. J., **Morin E.** and Enzel Y. (2020) Determining bathymetry of shallow and ephemeral desert lakes using satellite imagery and altimetry. *Geophys. Res. Lett.*, 47(7), doi: <https://doi.org/10.1029/2020GL087367>
82. Metzger A., Marra F., Smith J. A. and **Morin E.** (2020) Flood frequency estimation and uncertainty in arid/semi-arid regions. *J. Hydrol.*, 590, 125254, doi: <https://doi.org/10.1016/j.jhydrol.2020.125254>
83. Marra F., Borge M. and Morin E. (2020) A unified framework for extreme subdaily precipitation frequency analyses based on ordinary events. *Geophysical Research Letters*, 47(18), p.e2020GL090209.
84. Hu L., Nikolopoulos E. I., Marra F., **Morin E.**, Marani M. and Anagnostou E. N. (2020) Evaluation of MEVD-based precipitation frequency analyses from quasi-global precipitation datasets against dense rain gauge networks. *Journal of Hydrology*, 590, p.125564.

85. Rinat Y., Marra F., Armon M., Metzger A., Levi Y., Khain P., Vadislavsky E., Rosensaft M. and **Morin E.** (2021) Hydrometeorological analysis and forecasting of a 3 d flash-flood-triggering desert rainstorm. *Natural Hazards and Earth System Sciences*, 21(3), pp.917-939.
86. Marra F., Armon M., Adam O., Zoccatelli D., Gazal O., Garfinkel C. I., Rostkier-Edelstein D., Dayan U., Enzel Y. and **Morin E.** (2021) Toward narrowing uncertainty in future projections of local extreme precipitation. *Geophysical Research Letters*, 48(5), p.e2020GL091823.
87. Marra F., Armon M., Borga M. and **Morin E.** (2021) Orographic effect on extreme precipitation statistics peaks at hourly time scales. *Geophysical Research Letters*, 48(5), p.e2020GL091498.
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