

Francesco Marra, PhD

Institute of Atmospheric Sciences and Climate, National Research Council of Italy (CNR-ISAC)
Researcher

Personal information

Born Oct 29, 1983, Conselve (PD), Italy
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Google Scholar <https://scholar.google.co.il/citations?user=hOLPiD8AAAAJ&hl=en>
Publons <https://publons.com/author/1294940/francesco-marra>
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Summary

Dr Marra is Researcher at the Institute of Atmospheric Sciences and Climate (ISAC) of the National Research Council (CNR) of Italy. His scientific contribution spans numerous fields, including hydrology, atmospheric sciences, geomorphology, climate and global change, with specific interest in extreme weather and related natural hazards. Since 2014, Dr Marra authored 41 papers in ISI journals (all Q1) which collected over 1000 citations, and some of which were listed as “highly cited” (source ISI Web of Science); his h-index is 19. He is Associate Editor of the Journal of Hydrology, for which he handled over 150 submissions, and serves as reviewer for over 30 ISI journals.

Research interests

Statistical analysis of extreme events; Forecasting/monitoring of natural hazards; Impact of climate change on extreme precipitation and natural hazards; Remote sensing of precipitation from weather radars and satellites

Professional experience

Oct 2020 – Now: *Researcher*, Institute of Atmospheric Sciences and Climate, National Research Council of Italy
Jul 2018 – Sep 2020 (~2 years): *Research Associate*, Institute of Earth Sciences, Hebrew University of Jerusalem, Israel
Jun 2016 – Jun 2018 (2 years): *Post-Doc*, Institute of Earth Sciences, Hebrew University of Jerusalem, Israel
Jan 2014 – May 2016 (2.5 years): *Post-Doc*, Department of Geography, Hebrew University of Jerusalem, Israel
Jan 2013 – Dec 2013 (1 year): *Research Grant*, Department of Land, Environment, Agriculture and Forestry, University of Padova, Italy
Oct 2009 – Dec 2009 (3 months): *Research Grant*, Department of Land, Environment, Agriculture and Forestry, University of Padova, Italy

Education

12/04/2013: **PhD in Environmental Hydrology**: Integrated analysis and correction procedure for radar quantitative precipitation estimates of intense events in alpine regions (in Italian). Department of Land, Environment, Agriculture and Forestry, University of Padova, Italy. Supervisor: M. Borga
19/06/2009: **Master degree in Physics** (Atmospheric Physics and Meteorology): Satellite precipitation measurement with a new 183 GHz microwave algorithm (in Italian). University of Bologna, Italy. Supervisors: V. Levizzani, S. Laviola (ISAC-CNR)
24/07/2006: **Degree in Physics**: Numerical study of chaotic dynamics using Lyapunov Characteristic Exponents (in Italian). University of Padova. Supervisor: G. Benettin

Teaching

1. Course lecturer: “Remote sensing of precipitation from weather radars and satellites” (in English), Academic Year 2017-2018, Institute of Earth Sciences, The Hebrew University of Jerusalem
2. Course lecturer: “Remote sensing of precipitation from weather radars and satellites” (in English), Academic Year 2018-2019, Institute of Earth Sciences, The Hebrew University of Jerusalem

Student supervision

1. Matteo Siena (master): advisor. University of Bologna & National Research Council, Italy, 2021-now
2. Diogo Araujo (PhD): co-advisor. Florida Institute of Technology, US, 2020-now
3. Lanxin Hu (PhD): co-advisor (<https://doi.org/10.1111/jfr3.12580>; <https://doi.org/10.1016/j.jhydrol.2020.125564>). University of Connecticut, Storrs CT, US, 2018-2021
4. Asher Metzger (master): Co-advisor. Flood frequency estimation and uncertainty in arid/semi-arid regions (<https://doi.org/10.1016/j.jhydrol.2020.125254>). Hebrew University of Jerusalem, Israel, 2017-2019
5. Daniel McGraw (master): Co-advisor. Evaluation of NEXRAD-based sub-daily Intensity Duration Frequency Curves over CONUS (<https://doi.org/10.1016/j.jhydrol.2019.03.032>). University of Connecticut, Storrs CT, US, 2017-2018

6. Jacob Hirschberg (master): Co-advisor. Impacts of Radar-based Precipitation Estimates on Simulated Flash Floods in a Desert Environment. ETH Zurich, Switzerland, 2017-2018;
 7. Idit Belachsen (master): Co-advisor. Convective rainfall in a dry climate: relations with synoptic systems and flash-flood generation in the Dead Sea region (<https://doi.org/10.5194/hess-21-5165-2017>). Hebrew University of Jerusalem, Israel, 2015-2017
 8. Davide Parisi (bachelor): committee member, co-advisor. Hydro-meteorological control of landslides and debris flows triggering in Trentino (in Italian). University of Padova, Italy, 2012-2013
 9. Luca Orsato (bachelor): committee member, co-advisor. The October 31-November 2 flood event in the Bacchiglione river basin: hydrological modeling and analysis (in Italian). University of Padova, Italy, 2012-2013
- Co-advisor of several students within the Hydrometeorology Lab at the Hebrew University of Jerusalem, led by Prof. Efrat Morin (2016-now).

Evaluation committees

- Project evaluator
- National Science Center, Poland (2021)
 - Israel Science Foundation, Israel (2021)
 - National Fund for Scientific and Technological Research, Chile (2020)
 - Czech Science Foundation (2019)
 - Austrian Academy of Sciences research program Earth System Sciences (2018)
 - Austrian Academy of Sciences research program Earth System Sciences (2016)
- Evaluation committee member
- PhD, Lanxin Hu, University of Connecticut (2021)
 - PhD, Arianna Miniussi, University of Padova (2019)
 - BS, Davide Parisi, University of Padova (2012-2013)
 - BS, Luca Orsato, University of Padova (2012-2013)

Prizes, Awards, Fellowships

1. Swiss National Science Foundation (SSNF) International Short Visit to ETH, Zurich (March 2017): Weather radar-derived spatiotemporal characteristics of extreme rainfall intensities and their scaling with temperature: current climate assessment and implications in anthropogenic scenarios. Hosts: N. Peleg, P. Burlando
2. Lady Davis Post-Doctoral Fellowship (2016-2017). Rainfall Frequency Analysis from Remote Sensing Estimates (RainFreq)
3. European Meteorological Society (EMS) Young Scientist Travel Award (2016): The 9th European Conference on Radar in Meteorology and Hydrology (ERAD): Intensity-Duration-Frequency curves from radar estimates in a range of climatic regimes

Research Projects

1. FOE Clima, *National Research Council of Italy*, participant, 2020-ongoing
2. Mountain aquifer recharge estimation using rain gauge and radar rainfall data. *Water Authority of Israel*, participant, 2019-2021
3. Intensity-duration-area-frequency and flooding risk of extreme rainfall utilizing remote sensing data. *Israel Science Foundation*, participant, 2018-ongoing
4. Understanding projections of a drier Eastern Mediterranean: from global-scale mechanisms to synoptic and local scale impacts on precipitation. *Israel Ministry of Science and Technology*, participant, 2019-ongoing
5. Risk of soil erosion by water estimated with remotely-sensed rainfall data, process-based models and weather generators. *US-Israel Binational Agricultural Research and Development Fund*, participant, 2018-ongoing
6. Radar-based rain intensity database for individual and statistical space-time storm property analysis. *Jewish National Fund*, participant, 2018-2020
7. Extreme Floods in Arid/Semi-Arid Watersheds: Paired Studies in Israel and the US. *US National Science Foundation - U.S.-Israel Bi-national Science Foundation (NSF-BSF)*, participant, 2016-2019
8. Hydrometeorological signatures of global extreme precipitation events. *Israel Science Foundation*, participant, 2015-2018
9. PALEX - The Eastern Mediterranean - Levant late Quaternary climates: Paleohydrology and Extreme Floods from the Dead Sea ICDP Core. *Trilateral Program of the German Science Foundation (DFG)*, participant, 2015-2017
10. Weather radar-derived spatiotemporal characteristics of extreme rainfall intensities and their scaling with temperature: current climate assessment and implications in anthropogenic scenarios. *Swiss National Science Foundation*, Co-PI, 2017
11. Evaluating parameters of potential extreme floods in the Dead Sea using observed and synthetic storm data and hydrological model. *Dead Sea Drainage Authority*, participant, 2015-2016
12. Extreme rainfall warning based on Arad X-band radar. *Dead Sea Drainage Authority*, participant, 2015-2016

13. GEP – Sistema informativo territoriale (GIS) congiunto per la protezione delle risorse d'acqua potabile in casi di emergenza. *European Fund for Regional Development within the scope of the Slovenia-Italy Cross-Border Cooperation Programme 2007-2013*, participant, 2013-2014
14. Rainfall Frequency Analysis from Remote Sensing Estimates (RainFreq). *Lady Davis Fellowship Trust*, PI, 2016-2017

Editorial activities

Associate editor Journal of Hydrology (Jun 2017-Now)

Reviewer Advances in Meteorology, Advances in Water Resources, Atmospheric Research, Bulletin of Engineering Geology and the Environment, Earth Surface Processes and Landforms, Geomorphology, Geophysical Research Letters, IEEE Geoscience and Remote Sensing Letters, Hydrological Sciences Journal, Hydrology and Earth System Sciences, International Journal of Climatology, International Journal of Remote Sensing, Journal of Geophysical Research, Journal of Hydrology, Meteorologische Zeitschrift, Meteorology and Atmospheric Physics, Natural Hazards, Natural Hazards and Earth System Sciences, PLOS One, PNAS, Remote Sensing Applications: Society and Environment, Remote Sensing of Environment, Scientific Reports, SN Applied Sciences, Sustainable Cities and Society, Theoretical and Applied Climatology, Water Resources Research, Weather and Climate Extremes

Conference convening

Convener Session HS7.5, EGU General Assembly 2022
 Session HS7.5, EGU General Assembly 2021

Co-convener Session GM10.2, EGU General Assembly 2022
 Session HS7.5, EGU General Assembly 2020
 Session HS7.5, EGU General Assembly 2019

Poster session chair Session AS1.32, EGU General Assembly 2019
 Session AS1.16/CL2.04/HS11.6, EGU General Assembly 2018

Scientific qualifications

Qualified for Associate Professorship in Italy (Abilitazione Scientifica Nazionale, seconda fascia):

04/A4	Geofisica	until 14/01/2029
08/A1	Idraulica, idrologica, costruzioni idrauliche e marittime	until 13/01/2029
07/C1	Ingegneria agraria, forestale e dei biosistemi	until 09/01/2029

Qualified for Full Professorship in Italy (Abilitazione Scientifica Nazionale, prima fascia):

07/C1	Ingegneria agraria, forestale e dei biosistemi	until 01/06/2030
04/A4	Geofisica	until 12/04/2030

Languages

Italian (native speaker)
 English (highly proficient)
 Hebrew (basic knowledge)

Other interests

Ski/mountaineering Instructor (ISA) within the Italian Alpine Club (Padova)
 Co-founder of "Ile Chimere" mountaineering group, CAI Padova
 Over 100 alpine climbs up to grade VII, ED; >10 first ascents up to grade VI+, TD+; >150 alpine ski descents up to s5

Publications in ISI journals

1. Miniussi A, **F Marra**, 2021. Estimation of extreme daily precipitation return levels at-site and in ungauged locations using the simplified MEV approach. *J. Hydrol.*, 603, 126946, <https://doi.org/10.1016/j.jhydrol.2021.126946>
2. Shmilovitz Y, **F Marra**, H Wei, E Argaman, M Nearing, D Goodrich, S Assouline, E Morin, 2021. Frequency analysis of storm-scale soil erosion and characterization of extreme erosive events by linking the DWEPP model and a stochastic rainfall generator. *Sci. Total Environ.*, 787, 147609, <https://doi.org/10.1016/j.scitotenv.2021.147609>
3. **Marra F**, M Armon, M Borga, E Morin, 2021. Orographic effect on extreme precipitation statistics peaks at hourly time scales. *Geophys. Res. Lett.*, e2020GL091498, <https://doi.org/10.1029/2020GL091498>
4. **Marra F**, M Armon, O Adam, D Zoccatelli, O Gazal, CI Garfinkel, D Rostkier-Edelstein, U Dayan, Y Enzel, E Morin, 2021. Towards narrowing uncertainty in future projections of local extreme precipitation. *Geophys. Res. Lett.*, 48, e2020GL091823, <https://doi.org/10.1029/2020GL091823>
5. Rinat Y, **F Marra**, M Armon, A Metzger, Y Levi, P Khain, E Vadislavsky, M Rosenaft, E Morin, 2021. Hydrometeorological analysis and forecasting of a 3-day flash-flood-triggering desert rainstorm. *Nat. Hazards Earth. Syst. Sci.*, 21, 917–939, <https://doi.org/10.5194/nhess-21-917-2021>

6. Hu L, El Nikolopoulos, **F Marra**, E Morin, M Marani, EN Anagnostou, 2020. Evaluation of MEVD-based precipitation frequency analyses from quasi-global precipitation datasets against dense rain gauge networks. *J. Hydrol.*, 590, 12564, <https://doi.org/10.1016/j.jhydrol.2020.125564>
7. **Marra F**, M Borga, E Morin, 2020. A unified framework for extreme sub-daily precipitation frequency analyses based on ordinary events. *Geophys. Res. Lett.*, 47, 18, e2020GL090209. <https://doi.org/10.1029/2020GL090209>
8. Metzger A, **F Marra**, JA Smith, E Morin, 2020. Flood frequency estimation and uncertainty in arid/semi-arid regions. *J. Hydrol.*, 590, 125254, <https://doi.org/10.1016/j.jhydrol.2020.125254>
9. Zoccatelli D, **F Marra**, JA Smith, D Goodrich, CL Unkrich, M Rosensaft, E Morin, 2020. Hydrological modelling in desert areas of the eastern Mediterranean. *J. Hydrol.*, 587, 124879, <https://doi.org/10.1016/j.jhydrol.2020.124879>
10. Armon M, **F Marra**, Y Enzel, D Rostkier-Edelstein, E Morin, 2020. Radar-based characterisation of heavy precipitation in the eastern Mediterranean and its representation in a convection-permitting model. *Hydrol. Earth Syst. Sci.*, 24, 1227-1249, <https://doi.org/10.5194/hess-24-1227-2020>
11. Hu L, El Nikolopoulos, **F Marra**, EN Anagnostou, 2020. Sensitivity of flood frequency analysis to data record, statistical model, and parameter estimation methods: an evaluation over the contiguous US. *J. Flood Risk Management*, 13, e12580, <https://doi.org/10.1111/jfr3.12580>
12. Silver M, A Karnieli, **F Marra**, E Fredj, 2019. An Evaluation of Weather Radar Adjustment Algorithms Using Synthetic Data, *J. Hydrol.*, 576, 408-421, <https://doi.org/10.1016/j.jhydrol.2019.06.064>
13. Zoccatelli D, **F Marra**, M Armon, Y Rinat, JA Smith, E Morin, 2019. Contrasting rainfall-runoff characteristics of floods in Desert and Mediterranean basins, *Hydrol. Earth Syst. Sci.*, 23, 2665-2678, <https://doi.org/10.5194/hess-23-2665-2019>
14. **Marra F**, El Nikolopoulos, EN Anagnostou, A Bárdossy E Morin, 2019. Precipitation frequency analysis from remotely sensed datasets: A focused review., *J. Hydrol.* 574, 699-705, <https://doi.org/10.1016/j.jhydrol.2019.04.081>
15. **Marra F**, D Zoccatelli, M Armon, E Morin, 2019. A simplified MEV formulation to model extremes emerging from multiple nonstationary underlying processes. *Adv. Water Resour.*, 127, 280-290, <https://doi.org/10.1016/j.advwatres.2019.04.002>
16. McGraw D, El Nikolopoulos, **F Marra**, EN Anagnostou, 2019. Precipitation frequency analyses based on radar estimates: An evaluation over the contiguous United States. *J. Hydrol.*, 573, 299-310, <https://doi.org/10.1016/j.jhydrol.2019.03.032>
17. Borga M, F Comiti, I Ruin, **F Marra**, 2019. Forensic analysis of flash flood response. *WIREs Water*, 6, 2, e1338, <https://doi.org/10.1002/wat2.1338>
18. **Marra F**, 2019. Rainfall thresholds for landslide occurrence: systematic underestimation using coarse temporal resolution data. *Nat. Hazards*, 95(3), 883-890, <https://doi.org/10.1007/s11069-018-3508-4>
19. Amponsah W, PA Ayril, B Boudevillain, C Bouvier, I Braud, P Brunet, G Delrieu, JF Didon-Lescot, E Gaume, L Lebouc, L Marchi, **F Marra**, E Morin, G Nord, O Payastre, D Zoccatelli, M Borga, 2018. Integrated high-resolution dataset of high intensity European and Mediterranean flash floods. *Earth Syst. Sci. Data*, 10, 1783–1794, <https://doi.org/10.5194/essd-10-1783-2018>
20. Rinat Y, **F Marra**, D Zoccatelli, E Morin, 2018. Controls of flash flood peak discharge in Mediterranean basins and the special role of runoff-contributing areas. *J. Hydrol.*, 565, 846-860, <https://doi.org/10.1016/j.jhydrol.2018.08.055>
21. Anagnostou MN, El Nikolopoulos, J Kalogiros, EN Anagnostou, **F Marra**, E Mair, G Bertoldi, U Tappeiner, M Borga 2018. Advancing precipitation estimation and streamflow simulations in complex terrain with X-band dual polarization radar observations. *Remote Sensing*, 10, 1258, <https://doi.org/10.3390/rs10081258>
22. Scorpio V, S Crema, **F Marra**, M Righini, G Ciccacese, M Borga, M Cavalli, A Corsini, L Marchi, N Surian, F Comiti 2018. Basin-scale analysis of the geomorphic effectiveness of flash floods: a study in the northern Apennines (Italy). *Sci. Total Environ.*, 640-641, 337-351, <https://doi.org/10.1016/j.scitotenv.2018.05.252>
23. **Marra F**, El Nikolopoulos, EN Anagnostou, E Morin 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, <https://doi.org/10.1016/j.advwatres.2018.05.001>
24. Peleg N, **F Marra**, S Fatichi, P Molnar, E Morin, A Sharma, P Burlando 2018. Intensification of convective rain cells at warmer temperatures observed from high-resolution weather radar data. *J. Hydrometeorol.*, 19, 715-726, <https://doi.org/10.1175/JHM-D-17-0158.1>
25. Destro E, W Amponsah, El Nikolopoulos, L Marchi, **F Marra**, D Zoccatelli, M Borga 2018. Coupled prediction of flash flood response and debris flow occurrence: application on an alpine extreme flood event, *J. Hydrol.*, 558, 225-237, <https://doi.org/10.1016/j.jhydrol.2018.01.021>
26. **Marra F**, E Morin 2018. Autocorrelation structure of convective rainfall in semiarid-arid climate derived from high-resolution X-Band radar estimates, *Atmos. Res.*, 200, 126-138, <http://doi.org/10.1016/j.atmosres.2017.09.020>
27. Peleg N, **F Marra**, S Fatichi, A Paschalis, P Molnar, P Burlando 2018: Spatial variability of extreme rainfall at radar subpixel scale. *J. Hydrol.*, 556, 922-933, <http://doi.org/10.1016/j.jhydrol.2016.05.033>

28. Oriani F, N Ohana-Levi, **F Marra**, J Straubhaar, G Mariethoz, P Renard, A Karnieli, E Morin 2017. Simulating Small-Scale Rainfall Fields Conditioned by Weather State and Elevation: A Data-Driven Approach Based On Rainfall Radar Images. *Water Resour. Res.*, 53, 8512-8532, <https://doi.org/10.1002/2017WR020876>
29. Belachsen I, **F Marra**, N Peleg, E Morin 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, <https://doi.org/10.5194/hess-21-5165-2017>
30. **Marra F**, E Destro, El Nikolopoulos, D Zoccatelli, JD Creutin, F Guzzetti, M Borga 2017. Impact of rainfall spatial aggregation on the identification of debris flow occurrence thresholds, *Hydrol. Earth Syst. Sci.*, 21, 4525-4532. <https://doi.org/10.5194/hess-21-4525-2017>
31. Nikolopoulos El, E Destro, V Maggioni, **F Marra**, M Borga 2017. Satellite-rainfall estimates for debris flow prediction: An evaluation based on rainfall accumulation - duration thresholds. *J. Hydrometeorol.*, 18, 2207-2214, <http://doi.org/10.1175/JHM-D-17-0052.1>
32. **Marra F**, E Morin, N Peleg, Y Mei, EN Anagnostou 2017: Intensity–duration–frequency curves from remote sensing rainfall estimates: comparing satellite and weather radar over the eastern Mediterranean, *Hydrol. Earth Syst. Sci.*, 21, 2389-2404, <http://doi.org/10.5194/hess-21-2389-2017>
33. Destro E, **F Marra**, El Nikolopoulos, D Zoccatelli, JD Creutin, M Borga 2017. Spatial estimation of debris flows-triggering rainfall and its dependence on rainfall return period. *Geomorphology*, 278, 269–279. <http://doi.org/10.1016/j.geomorph.2016.11.019>
34. Amponsah W, L Marchi, D Zoccatelli, G Boni, M Cavalli, F Comiti, S Crema, A Lucia, **F Marra**, M Borga 2016. Hydrometeorological characterisation of a flash flood associated to major geomorphic effects: Assessment of peak discharge uncertainties and analysis of the runoff response. *J. Hydrometeorol.*, 17, 3063-3077. <http://doi.org/10.1175/JHM-D-16-0081.1>
35. **Marra F**, El Nikolopoulos, JD Creutin, M Borga 2016. Space–time organization of debris flows-triggering rainfall and its effect on the identification of the rainfall threshold relationship. *J. Hydrol.*, 541, 246–255. <http://doi.org/10.1016/j.jhydrol.2015.10.010>
36. **Marra F**, E Morin 2015. Use of radar QPE for the derivation of Intensity–Duration–Frequency curves in a range of climatic regimes. *J. Hydrol.*, 531, 427–440. <http://doi.org/10.1016/j.jhydrol.2015.08.064>
37. Nikolopoulos El, M Borga, JD Creutin, **F Marra** 2015. Estimation of debris flow triggering rainfall: influence of rain gauge density and interpolation methods. *Geomorphology*, 243, 40-50. <http://doi.org/10.1016/j.geomorph.2015.04.028>
38. Nikolopoulos, El, M Borga, **F Marra**, S Crema, L Marchi 2015. Debris flows in the Eastern Italian Alps: seasonality and atmospheric circulation patterns. *Nat. Hazards Earth Syst. Sci.*, 15, 647-656. <http://doi.org/10.5194/nhess-15-647-2015>
39. **Marra F**, El Nikolopoulos, JD Creutin, M Borga 2014. Radar rainfall estimation for the identification of debris-flow occurrence thresholds. *J. Hydrol.*, 519, 1607–1619. <http://doi.org/10.1016/j.jhydrol.2014.09.039>
40. Nikolopoulos El, S Crema, L Marchi, **F Marra**, F Guzzetti, M Borga 2014. Impact of uncertainty in rainfall estimation on the identification of rainfall thresholds for debris flow occurrence. *Geomorphology*, 221, 286-297. <http://doi.org/10.1016/j.geomorph.2014.06.015>
41. Borga M, M Stoffel, L Marchi, **F Marra**, M Jacob 2014. Hydrogeomorphic response to extreme rainfall in headwater systems: flash floods and debris flows. *J. Hydrol.*, 518, 194–205. <http://doi.org/10.1016/j.jhydrol.2014.05.022>

Book chapters

1. E, **F Marra**, M Armon 2020. Dryland precipitation climatology from satellite observations. In: Levizzani V, C Kidd, D Kirschbaum, C Kummerow, K Kummerov, FJ Turk (Eds) *Satellite Precipitation Measurement*, Springer., ISBN 978-3-030-24567-2, http://doi.org/10.1007/978-3-030-35798-6_19
2. Amponsah W, **F Marra**, L Marchi, H Roux, I Braud, M Borga 2020. Objective analysis of envelope curves for peak floods of European and Mediterranean flash floods. In: Leal Filho W, Nagy G, Borga M, Chávez Muñoz PD, Magnuszewski A (Eds) *Climate Change, Natural Hazards and Adaptation Option: Handling the impacts of a changing climate*. Springer, Cham, https://doi.org/10.1007/978-3-030-37425-9_14
3. **Marra F**, El Nikolopoulos, JD Creutin, M Borga 2017. Radar rainfall estimates for debris flow early warning systems: effect of different correction procedures on the identification of Intensity-Duration thresholds. In: Petropoulos G, T Islam (eds), *Remote Sensing of Hydrometeorological Hazards*, 11/2017, chapter 22; Taylor & Francis. <http://doi.org/10.1201/9781315154947-22>
4. Nikolopoulos El, **F Marra**, M Borga 2016. Uncertainty in estimation of debris flow triggering rainfall: Evaluation and impact on identification of threshold relationships. In: Riley K, P Webley, M Thompson (eds), *Natural Hazard Uncertainty Assessment: Modeling and Decision Support*, 11/2016, chapter 21, 319-328; John Wiley & Sons. <http://doi.org/10.1002/9781119028116.ch21>

Invited talks, seminars, lectures

1. **Marra F** 2020, Novel approaches to extreme value analysis: applications of the Metastatistical Extreme Value distribution and potential for changing climatic conditions. UFZ, Halle Saale, Germany, November 2020
2. **Marra F** 2020, Local constraints reduce uncertainty in the projection of precipitation extremes from climate models, ISAC-CNR, Italy, June 2020
3. **Marra F** 2020, Extreme precipitation in the south-eastern Mediterranean: local constraints reduce the uncertainty in future projections. Hebrew University of Jerusalem, Israel, June 2020
4. **Marra F** 2019, Landslides and debris flows: characteristics of the triggering rainfall events and implications for early warning systems based on rainfall thresholds. Geological Survey of Israel, Jerusalem, Israel, June, 2019
5. **Marra F** 2019, Future precipitation extremes: a new statistical method to exploit dynamical models and climate projections. *The atmospheric water cycle: underlying processes and future projections symposium*, Weizmann Institute, Rehovot (Israel), May 2019.
6. **Marra F** 2019, Estimating the probability of occurrence of extreme hydro-meteorological events. Google headquarters, Tel Aviv, Israel, Jan 2019
7. **Marra F**, E Morin, EN Anagnostou, El Nikolopoulos, N Peleg 2017. Sub-daily rainfall frequency analysis from remote sensing data. UConn, Storrs CT (USA), July 2017.
8. **Marra F**, E Nikolopoulos, E Destro, F Guzzetti, JD Creutin, M Borga 2017. Spatial organization of debris flows triggering rainfall: impact on the identification of early warning thresholds. ETH, Zurich (Switzerland), March 2017.
9. **Marra F**, El Nikolopoulos, E Destro, JD Creutin, M Borga 2015. How radar rainfall observations can improve debris flows forecasting. *4th Italian Workshop on Landslides (IWL)*, Napoli, (Italy), November 2015.
10. Crema S, **F Marra**, M Borga, L Marchi 2015. Hydrologic control on the triggering and magnitude of debris flows in alpine catchments: storm analysis and basin response variability. *4th Italian Workshop on Landslides (IWL)*, Napoli, (Italy), November 2015.
11. **Marra F**, E Morin 2015. Use of radar QPE for hydrological design in a range of climatic regimes: Intensity-Duration-Frequency curves. ETH, Zurich (Switzerland), September 2015.
12. **Marra F**, E Morin 2015. Use of radar QPE for hydrological design in a range of climatic regimes: Intensity-Duration-Frequency curves. MeteoSwiss, Locarno Monti (Switzerland), September 2015.
13. **Marra F**, A Lokshin, R Notarpietro, M Gabella, M Branca, D Bonfil, E Morin, 2015. High resolution X-Band radar rainfall estimates for a Mediterranean to hyper-arid transition area. *IEEE International conference on electromagnetics in advanced applications (ICEAA)*, Torino, (Italy), September 2015.

Contributions to international conferences (last 3 years, total>100)

1. Miniussi A, **F Marra**, 2021. Extreme precipitation return levels in gauged and ungauged locations using the simplified MEV distribution: lessons learned from Germany. *Second International Conference on Natural Hazards and Risks in a Changing World*, Potsdam, Germany, Oct 2021
2. **Marra F**, E Cattani, 2021. Changes in African extreme precipitation and storm structure since 1981 revealed by satellite observations. *European Meteorological Society (EMS) Annual Meeting 2021 (Solicited)*
3. Armon M, **F Marra**, C Garfinkel, D Rotskier-Edelstein, O Adam, U Dayan, Y Enzel, E Morin, 2021. Global warming decreases rainfall but increases short-duration rain- rates during heavy precipitation events in the eastern Mediterranean. *Mediterranean cyclones: dynamics, impact and prediction at weather and climate scales conference*, Weizmann Institute of Science, Israel, September 2021
4. **Marra F**, M Armon, M Borga, E Morin, 2021. Orographic effect on extreme precipitation peaks at hourly time scales. *European Geosci. Union (EGU) General Assembly 2021*
5. Araujo D, **F Marra**, C Merow, El Nikolopoulos, 2021. A methodological framework for assessing changes in future drought risk: evaluation over Australia. *European Geosci. Union (EGU) General Assembly 2021*
6. Dallan E, M Zaramella, M Borga, **F Marra**, 2021. Detecting and analyzing regional trends in sub-daily rainfall annual maxima by using the Meta-statistical extreme value distribution. *European Geosci. Union (EGU) General Assembly 2021*
7. Armon M, **F Marra**, C Garfinkel, D Rotskier-Edelstein, O Adam, U Dayan, Y Enzel, E Morin, 2021. Global warming decreases rainfall but increases short-duration rain- rates during heavy precipitation events in the eastern Mediterranean. *European Geosci. Union (EGU) General Assembly 2021 (Solicited)*
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