

Dr. Georgios Papavasileiou

Personal Information

DATE - PLACE OF BIRTH: 17 August 1989 in Larissa, Greece
PROFESSION: Postdoctoral Researcher
PROFESSIONAL ADDRESS: National Observatory of Athens, Institute of
Environmental Research and Sustainable Development
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Academic Qualifications

2020: Ph.D. in Meteorology and Climate Research, Karlsruhe Institute of Technology, Germany.
2016: M.Sc. in Applied Meteorology and Climatology, University of Birmingham, United Kingdom.
2014: B.Sc. in Mathematics, National and Kapodistrian University of Athens, Greece.

Professional Experience

- ❑ 2021 – today: Postdoctoral Researcher at the Institute of Environmental Research and Sustainable Development (IERSD) of the National Observatory of Athens (NOA), Greece
- ❑ 2020 – 2021: Research Associate at the Institute of Environmental Research and Sustainable Development (IERSD) of the National Observatory of Athens (NOA), Greece
- ❑ 2019 – 2019: Visiting PhD student at the Climate and Global Dynamics (CGD) Laboratory of the National Center for Atmospheric Research (NCAR), Boulder, Colorado, United States of America
- ❑ 2017 – 2020: Doctoral Researcher at the Institute of Meteorology and Climate Research - Department Troposphere Research of the Karlsruhe Institute of Technology (KIT), Germany
- ❑ 2018 – 2019: Teaching Assistant in M.Sc. program in Meteorology at the Institute of Meteorology and Climate Research - Department Troposphere Research of the Karlsruhe Institute of Technology (KIT), Germany
- ❑ 2016 – 2016: Trainee Weather Forecaster at the The Weather Company, Birmingham, United Kingdom

Areas of expertise

Atmospheric dynamics, synoptic meteorology, climatology, numerical weather prediction, clouds, remote sensing, extratropical cyclones, convection, severe convective storms, extreme weather, fire weather.

Publications

Peer-reviewed journal articles

1. Papavasileiou, G., Giannaros, T. M., (2024): Synoptic-scale drivers of fire weather in Greece. *Science of The Total Environment*, 925, 171715. <https://doi.org/10.1016/j.scitotenv.2024.171715>
2. Lagouvardos, K., Papavasileiou, G., Papagiannaki, K., Dafis, S., Galanaki, E., Giannaros, T. M., Koletsis, I., Kotroni, V., (2023): Regional precipitation index: Method analysis and application over Greece. *Atmospheric Science Letters*, 24(12), e1184, <https://doi.org/10.1002/asl.1184>
3. Giannaros T.M., Papavasileiou G., (2023): Changes in European fire weather extremes and related atmospheric drivers. *Agricultural and Forest Meteorology*, 342, 109749, <https://doi.org/10.1016/j.agrformet.2023.109749>
4. Sullivan, S., Keshtgar, B., Albern, N., Bala, E., Braun, C., Choudhary, A., Hörner, J., Lentink, H., Papavasileiou, G., and Voigt, A., (2023): How does cloud-radiative heating over the North Atlantic change with grid spacing, convective parameterization, and microphysics scheme in ICON version 2.1.00?, *Geosci. Model Dev.*, 16, 3535–3551, <https://doi.org/10.5194/gmd-16-3535-2023>
5. Giannaros C., Agathangelidis I., Papavasileiou G., Galanaki E., Kotroni V., Lagouvardos K., (2023): The extreme heat wave of July–August 2021 in the Athens urban area (Greece): Atmospheric and human-biometeorological analysis exploiting ultra-high resolution numerical modeling and the local climate zone framework. *The Science of The Total Environment*, 857 (2023), Article 159300, <https://doi.org/10.1016/j.scitotenv.2022.159300>
6. Galanaki E., Giannaros C., Kotroni V., Lagouvardos K., Papavasileiou G., (2023): Spatio-Temporal Analysis of Heatwaves Characteristics in Greece from 1950 to 2020. *Climate*. 2023; 11(1):5. <https://doi.org/10.3390/cli11010005>
7. Papavasileiou, G., Kotroni, V., Lagouvardos, K., Giannaros, T. M., (2022): Observational and numerical study of a giant hailstorm in Attica, Greece, on 4 October 2019. *Atmospheric Research*, 278, 106341. <https://doi.org/10.1016/j.atmosres.2022.106341>
8. Giannaros TM, Papavasileiou G, Lagouvardos K, Kotroni V, Dafis S, Karagiannidis A, Dragozi E., (2022): Meteorological Analysis of the 2021 Extreme Wildfires in Greece: Lessons Learned and Implications for Early Warning of the Potential for Pyroconvection. *Atmosphere*. 2022; 13(3):475. <https://doi.org/10.3390/atmos13030475>
9. Kotroni V., Lagouvardos K., Bezes A., Dafis S., Galanaki E., Giannaros C., Giannaros T., Karagiannidis A., Koletsis I., Kopania T., Papagiannaki K., Papavasileiou G., Vafeiadis V., Vougioulas E., (2021): Storm Naming in the Eastern Mediterranean: Procedures, Events Review and Impact on the Citizens Risk Perception and Readiness. *Atmosphere* 2021, 12, 1537. <https://doi.org/10.3390/atmos12111537>
10. Papavasileiou, G., Voigt, A., Knippertz, P., (2020): The role of observed cloud-radiative anomalies for the dynamics of the North Atlantic Oscillation on synoptic time-scales. *Q J R Meteorol Soc*. 2020; 146: 1822– 1841. <https://doi.org/10.1002/qj.3768>
11. Voigt, A., Albern, N., Papavasileiou, G., (2019): The Atmospheric Pathway of the Cloud-Radiative Impact on the Circulation Response to Global Warming: Important and Uncertain. *J. Climate*, 32, 3051–3067. <https://doi.org/10.1175/JCLI-D-18-0810.1>

Monographs

1. Papavasileiou, G. (2020): The role of cloud-radiative effects and diabatic processes for the dynamics of the North Atlantic Oscillation on synoptic time-scales. PhD dissertation. Papavasileiou, G. 2020, September 23. Karlsruhe. <https://doi.org/10.5445/IR/1000123919>

Published articles in conference proceedings

1. Papavasileiou G., Giannaros T.M., (2023): The Predictability of the Synoptic-Scale Fire Weather Conditions during the 2018 Mati Wildfire. Environmental Sciences Proceedings. 2023; 26(1):164. <https://doi.org/10.3390/environsciproc2023026164>
2. Papavasileiou, G., Kotroni, V., Lagouvardos, K., and Giannaros, T. M. (2023): Operational hail forecasting in Greece, 11th European Conference on Severe Storms, Bucharest, Romania, 8–12 May 2023, ECSS2023-102, <https://doi.org/10.5194/ecss2023-102>
3. Sioutas, M., Dafis, S., Papavasileiou, G., and Doe, R. (2023): An updated tornado climatology and associated meteorological environments in Greece, 11th European Conference on Severe Storms, Bucharest, Romania, 8–12 May 2023, ECSS2023-136, <https://doi.org/10.5194/ecss2023-136>
4. Papavasileiou, G.; Giannaros, T.M., Lagouvardos K., Koletsis I. (2023): Validation of ERA5 fire weather conditions in Greece between 2007 and 2019: A preliminary analysis. https://doi.org/10.14195/978-989-26-2298-9_281
5. Giannaros, C., Agathangelidis, I., Papavasileiou, G., Galanaki, E., Kotroni, V., Lagouvardos, K., Giannaros, T. M., Cartalis, C., and Matzarakis, A. (2022): A holistic study of the urban climate and thermal bioclimate before, during and after the extreme heat wave of July-August, 2021, in the Athens urban area in Greece, EMS Annual Meeting 2022, Bonn, Germany, 5–9 Sep 2022, EMS2022-185, <https://doi.org/10.5194/ems2022-185>
6. Papavasileiou G., Giannaros T.M. (2022): Critical Fire Weather Patterns of Greece: Forecasting Fire Weather Conditions in the Medium-Range. https://safegreece.org/safethessaloniki2022/images/docs/safethessaloniki_proceedings.pdf
7. Giannaros T.M., Papavasileiou G., (2022): The Varympompi 2021 (Athens, Greece) Extreme Wildfire: Insights from Coupled Fire–Atmosphere Numerical Simulations. Environmental Sciences Proceedings. 2022; 17(1):8. <https://doi.org/10.3390/environsciproc2022017008>
8. Papavasileiou G., Giannaros T.M., (2022) The Catastrophic 2021 Wildfires in Greece: An Outbreak of Pyroconvective Events. Environmental Sciences Proceedings. 2022; 17(1):7. <https://doi.org/10.3390/environsciproc2022017007>
9. Giannaros, T., Papavasileiou, G., Lagouvardos, K., Kotroni, V., Dafis, S., Karagiannidis, A., and Dragozi, E.: Lessons learned from the extreme wildfires of early August 2021 in Greece, EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-5727, <https://doi.org/10.5194/egusphere-egu22-5727>
10. Lagouvardos, K., Papavasileiou, G., Kotroni, V., Papagiannaki, K., Dafis, S., and Galanaki, E.: Regional Precipitation Index: ranking storms in Greece, 17th Plinius Conference on Mediterranean Risks, Frascati, Rome, Italy, 18–21 Oct 2022, Plinius17-32, <https://doi.org/10.5194/egusphere-plinius17-32>
11. Lampiris A., Dafis S., Papavasileiou G., (2017): Observational and Numerical Study of a Tornado Outbreak in Attica and Euboea. Perspectives on Atmospheric Sciences. Springer Atmospheric Sciences. Springer, Cham. https://doi.org/10.1007/978-3-319-35095-0_15

12. Sioutas M., Dafis S., Papavasileiou G., Doe R. K., (2015): Tornado occurrence in Greece: influencing variables and spatio-temporal variations. 8th European conference on severe storms. <https://meetingorganizer.copernicus.org/ECSS2015/ECSS2015-145-5.pdf>

Skills

Code and model development:

- Cloud-radiative effects based on satellite retrievals from CloudSat/CALIPSO, GERB/SEVIRI and CERES.
- Offline diagnostics (written in python) of atmospheric processes based on the surface pressure tendency equation and potential vorticity tendency equation in ERA5, ERA-Interim, CFSR, ICON, CAM, ECHAM and WRF.
- Numerical experiments in ICON model (version 2.1.00).
- Offline diagnostics (written in python) of hail size and tornado in high resolution numerical weather prediction models (WRF, MOLOCH and BOLAM) of the National Observatory of Athens/meteo.gr.
- Machine learning applications (written in python) in atmospheric fields for characterizing the large-scale atmospheric circulation patterns and their link to fire weather and other extremes.

Invited talks

Seminar talk in Climate and Atmosphere-Ocean Dynamics Group in the Department of Atmospheric Science at Colorado State University (CSU): “The role of clouds and diabatic processes for the short-term dynamics of the North Atlantic Oscillation”, Papavasileiou G., Voigt A., Knippertz P., Simpson I., Medeiros B.

Conferences (oral presentations)

1. MedGU2023 (Nov. 2023): “Forecasting Eastern Mediterranean synoptic-scale fire weather conditions in the medium-range” Papavasileiou G., Giannaros T.M.
2. 16th International Conference on Meteorology, Climatology and Atmospheric Physics (Sep. 2023): “The predictability of the synoptic-scale fire weather conditions during the 2018 Mati wildfire” Papavasileiou G., Giannaros T.M.
3. MeteoXchange 2023 (Apr. 2023): “Synoptic-scale fire weather forecasting in Greece”, Papavasileiou G., Giannaros T.M.
4. 9th International Conference on Forest Fire Research (Nov. 2022): “Validation of ERA5 fire weather conditions in Greece between 2007 and 2019: A preliminary analysis”, Papavasileiou G., Giannaros T.M., Lagouvardos K., Koletsis I.
5. 2nd Annual Workshop: Climate and Atmosphere Research & Innovation in the Eastern Mediterranean & Middle East (Nov. 2022): “Critical fire weather patterns of Greece: Forecasting extreme fire weather conditions in the medium-range” Papavasileiou G., Giannaros T.M., https://emme-care.cyi.ac.cy/wp-content/uploads/2nd-Scientific-Workshop_Book-of-Abstract_fin.pdf
6. SafeGreece2022 (Sep. 2022): “Critical Fire Weather Patterns of Greece: Forecasting Fire Weather Conditions in the Medium-Range” Papavasileiou G., Giannaros T.M.

7. Fire and Climate 2022 (May 2022): “An outbreak of pyroconvection during the catastrophic 2021 wildfires in Greece and its predictability” Papavasileiou G., Giannaros T.M., <https://fireandclimateconference.com/pasadena/>
8. EGU22 (May 2022): “Observational and numerical study of a giant hailstorm in Attica, Greece, on October 4, 2019” Papavasileiou, G., Kotroni, V., Lagouvardos, K., and Giannaros, T. M., <https://doi.org/10.5194/egusphere-egu22-10975>
9. 3rd International Conference on Fire Behavior and Risk, Sardinia, Italy (May 2022): “The Catastrophic 2021 Wildfires in Greece: An Outbreak of Pyroconvective Events”, Papavasileiou G., Giannaros T.M.
10. AGU fall meeting (Dec. 2019): “ The role of clouds and diabatic processes for the short-term dynamics of the North Atlantic Oscillation”, Papavasileiou G., Voigt A., Knippertz P., Simpson I., Medeiros B., <https://agu.confex.com/agu/fm19/meetingapp.cgi/Paper/577077>
11. Process Evaluation Study on Upper Tropospheric Clouds and Convection Workshop (Oct. 2018): “Observed cloud anomalies associated with the North Atlantic Oscillation, and their radiative feedback”, Papavasileiou G., Voigt. A., Knippertz P.
12. 7th European Windstorm Workshop (Oct. 2018): “Observed cloud anomalies associated with the North Atlantic Oscillation and their radiative feedback”, Papavasileiou G., Voigt. A., Knippertz P. <https://stormworkshops.unibe.ch/workshop2018.html>
13. Earth-CARE/EECLAT Joint Workshop (Jan. 2018): “Observed cloud anomalies associated with the North Atlantic Oscillation, and their potential radiative feedback on internal circulation variability”, Papavasileiou G., Voigt. A., Knippertz P., <https://eeclat.ipsl.fr/2018/02/02/earth-care-eeclat-2018-joint-workshop/>