

# 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](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](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](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](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/>

## References

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