**Name:** **Petros Katsafados**
**Office:** No. 3.4, Harokopou 89 Str, 17671, Kallithea, Athens, Greece
**Telephone number:** +30-210-9549384
**email:** pkatsaf@hua.gr
**website:** http://meteoclima.gr
**ORCID**: https://orcid.org/0000-0001-7452-0138

**Short CV**

Petros Katsafados (PK), male, is Professor at the Department of Geography at Harokopio University of Athens and head of the Atmosphere and Climate Dynamics Group-ACDG (http://meteoclima.gr). He originally studied Mathematics but then he switched scientific field to Atmospheric Physics and Dynamics and he finally completed his Master degree from the School of Physics at the National and Kapodistrian University of Athens (NKUA) in 1996. In his PhD thesis factors that influence the predictability of numerical weather prediction were investigated.

PK is author or co-author of 61 articles in peer-reviewed scientific journals and more than 100 peer-reviewed conferences papers. His work has received 1771 citations (h-index = 23, source Scopus 13 March 2025). He is also first author in two text books published by John Wiley & Sons, Inc. and Kallipos+, Action to introduce digital textbooks in Higher Education, and he has contributed to several book chapters and special editions. He was the main advisor in 2 PhD dissertations: Dr. George Varlas graduated in 2017 and Dr. Konstantinos Tsarpalis graduated in 2021. PK is currently acting as supervisor for 7 PhD students and as member of the supervising committee for 3 PhD students. He has also supervised more than 25 MSc students. His research interests and experience include: atmospheric dynamics, regional and mesoscale modeling, air pollution (natural or anthropogenic origin), air-sea interactions, marine meteorology, and data assimilation. PK has participated (as coordinator, principal investigator or research associate) in more than 25 of EU and national funded projects mainly related with atmospheric and climate dynamics and modeling.

Since 2012, he has focused, through the research group ACDG, on the development of a novel environmental simulator capable of resolving almost the entire biosphere's processes. The first air – sea waves coupled system, namely WEW was developed in the frame of the funding program "My Wave: A pan-European concerted and integrated approach to operational wave modeling and forecasting – a complement to GMES My Ocean services (FP7-SPACE-2011-1/CP-FP, SPA.2011.1.5-03)". Next generation of WEW is a totally new system including a non-hydrostatic atmospheric model coupled to atmospheric chemistry, coupled to hydrology and coupled to advanced ocean wave and circulation models. The new modeling system namely CHAOS (Chemical Hydrological Atmospheric Ocean wave System) consists of 5 components: the Advanced Weather Research and Forecasting model namely WRF-ARW, the chemical model WRF-Chem, the hydrological model WRF-Hydro, the ocean wave model namely WAM and the ocean circulation model Nucleus for European Modeling of the Ocean (NEMO). The communication among the components is launched through the "state-of-the-art" OASIS3-MCT coupler. Thus, CHAOS is an advanced multi-way coupled system having a unique capability to represent the atmospheric conditions and chemistry, the ocean and circulation as well as the hydrological processes, with very frequent information exchange between the subsystems in very fine spatial and temporal scales.

**Current academic position**

Professor on Atmosphere and Climate Dynamics, Harokopio University of Athens, Greece (HUA).

**Academic career**

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|---|---|
| **2016-2022** | Associate Professor, Geography Department, HUA |
| **2011-2016** | Assistant Professor, Geography Department, HUA |
| **2007-2011** | Lecturer, Geography Department, HUA |

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| **2001-2007** | Laboratory Staff, Department of Physics, National and Kapodistrian University of Athens (NKUA) |
| **1997-2007** | Research associate at the Atmospheric Modelling and Weather Forecasting Group, Department of Physics, NKUA |

**Education**
BSc in Mathematics, NKUA, 1993.

MSc in Environmental Physics, Department of Physics, NKUA, 1996.

PhD in Atmosphere Dynamics and Modelling, Department of Physics, NKUA, 2003.

**Research topics**
- Atmosphere and climate dynamics and modelling
- Data assimilation and nowcasting
- Air-Sea-Land interactions
- Extreme weather phenomena
- Marine meteorology
- Wind and solar energy applications

**Teaching experience**
Over 20 years teaching experience in undergraduate and graduate courses at the Harokopio University of Athens (HUA), the National and Kapodistrian University of Athens (NKUA), the National Technical University of Athens (NTUA) and the Technological Education Institute (TEI) of Piraeus.

**List of graduated PhD advisees**
1. George Varlas, Dr.
   Thesis title "*Development of an integrated modeling system for simulating the air-ocean wave interactions*", June 2017.

2. Tsarpalis Konstantinos, Dr.
   Thesis title "*Desert dust interactions with the atmospheric environment: The dust aerosols' role on cloud nucleation and precipitation*", May 2020.

Major advisor in more than 60 MSc and BSc theses.

**Publications synopsis**

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|---|---|
| **Dissertations** | **2** |
| **Text books and contribution to book chapters** | **5** |
| **Contribution to special editions** | **10** |
| **Publications in international peer review journals** | **61** |
| **Publications in conference proceedings** | **102** |
| **Participation in funded research projects** | **39** |

**h-index and citation overview**
h-index*: 23; 1771* total citations (http://www.scopus.com at Mar 13, 2025).

**Overview of the peer-reviewed publications in open databases**

- http://www.scopus.com/authid/detail.url?authorId=6507078046
- https://scholar.google.gr/scholar?hl=el&q=katsafados&btnG=

**Dissertations**

1. Katsafados P., 1996: "A study for the dispersion and diffusion of the air pollutants in Eordaia Basin". MSc. Dissertation in Environmental Physics, Department of Physics, National and Kapodistrian University of Athens, Greece.
2. Katsafados, P., 2003: "Factors and parameterizations contributing the medium range forecast skill of the limited area models". PhD Dissertation, Department of Physics, National and Kapodistrian University of Athens, Greece.

**Text books and contribution to book chapters**

1. Manousakis, M., T. Charandonis, G. Sakellaridis, J. Papageorgiou, E. Anadranistakis, G. Alexiou, P. Fragouli, D. Sgouros, G. Konstantinidis, N. Mimikou, A. Karachristou, S. Nickovic, P. Katsafados, and A. Papadopoulos, 1998: The Weather Forecasting System SKIRON, Vol. V: Post-processing. Graphics, ISBN 960-8468-19-1.
2. Katsafados, P., A. Papadopoulos, G. Kallos, and S. Nickovic, 2000: The Weather Forecasting System POSEIDON", Vol. I: Preprocessing and Operational Manual.
3. Nickovic, S., B. Rajkovic, A. Papadopoulos, P. Katsafados, and G. Kallos, 2000: The Weather Forecasting System POSEIDON", Vol. II: Description of the model.
4. Parcharidis I., M. Foumelis and P. Katsafados. "Seasonal ground deformation monitoring over Southern Larissa Plain (Central Greece) by SAR interferometry". Advances in the Research of Aquatic Environment, N. Lambrakis et al. (Eds.), Vol. 2, doi 10.1007/978-3-642-24076-8, *Springer-Verlag Berlin Heidelberg*, 2011.
5. Katsafados P., E. Papadopoulou, A. Papadopoulos and E. Mavromatidis, 2012: "Seasonal forecasts for the 2010 Russian heat wave using an Atmospheric General Circulation Model". Advances in Meteorology, Climatology and Atmospheric Physics, Helmis C. and P. Nastos, (eds.), 2012, *Springer*, Vol. I, pp. 187-194, ISBN: 978-3-642-29171-5.
6. Papadopoulos A., P. Katsafados and I. Pytharoulis, 2012: "High resolution gridded meteorological data across the Mediterranean basin". Advances in Meteorology, Climatology and Atmospheric Physics, Helmis C. and P. Nastos, (eds.), 2012, *Springer*, Vol. I, pp. 187-194, ISBN: 978-3-642-29171-5.
7. Varlas G., P. Katsafados, and A. Papadopoulos, 2016: "Temperature seasonal predictability of the WRF model". Perspectives on Atmospheric Sciences, Karacostas T.S., A.F. Bais and P. T. Nastos, (eds.), *Springer*, Vol. I, pp. 75-80, ISBN 9783319350943.
8. Tsarpalis K., A. Papadopoulos and P. Katsafados, 2016: "The implementation of a dust wet deposition scheme in the WRF-Chem model". Perspectives on Atmospheric Sciences, Karacostas T.S., A.F. Bais and P. T. Nastos, (eds.), *Springer*, Vol. I, pp. 69-74, ISBN 9783319350943.
9. Katsafados, P., G. Varlas, A. Papadopoulos, and G. Korres, 2016: "Implementation of a hybrid surface layer parameterization scheme for the coupled Atmosphere–Ocean Wave modeling system (WEW)". Perspectives on Atmospheric Sciences, Karacostas T.S., A.F. Bais and P. T. Nastos, (eds.), *Springer*, Vol. I, pp. 159-166, ISBN 9783319350943.
10. Pytharoulis I. and P. Katsafados, (eds.), 2021: "Climate and atmospheric dynamics and predictability", Printed edition of the Special Issue published in Climate Journal, *MDPI*, ISBN 9783036502243.

**Recent publications in international peer review journals**

1. Katsafados, P.; Saviolakis, P.-M.; Varlas, G.; Ben-Romdhane, H.; Pavlopoulos, K.; Spyrou, C.; Farrah, S. Investigation of the Synoptic and Dynamical Characteristics of

Cyclone Shaheen (2021) and Its Influence on the Omani Coastal Region. Atmosphere 2024, 15, 222. https://doi.org/10.3390/atmos15020222.

2. Varlas, G., Pytharoulis, I., Steeneveld, G. J., Papadopoulos, A., and Katsafados, P., 2023: Investigating the impact of sea surface temperature on the development of the Mediterranean tropical-like cyclone "Ianos" in 2020, Atmospheric Research, 291, 106827, doi:10.1016/j.atmosres.2023.106827.
3. Kaffas, K., Papaioannou, G., Varlas, G., Al Sayah, M.J., Papadopoulos, A., Dimitriou, E. et al., 2022: Forecasting soil erosion and sediment yields during flash floods: The disastrous case of Mandra, Greece, 2017. Earth Surface Processes and Landforms, 47(7), 1744–1760, https://doi.org/10.1002/esp.5344.
4. Bourma E., Perivoliotis L., Petihakis G., Korres G., Frangoulis C., Ballas D., Zervakis V., Tragou E., Katsafados P., et al., 2022: The Hellenic Marine Observing, Forecasting and Technology System-An Integrated Infrastructure for Marine Research, Journal of Marine Science and Engineering, 10(3), 329, 2022, DOI: 10.3390/jmse10030329.
5. Varlas G., Stefanidis K., Papaioannou G., Panagopoulos Y., Pytharoulis I., Katsafados P., Papadopoulos A., and Dimitriou E., 2022: Unraveling precipitation trends in Greece since 1950s using ERA5 climate reanalysis data, Climate, 10(2), 12, 2022, DOI:10.3390/cli10020012.
6. Papaioannou G., G. Varlas, A. Papadopoulos, A. Loukas, P. Katsafados, and E. Dimitriou, 2021: "Investigating sea-state effects on flash flood hydrograph and inundation forecasting". *Hydrological Processes*, 35(4), e14151, doi: 10.1002/hyp.14151.
7. Varlas G., C. Spyrou, A. Papadopoulos, G. Korres, and P. Katsafados, 2020: "One-year assessment of the two-way coupled atmosphere-ocean wave modeling system CHAOS over the Mediterranean and Black Seas". *Mediterranean Marine Science*, 21(2), 372-385, doi: 10.12681/mms.21344.
8. Spyrou C., G. Varlas, A. Pappa, A. Mentzafou, P. Katsafados, A. Papadopoulos, M.N. Anagnostou, and J. Kalogiros, 2020: "Implementation of a nowcasting hydrometeorological system for studying flash flood events: The Case of Mandra, Greece". *Remote Sensing*, 12(17), doi: 10.3390/RS12172784.
9. Varlas G., V. Vervatis, C. Spyrou, E. Papadopoulou, A. Papadopoulos, and P. Katsafados, 2020: "Investigating the impact of atmosphere–wave–ocean interactions on a Mediterranean tropical-like cyclone". *Ocean Modelling*, 153, 101675, doi: 10.1016/j.ocemod.2020.101675.
10. Varlas G., M. Anagnostou, C. Spyrou, A. Papadopoulos, J. Kalogiros, A. Mentzafou, S. Michaelides, E. Baltas, E. Karymbalis, and P. Katsafados, 2019: "A Multi-Platform Hydrometeorological Analysis of the Flash Flood Event of 15 November 2017 in Attica, Greece". *Remote Sensing*, 11(1), 45, doi: 10.3390/rs11010045.
11. Mentzafou A., G. Varlas, E. Dimitriou, A. Papadopoulos, I. Pytharoulis, and P. Katsafados, 2019: "Modeling the Effects of Anthropogenic Land Cover Changes to the Main Hydrometeorological Factors in a Regional Watershed, Central Greece". *Climate*, 7(11), 129, doi: 10.3390/cli7110129.
12. Varlas G., P. Katsafados, A. Papadopoulos, and G. Korres, 2018: "Implementation of a two-way coupled atmosphere-ocean wave modeling system for assessing air-sea interaction over the Mediterranean Sea". *Atmospheric Research*, 208, 201-217, doi: 10.1016/j.atmosres.2017.08.019.

**Invited speaker in conferences and workshops**

1. Katsafados P., M.M. Miglietta, E. Gregow, A. Sairouni, J. More, J. Markovic, A. Papadopoulos, A. Tiesi, V. Capecchi and T. Janjic-Pfander, 2014: "The European LAPS (ELAPS) activities related with nowcasting techniques and methods". 1st European Nowcasting Conference, EUMETNET, ZAMG: Central Institute for Meteorology and Geodynamics, 29-30 April 2014, Wien, Austria.
2. Katsafados P., G. Varlas, C. Spyrou, V.M Nomikou, A. Papadopoulos and G. Korres, 2017: "The impact of rain on ocean wave evolution and its feedback to the

atmosphere". 1st Coastal Hydrology and Surface Processes linked to Air/Sea Modeling, 26 – 27 September 2017, Madeira Isl, Spain.

3. Katsafados P., 2018: "Hydrometeorological hazards and their impact on sites of cultural heritages". Conference & Seminar on Disater Plan in Cultural Institutions, 7 September 2018, Heraklion, Crete.
4. Spyrou C., G. Varlas, E. Papadopoulou, H. Alkalbani, R. Job, K. Pavlopoulos and P. Katsafados, 2019: "The Sorbonne University Atmospheric Forecasting System (SUAFS): current status and future perspectives". Sorbonne Series of Conferences, 24 February 2019, Abu Dhabi, UAE.

**Indicative publications in conference proceedings**

1. Katsafados P., Varlas G., Papadopoulos A., Vervatis V., Spyrou C., Solomos S., Papaioannou G., Papadopoulou E., and Makrygianni N., 2022: Coupling across the Spheres: the Chemical Hydrological Atmospheric Ocean wave System (CHAOS). EMS Annual Meeting: European Conference for Applied Meteorology and Climatology, 4-9 September 2022, University of Bonn, Germany.
2. Katsafados P., 2019 Implementation and evaluation of a wave-dependent sea spray parameterization scheme in the modeling system CHAOS. 1st scientific conference PANACEA, 23-24 September 2019, Heraklion, Greece.
3. Varlas G., A. Papadopoulos, V.M. Nomikou, E. Karymbalis, M. Anagnostou and P. Katsafados, 2018: "Assessing the interaction between the atmospheric and hydrological environments in the drainage basin of Spercheios River". *14th International Conference on Meteorology, Climatology and Atmospheric Physics (COMECAP 2018)*, 15-17 October 2018, Alexandroupolis, Greece, pp. 106-111.
4. Katsafados P, Varlas G., Spyrou C., Nomikou V.M., Papadopoulos A., and Korres G, 2017: The impact of rain on ocean wave evolution and its feedback to the atmosphere. Coastal Hydrology and Surface Processes linked to Air/Sea Modeling, 26-27 September 2017, Madeira Island, Portugal (invited speaker).
5. Katsafados P., Papadopoulos A., Varlas G., and Korres G., 2016: A hybrid surface layer parameterization scheme for the two-way fully coupled atmosphere-ocean wave system WEW. European Geosciences Union (EGU) General Assembly, 12-17 April 2015, Vienna, Austria.
6. Papadopoulos A., P. Katsafados, S. Kalogirou and T. Soukissian, 2014 "Wind and solar potential estimation with combined use of meteorological model and GIS". *10th International Congress of the Hellenic Geographical Society*, 22-24 October 2014, Thessaloniki, Greece.

**Selected list of projects participating as coordinator**

1. 2022-2024: NaturE based SoluTiOns for addressing uRban heat island (NESTOR). Regional Operational Programme "Attica" (PI for Harokopio University).
2. 2019-2020: Ionian-Adriatic earLywARning Monitoring System (i-ALARMS). Interreg-IPA CBC, Greece-Albania (PI for Harokopio University).
3. 2017-2020: Ελληνικό Ολοκληρωμένο Σύστημα Παρακολούθησης, Πρόγνωσης και Τεχνολογίας των Θαλασσών και των Επιφανειακών Υδάτων, Επιχειρησιακό Πρόγραμμα «Ανταγωνιστικότητα Επιχειρηματικότητα και Καινοτομία 2014-2020», ΟΠΣ 5002739, ΕΣΠΑ 2014-2020 (PI for Harokopio University).
4. 2013-2015: GreekARGO infrastructure for monitoring of Oceans, ESPA MIS380214 (PI for Harokopio University).
5. 2012-2015: AVRA: A national project for the exploitation of the offshore wind energy over the Aegean Sea, ESPA-09SYN-32-598 (PI for Harokopio University).
6. 2012-2014: MyWave: A pan-European concerted and integrated approach to operational wave modelling and forecasting – a complement to GMES MyOcean services, Subcontract from HCMR (KA00220), FP7-SPACE-2011-1/CP-FP, SPA.2011.1.5-03 (PI for Harokopio University).