

DR. THEODORE M. GIANNAROS

CURRICULUM VITAE

August 2017

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PERSONAL INFORMATION

Date & Place of Birth	September 21 1982, Thessaloniki, Greece
Citizenship	Greek
Present Affiliation	National Observatory of Athens, Institute for Environmental Research and Sustainable Development, Vas. Pavlou & I. Metaxa, 152 36 Penteli (Athens), Greece
Marital Status	Married (2 children)
Military Service	Accomplished (04/2013 – 11/2013, Hellenic Army)

EDUCATION

2009-2013	Ph.D. in Atmospheric Physics, School of Physics, Aristotle University of Thessaloniki, Greece
2005-2007	M.Sc. in Environmental Physics, School of Physics, Aristotle University of Thessaloniki, Greece
2000-2005	B.Sc. in Physics, School of Physics, Aristotle University of Thessaloniki, Greece

PROFESSIONAL APPOINTMENTS & KEY DUTIES

2014 – today	<p>Postdoctoral Researcher, Institute for Environmental Research and Sustainable Development, National Observatory of Athens, Greece</p> <p>In the frame of my present appointment, I am working with state-of-the-art numerical weather prediction and regional climate models (WRF, WRF-Chem), as well as with human-bioclimate models (RayMan), for both research and operational purposes. Specific duties include:</p> <ul style="list-style-type: none">▪ Responsible for human-bioclimate modeling activities.▪ Developer and in charge of operating the weather forecasting service based on the WRF model, including lightning forecasts (http://meteo.gr/meteomaps/wrf_slp.cfm).
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- In charge of operating the dust forecasting service based on the WRF-Chem model (http://meteo.gr/meteomaps/wrf_dust.cfm).
- Developer of the AEOLUS-RIO2016 forecasting service for supporting the Hellenic Olympic Sailing Team during the Summer 2016 Olympic Games (<http://www.meteo.gr/meteoplus/rio2016.cfm>).
- Contact person and in charge of relevant modeling activities in the context of the “Convective phenomena at high resolution over Europe and the Mediterranean” CORDEX FPS (<https://www.cordex.org/cordexnews/276-fps-2.html>).
- Leader scientist of the “Impacts of dust on Mediterranean cyclones” research initiative in the context of the “Med-Cyclones” science team of the Hydrological Cycle in the Mediterranean Experiment (HyMeX).
- Contact person and in charge of relevant modeling activities in the context of the “Study of a haboob in Iran” research initiative of the WMO SDS WAS.

2013 – 2014

Postdoctoral Researcher, Laboratory of Atmospheric Physics, Aristotle University of Thessaloniki, Greece

- Responsible for meteorological, regional climate and human-bioclimate modeling activities.
- Developer and in charge of operating 2 operational forecasting services: 1 for numerical weather prediction (<http://lap.physics.auth.gr/forecasting/index2.php>) and 1 for environmental indices (http://lap.physics.auth.gr/forecasting/index_aq.php).

PUBLICATIONS

Doctoral Dissertation

Giannaros T.M. (2013) Study of the urban heat island effect using a mesoscale atmospheric model and analyzing experimental data. Aristotle University of Thessaloniki, 186 pp (in English).

Refereed Journal Articles

1. Flaounas E., Kotroni V., Lagouvardos K., Klose M., Flamant C., **Giannaros T.M.** (2017) “Sensitivity of the WRF-Chem (V3.6.1) model to different dust emission parameterization: Assessment in the broader Mediterranean region”. *Geoscientific Model Development* (in press).
2. **Giannaros T.M.**, Kotroni V., Lagouvardos K., Dellis D., Tsanakas P., Mavrellis G., Symeonidis P., Vakkas T. (2017) “Ultra-high-resolution wind forecasting for the sailing events at the Rio de Janeiro 2016 Summer Olympic Games”. *Meteorological Applications* (in press).
3. Dafis S., Lagouvardos K., Kotroni V., **Giannaros T.M.**, Bartzokas A. (2017) Observational and modeling study of a mesoscale convective system during the HyMeX-SOP1. *Atmospheric Research* 187: 1-15.
4. **Giannaros T.M.**, Melas D., Ziomas I. (2017) Performance evaluation of the Weather Research and Forecasting (WRF) model for assessing wind resource in Greece. *Renewable Energy* 102 (A): 190-198.

5. **Giannaros T.M.**, Lagouvardos K., Kotroni V. (2016) "Performance evaluation of an operational lightning forecasting system in Europe". *Natural Hazards* 85: 1-18.
6. Liora N., Poupkou A., **Giannaros T.M.**, Kakosimos K.E., Stein O., Melas D. (2016) "Impacts of natural emissions sources on particle pollution levels in Europe". *Atmospheric Environment* 137: 171-185.
7. Koletsis I., **Giannaros T.M.**, Lagouvardos K., Kotroni V. (2016) "Observational and numerical study of the Vardaris wind regime in northern Greece". *Atmospheric Research* 171: 107-120.
8. **Giannaros T.M.**, Kotroni V., Lagouvardos K. (2016) "WRF-LTNGDA: A lightning data assimilation technique implemented in the WRF model for improving precipitation forecasts". *Environmental Modeling and Software* 76: 54-68.
9. Zempila M.-M., **Giannaros T.M.**, Bais, A., Melas D., Kazantzidis A. (2016) "Evaluation of WRF shortwave radiation parameterizations in predicting global horizontal irradiance in Greece". *Renewable Energy* 86: 831-840.
10. Liora N., Markakis K., Poupkou A., **Giannaros T.M.**, Melas D. (2015) "The Natural Emissions Model (NEMO): Description, application and model evaluation". *Atmospheric Environment* 122: 493-504.
11. **Giannaros T.M.**, Kotroni V., Lagouvardos K. (2015) "Predicting lightning activity in Greece with the Weather Research and Forecasting (WRF) model". *Atmospheric Research* 156: 1-13.
12. **Giannaros T.M.**, Melas D., Matzarakis A. (2015) "Evaluation of thermal bioclimate based on observations and numerical simulations: An application to Greece". *International Journal of Biometeorology* 59: 151-164.
13. Karagiannidis A., Poupkou A., **Giannaros T.M.**, Giannaros C., Melas D., Argiriou A. (2015) "The air quality of a Mediterranean urban environment area and its relation to major meteorological parameters". *Water, Air & Soil Pollution* 226: 1-13.
14. Poupkou A., Markakis K., Liora N., **Giannaros T.M.**, Zanis P., Im U., Daskalakis N., Myriokefalitakis S., Kaiser J.W., Melas D., Kanakidou M., Zerefos C. (2014) "A modeling study of the impact of the 2007 Greek forest fires on the gaseous pollutant levels in the Eastern Mediterranean". *Atmospheric Research* 149: 1-17.
15. **Giannaros T.M.**, Melas D., Daglis I.A., Keramitsoglou I. (2014) "Development of an operational modeling system for urban heat islands: An application to Athens, Greece". *Natural Hazards and Earth System Sciences* 14: 347-358.
16. **Giannaros T.M.**, Melas D., Daglis I.A., Keramitsoglou I., Kourtidis K. (2013) "Numerical study of the urban heat island over Athens (Greece) with the WRF model". *Atmospheric Environment* 73: 103-111.
17. **Giannaros T.M.**, Melas D. (2012) Study of the urban heat island in a coastal Mediterranean city: the case study of Thessaloniki, Greece. *Atmospheric Research* 118, 103-120.
18. Poupkou A., **Giannaros T.M.**, Markakis K., Kioutsoukis I., Curci G., Melas D., Zerefos C. (2010) "A model for European biogenic volatile organic compounds emissions: Software development and first validation". *Environmental Modeling & Software* 25: 1845-1856.

Submitted Manuscripts

Giannaros C., Nenes A., **Giannaros T.M.**, Kourtidis K., Melas D. () A comprehensive approach for the simulation of urban heat island effect with the WRF/SLUCM modeling system: the case of Athens (Greece). Submitted for publication in *Atmospheric Research*.

Conference Proceedings

1. **Giannaros T.M.**, Kotroni V., Lagouvardos K. (2016) Lightning forecasting in Europe: Results obtained from one year of operational simulations. In *Proceedings of the XIII International Conference on Meteorology, Climatology and Atmospheric Physics*, 19 – 21 September 2016, Thessaloniki, Greece.
2. Giannaros C.M., Melas D., **Giannaros T.M.** (2016) Evaluation of WRF parameterization schemes during heat-wave events over the greater area of south-east Mediterranean. In *Proceedings of the XIII International Conference on Meteorology, Climatology and Atmospheric Physics*, 19 – 21 September 2016, Thessaloniki, Greece.
3. Dafis S., Lagouvardos K., Kotroni V., **Giannaros T.M.**, Bartzokas A. (2016) Numerical simulations and observational study of a mesoscale convective system in France, during the HyMeX-SOP1 using the WRF model. In *Proceedings of the XIII International Conference on Meteorology, Climatology and Atmospheric Physics*, 19 – 21 September 2016, Thessaloniki, Greece.
4. Karagiannidis A., Lagouvardos K., Kotroni V., **Giannaros T.M.** (2016) Validating SAF NWC products over the Greek area. In *Proceedings of the XIII International Conference on Meteorology, Climatology and Atmospheric Physics*, 19 – 21 September 2016, Thessaloniki, Greece.
5. Lagouvardos K., Kotroni V., Kazadzis S., **Giannaros T.M.**, Karagiannidis A., Galanaki E., Proestakis E. (2015) “Nowcasting and forecasting of lightning activity: The TALOS project”. In *Proceedings of the European Geosciences Union General Assembly 2015*, 12 – 17 April 2015, Vienna, Austria.
6. Bais A., Kazantzidis A., **Giannaros T.M.**, Zempila M-M., Kazadzis S., Nikitidou E., Tzoumanikas P., Salamalikis V., Kosmidis E., Melas D., Zerefos C., Fragkos K., Fountoulakis I., Drosoglou T., Kotti M.C. (2014) “The Hellenic Solar Energy Network: Validation of products”. In *Proceedings of the XII International Conference on Meteorology, Climatology and Atmospheric Physics*, 28 – 31 May 2014, Heraklion, Greece.
7. Liora N., Poupkou A., Markakis K., **Giannaros T.M.**, Melas D. (2014) “Sea salt and wind blow dust emissions in the Eastern Mediterranean – Study of the natural PM emissions dependence on meteorology”. In *Proceedings of the XII International Conference on Meteorology, Climatology and Atmospheric Physics*, 28 – 31 May 2014, Heraklion, Greece.
8. Karagiannidis A., Poupkou A., Giannaros C., **Giannaros T.M.**, Dimopoulos S., Liora N., Melas D. (2014) “Meteorological factors affecting the air pollution of the city of Patras”. In *Proceedings of the XII International Conference on Meteorology, Climatology and Atmospheric Physics*, 28 – 31 May 2014, Heraklion, Greece.
9. Poupkou A., Liora N., Karagiannidis A., **Giannaros T.M.**, Giannaros C., Melas D., Argiriou A. (2013) “Maritime sector emissions contribution to the particulate matter pollution in a Mediterranean city port: A modeling approach”. In *Proceedings of the 33rd International Technical Meeting on Air Pollution Modeling and its Application*, 26 – 30 August 2013, Miami, Florida, USA.
10. Marougianni G., Katragkou E., **Giannaros T.M.**, Poupkou A., Melas D., Zanis P., Feidas H. (2013) “Evaluation of surface ozone simulated by the WRF/CMAQ online modeling system”. In *Proceedings of the European Geosciences Union General Assembly 2013*, 7 – 12 April 2013, Vienna, Austria.
11. Liora N., Poupkou A., Markakis K., **Giannaros T.M.**, Karagiannidis A., Melas D. (2013) “Future anthropogenic pollutant emissions in a Mediterranean port city with emphasis on the maritime

- sector emissions". In Proceedings of the *European Geosciences Union General Assembly 2013*, 7 – 12 April 2013, Vienna, Austria.
12. Bais A., Kazantzidis A., Zerefos C.S., Melas D., Kosmidis E., Kazadzis S., Nikitidou E., **Giannaros T.M.**, Zempila M-M. (2012) "Hellenic network for solar energy". In Proceedings of the *XI International Conference on Meteorology, Climatology and Atmospheric Physics*, 29 May – 1 June 2012, Athens, Greece.
 13. Poupkou A., Markakis K., Liora N., **Giannaros T.M.**, Im U., Daskalakis N., Myriokefalitakis S., Melas D., Zanis P., Kanakidou M., Zerefos C.S. (2012) "Study of the impact of an intense biomass burning event on the air quality in the eastern Mediterranean". In Proceedings of the *XI International Conference on Meteorology, Climatology and Atmospheric Physics*, 29 May – 1 June 2012, Athens, Greece.
 14. Mamunta P., Ceriola G., Daglis I.A., de Ridder K., **Giannaros T.M.**, Keramitsoglou I., Bino M., Melas D., Montero-Herrero E., Paganini M., Palacios M., Radius A., Sapage T., Tamane M., Tambuyzer H., Viel M. (2010) "Urban heat islands and urban thermography". In Proceedings of the *ESA Living Planet Symposium*, 28 June – 2 July 2010, Bergen, Norway.
 15. Daglis I.A., Rapsomanikis S., Kourtidis K., Melas D., Papayannis A., Keramitsoglou I., **Giannaros T.M.**, Amiridis V., Petropoulos G., Georgoulas A., Sobrino J-A., Mamunta P., Grobner J., Paganini M., Bianchi R. (2010) "Results of the DUE Thermopolis campaign with regard to the urban heat island (UHI) effect in Athens". In Proceedings of the *ESA Living Planet Symposium*, 28 June – 2 July 2010, Bergen, Norway.
 16. Daglis I.A., Keramitsoglou I., Amiridis V., Petropoulos G., Melas D., **Giannaros T.M.**, Kourtidis K., Sobrino J.A., Mamunta P., Grobner J., Paganini M., Bianchi R. (2010) "Investigating the urban heat island (UHI) effect in Athens through a combination of space, air-borne and ground-based observations". In Proceedings of the *X International Conference on Meteorology, Climatology and Atmospheric Physics*, 25 – 28 May 2010, Patras, Greece.
 17. Daglis I.A., Rapsomanikis S., Kourtidis K., Melas D., Papayannis A., Keramitsoglou I., **Giannaros T.M.**, Amiridis V., Petropoulos G., Sobrino J., Mamunta P., Grobner J., Paganini M., Bianchi R. (2010) "Mapping the urban heat island effect in Athens: Results obtained from the UHI and Thermopolis 2009 projects". In Proceedings of the *European Geosciences Union General Assembly 2010*, 2 – 7 May 2010, Vienna, Austria.
 18. Kioutsoukis I., Poupkou A., Katragkou E., **Giannaros T.M.**, Markakis K., Balis D., Melas D., Zerefos C. (2010) "Performance evaluation of the MM5/CAMx system for Europe (2003)". In Proceedings of the *X International Conference on Meteorology, Climatology and Atmospheric Physics*, 25 – 28 May 2010, Patras, Greece.
 19. **Giannaros T.M.**, Melas D., Kontogianni P. (2009) "An observational study of the urban heat island in the greater Thessaloniki area: Preliminary results and development of a forecasting service". In Proceedings of the *7th General Conference of the Balkan Physical Union*, 9 – 13 September 2009, Alexandroupolis, Greece.
 20. Poupkou A., Kioutsoukis I., Lissaridis I., Markakis K., **Giannaros T.M.**, Katragkou E., Melas D., Zerefos C., Viras L. (2008) "Evaluation in the greater Athens area of an air quality forecast system". In Proceedings of the *IX National-International Conference on Meteorology-Climatology and Atmospheric Physics*, 28 – 31 May 2008, Thessaloniki, Greece.

GRANTS AND FELLOWSHIPS

- 2014 Young Scientist Travel Award, *European Meteorological Society* (for participating in the 9th International Conference on Air Quality – Science and Application)
- 2011 – 2012 Scholarship for Excellence in Research, Aristotle University of Thessaloniki

CONFERENCE ACTIVITY

Oral Presentations

1. **Giannaros T.M.** (2017) "On the impact of dust on Mediterranean cyclones: the Mediane case of December 2005". *10th HyMeX Workshop*, 4 – 7 July 2017, Barcelona, Spain.
2. **Giannaros T.M.** (2017) "Lightning forecasting in Europe and other lightning-related activities at NOA, Greece". *The Bathsheva de Rothschild Seminar on the Atmospheric Global Electric Circuit*, 5 – 10 February 2017, Mitzpe Ramon, Israel.
3. **Giannaros T.M.** (2016) "Lightning forecasting in Europe: Results obtained from one year of operational simulations". *XIII International Conference on Meteorology, Climatology and Atmospheric Physics*, 19 – 21 September 2016, Thessaloniki, Greece.
4. **Giannaros T.M.** (2015) "Performance evaluation of an operational lightning forecasting system". *9th HyMeX Workshop*, 21 – 25 September 2015, Mykonos Island, Greece.
5. **Giannaros T.M.** (2014) "On the impact of air quality on human health: Application of an air quality index for Thessaloniki, Greece". *9th International Conference on Air Quality – Science and Application*, 24 – 28 March 2014, Garmisch-Partenkirchen, Germany.
6. **Giannaros T.M.** (2012) "Development of a modeling system for urban heat islands: An application to Athens and Thessaloniki, Greece". *XI International Conference on Meteorology, Climatology and Atmospheric Physics*, 29 May – 1 June 2012, Athens, Greece.
7. **Giannaros T.M.** (2010) "Implementing mesoscale atmospheric models for simulating urban heat island and estimating thermal comfort indices". *X International Conference on Meteorology, Climatology and Atmospheric Physics*, 25 – 28 May 2010, Patras, Greece.
8. **Giannaros T.M.** (2009) "An observational study of the urban heat island in the greater Thessaloniki area: Preliminary results and development of a forecasting service". *7th General Conference of the Balkan Physical Union*, 9 – 13 September 2009, Alexandroupolis, Greece.

Poster Presentations

1. **Giannaros T.M.**, Kotroni V., Lagouvardos K. (2015) "Implementation of a lightning data assimilation technique in the Weather Research and Forecasting (WRF) model for improving precipitation prediction". *European Geosciences Union General Assembly 2015*, 12 – 17 April 2015, Vienna, Austria.
2. **Giannaros T.M.**, Melas D., Ziomas I. (2015) "Evaluation of the performance of a mesoscale modeling system for wind resource assessment". *5th International Meeting on Meteorology and Climatology of the Mediterranean*, 2 – 4 March 2015, Istanbul, Turkey.
3. **Giannaros T.M.**, Melas D., Ziomas I. (2013) "Performance evaluation of a mesoscale modeling system for wind resource assessment". *13th International Conference on Environmental Science and Technology (CEST2013)*, 5 – 7 September 2013, Athens, Greece.

4. **Giannaros T.M.**, Melas D., Korosoglou P., Kanellopoulos C., Keramitsoglou I. (2009) "Implementing WRF on the GRID in the context of the THERMOPOLIS2009 campaign". *SEE-GRID-SCI User Forum 2009*, 9 – 10 December 2009, Istanbul, Turkey.

INVITED TALKS

1. **Giannaros T.M.** (2016) "Numerical weather prediction in high-performance computing (HPC) environments: Implementation of the WRF model on ARIS". *Training Workshop on Meteorology and Climatology with the WRF model*, 19 December 2016, Greek Research and Technology Network, Athens, Greece.

RESEARCH EXPERIENCE

Participation in Funded Projects (as a researcher)

- 2015 – present "VRE for Regional Interdisciplinary Communities in Southeast Europe and the Eastern Mediterranean", funded by the **European Commission (H2020)**.
- 2014 – 2015 "Thunder and Lightning Observation System – TALOS", funded by the **European Union (European Social Fund) and Natural Resources**.
- 2012 – 2015 "Resolution of Complex Problems in the Analysis of Next-Generation Wind Turbines", funded by the **European Union (European Social Fund) and Natural Resources**.
- 2011 - 2013 "Hellenic Network for Solar Energy", funded by the **European Union and Natural Resources**.
- 2010 – 2013 "Promote Air Quality Services Integrating Observations – Development of Basic Localized Information for Europe – PASODOBLE", funded by the **European Commission**.
- 2010 – 2013 "Common Mediterranean Strategy and Local Practical Actions for the Mitigation of Port, Industries and Cities Emissions – APICE", funded by the **European Union (European Programme for Territorial Cooperation – MED)**.
- 2008 – 2011 "Urban Heat Islands and Urban Thermography", funded by the **European Space Agency**.
- 2007 – 2009 "Protocol Monitoring for the GMES-2 Service Element – PROMOTE-2", funded by the **European Space Agency**.

SKILLS

Professional Skills

Proficient in numerical weather prediction and regional climate models (WRF, MM5), and micro-scale models (RayMan)

Proficient in programming and scripting languages (Fortran, Python, NCL, GDAL, NCO, CDO, Unix)

Proficient in grid computing

Experienced in geographical information systems (ArcGIS, Quantum GIS)

RESEARCH INTERESTS

Although my interests have shifted over the time, my research activity shows considerable continuity, as my key research directions remained unchanged. These are founded on numerical modeling and include, more specifically, numerical weather prediction, regional climate modeling and human-bioclimate modeling. Hence, my work is in principle based on the employment of numerical models for studying in detail the atmospheric environment and its interactions with the climate system and the human beings. Areas of special focus include:

- Numerical weather prediction, focusing on severe and high-impact weather
- Regional climate modeling
- Human-biometeorology, specializing in the assessment of the thermal bioclimate
- Tourism climatology
- Urban meteorology/climatology, emphasizing on the study of the urban heat island effect
- Numerical modeling for supporting air quality and renewable energy resources applications; development and implementation of operational systems

SERVICE TO PROFESSION

Journal Manuscript Reviewer

Atmosphere (MDPI), Atmospheric Chemistry and Physics (European Geosciences Union), Atmospheric Environment (Elsevier), Atmospheric Measurement Techniques (European Geosciences Union), Atmospheric Research (Elsevier), Climate (MDPI), International Journal of Environmental Research and Public Health (MDPI), Journal of Applied Meteorology and Climatology (American Meteorological Society), Journal of Geophysical Research – Atmospheres (American Geosciences Union), Landscape and Urban Planning (Elsevier), Remote Sensing (MDPI), Science of the Total Environment (Elsevier), Sustainability (MDPI), Theoretical and Applied Climatology (Springer), Transportation Research Part D: Transport and Environment (Elsevier), Quarterly Journal of the Royal Meteorological Society (Wiley)

Project Proposal Reviewer

Greek Research and Technology Network, Greece
National Science Foundation, United States

LANGUAGES

Greek	Native
English	Excellent (Proficiency in English, University of Cambridge)
French	Adequate (DELF 1er Degree, Ministry of National Education of France)

REFERENCES

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