

Stavros NTAFIS (DAFIS)

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Date of birth: 13/01/1991

Education

- 2017- present** **PhD candidate: École Polytechnique, Laboratoire de Météorologie Dynamique (LMD).**
Thesis: "Contribution de la convection profonde à l'intensification des cyclones méditerranéens".
Supervisor: C. Claud. Advisors: V. Kotroni, K. Lagouvardos
- 2014 - 2016** **Master 2: Atmospheric Sciences and Environment, Physics Department, University of Ioannina, Greece. Grade: 9.3/10 (Top of the class)**
Thesis: "Numerical simulations and observational study of a Mesoscale Convective System in France, during the HyMeX - SOP1 using the WRF model".
Advisors: K. Lagouvardos, V. Kotroni, A. Bartzokas
- 2009 - 2014** **License / Master 1: Physics, University of Ioannina, Greece. Grade 7.2/10 (Top 3%)**
Thesis: "The atmospheric circulation characteristics favoring snowfall in an area with complex relief in Northwestern Greece".

Additional Educational Programs:

- Mar. 2019** **Winter School on the Influence of Diabatic Processes on Atmospheric Development.**
University of Bergen, Norway.
- Dec 2017** **LMDZ Training course.**
Université Pierre et Marie Curie (Paris VI) - LMD Jussieu.
- June 2015** **European Severe Storm Laboratory's Testbed at the Training Center of Wiener Neustadt, Austria.**
Forecast training and evaluation of forecasting tools (NWP models, satellite diagnostics).
- Online courses:** **Certificates from MetEd education program (UCAR), EUMETRAIN (courses provided by EUMETSAT) and Coursera.**

Working Experience

- Sep. 2018-
Sep. 2020** **Teacher Assistant – École Polytechnique, Palaiseau, Paris.**
Teaching courses of Fluid Dynamics and Dynamic Meteorology to undergraduate students.
- Jul. 2019** **Teacher Assistant – Fluid Dynamics of Sustainability and the Environment (FDSE) summer school, University of Cambridge and École Polytechnique, Palaiseau, Paris.**
- Jun. 2016 -
Nov. 2016** **Physics Engineer - Laboratory of Dynamic Meteorology, École Polytechnique, CNRS, Palaiseau, Paris.**
Observational study of the deep moist convection occurrence during Medicanes by using satellite instruments. *Advisor: C. Claud*
- May. 2016 -
Oct 2017** **Weather forecaster - Stravon weather services, Kozani, Greece.**
Providing weather forecasts and warnings to farmers in North Greece.

- Mar. 2016 - present** **Research Associate - National Observatory of Athens (NOA-IERSD), Athens, Greece**
Weather forecasts and developing complex algorithms to manipulate station, model and satellite data in real time (www.meteo.gr). Managing meteo.gr social media accounts.
- 2011 - present** **Forecaster at the European Severe Storm Experiment (ESTOFEX) (Volunteer).**
Weather outlooks and warnings for severe weather occurrence with verification methods.
Advisor: P. Groenemeijer
- Sep. 2015 - Feb. 2016** **Internship at LATMOS - Laboratoire Atmosphères, Milieux, Observations Spatiales, - IPSL, Guyancourt, Paris.**
Evaluation of MED-CORDEX WRF simulations (ice water content values) against space borne lidar CALIPSO and ground based lidar located at SIRTAs scientific site.
Advisor: S. Bastin
- June 2013** **Research Assistant at "Roberto Sarao" station for climate observations in Lampedusa, Italy (ENEA).**
Data acquisition and measurements from microwave radiometers (pyranometers, CIMEL, MFRSR, Microtops) in the frame of ChArMeX campaign.
- Feb. - June 2013** **Internship at ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Rome, Italy.**
Development of algorithms to calculate clear sky solar irradiances and to derive the cloud optical depth from microwave radiometer data.
Advisors: A. G. di Sarra, G. Pace, D. Meloni
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Scientific campaigns

- Exploiting new Atmospheric Electricity Data for Research and the Environment (EXAEDRE), Corsica 2018. Laboratoire d'Aerologie, CNRS, CNRM, Météo-France, ONERA, LaMP, LMD.
 - The Chemistry-Aerosol Mediterranean Experiment (ChArMeX - MISTRALS) Special Observation Period 1, Lampedusa 2013. ENEA, CNRS, ONERA, LSCE, LISA, LaMP, LMD
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Awards and honors

- Best script for detecting deep convection with Sentinel-2 in the Sentinel-Hub/ESA Custom Script Contest 2019 & First prize in the category "Disaster Management and Prevention".
 - Price award for young scientists for the best poster presentation at the 12th International Conference for Meteorology and Climatology (COMECAP 2014).
 - Full scholarship by the European Severe Storm Laboratory (ESSL) to attend the annual Testbed at the Training Center of Wiener Neustadt, Austria in June 2015.
 - Honors for the best weather photo in Greece during 2016 by the Hellenic Meteorological Society.
 - Honors for the best weather photo in Greece during 2014 by the Hellenic Meteorological Society.
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Languages

- Greek - Native speaker
 - English - Proficient user (C2)
 - German - Independent user (B1)
 - Italian - Basic User (A2)
 - French - Basic User (A1)
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Computer Skills

- Excellent skills in both Windows and Linux operating systems.
- Familiar with data processing in several data set formats such as ascii, grib, netCDF, HRIT, SIGMET.
- Experience with the Weather Research and Forecasting model (WRF-ARW/NMM)
- Programming languages: NCL, IDL, Python and limited experience with Fortran, Grads, Matlab, QGIS, Vapor, HTML5.

Publications

Peer-Reviewed Publications:

1. **Dafis S.**, Claud C., Kotroni V., Lagouvardos K., Rysman J.F., 2020: *Insights into the convective evolution of Mediterranean tropical-like cyclones*. Quarterly Journal of Royal Meteorological Society. DOI: 10.1002/qj.3896
2. Rysman, J.F., Claud C., **Dafis S.**, 2020: *Global monitoring of deep convection using passive microwave observations*. Atmospheric Research. DOI: 10.1016/j.atmosres.2020.105244
3. Stefanidis S., **Dafis S.**, Sthathis D., 2020: *Simulation of Seasonal Precipitation Over Mountainous Central Pindus (Greece) Using Regional Climate Models (RCMs)*. Water. DOI: 10.3390/w12102750
4. Kotroni V., Cartalis C., Michaelides S., Stoyanova J., Tymvios F., Bezes A., Christoudias T., **Dafis S.**, et al., 2020: *DISARM Early Warning System for Wildfires in the Eastern Mediterranean*. Sustainability, 12, 6670. DOI: 10.3390/su12166670
5. Lagouvardos K., **Dafis S.**, Giannaros C., Karagiannidis A., Kotroni V., 2020: *Investigating the Role of Extreme Synoptic Patterns and Complex Topography During Two Heavy Rainfall Events in Crete in February 2019*. Climate (8), 7, 87. DOI: 10.3390/cli8070087
6. Stefanidis S., **Dafis S.**, Giannaros C., 2020: *Hydrological response of the "Mpasdeki" torrent catchment to the storm of 25th November 2019*. Hydrotechnica, 29, 13-26. ISSN: 1106-5419
7. Lagouvardos K., Kotroni V., Giannaros T. M., **Dafis S.**, 2019: *Meteorological conditions conducive to the rapid spread of the deadly wildfire in eastern Attica, Greece*. Bulletin of the American Meteorological Society, DOI: 10.1175/BAMS-D-18-0231.1
8. **Dafis S.**, Giannaros T. M., Lagouvardos K., Kotroni V., Fierro A., Mansell T., 2018: *Performance Evaluation of an Explicit Lightning Forecasting System*. Journal of Geophysical Research: Atmospheres, DOI: 10.1029/2017JD027930
9. **Dafis S.**, C. Claud, J-F. Rysman, E. Flaounas, 2018: *Remote Sensing of Deep Convection within a Tropical-like Cyclone over the Mediterranean Sea*. Atmospheric Science Letters, DOI: 10.1002/asl.823
10. **Dafis S.**, Lagouvardos K., Kotroni V., Giannaros T. M., Bartzokas A., 2016: *Sensitivity of numerical simulations of a Mesoscale Convective System in France, during the HyMeX - SOP1 using the WRF model*. Atmospheric Research, DOI: 10.1016/j.atmosres.2016.12.001
11. **Dafis S.**, Lolis J. C., Houssos E., Bartzokas A., 2015: *The atmospheric circulation characteristics favouring snowfall in an area with complex relief in Northwestern Greece*. International Journal of Climatology, DOI: 10.1002/joc.4576
12. **Dafis S.**, Lagouvardos K., Kotroni V., Giannaros T. M., Bartzokas A., 2017: *Numerical Simulations and Observational Study of a Mesoscale Convective System in France, during the HyMeX - SOP1 using the WRF model*. Perspectives on Atmospheric Sciences, pp.41-47. DOI: 10.1007/978-3-319-35095-0_6
13. Lampiris A., **Dafis S.**, Papavasileiou G., 2017: *Observational and numerical study of a tornado outbreak in Attica and Euboea*. Perspectives on Atmospheric Sciences, pp.99-105. DOI: 10.1007/978-3-319-35095-0_15

International Conferences and Workshops:

1. **Dafis S.**, Claud C., Kotroni V., Lagouvardos K., Rysman J.F., 2020: Contribution of deep convection in the intensification of Mediterranean Tropical-Like Cyclones. *Méditerranée: L'expertise scientifique pour les décideurs – MED2020 MISTRALS*. Montpellier, France, November 2020 (poster).
2. Rysman J.F., Claud C., **Dafis S.**, 2020: Global Monitoring of Deep Convection using Passive Microwave Observations. *Earth Observation for Water Cycle Science 2020 (EO 4 Water 2020)*. Online meeting organized by ESA, UNESCO, CNES, CNRS/IPSL, GEWEX, EC (DG-RTD) and UVSQ, November 2020 (poster).
3. **Dafis S.**, Claud C., Rysman J.F., Kotroni V., Lagouvardos K., 2020: Hail-producing storms and passive microwave retrievals. 3rd European Hail Workshop 2020, Karlsruhe, Germany (poster) (postponed due to COVID19).
4. **Dafis S.**, Claud C., Kotroni V., Lagouvardos K., Rysman J-F., 2019: Deep moist convection in tropical-like Mediterranean cyclones and evaluation of numerical guidance. 19th Cyclones Workshop, Kloster Seeon, Germany (oral).
5. **Dafis S.**, Claud C., Kotroni V., Lagouvardos K., Rysman J-F., 2019: Satellite observations of deep convection during Mediterranean Hurricanes. 10th European Conference on Severe Storms, Krakow, Poland (oral).
6. E. Defer, S. Coquillat, P. De Guibert, D. Lambert, K. Lee, J.-P. Pinty, **S. Dafis**, et al., 2019: *The EXAEDRE campaign for a better understanding of the microphysical, dynamical and electrical processes in thunderstorms*. 12th HyMeX workshop. Split, Croatia.
7. E. Defer, S. Coquillat, P. De Guibert, D. Lambert, K. Lee, J.-P. Pinty, **S. Dafis**, et al., 2019: *Microphysical, dynamical and electrical properties of the thunderstorm sampled during the 17 September 2018 EXAEDRE IOP2 flight*. EGU Conference, Vienna Austria.
8. **Dafis S.**, Claud C., Kotroni V., Lagouvardos K., Rysman J-F., Funatsu B.M., 2018: *Use of satellite microwave observations for Hail detection in the Mediterranean*. 16th EGU-Plinius conference on Mediterranean risks. Montpellier, France, October 2018 (oral).
9. Lagouvardos K., Giannaros T.M., Kotroni V., Karagiannidis S., **Dafis S.**, Papagiannaki K., 2018: Analysis of one of the deadliest flood events in Attica, Greece: the case of Mandra flood on 15 November 2017. 16th EGU-Plinius conference on Mediterranean risks. Montpellier, France, October 2018 (poster).
10. Tsioumitas K., Hatzianastassiou N., Benas N., **Dafis S.**, Meloni D., Pace G., di Sarra A.G., Matsoukas C., Vardavas I., 2018: *Modeling 15-year surface solar radiation fluxes in central Mediterranean (Lampedusa island) using MODIS satellite and local cloud optical thickness data*. 14th International Conference for Meteorology and Climatology COMECAP 2018, Alexandroupoli, Greece.
11. Giannaros T.M., Kotroni V., Lagouvardos K., Galanaki E., **Dafis S.**, 2018: *HERMES: An integrated severe and extreme weather forecasting system*. 11th HyMeX workshop. Lecce, Italy, June 2018 (poster).
12. **Dafis S.**, Claud C., Kotroni V., Lagouvardos K., Rysman J-F., Funatsu B.M., 2018: *Hail detection in Europe from Passive Microwave Brightness Temperatures*. 11th HyMeX workshop. Lecce, Italy, June 2018 (oral).
13. **Dafis S.**, Claud C., 2018: *Polar Lows and Medicanes: Differences and Similarities*. 14th European Polar Low Working Group. Trier, Germany, April 2018 (oral).
14. **Dafis S.**, Giannaros T.M., Kotroni V., Lagouvardos K., Claud C., Fierro A.O., Mansell E., 2017: *Explicit forecasting of lightning activity during Medicanes*. 18th Cyclones Workshop. Montreal, Canada, October 2017 (poster).
15. **Dafis S.**, Giannaros T.M., Kotroni V., Lagouvardos K., Claud C., Fierro A.O., Mansell E., 2017: *Explicit Lightning Forecasting in Greece*. 10th HyMeX workshop. Barcelona, Spain, July 2017 (poster).

16. **Dafis S.**, Claud C., Rysman J-F., Flaounas E., 2017: *Characterization of deep convection within a tropical-like cyclone over the Mediterranean Sea*. HyMeX Science Team Med-cyclones workshop March 2017, Paris (oral).
17. **Dafis S.**, Claud C., Rysman J-F., Flaounas E., 2016: *Deep moist convection characteristics of Medicane Rolf, November 2011*. HyMeX Science Team Lightning workshop October 2016, Toulouse (oral).
18. Lampiris A., **Dafis S.**, Papavasileiou G., 2016: *Observational and numerical study of a tornado outbreak in Attica and Euboea*. 13th International Conference for Meteorology and Climatology COMECAP 2016, Thessaloniki, Greece.
19. **Dafis S.**, Lolis J. C., Bartzokas A., Gkousarov G., 2015: *The characteristics of a High-Precipitation Tornadoic-Supercell in a metropolitan area of Northwest Greece*. 9th HyMeX workshop, Mykonos, Greece (poster).
20. Sioutas M., **Dafis S.**, Papavasileiou G., Doe R.K., 2015: *Tornado occurrence in Greece: Influencing variables and spatio-temporal variations*. European Conference on Severe Storms 2015, Wiener Neustadt, Austria (poster).
21. **Dafis S.**, Lagouvardos K., Kotroni V., Giannaros T.M., Bartzokas A., 2015: *Sensitivity of numerical simulations of a Mesoscale Convective System in France, during the HyMeX - SOP1 using the WRF model*. 9th HyMeX workshop, Mykonos, Greece (oral).
22. **Dafis S.**, Hatzianastasiou N., Meloni D., Pace G., di Sarra A.G., 2015: *A climatology of cloud optical thickness in the central Mediterranean (Lampedusa) based on surface solar irradiance measurements*. IUGG 2015, Prague, Czech Republic (poster).
23. **Dafis S.**, Hatzianastasiou N., Meloni D., Pace G., di Sarra A.G., di Biagio C., 2014: *Cloud-screening algorithm and determination of clear sky solar irradiance and cloud properties in the island of Lampedusa*. 12th International Conference for Meteorology and Climatology COMECAP 2014, Heraklion, Greece (poster).

Additional activities

Since 2006 I am the owner of a website (<http://www.meteovolos.gr>) where I provide free weather forecasts for my hometown, Volos. Since 2014 I am a volunteer forecaster at ESTOFEX (<http://www.estofex.org>) which helps my research through the frequent engagement with severe weather forecasting. In addition, since 2015 I am responsible for the evaluation of severe weather event entries from Greece at the European Severe Weather Database (ESWD - <http://www.eswd.eu>). Since March 2016 I have been working on data visualization suites (personal scripts in NCL and python) and some of these products are operational on the website of the National Observatory of Athens (<http://www.meteo.gr/meteomaps/>). Moreover, I am a member of the European Severe Storm Laboratory (ESSL), the Royal Meteorological Society (RMS), the European and the Hellenic Meteorological Societies, and the Hellenic Polar Society.