


PERSONAL INFORMATION



Emmanouil Flaounas

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Sex M | Nationality Greek

WORK EXPERIENCE

Since 2020

Hellenic Center for Marine Research (HCMR), Greece

Maintenance and development of Poseidon weather Forecasting service.

2018 - 2020

Swiss Federal Institute of Technology in Zurich (ETH), Switzerland

- Defining and analyzing of extreme seasons in the framework of the ERC project INTEXseas. A new concept that bridges weather and climate.

2013 - 2018

National Observatory of Athens (NOA), Greece

- Development of the dust operational forecasting service of NOA, using the WRF-Chem model.
- Analysis of cyclone processes leading to heavy rainfall in the Mediterranean.

2010 - 2013

Laboratoire de Météorologie Dynamique (LMD), France

- Use of dynamical and statistical downscaling to analyse uncertainties in the reproduction of Mediterranean climate.
- Development of novel cyclones tracking method.

2007 - 2010

Laboratoire Atmosphères, Milieux et Observations Spatiales (LATMOS), France

- Analysis of the intra-seasonal variability of the West African Monsoon.

2006 - 2007

Laboratoire Interuniversitaire des Systèmes Atmosphériques (LISA), France

- Use of Chimere chemistry transport model to analyse the origins of a particulate matter episode in southern France.

EDUCATION AND TRAINING

2007 – 2010

Ph.D in University Pierre et Marie Curie (Paris VI), France

Thesis title: "Analysis of the west African monsoon: regional dynamics or large-scale forcing?", publicly defended on October 25, 2010

2006 – 2007

Master in Air quality in University Paris-Est Créteil (ex Paris XII), France

Thesis title: "Modelling regional particulate pollution: Evaluation of an eulerian model and characterisation of episodes"

2000 – 2006

Physics degree in University of Athens, Greece

Thesis title (final year essay): "Study of the variability of chemically inactive pollutants in an urban environment"

SECONDMENTS AND INVITED STAYS

Jul 2018

Weizmann Institute of Science, Israel

- Invited weekly stay by Dr. Shira Raveh-Rubin to work on Mediterranean cyclones interaction with dry air intrusions

Feb 2018, May 2017

University of Reading, United Kingdom

- Training in extracting the potential vorticity budget from a model: implementation in WRF and analysis of Mediterranean cyclones. One-month secondments in the context of a Marie Curie fellowship (Collaboration with Prof. Suzanne Gray).

Oct 2015

Swiss Federal Institute of Technology in Zurich (ETH), Switzerland

- Invited weekly stay by prof. Heini Wernli to work on the relationship between cyclones occurring over the Atlantic Ocean and the Mediterranean basin.

Apr – Jul 2013

Swiss Federal Institute of Technology in Zurich (ETH), Switzerland

- Three-month secondment to work with prof. Heini Wernli on the analysis of the baroclinic life-cycle of Mediterranean cyclones.

PROJECTS AND GRANTS

2020 - 2024

European network for Mediterranean cyclones in weather and climate (~130k EUR per year). COST Association

Role: Chair

2020 - 2023

Establishing the pathway from understanding to forecasting Mediterranean cyclone dynamics (170k CHF). Swiss national science foundation.

Role: Principal investigator

2016 - 2018

Cyclone processes leading to extreme rainfall in the Mediterranean region (150k EUR). Marie-Curie individual fellowship

Role: Principal Investigator

PEER-REVIEWED PUBLICATIONS

Röthlisberger, M., Sprenger, M., **Flaounas**, E., Beyerle, U., and Wernli, H (2020) The substructure of extremely hot summers in the Northern Hemisphere, *Weather Clim. Dynam.*, 1, 45–62, <https://doi.org/10.5194/wcd-1-45-2020>

Flaounas E, Fita L, Lagouvardos K, Kotroni V (2019) Heavy rainfall in Mediterranean cyclones, Part II: Water budget, precipitation efficiency and remote water sources, *Clim Dyn* 53, 2539–2555 (2019). DOI: 10.1007/s00382-019-04639-x.

Dafis S, Rysman JF, Claud C, **Flaounas** E (2018) Remote sensing of deep convection within a tropical-like cyclone over the Mediterranean area. *Atmos Sci Lett*, doi: 10.1002/asl.823

Galanaki E, Lagouvardos K, Kotroni V, **Flaounas** E, Argiriou A (2018) Thunderstorm climatology in the Mediterranean using cloud-to-ground lightning observations, *Atmospheric Research*, doi: 10.1016/j.atmosres.2018.03.004.

Fita L, **Flaounas** E (2017) Medicanes as subtropical cyclones: the December 2005 case from the perspective of surface pressure tendency diagnostics and atmospheric water budget, *Q J R Meteorol Soc*, doi: 10.1002/qj.3273

Flaounas E, Kotroni V, Lagouvardos K, Gray S, Rysman JF, Claud C (2017) Heavy rainfall in Mediterranean cyclones, Part I: Contribution of deep convection and warm conveyor belts, *Clim Dynam*, doi: 10.1007/s00382-017-3783-x

Flaounas E, Kotroni V, Lagouvardos K, Klose M, Flamant C, Giannaros TM (2017) Sensitivity of the WRF-Chem (V3.6.1) model to different dust emission parametrisation: Assessment in the broader Mediterranean region, *Geosci Model Dev*, 10, 2925-2945. DOI:10.5194/gmd-10-2925-2017

Raveh-Rubin S, **Flaounas** E (2017) The dynamical link between deep Atlantic extratropical cyclones and intense Mediterranean cyclones, *Atmos Sci Lett*, 18(5), 215-221. DOI: 10.1002/asl.745

Drobinski P, Bastin S, Arsouze T, Beranger K, **Flaounas** E, Stefanon M (2017) North-western Mediterranean sea-breeze circulation in a regional climate system model. *Clim Dynam*, 1-17. DOI: 10.1007/s00382-017-3595-z

Flaounas E, Kelemen FD, Wernli H, Gaertner MA, Reale M, Sanchez-Gomez E, Lionello P, Calmanti S, Podrascanin Z, Somot S, Akhtar N (2016) Assessment

of an ensemble of ocean–atmosphere coupled and uncoupled regional climate models to reproduce the climatology of Mediterranean cyclones. *Clim Dynam*, 1-18, doi:10.1007/s00382-016-3398-7

Galanaki E, Flaounas E, Kotroni V, Lagouvardos K, Argiriou A (2016) Lightning activity in the Mediterranean: quantification of cyclones contribution and relation to their intensity. *Atmos Sci Lett*, 17: 510–516. doi:10.1002/asl.685

Berthou S, Mailler S, Drobinski P, Arsouze T, Bastin S, Béranger K, Flaounas E, Lebeaupin Brossier C, Somot S, Stéfanon M (2016), Influence of submonthly air–sea coupling on heavy precipitation events in the Western Mediterranean basin. *Q J R Meteorol Soc*, 142: 453–471. doi:10.1002/qj.2717

Flaounas E, Lagouvardos K, Kotroni V, Claud C, Delanoë J, Flamant C, Madonna E, Wernli H (2016) Processes leading to heavy precipitation associated with two Mediterranean cyclones observed during the HyMeX SOP1. *Q J R Meteorol Soc*, 142: 275–286. doi:10.1002/qj.2618

Ruti P, Somot S, Giorgi F, Dubois C, Flaounas E, Obermann A, Dell'Aquila A, Pisacane G, Harzallah A, Lombardi E, Ahrens B, Akhtar N, Alias A, Arsouze T, Aznar R, Bastin S, Bartholy J, Beranger K, Beuvier J, Bouffies-Cloche S, Brauch J, Cabos W, Calmanti S, Calvet JC, Carillo A, Conte D, Coppola E, Djurdjevic V, Drobinski P, Elizalde A, Gaertner M, Galan P, Gallardo C, Gualdi S, Goncalves M, Jorba O, Jorda G, Lheveder B, Lebeaupin-Brossier C, Li L, Liguori G, Lionello P, Macias-Moy D, Onol B, Rajkovic B, Ramage K, Sevault F, Sannino G, Struglia MV, Sanna A, Torma C, Vervatis V (2016) MED-CORDEX initiative for Mediterranean Climate studies, *Bull Amer Meteor Soc*, 97, 1187–1208, doi: 10.1175/BAMS-D-14-00176.1.

Flaounas E, Di Luca A, Drobinski P, Mailler S, Arsouze T, Bastin S, Beranger K, Lebeaupin Brossier C (2016) Cyclones contribution to the Mediterranean Sea water budget, *Clim Dynam*, doi:10.1007/s00382-015-2622-1

Flaounas E, Kotroni V, Lagouvardos K, Kazadzis S, Gkikas A, Hatzianastassiou N (2015) Cyclone contribution to dust transport over the Mediterranean region. *Atmos Sci Lett*, 16, 473–478. doi:10.1002/asl.584

Flaounas E, Raveh-Rubin S, Wernli H, Drobinski P, Bastin S (2015) The dynamical structure of intense Mediterranean cyclones, *Clim Dynam*, 1-17, doi: 10.1007/s00382-014-2330-2

Di Luca A, Flaounas E, Drobinski P, Lebeaupin-Brossier C (2014) The atmospheric component of the Mediterranean Sea water budget in a WRF multi-physics ensemble and observations, *Clim Dynam*, 43, 2349-2375, DOI: 10.1007/s00382-014-2058-z

Flaounas E, Kotroni V, Lagouvardos K, Flaounas I (2014) CycloTRACK (v1. 0)—tracking winter extratropical cyclones based on relative vorticity: sensitivity to data filtering and other relevant parameters, *Geosci Model Dev* 7 (4), 1841-1853, DOI: 10.5194/gmd-7-1841-2014

Flaounas E, Drobinski P, Vrac M, Bastin S, Lebeaupin-Brossier C, Stéfanon M, Borga M, Calvet JC (2013) Precipitation and temperature space–time variability and extremes in the Mediterranean region: evaluation of dynamical and statistical downscaling methods, *Clim Dynam*, 40 (11-12), 2687-2705, DOI: 10.1007/s00382-012-1558-y

Menut L, OP Tripathi, Colette A, Vautard R, Flaounas E, Bessagnet B (2013) Evaluation of regional climate simulations for air quality modelling purposes, *Clim Dynam*, 40 (9-10), 2515-2533, DOI 10.1007/s00382-012-1345-9

Flaounas E, Drobinski P, Bastin S (2013) Dynamical downscaling of IPSL-CM5 CMIP5 historical simulations over the Mediterranean: benefits on the representation of regional surface winds and cyclogenesis, *Clim Dynam*, 40 (9-10), 2497-2513, DOI 10.1007/s00382-012-1606-7

Flaounas E, Janicot S, Bastin S, Roca R (2012) The West African Monsoon onset in 2006: Sensitivity to surface albedo, orography, SST and synoptic scale dry-air intrusions using WRF, *Clim Dynam*, 38 (3-4), 685-708, DOI: 10.1007/s00382-011-1255-2

Flaounas E, Bastin S, Janicot S, Roca R, Mohino E (2012) The role of the Indian monsoon onset in the West African monsoon onset: Observations and AGCM nudged simulations, *Clim Dynam*, 38 (5-6), 965-983, DOI: 10.1007/s00382-011-1045-x

Flaounas E, j P, Borga M, Calvet JC, Delrieu G, Morin E, Tartari G, Toffolon R (2012) Gridded observations for model validation in the Mediterranean region: the HyMeX and MED-CORDEX framework, *Env Res Let*, 7 (2), 024017, DOI:10.1088/1748-9326/7/2/024017

Flaounas E, Bastin S, Janicot S (2011) Regional climate modelling of the 2006 West African monsoon: sensitivity to convection and planetary boundary layer parameterisation using WRF, *Clim Dynam*, 36 (5-6), 1083-1105, DOI:10.1007/s00382-010-0785-3

Gazeaux J, Flaounas E, Naveau P, Hannart A (2011) Inferring change-points and non-linear trends in multivariate Times series: Application to West African Monsoon onset timings estimation, *J Geophys Res*, (1984–2012) 116 (D5), DOI:10.1029/2010JD014723

Flaounas E, Coll I, Armengaud A, Schmechtig C (2009) The representation of dust transport and missing urban sources as major issues for the simulation of PM episodes in a Mediterranean area, *Atmos Chem Phys*, 9, 8091–8101, DOI:10.5194/acp-9-8091-2009