europass

Francesco De Martin

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Nationality: Italian

RESEARCH INTEREST

Meteorology

I am interested in the physical understanding of processes leading to convective severe storms hazards, such as tornadoes, hail and downbursts, with the ultimate goal of improving their forecasting and early warning systems. I'm also interested in radar meteorology, NWP models, weather forecasting and forecast verification.

EDUCATION AND TRAINING

[11/01/2022 – Current]

Phd - "Future Earth, climate change and societal challenges"

Alma mater studiorum- Università di Bologna

City: Bologna | **Country:** Italy | **Field(s) of study:** Dynamic Meteorology | **Level in EQF:** EQF level 8 | **Thesis:** Assessment of weather numerical models for the prediction of meteo-related extremes in the Po Valley

Expected End: 10/31/2025

Supervisor: Prof. Silvana Di Sabatino

[09/2020 – 10/20/2022]

Master Degree - "Physics of the Earth System"

Alma mater studiorum- Università di Bologna

City: Bologna | **Country:** Italy | **Field(s) of study:** Atmospheric Science | **Final grade:** 110/110 cum laude | **Level in EQF:** EQF level 7 | **Type of credits:** ECTS | **Number of credits:** 120 | **Thesis:** Analysis of tornadoes on 19 September 2021 in the Po Valley using high resolution numerical simulations

[08/2017 – 08/02/2020]

Bachelor Degree - "Physics"

Università degli studi di Trieste

City: Trieste | **Country:** Italy | **Field(s) of study:** Physics | **Final grade:** 110/110 cum laude | **Level in EQF:** EQF level 6 | **Number of credits:** 180 | **Thesis:** Analysis of favorable conditions for the development of severe convective storms at the atmospheric mesoscale

[2012 – 2017]

Scientific High School Diploma

Licei G.A. Pujati

City: Sacile | **Country:** Italy | | **Final grade:** 100/100 | **Level in EQF:** EQF level 4

TRAINING

[06/09/2025 – 06/13/2025]

Summer Student Research Colloquium

Cooperative Institute for Severe and High-Impact Weather Research and Operations, Norman, OK, United States

[04/30/2025]

VAPOR Tutorial

National Center of Atmospheric Research, Boulder, CO, United States

[04/06/2025 – 04/08/2025]

MPAS Tutorial

National Center of Atmospheric Research, online

[06/24/2024 – 06/28/2024]

Expert week ESSL testbed

European Severe Storma Laboratory, Wiener Neustadt, Austria

[06/26/2022 – 06/30/2023] **2nd Medcyclones Training School**

EU Cost Action, Toulouse, France

[08/29/2022 – 09/02/2022] **Nature-based Solutions for hydro-meteo hazards and climate change adaptation**

Alma mater studiorum - Università di Bologna, Bologna, Italy

WORK EXPERIENCE

NCAR

City: Boulder | **Country:** United States

[01/21/2025 – 06/30/2025] **Visiting Scholar**

Idealized simulations of severe storms in urban areas with WRF model.

CNR-ISAC

City: Bologna | **Country:** Italy

[03/08/2022 – 09/15/2022] **Internship**

Numerical simulations with high resolution NWP models (MOLOCH and BOLAM) of a severe storm event in northern Italy.

ARPA FVG

City: Palmanova | **Country:** Italy

[08/2019 – 09/2019] **Internship**

Study of heat transmission in the soil: analysis of experimental data and comparison with a theoretical model.

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

TEACHING

[2024] **Teaching Assistant - "Atmospheric and Oceanic Dynamics"**

Synoptic meteorology (8 hours); Academic year 2024-2025, University of Bologna, Bologna, Italy

[2024] **Tutor - "Dynamic Meteorology"**

WRF laboratory (11 hours); Academic year 2023-2024, University of Bologna, Bologna, Italy

[2024] **Teaching Assistant - "Dynamic Meteorology"**

Weather forecasting (3 hours), Vorticity (1 hours); Academic year 2023-2024, University of Bologna, Bologna, Italy

[2023] **Teaching Assistant - "Atmospheric and Oceanic Dynamics"**

Severe storms (2 hours), Synoptic Meteorology (2 hours); Academic year 2022-2023, University of Bologna, Bologna, Italy

[2023] **Teaching Assistant - "Dynamic Meteorology"**

Weather forecasting (1 hours), Vorticity (2 hours); Academic year 2022-2023, University of Bologna, Bologna, Italy

PROJECTS

[2025 – Current] **AISAM students' conference**

Creator and main organizer of the first students' conference of the Italian Association of Atmospheric Sciences and Meteorology (AISAM). The conference will be held on November 22-23, 2025.

Link: https://studentsconference.aisam.eu/

[01/01/2025 – Current] **P.I. ECMWF Special Project**

Downscaled subsampled seasonal predictions of summer temperature in the Greater Alpine region

Link: https://www.ecmwf.int/en/research/special-projects/spitdema-2025

[2023 – Current] **AISAM course on weather forecasting**

Creator and main organizer of the first (2023-2024) and second (2024-2025) edition of the AISAM course on weather forecasting for students enrolled in meteorology programs in Italy. The course involved the National Agency of Meteorology and Climatology (ItaliaMeteo), the weather service of the Italian Air Force, the Civil Protection Department, regional weather services and companies from the private sectors. Organizer of the third edition (2025-2026).

Link: https://aisam.eu/eventi-aisam/2-corso-previsione-meteorologica-operativa/

[2015 – Current] **PRETEMP**

Co-founder in 2015 of PRETEMP, a group of students and meteorologists, that aim to improve severe weather forecasting in Italy. PRETEMP publishes every day severe weather outlooks for Italy and collects severe weather reports (sent to the ESWD database). Currently the group consists of 20 members, has formal collaborations with important no-profit associations (ESSL, Meteonetwork), informal collaborations with some regional weather services (ARPAE, ARPA FVG) and with many italian amateur associations.

Link: www.pretemp.it

HONOURS AND AWARDS

[06/19/2023] **Young Scientist Conference Award Awarding institution:** European Meteorological Society

Link: https://www.emetsoc.org/awards/award-category/young-scientist-conference-awards/

[05/24/2023] **Best student Oral presentation Awarding institution:** 9th MetMed Awards Committee

9th MetMed in Genova, Italy

[05/12/2023] **Best ECSS Presentation Jury Award Awarding institution:** European Severe Storm Laboratory

11th ECSS in Bucarest, Romania.

[05/05/2023] **Borghi Award Awarding institution:** Fondazione Osservatorio Meteorologico Milano Duomo

The master thesis took the third place.

Link: https://www.fondazioneomd.it/premio-borghi

[01/2023] **Best master thesis Awarding institution:** Department of Physics and Astronomy, University of Bologna

Best master thesis of the Department of Physics and Astronomy of the University of Bologna during the academic years 2020-21 and 2021-22.

[11/13/2020] **Borghi Award Awarding institution:** Fondazione Osservatorio Meteorologico Milano Duomo

The Bachelor thesis took the second place.

PERSONAL SKILLS

Professional skills:

- Programming languages: Python, Fortran, Bash, Latex, some basics of Matlab
- Tools: numerical weather prediction models (WRF, MPAS, MOLOCH, BOLAM), Vapor, basics of CM1
- Additional skills: data analysis, academic writing, weather forecasting

Communication and interpersonal skills

Speaker in many international conferences. Used to work in teams. Leadership skill (co-leading the PRETEMP group and leading the students section of the AISAM association).

NETWORKS AND MEMBER-SHIPS

[12/2024 – Current] **Student representative of the 38° cycle of the Phd Frontiers** Bologna

[12/14/2022 – Current] **Coordinator student section of AISAM**

Italian Association of Atmospheric Science and Meteorology

Memberships

Co-founder of PRETEMP group

Associate member of AMS

Associate member of Meteonetwork

Associate member of AISAM

REVIEWER

Natural Hazards and Earth System Sciences

Meteorological Applications

Bullettin of Atmospheric Sciences and Technologies

Quarterly Journal of the Royal Meteorological Society

Weather

International Journal of Climatology

Atmospheric Research

PUBLICATIONS

A significant tornado event near a dryline bulge in Northern Italy

De Martin, F., F. Pavan, N. Carlon, G. Cioni, C. Rozoff, V. Poli, S. Carpentari, and M. M. Miglietta, (accepted): A significant tornado event near a dryline bulge in Northern Italy. Wea. Forecasting

Effects of the urban land use on a severe convective windstorm

De Martin, F., A. Zonato, and S., Di Sabatino (accepted): Effects of the urban land use on a severe convective windstorm. Quart. J. Roy. Meteor. Soc.

Influences of urban areas on severe storm dynamics

De Martin, F., A. Zonato, and S. Di Sabatino (accepted): Influences of urban areas on severe storm dynamics. Il Nuovo Cimento

[2025] **The Bayesian sinking in Porticello: a predictable convective windstorm?**

De Martin, F., M. M. Miglietta, T. Gastaldo, M. Martinazzo, F. Pavan, M. Siena, and S. Di Sabatino (2025). The Bayesian sinking in Porticello: a predictable convective windstorm?. Weather.

[2025] **A dynamic and statistical analysis of giant hail environments in North-East Italy**

De Martin, F., A. Manzato, N. Carlon, M. Setvak, and M. M. Miglietta (2025): A dynamic and statistical analysis of giant hail environments in North-East Italy. Quart. J. Roy. Meteor. Soc.,151, 769, e4945

[2024] **The–WIND RISK project: nowcast and simulation of thunderstorm outflows**

Burlando, M., M. M. Miglietta, E. Avolio, R. Bechini, F. Cassola, **F. De Martin**, M. Lagasio, M. Milelli, A. Parodi, and D. Romanic (2024) The –WIND RISK project: nowcast and simulation of thunderstorm outflows. Bull. of Atmos. Sci.& Technol. 5, 15

[2024] **A conceptual model for the development of tornado in the complex orography of the Po Valley**

De Martin, F., S. Davolio, M. M. Miglietta, and V. Levizzani, 2024: A conceptual model for the development of tornadoes in the complex orography of the Po Valley. Mon. Wea. Rev., 152, 1357–1377.

[2023] **La previsione di supercelle e trombe d'aria**

De Martin, F., S. Davolio, and M. M. Miglietta, 2023: La previsione di supercelle e trombe d'aria, Rivista di Meteorologia Aeronautica, N.4, pag 4-17.

CONFERENCES AND SEMINARS

[05/28/2025] **NCAR Seminar** Boulder, CO, United States

De Martin, F.: "A Numerical Investigation of Supercell Storm Interactions With the Urban Environment", Boulder, NCAR, **Seminar**

Link: https://youtu.be/zX1LLHVau1U?si=GgPAGvRWOSDPr6Lh

[01/16/2025] **Simulating the effect of the urban land use on a severe convective windstorm in the Po Valley**
New Orleans, LA, United States

De Martin, F. and Zonato, A. and Di Sabatino, S. "Simulating the effect of the urban land use on a severe convective windstorm in the Po Valley", New Orleans, 105th AMS Annual Meeting, **Oral**

Link: https://ui.adsabs.harvard.edu/abs/2025AMS...10551181D/abstract

[01/13/2025] **Lessons from a Dynamic and Statistical Analysis of Giant Hail Environments in NE Italy** New Orleans, LA, United States

De Martin, F., A. Manzato,N. Carlon, M. Setvak, and M. M. Miglietta, "Lessons from a Dynamic and Statistical Analysis of Giant Hail Environments in NE Italy", New Orleans, 105th AMS Annual Meeting, **ePoster**

Link: https://ui.adsabs.harvard.edu/abs/2025AMS...10550623D/abstract

[07/10/2024] **The effect of complex topography on severe storms: from mountains to the urban canopy**
Castro, Italy

De Martin, F., M. Siena, A. Giordani, and S. Di Sabatino (2024): "The effect of complex topography on severe storms: from mountains to the urban canopy", Workshop "Toward a better understanding of extreme events in Med Basin: combining numerical models and remote sensing", Castro, **Oral**

[04/15/2024] **Can a city modify a severe convective windstorm?** Vienna, Austria

De Martin, F., A. Zonato, and S. Di Sabatino, "Can a city modify a severe convective windstorm?", EGU24, **Oral**

Link: https://doi.org/10.5194/egusphere-egu24-17845

[02/07/2024] **Extreme severe storms in Italy in two weeks of July 2023: hail records and tornadoes** Lecce, Italy

De Martin, F., A. Manzato, N. Carlon,F. Pavan, S. Carpentari, G. Cioni, and M. M. Miglietta, "Extreme severe storms in Italy in two weeks of July 2023: hail records and tornadoes", 5th AISAM Congress, **O ral**

[02/06/2024] **Can a city intensify a local severe storm?** Lecce, Italy

De Martin, F., A. Zonato, and S. Di Sabatino, "Can a city intensify a local severe storm?", 5th AISAM Congress, **Poster**

[06/23/2023] **The effect of complex orography on the development of a tornadic outbreak in the Po Valley** St. Gallen, Switzerland

De Martin, F., S. Davolio, M. M. Miglietta, and V. Levizzani, "The effect of complex orography on the development of a tornadic outbreak in the Po Valley", 36th ICAM, **Oral**

[05/27/2023] **Workshop in Advanced Meteorology** Venice, Italy

De Martin, F. and S. Carpentari: "Tornadoes: climatology, dynamics and forecasting"; Istituto Cavanis, Venice, Italy, **Seminar**

[05/23/2023] **A conceptual model for the development of tornado in the Po Valley** Genova, Italy

De Martin, F., S. Davolio, M. M. Miglietta, and V. Levizzani, "A conceptual model for the development of tornado in the Po Valley", 9th MetMed, **Oral**

[05/23/2023] **Toward a dedicated warning system of severe storms in Italy: the PRETEMP project** Genova, Italy

De Martin, F., N. Carlon, F. Pavan, S. Carpentari, M. Giazzi, G. Peressutti, M. M. Miglietta, and S. Davolio, 9th MetMed, **Poster**

[05/11/2023] **Toward a dedicated warning system of severe storms in Italy: the PRETEMP project** Bucharest, Romania

De Martin, F., N. Carlon, F. Pavan, S. Carpentari, M. Giazzi, G. Peressutti, M. M. Miglietta, and S. Davolio, 11th ECSS, **Poster**

Link: https://doi.org/10.5194/ecss2023-18

[05/09/2023] **A conceptual model for the development of tornado in the Po Valley** Bucharest, Romania

De Martin, F., Davolio, S., Miglietta, M. M. and Levizzani, V., "A conceptual model for the development of tornado in the Po Valley", 11th ECSS, **Oral**

Link: https://doi.org/10.5194/ecss2023-17

[12/21/2022] **ARPA FVG Seminar** Palmanova, Italy

De Martin, F. "Tornado forecasting in the Po Valley", Palmanova, ARPA FVG, **Seminar**

[02/17/2022] **Prevedere i temporali si può?** Milan, Italy

De Martin, F., and Carpentari, S., "Prevedere i temporali si può?", 4th AISAM Congress, **Oral**

Francesco De Martin

Bologna, Italy, 07/23/2025

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