

PERSONAL INFORMATIONS

Carmela De Vivo


✉ carmdev92@gmail.com

✉ carmela.devivo@cmcc.it

in <https://www.linkedin.com/in/carmela-de-vivo-ba82bba8/>

CURRENT JOB POSITION

Post doctoral researcher at Euro-Mediterranean Center on Climate Change (CMCC)

PROFESSIONAL EXPERIENCE

June 2022 – ongoing

Post doctoral researcher at Euro-Mediterranean Center on Climate Change

Euro-Mediterranean Center on Climate Change (CMCC), Viale Thomas Alva Edison, Caserta, Italy
Main activities: climate risk assessment for critical infrastructure (airports)

April 2021 – July 2024

Tutor of the Meteorology course at University of Naples Parthenope

“Nautical, Aeronautical and Meteo-Oceanographic Science” Department of Sciences and Technology”
University of Naples Parthenope, Centro Direzionale ISOLA C4, 80133 Naples NA.

EDUCATION AND TRAINING

PhD Course in Environmental Phenomena and Risks (XXXIV Cycle) QEQ: level 8

November 1, 2018 – July 2022

Department of Science and Technology, Parthenope University, ISOLA C4 Centro Direzionale, 80133 Naples (NA), Italy.

- Tutor: Prof Giorgio Budillon; Co-tutor: Dr. Paola Mercogliano (CMCC Foundation - Euro-Mediterranean Center on Climate Change);
- Dissertation title: Climate risk assessment on the critical infrastructures and possible adaptation strategies: focus on euro-mediterranean airports.

Master's Degree in Environmental Sciences

EQF: level 7

October 2015 - July 2018

Department of Chemistry and Biology, University of Salerno - Via Giovanni Paolo II 132, 84084, Fisciano (SA), Italy.

- Main subjects treated or skills acquired: Elements of meteorology and oceanography (30/30), Multivariate analysis of environmental data (30/30), Environmental geophysics (28/30), Analysis of ecological systems (30 with honors), Management and protection of protected areas (30/30), Pedology (30/30)
- Tutor: Prof. Paolo Capuano (University of Salerno, Department of Physics), Dr. Paola Mercogliano (Euro-Mediterranean Center on Climate Change)
- Thesis title: "Potential impacts of climate change on airport areas and actions for an adaptation plan: the case of Milan-Malpensa". The research project aims to quantitatively assess the potential impacts of climate change on the Milan-Malpensa airport infrastructure, through the definition and calculation of specific climate indicators (Extreme Weather Indicators, EWIs). Different observational datasets (ISPRA data referring to the Malpensa station point, E-OBS and EURO4M grid datasets) were used to carry out a climatic analysis on the area under study, calculating annual and seasonal trends (using non-parametric Mann Kendall test) of the maximum, minimum temperature and rainfall in the period 1950-2010. After that, I proceeded with the definition of appropriate indicators to highlight the critical factors for the airport infrastructure. These indicators were calculated using both the observational datasets in the reference period 1981-2010 and using climate projections generated by a regional numerical model (COSMO-CLM) to calculate the trend in the future period (2021-2050). After showing the trends related to the indicators in the future period according to the IPCC RCP 4.5 scenario data, the research project ends with the proposal of possible adaptation and mitigation strategies that Malpensa airport could implement to face the challenge of climate change.
- Degree title awarded on: 07/19/2018
- Final grade: 110/110 cum laude

Bachelor's Degree in Environmental Assessment and Control QEQ: level 6

October 2011 - November 2015

Department of Chemistry and Biology, University of Salerno - Via Giovanni Paolo II 132, 84084, Fisciano (SA), Italy.

- Main subjects covered or skills acquired: Cartography and remote sensing (27/30), Physics laboratory of the environment (30/30), Georisks (28/30), Environmental geophysics (30/30).
- Supervisor: Prof. Federico Rossi (University of Salerno), Prof. Federico M. Pulselli (University of Siena)
- Thesis title: "Theoretical - modeling study on greenhouse gas accounting strategies: application to the Province of Salerno ". Implementation of the greenhouse gas inventory to the province of Salerno using the methodology developed by the IPCC 2006. Such methodology includes the estimation of greenhouse gas emissions (CO₂, CH₄, NO₂) from four specific sectors: energy sector; industrial sector; AFOLU sector (agriculture, forest and other land uses) which also includes accounting for anhydride absorptions carbon dioxide from forests and other woody systems for the growth of biomass; waste sector. The underlying equation used to estimate emissions is given by the product between the activity data and its specific emission factor. These emissions are expressed in a single unit of measurement, the ton of CO₂ equivalent, using Global Warming as a conversion factor. The GWP is a measure of the long-term contribution of gas to the global warming and is weighted based on the atmospheric lifespan of the specific greenhouse gas and the ability to absorb infrared radiation emitted by the Earth. The percentage of emission abatement of each single sector compared to total is given by the ratio between forest absorption and gross emissions (i.e. the sum of the emissions of each individual sector, excluding removals forestry).
- Degree title awarded on: 11/27/2015
- Score: 105/110 and special mention

Scientific Maturity QEQ: level 6

September 2006 - June 2011

Tito Lucrezio Caro State High School - Scientific High School - Via Duomo 1, 84087, Sarno, SA,

- Score: 100/100

PERSONAL SKILLS

Native language Italian

Other languages

	UNDERSTANDING		SPOKEN		WRITTEN PRODUCTION
	I listen	Reading	Interaction	Oral production	
English	A2	B1	A2	A2	B1

Levels: A1 / A2: Basic user - B1 / B2: Intermediate user - C1 / C2: Advanced user
[Common European Framework of Reference for Languages](#)

Communication skills

- Good communication skills acquired during my experience as an environmental educator thanks to which I had the opportunity to interact with children of all ages, teachers and managers of waste treatment plants; good propensity for team work acquired in the academic field for the realization of projects with fixed deadlines.

Organizational and management skills

- Good attitude to the management of work groups developed during the university course in which I found myself several times to take part and manage work groups for the realization of projects during the master's degree and doctoral degrees.

Professional skills

- Drafting of the IPCC (Intergovernmental Panel on Climate Change) model introduced by UNEP (United Nations Environment Program) to account for anthropogenic emissions of climate-changing gases on a provincial scale.
- Application of multicriterial decision analysis tools to be applied to all those problems that require the choice between several alternatives, in particular the location of industrial plants, landfills, composting plants.
- Drafting of DPSIR models (Determinants, Pressures, State, Impacts, Responses) introduced by the European Environment Agency (EEA) to define the state of health of a specific environmental sector through environmental analyzes, and develop a response plan.
- As part of the Legambiente project "Goletta dei Fiumi della Campania 2019" I carried out chemical analyzes (dissolved oxygen and nutrients such as nitric nitrogen, ammonia nitrogen and total phosphorus) on the Sarno river in order to determine the LIMECO index and define the state of health of the river.

Digital skills

SELF EVALUATION				
Information processing	Communication	Content Creation	Safety	Problem solving
Intermediate user	Intermediate user	Base user	Intermediate user	Intermediate user

Levels: Basic user - Intermediate user - Advanced user
[Digital skills - Self-assessment form](#)

- Good command of Microsoft Office suite tools (Microsoft Word, Excel, Power Point).
- Use of Matlab software, in particular the Meteolab toolbox for the analysis of meteorological and climatic data. This competence was developed during the internship period at the Italian Aerospace Research Center and during the doctoral period.
- Basic use of R software for statistical analysis of environmental data. This competence was developed during the preparation for the Multivariate Analysis of Environmental Data exam.
- Use of QGIS and ArcGis software for cartographic processing and remote sensing.

Driver's license

B.

FURTHER INFORMATION

Presentations

24-27 September 2024

Oral presentation "A co-design matrix-based approach to evaluate the climate risks for airports: a case study of Bologna airport" during the Conference MEDCLIVAR SISC 2024 (Lecce, Italy)

14-19 April 2024

Poster presentation "Application of climate risk assessment framework for selected Italian airports: a focus on extreme temperature and extreme precipitation events" during the Conference of European Geoscience Union (EGU 2024, Vienna).

May 22-24, 2023

Oral presentation entitled "Application of climate risk assessment framework for selected Italian airports: a focus on extreme temperature and extreme precipitation events" during the "9th International Conference on Meteorology and Climatology of the Mediterranean", Genova.

February 15-19, 2022

Presentation of a poster entitled "Application of climate risk assessment framework for some Italian airports" during the "Fourth National Conference of the Italian Association of Atmospheric Sciences and Meteorology" at the State University of Milan.

24th September 2019

Presentation of a poster entitled "Analysis of observed and expected climatic variability at Milan-Malpensa airport and possible adaptation strategies" during the "Second National Conference of the Italian Association of Atmospheric Sciences and Meteorology" at the University of Naples "Parthenope".

Honors and awards

Winner of "Climathon Salerno 2017", October 2017, Climate KIC- Italy

During the event "Climathon Salerno 2017, Lights on the climate" (the 24-hour marathon to find solutions that make cities more and more "green") I and the other members of the team I was part of, we developed the project "Walk on Salerno" as a proposal to tackle the problem of climate change in urban areas and specifically in the city of Salerno during the "Luci d'artista" event. The "Walk on" project involves the use of carpets made with recycled rubber in which to insert step-switches capable of converting the motion of visitors into electricity. The "smart carpet" will be connected to an app (Tap @ Ap), capable of providing real-time information on the number of steps taken, the energy generated and the emissions avoided in terms of CO₂, traffic conditions and much other. Given the originality of the proposed idea, the examining commission decreed us the winners of "Climathon Salerno 2017" and the project was presented at Ecomondo, the international fair on the green world held every year in Rimini.

Membership in groups /
associations
Mentions

Member of Environmental Associations "Orma Verde" and "Legambiente"

Special mention by the commission for the three-year degree thesis "Theoretical-modeling study on greenhouse gas accounting strategies: application to the Province of Salerno" (27 November 2015).

Summer schools and other
training courses

VI National School of Environmental Chemistry and Cultural Heritage

Italian Chemical Society - Division of Environmental Chemistry and Cultural Heritage

Viale Risorgimento 4, 40136, Bologna, BO

"The chemistry of the environment facing the challenges of climate change and sustainable development", Pian de 'Mantellini Educational Complex, 44, University of Siena.

School with certificate of participation

Main subjects covered: climate system, climate change and cities, impacts of climate change on the terrestrial environment and vegetation, impact of climate change on the coastal marine environment, sustainability and ecosystem services.

7-12 October 2019

First Short Mediterranean Ph.D. School on "Climate Change Impacts and Sustainable Engineering Responses"

Department of Civil, Architectural and Environmental Engineering, University of Naples Federico II Via Claudio 21, 80125, Naples, NA

Responsible: Prof. Ing. Maurizio Giugni, e-mail: maurizio.giugni@unina.it

Course with certificate of participation and 3 ECTS

Main topics covered: carbon economy, driving force of natural climate variations and climate projections for the next decades, wave energy converters, transport, energy and climate change.

from 13 July to 16 July 2015

IV National School of Environmental Chemistry and Cultural Heritage

Italian Chemical Society - Division of Environmental Chemistry and Cultural Heritage

Viale Risorgimento 4, 40136, Bologna, BO

Responsible: Prof. Antonio Proto, e-mail: aproto@unisa.it

Course with certificate of participation

Main subjects dealt with: new technologies in the field of atmospheric sampling, environmental sustainability indicators, phytoremediation, use of nanoparticles for the preservation of cultural heritage.

Seminars

May 22, 2019

How the city changes. Climate change and urban development: tools to support local adaptation.

Department of Architecture, University of Naples "Federico II"

Seminar with certificate of participation

Main topics covered: climate change scenarios on a regional and local scale and impact assessments; climate adaptation and environmental planning in urban areas; challenges and opportunities of climate change for the insurance sector - DERRIS project.

Conferences

24-26 September 2019

Second National Conference of the Italian Association of Atmospheric Science and Meteorology

Department of Science and Technology, University of Naples "Parthenope", Naples Management Center - Island C4

Main topics covered: dynamic and synoptic meteorology and meteorological forecasts, atmospheric boundary layer processes and surface-atmosphere interactions, extreme events, communication and training, climate.

Publications

Book Chapter

Carmela De Vivo, Vincenzo Capozzi, Giorgio Budillon, **Chap. 2 "The climate in the Mediterranean: observed variability and future scenarios" - Report on the economies of the Mediterranean** - Edition 2019 - Salvatore Capasso - The Mill ISBN 978-88-15-28438- 9

Publication in journals

Vincenzo Capozzi, Carmela De Vivo, Yuri Cotroneo, Giuseppe Alicino, Giannetta Fusco, Giorgio Budillon, Chapter 2 " Measurements for Meteorology", " Measurements for the Sea- Supporting the Marine Environment and the Blue Economy" (**2022**) Pasquale Daponte Giovanni Battista Rossi Vincenzo Piscopo [10.1007 / 978-3-030-82024-4_2](https://doi.org/10.1007/978-3-030-82024-4_2)

Vincenzo Capozzi, Carmela De Vivo, Giorgio Budillon, Carmine Serio, Dino Zardi, **"Second AISAM National Congress - A moment of reflection for the Italian meteorological community"** - Aeronautical Meteorology Magazine - March 2020

Carmela De Vivo and Paola Mercogliano **" Valutazione del rischio climatico sulle infrastrutture critiche e possibili strategie di adattamento: focus sugli aeroporti italiani –** Aeronautical Meteorology Magazine - March 2024

Vincenzo Capozzi, Carmela De Vivo, Yuri Cotroneo, Pasquale Castagno, Giorgio Budillon, **"Meteorological Observatory of Montevergine - 80 years of sub-daily data available to the scientific community** - Aeronautical Meteorology Magazine - September 2020

Publications on international journals

De Vivo, C., Ellena, M., Barbato, G., Pugliese, A., Marinucci, F., Barilli, T., & Mercogliano, P. (2025). A co-design matrix-based approach to evaluate the climate risks for airports: A case study of Bologna airport. *Climate Services*, 37, 100536.

De Vivo, C., Barbato, G., Ellena, M., Capozzi, V., Budillon, G., & Mercogliano, P. (2023). Application of climate risk assessment framework for selected Italian airports: A focus on extreme temperature events. *Climate Services*, 30, 100390.

De Vivo, C., Barbato, G., Ellena, M., Capozzi, V., Budillon, G., & Mercogliano, P. (2023). Climate-Risk Assessment Framework for Airports under Extreme Precipitation Events: Application to Selected Italian Case Studies. *Sustainability*, 15(9), 7300.

De Vivo, C., Ellena, M., Capozzi, V., Budillon, G., & Mercogliano, P. (2021). Risk assessment framework for Mediterranean airports: A focus on extreme temperatures and precipitations and sea level rise. *Natural Hazards*, 1-20.

Capozzi, V., Mazzarella, V., De Vivo, C., Annella, C., Greco, A., Fusco, G., & Budillon, G. (2022). A Network of X-Band Meteorological Radars to Support the Motorway System (Campania Region Meteorological Radar Network Project). *Remote Sensing*, 14(9), 2221.

Capozzi, V., De Vivo, C., & Budillon, G. (2022). Synoptic control over winter snowfall variability observed in a remote site of Apennine Mountains (Italy), 1884–2015. *The Cryosphere*, 16(5), 1741-1763.

Capozzi, V., Raia, L., Cretella, V., De Vivo, C., & Cucciniello, R. (2022). The Impact of Meteorological Conditions and Agricultural Waste Burning on PM Levels: A Case Study of Avellino (Southern

Scientific datasets

Italy). International Journal of Environmental Research and Public Health, 19(19), 12246.

Capozzi, V., Cotroneo, Y., Castagno, P., De Vivo, C., & Budillon, G. (2020). Rescue and quality control of sub-daily meteorological data collected at Montevergine Observatory (Southern Apennines), 1884–1963. Earth System Science Data, 12(2), 1467–1487

DOI dataset Montevergine (Capozzi, Vincenzo; Cotroneo, Yuri; Castagno, Pasquale; De Vivo, Carmela; Komar, Andrew; Guariglia, Riccardo; Budillon, Giorgio (2019). Sub-daily meteorological data collected at Montevergine Observatory (Southern Apennines), Italy from 1884-01-01 to 1963-12-31 (NCEI Accession 0205785). NOAA National Centers for Environmental Information. Dataset. <https://doi.org/10.25921/cx3g-rj98>).

Personal data

I authorize the processing of my personal data according to Legislative Decree 30 June 2003, n. 196 "Code regarding the protection of personal data".

Samo, 31/03/2025

Carmela De Vivo