

PERSONAL INFORMATION	Mario Adani
	Via dei Mille, 21, 40121 Bologna BO, Italy
	mario.adani@enea.it mario.adani@cmcc.it
	https://clima.sostenibilita.enea.it/en/people/mario-adani https://www.cmcc.it/people/adani-mario

WORK EXPERIENCE

12/2025-up to now:	Researcher
	Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)
	<ul style="list-style-type: none"> ▪ Research activity in air quality modelling and data assimilation systems ▪ Research activity in ocean data assimilation modeling
11/2023-11/2025:	Researcher
	Euro-Mediterranean Center on Climate Change (CMCC)
	<ul style="list-style-type: none"> ▪ Research activity in ocean data assimilation modeling
12/2012-10/2023:	Researcher
	Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)
	<ul style="list-style-type: none"> ▪ Research activity in air quality modelling and data assimilation systems ▪ Scientific Responsible for: <ul style="list-style-type: none"> • CAMEO Horizon Europe project (on going) • CAMS2_40 Copernicus programme (on going) • CAMS63 Copernicus programme(ended) • CAMS50 Copernicus programme (ended) ▪ Participation in the scientific technical committee: <ul style="list-style-type: none"> ▪ Accordo tra MATTM ministero dell'ambiente e della tutela del territorio d del mare, ENEA agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico accordo tra MATTM, ENEA, CNR l'Istituto Superiore di Sanita' per la realizzazione del "progetto di interesse comune / modellistica reti speciali / d.m. 16 ottobre 2006".
	Business or sector Public research Agency
04/2008-11/2012:	Researcher

	National Institute for Geophysics and Volcanology (INGV)
	<ul style="list-style-type: none"> Research activity in ocean wave coupling systems
	Business or sector Public research Institute
01/2008-3/2008:	Researcher
	Euro-Mediterranean Center for Climate Change. (CMCC)
	<ul style="list-style-type: none"> Research activity in ocean data assimilation systems
	Business or sector Research foundation
10/2002-09/2004:	Student fellowship
	National Institute for Geophysics and Volcanology (INGV)
	<ul style="list-style-type: none"> Ocean data analysis
	Business or sector Public research Institute

EDUCATION AND TRAINING

01/2005-12/2007

Ph.D Student in Geophisics

University of Bologna (UNIBO)

- Thesis title: Reanalysis Techniques for the numerical modelling of the Mediterranean Sea Circulation

01/1996-06/2002

Degree in Marine environmental Science

University of Bologna (UNIBO)

- Thesis title: La variabilità della circolazione nel Mare Mediterraneo tramite l'analisi multivariata della varianza (The Mediterranean sea variability using multivariate variance analysis technique)

PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2

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

Communication skills

- Good communication skills acquired during national and international projects

Job-related skills

Excellent knowledge of Unix/Linux operating system.
Excellent knowledge of programming languages as Fortran, Matlab, Python.
Discrete knowledge of NCL, GIS.
Experience in High Performance computing and parallel programming
Experience using different Numerical Models: Ocean General Circulation Model NEMO, wave model WAM and WaveWatch III, Atmospheric Model WRF and WRF-CHEM, Chemical Transport Model FARM, Regional Climate Model RegCM and data assimilation system OceanVar

**ADDITIONAL
INFORMATION**

Peer Review Publications

- Colette, A., Collin, G., Besson, F., Blot, E., Guidard, V., Meleux, F., Royer, A., Petiot, V., Miller, C., Fermond, O., Jeant, A., Adani, M., Arteta, J., Benedictow, A., Bergström, R., Bowdalo, D., Brandt, J., Briganti, G., Carvalho, A. C., Christensen, J. H., Couvidat, F., D'Elia, I., D'Isidoro, M., Denier van der Gon, H., Descombes, G., Di Tomaso, E., Douros, J., Escribano, J., Eskes, H., Fagerli, H., Fatahi, Y., Flemming, J., Friese, E., Frohn, L., Gauss, M., Geels, C., Guarnieri, G., Guevara, M., Guion, A., Guth, J., Hänninen, R., Hansen, K., Im, U., Janssen, R., Jeoffrion, M., Joly, M., Jones, L., Jorba, O., Kadantsev, E., Kahnert, M., Kaminski, J. W., Kouznetsov, R., Kranenburg, R., Kuenen, J., Lange, A. C., Langner, J., Lannuque, V., Macchia, F., Manders, A., Mircea, M., Nyiri, A., Olid, M., Pérez García-Pando, C., Palamarchuk, Y., Piersanti, A., Raux, B., Razinger, M., Robertson, L., Segers, A., Schaap, M., Siljamo, P., Simpson, D., Sofiev, M., Stangel, A., Struzewska, J., Tena, C., Timmermans, R., Tzikerdekis, T., Tsyro, S., Tyuryakov, S., Ung, A., Uppstu, A., Valdebenito, A., van Velthoven, P., Vitali, L., Ye, Z., Peuch, V.-H., and Rouil, L.: Copernicus Atmosphere Monitoring Service – Regional Air Quality Production System v1.0, EGUsphere [preprint], <https://doi.org/10.5194/egusphere-2024-3744>, 2024.
- Sofia Tagliaferro, Mario Adani, Nicola Pepe, Gino Briganti, Massimo D'Isidoro, Maira Bonini, Antonio Piersanti, Sandro Finardi, Pierpaolo Marchetti, Francesco Domenichini, Mihaela Mircea, Maria Gabriella Villani, Alessandro Marcon, Camillo Silibello. "The impact of the spatial resolution of vegetation cover on the prediction of airborne pollen concentrations over northern Italy" *Agricultural and Forest Meteorology*, 355, (2024) <https://doi.org/10.1016/j.agrformet.2024.110153>
- Adani, Mario, and Francesco Uboldi. "Data assimilation experiments over Europe with the Chemical Transport Model FARM." *Atmospheric Environment* 306 (2023): 119806. <https://doi.org/10.1016/j.atmosenv.2023.119806>
- Vitali, Lina, et al. "A standardized methodology for the validation of air quality forecast applications (F-MQO): Lessons learnt from its application across Europe." *Geoscientific Model Development*, 16, 6029-6047 (2023): 1-30. <https://doi.org/10.5194/gmd-16-6029-2023>
- Mircea, Mihaela, et al. "The Role of Vegetation on Urban Atmosphere of Three European Cities. Part 2: Evaluation of Vegetation Impact on Air Pollutant Concentrations and Depositions." *Forests* 14.6 (2023): 1255. <https://doi.org/10.3390/f14061255>
- D'Isidoro, Massimo, et al. "The Role of Vegetation on Urban Atmosphere of Three European Cities—Part 1: Evaluation of Vegetation Impact on Meteorological Conditions." *Forests* 14.6 (2023): 1235. <https://doi.org/10.3390/f14061235>
- Adani, Mario, et al. "Evaluation of air quality forecasting system FORAIR-IT over Europe and Italy at high resolution for year 2017." *Atmospheric Pollution Research* 13.6 (2022): 101456. <https://doi.org/10.1016/j.apr.2022.101456>
- Tsyro, Svetlana, et al. "Eurodelta multi-model simulated and observed particulate matter trends in Europe in the period of 1990–2010." *Atmospheric chemistry and physics* 22.11 (2022): 7207-7257. <https://doi.org/10.5194/acp-22-7207-2022>
- Michetti, Melania, et al. "Climate change and air pollution: Translating their interplay into present and future mortality risk for Rome and Milan municipalities." *Science of The Total Environment* 830 (2022): 154680. <https://doi.org/10.1016/j.scitotenv.2022.154680>
- Michetti, M., et al. "From single to multivariable exposure models to translate climatic and air pollution effects into mortality risk. A customized application to the city of Rome, Italy." *MethodsX* 9 (2022): 101717. <https://doi.org/10.1016/j.mex.2022.101717>
- Schneider R., Masselot P., Vicedo-Cabrera A. M., Sera F., Blangiardo M., Forlani C., Douros J., Jorba O., Adani M., Kouznetsov R., Couvidat F., Arteta J., Raux B., Guevara M., Colette A., Barré J., Peuch V.-H., Gasparri A. (2022) Differential impact of government lockdown policies on reducing air pollution levels and related mortality in Europe. *Sci Rep* 12, 726 . <https://doi.org/10.1038/s41598-021-04277-6>
- Barré, J., Petetin, H., Colette, A., Guevara, M., Peuch, V.-H., Rouil, L., Engelen, R., Inness, A., Flemming, J., Pérez García-Pando, C., Bowdalo, D., Meleux, F., Geels, C., Christensen, J. H., Gauss, M., Benedictow, A., Tsyro, S., Friese, E., Struzewska, J., Kaminski, J. W., Douros, J., Timmermans, R., Robertson, L., Adani, M., Jorba, O., Joly, M., and Kouznetsov, R., (2021). Estimating lockdown-induced European NO₂ changes using satellite and surface observations and air quality models, *Atmos. Chem. Phys.*, 21, 7373–7394, <https://doi.org/10.5194/acp-21-7373-2021>, 2021
- D'Elia, I. and Briganti, G. and Vitali, L. and Piersanti, A. and Righini, G. and D'Isidoro, M. and Cappelletti, A. and Mircea, M. and Adani, M. and Zanini, G. and Ciancarella, L., (2021). Measured and modelled air quality trends in Italy over the period 2003–2010, *acp*, 21, 2021, 13, 10825–10849, <https://doi.org/10.5194/acp-21-10825-2021>
- Villani M.G., Russo F., Adani M., Piersanti A., Vitali L, Tinarelli G., Ciancarella L., Zanini G,

- Donateo A., Rinaldi M., Carbone C., Decesari S., Sanger P, (2021). Evaluating the Impact of a Wall-Type Green Infrastructure on PM10 and NOx Concentrations in an Urban Street Environment, *Atmosphere*, 12, 2021, 7, 10.3390/atmos12070839, <https://www.mdpi.com/2073-4433/12/7/839>
- Ragazzola F., Kolzenburg R, Adani M., Bordone A., Cantoni C., Cerrati G, Ciuffardi T., Cocito S., Luchetta A., Montagna P., Nannini M, Page D.C., Peirano A., Raiteri G., Lombardi C., (2021). Carbonate chemistry and temperature dynamics in an alga dominated habitat, *Regional Studies in Marine Science*, 44, 2021, 101770, ISSN 2352-4855, <https://doi.org/10.1016/j.rsma.2021.101770>, <https://www.sciencedirect.com/science/article/pii/S2352485521001626>
 - Ragazzola F., Kolzenburg R., Adani M, Bordone A, Cantoni C., Cerrati C., Ciuffardi T., Cocito S., Luchetta A., Montagna P, Nannini M., Page D.C., Peirano A., Raiteri G, Lombardi C., (2021). Carbonate chemistry and temperature dynamics in an alga dominated habitat, *Regional Studies in Marine Science*, Volume 44, 2021, 101770, ISSN 2352-4855, <https://doi.org/10.1016/j.rsma.2021.101770>.
 - Adani, M.; Piersanti, A.; Ciancarella, L.; D'Isidoro, M., Villani, M.G.; Vitali, L., (2020). Preliminary Tests on the Sensitivity of the FORAIR_IT Air Quality Forecasting System to Different Meteorological Drivers. *Atmosphere* 2020, 11, 574. <https://doi.org/10.3390/atmos11060574>
 - D'Isidoro M., Briganti G., Vitali L., Righini G., Adani M., Guamieri G., Moretti L., Raliselo M., Mahahabisa M., Ciancarella L., Zanini G, Fino E., (2020). Estimation of solar and wind energy resources over Lesotho and their complementarity by means of WRF yearly simulation at high resolution, *Renewable Energy*, 158, 2020, 114-129, ISSN 0960-1481, <https://doi.org/10.1016/j.renene.2020.05.106>, <https://www.sciencedirect.com/science/article/pii/S0960148120308041>.

- Ciarelli G., Colette A., Schucht S., Beekmann M., Andersson C., Manders-Groot A., Mircea M., Tsyro S., Fagerli H., Ortiz G. A., Adani M., Briganti G., Cappelletti A., D'Isidoro M., Cuvelier C., Couvidat F., Meleux F., Bessagnet B., (2019). Long-term health impact assessment of total PM_{2.5} in Europe during the 1990–2015 period, *Atmospheric Environment*, X, 3, 2019, 100032, ISSN 2590-1621, <https://doi.org/10.1016/j.aeaoa.2019.100032>
- Theobald, M. R., Vivanco, M. G., Aas, W., Andersson, C., Ciarelli, G., Couvidat, F., Cuvelier, K., Manders, A., Mircea, M., Pay, M.-T., Tsyro, S., Adani, M., Bergström, R., Bessagnet, B., Briganti, G., Cappelletti, A., D'Isidoro, M., Fagerli, H., Mar, K., Otero, N., Raffort, V., Roustan, Y., Schaap, M., Wind, P., and Colette, A. (2019). An evaluation of European nitrogen and sulfur wet deposition and their trends estimated by six chemistry transport models for the period 1990–2010, *Atmos. Chem. Phys.*, 19, 379–405, <https://doi.org/10.5194/acp-19-379-2019>.
- Ciarelli, G., Theobald, M. R., Vivanco, M. G., Beekmann, M., Aas, W., Andersson, C., Bergström, R., Manders-Groot, A., Couvidat, F., Mircea, M., Tsyro, S., Fagerli, H., Mar, K., Raffort, V., Roustan, Y., Pay, M.-T., Schaap, M., Kranenburg, R., Adani, M., Briganti, G., Cappelletti, A., D'Isidoro, M., Cuvelier, C., Cholakian, A., Bessagnet, B., Wind, P., and Colette, A. (2019). Trends of inorganic and organic aerosols and precursor gases in Europe: insights from the EURODELTA multi-model experiment over the 1990–2010 period, *Geosci. Model Dev.*, 12, 4923–4954, <https://doi.org/10.5194/gmd-12-4923-2019>.
- Antonio Piersanti, Mario Adani, Gino Briganti, Andrea Cappelletti, Luisella Ciancarella, Giuseppe Cremona, Massimo D'Isidoro, Carmine Lombardi, Francesca Pacchierotti, Felicita Russo, Marcello Spanò, Raffaella Uccelli, Lina Vitali (2018). Air quality modeling and inhalation health risk assessment for a new generation coal-fired power plant in Central Italy, *Science of The Total Environment*, 644, 884-898, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2018.06.393>.
- Adani M., Mircea M., D'Isidoro M. and Gualtieri M., (2018) Impact of emissions, meteorology and grid resolution on changes of HMs and PAHs concentrations between 2005 and 2010 in Italy. *Aerosol and Air Quality Research*, 18:3165-3176, doi: 10.4209/aaqr.2017.08.0262.
- Vivanco, M. G., Theobald, M. R., García-Gómez, H., Garrido, J. L., Prank, M., Aas, W., Adani, M., Alyuz, U., Andersson, C., Bellasio, R., Bessagnet, B., Bianconi, R., Bieser, J., Brandt, J., Briganti, G., Cappelletti, A., Curci, G., Christensen, J. H., Colette, A., Couvidat, F., Cuvelier, C., D'Isidoro, M., Flemming, J., Fraser, A., Geels, C., Hansen, K. M., Hogrefe, C., Im, U., Jorba, O., Kitwiroon, N., Manders, A., Mircea, M., Otero, N., Pay, M.-T., Pozzoli, L., Solazzo, E., Tsyro, S., Unal, A., Wind, P., and Galmarini, S. (2018) Modeled deposition of nitrogen and sulfur in Europe estimated by 14 air quality model systems: evaluation, effects of changes in emissions and implications for habitat protection, *Atmos. Chem. Phys.*, 18, 10199–10218, <https://doi.org/10.5194/acp-18-10199-2018>.
- Otero, N., Sillmann, J., Mar, K. A., Rust, H. W., Solberg, S., Andersson, C., Engardt, M., Bergström, R., Bessagnet, B., Colette, A., Couvidat, F., Cuvelier, C., Tsyro, S., Fagerli, H., Schaap, M., Manders, A., Mircea, M., Briganti, G., Cappelletti, A., Adani, M., D'Isidoro, M., Pay, M.-T., Theobald, M., Vivanco, M. G., Wind, P., Ojha, N., Raffort, V., and Butler, T. (2018). A multi-model comparison of meteorological drivers of surface ozone over Europe, *Atmos. Chem. Phys.*, 18, 12269–12288, <https://doi.org/10.5194/acp-18-12269-2018>.
- Colette, A., Andersson, C., Manders, A., Mar, K., Mircea, M., Pay, M.-T., Raffort, V., Tsyro, S., Cuvelier, C., Adani, M., Bessagnet, B., Bergström, R., Briganti, G., Butler, T., Cappelletti, A., Couvidat, F., D'Isidoro, M., Doumbia, T., Fagerli, H., Granier, C., Heyes, C., Klimont, Z., Ojha, N., Otero, N., Schaap, M., Sindelarova, K., Stegehuis, A. I., Roustan, Y., Vautard, R., van Meijgaard, E., Vivanco, M. G., and Wind, P. (2017): EURODELTA-Trends, a multi-model experiment of air quality hindcast in Europe over 1990–2010, *Geosci. Model Dev.*, 10, 3255–3276, <https://doi.org/10.5194/gmd-10-3255-2017>
- Vitali L., Morabito A., Adani M., Assennato G., Ciancarella L., Cremona G., Giua R., Pastore T., Piersanti A., Righini G., Russo F., Spagnolo S., Tanzarella A., Tinarelli G., Zanini G. (2016) A Lagrangian modelling approach to assess the representativeness area of an industrial air quality monitoring station, *Atmospheric Pollution Research*, ISSN 1309-1042, <http://dx.doi.org/10.1016/j.apr.2016.06.002>
- Mircea, M., Grigoras, G., D'Isidoro, M., Righini, G., Adani, M., Briganti, G., Ciancarella, L., Cappelletti, A., Calori, G., Cionni, I., Cremona, G., Finardi, S., Larsen, B.R., Pace, G., Perrino, C., Piersanti, A., Silibello, C., Vitali, L. and Zanini, G. (2016). Impact of Grid Resolution on Aerosol Predictions: A Case Study over Italy. *Aerosol Air Qual. Res.* 16: 1253-1267. <https://doi.org/10.4209/aaqr.2015.02.0058>
- Adani M, Mircea M., D'Isidoro M., Costa M.P., Silibello C. (2015) Heavy Metal Modelling Study over Italy: Effects of Grid Resolution, Lateral Boundary Conditions and Foreign Emissions on Air Concentration, Water, Air, & Soil Pollution, 226:46, doi: 10.1007/s11270-

015-2324-7

- Pinardi N., Zavatarelli M., Adani M., Coppini G., Fratianni C., Oddo P., Simoncelli S.I., Tonani M., Lyubartsev V., Dobricic S., Bonaduce A., (2015). Mediterranean Sea large-scale low-frequency ocean variability and water mass formation rates from 1987 to 2007: A retrospective analysis, *Progress in Oceanography*, Volume 132, 2015, Pages 318-332, ISSN 0079-6611, <https://doi.org/10.1016/j.pocean.2013.11.003>
- Sannino G., Carillo A., Pisacane G., Adani, M., Palma M., Naranjo C., & Struglia, M. V. (2014). Mediterranean model response to enhanced resolution at Gibraltar and tidal forcing. *Black Sea/Mediterranean Environment*, 41.
- Gualdi, S., Somot, S., Li, L., Artale, V., Adani, M., Bellucci, A., Braun, A., Calmanti, S., Carillo, A., Dell'Aquila, A., Déqué, M., Dubois, C., Elizalde, A., Harzallah, A., Jacob, D., L'Hévéder, B., May, W., Oddo, P., Ruti, P., Sanna, A., Sannino, G., Scoccimarro, E., Sevault, F., & Navarra, A. (2013). The CIRCE Simulations: Regional Climate Change Projections with Realistic Representation of the Mediterranean Sea, *Bulletin of the American Meteorological Society*, 94(1), 65-81
- Adani M, Dobricic S, Pinardi N (2011). Quality Assessment of a 1985-2007 Mediterranean Sea Reanalysis. *Journal of Atmospheric and Ocean Technology*, vol. 28, p. 569-589, ISSN: 0739-0572, doi: 10.1175/2010JTECHO798.1
- Pujol, M., Dobricic, S., Pinardi, N., & Adani, M. (2010). Impact of Multi-altimeter Sea Level Assimilation in the Mediterranean Forecasting Model, *Journal of Atmospheric and Oceanic Technology*, 27(12), 2065-2082.
- Albano PG, Sabelli B., Adani M., Pinardi N., (2010). The thermophilous species *Echinolittorina punctata* as a new descriptor of tropicalization in the Mediterranean Sea-First data, *Biologia Marina Mediterranea*, 17, 1, 90-93
- Oddo, P., Adani, M., Pinardi, N., Fratianni, C., Tonani, M., and Pettenuzzo, D. (2009) A nested Atlantic-Mediterranean Sea general circulation model for operational forecasting, *Ocean Sci.*, 5, 461–473, <https://doi.org/10.5194/os-5-461-2009>.
- Dobricic, S., Pinardi, N., Adani, M., Tonani, M., Fratianni, C., Bonazzi, A., and Fernandez, V. (2007). Daily oceanographic analyses by Mediterranean Forecasting System at the basin scale, *Ocean Sci.*, 3, 149–157, <https://doi.org/10.5194/os-3-149-2007>.
- Dobricic, S., Pinardi N., Adani M., Bonazzi A., Fratianni C., and Tonani M., (2005). Mediterranean Forecasting System: An improved assimilation scheme for sea-level anomaly and its validation, *Quarterly Journal of the Royal Meteorological Society*, Volume 131, Number 613, p.3627-3642.

Book Chapters

- Ulbrich U. et al. (2013) Past and Current Climate Changes in the Mediterranean Region. In: Navarra A., Tubiana L. (eds) *Regional Assessment of Climate Change in the Mediterranean*. *Advances in Global Change Research*, vol 50. Springer, Dordrecht https://doi.org/10.1007/978-94-007-5781-3_2
- Gualdi S. et al. (2013) Future Climate Projections. In: Navarra A., Tubiana L. (eds) *Regional Assessment of Climate Change in the Mediterranean*. *Advances in Global Change Research*, vol 50. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-5781-3_3
- Pinardi N., Fratianni C. and Adani M, (2008). Usage of real time observations in an operational ocean data assimilation system: the Mediterranean case, UNESCO Volume: "Real-Time Coastal Observing Systems for Marine Ecosystem Dynamics and Harmful Algal Blooms: Theory, Instrumentation and Modelling", M.Babin, C.S. Roesler and J.J.Cullen, Unesco Publ., pp 733-763.

Mario Adani