

## PERSONAL INFORMATION

## Mario Marcello Miglietta

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- 🌐 <http://www.isac.cnr.it/en/users/mario-marcello-miglietta>

Sex Male | Date of birth 28/09/1970 | Nationality Italian

## STUDIES APPLIED FOR

## Meteorology

## WORK EXPERIENCE

12/2001 – present

**CNR badge number 8867, Director of Research, I level, III salary range**

TECHNOLOGIST from 12/2001 to 12/2006

RESEARCHER from 12/2006 to 30/09/2019

DIRECTOR OF RESEARCH from 01/10/2019 to present

Institute of Atmospheric Sciences and Climate of the Italian National Research Council (ISAC-CNR), corso Stati Uniti 4, Padova, Italy [www.isac.cnr.it](http://www.isac.cnr.it)

- Research focus: Tropical-like cyclones in the Mediterranean (Medicanes), Supercells and tornadoes, orographic precipitation
- Member of the Managing Committee of the Institute (May 2009-January 2016; September 2019-present)
- Coordinator ISAC-CNR macro-area "Observations and Models for Meteorology and Climate" since April 2019; Reference of the area for the Director since October 2019
- Main investigator and participation in several projects funded by national and international agencies
- Scientific paper preparation (92 papers published in Web-of-Science listed journals)
- Reviewer for international journals (33 journals, 128 papers)
- Editorial activity:
  - Associate Editor for Atmospheric Research; Guest Editor for Advances in Science and Research; Guest Editor for a Special Issue of Atmosphere; Member of the Editorial Board of Advances in Meteorology; Guest Editor for a Special Issue of Meteorologische Zeitschrift (over); Member of the Editorial Board of The Scientific World Journal (over); Member of the Editorial Board of Dataset Papers in Geosciences (over); Member of the Editorial Board of Bulletin of Atmospheric Science and Technology; Member of the Editorial Board of Atmosphere;
- Organization activities:
  - Member of the scientific/organizing committee in 9 summer schools organized/co-organized by ISAC-CNR, 11<sup>th</sup> HyMeX workshop, 17<sup>th</sup> Plinius Conference, Richard Rotunno Symposium, ICAM-2021
  - Convener of sessions at the European Meteorological Society (EMS) annual meeting since 2007
- Member of the steering committee of the International Conference on Alpine Meteorology (ICAM) since 2011
- Supervisor of 6 intern, 2 bachelor, 12 master, 8 PhD students
- Supervisor of 3 research fellows, 2 researchers (temporary position)
- Participation to field campaigns (HyMeX)
- Italian Habilitation as Full Professor in "Astronomy, Astrophysics, Earth and planetary physics" and in "Geophysics".
- Reviewer of project proposals for: the Czech Science Foundation; the Mardsen Fund Council of the Royal Society of New Zealand; the US National Science Foundation; the United States-Israel Binational Science Foundation, Deutsche Forschungsgemeinschaft, CONICYT-Chile; European Commission (MSCA-IF-2019); MIUR; Austrian Science Fund
- Member in 5 evaluation committee board for PhD candidates and 2 evaluation boards for associate professor
- Host of 8 foreign researchers
- Consultant in trials for the Court of Justice in Lecce, for ILVA company

Business or sector RESEARCH

- a.a. 2019-2020 **Adjunct Professor**  
Università del Salento, Lecce, Italy  
Professor in Master (2nd level) in Physical Meteorology and Oceanography:  
- Synoptic and Mesoscale meteorology (32 hours)  
- Dynamic Meteorology (32 hours)
- 01/2019-present **Italian Representative**  
IAMAS/IUGG  
**Business or sector** International Organization
- a.a. 2017-2018 **Adjunct Professor**  
Università del Salento, Lecce, Italy  
Professor in Master (2nd level) in Physical Meteorology and Oceanography:  
- Synoptic and Mesoscale meteorology (32 hours)  
- Dynamic Meteorology (32 hours)  
- Weather Forecasting (16 hours)  
**Business or sector** EDUCATION
- 01/2017 – 09/2017 **Visiting Scientist**  
Joint Research Center, Energy Efficiency and Renewables Unit, Directorate C “Energy, Transport and Climate”, Ispra, Varese, Italy  
-Assessment on the complementarity of wind and photovoltaic sources over Europe  
**Business or sector** RESEARCH
- 11/2014-11/2016 **Visiting Scientist**  
Joint Research Center, Institute for Energy and Transport, Renewable Energy Unit, Ispra, Varese, Italy  
-Assessment on the complementarity of wind and photovoltaic sources over Europe  
**Business or sector** RESEARCH
- 04/2011 - 12/2011 **Consultant**  
Joint Research Center, Institute for Environmental Sustainability, Air Quality Unit, Ispra, Varese, Italy  
-WRF model validation  
10 working days  
**Business or sector** RESEARCH
- 11/2005 - 12/2005 **Visiting scientist**  
Universidade Luterana do Brasil, Porto Alegre, Brasil  
-WRF model operational implementation  
**Business or sector** RESEARCH
- 03/2003 – 05/2015 **Visiting scientist**  
NCAR, Boulder, Colorado  
- Collaboration with Richard Rotunno in several project  
18 visits for a total of nearly 23 months  
**Business or sector** RESEARCH
- 03/2004 – 06/2004  
10/2016  
08/2017 **Visiting scientist**  
Atmosphere and Ocean Research Institute, University of Tokyo, Tokyo, Japan  
-WRF model implementation for simulation of orographic rainbands  
**Business or sector** RESEARCH
- 12/1997 – 06/1998  
12/1998 – 08/1999 **Consultant**  
FISBAT-CNR, Bologna, Italy  
-Numerical simulations of moist flows over orographic obstacles  
-Valuation of error growth and predictability of precipitation in numerical models
- 01/1994 – 01/2001  
01/2001 – 12/2001 **Air Force Officer in the Italian Weather Service**  
First period  
  - 61° Stormo - Strada Provinciale 362 – Galatina, Lecce, Italy;  
Aviation weather nowcast and forecast;Second period  
  - National Center for Aeronautic Meteorology and Climatology, Aeroporto "Mario De Bernardi", Pratica di Mare, Rome, Italy, Aviation weather forecast;  
Validation of the High Resolution Model (HRM) over Italy**Business or sector** MILITARY

EDUCATION AND TRAINING

- 11/1996 – 12/1999 **PhD in Physics**  
University of Lecce, Italy
  - Use of a meteorological limited area model for the simulation of moist flow over orography
  
- 01/1994 – 04/1994 **Specialization Course in Meteorology and Atmospheric Physics**  
Italian Air Force Training Center, Pratica di Mare, Italy
  - Training for weather forecaster (equivalent to Weather Meteorological Organization level II)
  
- 11/1988 – 07/1993 **Master Degree in Physics**  
University of Lecce, Italy
  - General Physics
  - The thesis was on an application of quantum groups to matter physics
  - Votation: 110/110 with laude

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
	English	C1	C1	C1	C1
French	A1	A1	A1	A1	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user  
Common European Framework of Reference for Languages

- Communication skills
  - Strong-to-very strong communication skills (as from EU Competency Passport) gained through the experience as aviation weather forecaster (daily oral briefings), as a university professor, and as a chairman and speaker in several conferences and in summer schools
  - natural attitude to work as a team member
  
- Organisational / managerial skills
  - Strong resilience (as from EU Competency Passport)
  - prioritizing (organization of work tasks proceeding with different levels of priority)
  - leadership (coordinator of research are; P.I. in projects and supervisor in several thesis)
  
- Job-related skills
  - experience in numerical meteorological modelling, in handling large datasets, in operational forecasting
  - experience in project management
  
- Computer skills
  - good knowledge and skills of Fortran 77 and 90, used to modify and/or debug numerical models, and to develop new programs
  - experience in handling large datasets in Netcdf and grib format
  - good knowledge of GrADS and Vapor, and experience with other graphical packages such as NCAR Graphics, VIS5D and RIP
  - ability to work on various platforms (Windows, Mac, Linux)
  - familiarity with scripting languages (Unix)
  - basic level use of IDL
  - GRASS GIS
  
- Other skills
  - cooking
  - running

Driving licence ▪ B

## ADDITIONAL INFORMATION

ISI Thompson: H-Index: 24  
ISI Thompson: Sum of the times cited: 1391  
Google Scholar: H-index: 28  
Google Scholar: Sum of the times cited: 2015

## PUBLICATIONS

Only web-of-science listed journals  
(2018-2020 only)

- Mesbahzadeh T.; A. Salajeghe, F. Soleimani Sardoo, G. Zehtabian, A. Ranjbar, N. Y. Krakauer, Miglietta M.M., M. Mirakbari, Climatology of Dust Days in the Central Plateau of Iran, *Natural Hazards*, <https://doi.org/10.1007/s11069-020-04248-6>;
- Rizza U., E. Canepa, M. M. Miglietta, G. Passerini, M. Morichetti, E. Mancinelli, S. Virgili, G. Besio, F. De Leo, A. Mazzino, Evaluation of drag coefficients under Medicanes conditions: coupling waves, sea spray and surface friction, *Atmos. Res.*, 2020, in press;
- Manzato A., Riva V., Tiesi A., Miglietta M.M., Analysis of the 4 July 2007 hailstorm in NE Italy, *Q. J. Roy. Meteor. Soc.*, 2020, <https://doi.org/10.1002/qj.3886>
- Davolio S., S. Della Fera, S. Laviola, M. M. Miglietta, V. Levizzani, An atmospheric river in the Mediterranean basin: the 29 October 2018 "Vaia" storm over Italy, *Mon. Wea. Rev.*, 148 (9), 3571-3588, <https://doi.org/10.1175/MWR-D-20-0021.1>
- Avolio, E., Peynaud, L., Nisi, L., Panziera L., Miglietta, M. M., A multi-sensor and modeling analysis of a severe convective storm in Lake Maggiore area (northwestern Italy), *Atmos. Res.*, 242, XX-XX; <https://doi.org/10.1016/j.atmosres.2020.105008>;
- Mesbahzadeh T.; A. Salajeghe, F. Soleimani Sardoo, G. Zehtabian, A. Ranjbar, Miglietta M.M., S. Karami, N. Y. Krakauer, Spatial-temporal variation characteristics of Vertical Dust Flux simulated by WRF-Chem model with GOCART and AFWA dust emission schemes (case study: Central Plateau of Iran), *Appl. Sci.*, 10 (13), 4536, 2020; doi:10.3390/app10134536
- Ingresso R., Lionello P., Miglietta M. M., Salvadori G., A statistical investigation of mesoscale precursors of significant tornadoes: the Italian case study, *Atmosphere*, 2020, 11, 301, doi:10.3390/atmos11030301
- Rizza U., E. Mancinelli, E. Canepa, J. Piazzola, T. Missamou, C. Yohia, M. Morichetti, S. Virgili, G. Passerini, M. M. Miglietta, WRF sensitivity analysis in wind and temperature fields simulation for the Northern Sahara and the Mediterranean basin to model dust and sea spray emissions, *Atmosphere*, 11(3), 2020, 10.3390/atmos11030259
- Mesbahzadeh T.; M. Mirakbari; F. Soleimani Sardoo; M.M. Miglietta; N. Krakauer; N. Alipour, Observed and Projected Trends of Extreme Precipitation and Maximum Temperature Using REMO Model and Copula Theory during 1992-2100 in Isfahan Province, Iran, *Natural Resource Modeling*, e12254, 10.1111/nrm.12254;
- Pucillo A., Miglietta M.M., Lombardo K., Manzato A., Application of a simple analytical model to the study of a bow echo-like storm in Northeastern Italy, *Met. Appl.*, 27, e1868, 1-18, 2020, 10.1002/met.1868;
- Miglietta M.M., Arai K., Kusunoki K., Inoue H., Adachi T. Niino H., Observational analysis of two waterspouts in northwestern Italy using an OPERA Doppler radar, *Atmos. Res.*, 234, 10.1016/j.atmosres.2019.104692;
- Mesbahzadeh T., M. Mirakbari, Mohseni Saravi M., F. Soleimani Sardoo, M.M. Miglietta, Meteorological drought analysis using copula theory and drought indicators under climate change scenarios (RCP), *Meteorol Appl.*, 27, e1856, 2020, <https://doi.org/10.1002/met.1856>;
- Mesbahzadeh T., M. M. Miglietta, M. Mirakbari, F. Soleimani Sardoo, M. Abdolhoseini, Joint Modelling of Precipitation and Temperature using Copula theory for current and future prediction under climate change scenarios in arid lands (case study, Kerman province, Iran), *Advances in Meteorology*, Volume 2019, Article ID 6848049, 15 pages, <https://doi.org/10.1155/2019/6848049>;
- Miglietta M.M., Editorial, Mediterranean tropical-like cyclones (Medicanes), *Atmosphere* 2019, 10 (4), 206; doi:10.3390/atmos10040206;
- Ricchi A., M. M. Miglietta, D. Bonaldo, G. Cioni, U. Rizza, and S. Carniel, Multi-physics ensemble versus atmosphere-ocean coupled model simulations for a Tropical-Like Cyclone in the Mediterranean Sea, Special Issue Mediterranean Tropical-like cyclones (Medicanes), *Atmosphere* 2019, 10 (4), 202, doi:10.3390/atmos10040202, 2019;
- Miglietta M.M., Rotunno R., Development mechanism of Mediterranean tropical-like cyclones (Medicanes), *Q. J. Roy. Meteor. Soc.*, 145, 1444-1460, 2019; doi:10.1002/qj.3503;
- Tateo A., Miglietta M.M., Fedele F., Menegotto M., Pollice A., Belotti R., A statistical method based on Ensemble probability density function for the prediction of "Wind Days", *Atmo. Res.*, 216, 106-116, 2019;
- Pytharoulis I., S. Kartsios, I. Tegoulas, H. Feidas, M. M. Miglietta, I. Matsangouras, T. Karacostas, Sensitivity of a Mediterranean tropical-like cyclone to physical parameterizations, *Atmosphere*, Special Issue Mediterranean Tropical-like cyclones (Medicanes), 9 (11), 436, 2018; <https://doi.org/10.3390/atmos9110436>;
- Rizza U., Canepa E., Ricchi A., Bonaldo D., Carniel S., Morichetti M., Passerini G., Santiloni L., Scremin Puhales F., Miglietta M.M., Influence of wave state and sea spray on the roughness length: feedbacks on Medicanes, *Atmosphere*, 9(8), 301, Special Issue Mediterranean Tropical-like cyclones (Medicanes), 2018, <https://doi.org/10.3390/atmos9080301>;
- Gaertner M. A., J. J. Gonzalez-Aleman, R. Romera, M. Dominguez, V. Gil, E. Sanchez, C. Gallardo, M. M. Miglietta, K. Walsh, D. Sein, S. Somot, A. dell'Aquila, C. Teichmann, B. Ahrens, E. Buonomo, A. Colette, S. Bastin, E. van Meijgaard, G. Nikulin, Simulation of medicanes over the Mediterranean Sea in a regional climate model ensemble: impact of ocean-atmosphere coupling and increased resolution, *Climate Dynamics*, 51, 1041-1057, 2018, doi:10.1007/s00382-016-3456-1;
- Miglietta M., Matsangouras I., An updated "climatology" of tornadoes and waterspouts in Italy, *International Journal of Climatology*, 38, 3667-3683, 2018, <https://doi.org/10.1002/joc.5526>
- Rizza U., M. M. Miglietta, C. Mangia, P. Ielpo, M. Morichetti, C. Iachini, S. Virgili, G. Passerini, Sensitivity of WRF-Chem model to land surface schemes: Assessment in a severe dust outbreak episode in the Central Mediterranean (Apulia Region), *Atmos. Res.*, 201, 268-280, 2018, 10.1016/j.atmosres.2017.10.022;
- J. Mazon, J. I. Rojas, M. Lozano, D. Pino, X. Prats, and M. Miglietta, Influence of meteorological phenomena on worldwide aircraft accidents in the period 1967-2010, *Meteorological Applications*, 24(5), 236-245, 2018; DOI: 10.1002/met.1686;

## Projects (only P.I.)

P.I. project "Forecast of meteorological fields in the Otranto Strait" within the Executive Program of implementation for the period 2005-2007 of the cooperation programme in science and technology between the Government of the Italian Republic and the Government of the Republic of Albania (duration: 24 months); funds: 2 scientific visits;

Responsible for the activities of dynamic meteorology for ISAC-CNR in the project "RISK AWARE", European program INTERREG IIBB - area CADSES (2004-2006), coordinator of activity 1.07 "Selection of meteorological models and methodologies for different scenarios"; period of activity: 01/01/2004-31/12/2006; total project funding: 2,801 M€ (co-funding: 1,451 M€); funding for ISAC-CNR unit: 198 k€;

P.I. for CNR-ISAC of the Project "CLIMESCO" funded by the Italian Integrated Special Fund for Research as part of the Strategic Programme "Sustainable development and climate change" and of the Project Objective "Simulations, diagnosis and predictions of climate change" (lead agency: CRA - Agronomic Research Institute); total funding: 2,352 M€, funding for ISAC-CNR: 239 k€; Head of research line 2 – Climate Change; Operating Period: from 20/10/2006 to 31/12/2010;

Responsible of Task 3 (meteorological modeling and data assimilation) in the MIUR Project n. 245 "Development of an Integrated system using Numerical models, Instrumentation and Advanced Technologies for the Study and Forecast of the Transport and Diffusion of pollutants in the atmosphere", funded by the Italian Ministry of Education, University and Research (MIUR), decree of the General Director n. 1406, 28/5/2004 (period of activity: 22/5/2004-22/1/2008); funding for the whole project: 375 k€; funding for Task 3: 31 k€;

P.I. for ISAC-CNR of the Project "RISKMED", INTERREG III B ARCHIMED region; total funds: 993 k€; funding for ISAC-CNR: 300 k€; member of the Scientific Committee of the project (duration: 01/06/2006 - 30/11/2008);

Scientific Leader of WP4 " Limited Area Meteorological Modeling" in the Strategic Project PS080 "Advanced nowcasting using grid and gis tools" as part of the program of scientific research of Puglia region; total funding: 990 k€, funding for WP4: 155 k€; member of the Scientific and Technical Committee and of the Committee for the training of young researchers (duration: from 4/4/2008 to 11/10/2010);

P.I. in the research contract n. 1400005194 "Implementing a multi-model system for forecasting meteorological fields - in particular wind on a wind farm site" funded by ENEL, funding: 30 k€ (duration: 4 months since September 2007);

Responsible for the Italian activities in the project HyMeX-COOP, ENVI-Med 2012, as part of the activities of Mistrals metaprogram funded by the Ministry of Foreign and European Affairs of the French government (period of activity: 2013-2014); total funding of the project: 20k€; funds for ISAC-CNR: 2 scientific visits;

P.I. of the Italy-Japan bilateral cooperation project (CNR-JSPS) "Comparison of tornadic supercells and their environmental conditions in Japan and Italy" (duration: 1/6/2016-31/12/2017); total funding for ISAC-CNR:16 k€;

P.I. for ISAC-CNR of the CEASELESS project, Horizon 2020 Framework Program, Call H2020-EO-2016, EO-3-2016 Topic: Evolution of Copernicus services, Type of action: Research and Innovation action; total funding for the project: 1,99 M€; funding for ISAC-CNR: 65 k€ (period of activity: 01/11/2016-in progress);

P.I. of the Agreement between ARPA-Puglia and ISAC-CNR for cooperation concerning weather activities, 22/07/2013 - 21/07/2015;

P.I. of the Agreement between ARPA Friuli Venezia Giulia and ISAC-CNR for cooperation concerning weather activities, 26/01/2016 - 25/01/2021;

P.I. of the Agreement with TerrSafeLab Enterprise (Higher Education and Applied Research in Territory Safety Innovation Lab) for cooperation concerning weather activities in the field of nowcasting (duration: 13/06/2016-12/06/2019);

P.I. of the Operating Agreement for Teaching and Research Activities between ISAC-CNR and the University del Salento (25/01/2017-06/08/2018).

P.I. for the Italian part of the research project entitled "High-resolution numerical simulations of tornadoes for using artificial intelligence", funded by Meteorological Research Institute (MRI), Japan Meteorological Agency for developing a "Detection method of tornado-spawning mesocyclones using a machine learning technique", Public/Private R&D Investment Strategic Expansion Program (PRISM) sponsored by Cabinet Office of Japan.

## ADDITIONAL EXPERIENCE AND AWARDS

Lecturer in courses held at:

- corso di "Meteorologia Ambientale", 28 - 31 May 2001 in IIA-C.N.R., Montelibretti (Roma), (topic: "3D diagnostic and prognostic meteorological models" (2 hours)
- Universita' del Salento (2005, 2006, 2008) (10,10, 16 hours)
- ARPA Puglia (2006, 2014) (12 and 94 hours)
- Centro Funzionale Protezione Civile Valle d'Aosta (2014-2015) (35 hours)
- Centro Funzionale Protezione Civile Friuli Venezia Giulia (2015) (16 hours)
- Training schools on "Convective and volcanic clouds detection, monitoring and modeling" (topics: Orographic convection and Medicanes), Castiglione del Lago, Italy, 2015, Tarquinia, Italy, 2016 and 2017, Nicolosi, Italy, 2018, 2019; (4, 6, 6, 10, 6 hours)
- Training school "EASI- Exploring Air-Sea interaction via airborne measurements", Shannon (Ireland), 2017 (3 hours)

Teaching experience also at:

- Università di Bologna (2016, 2017, 2018, 2019) (4, 4, 10, 4 hours)
- Università di Ferrara (2007) (10 hours)
- OSMER, Friuli Venezia Giulia (2014) (1.5 hours)

## AWARDS

- Outstanding contribution in reviewing for Atmospheric Research (2014 and 2017)
- ['Effect of a positive Sea Surface Temperature anomaly on a Mediterranean tornadic supercell'](#) has been selected as one of the top 100 read Earth sciences papers for Scientific Reports in 2017;
- Premio MeteoClima FVG of the Unione Meteorologica Friuli Venezia Giulia for the best paper on the weather of the region in the last 5 years.

18 September 2020