

EUROPEAN CURRICULUM VITAE

PERSONAL INFORMATION

Name **Agostino Manzato**



Personal address **I-34170 Gorizia (GO)
Italy**

Office address **via Natisone, 43
I-33057 Palmanova (UD)
Italy**

Telephone **+39 0432 926843**

E-mail **agostino.manzato at osmer.fvg.it**

Nationality **Italian**

Civil Status **married**

Date of birth **16.08.1968**

WORK EXPERIENCE

- Dates (from – to) **01.07.2000 - now**
- Name of organization **Agenzia Regionale per la Protezione dell'Ambiente - Osservatorio Meteorologico Regionale
Regional Agency for Environmental Protection - Regional Meteorological Observatory**
- Type of organization **Public agency**
- Organization addresses **OSMER – ARPA FVG
via Natisone, 43
I-33057 Palmanova (UD)
Italy
Tel. +39 0432 926843**
- Type of business or sector **Meteorology**
- Position held **Meteorologist in permanent position**

- Main activities
 - radio-sounding analysis and atmosphere instability evaluation;
 - thunderstorm, rain and hail forecasting using Neural Networks and CNN;
 - linear and non-linear downscaling and statistical adaptation;
 - forecast verification for binary and continuous variables;
 - visualization of meteorological data for real time and case studies;
 - satellite analysis and instability evaluation of IASI vertical retrievals.
- Dates (from – to) **20.11.1996 - 30.06.2000**
- Name of organization Centro Servizi Agrometeorologici
Center for Agrometeorological Services
- Organization addresses CSA
Via Carso, 3
I-33052 Cervignano del Friuli (UD)
Italy
- Type of organization Public agency
- Type of business or sector Meteorology, weather forecasts
 - Position held Meteorologist in permanent position
 - Note I started working in the “*Thunderstorm and Hail Prevention Research Center*”, under the scientific direction of dr. Griffith Morgan. “CSA” became “OSMER – ARPA FVG” on 01.07.2000

EDUCATION AND TRAINING

- Dates **23.02.1994**
- Name of organization Università degli Studi di Padova
Padua University - Italy
- Subject Laurea in fisica
Degree in physics
- Title of qualification awarded Dottore in fisica (104/110)
Italian university degree in Physics (104/110)
- Further information Thesis titled: *Numerical simulations of the origin of the structures in the large scale universe*, prof. Sabino Matarrese relator and dr. Lauro Moscardini co-relator.

SCHOOLS AND WORKSHOPS

- Dates **October 1997**
- Name of organization HMZ - EUMETSAT - Ljubljana - Slovenia
- Subject Satellite meteorology and numerical weather prediction workshop
- Dates **April - May 1998**
- Name of organization NSSL, SPC and Oklahoma State University in Norman OK and NCAR in Boulder CO - USA
- Subject I made a one month long "training visit" to these important US Meteorological Centers where I met many researchers (H. Brooks, C. Doswell, D. Zrnica; J. Dye, C. Knight, J. Corbett,...)
- Dates **June 1998**
- Name of organization International Centre for Theoretical Physics - Trieste - Italy
- Subject Summer colloquium on the physics of the weather and climate “The effect of the topography on the atmospheric circulation” (featuring also prof. F. Mesinger)
- Dates **June 1999**

Name of organization	NCAR, Boulder CO - USA
Subject	Summer Colloquium on Ice formation in the Atmosphere (featuring also prof. W. Al Cooper)
Dates	February 2000
Name of organization	Meteo France – Toulouse, France
Subject	First Conference on European Tornadoes and Severe Storms
Dates	December 2000
Name of organization	ZAMG, EUMETNET, Vienna - Austria
Subject	First Short-range numerical weather prediction workshop on Statistical Adaptation
Dates	June - July 2002
Name of organization	ISAC, CIMA, University of Genoa and Basilicata University, Saint-Oyen (Aosta) - Italy
Subject	Grand Combin Summer School on Physics and Predictability of Rainfall and Floods (featuring also prof. K. Emanuel)
Dates	August 2002
Name of organization	CHMI, EMS, Prague – Czech Republic
Subject	Second European Conference on Severe Storms
Dates	July 2004
Name of organization	University of Trento, Trento - Italy
Subject	Summer School on Mountain Meteorology "Orographic Effects on Precipitation" (featuring also dr. R. Rotunno)
Dates	November 2004
Name of organization	University of León, INM, EMS, León - Spain
Subject	Third European Conference on Severe Storms,
Dates	June 2005
Name of organization	ZAMG, EUMETNET, Vienna - Austria
Subject	Third Short-range numerical weather prediction workshop on Statistical Adaptation
Dates	July 2005
Name of organization	CISM, OSMER, Udine - Italy
Subject	CISM Advanced School on Atmospheric Convection: Research and Operational Forecasting Aspects (featuring also prof. P. Markowsky)
Dates	January 2006
Name of organization	American Meteorological Society, Atlanta (GE) - USA
Subject	Short Course on Artificial Intelligence Applications to Environmental Science (featuring also prof. C. Marzban)
Dates	January 2006
Name of organization	American Meteorological Society, Atlanta (GE) - USA
Subject	86th AMS Annual Meeting
Dates	September 2007
Name of organization	EUMETSAT, ICTP, Trieste - Italy
Subject	EUMETSAT Training Workshop on Interpretation of Satellite Images/Products of Convective Storms (featuring also prof. D. Rosenfeld)
Dates	September 2007
Name of organization	OSMER, ICTP, EMS, Trieste - Italy
Subject	Fourth European Conference on Severe Storms
Dates	May 2008
Name of organization	SAR, ARPA Sardegna, ISAC, Alghero - Italy
Subject	Third Mediterranean School on Mesoscale Meteorology: "Fundamentals and applications of

probabilistic forecasts and Ensemble Prediction Systems" (featuring also dr. T. Hamill)

Dates	November 2008
Name of organization	ICTP, Trieste - Italy
Subject	Conference on Teleconnections in the Atmosphere and Oceans
Dates	October 2009
Name of organization	EUMETSAT, Landshut - Germany
Subject	Convection Working Group Workshop
Dates	October 2009
Name of organization	ESSL, Landshut - Germany
Subject	Fifth European Conference on Severe Storms
Dates	June 2010
Name of organization	ISAC - CNR, Bologna - Italy
Subject	Fourth HyMeX workshop
Dates	July 2010
Name of organization	ZAMG, Wien - Austria
Subject	INCA-CE Workshop
Dates	March 2011
Name of organization	EUMETSAT, Darmstadt - Germany
Subject	Evaluating atmospheric instability from high spectral resolution IR satellite observations (featuring dr. P. Antonelli)
Dates	October 2011
Name of organization	Baleari University, Palma de Mallorca - Spain
Subject	Sixth European Conference on Severe Storms
Dates	March 2012
Name of organization	EUMETSAT, Prague – Czech Republic
Subject	Convection Working Group Meeting
Dates	September 2012
Name of organization	CNR-ISAC, Castro Marina – Italy
Subject	Fourth ISAC Summer School: "Severe Convection Weather: Theory and Applications" (featuring also prof. E. Fedorovich)
Dates	April 2013
Name of organization	OSMER – ZAMG, Grado - Italy
Subject	Sixth INCA-CE meeting and EUMETNET-Nowcasting Activity joint session (featuring also dr. P. Nurmi)
Dates	June 2013
Name of organization	Univ. Ljubljana – ARSO, Kranjska Gora - Slovenia
Subject	32nd ICAM International Conference on Alpine Meteorology
Dates	August 2013
Name of organization	CISM – ISAC, Udine - Italy
Subject	The Fluid Dynamics of Climate (featuring also prof. M. Ghil)
Dates	March 2014
Name of organization	OSMER – ISAC, Visco - Italy
Subject	Previsioni di Limited Area Model in casi di Severe Weather (featuring also dr M. M. Miglietta)
Dates	April 2014
Name of organization	EUMETSAT – DMHZ, Zagreb - Croatia
Subject	Convection Working Group Meeting

Dates	April 2014
Name of organization	ZAMG, Vienna – Austria
Subject	First European Nowcasting Conference
Dates	April-May 2014
Name of organization	European Geosciences Union, Vienna – Austria
Subject	EGU conference
Dates	June 2014
Name of organization	OCCC - Bern University, Bern – Swiss
Subject	First European Hail Workshop (invited talk)
Dates	September 2015
Name of organization	Innsbruck University, Innsbruck – Austria
Subject	33rd ICAM International Conference on Alpine Meteorology
Dates	September 2015
Name of organization	ESSL, Wiener Neustadt – Austria
Subject	Eighth European Conference on Severe Storms
Dates	April 2016
Name of organization	EUMETSAT – Aeronautica Militare, Florence – Italy
Subject	Convection Working Group Meeting
Dates	June 2016
Name of organization	CNR-ISAC, Castro Marina – Italy
Subject	Sixth ISAC Summer School: “Advances in severe weather analysis: models and observations” (featuring also prof. H. Bluestein)
Dates	September 2016
Name of organization	UMFVG, ICTP, Trieste - Italy
Subject	EMS – ECAC conference
Dates	April 2017
Name of organization	OCCC – Bern University, Bern - Swiss
Subject	Second European Hail Workshop (scientific committee member)
Dates	September 2017
Name of organization	DHMZ Croatia, ESSL– Pula - Croatia
Subject	Ninth European Conference on Severe Storms
Dates	October 2017
Name of organization	NERSC, CINFAI, ISAC – CNR headquarters, Bologna - Italy
Subject	Numerical Modeling, Predictability and Data Assimilation in Weather, Ocean and Climate
Dates	April 2018
Name of organization	EUMETSAT – ARSO, Ljubljana - Slovenia
Subject	Convection Working Group Meeting
Dates	May 2018
Name of organization	ISAC - CNR, Lecce - Italy
Subject	11 th HyMeX workshop
Dates	August 2019
Name of organization	Uni. Innsbruck and Uni. Trento, Rovereto - Italy
Subject	First TEAMx workshop
Dates	September 2019
Name of organization	Uni. TN, Riva del Garda - Italy
Subject	35th ICAM conference

Dates	November 2019
Name of organization	IMGW, ESSL– Krakov – Poland
Subject	Tenth European Conference on Severe Storms - ECSS
Dates	March 2021
Name of organization	KIT, Uni. Bern, online from Karlsruhe - Germany
Subject	3rd European Hail Workshop (online)
Dates	June 2021
Name of organization	MeteoSwiss, ETH Zurich – online only from Swiss
Subject	ICAM Online Event
Dates	March 2022
Name of organization	ZAMG – online only from Vienna
Subject	4th European Nowcasting Conference, ENC2022 (online)
Dates	May 2022
Name of organization	EUMETSAT – OMSZ, Budapest – Hungary
Subject	Convection Working Group Meeting (on site)
Dates	Jan-Apr 2023
Name of organization	ECMWF - IFAB, online only
Subject	Successfully completed the Machine Learning in Weather & Climate course (MOOC 40h)
Dates	May 2023
Name of organization	MeteoRomania, ESSL, Bucharest – Romania
Subject	Eleventh European Conference on Severe Storms - ECSS (on site)
Dates	June 2023
Name of organization	MeteoSwiss, online or onsite at St. Gallen - Swiss
Subject	36th ICAM conference (online)
Dates	July 2023
Name of organization	CNR-ISAC, Castro Marina – Italy
Subject	IX ISAC Summer School: “The challenge of precipitation prediction” (featuring also prof. R. Rotunno)
Dates	March 2024
Name of organization	KIT, Uni. Bern, Karlsruhe – Germany
Subject	4rd European Hail Workshop (on site)
Dates	April 2024
Name of organization	Eumetsat, CHMI, Prague – Czeck Republic
Subject	Convection Working Group and MTG Forum meeting (on site)
Dates	June 2024
Name of organization	Politecnico Torino, CISM, Udine – Italy
Subject	CISM Advanced Course “Microphysics of Atmospheric Clouds” (featuring also prof. W. Grabowsky, and A. Eckman)

PERSONAL SKILLS AND COMPETENCES

MOTHER TONGUE **ITALIAN**

OTHER LANGUAGES

ENGLISH

- Reading skills Very good
- Writing skills Very good
- Verbal skills Good

SLOVENIAN

- Reading skills Good
- Writing skills Sufficient
- Verbal skills Sufficient

ORGANIZATIONAL SKILLS,
REVIEW AND MEMBERSHIP

On 18 September 2002 I have organized Seminar on Orographic Precipitations with dr. R. Rotunno and prof. R. Steinacker at OSMER; on 18 March 2014 I have organized a Seminar on Severe Weather Local Area Model forecasts with dr. Mario Marcello Miglietta and Silvio Davolio at OSMER.

On 17 January 2024 I have organized a Seminar on Convection with dr Jun-Ichi Yano (MeteoFrance and CNRS) and prof. Mario Marcello Miglietta (Univ. Bari) at OSMER.

I have made reviews of scientific papers for many journals, including also *Journal of Geophysical Research*, *Atmospheric Research*, *Journal of Applied Meteorology and Climatology*, *Journal of the Atmospheric Sciences*, *Quarterly Journal of the Royal Meteorological Society*, *Atmospheric Science Letters*, *Meteorological Applications*, *Theoretical and Applied Climatology*, *Meteorology and Atmospheric Physics*, *Nature NPJ Climate and Atmospheric Science*, *International Journal of Climatology*, *Natural Hazards and Earth System Sciences*, *PLOS ONE*, *Bulletin of Atmospheric Science and Technology* and *Atmosphere MDPI*.

From 22/2/2016 to 21/2/2017, from 2/10/2019 to 1/10/2022 and from 10/11/2022 to 27/01/2024 I was also associated to ISAC-CNR.

In 2024 I become Associate Editor of the *Weather and Forecasting journal*.

I'm member of the EUMETSAT *Convective Working Group* and of the *EUMETNET-NOWCASTING Activity group*.

TEACHING EXPERIENCE

In 2003-2005 I was lecturer for the Applied Meteorology course at the University of Udine - Italy in the frame of the Computational Physics laurea (Master degree).

In 2006 I was tutor of a student during his thesis work in the frame of the master degree in Mathematics at the University of Udine - Italy.

On 17/11/2015 I was invited by ARPA Veneto to hold a seminar on atmosphere instability and sounding-derived instability indices in Teolo (PD).

On 04/10/2016 I was invited by ARPA Liguria to hold a seminar on nowcasting techniques in Genova.

In 2017 I was tutor of a student during his thesis work on hailpads analysis in the frame of the bachelor degree in Environmental Sciences at the University of Udine - Italy.

In 2018 and 2019 I was tutor of two students of the Udine University (Department of Mathematics, Computer Science and Physics) during their thesis on thunderstorm forecasting with convolutional neural networks (CNN) and analogue methods (AtmoSwing).

On 7/11/2017 I was invited by Istituto Cavanis of Venice to hold an advance meteorology course on the thermodynamic profile of the atmosphere.

On 20/03/2018 I was invited to hold a seminar on atmosphere instability at CETEMPS – University of L'Aquila (Italy).

During 3-7/07/2023 I was invited to hold three lectures on “Heavy rain, hailstorms, and lightning in Alpine areas” at the IX CNR-ISAC Summer School “The challenge of precipitation prediction” in Castro Marina (Lecce, Italy).

TECHNICAL SKILLS AND COMPETENCES	<p>Computer knowledge at good level (like system administrator): Linux (RedHat, SuSe, Ubuntu), Unix (SGI Irix), Windows (98, XP, Vista, 7, 10).</p> <p>Programming languages at good level: Python, Pytorch, Shell Script (BASH, TCSH), R (statistical language). I used to program in Fortran and C many years ago.</p> <p>Software tools and packages: ZEBRA (NCAR visualization tool for GRIB and NetCDF data), SatSignal (for MeteoSat and MSG data), MSG_RGB, HTDIG (search engine), LaTeX, OpenOffice, GIMP, PhotoShop, GIMP.</p> <p>I have experience on stepwise regression and Artificial Intelligence techniques (e. g. Neural Networks and Convolutional NN) applied to meteorological forecast problems.</p> <p>In 2023 I successfully completed the Machine Learning in Weather & Climate course (MOOC up to 40 hours) organized online by ECMWF and IFAB.</p> <p>I manage the data format conversion in GRIB (using Lats library and CDO) and NetCDF.</p> <p>I manage the OSMER internal Intranet. I'm a skilled photograph (analog and digital).</p>
PUBLIC SELECTION AND CALL MEMBER	<p>In October and November 2003 I was commissioner in a public call to select some physicist employees for ARPA FVG.</p> <p>In June 2009 I was commissioner in a public call to select 5 physicist employees for ARPA FVG.</p> <p>In June 2009 I was commissioner in a public call to select one mathematic employee for ARPA FVG.</p> <p>In December 2010 I was commissioner in a public call to select one physicist employee for ARPA FVG (INCA-CE project).</p> <p>In December 2018 I was commissioner in a public call of FVG Civil Protection to select a private company for restoring the Fossalon di Grado dual Doppler radar.</p> <p>In August 2020 I was commissioner in a public call to select three physicist employees for ARPA FVG.</p> <p>In October 2021 I was commissioner in a public call to select one meteorologist employee for ARPA FVG.</p> <p>In December 2023 I was commissioner in a public call to select one meteorologist employee for ARPA FVG.</p>
BIBLIOMETRIC INDICES	<p>More than 30 scientific articles with more than 1000 citations.</p> <p>H-Index=21 (Google Scholar). Research Gate Research Interest Score= 520.</p>
AVARDS	<p>"Heino Tooming" award at ECSS 2023 for pan-European collaboration in the severe storms research community for the work: Kopp J.; Manzato A.; Martius O.; Germann U. and A. Hering: <i>"Unique observational data from an automatic hail sensors network in Switzerland"</i></p>

FURTHER DETAILS OF THE CURRENT
ACTIVITY

Forecasting severe weather with sounding-derived indices and Artificial Neural Network or CNN:

I have used the sounding-derived indices as input of ANN ensemble for short-range forecast of thunderstorm and rain occurrence and intensity. I have applied the same methodology to ECMWF model-derived pseudo-indices and also to the hail problem.

I have evaluated the thunderstorm forecasting skill of a system based on IASI satellite-derived data. Recently, I'm testing Convolutional Neural Networks in a Pytorch environment for forecasting lightning activity.

Downscaling:

I have supervised a mathematic student during his thesis on downscaling of maximum and minimum daily temperatures from ECMWF data using a linear multiregression (MOS).

Forecast Verification:

I'm particularly interested in verification of the binary (or multi-categorical) classifiers using the Signal Detection Theory and in particular the maximum Pierce Skill Score. I'm also interested in combining classifiers in ensemble (bagging, boosting, MV,...).

Climatology:

In the last period, I studied the climatology of convective initiation from lightning data in the Alpine domain and the climatology of hailstones in NE Italy from hailpads..

- SCIENTIFIC PUBLICATIONS
- The June 4th 1999 severe weather episode in San Quirino, Italy: a tornado event?. R. Bechini, Giajotti, D., Manzato, A., Stel, F., Micheletti, S. - *Atmos. Res.*, 2001, 56, 213-232
 - A climatology of instability indices derived from Friuli Venezia Giulia soundings, using three different methods. Manzato, A. - *Atmos. Res.*, 2003, 67-68, 417-454
 - An interesting case of tornado in Friuli-Northeastern Italy. Bertato, M., Giajotti, D., Manzato, A., Stel, F. - *Atmos. Res.*, 2003, 67-68, 3-21
 - Evaluating the sounding instability with the Lifted Parcel Theory. Manzato, A., Morgan Jr., G. M. - *Atmos. Res.*, 2003, 67-68, 455-473
 - An odds ratio parameterization for ROC diagram and skill score indices. Manzato, A. - *Weather and Forecasting*, 2005, 20, 6, 918-930
 - The use of sounding derived indices for a neural network short-term thunderstorm forecast. Manzato, A. - *Weather and Forecasting*, 2005, 20, 6, 896-917
 - A Note on the Maximum Peirce Skill Score. Manzato, A. - *Weather and Forecasting*, 2007, 22, 5, 1148-1154
 - Sounding-Derived Indices for Neural Network Based Short-Term Thunderstorm and Rainfall Forecasts. Manzato, A. - *Atmos. Res. (ECSS 2004 special issue)*, 2007, 83, 349-365
 - The 6 Hours Climatology of Thunderstorms and Rainfalls in the Friuli Venezia Giulia Plain. Manzato, A. - *Atmos. Res. (ECSS 2004 special issue)*, 2007, 83, 336-348
 - A Verification of Numerical Forecasts for Sounding-Derived Indices above Udine, Northeast Italy. Manzato, A. - *Weather and Forecasting*, 2008, 23, 3, 477-495
 - Hail in NE Italy: Climatology and bivariate analysis with the sounding-derived indices. Manzato, A. - *Journal of Applied Meteorology and Climatology*, 2012, 51, 449-467
 - A Cloud-to-Ground Lightning Climatology for North-Eastern Italy. Feudale, L., Manzato, A., Micheletti, S. - *Advances in Science and Research*, 2013, 10, 77-84
 - Hail in NE Italy: A neural network ensemble forecast using sounding-derived indices. Manzato, A. - *Weather and Forecasting*, 2013, 28, 3-28
 - Usefulness and skill of station-derived predictors in the forecasting storm occurrence and intensity. Pucillo, A., Manzato, A. - *Atmos. Res.*, 2013, 123, 31-47 doi:10.1016/j.atmosres.2012.10.016
 - Overview of the first HyMeX Special Observation Period over Italy: observations and model results. Ferretti, R., Pichelli, E., Gentile, S., Maiello, I., Cimini, D., Davolio, S., Miglietta, M.M., Panegrossi, G., Baldini, L., Pasi, F., Marzano, F.S., Zinzi, A., Mariani, S., Casaioli, M., Bartolini, G., Loglisci, N., Montani, A., Marsigli, C., Manzato, A., Pucillo, A., Ferrario, M. E., Colaiuda, V., Rotunno, R. - *Hydrol. Earth Syst. Sci.*, 18, 1953-1977, doi:10.5194/hess-18-1953-2014, 2014
 - Cloud-to-Ground Lightning Distribution and its Relationship with Orography and anthropogenic emissions in the Po Valley, Feudale, L. and A. Manzato, *Journal of Applied Meteorology and Climatology*, 53, 2651-2670, 2014.
 - 12 September 2012: A supercell outbreak in NE Italy? Manzato, A., Davolio, S., Miglietta, M. M., Pucillo, A., and M. Setvák, 2015, *Atmos. Res.*, 153, 98-118 doi:10.1016/j.atmosres.2014.07.019
 - The role of the Italian scientific community in the first HyMeX SOP: an outstanding multidisciplinary experience; Davolio S., R. Ferretti, L. Baldini, M. Casaioli, D. Cimini, M. E. Ferrario, S. Gentile, N. Loglisci, I. Maiello, A. Manzato, S. Mariani, C. Marsigli, F. S. Marzano, M. M. Miglietta, A. Montani, G. Panegrossi, F. Pasi, E. Pichelli, A. Pucillo, A. Zinzi, 2015, *Meteorologische Zeitschrift*, 7 pp, DOI: 10.1127/metz/2014/0624
 - 6-hour maximum rain in Friuli Venezia Giulia: Climatology and ECMWF-based forecasts, Manzato, A., Cicogna, A. and A. Pucillo, 2016: *Atmospheric Research*, 169 B, 465-484 doi:10.1016/j.atmosres.2015.07.013.
 - Evaluation of Geostationary Satellite Observations and the Development of a 1-2 hour Prediction Model for Future Storm Intensity: Forecasting Storm Intensity., John R. Mecikalski, Daniel Rosenfeld, Agostino Manzato, 2016: *Journal of Geophysical Research Atmospheres* 121(11). DOI:10.1002/2016JD024768
 - Mechanisms producing different precipitation patterns over north-eastern Italy: insights from HyMeX-SOP1 and previous events, Davolio, S., Volonté, A., Manzato, A., Pucillo, A., Cicogna, A. and M. E. Ferrario, 2016, *Quarterly Journal of RMS*, DOI: 10.1002/qj.2731.
 - Characteristics and Predictability of a Supercell during HyMeX SOP1: Characteristics and Predictability of a Supercell during HyMeX SOP1, Miglietta, M. M., Manzato, A., Rotunno, R., 2016: *Quarterly Journal of RMS* DOI: 10.1002/qj.2872
 - Behaviour of verification measures for deterministic binary forecasts with respect to random changes and thresholding, Manzato, A., and Ian T. Jolliffe, 2017: *Quarterly Journal of RMS*, 143 (705), 1903-1915, doi:10.1002/qj.3050.
 - Evaluation of thunderstorm predictors for Finland using reanalyses and neural networks, Ukkonen, P., A. Manzato, and A. Mäkelä, 2017: *Journal of Applied Meteorology and Climatology*
 - Improving ECMWF-based 6-hours maximum rain using instability indices and neural networks, Manzato, A., Pucillo, A., and Cicogna, A., *Atmospheric Research*, 217, Pages 184-197, 2019, doi: 10.1016/j.atmosres.2018.10.020
 - Application of a simple analytical model to severe winds produced by a bow echo like storm in northeast Italy, Pucillo, A., Miglietta, M.M., Lombardo, K., Manzato, A. *Meteorol Appl.* 2020; 27:e1868. <https://doi.org/10.1002/met.1868>
 - Observational analysis and simulations of a severe hailstorm in northeastern Italy, Manzato, A, Riva, V, Tiesi, A, and Marcello M. Miglietta, *Quarterly Journal of RMS*, 146, 3587-3611, 2020, <https://doi.org/10.1002/qj.3886>.

- SCIENTIFIC PUBLICATIONS
- A dynamical-system description of precipitation over the tropics and the midlatitudes, J.I. Yano, M.H.P. Ambaum, H.F. Dacre and A. Manzato, *Tellus A*, 72 (1), 1-17, 2020
 - “Moisture control” of the precipitation: a probabilistic perspective, J.I. Yano, and A. Manzato, chapter in the book "Precipitation Science", Elsevier, ISBN: 9780128229736, pp 615-634. 2021, <https://www.elsevier.com/books/precipitation-science/michaelides/978-0-12-822973-6>
 - Does More Moisture in the Atmosphere Lead to More Intense Rains? , J.I. Yano, and A. Manzato, *Journal of the Atmospheric Sciences*, 79, 663-681, 2022, <https://doi.org/10.1175/JAS-D-21-0117.1>
 - A Pan-Alpine Climatology of Lightning and Convective Initiation, Manzato, A., Serafin, S., Miglietta, M. M., Kirshbaum, D., & Schulz, W. *Monthly Weather Review*, 150, 2213-2230, 2022, <https://doi.org/10.1175/MWR-D21-0149.1>
 - Hailstone Characteristics in Northeast Italy from 29 Years of Hailpad Data, Manzato, A., Cicogna, A., Centore, M., Battistutta, P., and Trevisan, M. *Journal of Applied Meteorology and Climatology*, 61, 1779-1795, 2022
 - Modelling hail hazard over Italy with ERA5 large-scale variables, Torralba, V., Henin, R., Cantelli, A., Scoccimarro, E., Materia, S., Manzato, A. and S. Gualdi, *Weather and Climate Extremes* 39, 2023, 100535, <https://doi.org/10.1016/j.wace.2022.100535>
 - How observations from automatic hail sensors in Switzerland shed light on local hailfall duration and compare with hailpad measurements, Kopp, J., Manzato, A., Hering, A., Germann, U., and O. Martius, *Atmos. Meas. Tech.*, 16, 3487-3503, 2023, <https://doi.org/10.5194/amt-16-3487-2023>

FURTHER INTERESTS Classical music, Hi-Fi, electronics, photography.

ADDITIONAL INFORMATION I have a 16-year old daughter.

DATE 16 July 2024