

# Curriculum vitae

## Rita NOGHEROTTO

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### SHORT DESCRIPTION

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I am an ISAC-CNR (Italy) researcher based at the International Centre for Theoretical Physics (ICTP). I graduated in Physics (2009) with a PhD in clouds microphysics (2015) and I worked as a postdoc at the ICTP. My research focuses on regional climate modeling within the frame of the CORDEX project, and I am responsible for the cloud microphysical parameterization development of the regional climate model RegCM5. During my postdoc and my current research I worked collaborating with stakeholders, such as energy companies and insurances, involved in the management of climate change impacts at the regional scales, implementing an hydrological-hydraulic model chain for the assessment of flood prone areas. My current work focuses on understanding the impacts of the urban effect at the local scale for several extreme indicators (heatwaves, fires, extreme precipitation) by means of high resolution convection permitting modeling within the CORDEX-FPS URB-RCC project. I worked as a collaborating author of the IPCC AR6, Chapter 13, WG2, now Lead Author of the IPCC Special Report for Climate Change and Cities, Chapter 5.

### PROFESSIONAL EXPERIENCE

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| <b>18/1/2024-Today</b> | Scientist at the Institute of Atmospheric Science and Climate of the Italian National Research Council (ISAC-CNR, Bologna), based at the International Centre for Theoretical Physics (ICTP) in Trieste (Italy).<br><b>2025</b> - Lead Author of the IPCC Special Report for Climate Change and Cities, Chapter 5   |
| <b>12/2020-12/2023</b> | Assegno di Ricerca Junior - Istituto Nazionale di Oceanografia e Geofisica (HPC-TRES program award number 2020-12).   |
| <b>12/2015-2020</b>    | Postdoc - The Abdus Salam International Centre for Theoretical Physics (ICTP) (Italy). Analysis of Extreme Meteorological Events and release of Flood Risk Maps over the Italian territory (project financed by Allianz S.p.A.). Analysis of Extreme Events over Europe and South America under different future greenhouse gas concentration scenarios within the project financed by Enel S.p.A. "Climate Change and Resilience". |
| <b>09/2015-11/2015</b> | Laboratoire de l'Atmosphère et des Cyclones (Lacy), Saint Denis de la Reunion (France). Short Term Scientific Mission (STSM) COST ACTION ES1206 "Extreme events, water vapor distribution and GNSS".  |

**09/2009–02/2011** Department of Meteorology and Geophysics at the University of Vienna (Austria). Assistant in Training at the Faculty of Geosciences, Astronomy and Geophysics. Teaching Theoretical Meteorology 1,2 and 3.

## EDUCATION

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**2006–2009** Master Graduation in Physics, Università degli Studi di Trieste

**2011–2015** Phd: "Doctorate School in Environmental and Industrial Fluid Mechanics", Università degli Studi di Trieste

## SPOKEN LANGUAGES

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**Mother tongue** Italian

**Other languages**  
English – Excellent level  
Spanish – Excellent level  
German – Basic level

## ORGANIZATIONAL AND MANAGERIAL SKILLS

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- Collaborating author of the **POLICY BRIEF #4 – Urban mobility adaptation to climate change** (<https://urban-transport.interreg-med.eu/index.php?id=14152>)
- **Founder and co-organizer** of the international school "(Geo)Science communication school" ([www.sciencecommunicationschool.org](http://www.sciencecommunicationschool.org)) for which I achieved the European Geosciences Union funds for training school in 2016-2017-2018 and 2019.
- Member of the **Working Group 2 of the COST Action ES1206**, Advanced Global Navigation Satellite Systems tropospheric products for monitoring severe weather events and climate (GNSS4SWEC).
- Since 2016 co-organizer of the yearly international school "**Convective and volcanic clouds detection, monitoring and modeling**"
- Member (2019-2022) of the Work Package 2 of the **European Climate Prediction Project (EUCP)**

## OUTREACH EXPERIENCE

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- 2018-2019-2020 Invited speaker for the **Italian Diplomatic Academy (VR)** to teach climate change in the schools within the "**Studenti Ambasciatori alle Nazioni Unite - 2020**" project
- January 2019 – invited to the "**Nautilus**" R.A.I. national TV program
- November 2018 – lecturer at the **Physics Without Frontiers (PWF)** Roadshow in

Zimbabwe.

- Since October 2018 – member of the “**Topi di Laboratorio**”, an outreach project formed by a group of young researchers and amateur actors, whose main goal is to promote science engaging the general public.

## PUBLICATIONS:

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- Coppola E, Giorgi F, Giuliani G, Pichelli E, Ciarlo JM, Raffaele F, Nogherotto R et al (2024): The Fifth Generation Regional Climate Modeling System, RegCM5: the first CP European wide simulation and validation over the CORDEX-CORE domains. *Authorea Preprints*

- O'Reilly C, Brunner L, Qasmi S, Nogherotto R et al (2024). Assessing observational constraints on future European climate in an out-of-sample framework. *npj Climate and Atmospheric Science* 7 (1), 95

- F Giorgi, E Coppola, G Giuliani, JM Ciarlo, E Pichelli, R Nogherotto et al (2023): The fifth generation regional climate modeling system, RegCM5: Description and illustrative examples at parameterized convection and convection-permitting resolutions. *Journal of Geophysical Research: Atmospheres* 128 (6), e2022JD038199

- MG V Ojeda, F Di Sante, E Coppola, A Fantini, R Nogherotto et al (2022). Climate change impact on flood hazard over Italy. *Journal of Hydrology* 615, 128628

- Nogherotto R, Burgard C and Jones C (2022) What Is Causing Our Climate To Change So Quickly Now?. *Front. Young Minds*. 10:668763. doi: 10.3389/frym.2022.668763.

- Nogherotto, R., Fantini, A., Raffaele, F., Di Sante, F., Dottori, F., Coppola, E., & Giorgi, F. (2022). A combined hydrological and hydraulic modelling approach for the flood hazard mapping of the Po river basin. *Journal of Flood Risk Management*, 15(1), e12755.

- F Giorgi, E Coppola, D Jacob, C Teichmann, S Abba Omar, M Ashfaq, N Ban, K Bülow, M Bukovsky, L Buntemeyer, T Cavazos, J Ciarlo', R Porfirio Da Rocha, S Das, F di Sante, J P. Evans, X Gao, G Giuliani, R H. Glazer, P Hoffmann, E-S Im, G Langendijk, L Lierhammer, M Llopart, S Mueller, R Luna-Nino, R Nogherotto et al : "The CORDEX-CORE EXP-I initiative: Description and highlight results from the initial analysis." *Bulletin of the American Meteorological Society* (2021): 1-52.

- Coppola, E, P Stocchi, E Pichelli, JA Torres Alavez, R Glazer, G Giuliani, F Di Sante, R Nogherotto, and F Giorgi: "Non-Hydrostatic RegCM4 (RegCM4-NH): Model description and case studies over multiple domains." *Geoscientific Model Development* 14.12 (2021): 7705-7723.

- E. Coppola, R. Nogherotto et al "Assessment of the European climate projections as simulated by the large EURO-CORDEX regional climate model ensemble". *J. Geophys. Res.-Atmos.*, 126, e2019JD032356, <https://doi.org/10.1029/2019JD032356>, 2021.
- R. Vautard, N. Kadyrov, C. Iles, F. Boberg, E. Buonomo, K. Bülow, E. Coppola, L. Corre, E. van Meijgaard, R. Nogherotto et al "Evaluation of the large EURO-CORDEX regional climate model ensemble "Evaluation of the large EURO-CORDEX regional climate model ensemble." *Journal of Geophysical Research: Atmospheres* 126.17 (2021): e2019JD032344.
- Nogherotto R., A. Fantini, F. Raffaele, E. Coppola and F. Giorgi: "An integrated hydrological and hydraulic modelling approach for the flood risk assessment over Po river basin: a case study for the ALLIANZ Insurance Company." Under revision in *Natural Hazards and Earth System Sciences (NHES)* (2020)
- Brunner L., C. McSweeney, C. Befort, C. O'Reilly, E. Coppola, R. Nogherotto et al: "Quantifying uncertainty in projections of future European climate: a multi-model multi-method approach" JCLI-D-19-0953. Submitted to *Journal of Climate* (Dic 2019)
- Sitz L, R. Farneti, F. Di Sante, R. Fuentes, U. Turuncoglu, M. Barreiro, G. Sannino, R. Nogherotto et al: "Description and evaluation of the Earth System Regional Climate Model (RegCM-ES)". *Journal of Advances in Modeling Earth Systems* (2017)
- Nogherotto R et al: "Numerical framework and performance of the new multiple-phase cloud microphysics scheme in RegCM4. 5: precipitation, cloud microphysics, and cloud radiative effects." *Geoscientific Model Development* 9.7, 2533-2547 (2016).
- Nogherotto R: "A numerical framework for multiple phase cloud microphysics in regional and global atmospheric models", *Università degli studi di Trieste*, Italy. (2015).
- Nogherotto R, Coppola E, Giorgi F, Mariotti L: "Impact of Congo Basin deforestation on the African monsoon." *Atmospheric Science Letters* DOI: 10.1002/asl.416 (2013).

