Silvia Trini Castelli – CURRICULUM VITAE

Institute of Atmospheric Sciences and Climate - CNR

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Silvia Trini Castelli is Senior Researcher at the Institute of Atmospheric Sciences and Climate of the National Research Council and Adjunct Professor at the Physics Department of the University of Turin.

Graduated in Physics and with a PhD in Geophysics, she has the National Scientific Qualification for Full Professor in sector 04/A4 Geophysics.

Since 2011 she is the Responsible of the ISAC Branch in Turin.

Scientific career, in brief

During her PhD training, she attended five specialization courses, obtaining a certificate, in meteorology, atmospheric fluid dynamics and turbulence, atmospheric pollution, at the European Centre for Medium- Range Weather Forecasts, NATO Advanced Study Institute and International Centre for Theoretical Physics.

After completing the PhD course, from 1997 to 2001 she continued her research activity as research fellow at the Institute of Cosmogeophysics of the CNR, as associate researcher at the Department of Advanced Sciences and Technologies of the University of Eastern Piedmont and at the Department of Environmental Quality of The Netherlands Organization for Applied Scientific Research (Netherlands). Since 2001 she has a permanent researcher position at ISAC-CNR.

Educational and training activities

Since the beginning of her career, she has also dedicated herself to teaching and training of students and young researchers. In this context, she has taught several university courses:

- Atmospheric Processes and Air Pollution (co-lecturer), School of Sciences of Nature, Department of Physics, University of Turin, Turin (since 2016)
- Physics of the Environment with Laboratory (co-lecturer), for the Degree Course Masters in Sciences of the Materials for Cultural Heritage, Department of Chemistry, University of Turin, Turin (2013-2017)
- Dispersion of Pollutants in the Atmosphere, for the Post-laurea Specialization School in Medical Physics, University of Turin, Department of Physics, Turin, (2009-2014)
- Microclimatology for Cultural Heritage (co-lecturer), for the Master Degree Course in Cultural Heritage, Faculty of Letters and Philosophy, Univ. of Eastern Piedmont, Vercelli (2001-2008)

She has also been a lecturer in professional training and specialization courses for ARPA Piedmont, the Turin Polytechnic, GEAM Georesources and Environment Association, CRT Foundation.

She has been tutor or co-tutor of: two three-year theses, three master theses and two doctoral theses for the Physics Department of the University of Turin; a master thesis for the Department of

Environmental, Land and Infrastructure Engineering of the Turin Polytechnic; three *international short- term mobility programmes* for young researchers.

She has been Scientific Supervisor and Responsible of ten temporary-position grants for post-doc associate researchers and short-term researcher positions, funded by research projects.

International collaborations and responsibilities

Since 2017 she is Chair of the *Initiative on Harmonisation within atmospheric dispersion Modeling for Regulatory Purposes* and since 2010 member and Italian representative of the Steering Committee of the *International Technical Meeting on Air Pollution Modeling and its Application* (ex) *NATO/SPS*.

Within international projects, she was Vice-Chair of the EU COST ES1006 Action "*Evaluation, improvement and guidance for the use of local -scale emergency prediction and response tools for airborne built- in hazards environments "* (2011-2015); National Delegate for Italy in the Management Committee of the EU COST 732 Action "*Quality Assurance and Improvement of Micro-Scale Meteorological Models "* (2006-2009); Member of the Joint Project Steering Committee ALPNAP – MONITRAF INTERREG III-B Alpine (2005-2008).

She maintains continuous international collaborations and is or has been a visiting scientist at the Institut für Meteorologie, Universität Hamburg (Hamburg, Germany, since 2011), Institut für Meteorologie, Freie University Berlin (Berlin, Germany, 2010-2011); Fluid dynamics Laboratory, Mitsubishi Heavy Industry (Nagasaki and Tokyo, Japan, 2001; 2012); Colorado State University (Fort Collins, CO, USA, 2000-2005).

She was the proponent and manager of two research programs for Visiting Professors at ISAC-CNR Turin funded by CNR Short Term Scientific Mobility (2015; 2018) and of a Visiting Scientist research program for sabbatical year at ISAC-CNR Turin funded by the Israelian atomic Research Centre, Israel (2019-2020).

She has been responsible and/or member of the scientific committee of several international conferences:

- Scientific coordinator, as Chair, of the organization of *19th, 20th and 21st International Conference on Harmonization within atmospheric dispersion Modeling for Regulatory Purposes* (2019-2022)
- Member of the Local Organizational Board of the *17th European Turbulence Conference - EUROMECH,* Turin (Italy, 2019)
- Convener of the *AGU Session GC014 Climate Change Impacts on Human Health and the Environment,* 2017 AGU Fall Meeting, New Orleans (USA, 2017)
- Responsible for the organization of the *18th International Conference on Harmonisation within atmospheric dispersion Modeling for Regulatory Purposes,* c/o CNR Research Area of Bologna (Italy, 2017)
- Responsible for the organization of the *3rd Open Workshop on Local-Scale Airborne Hazards Modeling and Emergency Response,* at the CNR Headquarters in Rome (Italy, 2014).
- Member of the Scientific Committee of the 6th International Symposium on Computational Wind Engineering - CWE2014, Hamburg (Germany, 2014)
- Responsible for the organization of the *31st NATO/CCMS International Technical Meeting (ITM) on Air Pollution Modeling and its Application,* Turin (Italy, 2010)

Editorial and Review activities

Since 2010 she is Editor of the scientific journal *Meteorology and Atmospheric Physics* and since 2013 Associate Editor for the *Journal of Air and Waste Management Association .*

She has also acted as Guest Editor for Special Issues in *Air Quality, Atmosphere and Health;* the *International Journal of Environment and Pollution; Atmosphere.*

She has been and is a reviewer for 38 different scientific journals indexed in Web of Science.

For her contribution as Associate Editor, she received an official publishing award from the Air & Waste Management Association Editorial Review Board, for helping to increase the journal's impact factor.
For her contribution as Reviewer, she received "The 2019 Editors' Citation for Excellence in Refereeing" from the *Journal of Geophysical Research – Atmospheres*

She has carried out evaluation activities as an invited expert and reviewer for various international research programs:

- Invited expert and reviewer, the Austrian Climate Research Program from the Austrian Climate and Energy Fund (since 2017)
- Action Rapporteur for two EU COST Actions (2017-2018; 2021-2022)
- Invited expert and reviewer, the Czech Science Foundation (2020)
- Remote Reviewer for ERC Consolidator Grant Call, Earth System Science panel, EU (2016)
- Invited External Expert, HIRMOD Project, the Austrian Climate Research Programs (2009-2011)
- Reviewer and supporter, the Natural Environment Research Council, United Kingdom (2009, 2010, 2011)
- Reviewer and supporter, the National Science Foundation, USA (2010)
- External Expert and Reviewer, Mathematics of Information Technology and Complex Systems Network of Centers of Excellence (MITACS-NCE), Canada (2008)
- Reviewer and supporter, Marie Curie Chair Project EXC, EU (2003)

Scientific research, in brief

Silvia Trini Castelli studies the physical processes in the atmospheric boundary layer, the circulation and turbulence in the atmosphere and the phenomena of transport and diffusion of airborne tracer substances, in complex terrain and in the presence of obstacles. Her research concerns both theoretical aspects and data analysis, up to the elaboration of parameterizations for the description of atmospheric processes. In particular, she specialized in the development of numerical modelling, dealing with the elaboration of meteo-dispersive modelling systems, through the integration of atmospheric circulation models and particle Lagrangian dispersion models, from the large scale to the mesoscale up to the urban scale. She has long-term experience in the application of modelling for environmental impact studies and specific skills in the emergency context response and olfactory nuisance She has published more than 90 peer-reviewed scientific contributions, including articles in international journals, book chapters, proceedings. She has presented her work at more than 60 international conferences. She coordinated 15 international and national projects and collaborated in the partnership of other 30 projects.