

## SCIENTIFIC CAREER OVERVIEW

### Present position

Researcher at the Institute of Atmospheric Sciences and Climate (ISAC, Torino Branch) of the Italian National Research Council (CNR).

Responsible of the CNR-ISAC Torino Branch.

Adjunct Professor at the Department of Physics, University of Torino.

- Since 2020** Qualified in the National Scientific Habilitation (Abilitazione Scientifica Nazionale) for the role of Full Professor in Geophysics (Sector 04/A4)
- Since 2012** Qualified in the National Scientific Habilitation (Abilitazione Scientifica Nazionale) for the role of Associate Professor in Geophysics (Sector 04/A4)
- Since 2011** Responsible of the Torino Branch of the Institute of Atmospheric Sciences and Climate (ISAC), nominated by the ISAC Directors, Dr. C. Sabbioni (2011-2017) and Dr. M.C. Facchini (since 2018).
- Since 2011** Member of the Managing Committee of the CNR Research Area in Torino.
- Since 2011** Member of the Joint Committee for the Framework Agreement between the National Research Council and the University of Piemonte Orientale "A. Avogadro", nominated by the CNR President, Prof. L. Maiani.
- Since 2010** Leader of the Group of Environmental Physics at CNR-ISAC, Torino.
- Since 2002** Qualified in CNR selections, through national competitions, for Senior Researcher positions.
- Since 12/2001** Researcher at the Institute of Atmospheric Sciences and Climate, National Research Council, Torino.
- 02/2000 – 03/ 2001** Scientific Researcher (Part-time collaboration) at the Department of Environmental Quality – Institute of Environmental Sciences, Energy Research and Process Innovation, the Netherlands Organisation for Applied Scientific Research TNO-MEP, Apeldoorn (NL), *in the framework of the international project TRAPOS (Optimisation of Modelling Methods for Traffic Pollution in Streets)*
- 12/1999 – 11/2001** Associate Researcher in Physical Sciences c/o the Department of Sciences and Advanced Technologies, University of Piemonte Orientale, Alessandria.

- 12/1998 – 11/1999** – CNR Research Fellow in the MAP (Mesoscale Alpine Programme) Project – II, at the Institute of Cosmo-Geophysics - CNR, Torino. Research group of Physics of the Environment
- 12/1997 – 11/1998** – CNR Research Fellow in Physics of the Earth - National Committee of Physical Sciences, at the Institute of Cosmo-Geophysics - CNR, Torino. Research group of Physics of the Environment.
- 01/1997 – 12/1997** – CNR Research Fellow in the MAP (Mesoscale Alpine Programme) Project, at the Institute of Cosmo-Geophysics - CNR, Torino. Research group of Physics of the Environment.

## EDUCATION

- 1993-1996** Ph.D. in Geophysics, consortium of Universities of Genova, Torino and Modena  
Title of the PhD dissertation: *Study of mesoscale circulation and turbulence modelling over complex terrain*
- 1993** Laurea Degree in Physics (*Master*) from the University of Torino  
Title of the dissertation: *Study of long-range dispersion modelling of the pollutant from the Chernobyl nuclear plant*
- 1986** Scientific High School graduation (*Diploma di Maturità Scientifica*) from the Liceo Scientifico Ettore Majorana of Torino.

### *Post-Laurea/Post-PhD training courses*

- 2005** Introduzione alle tecniche di calcolo parallelo e distribuito  
CILEA, Segrate (Italy), 6 – 9 June 2005
- 1997** NATO Advanced Study Institute: Buoyant Convection in Geophysical Flows  
Institut für Hydrologie und Wasserwirtschaft - Universität Karlsruhe, Pforzheim (Germany), 17-27 March 1997
- 1997** Lectures on Lagrangian Dispersion  
C.N.R. - ISIATA, Lecce (Italy), September 29 - October 3 1997
- 1996** Meteorological Training Course MET2: General Circulation, Systematic Model Errors and Predictability  
European Centre for Medium-Range Weather Forecasts (ECMWF), Reading (England), 18 - 22 March 1996
- 1995** Meteorological Training Course MET1: Numerical methods and adiabatic formulation of models  
European Centre for Medium-Range Weather Forecasts (ECMWF), Reading (England), 26 April - 5 May 1995
- 1995** Meteorological Training Course MET2: Parameterisation of diabatic processes.  
European Centre for Medium-Range Weather Forecasts (ECMWF), Reading (England), 9 - 19 May 1995
- 1994** College on Atmospheric Boundary Layer and Air Pollution Modelling.  
International Centre for Theoretical Physics (ICTP), Trieste (Italy), 16 May - 3 June 1994

# PROFESSIONAL ACTIVITIES AND RESPONSIBILITIES

## Professional Appointments

- Since **October 2017** Chairperson of the Initiative on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, and related conference.
- Since **May 2016** Member of the Steering Committee of the Initiative on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, and related conference.
- Since **October 2010** Italian Representative in the Scientific Committee of NATO/SPS International Technical Meeting (ITM) on Air Pollution Modelling and its Application.
- 2005-2019** Member or Chair in 20 Search Committees for temporary positions (national competition) at CNR-ISAC and ARPA-Piemonte (Regional Environmental Agency)
- 2011–2015** Vice-Chair of the COST Action ES1006 “Evaluation, improvement and guidance for the use of local-scale emergency prediction and response tools for airborne hazards in built environments”.
- 2009–2011** Invited External Expert in the External Expert Panel of the Project “*HIRMOD- High-resolution atmospheric modelling in complex terrain for future climate simulations*”, Funded by the Austrian Climate Research Programme.  
Responsible: Prof. Petra Seibert, Institute of Meteorology, University of Natural Resources and Applied Life Sciences, Vienna
- 2006–2009** Italian Delegate in the Management Committee of the COST Action 732 “Quality Assurance and Improvement of Micro-Scale Meteorological Models”.
- 2005–2008** Member of the Joint Project Steering Committee ALPNAP – MONITRAF in the frame of the INTERREG III-B Alpine Space Project ALPNAP.  
Leader of the Working Package 6: Meteorology - Monitoring and Prediction, in the framework of ALPNAP Alpine Space Project INTERREG IIIB
- 2003–2009** Elected member of the Managing Committee of the Institute of Atmospheric Sciences and Climate (ISAC-CNR), in the role of Representative of the Researchers.
- Since **2002** Reference manager for the net system at Turin section of ISAC.
- 2001** Responsible, for the Department of Science and Advanced Technologies of University of Piemonte Orientale and for the Institute of Cosmo-Geophysics of CNR (ICGF-CNR) of Torino, of the experimental radiosounding campaign in the framework of HUPROMED Project, on the Oceanographic CNR ship URANIA in the Mediterranean basin. 14/10-26/10/2001.
- 1999** Responsible, for the Institute of Cosmo-Geophysics of CNR (ICGF-CNR) of Torino, of the radio-sounding campaign at Genova Research Radio-Sounding Station for MAP (Mesoscale Alpine Programme) Intensive Observational Period, carried out as a collaboration between the ICGF-CNR and the Physics Department of the University of Genova. 07/09-15/11/1999

## Collaborations: visiting and hosting scientist

- 2019–2020** Responsible and Host of a sabbatical-year program. Visiting Scientist: Dr. Nitsa Haikin, Israelian Atomic Research Centre, at CNR-ISAC Torino. Research subject: *“Atmospheric boundary-layer dynamics and simulation of the atmospheric circulation and pollutant dispersion”*. 19/08/2019 – 18/08/2020
- 2018** Responsible and Host of a CNR Short Term Scientific Mobility funding program. Visiting Professor: Dr. Bertrand Carissimo, Centre d’Enseignement et de Recherche en Environnement Atmospherique, joint Laboratory between Ecole des Ponts et Chaussees and Electricite de France R&D, at CNR-ISAC Torino. Research Subject: *“Atmospheric dispersion model intercomparison for releases of harmful dense gases and emissions in low-wind conditions in the context of emergency response”*. 19 – 30/11/2018
- 2015** Responsible and Host of a CNR Short Term Scientific Mobility funding program. Visiting Professor: Prof. Bernd Leidl, Institute of Meteorology, Hamburg University, at CNR-ISAC Torino. Research subject: *“Feasibility study for a European urban-scale dispersion field experiment for models intercomparison in the emergency response framework”*. 20/09 – 3/10/2015
- 2012** Invited Visiting Scientist at the Fluid Dynamics Laboratory, Mitsubishi Heavy Industries, Tokyo, Japan. Research subject: *“Development of an interface to combine RAMS and Micro-Spray”*. 28/01-04/02/2012
- 2011** Visiting Scientist at the Institute of Meteorology, Free University of Berlin, Germany, in the frame of the CNR Short Term Scientific Mobility funded programme. Research subject: *“Characterization of the urban meteorology and study of its effects on the pollutant dispersion in cities”*. 16/05-06/06/2011
- 2010** Invited Visiting Scientist at the Institute of Meteorology, Free University of Berlin, Germany, under a visiting-researcher contract “Internationale Netzwerkuniversität”. Research subject: *“Urban Modelling, with a focus on coupling and downscaling a regional meteorological model with an urban model”*. 15/03-15/05/2010
- 2007; 2008** Invited Visiting Scientist at the SOREQ Nuclear Research Centre, Yavne, Israel. Research Subject: *“Urban air pollution modelling”*. 25-30/08/2007 and 01-07/11/2008
- 2005; 2009** Host of a short-term mobility program. Visiting Scientist: Dr. Tamir Reisin, Applied Physics Division SOREQ NRC (Yavne, Israel), at CNR-ISAC Torino. Research Subject: *“Urban air pollution modelling”*. 12-16/12/2005 and 06-11/06/ 2009.
- 2002–2005** Visiting Researcher at ATMET Company (Boulder, CO, USA) and Colorado State University (Fort Collins, CO, USA), funded by CNR-ISAC research projects. Research subject: *“Development and test of new turbulence closures in RAMS model”*. Two weeks in 03/2002, in 02/2004 and in 09/2005.
- 2001** Invited Visiting Scientist at the Fluid Dynamics Laboratory, Mitsubishi Heavy Industries, Nagasaki, Japan. Research subject: *“Joint study on atmospheric dispersion modelling”*. 01/03-25/03/2001

## Conferences: organization and committee membership

- 2017–2019** Member of the Local Scientific Committee of the 17th European Turbulence Conference - EUROMECH, Torino (Italy), 3-6 September 2019
- 2017** Co-Convener of the AGU Session GC13E-GC23E “Climate Change Impacts on Human Health and the Environment”, 2017 AGU Fall Meeting, New Orleans (USA), 11-15 December 2017.
- 2016–2017** Responsible for the organization of the 18th Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Bologna (Italy), 9-12 October 2017.
- 2014** Responsible for the organization of the 10<sup>th</sup> COST ES1006 Managing Committee and Working Groups Meeting and of the 3<sup>rd</sup> Open Workshop on Local-Scale Airborne Hazards Modeling and Emergency Response, CNR Headquarters, Rome (Italy), 7-9 May 2014
- 2013–2014** Member of the Scientific Board of the 6<sup>th</sup> International Symposium on Computational Wind Engineering - CWE2014, Hamburg (Germany), 8-12 June 2014
- 2009–2010** Responsible for the Host Country of the organization of the 31<sup>st</sup> NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application, held in Torino (Italy) from 27 September 2010 to 1 October 2010
- 2008** Responsible for the organization of the 12<sup>th</sup> COST 732 Managing Committee and Working Groups Meeting. Torino, Italy. 11-12 September 2008

## EDITORIAL ACTIVITIES

- Since **2013** Associate Editor for the *Journal of Air and Waste Management Association*
- Since **2010** Editor for *Meteorology and Atmospheric Physics* journal, Springer Publisher
- 2019-2020** Guest Editor of the *Atmosphere* Special Issue on “Atmospheric Pollutant Dispersion over Complex Terrain”
- 2019-2020** Guest Editor of the *Atmosphere* Special Issue on “Atmospheric Dispersion of Pollutants in Urban Environment”
- 2018** Guest Editor of the *International Journal of Environment and Pollution* Special Issue on “Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes”

### Volumes

- 2015** Co-editor of the volumes:  
COST ES1006 Model evaluation case studies: Approach and results. Baumann-Stanzer, S. Trini Castelli, S. Stenzel (Eds), 2015. Publisher: University of Hamburg, ISBN: 987-3-9817334-2-6, 114
- COST ES1006 Best Practice Guidelines for the use of Atmospheric Dispersion Models in Emergency Response Tools at local-scale in case of hazmat releases into

the air. Andronopoulos S., P. Armand, K. Baumann-Stanzer, S. Herring, B. Leidl, T. Reisin, S. Trini Castelli (Eds), 2015. Publisher: University of Hamburg, ISBN: 987-3-9817334-0-2, 143

- 2012** Co-editor of the volume:  
COST ES1006 - Background and Justification Document, COST Action ES1006, May 2012. Andronopoulos S., Armand P., Baumann-Stanzer K., Herring S., Leidl B., Reisin T., Trini Castelli S. Eds., COST Office Publishers, 80
- 2011** Co-editor of the volume:  
Air Pollution Modeling and its Application XXI, Steyn D.G. and Trini Castelli S. Eds., Springer Publishers, 750
- 2007** Editor of chapter 3 and co-editor of chapter 7 in:  
D. Heimann, M. de Franceschi, S. Emeis, P. Lercher, P. Seibert (Eds.), D. Anfossi, G. Antonacci, M. Baulac, G. Belfiore, D. Botteldooren, A., Cemin, M. Clemente, D. Cocarta, J. Defrance, E. Elampe, R. Forkel, E. Grießer, B. Krüger, B. Miège, F. Obleitner, X. Olly, M. Ragazzi, J. Rüdissler, K. Schäfer, I. Schicker, P. Suppan, S. Trini Castelli, U. Uhrner, T. Van Renterghem, J. Vergeiner, D. Zardi, 2008: Air Pollution, Traffic Noise and Related Health Effects in the Alpine Space: A Guide for Authorities and Consultants, ALPNAP comprehensive report. Università degli Studi di Trento, Dipartimento di Ingegneria Civile e Ambientale, Trento, Italy, 335 ISBN: 978-88-8443-208-7

## REVIEW ACTIVITIES

### *Reviewer for Projects*

- 2020–2021** Invited expert for the evaluation of scientific proposals for the 13th Austrian Climate Research Programme from the Austrian Climate and Energy Fund.
- 2019–2020** Invited expert for the evaluation of scientific proposals for the 12th Austrian Climate Research Programme from the Austrian Climate and Energy Fund.
- 2018–2019** Invited expert for the evaluation of scientific proposals for the 11th Austrian Climate Research Programme from the Austrian Climate and Energy Fund.
- 2017** Action Rapporteur for EU COST Action Programme, Earth System Science and Environmental Management.
- 2017** Invited expert for the evaluation of scientific proposals for the 10th Austrian Climate Research Programme from the Austrian Climate and Energy Fund.
- 2016** Remote Reviewer for ERC Consolidator Grant 2016 Call for Proposals, Earth System Science Panel.
- 2010** Reviewer and supporter of a project on Boundary Layer Characterization in Urban Areas submitted to the National Science Foundation, USA.
- 2009–2011** Reviewer and supporter for two projects submitted to the Natural Environment Research Council, United Kingdom.

- 2008** Invited External Expert and Reviewer for MITACS-NCE Programme, Mathematics of Information Technology and Complex Systems Network of Centres of Excellence, Canada.
- 2003** Reviewer and supporter for a project on Planetary Boundary Layers, Theory and Role in Earth Systems, submitted to Marie Curie Chair Project EXC FP6-2002-Mobility-10.

*Reviewer (multiple reviews each) for the following International Journals:*

**I received the 2019 Editors' Citation for Excellence in Refereeing by the *Journal of Geophysical Research – Atmospheres***

1. Advances in Science and Research	EMS journal
2. Aerosol and Air Quality Research	IF 2.735
3. Air Quality Atmosphere and Health	IF 2.297
4. Atmosphere	IF 2.046
5. Atmosphere-Ocean	IF 1.197
6. Atmospheric Chemistry and Physics	IF 5.668
7. Atmospheric Environment	IF 4.012
8. Atmospheric Measurement Techniques	IF 3.400
9. Atmospheric Pollution Research	IF 2.918
10. Atmospheric Research	IF 4.114
11. Atmospheric Science Letters	IF 1.796
12. Boundary-Layer Meteorology	IF 3.149
13. Communications in Nonlinear Science and Numerical Simulation	IF 3.967
14. Environmental Fluid Mechanics	IF 1.605
15. Environmental Modeling and Assessment	IF 1.253
16. Environmental Modelling and Software	IF 4.552
17. Environmental Science and Policy	IF 4.816
18. Environmental Science and Pollution Research	IF 2.914
19. European Physical Journal Plus	IF 2.612
20. International Journal of Environment and Pollution	IF 0.690
21. Journal of the Air and Waste Management Association	IF 1.858
22. Journal of Applied Meteorology and Climatology	IF 2.364
23. Journal of Geophysical Research	IF 3.633
24. Journal of Hazardous Materials	IF 7.650
25. Journal of Wind Engineering & Industrial Aerodynamics	IF 3.010
26. Meteorology and Atmospheric Physics	IF 1.656
27. Natural Hazards and Earth System Science	IF 2.883
28. Nuovo Cimento B and C	IF 0.277
29. Physica A	IF 2.500
30. Physics of Fluids	IF 2.627
31. Process Safety and Environmental Protection	IF 4.384
32. Science of the Total Environment	IF 5.589
33. Sustainable Cities and Society	IF 4.624
34. Urban Climate	IF 3.834

## TEACHING AND EDUCATIONAL ACTIVITY

- Since 2016** Adjunct Professor, course of “Environmental Physics – Atmospheric Processes and Air Pollution” for the Master course in Physics of the Environment and Advanced Technologies, Department of Physics, University of Torino
- 2014-2018** Adjunct Professor, course of “Environmental Physics with Laboratory” for the Master course in Science of Materials for the Cultural Heritage, Department of Chemistry, University of Torino
- 2018,  
26 Sep** Continuing Vocational Education Course for the Politecnico di Torino “*La modellistica della dispersione degli inquinanti in atmosfera*” (*The modelling approach for the dispersion of pollutants in the atmosphere*, 8 hours), Torino, Italy.
- 2010-2015** Adjunct Professor, course of “Atmospheric pollutant dispersion” for the Post-laurea Specialization School in Medical Physics (Scuola di Specializzazione in Fisica Medica), University of Torino
- 2009-2015** Seminars for “Environmental Physics” Course, Department of Physics, University of Torino
- 2013,  
5 Dec** Continuing Vocational Education Course for the Regional Environmental Agency ARPA PIEMONTE, “*Modellistica per la valutazione della qualità dell’aria*” (*The modelling approach for the air quality evaluation*, 8 hours), Torino, Italy
- May 2010** Lectures in “Modelle für Wetter und Umwelt” course at the Institute of Meteorology of the Free University of Berlin (Germany)
- 2009** Lectures in:  
“Atmospheric pollutant dispersion” course for the Post-laurea Specialization School in Medical Physics (Scuola di Specializzazione in Fisica Medica), University of Torino  
“Dynamics of Extended Systems” course, Department of Physics, University of Torino
- 2001-2008** Adjunct Professor at the University of Piemonte Orientale, course of “Microclimate for Cultural Heritage Protection”, Faculty of Literature and Philosophy.
- 1991-1992** Lecturer and laboratory assistant in “General Physics Laboratory Experiments” course, Department of Experimental Physics, University of Torino, at the former Alessandria seat of the University of Torino, now University of Piemonte Orientale.



## Supervision and educational training

### Post-doc and associate researcher supervision

**2006-2019** Scientific Supervisor and Responsible of ten temporary-position grants for post-doc associate researchers and short-term researcher positions.

1 March 2018 – 30 June 2019. Andrea BISIGNANO. *Development and validation of a meteo-dispersive modelling system for complex topography on the Italian territory. (Sviluppo e validazione di modellistica meteo-dispersiva per orografia complessa sul territorio italiano).*

1 March 2017 – 28 February 2018. Andrea BISIGNANO. *Modelling the atmospheric circulation and pollutant dispersion in Val d'Agri (PZ, Italy). (Studio modellistico della circolazione atmosferica e della dispersione di inquinanti nella Val d'Agri (PZ)).*

1 May 2014 – 30 April 2015. Albert COMELLAS PRAT. *Simulation of the atmospheric circulation with a non-hydrostatic model for climate studies (Simulazioni della circolazione atmosferica con modello non-idrostatico per studi di interesse climatico).*

1 March 2014 – 30 June 2015. Alessia BALANZINO. *High-resolution simulation of the atmospheric circulation with RAMS model in complex orography regions: Italian Alps and Hindu-kush Karakorum (Simulazioni ad alta risoluzione con il modello RAMS della circolazione atmosferica in regioni a orografia complessa: Alpi Italiane e Hindu-kush Karakorum).*

17 May – 15 July 2014. Simona FALABINO (Short-time research contract). *Data analysis and formulation of parameterizations for the wind velocity standard deviations in different types of areas, urban and rural (Analisi dati e formulazione di parametrizzazioni per le varianze della velocità del vento in diverse tipologie di aree, urbane e rurali).*

5 March – 7 July 2012. Simona FALABINO (Short-time research contract). *Study of the turbulence in calm regime and urban areas: data analysis, parameterizations of the turbulent variables, their implementation in RMS modelling system (Studio della turbolenza in calma di vento e aree urbane: analisi dati, formulazione di parametrizzazioni per le variabili turbolente, loro implementazione e verifica nel sistema modellistico RMS).*

1 April 2010 – 31 January 2011. Luca MORTARINI. *Development of modelling algorithms for the simulation of transport and dispersion of jet emissions with density effect, at local scale and microscale and in presence of obstacles (Sviluppo di algoritmi modellistici per la simulazione a scala locale e microscala con ostacoli del trasporto e dispersione di emissioni a jet e con effetto densità).*

1 July 2008 – 31 March 2010. Luca MORTARINI. *Study of the dispersion of hydrogen from accidental releases with a Lagrangian particle dispersion model (Studio della dispersione di idrogeno da fuoriuscite accidentali con un modello di dispersione Lagrangiano a particelle).*

1 September 2007 – 31 August 2008. Giovanni BELFIORE. *Lagrangian modelling for the particulate dispersion in the atmosphere (Modellistica Lagrangiana per la dispersione del particolato in atmosfera).*

1 September 2005 – 31 August 2007. Giovanni BELFIORE. *RMS modelling study of the meteorology and traffic emission dispersion in the Frejus Alpine transect (Studio modellistico con RMS della meteorologia e della dispersione di emissioni da traffico nel corridoio alpino del Frejus).*

**2008-2014** Host and tutor of three Short-Term Scientific Mobility Programs

**2013.** Tutor for the Short Term Scientific Missions (STSM) young researcher (post-PhD) Program, COST Action ES1006. Photios BARMPAS (Greece). *The Model Evaluation Protocol.*

**2012.** Tutor for the Short Term Scientific Missions (STSM) young researcher (post-PhD) Program, COST Action ES1006. Vasiliki TSIOURI (Greece). *Drafting inventory of reference data available for model testing.*

**2008.** Tutor for the Short Term Scientific Missions (STSM) young researcher (post-PhD) Program, COST Action 732. George EFTHIMIOU (Greece). *The MUST Field Experiment.*

## Doctoral Supervision

**2010-2014** Tutor for the XXVI PhD Course, School of Natural Sciences and Advanced Technologies, Physics and Astrophysics course, Dept. of Physics, Univ. of Torino (3 years). Simona FALABINO. *Turbulence parameterization in the atmospheric boundary layer: data analysis and new developments in urban roughness and low wind.*

**2012** Examiner for a PhD thesis in Hydraulic Engineering, Faculty of Engineering, Univ. of Roma La Sapienza. Antonio CANTELLI. *Analysis of the impact of the urban heterogeneity on the UHI modelling, inside a mesoscale meteorological model based on a parametric subgrid scheme. (Analisi dell'impatto della disomogeneità del tessuto urbano, sulla modellizzazione della UHI, all'interno di un modello meteorologico a mesoscala, mediante uno schema parametrico di sottogriglia.)*

## Master Supervision

**2019** Examiner for the Master thesis (Laurea Magistrale) in Environmental Engineering, Dept. of Civil and Environmental Engineering, Politecnico di Milano. Daniela BARBERO. *Development and application of a kernel method in Lagrangian particle models at the local scale and microscale. (Sviluppo e applicazione del metodo kernel in modelli lagrangiani a particelle a scala locale e a microscala)*

**2019** Tutor for the stage and co-tutor of the Master thesis (Laurea Magistrale) in Environmental Engineering, Dept. of Environment, Land and Infrastructure Engineering, Politecnico di Torino. Maria Cristina DONATO. *The airborne particulate: ultrafine particles and their measurement instruments. Analysis of case studies. (Il Particolato aerodisperso: le particelle ultrafini e i loro strumenti di misura. Analisi caso studio)*

**2018** Co-tutor for the stage and the Master thesis (Laurea Magistrale) in Environmental Physics, School of Science of Nature, Dept. of Physics, Univ. of Torino. Silvia GRECO. *Study of CO<sub>2</sub> high concentration events at Plateau Rosa station with atmospheric trajectories and Lagrangian dispersion models*

**2016** Examiner for the Master thesis (Laurea Magistrale) in Environmental Physics, Dept. of Physics, University of Torino. Alessio GOLZIO. *Near-surface Turbulence in complex terrain. Example of the Mountain-top Site Abeser Kogel.*

**2015** Tutor for the stage and co-tutor of the Master thesis (Laurea Magistrale) in Environmental Physics, School of Science of Nature, Dept. of Physics, Univ. of Torino. Marco BOETTI. *Modelling the pollutant dispersion of the Fukushima nuclear plant release*

**2010** Tutor for the stage and co-tutor of the Bachelor thesis (Laurea Triennale) in Physics, Dept. of Physics, University of Torino. Alessandro SOZZA. *Study of the flow and turbulence around an obstacle with RAMS atmospheric model modified for the microscale. (Studio del flusso e della turbolenza intorno ad un ostacolo con il modello atmosferico RAMS modificato per la microscala)*

**2010**

Tutor for the stage and co-tutor of the Bachelor thesis (Laurea Triennale) in Physics, Dept. of Physics, University of Torino. Ilaria GENNARI. *Analysis of the surface-layer parameters based on data from the Urban Turbulence Project experimental campaign* (*Studio dei parametri di strato atmosferico superficiale con i dati della campagna sperimentale Urban Turbulence Project, Torino*)

**1996-2002**

Training of six graduating (Master Degree) and PhD students, Dept. of Physics, University of Torino:

**2002.** Marco RACCA. *Modelli di chiusura della turbolenza ad ordini elevati per lo strato limite atmosferico neutro* (Master thesis)

**2002.** Luca MORTARINI. *Studio della dispersione relativa di traccianti passivi in atmosfera attraverso un modello Lagrangiano a due particelle* (Master thesis)

**1999.** Jonas DA COSTA CARVALHO, *Estudo dos processos de transporte e difusão na camada limite planetária utilizando os modelos RAMS e SPRAY: aplicação ao caso do experimento TRACT.* from the Univ. of São Paulo (Brazil), Instituto Astronômico e Geofísico (PhD thesis)

**1999.** Cristiano VINEIS. *Simulazioni della dispersione turbolenta su terreno complesso nello strato limite neutro.* (Master thesis)

**1998.** Enrico DI LISI, *Studio di chiusure della turbolenza in modello di circolazione atmosferica a mesoscala.* (Master thesis)

**1996.** Elisa ELAMPE. *Studio della diffusione atmosferica con modelli Lagrangiani stocastici a distribuzione di probabilità non gaussiana.* (Master thesis)

## PROJECTS

### Projects – Principal Investigator/Head of Unit

- 2020–2021** Research Agreement between CNR-ISAC and Autorità di Sistema Portuale del Mar Tirreno Centro Settentrionale  
Research Title: HARMONIA: HARbour MOdeling and measuremeNts In support to Air quality  
Financed by: Autorità di Sistema Portuale del Mar Tirreno Centro Settentrionale  
Role: CO-Principal Investigator, responsible of Modelling task  
Budget: 72.600 euro
- 2013–2018** Special Project RECCO (REgional Climate in Complex Orography), in Project of Interest NextData – National Research Council CNR  
Research Title: Development of ensembles of regional climate change scenarios, with focus on variability, extremes and uncertainties in areas of complex topography  
Financed by: Italian Ministry of Education, University, Research  
Role: Principal Investigator, Responsible of the Special Project  
Budget: 750.000 euro
- 2015–2016** TRESSE – Research agreement for the study of the environmental status of the Lagoon of Venice.  
Research Title: Environmental impact assessment of the air pollution due to the ship emissions through a modelling evaluation.  
Financed by: Autorità Portuale di Venezia  
Responsible of the Project: Dr. P. Campostrini, CORILA  
Role: Head of Unit ISAC-TO  
Budget, total: 1.270.000 euro  
Budget ISAC-TO Unit: 57.000 euro
- 2011–2015** COST Action ES1006  
Research Title: Evaluation, improvement and guidance for the use of local-scale emergency prediction and response tools for airborne hazards in built environments.  
Financed by: European Union  
Role: Vice-chair  
Budget: COST Program provides funds for meetings, short-term mobility, workshop, schools
- 2011–2013** Programma Nazionale di Ricerche in Antartide – Ministero dell'Istruzione, dell'Università e della Ricerca  
Research Title: Artide ed Antartide: influenza dello strato limite atmosferico sul clima (ABLCLIMAT)  
Financed by: Italian Ministry of Education, University, Research  
Responsible of the Project: Dr. S. Argentini, ISAC CNR  
Role: Head of Unit ISAC-TO  
Budget, total: 105.000 euro  
Budget ISAC-TO: 25.000 euro
- 2010** Research Agreement - Convenzione per un programma di collaborazione e di consulenza tecnico scientifica tra Arianet SRL e Consiglio Nazionale delle Ricerche - ISAC Sezione di Torino  
Research Title: Sviluppo di algoritmi modellistici per la simulazione a scala locale e microscala con ostacoli del trasporto e dispersione di emissioni a jet e con effetto densità.

Financed by : ARIANET SRL  
Role: Responsible of the Project  
Budget: 24.000 euro

- 2007–2010** Bando regionale per la ricerca industriale e lo sviluppo precompetitivo, per l'anno 2006 D.D. n. 583/06  
Research Title: From waste to renewable gaseous fuels for current and future vehicles, BioH2Power  
Financed by: Regione Piemonte  
Role: Head of Unit ISAC-TO; Leader of WP 5: Detailed modelling for a safe design of the unit  
Budget, total: 1.560.157 euro  
Budget ISAC-TO Unit: 145.239 euro
- 2006–2008** Bando regionale sulla ricerca scientifica applicata – CIPE 2  
Research Title: Studio modellistico e sperimentale della turbolenza atmosferica e della dispersione di inquinanti in ambiente urbano  
Financed by: Regione Piemonte  
Role: Head of Unit ISAC-TO  
Budget, total: 140.000  
Budget ISAC-TO Unit: 18.760
- 2005–2008** INTERREG III B – ALPINE SPACE, ALPNAP  
Research Title: ALPNAP: Monitoring and Minimisation of Traffic-Induced Noise and Air Pollution Along Major Alpine Transport Routes  
Financed by : European Union  
Role: Head of Unit ISAC-TO, Leader of Work Package 6: Meteorology - Monitoring and Prediction  
Budget, total: 1.989.478 euro  
Budget ISAC-TO Unit: 101.489 euro
- 2004** Renovation of the Research Agreement between MHI and ISAC/TO-CNR  
Research Title: Improvements of turbulence models used in a mesoscale model  
Financed by: Mitsubishi Heavy Industries Ltd (Nagasaki, Japan)  
Role: Responsible of the Project  
Budget: 8.000 euro (1.000.000 J Yen)
- 2004** Research agreement - Contratto di ricerca N. U0785  
Research Title: Interfacciamento della nuova versione 4.4 del codice meteorologico RAMS con il modello di diffusione SPRAY  
Financed by: CESI – Centro Elettrotecnico Sperimentale Italiano G. Motta S.p.A. (Milano)  
Role: Responsible of the Project  
Budget: 18.000 euro
- 2003** Research Agreement - DISTA-UNIPMN e ISAC/TO - CNR  
Research Title: Analisi di dati anemometrici in condizioni di vento debole  
Financed by: University of Piemonte Orientale  
Role: Responsible of the Project  
Budget: 10.000 euro
- 2002–2003** Research Agreement - Refinement of numerical model and technology of global and regional water cycle  
Research Title: Improvements of turbulence models used in a mesoscale model  
Financed by: Mitsubishi Heavy Industries Ltd (Nagasaki, Japan)

Role: Responsible of the Project  
Budget: 12.000 euro (1.500.000 J Yen)

**1999** European Project MAP - Mesoscale Alpine Programme  
Financed by: European Union, World Meteorological Organization  
Role: Responsible, for the Institute of Cosmo-Geophysics of CNR (ICGF-CNR) of Torino, of the radio-sounding campaign at Genova Research Radio-Sounding Station for the Intensive Observationl Period (September the 7th - November the 15th, 1999).

## Projects – partner/collaborator

**2019–2021** Research Agreement  
Research Title: NOSE - Valutazione delle molestie olfattive in aree AERCA della Regione Siciliana  
Financed by: Agenzia Regionale per la Protezione dell’Ambiente della Regione Sicilia “ARPA Sicilia  
Responsible of the Project: Paolo Bonasoni  
Role: responsible of the numerical modelling developments  
Budget: 275.000 euro

**2017–2019** Progetto di Ateneo  
Research Title: Extreme events in turbulent convection  
Financed by: University of Torino  
Responsible of the Project: Prof. Guido Boffetta  
Role: responsible of the numerical simulations and environmental impact assessment  
Budget: 85.000 euro

**2015–2017** Convenzione di Ricerca  
Research Title: Progetto per la realizzazione di una valutazione di impatto sanitario nei comuni di Viggiano e Grumento Nova (PZ) in Val d’Agri (Italy)  
Financed by: Comuni Val d’Agri  
Responsible of the Project: Dr. C. Mangia, ISAC-CNR  
Role: responsible of the numerical simulations for UNIT 3  
Budget: 64.000 euro

**2009** Convenzione di Ricerca.  
Research Title: Studio Climatologico dei sedimenti aeroportuali di Torino Caselle, Venezia Tesserà e Ancona Falconara  
Financed by: ENAV, Ente Nazionale di Assistenza al Volo  
Responsible of the Project: Dr. G. Mastrantonio, ISAC-CNR  
Role: responsible of the meteorological modelling  
Budget: 66.600 euro

**2008** Convenzione per un programma di collaborazione e di consulenza tecnico scientifica tra Ecoplan SRL e Consiglio Nazionale delle Ricerche - ISAC Sezione di Torino  
Research Title: Analisi della dispersione degli inquinanti in atmosfera da Centrale termoelettrica nell’ambito urbano torinese e da impianti di riscaldamento tradizionali – Analisi delle concentrazioni al suolo dell’ammoniaca usata nel processo di produzione della Centrale, nella medesima situazione di emissione, ante e post intervento.  
Financed by : Ecoplan SRL  
Responsible of the Project: Dr. D. Anfossi, ISAC-CNR  
Role: responsible of the meteorological work package  
Budget: 9.600 euro

- 2007** Convenzione per un programma di collaborazione e di consulenza tecnico scientifica tra Ecoplan SRL e Consiglio Nazionale delle Ricerche - ISAC Sezione di Torino  
 Research Title: Progetto di una rete di termodotti nel Comune di Nichelino  
 Financed by : Ecoplan SRL  
 Responsible of the Project: Dr. D. Anfossi, ISAC-CNR  
 Role: responsible of the numerical modeling and data analysis  
 Budget: 16.800 euro
- 2007** Convenzione per un programma di collaborazione e di consulenza tecnico scientifica tra Ecoplan SRL e Consiglio Nazionale delle Ricerche - ISAC Sezione di Torino  
 Research Title: Aggiornamento analisi della dispersione degli inquinanti in atmosfera da centrali nell'ambito urbano torinese e da impianti di riscaldamento tradizionali  
 Financed by : Ecoplan SRL  
 Responsible of the Project: Dr. D. Anfossi, ISAC-CNR  
 Role: responsible of the numerical modeling and data analysis  
 Budget: 12.000 euro
- 2005–2009** COST Action 732  
 Research Title: Quality Assurance and Improvement of Micro-Scale Meteorological Models  
 Financed by: European Union  
 Role: Italian Delegate in the Management Committee  
 Budget: COST Program provides funds for meetings, short-term mobility, workshop, schools
- 2006–2008** Bando regionale sulla ricerca scientifica applicata – CIPE 1  
 Research Title: Modellizzazione su scala regionale della dinamica e della chimica del particolato atmosferico  
 Financed by: Regione Piemonte  
 Responsible of the Project: Prof. E. Ferrero, University of Piemonte Orientale  
 Role: responsible of the data analysis  
 Budget, total: 140.000 euro  
 Budget: 19.100 euro
- 2005–2006** Convenzione di ricerca.  
 Research Title: Studio del Windshear - Realizzazione di un sistema di previsione per l'Aeroporto di Palermo  
 Financed by: Selex (ex Alenia Marconi System SpA)  
 Responsible of the Project: Prof. F. Prodi, ISAC-CNR (Director)  
 Role: responsible of the meteorological package  
 Budget: 108.000 euro
- 2005** Convenzione per un programma di collaborazione e di consulenza tecnico scientifica tra Ecoplan SRL e Consiglio Nazionale delle Ricerche - ISAC Sezione di Torino  
 Research Title: Analisi della dispersione degli inquinanti in atmosfera da centrali nell'ambito urbano torinese e da impianti di riscaldamento tradizionali – valutazione delle alternative ed approfondimento della soluzione prescelta  
 Financed by : Ecoplan SRL  
 Responsible of the Project: Dr. D. Anfossi, ISAC-CNR  
 Role: responsible of the meteorological work package  
 Budget: 54.000 euro
- 2005** Contratto di ricerca CESI N. ODA05989  
 Research Title: Sviluppo di algoritmi in grado di simulare condizioni di calma di vento nei modelli Lagrangiani

Financed by: CESI – Centro Elettrotecnico Sperimentale Italiano G. Motta S.p.A. (Milano)

Responsible of the Project: Dr. D. Anfossi, ISAC-CNR

Role: responsible of the numerical programming and data analysis

Budget: 21.600 euro

**2005–2006** Contratto di Ricerca tra E-ON-Italia Produzione S.p.A. e Consiglio Nazionale delle Ricerche - ISAC – Sezione di Torino

Research Title: Studio modellistico della dispersione in atmosfera - Centrale Termoelettrica di Livorno Ferraris (VC)

Financed by : E-ON-Italia Produzione S.p.A.

Responsible of the Project: Dr. D. Anfossi, ISAC-CNR

Role: responsible of the meteorological work package

Budget: 30.000 euro

**2004–2005** Project Brenner Basistunnel - Galleria di Base di Brennero

Research Title: Brenner Project – Italian Side: dispersion modelling of vehicle traffic along the Brenner highway and main South-Tyrol roads

Financed by : Institut fuer Hygiene und Sozialmedizin Universitaet Innsbruck

Responsible of the Project: Dr. D. Anfossi, ISAC-CNR

Role: responsible of the meteorological work package

Budget: 40.000 euro

**2004** Convenzione tra TRM S.p.A. e Consiglio Nazionale delle Ricerche – ISAC Sezione di Torino

Research Title: Studio modellistico della dispersione in atmosfera degli effluenti da un Impianto Termovalorizzatore in diversi scenari emissivi e meteorologici da localizzarsi in Provincia di Torino.

Responsible of the Project: Dr. D. Anfossi, ISAC-CNR

Role: responsible of the meteorological work package and data analysis

Budget: 60.000 euro

**2002** Convenzione per un programma di collaborazione e di consulenza tecnico scientifica tra Ecoplan SRL e Consiglio Nazionale delle Ricerche - ISAC Sezione di Torino

Research Title: Analisi della dispersione degli inquinanti in atmosfera da Centrali in ambito urbano e da impianti di riscaldamento tradizionali – caso di Torino”

Financed by: ECOPLAN Company S.p.A

Responsible of the Project: Dr. D. Anfossi, ISAC-CNR

Role: responsible of the meteorological work package and data analysis

Budget: 9.300 euro

**2001** Joint Study on Atmospheric Dispersion Modelling

Financed by: Mitsubishi Heavy Industries Ltd (Nagasaki, Japan)

Responsible of the Project: Prof. E. Ferrero, University of Piemonte Orientale

Role: responsible of the model development and data analysis

Budget: 30.000 euro

**2000–2001** International Project TRAPOS (Optimisation of Modelling Methods for Traffic Pollution in Streets); carried out at the Department of Environmental Quality – Institute of Environmental Sciences, Energy Research and Process Innovation, the Netherlands Organization for Applied Scientific Research TNO-MEP (Apeldoorn, NL)

Responsible of the Project for TNO: Prof. Peter Bultjes.

Role: scientific researcher, modeller



- 2001** Progetto di modellistica applicata finalizzato all'indagine sulla qualita' dell'aria nella zona ovest di Torino  
 Financed by: Provincia di Torino, Servizio Qualita' dell'aria e Inquinamento Atmosferico, Acustico ed Elettromagnetico,  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: atmospheric dispersion numerical modelling  
 Budget: 37.185 euro (72.000.000 lire)
- 2001** Convenzione per un programma di collaborazione e di consulenza tecnico scientifica  
 Research Title: Analisi della dispersione degli inquinanti in atmosfera da una Centrale Termoelettrica - Caso di Novi Ligure  
 Financed by: ECOPLAN Company S.p.A  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: responsible for the meteorology numerical modelling  
 Budget: 12.395 euro (24.000.000 lire)
- 1999–2001** PNRA ( Programma Nazionale di Ricerca in Antartide)  
 Settore di Ricerca 6: Fisica e Chimica dell'atmosfera  
 Progetto di Ricerca 6.7: Evoluzione chimica e fisica dei componenti atmosferici nella troposfera  
 Unita' Operativa: sigla COL-ANF, titolo: Traiettorie delle masse d'aria nella troposfera antartica  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: responsible for the data analysis  
 Budget: 6.460 euro (12.500.000 lire)
- 2000** Convenzione per un programma di collaborazione e di consulenza tecnico scientifica  
 by: ECOPLAN Company S.p.A  
 Research Title: Ripotenziamento Centrale di Moncalieri – Analisi della dispersione degli inquinanti in atmosfera  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: responsible for the meteorological and dispersion modelling  
 Budget: 12.400 euro (24.000.000 lire)
- 1999** Contratto di Ricerca N.RAAZS111/0/00 tra ENEL-Ricerca e CNR-ICGF  
 Titolo: Implementazione e verifica di algoritmi innovativi per la generazione dei campi di turbolenza necessari al codice SPRAY  
 Financed by: ENEL (Italy's National Entity for Electricity)// Polo Ambiente  
 Contratto di Ricerca: N.RAAZS111/0/00  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: responsible of new model developments  
 Budget: 37.185 euro (72.000.000 lire)
- 1998** Studio di fattibilità e realizzazione di un prototipo di un sistema integrato di modellistica numerica relativa al trasporto e alla diffusione di sostanze inquinanti in atmosfera in aree ad orografia complessa  
 Financed by: Parco Scientifico e Tecnologico della Liguria di Genova  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: responsible of model development

- 1997–1998** Progetto speciale CNR HUPROMED (Humidity Profiles over the Mediterranean Sea)  
 Responsible of the Project: Dr. C. Cappa, ICGF-CNR  
 Role: Responsible for the Institute of Cosmo-Geophysics of CNR (ICGF-C.N.R.) of Torino, of the experimental radiosounding campaign on the Oceanographic C.N.R. ship URANIA in the Mediterranean basin (14 – 26 October 2001).  
 Budget: 156.000 euro
- 1997–1998** PNRA, Area Tematica: 2b.1, Fisica e Chimica dell'atmosfera Antartica  
 Progetto di Ricerca: 2b.1.2: "Studio dei processi chimici dell'atmosfera Antartica rilevanti per i cambiamenti climatici"  
 Responsible of the Project: Dr. C. Cappa, ICGF-CNR  
 Role: collaborator to data analysis  
 Budget: 12.290 euro (23.800.000 lire)
- 1997** Contratto di Ricerca N. R25WC0071/00 tra ENEL-CRAM e CNR-ICGF  
 Research Title: Realizzazione della connessione tra il modello di circolazione atmosferica non idrostatico RAMS e il modello di dispersione SPRAY  
 Financed by: ENEL (Italy's National Entity for Electricity)/Polo Ambiente  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: responsible of the interface code development, numerical simulations  
 Budget: 55.312 euro (107.100.000 lire)
- 1995–1997** Progetto Strategico Meteorologia a Mesoscala della Regione Alpina: Partecipazione Italiana al Map - Mesoscale Alpine Programme  
 Research Title: Studio della struttura 3-D del PBL nella regione alpina e modellistica della circolazione atmosferica a mesoscala col modello RAMS  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: responsible for the atmospheric model simulations  
 Budget: 18.000 euro
- 1995–1996** Contratto di Ricerca ENEL/ICGF-CNR N. R25TC0115/00  
 Research Title: Potenziamento del codice di diffusione a particelle SPRAY  
 Financed by: ENEL (Italy's National Entity for Electricity)/ - Centro di Ricerca Ambiente e Materiali  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: collaborator to model development  
 Budget: 61.458 euro
- 1992–1994** Convenzione di ricerca ENEL-CNR n. 3.2.1: Studio del trasporto transfrontaliero  
 Research title: Modellistica avanzata per la Valutazione di Impatto Ambientale  
 Financed by: ENEL (Italy's National Entity for Electricity)/- Centro di Ricerca Ambiente e Materiali  
 Responsible of the Project: Dr. D. Anfossi, ICGF-CNR  
 Role: collaborator to model development  
 Budget: 155.000 euro

## MAIN NUMERICAL MODELLING PRODUCTS

6. **SMART** (Spray-Moloch Atmospheric Regional Tool) modelling suite: integrated system of the atmospheric model MOLOCH with SPRAY Lagrangian particle dispersion models, through ARAMIS turbulence and boundary-layer code - **since 2017**.

*SMART is a new meteo-dispersive modelling suite for the simulation and forecast of the dispersion from (accidental) releases. The interfacing code ARAMIS was originally created to interface the non-hydrostatic atmospheric model MOLOCH and the Lagrangian stochastic dispersion model SPRAY. The new suite can trace (accidental) releases in any part of the Italian territory at any time, thanks to MOLOCH 3-day forecasts and the interfaced operational SPRAY runs, and can be adopted as a tool for emergency response purposes. In past years I contributed in the improvement of the boundary-layer parameterization in MOLOCH meteorological model.*

5. **RMS** (RAMS-MIRS-SPRAY) modelling suite and its microscale version **MicroRMS**: integrated system of the atmospheric model RAMS with SPRAY and MICROSPRAY Lagrangian particle dispersion models, through MIRS turbulence and boundary-layer code - since **1998**.

*RMS was developed in times when modelling suites composed by meteorological and dispersion models were yet far to become the state of the art. RMS became a reference approach for the development of modelling suites based on other combinations of different models. The microscale version, developed in more recent years, is conceived to be applied in built environments and canopy layers, since it can account for the presence of obstacles.*

4. **RAMS modules**. New fortran modules treating turbulence closure schemes implemented and integrated in the RAMS (Regional Atmospheric Modelling System) model (ref: RAMS Version 6.0 User's Guide, Tremback C.J. and Walko R.L.) and additional modules to treat the interaction of the flow with obstacles (RAMS6.0\_mod version)– **since 1998**. Open-Source model, used worldwide: <http://www.atmet.com>

*RAMS model was studied, introduced in Italy and used firstly by our group, and in particular by me during my PhD research work. In CNR I have been the reference expert for RAMS for a long time. My experience with it brought me to develop new parameterizations for the turbulence and boundary-layer parameterizations, which were then included by RAMS developers in the newer versions, and adopted as alternative to the original ones. Modification to RAMS for applying it in built environments and canopies have been one of my more recent original contributions.*

3. **MIRS** (Method for Interfacing RAMS and SPRAY). Parameterization code for the atmospheric boundary layer and turbulence, for integrating and interfacing atmospheric models with Lagrangian particle dispersion models: – **since 1997**

*MIRS has been a pioneer among the interfacing boundary-layer codes, it has been released to different research centres and universities in Italy and Brazil, parts of it have been made available to scientists from different Countries, as a basis for the development of their own specific boundary-layer modules.*

2. **SPRAY**. Various contributions in the development and improvement of the SPRAY regional Lagrangian particle dispersion model – **since 1997**. Included in database: European Topic Centre on Air and Climate Change <http://pandora.meng.auth.gr/mds/mds.php>.

*SPRAY model is largely used in Italy and abroad for both scientific research studies and environmental impact assessment, adopted by several regional environmental agencies, research institutes and universities. It is a well-known and recognized dispersion model also at the international level and is applied by a number of different institutions in Europe, USA and in several other Countries worldwide.*

1. **MILORD** (Model for the Investigation of Long Range Dispersion). Long-range Lagrangian particle dispersion model – **since 1993**. Included in database: European Topic Centre on Air and Climate Change. <http://pandora.meng.auth.gr/mds/mds.php>.

*MILORD is at present the only Lagrangian particle dispersion model for the long-range dispersion active and operative in Italy. It has been recently updated and applied both in forward and backward modes for different case studies and new developments are foreseen for its use in multidisciplinary studies, like transport of micro-plastic in the atmosphere.*

## SCIENTIFIC DISSEMINATION ACTIVITY

### Invited talks and seminars

- 2019** *The Lagrangian approach to dispersion modelling: why we like it (and what we did with it).*  
37th International Technical Meeting on Air Pollution Modelling and its Application, Hamburg, Germany, 23-27 September 2019
- 2019** *Updates on high-resolution simulation of atmospheric circulation and pollutant dispersion in complex orography.*  
Institute of Meteorology, Hamburg University (Germany) - Seminar near-ground flow above orographically structured terrain, 8 February 2019
- 2019** *Lagrangian modelling in ISAC – Torino. Results and new developments.*  
VI Giornata sulla modellistica in ARIA(NET), Milano (Italy), 31 January 2019
- 2018** *UDINEE was SMART....?*  
V Giornata sulla modellistica in ARIA(NET), Milano (Italy), 31 January 2018
- 2017** *High resolution simulations of the atmospheric circulation in very complex orography.*  
Institute of Meteorology, Hamburg University (Germany) - Workshop near-ground flow above orographically structured terrain, 23 February 2017
- 2016** *Modelling the dispersion of ship emissions in different scenarios and sensitivity analysis. An environmental impact study in the Venice Lagoon.*  
IV Giornata sulla modellistica in ARIA(NET), Milano (Italy), 25 January 2016
- 2010** *Air Pollution modelling.*  
ESOF - European Science Open Forum, 2-7 July 2010, CNR area - Torino (Italy)
- 2009** *Modellistica della dispersione di traccianti in atmosfera alla microscala ed in presenza di ostacoli.*  
CNR-ISAC, 10 November 2009, Roma (Italy)
- 2009** *Turbulent meeting between circulation and dispersion in the atmospheric boundary layer.*  
Institute für Meteorologie – Freie Universität Berlin, 04 May 2009, Berlin (Germany)
- 2008** *L'influenza degli schemi di chiusura della turbolenza nei modelli meteorologici e di dispersione. Applicazioni con il sistema modellistico RMS.*  
ARPA Emilia Romagna – Servizio IdroMeteoClima, 16 September 2008, Bologna (Italy)
- 2006** *Developments of turbulence closure schemes in RAMS for high resolution simulations over complex terrain*  
6th RAMS/BRAMS/OLAM International Users Workshop, 10 - 12 Maggio 2006, Ubatuba (Brazil)
- 2005** *La modellistica numerica nella fisica dell'atmosfera: meteorologia e qualità dell'aria*  
Seminars for PhD Course in Physics, University of Piemonte Orientale, Department of Science and Advanced Technologies, 14 March 2005, Alessandria (Italy)

- 2005** *Turbulence closure coefficients in stratified atmospheric boundary layer flow*  
5th Annual Meeting of the European Meteorological Society; A.W. 1.2: Boundary layer physics in weather and climate predictions. 12-16 September 2005, Utrecht (The Netherlands)
- 2004** *Modellistica numerica per la circolazione atmosferica e la dispersione di inquinanti*  
Seminars for PhD Course in Engineering of Computing, University of Brescia, Faculty of Engineering for Automation, 3 December 2004, Brescia (Italy)
- 2004** *Modellistica numerica per la circolazione atmosferica e la dispersione di inquinanti*  
8th Workshop CAPI04: Il Calcolo ad alte prestazioni nella simulazione dell'ambiente e dell'azione degli agenti atmosferici", 24-25 November 2004, CILEA, Milano (Italy)
- 2001** *The parameterisation of the Traffic Produced Turbulence*  
Department of Environmental Quality – Institute of Environmental Sciences, Energy Research and Process Innovation", TNO-MEP, 24 January 2001, Apeldoorn (The Netherlands)
- 2000** *Interfacing meteorological and dispersion models. An application with RAMS and SPRAY models*  
Leerstoel groep Meteorologie en Luchtkwalitet, Wageningen University, 31 October 2000, Wageningen (The Netherlands)
- 2000** *Implementation and sensitivity analysis of turbulence closures in fluid-dynamic models. Inclusion of traffic induced turbulence*  
Institute for Marine and Atmospheric research, Utrecht University, 2 November 2000, Utrecht (The Netherlands)
- 2000** *Studio dei modelli di chiusura della turbolenza. Simulazione di un flusso neutro su una valle schematica con il modello fluidodinamica RAMS*  
ISIAAtA – CNR, 19 April 2000, Lecce (Italy)
- 1999** *Modelli di circolazione atmosferica e dispersione di inquinanti*  
Convegno Gestione Ambientale: le necessarie interazioni tra Università, ARPA, industria e provincia di Alessandria., 19-20 March 1999, Alessandria (Italy)
- 1995** *Interfacing RAMS and SPRAY models: 3-D turbulence parametrization over complex terrain.*  
Università degli Studi di Torino, Istituto di Fisica Generale, 13 June 1995, Torino (Italy)

## Conferences: participation and presentations

- 52 37th International Technical Meeting on Air Pollution Modelling and its Application, Hamburg, Germany, 23-27 September 2019 (1 invited talk, 2 presentations).
- 51 19th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Bruges, Belgium, 3-6 June 2019 (4 presentations).
- 50 36th International Technical Meeting on Air Pollution Modelling and its Application, Ottawa, Canada, 14-18 May 2018 (2 presentations).
- 49 18th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Bologna, Italy, 9-12 October 2017 (3 presentations).
- 48 35th International Technical Meeting on Air Pollution Modelling and its Application, Crete, Greece, 3-7 October 2016 (2 presentations).

- 47 17th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Budapest, Hungary, 9-12 May 2016 (3 presentations).
- 46 10th International Conference on Air Quality Science and Application Milano, 14-18 March 2016 (poster)
- 45 34th International Technical Meeting on Air Pollution Modelling and its Application, Montpellier, France, 4-8 May 2015
- 44 14th EMS Annual Meeting – 2014, Prague, Czech Republic, 6 – 10 October 2014
- 43 16th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Varna, Bulgaria, 8-11 September 2014 (2 presentations).
- 42 6th International Symposium on Computational Wind Engineering - CWE2014, Hamburg, 8 – 12 June 2014 (2 presentations)
- 41 33rd International Technical Meeting on Air Pollution Modelling and its Application, Miami, Florida USA, 26-30 August, 2013
- 40 15th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Madrid, Spain, 6-9 May 2013 (2 presentations)
- 39 32nd NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application, Utrecht, The Netherlands, 7-11 May, 2012
- 38 14th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Kos, Greece, 2-6 October 2011
- 37 11th EMS Annual Meeting – 2011, Berlin, Germany, 12–16 September 2011
- 36 31st NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application, Torino (Italy), 27 September – 01 October 2010.
- 35 10th EMS Annual Meeting - 2010, Zurich, Switzerland, 13 – 17 September 2010
- 34 13th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Paris, France, 1 – 4 June 2010
- 33 9th EMS Annual Meeting - 2009, Toulouse, France, 28 September – 2 October 2009
- 32 30th NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application, S. Francisco (USA), 18-22 May 2009
- 31 12th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Cavtat, Croatia, 6 – 9 October 2008 (2 presentations)
- 30 8th EMS Annual Meeting - 2008, Amsterdam (NL), 29 Sep.- 03 Oct. 2008
- 29 12th GMU Conference on "Atmospheric Transport and Dispersion Modeling", July 8-10, 2008, Fairfax, Virginia (U.S.A.)
- 28 TRANSPORT ACROSS THE ALPS: Final Conference MONITRAF – ALPNAP, 23 - 25 January 2008, Innsbruck (Austria) (2 presentations)
- 27 29th NATO/CCMS International Technical Meeting on Air Pollution Modelling and its Application, 24 – 28 September 2007, Aveiro (Portugal) (2 presentations)
- 26 11th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 02 – 05 July 2007, Cambridge (United Kingdom) (3 presentations)
- 25 6th EMS Annual Meeting - 2006, Ljubljana (Slovenia), 4 – 8 September 2006
- 24 28th NATO/CCMS International Technical Meeting on Air Pollution Modelling and its Application, 15 – 19 May 2006, Leipzig (Germany) (3 presentations)
- 23 6th RAMS/BRAMS/OLAM International Users Workshop, 10 - 12 May 2006, Ubatuba (Brazil) (3 presentations)
- 22 NATO SECURITY THROUGH SCIENCE PROGRAMME - ADVANCED RESEARCH WORKSHOP: Atmospheric Boundary Layers: Modelling and Applications for Environmental Security. 18 – 22 April 2006, Dubrovnik (Croatia)
- 21 10th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes; 17-20 October, 2005, Crete (Greece) (3 presentations)
- 20 5th Annual Meeting of the European Meteorological Society; A.W. 1.2: Boundary layer physics in weather and climate predictions. 12-16 September 2005, Utrecht, the Netherlands. (2 presentations)
- 19 27th NATO/CCMS International Technical Meeting on Air Pollution Modelling and its Application, 25 – 29 October 2004, Banff (Canada)
- 18 9th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes; 1 – 4 June 2004, Garmisch-Partenkirchen (Germany) (2 presentations)
- 17 International workshop on Physical Modelling of flow and dispersion phenomena, Prato (Italy) 3-5 September 2003
- 16 8th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes; 14-17 October 2002, Sofia (Bulgaria)

- 15 5th RAMS Workshop and Related Application; 29 September – 3 October 2002, Santorini (Greece)
- 14 EGS XXVII General Assembly: OA12. The atmospheric and oceanic boundary layers – basic studies; 21-26 April 2002, Nice (France)
- 13 7th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes; 28-31 May 2001, Belgirate(Italy) (2 presentations)
- 12 MILLENNIUM NATO/CCMS International Technical Meeting On Air Pollution Modelling And Its Application; 15-19 May 2000, Boulder, Colorado (USA) (3 presentations)
- 11 EGS XXV General Assembly; 25-29 April 2000, Nice (France)
- 10 Workshop on Physics of the Planetary Boundary Layer and Dispersion Process Modelling, 23-26 November 1999, Santa Maria (RS, Brazil) (2 presentations)
- 9 MAP (Mesoscale Alpine Programme) Meeting 1999; 8-11 June 1999 Appenzell (Switzerland)
- 8 EGS XXIV General Assembly; 19-23 April 1999, Den Haag (The Netherlands)
- 7 13th Symposium on Boundary Layers and Turbulence – 79th AMS Annual Meeting; 10-15 January 1999, Dallas, Texas (USA)
- 6 23rd NATO/CCMS International Technical Meeting on Air Pollution Modelling and its Application; 28 September – 2 October 1998, Varna (Bulgaria) (4 presentations)
- 5 MAP (Mesoscale Alpine Programme) Meeting 1998; 16-19 June 1998, Chamonix Mont-Blanc (France)
- 4 NONLINEAR PROBLEMS OF HYDRODYNAMIC STABILITY THEORY AND TURBULENCE CONFERENCE; Moscow State University, 15-22 February 1998, Moscow (Russia)
- 3 SECOND EUROPEAN AND AFRICAN CONFERENCE ON WIND ENGINEERING; 22-26 June 1997, Genova (Italy) (2 presentations)
- 2 MAP (Mesoscale Alpine Programme) Meeting 1997; 11-13 June 1997, Belgirate (Italy)
- 1 EUROMECH COLLOQUIUM 338 Atmospheric Turbulence and Dispersion in Complex Terrain, e ERCOFTAC WORKSHOP - Data on Turbulence and Dispersion in Complex Atmospheric Flows; FISBAT - CNR, 4 - 7 September 1995, Bologna (Italy) (2 presentations)

### Conferences: presentations by co-authors

- 26 6th Annual Conference of the Italian Society for Climate Sciences, Venice, Italy, 17-19 October 2018
- 25 15th International Symposium on Loss Prevention and Safety Promotion (LOSS 2016), Freiburg, Germany, 05-08 June 2016
- 24 15th EMS Annual Meeting – 2015, Sofia, Bulgaria, 7 - 11 September 2015
- 23 Physmod 2015 – International workshop of physical Modelling of flow and dispersion phenomena, Zurich, Switzerland, 7 – 9 September 2015
- 22 METTOOLS IX, Offenbach, Germany, 17 – 19 March 2015
- 21 6th International Conference on Safety & Environment in Process & Power Industry, Bologna, Italy, 13-16 April 2014
- 20 9th International Conference on Air Quality - Science and Application, Garmisch-Partenkirchen, Germany., 24-28 March 2014
- 19 European Geosciences Union General Assembly 2014, Vienna, Austria, 27 April – 2 May 2014
- 18 Physmod 2013 - International Workshop on Physical Modelling of Flow and Dispersion Phenomena, Surrey, UK, 23-25 September 2013
- 17 12th EMS Annual Meeting – 2012, Łódź, Poland, 10 – 14 September 2012
- 16 AGU Chapman Conference on Advances in Lagrangian Modeling of the Atmosphere, Grindelwald, Switzerland, 9 – 14 October 2011
- 15 Alpine Space Summit, Stresa, Italy, 19 - 20 June 2006
- 14 MONITRAF International Conference - Transport across the Alps, Luzerne, Switzerland, 1 - 3 December 2005
- 13 NOAA/EPA Golden Jubilee Symposium on Air Quality Modeling and Its Applications, Durham, North Carolina (USA), 20 - 21 September 2005
- 12 6th International conference of the Israel Society of Ecological and Environmental Quality Sciences (ISEEQS): Living with Global Change: Challenges in Environmental Sciences; at the Weizmann Institute of Science in Rehovot (Israel), May 30 - June 1 2005
- 11 International Conference and Young Scientists School on Computational Information Technologies for Environmental Sciences: "CITES-2003" Tomsk, Russia, September 1-10 2003

- 10 12th Joint Conference on the Applications of Air Pollution Meteorology with the Air and Waste Management Association, Joint session 2 with 25th Conference on Agricultural and Forest Meteorology and Fourth Symposium on the Urban Environment, Norfolk (VA, USA), 19-22 May 2002
- 9 Sixth International Conference on Harmonisation within Atmospheric Dispersion Modelling for regulatory Purposes, Rouen, France, 11-14 October 1999
- 8 Energy, Environment and Technological Innovation, 4th International Congress, , Roma, Italy, 19-24 September 1999
- 7 X Brazilian Congress of Meteorology, Brasilia, 26-30 October 1998
- 6 EUROPEAN GEOPHYSICAL SOCIETY - XXIII General Assembly, Session OA9:Basic Turbulence Studies, Nice, France 20 – 24 April 1998
- 5 EURASAP Workshop on The Determination of the Mixing Height - Current Progress and Problems, Risø National Laboratory Laboratory, The Netherlands, 1 – 3 October 1997
- 4 AIR POLLUTION 97, Bologna, Italy, 16-18 September 1997
- 3 22nd NATO/CCMS International Technical Meeting on Air Pollution Modelling and its Applications, Clermont-Ferrand. France, 2-6 June 1997
- 2 ETEX Symposium on Long-Range Atmospheric Transport, Model Verification and Emergency Response, Wien, 13-16 May, 1997
- 1 4th WORKSHOP on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Oostende, Belgium, 6 - 9 May 1996



# LIST OF PUBLICATIONS

## Peer-reviewed Journal articles and Book chapters indexed in ISI Web of Science

- Haikin N., Trini Castelli S., **2021**. On the Effect of LLJ on Atmospheric Pollutants Dispersion: A Case Study over a Coastal Complex Domain, Employing High-resolution Modelling. *Submitted and revised for Boundary-Layer Meteorology*
- 77 Amicarelli A., Alessandrini S., Agate G., Ferrero E., Pirovano G., Tinarelli G., Trini Castelli S. **2021**. A dry deposition scheme for particulate matter coupled with a well-known Lagrangian Stochastic Model for pollutant dispersion. *Environmental Fluid Mechanics*. Published online 8 March 2021 <https://doi.org/10.1007/s10652-021-09780-y>
- 76 Carissimo B., Trini Castelli S., Tinarelli G. **2021**. JR11 Special sonic anemometer study: a first comparison of building wakes measurements with simple and high resolution numerical modelling. *Under revision for Atmospheric Environment Special Issue "Comparison of Widely-Used Dense Gas Dispersion Models using Observations from the 2015-2016 Jack Rabbit II Field Experiment"*, 244, 1 January 2021, 117798
- 75 Giovannini L., Ferrero E., Karl T., Rotach M.W., Staquet C., Trini Castelli S., Zardi D., **2020**. Atmospheric pollutant dispersion over complex terrain: challenges and needs for improving air quality measurements and modelling. *Special Issue "Atmospheric Processes over Complex Terrain"*, *Atmosphere*, 11, 646, <http://dx.doi.org/10.3390/atmos11060646>
- 74 Trini Castelli S., Bisignano A., Donato A., Landi T.C., Martano P., Malguzzi P., **2020**. Evaluation of the turbulence parameterisation in the MOLOCH meteorological model. *Quart J Roy Meteorol Soc*. 146,124-140. <https://doi.org/10.1002/qj.3661>, WOS:000498705000001
- 73 Bisignano A., Trini Castelli S., Malguzzi P., **2020**. Development and verification of a new meteo-dispersive modelling system for accidental releases in the Italian territory: SMART. *Air Pollution Modeling and its Application XXVI*, C. Mensink, W. Gong and A. Hakami (eds.) Springer Proceedings in Complexity, Springer International Publishing Switzerland, 77-81. [https://doi.org/10.1007/978-3-030-22055-6\\_13](https://doi.org/10.1007/978-3-030-22055-6_13)
- 72 Schiavon M., Tampieri F., Bosveld F.C., Mazzola M., Trini Castelli S., Viola A.P., Yague C., **2019**. The Share of the Mean Turbulent Kinetic Energy in the Near-Neutral Surface Layer for High- and Low-Wind Conditions. *Boundary-Layer Meteorology*, 172(1), 81-106. WOS:000470736100005
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- 57 Reisin, T.G., B. Leitl, S. Trini Castelli, K. Baumann-Stanzer, P. Armand, F. Barmpas, S. Andronopoulos, and K. Jurcakova, **2015**. Evaluation, improvement and guidance for the use of local-scale emergency prediction and response tools for airborne hazards in built environments. *COST Action ES1006 – A European experience*, NATO Science for Peace and Security Series B: Physics and Biophysics, vol. 73, 137-145. ISSN: 1874-6500. *WOS:000456713600013*
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- 54 Anfossi D. and Trini Castelli S., **2014**. Atmospheric tracer experiment uncertainties related to model evaluation, *Environmental Modelling & Software*, 51:166-172. *WOS:000329561100014*
- 53 Gariazzo C., Leitl B., Trini Castelli S., Baumann-Stanzer K., Reisin T.G., Barmpas F., Tinarelli G., Milliez C.M., Armand P., Bemporad E., **2014**. COST Action ES1006. Evaluation, improvement and guidance of local-scale emergency prediction and response tools for airborne hazards in built environments: ongoing activities, experiments and recent results, *Chemical Engineering Transactions*, 36, 529-534. *WOS:000346539900089*
- 52 Leitl B., Trini Castelli S., Baumann-Stanzer K., Reisin T.G., Barmpas P., Balczo M., Andronopoulos S., Armand P., Jurcakova K, Millies M., **2014**. Evaluation of Air Pollution Models for their Use in Emergency Response Tools in Built Environments: the Michelstadt Case Study in COST ES1006 Action. *Air Pollution Modeling and its Application XXIII*, D.G. Steyn and R. Mathur Eds., Springer Publishers, 395-399. ISBN 978-3-319-04378-4. *WOS:000392403800064*
- 51 Mortarini L., Tinarelli G., Trini Castelli S., Carlino G., Anfossi D., **2014**. Two-Phase Accidental Dense Gas Releases Simulations with the Lagrangian Particle Model Microspray *Air Pollution Modeling and its Application XXIII*, D.G. Steyn and R. Mathur Eds., Springer Publishers, 367-371. ISBN 978-3-319-04378-4. *WOS:000392403800059*

- 50 Trini Castelli S., Falabino S., Tinarelli G., Anfossi D., **2014**. Effect of the turbulence parameterizations on the simulation of pollutant dispersion with the RMS modelling system. *Air Pollution Modeling and its Application XXII*, D.G. Steyn and P. Builtjes Eds., Springer Publishers, 529-534. ISBN 978-94-007-5576-5. *WOS:000339389900088*
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- 48 Trini Castelli S and Falabino S. **2013**. Analysis of the parameterization for the wind-velocity fluctuation standard deviations in the surface layer in low-wind conditions. *Meteorol Atmos Phys.* 119, 91-107. *WOS:000313018200007*
- 47 Tinarelli G., Mortarini L., Trini Castelli S., Carlino G., Moussafir J., Olry C., Armand P. and Anfossi D., **2012**. Review and Validation of MicroSpray, a Lagrangian Particle Model of Turbulent. In: *Dispersion Lagrangian Modeling of the Atmosphere*, AGU Geophysical Monograph, Lin J.C., D. Brunner, C. Gerbig, A. Stohl, A. Luhar, and P. Webley Eds., 311-328. ISBN 9780875904900. *WOS:000320012300025*
- 46 Trini Castelli S., Reisin T. G. and Tinarelli G., **2012**. Comparison of RAMS, RMS and MSS modelling systems for high resolution simulations in presence of obstacles for the MUST field experiment. *Air Pollution Modeling and its Application XXI*, D.G. Steyn and S. Trini Castelli Eds., Springer Publishers, 9-14. ISBN: 978-94-007-1358-1. *BCI:BCI201200578346*
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- 44 Anfossi D., Tinarelli G., Trini Castelli S. and Belfiore G., **2011**. Proposal of a new Lagrangian particle model for the simulation of dense gas dispersion, *International Journal of Environment and Pollution*, 44, 200-207. *WOS:000288567900024*
- 43 Trini Castelli S., Belfiore G., Anfossi D., Elampe E. and Clemente M., **2011**. Modelling the meteorology and traffic pollutant dispersion in highly complex terrain: the ALPNAP alpine space project. *International Journal of Environment and Pollution*, 44, 235-243. ISSN 0957-435. *WOS:000288567900028*
- 42 Di Sabatino S., Buccolieri R., Olesen H., Ketzler M., Berkowicz R., Franke J., Schatzmann M., K. Schlunzen H., Leitl B., Britter R., Borrego C., Costa A.M., Trini Castelli S., Reisin T.G., Hellsten A., Saloranta J., Moussiopoulos N., Barmpas F., Brzozowski K., Goricsan I., Balzò M., Bartzis J., Efthimiou G., Santiago J.L., Martilli A., Piringer M., Hirtl M., Baklanov A., Nuterman R and Starchenko A., **2011**. COST 732 in practice: the MUST model evaluation exercise. *Int. Journal of Environment and Pollution*, 44, 403-418. *WOS:000288567900047*
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