Gino Briganti

c/o CNR Research Area of Pisa, Via G. Moruzzi, 1, 56124 Pisa (Italy)
+39 050 3153609 gino.briganti@enea.it

I graduated in Physics from the University of Pisa, with a theoretical thesis on Monte Carlo simulations of lattice quantum chromodynamics.

I work at ENEA since 1993, after a short experience as physical oceanographer, focused on the determination of project parameters about offshore and coastal facilities and the setup of a sea state forecasting system for offshore operations.

My main activity in ENEA concerns the study of the micrometeorology of the atmospheric boundary layer and the development and application of models for predicting the dispersion and chemical transformation of gaseous and aerosol pollutants at urban, regional and mesoscale scales. Presently, I am dealing with the impact assessment on the air quality of emission scenarios, both at national and European level, in support of international air pollution negotiations. A considerable part of my work concerns set-up and run of models on ENEA CRESCO high performance computing infrastructure.

In my experience in ENEA, I was also involved in impact assessment on air quality of large power plants, waste-to-energy plants and urban traffic plans. I also coordinated experimental air quality monitoring activities.

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PERSONAL INFORMATION Gino Briganti

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WORK EXPERIENCE

1992–1993

Contractor in Physical Oceanography

DEAM S.r.l. Pisa, Pisa (Italy)

(1992) Determination of project parameters for Molfetta port expansion works.

(1993) Development of a hybrid model for predicting and controlling the state of the sea, by using weather forecasts and autoregressive statistical methods, on behalf of AGIP Ravenna.

1993–Present

Researcher

ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development)

- (from 2013 to present) Participation in the EURODELTA III project ("campaigns" and "trends" phases).

- (2016) Cooperation Agreement ("International Activities Agreement") concluded on May 16, 2014 by Italian environmental Ministry, CNR and ENEA, for the coordination of international activities to be achieved through the definition of the Italian position and its effective participation at working groups and sub-groups, technical tables and committees.

- (2014) Air quality impact study of emissions from the ILVA steel plant of Taranto. ENEA-ILVA S.p.A. Agreement.

- (from 2013 to 2014) Implementation of a biogenic emission model for Italy, under the Cooperation Agreement "Special Networks" (Legislative Decree 155/2010), signed by Italian Environmental Ministry, CNR, ENEA, Italian Health care Institute - See Chapter 2.9.2 of the Operational Detail Plan (MATTM-DVA-2011-0020017 of 4/8/2011)

- (from 2013 to 2014) Bilateral Agreement for technical support for waste management, air quality and pollution from persistent organic pollutants between Italian Ministry of Foreign Affairs and ENEA, joint exercise ENEA-USJ on Air quality modeling over Lebanon.

- (from 2012 to 2013) Participation in the VIIAS Project (www.viias.it), Integrated Assessment of the Impact of Atmospheric Pollution on the Environment and Health in Italy.

- (from 2007 to 2013) Impact of emissions scenarios on pollutant concentrations and depositions by direct simulations and by means of source-receptor relations (Atmospheric Transfer Matrices) in the framework of the MINNI Project (National Integrated Model to support the international negotiation on atmospheric pollution, www.minni.org).

- (from 2005 to 2006) Participation in the MARRAKEMAS Environmental Management Audit Scheme for the implementation of an Environmental Management System, complying with the EMAS scheme for the municipality of Marrakech - LIFE 04 TCY / MA / 000070 Third Countries.

- (2005) Contract Manager with MAIND s.r.l. of Milan,concerning the service assignment for the inclusion of the calculation of dry and wet depositions in short-term and long-term versions of the WinDIMULA air quality model.

- (from 2003 to 2005) Technical-scientific support to the EIA Special Committee of the Ministry of the Environment and Territorial Protection for the analysis of environmental impact studies of main for works with significant environmental impacts (thermoelectric power plants and airports).

- (2003) Review of the impact study on air quality concerning the Montecchio Maggiore power plant, Commissioned by Euganea Energia Srl.

- (from 2001 to 2002) "Designing the optimal configuration of air quality monitoring networks for the areas of Brindisi and Taranto" - Agreement between ENEA and Joint Research Center Ispra.

- (from 1999 to 2001) Developing methodologies for assessing the impact of the general urban traffic plans for the city of Bologna under the Program Agreement ENEA-Italian Ministry of the Environment,

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"Pollution Prevention of Benzene and Polycyclic Aromatic Hydrocarbons".

- (1999) Air quality measurement campaign at the request of the Municipality of Bernalda at the "European Day: In town without my car".

- (1998) Professional training of n. 2 newly graduated staff.

- (1998) Tutor of scholarship No. 9707 on "Developing and applying mathematical models for the diffusion of pollutants into environmental matrices".

- (1997) Responsibility of the Air Quality Mobile Unit for monitoring the atmospheric and acoustic pollution under the SIMOA (Integrated Environmental Monitoring System) project.

- (1997) Responsibility of the SIMOA project computing room.

- (1997) Air quality study in the framework of the agreement between ENEA and Province of Lucca: "Optimal siting for the RDF (refuse derived fuel) plant facility and landfill servicing the II and IV basins of the provincial territory"

- (from 1995 to 1996) Support to the Ministry of the Environment for the "Pollution recovery plan for the provinces of Brindisi and Taranto" (Presidential Decree of 1998, 23 April).

- (from 1993 to 1995) Participation in measurement campaigns for measuring atmospheric pollution (Bardonecchia, Metaponto, Matera, Potenza).

EDUCATION AND TRAINING

1985–1990

Degree in Physics

University of Pisa, Pisa (Italy)

Theoretical Physics thesis on Monte Carlo simulations of lattice quantum chromodynamics on CRAY supercomputers, aiming to test the Witten-Veneziano mechanism, explaining the breaking of the U(1) axial symmetry and the related η-η' meson mass splitting .

PERSONAL SKILLS

Mother tongue(s): Italian

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
French	A2	A2	A2	A2	B1
English	A2	A2	A2	A2	B1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Job-related skills

- Knowledge of operating systems: Linux, Windows, Android.
- Programming languages: Fortran, shell scripting, ncl, gnuplot.
- Development of parallel codes (OpenMP and MPI paradigms).
- Use nco and cdo applications for manipulating netcdf and grib files.
- Modeling and mathematical methods.
- Experience in the management of air quality monitoring systems.
- Basic knowledge on geographic information systems (Esri ArcInfo software).

ADDITIONAL INFORMATION

Publications

Colette A., Andersson C., Manders A., Mar K., Mircea M., Pay M.T., Raffort V., Tsyro S., Cuvelier C., Adani M., Bessagnet B., Bergström R., Briganti G., Butler T., Cappelletti A., Couvidat F., D'Isidoro M., Doumbia T., Fagerli H., Granier C., Heyes C., Klimont Z., Ojha N., Otero N., Schaap M., Sindelarova K., Stegehuis A.I., Roustan Y., Vautard R., van Meijgaard E., Vivanco M.G., Peter Wind P. (2017).

EURODELTA-Trends, a multi-model experiment of air quality hindcast in Europe over 1990–2010. Geosci. Model Dev., 10, 3255-3276, https://doi.org/10.5194/gmd-10-3255-2017.

Vivanco M.G., Bessagnet B., Cuvelier C., Theobald M.R., Tsyro S., Pirovano G., Aulinger A., Bieser J., Calori G., Ciarelli G., Manders A., Mircea M., Aksoyoglu S., Briganti G., Cappelletti A., Colette A., Couvidat F., D'Isidoro M., Kranenburg R., Meleux F., Menut L., Pay M.T., Rouïl L., Silibello C., Thunis P., Ung A. (2017). Joint analysis of deposition fluxes and atmospheric concentrations of inorganic nitrogen and sulphur compounds predicted by six chemistry transport models in the frame of the EURODELTAIII project. Atmospheric Environment, Volume 151, February 2017, Pages 152-175, ISSN 1352-2310, http://dx.doi.org/10.1016/j.atmosenv.2016.11.042.

Briganti G., Cappelletti A., Mircea M., Adani M., D'Isidoro M. (2016). Atmospheric Pollution Trends simulated at European Scale in the framework of the EURODELTA 3 Project. High Performance Computing on CRESCO infrastructure: research activities and results 2015, ISBN: 978-88-8286-342-5.

Adani M., D'Isidoro M., Briganti G., Cappelletti A. (2016). Implementation of an air quality forecast system over Italy. High Performance Computing on CRESCO infrastructure: research activities and results 2015, ISBN: 978-88-8286-342-5.

Bessagnet B., Pirovano G., Mircea M., Cuvelier C., Aulinger A., Calori G., Ciarelli G., Manders A., Stern R., Tsyro S., García Vivanco M., Thunis P., Pay M.-T., Colette A., Couvidat F., Meleux F., Rouïl L., Aksoyoglu A. S., Baldasano J. M., Bieser J., Briganti G., et al. (2016). Presentation of the EURODELTA III intercomparison exercise -evaluation of the chemistry transport models' performance on criteria pollutants and joint analysis with meteorology. Atmos. Chem. Phys., 16, 12667-12701, 2016.

Mircea M., Grigoras G., D'Isidoro M., Righini G., Adani M., Briganti G., Ciancarella L., Cappelletti A., Calori G., Cionni I., Cremona G., Finardi S., Larsen Bo. R., Pace G., Perrino C., Piersanti A., Silibello C., Vitali L., Zanini G. (2016). Impact of Grid Resolution on Aerosol Predictions: A Case Study over Italy. Aerosol and Air Quality Research, 16, pp. 1253-1267.

Zanini G., Briganti G., Cappelletti A., Ciancarella L., D'Elia I., D'Isidoro M., Piersanti A., Righini G. (2016). An atmospheric modelling system for Lebanon. Rapporto tecnico ENEA RT/2016/9/ENEA.

The EURODELTA III exercise - Model evaluation with observations issued from the 2009 EMEP intensive period and standard measurements in Feb/Mar 2009 (2014) – MSC-W Technical Report 1/2014, http://emep.int/publ/reports/2014/MSCW_technical_1_2014.pdf

Adani M., Mircea M., Silibello C., D'Isidoro M., Ciancarella L., Vitali L., Piersanti A. (2014). Modelling heavy metals concentrations over italy: comparison with observations and some sensitivity tests. 16th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 8-11 September 2014, Riviera Holiday Club, Varna, Bulgaria.

Mircea M., Briganti G., Calori G., et al. (2014). Assessment of the AMS-MINNI system capabilities to simulate air quality over Italy for the calendar year 2005. Atmospheric Environment, 84, pp. 178-188.

Adani M., Briganti G., Cappelletti A. et al. (2014). Application of the MINNI Atmospheric Model System (AMS) at high resolution over Italy. High performance computing on CRESCO infrastructure: research activity and results 2013 – 2014 -ENEA – ISBN 978-88-8286-312-8.

Briganti G., Cappelletti A., DIsidoro M., et al. (2014) . Validation of the MINNI Atmospheric Model System (AMS) with the Trisaia Field Campaign Data. High performance computing on CRESCO infrastructure: research activity and results 2012 – 2014 - ENEA – ISBN 978-88-8286-302-9.

Mircea M., Briganti G., Malaguti A., et al. (2012). Modelling of Saharan dust transport to the Southern Italy. 7th International Workshop on Sand/Duststorms and Associated Dustfall 2-4 December 2013, ESA/ESRIN, Frascati (Rome), Italy.

D'Isidoro M., Mircea M., Vitali L., Cionni I., Briganti G., Cappelletti A., et al. (2013). Study of the Impact of Low vs. High Resolution Meteorology on Air Quality Simulations Using the MINNI Model Over Italy. Air Pollution Modeling and its Application XXII, NATO Science for Peace and Security Series C: Environmental Security, 137, pp. 587-592.

Briganti G., Calori G., Cappelletti A., et al. (2012). Determination of multi-year atmospheric transfer matrices for GAINS-Italy model. High performance computing on CRESCO infrastructure: research activity and results 2010-2011, ENEA, ISBN 978-88-8286-268-8.

Briganti G., Cappelletti A., Ciancarella, et al. (2011). Meteorological and air quality fields production over Italy in the frame of MINNI project. High performance computing on CRESCO infrastructure: research activity and results 2009-2010 - 2011 - ENEA – ISBN 978-88-8286-242-8.

Mircea M., Briganti G., Cappelletti A., et al. (2011). Ozone simulations with atmospheric modelling system of MINNI project: a multi year evaluation over Italy. Proceedings from the Harmonisation conference in Kos, October 2011, http://www.harmo.org/.

Ciancarella L., Briganti G., Calori G., et al. (2011). National Italian Integrated Atmospheric Model on Air Pollution: sensitivity to emission inventories. . Proceedings from the Harmonisation conference in Kos, October 2011 http://www.harmo.org/.

Mircea M., Briganti G., Cappelletti A., et al. (2011). Modelling the buildup of aerosol loading over Italy during high-pressure conditions. European Aerosol Conference - EAC 2011, Manchester 4-9 Sept. 2011.

Zanini G., Briganti G., Cappelletti A., et al. (2010). Modeling Air Quality over Italy with MINNI Atmospheric Modeling System: from Regional to Local Scale. 31st NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application september 27-october 1, Turin.

Mircea M., Cappelletti A., Briganti G., et al. (2010). Impact of horizontal grid resolution and emission inventory on fine and coarse particulate matter: a case study over Italy. International Aerosol Conference, Helsinki, 29 August - 3 September 2010.

Mircea M., Cappelletti A., Briganti G., et al. (2010). Impact of horizontal grid resolution on air quality modeling: a case study. HARMO13 – 13th International Conference on Harmonization within Atmospheric Dispersion Modeling for Regulatory Purposes, Paris, 1-4 june.

Briganti G., Cappelletti A., Mircea M., et al. (2010) . Testing the capability of the MINNI atmospheric modeling system to simulate air pollution in Italy. HARMO13, 13th International Conference on Harmonization within Atmospheric Dispersion Modeling for Regulatory Purposes, Paris, 1-4 june.

Finardi S., Briganti G., et al. (2010). Air quality assessment over northern Italy for the reference year 2005. Mesoscale modelling for air pollution applications: achievements and challenges. COST 728 final workshop, Geneva, 25-26 february.

D'Elia I., Vialetto G., Pace G., Vitali L., Zanini G., Briganti G. et al. (2009). Confronto tra le osservazioni e le simulazioni del modello MINNI per la centralina di monitoraggio Cortonese. Rapporto tecnico ENEA RT/2009/32/ENEA.

Barsanti P., Briganti G., Cappelletti A., Marri P. (2009). Una metodologia per valutare le concentrazioni degli aerosol marini primari nelle aree costiere. Rapporto tecnico ENEA RT/2009/3/ACS.

Briganti G. (2007). Una introduzione allo studio della dispersione degli inquinanti in atmosfera in condizioni di calma di vento. ENEA RT/2007/29/ACS.

Barsanti P., Briganti G., Marri P., Vitali L. (2008). Metodologie per la determinazione dei fattori di emissione degli aerosol marini primari. Rapporto tecnico ENEA RT/2008/8/ACS.

Briganti G., Falchi A., Barsanti P., Marri P. (2007). Applicazione di modelli di dispersione di inquinanti in atmosfera in condizioni di calma di vento e vento debole. Rapporto tecnico ENEA RT/2007/15/ACS.

Marri P., Briganti G., Barsanti P., Vigo A., Orsi C. (2007). Stima della produzione elettrica di turbine eoliche di piccola taglia - Valutazione preliminare. Rapporto tecnico ENEA RT/2007/2/ACS.

Barsanti P., Briganti G., Cappelletti A., Marri P., Ciucci I., Orsi C. (2006). Stima diretta ed indiretta del potenziale eolico di sette siti della provincia di Lucca. Rapporto tecnico ENEA RT/2006/42/PROT.

Barsanti P., Briganti G., Cappelletti A., Marri P., Martini L. (2005). Misure di vento a confronto con i risultati di un modello prognostico in un sito della piana di Lucca. Rapporto tecnico ENEA RT/2005/9/PROT.

Briganti G., Giarola S., Grippa G., Zanini G., Monforti F., Kolarova M.P. (2001). WinDimula 2.0 model evaluation with the Model Validation Kit. HARMO 7, Seventh International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Belgirate, 28-31 may.

Briganti G., Di Giacomo A., Panagopoulos H (1991). A lattice determination of the slope of the topological susceptibility at q2=0. Physics Letters B, 253, 3-4, pp. 427-429.

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