PERSONAL INFORMATION

Lina Vitali

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POSITION Researcher – ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development

STUDIES Physics Degrees

WORK EXPERIENCE

February 2009 - present

Researcher

ENEA - Bologna

Research on air pollution (meteorological and dispersion modeling). In particular:
- data analysis of MINNI and FORAIR outcomes;
- model validation;
- back trajectories modelling (M-TraCE development);
- spatial representativeness of monitoring station;
- environmental and health impact of industrial sources;
- particle lagrangian modelling (SPRAY).

September 2003 - February 2009

Research fellow

ENEA - Bologna

Research on air pollution (meteorological and dispersion modeling). In particular:
- meteorological fields production (both diagnostic and prognostic approaches) in the frame of the national project MINNI;
- HYSPLIT back trajectories computation and statistical elaboration;
- particle lagrangian modelling;
- validation tools.

EDUCATION AND TRAINING

July 2000 - July 2002

Scholarship

ENEA - Bologna

Research on air pollution. In particular:
- particle lagrangian modelling (PLPM development);
- validation tools.

October 1993 - March 1998

Degree in Physics

Alma Mater Studiorum, Università degli Studi di Bologna

Biophysics. Dissertation on the state of water in thermoresponsive poly (acryloyl-l-proline methyl ester) hydrogels observed by 1H-NMR relaxometry (results published).

PERSONAL SKILLS

Mother tongue(s)   Italian

Other language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C1	C1	B2	B2	C1

English

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

Communication skills   Good communication skills of scientific results both in oral and written form.
Good relational skills acquired by living and working in multicultural environments.

Organisational / managerial skills   Good attitude to teamwork.
Good organizational and coordination skills.
Ability to work independently.

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Independent user	Proficient user

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

- Operating systems: Windows, Linux.
- Programming languages: Fortran, NCL, PV-WAVE
- Microsoft Office tools: Word, Excel, PowerPoint.
- GIS tools: QGis

Driving licence   B

ADDITIONAL INFORMATION

Publications

- Vitali, L., Cuvelier, K., Piersanti, A., Monteiro, A., Adani, M., Amorati, R., Bartocha, A., D'Ausilio, A., Durka, P, Gama, C., Giovannini, G., Janssen, S., Przybyła, T., Stortini, M., Vranckx, S., Thunis, P. (2023) A standardized methodology for the validation of air quality forecast applications (F-MQO): lessons learnt from its application across Europe, Geoscientific Model Development, 16, 6029–6047, DOI: 10.5194/gmd-16-6029-2023.
- D'Isidoro, M., Mircea, M., Borge, R., Finardi, S., de la Paz, D., Briganti, G., Russo, F., Cremona, G., Villani, M.G., Adani, M., Righini, G., Vitali, L., Stracquadanio, M., Prandi, R., Carlino, G. (2023) The Role of Vegetation on Urban Atmosphere of Three European Cities—Part 1: Evaluation of Vegetation Impact on Meteorological Conditions. Forests, 14, 1235. DOI: 10.3390/f14061235.
- Adani, M., D'Isidoro, M., Mircea, M., Guarnieri, G., Vitali, L., D'Elia, I., Ciancarella, L., Gualtieri, M., Briganti, G., Cappelletti, A., Piersanti, A., Stracquadanio, M., Righini, G., Russo, F., Cremona, G., Villani, M. G., Zanini, G (2022) Evaluation of air quality forecasting system FORAIR-IT over Europe and Italy at high resolution for year 2017, Atmospheric pollution research, 13, 101456, DOI: 10.1016/j.apr.2022.101456.
- D'Isidoro, M., D'Elia, I., Vitali, L., Briganti, G., Cappelletti, A., Piersanti, A., Finardi, S., Calori, G., Pepe, N., Di Giosa, A., Bolignano, A., Zanini, G. (2022) Lessons learnt for air pollution mitigation policies from the COVID-19 pandemic: The Italian perspective. Atmospheric pollution research, 13(12), 101620. DOI:10.1016/j.apr.2022.101620
- Pasanisi, F., Righini, G., D'Isidoro, M., Vitali, L., Briganti, G.,Grauso, S., Moretti, L., Tebano, C., Zanini, G., Mahahabisa, M., Letuma, M., Raliselo, M., Seitlheko, M. (2021) A Cooperation Project in Lesotho: Renewable Energy Potential Maps Embedded in a WebGIS Tool. Sustainability, 13, 10132. DOI:10.3390/su131810132.
- D'Elia, I., Briganti, G., Vitali, L., Piersanti, A., Righini, G., D'Isidoro, M., Cappelletti, A., Mircea, M., Adani, M., Zanini, G., and Ciancarella, L. (2021). Measured and modelled air quality trends in Italy over the period 2003–2010. Atmospheric Chemistry and

Physics, 21, 10825–10849. DOI: 10.5194/acp-21-10825-2021.

- Villani, M.G, Russo, F., Adani, M., Piersanti, A., Vitali, L., Tinarelli, G., Ciancarella, L., Zanini, G., Donateo, A., Rinaldi, M., Carbone, C., Decesari, S., Sänger, P. (2021). Evaluating the Impact of a Wall-Type Green Infrastructure on PM10 and NOx Concentrations in an Urban Street Environment. Atmosphere, 12(7), 839. DOI:10.3390/atmos12070839.

- Adani, M., Piersanti, A., Ciancarella, L., D'Isidoro, M., Villani, M.G., Vitali, L. (2020). Preliminary tests on the sensitivity of the FORAIR_IT air quality forecasting system to different meteorological drivers. Atmosphere, 11 (6), art. no. 574. DOI: 10.3390/atmos11060574.

- D'Isidoro, M., Briganti, G., Vitali, L., Righini, G., Adani, M., Guarnieri, G., Moretti, L., Raliselo, M., Mahahabisa, M., Ciancarella, L., Zanini, G., Fino, E. (2020). Estimation of solar and wind energy resources over Lesotho and their complementarity by means of WRF yearly simulation at high resolution. Renewable Energy, 158, 114-129. DOI: 10.1016/j.renene.2020.05.106.

- Pisoni, E., Guerreiro, C., Lopez-Aparicio, S., Guevara, M., Tarrason, L., Janssen, S., Thunis, P., Pfäfflin, F., Piersanti, A., Briganti, G., Cappelletti, A., D'Elia, I., Mircea, M., Villani, M.G., Vitali, L., Matavž, L., Rus, M., Žabkar, R., Kauhaniemi, M., Karppinen, A., Kousa, A., Väkevä, O., Eneroth, K., Stortini, M., Delaney, K., Struzewska, J., Durka, P., Kaminski, J.W., Krmpotic, S., Vidic, S., Belavic, M., Brzoja, D., Milic, V., Assimakopoulos, V.D., Fameli, K.M., Polimerova, T., Stoyneva, E., Hristova, Y., Sokolovski, E., Cuvelier, C. (2019). Supporting the improvement of air quality management practices: The "FAIRMODE pilot" activity. Journal of Environmental Management, 245, 122-130. DOI: 10.1016/j.jenvman.2019.04.118.

- Piersanti, A., Adani, M., Briganti, G., Cappelletti, A., Ciancarella, L., Gremona, G., D'Isidoro, M., Lombardi, C., Pacchierotti, F., Russo, F., Spano, M., Uccelli, R., Vitali, L. (2018). Air quality modeling and inhalation health risk assessment for a new generation coal-fired power plant in Central Italy.   Science of the Total Environment, 644, 884-898. DOI:10.1016/j.scitotenv.2018.06.393.

- Vitali, L., Righini, G., Piersanti, A., Cremona, G., Pace, G., Ciancarella, L. (2017). M-TraCE: a new tool for high-resolution computation and statistical elaboration of backward trajectories on the Italian domain. Meteorology and Atmospheric Physics, 129 (6), 629–643. DOI: 10.1007/s00703-016-0491-8.

- Vitali, L., Morabito, A., Adani, M., Assennato, G., Ciancarella, L., Cremona, G., Giua, R., Pastore, T., Piersanti, A., Righini, G., Russo, F., Spagnolo, S., Tanzarella, A., Tinarelli, G., Zanini, G. (2016). A Lagrangian modelling approach to assess the representativeness area of an industrial air quality monitoring station. Atmospheric Pollution Research, 7 (6), 990-1003. DOI: 10.1016/j.apr.2016.06.002.

- 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, B.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 (5), 1253-1267. DOI: 10.4209/aaqr.2015.02.0058.

- Piersanti, A., Vitali, L., Righini, G., Cremona, G., Ciancarella, L. (2015). Spatial representativeness of air quality monitoring stations: A grid model based approach. Atmospheric Pollution Research, 6 (6), 953-960. DOI: 10.1016/j.apr.2015.04.005.

- Pace, G., Junkermann, W., Vitali, L., Sarra, A.D., Meloni, D., Cacciani, M., Cremona, G., Iannarelli, A.M., Zanini, G. (2015). On the complexity of the boundary layer structure and aerosol vertical distribution in the coastal Mediterranean regions: A case study. Tellus, Series B: Chemical and Physical Meteorology, 6 (1), art. no. 27721. DOI: 10.3402/tellusb.v67.27721.

- Righini, G., Cappelletti, A., Ciucci, A., Cremona, G., Piersanti, A., Vitali, L., Ciancarella, L. (2014). GIS based assessment of the spatial representativeness of air quality monitoring stations using pollutant emissions data. Atmospheric Environment, 97, 121-129. DOI: 10.1016/j.atmosenv.2014.08.015.

- Monforti, F., Huld, T., Bódis, K., Vitali, L., D'Isidoro, M., Lacal-Arántegui, R. (2014). Assessing complementarity of wind and solar resources for energy production in Italy. A Monte Carlo approach. Renewable Energy, 63, 576-586. DOI: 10.1016/j.renene.2013.10.028.

- Mircea, M., Ciancarella, L., Briganti, G., Calori, G., Cappelletti, A., Cionni, I., Costa, M., Cremona, G., D'Isidoro, M., Finardi, S., Pace, G., Piersanti, A., Righini, G., Silibello, C., Vitali, L., Zanini, G. (2014). Assessment of the AMS-MINNI system capabilities to simulate air quality over Italy for the calendar year 2005. Atmospheric Environment, 84, 178-188. DOI: 10.1016/j.atmosenv.2013.11.006.

- D'Isidoro, M., Mircea, M., Vitali, L., Cionni, I., Briganti, G., Cappelletti, A., Finardi, S., Pace, G., Ciancarella, L., Cremona, G., Piersanti, A., Righini, G., Zanini, G. (2013). Study of the impact of low vs. high resolution meteorology on air quality simulations using the MINNI model over Italy. NATO Science for Peace and Security Series C: Environmental Security, 137, 587-592. DOI: 10.1007/978-94-007-5577-2_99.

- Silibello, C., Calori, G., Costa, M.P., Dirodi, M.G., Mircea, M., Radice, P., Vitali, L., Zanini, G. (2012).Benzo[a]pyrene modelling over Italy: Comparison with experimental data and source apportionment. Atmospheric Pollution Research, 3 (4), 399-407. DOI: 10.5094/APR.2012.046.

- Mircea, M., D'Isidoro, M., Maurizi, A., Vitali, L., Monforti, F., Zanini, G., Tampieri, F. (2008). A comprehensive performance evaluation of the air quality model BOLCHEM to reproduce the ozone concentrations over Italy. Atmospheric Environment, 42 (5), 1169-1185. DOI: 10.1016/j.atmosenv.2007.10.043.

- Vitali, L., Monforti, F., Bellasio, R., Bianconi, R., Sachero, V., Mosca, S., Zanini, G. (2006). Validation of a Lagrangian dispersion model implementing different kernel methods for density reconstruction. Atmospheric Environment, 40 (40), 8020-8033. DOI: 10.1016/j.atmosenv.2006.06.056.

- Monforti, F., Vitali, L., Pagnini, G., Lorenzini, R., Monache, L.D., Zanini, G. (2006). Testing kernel density reconstruction for Lagrangian photochemical modelling. Atmospheric Environment, 40 (40), 7770-7785. DOI: 10.1016/j.atmosenv.2006.07.046.

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- Carenza, M., Cojazzi, G., Bracci, B., Lendinara, L., Vitali, L., Zincani, M., Yoshida, M., Katakai, R., Takacs, E., Higa, O.Z., Martellini, F. (1999). The state of water in thermoresponsive poly(acryloyl-L-proline methyl ester) hydrogels observed by DSC and 1H NMR relaxometry. Radiation Physics and Chemistry 55(2), 209-218. DOI: 10.1016/S0969-806X(98)00328-4.

Conferences

- Piersanti, A., Cuvelier, C., Janssen, S., Monteiro, A., Durka, P., Thunis, P., Vitali, L. (2022) Quality control indicators for the validation of air quality forecast applications in the framework of FAIRMODE activities. HARMO22 - 21st International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Proceedings, 2022-September.
- D'Isidoro, M., Vitali, L., Pasanisi, F., Righini, G., Mahahabisa, M., Letuma, M., Raliselo, M., Seitlheko, M. (2021). Renewable Energy Potential Maps For Lesotho. 6th AIEE Energy Symposium: Current and Future Challenges to Energy Security-The energy transition, the pathway from low carbon to decarbonization – Session 19 pp. 167-170. Conference Proceedings. 14-16 December 2021, virtual conference. Published 2021 by: AIEE - The Italian Association of Energy Economists, Rome, Italy. ISBN: 978-88-942781-6-3.
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- Adani, M., Mircea, M., Silibello, C., D'Isidoro, M., Ciancarella, L., Vitali, L., Piersanti, A., Briganti, G., Capelletti, A., Righini, G., Cremona, G., Zanini, G. (2014). Modelling heavy metals concentrations over Italy: Comparison with observations and some sensitivity tests. HARMO 2014 - 16th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Proceedings, 148-152.
- Piersanti, A., Righini, G., Russo, F., Cremona, G., Vitali, L., Ciancarella, L. (2013). H15-66: Spatial representativeness of air quality monitoring stations in Italy. Proceedings of the 15th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, HARMO 2013, 108-112.
- Piersanti, A., Righini, G., Cremona, G., Ciancarella, L., Cionni, I., D'Isidoro, M., Mircea, M., Vitali, L. (2012). GIS-based procedure for evaluation of performances of the Italian atmospheric modelling system simulated data versus observed measurements. iEMSs 2012 - Managing Resources of a Limited Planet: Proceedings of the 6th Biennial Meeting of the International Environmental Modelling and Software Society, 1375-1382.
- Mircea, M., Briganti, G., Cappelletti, A., Vitali, L., Pace, G., D'Isidoro, M., Righini, G., Piersanti, A., Cremona, G., Cionni, I., Radice, P., Silibello, C., Finardi, S., Calori, G., Ciancarella, L., Zanini, G. (2011). Ozone simulations with atmospheric modelling system of MINNI project: A multi year evaluation over Italy. HARMO 2011 - Proceedings of the 14th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 52-56.
- Ciancarella, L., Briganti, G., Calori, G., Cappelletti, A., Cionni, I., Costa, M., Cremona, G., D'Elia, I., D'Isidoro, M., Finardi, S., Mauri, L., Mircea, M., Pace, G., Piersanti, A., Racalbuto, S., Radice, P., Righini, G., Vialetto, G., Vitali, L., Zanini, G. (2011). National Italian integrated atmospheric model on air pollution: Sensitivity to emission inventory. HARMO 2011 - Proceedings of the 14th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 277-281.
- Vitali, L., Finardi, S., Pace, G., Piersanti, A., Zanini, G. (2010). Validation of simulated atmospheric fields for air quality modeling purposes in Italy.HARMO 2010 - Proceedings of the 13th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 609-613.
- Mircea, M., Cappelletti, A., Briganti, G., Vitali, L., Pace, G., Marri, P., Silibello, C., Finardi, S., Calori, G., Zanini, G. (2010). Impact of horizontal grid resolution on air quality modeling: A case study over Italy. HARMO 2010 - Proceedings of the 13th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 166-170.
- Briganti, G., Cappelletti, A., Mircea, M., Pederzoli, A., Vitali, L., Pace, G., Marri, P., Silibello, C., Finardi, S., Calori, G., Zanini, G. (2010). Testing the capability of the minni atmospheric modeling system to simulate air pollution in Italy. HARMO 2010 - Proceedings of the 13th International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, 161-165.
- Pignatelli, T., Brusasca, G., Calori, G., Contaldi, M., D'Elia, I., Monforti, F., Finardi, S., Radice, P., Silibello, C., Vialetto, G., Vitali, L., Zanini, G. (2007). Impact assessment on environment from transboundary air pollution in Italy carried out by a multi-pollutant integrated assessment model. MODSIM07 - Land, Water and Environmental Management: Integrated Systems for Sustainability, Proceedings, 2076-2082.
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National Journals

- Righini, G., Cappelletti, A., Cionni, I., Ciucci, A., Cremona, G., Piersanti, A., Vitali, L., Ciancarella, L. (2013). Methodologies for the evaluation of spatial representativeness of air quality monitoring stations in Italy. Energia, Ambiente e Innovazione. Rivista bimestrale dell'ENEA. Anno 59. 1-2 gen./apr. 2013, 60-68. ISSN 11240016. http://www.enea.it/it/produzione-scientifica/pdf-eai/n.1-2-gennaio-aprile-2013/12-air-quality-monitoring-stations-pdf.

Technical Reports

- Janssen, S. Thunis, P., et al. (2022) FAIRMODE Guidance Document on Modelling Quality Objectives and Benchmarking (version 3.3), EUR 31068 EN, Publications Office of the European Union, Luxembourg, 2022, JRC129254, ISBN 978-92-76-52425-0,

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- Janssen, S., Thunis, P., et al. (2020) FAIRMODE Guidance Document on Modelling Quality Objectives and Benchmarking, version 3.2, EUR 30264 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-19745-4, doi:10.2760/30226, JRC120649.
- Vitali, L., Adani, M., Briganti, G., Cappelletti, A., Ciancarella, L., Cremona, G., D'Elia, I., D'Isidoro, M., Guarnieri, G., Mircea, M., Piersanti, A., Righini, G., Russo, F., Villani, M. G., and Zanini, G. (2019). AMS-MINNI National Air Quality Simulation on Italy for the Calendar Year 2015. Annual Air Quality Simulation of MINNI Atmospheric Modelling System: Results for the Calendar Year 2015 and Comparison with Observed Data. Rapporto Tecnico RT/2019/15/ENEA, ENEA, ISSN 2499-5347, http://hdl.handle.net/20.500.12079/52259.
- Righini, G., Vitali, L., Ciancarella, L., Cremona, G., D'isidoro, M., Petralia, E. (2018). Analisi di Backtrajectories a supporto dell'interpretazione di dati di monitoraggio di qualità dell'aria. Un'applicazione di M-TraCE nell'ambito del Progetto CAMPANIA TRASPARENTE. Rapporto Tecnico RT/2018/18/ENEA, ENEA, ISSN 0393-3016, http://hdl.handle.net/20.500.12079/6829.
- Kracht O., Santiago J.-L., Martin F., Piersanti A., Cremona G., Righini G., Vitali L., Delaney K., Basu B., Ghosh B., Spangl W., Brendle C., Latikka J., Kousa A., Pärjälä E., Meretoja M., Malherbe L., Letinois L., Beauchamp M., Lenartz F., Hutsemekers V., Nguyen L., Hoogerbrugge R., Eneroth K., Silvergren S., Hooyberghs H., Viaene P., Maiheu B., Janssen S., Roet D. and Gerboles M. (2017) Spatial representativeness of air quality monitoring sites - Outcomes of the FAIRMODE/AQUILA intercomparison exercise, EUR 28987 EN, Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-77218-4, doi:10.2760/60611, JRC108791.
- Ciancarella, L., Adani, M., Briganti, G., Cappelletti, A., Ciucci, A., Cremona, G., D'Elia, I., D'isidoro, M., Mircea, M., Piersanti, A., Righini, G., Russo, F., Vitali, L., Zanini, G. (2016). La simulazione nazionale di AMS-MINNI relativa all'anno 2010. Simulazione annuale del Sistema Modellistico Atmosferico di MINNI e validazione dei risultati tramite confronto con i dati osservati. Rapporto Tecnico RT/2016/12/ENEA, ENEA, ISSN 0393-3016, http://openarchive.enea.it//handle/10840/7628.
- Piersanti, A., Ciancarella, L., Cremona, G., Righini, G., Vitali, L. (2013). Rappresentatività spaziale di misure di qualità dell'aria. Valutazione di un metodo di stima basato su fattori oggettivi. Rapporto Tecnico RT/2013/1/ENEA, ENEA, ISSN/0393-3016, http://openarchive.enea.it//handle/10840/4475.
- Cremona, G., Ciancarella, L., Cappelletti, A., Ciucci, A., Piersanti, A., Righini, G., Vitali, L. (2013). Rappresentatività spaziale di misure di qualità dell'aria. Valutazione di un metodo di stima basato sull'uso di dati emissivi spazializzati. Rapporto Tecnico RT/2013/2/ENEA, ENEA, ISSN/0393-3016, http://openarchive.enea.it//handle/10840/4474.
- Vitali, L., Ciancarella, L., Cionni, I., Cremona, G., Piersanti, A., Righini, G. (2013). Rappresentatività spaziale di misure di qualità dell'aria. Valutazione di un metodo di stima basato sull'analisi dei campi di concentrazione simulati dal Modello Nazionale MINNI. Rapporto Tecnico RT/2013/3/ENEA, ENEA, ISSN/0393-3016, http://openarchive.enea.it//handle/10840/4477.
- Vitali, L., Cionni, I., Cremona, G., Piersanti, A., Righini, G., Ciancarella, L. (2013). Rappresentatività spaziale di misure di qualità dell'aria. Valutazione di un metodo di stima basato sull'uso di BACKWARD TRAJECTORIES. Rapporto Tecnico RT/2013/15/ENEA, ENEA, ISSN/0393-3016, http://openarchive.enea.it//handle/10840/4736.

Personal Data   I authorize the treatment of my personal data according to Legislative Decree no. 196.

Signature