

Curriculum Vitae of
Paolo Giani

✉ acamg.nd.edu ✉ pgiani@nd.edu
☎ +1 574-631-5380 📄 Google Scholar

EDUCATION

- Jan. 2019 – Present **Ph.D.** in Environmental Fluid Dynamics UNIVERSITY OF NOTRE DAME, USA
Research topics: With the *Atmospheric Chemistry and Aerosol Modeling* research group, I am currently investigating both theoretical aspects of atmospheric modeling and a wide range of practical applications, including urban and regional air pollution simulations and renewable energy assessments.
Current GPA: 4.0/4.0
- Sep. 2015 – Apr. 2018 **M.Sc.** in Environmental Engineering POLITECNICO DI MILANO, ITALY
Thesis title: “Improving organic aerosol modelling with CAMx: a case study in the Po Valley area”
International experience: Six months-long *study abroad* period at the Chalmers University of Technology in Göteborg (Sweden); Summer school on *smart urban mobility* at RWTH Aachen University (Germany)
Final degree mark: 110/110 with honors
GPA: 29.54/30.00
- Sep. 2012 – Sep. 2015 **B.Sc.** in Environmental Engineering POLITECNICO DI MILANO, ITALY
Thesis title: “Influence of climate change on the frequency of daytime temperature inversions and stagnation events in the Po valley: historical trend and future projections”
Final degree mark: 110/110 with honors
GPA: 28.81/30.00

REFEREED PUBLICATIONS

1. **Giani P.**, Castruccio S., Anav A., Howard D., Hu W., Crippa P. (2020) Short-term and long-term health impacts of air pollution reductions from COVID-19 lockdowns in China and Europe: a modelling study. *The Lancet Planetary Health*; **4**(10): e474-e82.
[https://doi.org/10.1016/S2542-5196\(20\)30224-2](https://doi.org/10.1016/S2542-5196(20)30224-2)
2. Sicard P., Crippa P., De Marco A., Castruccio S., **Giani P.**, Cuesta J., Paoletti E., Feng Z., Anav A. (2020) High spatial resolution WRF-Chem model over Asia: Physics and chemistry evaluation. *Atmospheric Environment*; **118004**. <https://doi.org/10.1016/j.atmosenv.2020.118004>
3. **Giani P.**, Anav A., De Marco A., Zhaozhong F., Crippa P. (2020) Exploring sources of uncertainty in premature mortality estimates from fine particulate matter: the case of China. *Environmental Research Letters*; **15**: 064027. <https://doi.org/10.1088/1748-9326/ab7fof>
4. **Giani P.**, Tagle F., Genton M.G., Castruccio S., Crippa P. (2020) Closing the gap between wind energy targets and implementation for emerging countries. *Applied Energy*; **269**: 115085.
<https://doi.org/10.1016/j.apenergy.2020.115085>
5. **Giani P.**, Balzarini A., Pirovano G., Gilardoni S., Paglione M., Colombi C., Gianelle V., Belis C., Poluzzi V. and Lonati G. (2019) Influence of semi- and intermediate-volatile organic compounds (S/IVOC) parameterizations, volatility distributions and aging schemes on organic aerosol modelling in winter conditions. *Atmospheric Environment*; **213**: 11-24.
<https://doi.org/10.1016/j.atmosenv.2019.05.061>
6. Caserini S., **Giani P.**, Cacciamani C., Ozgen S., Lonati G. (2017) Influence of climate change on the frequency of daytime temperature inversions and stagnation events in the Po valley: historical trend and future projections. *Atmospheric Research*, **184**, 15–23.
<https://doi.org/10.1016/j.atmosres.2016.09.018>

AWARDS AND FELLOWSHIPS

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| Richard and Peggy Notebaert Premier Fellowship | 2019 - PRESENT |
| Ermenegildo Zegna Founder's Scholarship | 2019 |
| Graduate Student Union Conference Presentation Grant | 2019 |

WORK EXPERIENCE

- July 2018 – Dec. 2018 **Intern for the Air Quality Modeling group** ENERGY SYSTEM RESEARCH, MILAN (ITALY)
Main activities: Development of a new tool for health risk assessment of air pollution. Application of such tool to different mobility scenarios, with a special focus on the benefits that can derive from the increase in the number of electric vehicles on the car fleet.
- Apr. 2019 - Dec. 2019 **Exam invigilator** BRITISH COUNCIL, MILAN (ITALY)
Main activities: Proctoring English language examinations (IELTS and Cambridge Assessment English).
- May 2017 – Apr. 2018 **Master Thesis internship** ENERGY SYSTEM RESEARCH, MILAN (ITALY)
Main activities: Collaboration with the *Energy System Research* centre for my master thesis project, entitled: "Sensitivity analysis of secondary organic aerosol modeling with respect to different chemical mechanisms over the Po Valley area".

TEACHING EXPERIENCE

- Fall 2019 & 2020 **Teaching assistant** UNIVERSITY OF NOTRE DAME
Class: Fluid Mechanics (CE30460)
Instructor: Diogo Bolster
- Spring 2019 & 2020 **Teaching assistant** UNIVERSITY OF NOTRE DAME
Class: Air Quality and Reactive Transport (CE40420)
Instructor: Paola Crippa
Invited Talks: *Influence of climate change on atmospheric stability in the Po Valley area*
- Summer 2019 & 2020 **Teaching assistant** UNIVERSITY OF NOTRE DAME
Class: Pre-college program entitled *The Environment: Science, Policy, Ethics*
Instructors: Paola Crippa / Don Howard
Invited Talks: *Quantifying the health impact related to air pollution: tools and case studies*
Quantifying wind energy resources in Saudi Arabia based on high-resolution numerical simulations
Health implications of environmental issues

CONFERENCE PRESENTATIONS

1. **Giani P.**, Castruccio S., Genton M.G., Crippa, P. (2020) Technical and climate implications of the deployment of large-scale wind farms. Online oral presentation at the *2020 MIT A+B Applied Energy Symposium, Massachusetts Institute of Technology, Cambridge (MA), USA*.
2. Agresti V., Balzarini A., Pirovano G., **Giani P.**, M. Gaeta, F. Lanati (2019) Modelling chain set up for the assessment of policy impacts on air quality and human health. Poster presentation at the *37th International Technical Meeting on Air Pollution Modelling and Its Application (ITM2019), Hamburg, Germany*.
3. **Giani P.**, Chen W., Tagle F., Genton M.G., Castruccio S., Crippa P. (2019) A high resolution ensemble to quantify wind energy resources in Saudi Arabia. Topic-contributed oral presentation at *Joint Statistical Meetings (JSM2019), Denver (CO), USA*.
4. **Giani P.**, Tagle F., Genton M.G., Castruccio S., Crippa P. (2019) Quantifying wind energy resources in Saudi Arabia based on high-resolution numerical weather model simulations. Poster presentation at the *2nd annual ND Energy Research Symposium, Notre Dame (IN), USA*.
5. Agresti V., **Giani P.**, Pirovano G., Lonati G., Pepe N. (2019) Mobility Scenarios in the Milan area: a modelling assessment of Air Quality. Oral presentation at the *23rd International Transport and Air Pollution Conference, Thessaloniki, Greece*.

SERVICE TO THE SCIENTIFIC COMMUNITY

Served as a reviewer for the following international journals:

- Environmental Science & Technology
- Environmental Research Letters
- Joule
- The Lancet Planetary Health
- Atmospheric Chemistry and Physics
- Science of the Total Environment
- Remote Sensing
- Air Quality, Atmosphere & Health
- CLEAN – Soil, Air, Water

SKILLS

- Strong knowledge of data analysis tools (e.g., **Matlab**, **R** and **Microsoft Excel**).
- Considerable experience in different programming languages (e.g., **FORTRAN**, **C**, **VBA**) and unix/linux shell scripting languages (e.g. **Cshell**, **Bash**, **PERL**) as well as meteorological and air quality models and related pre/post-processors (e.g., **CAMx**, **WRF**, **SMOKE**, **AMET**)
- Good knowledge of Computational Fluid Dynamics codes (e.g. **OpenFOAM**), Geographical Information System software (**GIS**) and query database languages (**SQL**).
- Operative systems: **Linux**, **Windows**

LANGUAGES

- **Italian** – Mothertongue
- **English** – Proficient. TOEFL iBT scores (2018): 110/120 (Speaking: 27/30; Writing: 28/30; Reading: 29/30; Listening: 26/30)
- **Spanish**: Intermediate
- **French**: Beginner