Alessandro Fassò – Short CV
October 2020

Alessandro Fassò is full professor of *Statistics* (SECS-S/02) from 2000 at the School of Engineering, University of Bergamo, Italy. Previous head of Dept. of Information technology and mathematical methods (2007-2012) and Academic Senate member (2009-2013). He served the University of Bergamo as Associate professor (1998-2000) and the Catholic University of Milano as Assistant Professor ("ricercatore", 1987-1997).

President of The International Environmetrics Society (TIES) (2017-2019). **Founder and previous Coordinator** (2013-2015) of GRASPA, the permanent working group for environmental statistics of the Italian Statistical Society (SIS). **Previous member** of the Council of the International Statistical Institute (ISI) (2013-2017).

Member of WG-GRUAN, the Working Group on Atmospheric Reference Observations, promoted by the World Meteorological Organization (www.wmo.int) (2013-).

Elected member of the International Statistical Institute (ISI).

Associate Principal investigator of Horizon 2020 project GAIA-CLIM (2015-2018) on **G**ap **A**nalysis for **I**ntegrated **A**tmospheric **CLI**mate **M**onitoring. **Sub contractor** of Copernicus Climate Service (C3S 311.a Lot3) on statistical harmonization of climate data records (2017-2018).

Editor in Chief of *Environmetrics*. **Associate Editor** of Stochastic Environmental Research and Risk Analysis (SERRA) and of *Advances in Statistical Analysis* (AStA). **Guest Editor** of *Statistics & Probability Letters* (2019), *Environmetrics (2007, 2019)*, *Advances in Statistical Analysis* (AStA, 2013), *Stochastic Environmental Research and Risk Analysis* (SERRA, 2015) and *Statistical Methods & Applications* (SMAP, 2016), *Statistics & Applications* (S&A, 2013).

Keynote/Plenary speaker:
- Ebio2018 - III Portuguese-Galician Meeting of Biometry, Aveiro, 28-30 June, 2018, keynote address on "Statistical modelling of atmospheric profiles and their uncertainty";
- 49th Scientific Meeting of Italian Statistical Society, Palermo, 20-22 June, 2018, "Statistics & Uncertainty of Atmospheric Profiles";
- XIII biannual congress SIMAI 2016, keynote address on "Advanced statistical applications of complex data indexed in space and time", Milano, 14-09-2016;
- Conference on Seismomatics, keynote address on "Multivariate spatiotemporal modelling for population exposure distribution to airborne multipollutants", Valparaiso, Chile, 5-9 January, 2015;
- EURISBIS'09, European Regional Meeting of the International Society for Business and Industrial Statistics, keynote address on "Data diversity in air quality monitoring and dynamical mapping using the EM algorithm and air quality indexes", Cagliari, 03-06-2009.

Invited speaker: TIES2018, Guanajuato, Mexico; Symposium on Environmental Statistics, Institute of Statistical Mathematics, Tachikawa, 22-23 March 2018, Japan; French Statistical Society Conference 2016, Montpellier; Statistische Woche 2015, Hamburg and many others.

International lecturer:
- Peking University. Phd short course on Statistical spatiotemporal models for air quality and atmospheric profiles. 14-28 March 2018.
- University of Bolzano-Bozen. Phd short course on Advanced statistics. 25-30 January 2018.

- ECAS-ENBIS Summer school on Multivariate spatio-temporal methods for large datasets. 10-09-2017, Procida, Italy.
- Winter school on "Stochastic models for spatio-temporal data: Inference and applications" at XI. Workshop Stochastic Models and their Applications, Hamburg 20-22 February 2013.
- Short course at Cairo University on *Spatio-Temporal Modeling for Environmental Data* at 25th International Conference on Statistical Modelling, 25-28 March 2013.

Conference Organizer, scientific committee, invited speaker and invited session organizer in a number of international conferences. In particular, recent appointments are: **Chair** of TIES-GRASPA2017 (Bergamo), GRASPA2015 (Bari), METMA-GRASPA2014 (Torino), GRASPA2004 (Dalmine). **Scientific committee member** of TIES2018, Guanajuato, Mexico; of Spatial Econometrics Association 2016, Rome; of TIES2016, Edinburgh; of TIES2015, Al Ain; of TIES2009, Bologna. **Session organizer** at SIS Scientific meeting 2014, Cagliari, at SIS Statistical Conference 2013; Brescia, Statistische Woche 2012, Vienna.

PhD board: Faculty member of the PhD program in Engineering and Applied Sciences at the University of Bergamo (2017-). Previous faculty member of the PhD program in Analytics Economics and Business at the University of Bergamo (2013-2017), and faculty member of the PhD program in Statistics and Applications at University of Milano Bicocca (2000-2013). **Previous PhD Students:** Emilio Porcu, Michela Cameletti, Francesco Finazzi, Maurizio Toccu, Ferdinand Ndongo.

Research assessment:
- *Evaluation Committee Member* **(GEV)** of the Italian Research Quality Exercise **(VQR 2015-2019)**.
- *Selection committee member* of the Italian **PRIN2015** for Environment, Space and Population (ERC SH3).
- *Referee* of **NSERC** (Natural Sciences and Engineering Research Council of Canada), **DAGStat** (German Consortium in Statistics), **CONICYT** (Chilean commission of scientific research), Future in Research (**FIRB** 2013, Italy), Scientific independence of young researchers (SIR 2014, Italy), Young Researchers **Montalcini Award** 2015, University of Venice, University of Padua.

Recent national and international competitive research grants:

- **PI:** Project AQ2009-EN17 (Regione Lombardia): "*Methods for the integration of renewable energy sources and satellite monitoring of the environmental impact*" (2009-2013).
- **PI:** PRIN-2006, MIUR: "*Statistical analysis and modelling of impact and risk for environmental phenomena in space and time*" (2007-2009).
- **Associate PI:** EU Horizon 2020: GAIA-CLIM - *Gap Analysis for Integrated Atmospheric ECV CLImate Monitoring* (2015-2018).
- **Associate PI:** Project APQ 2004, Regione Piemonte: "*Statistical methods and spatio-temporal models for air-quality monitoring*"
PRIN-2004, MIUR: "*Space-time modelling and uncertainty of the measures in environmental data analysis*"
- **Subcontractor:** C3S_311a_Lot3 ''Access to Baseline and Reference Networks' Service Contract 1, under Copernicus Climate Change Service (C3S) Framework Agreement MWF/COPERNICUS/2017/C3S_311a_Lot3_CNR.

Research interests:

He is Author of more than hundred papers, mainly on statistical methods and applications to environmetrics, air quality, climate variables, sensitivity analysis of environmental models,

environmental time-series, spatio-temporal data, stochastic monitoring, structural and geotechnical surveillance, industrial statistics, quality control and financial time series analysis.

Climate Variables. He is contributing to the application and development of methods based on functional data analysis for the understanding of atmospheric profiles uncertainty. In particular, 3D and 4D statistical modelling of atmospheric profiles, including satellite data and radiosonde networks. In this regard, he studied also collocation uncertainty using a statistical approach based on heteroskedastic functional regression models. This extends the standard functional regression approach and allows a natural definition of uncertainty profiles and their detailed decomposition into all the different components.

Moreover, in the frame of Horizon 2020 project GAIA-CLIM, he studied the vertical smoothing mismatch uncertainty when comparing satellite and radiosonde data, and tehe geographic gaps of the present earth observing system.

Air quality dynamic models. Previously, A. Fassò contributed to air quality monitoring and understanding. Considering air quality monitoring, he developed multivariate spatio-temporal models for particulate matters and nitrogen oxides based on ground level heterogeneous monitoring networks, computer outputs and satellite data, developing methods for statistical dynamic mapping, risk assessment, human exposure distribution and environmental policies assessment. His approach allows for multiple pollutants, observed in different places and with different spatial scale, with a large number of "structural missing data". The approach covers data from single regional areas to large datasets at the European level. Moreover, he discussed air quality indexes in the frame of heterogenous and unbalanced monitoring networks and model-based indexes. He proposed some nonlinear models for Ozone time series, discussed monitoring of nuclear plumes and methods for extreme air pollution.

SELECTED PUBLICATIONS

1. Madonna, F., Tramutola, E., Sy, S., Serva, F., Proto, M., Rosoldi, M., Gagliardi, S., Amato, F., Marra, F., Fassò, A., Gardiner, T., and Thorne, P. W. (2020) Radiosounding HARMonization (RHARM): a new homogenized dataset of radiosounding temperature, humidity and wind profiles with uncertainty, *Earth Syst. Sci. Data Discuss.*, https://doi.org/10.5194/essd-2020-183.
2. Fassó A., Sommer M., and von Rohden C. (2020) Interpolation uncertainty of atmospheric temperature radiosoundings. *Atmospheric Measurement Techniques – Discussion*. https://www.atmos-meas-tech-discuss.net/amt-2020-161/
3. Finazzi F., Fassò A., (2020) The impact of the Covid-19 pandemic on Italian mobility. *Significance*. https://www.significancemagazine.com/science/653-the-impact-of-the-covid-19-pandemic-on-italian-mobility
4. Fassò A., Maranzano P. (2020) Il cambiamento degli stili di vita e l'impatto della pandemia di COVID-19 sulla qualità dell'aria, *Statistica e Società*, IX, 2/2020. http://www.rivista.sis-statistica.org/cms/?p=968
5. Finazzi F., Fassò A., (2020) Il cambiamento degli stili di vita e l'impatto della pandemia di COVID-19 sulla mobilità, *Statistica e Società*, IX, 2/2020. http://www.rivista.sis-statistica.org/cms/?p=975
6. Maranzano P., Fassò A, Pelagatti M. and Mudelsee M. (2020) Statistical Modeling of the Early-Stage Impact of a New Traffic Policy in Milan, Italy. *Int. J. Environ. Res. Public Health*, 17(3), 1088; https://doi.org/10.3390/ijerph17031088
7. Taghavi-Shahri S.M., Fassò A., Mahaki B., Amin H., (2019) Concurrent Spatiotemporal Daily Land Use Regression Modeling and Missing Data Imputation of Fine Particulate Matter Using Distributed Space-Time Expectation Maximization. *Atmospheric Environment*, https://doi.org/10.1016/j.atmosenv.2019.117202.
8. Fassò A., Finazzi F., et al. (2019) Comment on Diggle P.J. (2019) Discussion on the meeting on 'Data visualization'. *J. R. Statist. Soc. A,* Vol 182(2), 422. DOI: 10.1111/rssa.12435
9. Finazzi F., Fassò A., Madonna F., Negri I., Sun B., Rosoldi M. (2018) Statistical harmonization and uncertainty assessment in the comparison of satellite and radiosonde climate variables. *Environmetrics*. On line first, 1-17, DOI: 10.1002/env.2528
10. Negri I., Fassò A., Mona L., Papagiannopoulos N., Madonna F. (2018) Modelling spatio-temporal mismatch for Aerosol profiles. In Cameletti M. & Finazzi F. Ed.s (2018) *Quantitative Methods in Environmental and Climate Research*. Springer. 63-83.

11. Fassò A, Finazzi F, Madonna F, (2018) Statistical issues in radiosonde observation of atmospheric temperature and humidity profiles. *Statistics and Probability Letters*. 136, 97-100. https://doi.org/10.1016/j.spl.2018.02.027

12. Porcu E, Fassò A, Barrientos S, Catalan PA (2017) Seismomatics. *Stoch Environ Res Risk Assess* (2017) 31:1577–1582. DOI 10.1007/s00477-017-1395-y

13. Weatherhead, E., G. Bodeker, A. Fassò, K. Chang, J. Lazo, C. Clack, D. Hurst, B. Hassler, J. English, and S. Yorgun (2017) Spatial Coverage of Monitoring Networks: A Climate Observing System Simulation Experiment. J. Appl. Meteor. Climatol. doi:10.1175/JAMC-D-17-0040.1, 3211-3228.

14. Fassò A, Finazzi F, Ndongo (2016) European population exposure to airborne pollutants based on a multivariate spatio-temporal model. *Journal of Agricultural, Biological, and Environmental Statistics*. 21:492. Online first DOI:10.1007/s13253-016-0260-7

15. Finazzi F, Fassò A. (2016) A statistical approach to crowdsourced smartphone-based earthquake early warning systems. *Stochastic Environmental Research and Risk Assessment*. Online first. DOI: 10.1007/s00477-016-1240-8.

16. Bevilacqua M, Fassò A, Gaetan C, Porcu E, Velandia D. (2016) Covariance tapering for multivariate Gaussian random fields estimation. *Statistical Methods and Applications*. 25(1), 21-37. DOI 10.1007/s10260-015-0338-3.

17. Fassò A. (2015) Sensitivity Analysis of Computer Models. *Wiley StatsRef: Statistics Reference Online*. 1–12. DOI: 10.1002/9781118445112.stat07199.pub2.

18. Calculli C, Fassò A, Finazzi F, Pollice A, Turnone A. (2015) Maximum likelihood estimation of the multivariate hidden dynamic geostatistical model with application to air quality in Apulia, Italy. *Environmetrics*. 26(6), 406–417.

19. Finazzi F, Haggarty R, Miller C, Scott M, Fassò A (2015) A comparison of clustering approaches for the study of the temporal coherence of multiple time series. *Stochastic Environmental Research and Risk Assessment*. Volume 29, Issue 2, 463-475.

20. Fassò A., Porcu E. (2015) Latent variables and space-time models for environmental problems. *Stochastic Environmental Research and Risk Assessment.* Volume 29, Issue 2, 323-324.

21. Ignaccolo R., Franco-Villoria M., Fassò A. (2015) Modelling collocation uncertainty of 3D atmospheric profiles. *Stochastic Environmental Research and Risk Assessment.* 29 (2), 417-429.

22. Finazzi F, Fassò A. (2014) D-STEM: A Software for the Analysis and Mapping of Environmental Space-Time Variables. *Journal of Statistical Software.* Vol. 62, Issue 6, 1-29.

23. Fassò, A, Ignaccolo, R, Madonna, F, Demoz, B. and Franco-Villoria M. (2014) Statistical modelling of collocation uncertainty in atmospheric thermodynamic profiles, *Atmos. Meas. Tech.,* 7, 1803–1816, doi:10.5194/amt-7-1803-2014. *http://www.atmos-meas-tech.net/7/1803/2014/amt-7-1803-2014.pdf*

24. Fassò A., (2013) Statistical assessment of air quality interventions. *Stochastic Environmental Research and Risk Assessment*. Volume 27, Issue 7, pp 1651-1660. On-line first DOI: 10.1007/s00477-013-0702-5.

25. Finazzi F, Scott M.E, Fassò A. (2013). A model based framework for air quality indices and population risk evaluation. With an application to the analysis of Scottish air quality data. Journal of the Royal Statistical Society, series C. Vol.62(2): 287-308. DOI: 10.1111/rssc.12001.

26. A. Fassò and G. Arduino (2012). Environmental regulation in the European Union in *Encyclopedia of Environmetrics Second Edition*, A.-H. El-Shaarawi and W. Piegorsch (eds). John Wiley & Sons Ltd, Chichester, UK, pp. 886-889. DOI: 10.1002/9780470057339.vnn014.

27. Fassò A, Finazzi F, (2011) Maximum likelihood estimation of the dynamic coregionalization model with heterotopic data. *Environmetrics.* Vol. 22:6, 735-748. Online ISSN: 1099-095X. Published Online. DOI:10.1002/env.1123.