



GRASPA
ENVIRONMENTAL STATISTICS

**20
25**

Rome, 15-17 September 2025

University of Roma Tre, LUMSA University

Program



Roma Tre



Dipartimento di
**SCIENZE
POLITICHE**
UNIVERSITÀ DEGLI STUDI ROMA TRE



LUMSA
UNIVERSITÀ



Società
Italiana di
Statistica

The International
ENVIRONMETRICS
Society - TIES



SAPIENZA
UNIVERSITÀ DI ROMA

MONDAY – SEPTEMBER 15 **Roma Tre University (Via Gabriello Chiabrera, 199)**

12:30 – 13:30	REGISTRATION		
13:30 – 14:00	WELCOME CEREMONY - Aula Magna		
14:00 – 14:50	KEYNOTE SESSION - Aula Magna		
14:50 – 15:20	POSTER STORM - Aula Magna		
15:20 – 15:50	COFFEE BREAK		
15:50 – 17:00	SPECIALIZED GRASPA - Aula Magna		
17:00 – 18:20	SOLICITED <div> <div>Aula Magna <i>Advances in agricultural statistics and econometrics</i></div> <div>Aula 3B <i>SMILE I</i></div> <div>Aula 2C <i>Some new statistical approaches for environmental sustainability and resilience</i></div> </div>		
20:00	SOCIAL DINNER <i>Terrazza Les Étoiles</i>		

TUESDAY – SEPTEMBER 16 **Roma Tre University (Via Gabriello Chiabrera, 199)**

9:00 – 10:10	SPECIALIZED CLADAG - Aula Magna		
10:10 – 11:30	CONTRIBUTED <div> <div>Aula Magna <i>Functional analysis of environmental data</i></div> <div>Aula 3B <i>Statistical methods and environmental studies I</i></div> <div>Aula 2C <i>New methods for environmental analysis</i></div> </div>		
11:30 – 12:30	POSTER SESSION and COFFEE BREAK		
12:30 – 13:40	SPECIALIZED GRASPA - Aula Magna		
13:40 – 14:40	LUNCH BREAK		
14:40 – 15:50	SOLICITED <div> <div>Aula Magna <i>Spatio-temporal modelling of wildfire patterns</i></div> <div>Aula 3B <i>Methods and applications for data with non-standard domain</i></div> <div>Aula 2C <i>Spatial mapping: model-based and model-assisted methods</i></div> </div>		
15:50 – 17:00	SOLICITED <div> <div>Aula Magna <i>Advances in statistical machine learning approaches for environmental applications</i></div> <div>Aula 3B <i>Spatio-temporal point processes and functional data for seismic risk assessment</i></div> <div>Aula 2C <i>Complex environmental data and modelling</i></div> </div>		
17:00 – 17:20	COFFEE BREAK		
17:20 – 18:30	CONTRIBUTED <div> <div>Aula Magna <i>Space-time modelling</i></div> <div>Aula 3B <i>Air pollution modelling</i></div> <div>Aula 2C <i>Methods for extremes</i></div> </div>		
20:00	SOCIAL COCKTAIL <i>Basilica di San Paolo Fuori le Mura</i>		

WEDNESDAY – SEPTEMBER 17 LUMSA University (Via Di Porta Castello, 44)

9:15 – 10:25	SPECIALIZED YOUNG SIS - Sala Giubileo		
10:25 – 10:55	COFFEE BREAK		
10:55 – 12:05	SPECIALIZED SDS - Sala Giubileo		
12:05 – 13:15	SOLICITED Sala Giubileo <i>SMILE II</i>	CONTRIBUTED Aula Valori <i>Statistical methods and environmental studies II</i>	SOLICITED Sala Pia <i>Methods for uncertainty and policy in environmental and ecological systems</i>
13:15 – 14:15	LUNCH BREAK		
14:15 – 15:15	GRASPA ASSEMBLY		
15:15 – 15:30	CLOSING CEREMONY and BEST POSTER AWARD		

Program

Monday 15th September 2025

Via Gabriello Chiabrera, 199

12:30 - 13:30 **Registration**

13:30 - 14:00 **Welcome ceremony**

Aula Magna

14:00 - 14:50 **Keynote session**

Aula Magna

Chair: Francesco Finazzi

Stefano Castruccio (University of Notre Dame)

New perspectives on balancing data-driven models with physics: The case for physics-informed neural networks in environmental statistics

14:50 - 15:20 **Poster storm**

Aula Magna

Chair: Marta Cipriani

Giovanni Finocchiaro (ISPRA)

ISPRA's Environmental Statistics: Institutional contributions to environmental knowledge and sustainable governance

Salvatore Scudero (National Institute of Geophysics and Volcanology)

Visibility Graph analysis of seismicity: result from the application to various earthquake catalogs

Priyanka Nagar (Stellenbosch University)

Statistical machine learning in directional statistics

Domenico Cucina (Roma Tre University)

Threshold models for environmental cylindrical time series

Sara Castiglia (University of Turin)

Assessing Piedmont's ecological freshwater quality using Spatial Stream Network Models

Edoardo Rosci (Sapienza University of Rome)

Evaluating extreme NO₂ exposures in the Lazio Region: an hybrid bayesian-semi parametric quantile regression approach

Sandra Gudziunaite (Imperial College London)

Pregnancies under a changing climate in Italy

Luca Presicce (University of Milano-Bicocca)

Bayesian transfer learning for artificially intelligent geospatial systems: A predictive stacking approach

Giorgia Stoppa (University of Padua)

Spatio-temporal Bayesian geostatistical modelling for exposure assessment in a birth cohort study on air pollution and maternal health

Francesco Cappelli (University of Tuscia)

Sub-daily rainfall simulation using multifractal canonical disaggregation: A parsimonious calibration strategy based on Intensity-Duration-Frequency curves

Marika D'Agostini (University of Bologna)

Spatio-temporal analysis of surface urban heat islands using high-resolution remote sensing and

SPDE-INLA: the case study of Bologna, Italy

Rosaria Simone (University of Naples Federico II)

Correlating driving behavior, habits and style with CO2 emission: preliminary evidence from Italy

Luisa Ferrari (University of Modena and Reggio Emilia)

Simplifying informative prior specification in species distribution models

Domenico Vitale (Sapienza University of Rome)

Addressing missing data in Eddy-Covariance time series: A comparative study of multiple imputation strategies

Jorge Castillo-Mateo (University of Zaragoza)

Joint modeling of record-breaking daily maximum and minimum temperatures in space and time

15:20 - 15:50 Coffee break

15:50 - 17:00 Specialized GRASPA: Air pollution

Aula Magna

Chair: Ilaria Prosdocimi

Claudia Collarin (Ca' Foscari University of Venice)

Semi-parametric analysis of air pollutant trends in the north-eastern Italian Alps

Michela Baccini (University of Florence)

GPS-based kernel matching for estimating the average dose-response curve: An analysis of the short-term effects of PM2.5 on mortality in the Florence area

Lorenzo Tedesco (University of Bergamo)

Nonparametric proportional hazards model with differential regularization applied to spatial survival data

17:00 - 18:20 Solicited: Advances in agricultural statistics and econometrics

Aula Magna

Chair: Paolo Maranzano

Pietro Colombo (University of Glasgow)

SCARFACE: integrating socio-economic, environmental and agricultural spatio-temporal data for multi-purpose studies

Paolo Maranzano (University of Milano-Bicocca)

A spatio-temporal cluster analysis of agricultural emissions in Europe and the role of the Common Agricultural Policy

Laura Marcis (University of Cassino and Southern Lazio)

Factorial best prediction in multivariate mixed models

17:00 - 18:20 Solicited: SMILE I (PRIN)

Aula 3B

Chair: Alfonso Russo

Arno Otto (University of Pretoria)

Modeling bounded count environmental data using a contaminated Beta-Binomial regression model

Jason Pillay (University of Pretoria)

Clustering incomplete emissions data via finite mixtures of scale mixtures of skew-Normal distributions

Ilaria Lucrezia Amerise (University of Calabria)

Hybrid GNN–Kriging model for missing spatial data

**17:00 - 18:20 Solicited: Some new statistical approaches for
environmental sustainability and resilience
(GRINS)**

Aula 2C

Chair: Laura Maria Sangalli

Leonardo Cefalo (University of Bari Aldo Moro)

Issues in multivariate areal spatial models for count data

Marco Francesco De Sanctis (Politecnico di Milano)

Modeling spatio-temporal variability in air-quality monitoring by physics-informed mixed-effect regression

Andrea Moricoli (University of Bergamo)

Spatial variable selection for large environmental datasets

20:00 Social dinner at Terrazza Les Etoiles

9:00 - 10:10 Specialized CLADAG: Clustering, feature allocation, and functional data analysis with applications in ecology and climatology

Aula Magna

Chair: Ilaria Prosdocimi

Federica Stolf (Duke University)

Covariate-dependent feature allocation models for ecological applications

Veronica Berrocal (University of California)

Bayesian functional kernel regression with application to crop management

Giovanni Saraceno (University of Padua)

Exploring climate patterns via Poisson kernel-based clustering

10:10 - 11:30 Contributed: Functional analysis of environmental data

Aula Magna

Chair: Luigi Ippoliti

Marco Stefanucci (University of Rome Tor Vergata)

Local clustering of functional data with an application to the Venice lagoon

Giovanni Bocchi (University of Milan)

The impact of high temperatures on Italian maize yield: a functional regression approach

Leonardo Marchesin (Politecnico di Milano)

A convolution process for spatial statistical models on linear networks

Aldo Clemente (Politecnico di Milano)

Spatial regression with partial differential equation regularization in advection-dominated regime

10:10 - 11:30 Contributed: Statistical methods and environmental studies I

Aula 3B

Chair: Alessio Pollice

Geir Berentsen (Norwegian School of Economics)

Optimal mixes of renewable energy by seasonal MPT

Luca Ferrero (University of Milano-Bicocca)

RESPIRO: Real-time Environmental Sensing for Personal Intelligent Risk Optimization

Maria Lucia Parrella (University of Salerno)

Large-scale screening of Remote Sensing data by the H-SDPD model: an analysis on the Italian territory

Viviana Schisa (University of Bologna)

Forecasting respiratory drug demand by climatic patterns: Evidence from high-frequency regional data in Greece

10:10 - 11:30 Contributed: New methods for environmental analysis

Aula 2C

Chair: Giovanna Jona Lasinio

Nathan Huet (Ca' Foscari University of Venice)
Robust estimation for the generalized extreme-value distribution

Francesco Dotto (Roma Tre University)
Generalisations of the Chao estimator for environmental applications

Alfonso Iodice D'Enza (University of Naples Federico II)
Model-agnostic interpretability of deep learning models for car emissions assessment

11:30 - 12:30 Poster session and Coffee break

12:30 - 13:40 Specialized GRASPA: Statistical methods for ecology

Aula Magna

Chair: Chiara Di Maria

Tommaso Rigon (University of Milano-Bicocca)
A Bayesian theory for estimation of biodiversity

Alessandro Colombi (University of Milano-Bicocca)
How many species are in multiple areas?

Gianluca Mastrantonio (Politecnico di Torino)
A hierarchical model for comparing spectral patterns in lemur vocalization

13:40 - 14:40 Lunch break

14:40 - 15:50 Solicited: Spatio-temporal modelling of wildfire patterns

Aula Magna

Chair: Crescenza Calculli

Nicoletta D'Angelo (University of Palermo)
Modelling fires in Sicily by local spatio-temporal Poisson point processes

Lorena Ricciotti (University of Bari Aldo-Moro)
Wildfire patterns in Italy: Bayesian spatial modelling with multi-source data

Mario Elia (University of Bari Aldo-Moro)
Machine learning technique for wildfire occurrence prediction in Mediterranean forest ecosystems

14:40 - 15:50 Solicited: Methods and Applications for data with non-standard domain

Aula 3B

Chair: Agnese Panzera

Chiara Bocci (University of Florence)
Enhancing inference for spatial populations: the use of remotely sensed data in sampling strategies

Houyem Demni (University of Cassino and Southern Lazio)
A graphical tool for robust circular anomaly detection

Chiara Passamonti (University of Chieti-Pescara)
Environmental compositional data with measurement error

14:40 - 15:50 Solicited: Spatial mapping: model-based and model-assisted methods (PRIN 2022 PNRR SVeBio)

Aula 2C

Chair: Natalia Golini

Luigi Ippoliti (University of Chieti-Pescara)

Statistical spatial downscaling for high-resolution air quality mapping

Agnese Marcelli (University of Siena)

A data integration mapping procedure with an application to onshore wind turbines presence in Sardinia

Rosa Maria Di Biase (University of Siena)

Spatially explicit maps in a model-assisted framework with an application to wild boar rooting impact

15:50 - 17:00 Solicited: Advances in statistical machine learning approaches for environmental applications

Aula Magna

Chair: Michela Cameletti

Michela Frigeri (Politecnico di Milano)

Bayesian spatio-temporal models for counts of tropospheric ozone daily exceedances

Luca Patelli (University of Bergamo)

SPDE and Random forest? An hybrid approach for spatio-temporal modeling

Jacopo Rodeschini (University of Bergamo)

Multivariate state-space model with SPDE and low-rank approximation for high dimensional data

15:50 - 17:00 Solicited: Spatio-temporal point processes and functional data for seismic risk assessment

Aula 3B

Chair: Marcello Chiodi

Marco Tarantino (University of Palermo)

Modelling seismic data by continuous marked Poisson point process

Simone Panzeri (Politecnico di Milano)

Modeling spatio-temporal point patterns over complex spatial regions

Antonio Irpino (University of Campania "Luigi Vanvitelli")

Functional geographically weighted regression with conformal uncertainty for seismic data

15:50 - 17:00 Solicited: Complex environmental data and modeling

Aula 2C

Chair: Luigi Ippoliti

Nicola Pronello (University of Turin)

Statistical learning on a river network

Ilenia Di Battista (Politecnico di Milano)

Physics-informed statistical learning approaches

Carlo Zaccardi (University of Chieti-Pescara)

Low-rank regression approaches

17:00 - 17:20 Coffee break

17:20 - 18:30 Contributed: Space-Time modelling*Aula Magna*

Chair: Francesco Lagona

Sara Martino (Norwegian University of Science and Technology)

Bayesian analysis of spatio-temporal patterns of mortality in Italy using the Lee-Carter model

Gian Mario Sangiovanni (Sapienza University of Rome)

From object detection to modeling spatial intensity of marine biodiversity: joining machine learning and bayesian statistics

Lucia Clarotto (Paris-Saclay University)

Scalable methods for simulation, inference and prediction of spatio-temporal random fields on meshed surfaces defined from advection-diffusion SPDEs

Antonio Pacifico (University of L'Aquila)

A hierarchical bayesian spatio-temporal framework with adaptive shrinkage and clustering for environmental risk profiling

17:20 - 18:30 Contributed: Air pollution modelling*Aula 3B*

Chair: Gianluca Mastrantonio

Kevin Forbes (Energy and Environmental Data Science)

CO₂ and CH₄ atmospheric concentrations have causal implications for surface radiation and meteorological outcomes: Evidence from NOAA's Mauna Loa and Barrow Atmospheric Observatories

Giacomo Milan (Politecnico di Milano)

Density-based methods for assessing PM₁₀ concentration in the northern Italy

Paolo Girardi (Ca' Foscari University of Venice)

A functional land use regression model for NO₂ concentration in the Italian Alpine region

Vincenzo Gioia (University of Campania "Luigi Vanvitelli")

Forecasting CO₂ emissions of Italian municipalities using cross-learning and clustering

17:20 - 18:30 Contributed: Methods for extremes*Aula 2C*

Chair: Giada Adelfio

Antoine Heranval (INRAE - Biostatistics and Spatial Processes Unit)

Analyzing the dynamics of extreme events with marked point processes

Emilia Siviero (Ca' Foscari University of Venice)

Aggregating the tail distributions in multi-model ensemble outputs for bias correction

Dàire Healy (Ca' Foscari University of Venice)

Non-stationarities in extreme hourly precipitation over the Piave Basin, Northern Italy

Viviana Carcaiso (INRAE- Biostatistics and Spatial Processes Unit)

Extrapolation of extreme covariates using extreme-value theory with an application to wildfire prediction

19:00 Social cocktail at Basilica di San Paolo Fuori le Mura

9:15 - 10:25 Specialized Young SIS*Sala Giubileo*

Chair: Marco Mingione

Emiliano Ceccarelli (Sapienza University of Rome)

Quantile-based spatial modeling for heat-mortality risk assessment in Lazio, Italy

Teresa Bortolotti (Politecnico di Milano)

Estimating seismic ground motion from partially observed responses via weighted functional data analysis

Vincenzo Gioia (University of Trieste)

Modelling urban PM10 dynamics with multivariate Markov-switching

10:25 - 10:55 Coffee break**10:55 - 12:05 Specialized SDS: New frontiers in complex data analysis***Sala Giubileo*

Chair: Francesca Fortuna

Chiara Di Maria (University of Palermo)

An INLA-based propensity score for the causal analysis of geostatistical data

Elvira Romano (University of Campania "Luigi Vanvitelli")

Advances in functional regression for network-structured data

Enea Bongiorno (University of Piemonte Orientale)

Detecting shape outliers in functional data via complexity-based mixture models

12:05 - 13:15 Solicited: SMILE II (PRIN)*Sala Giubileo*

Chair: Marco Mingione

Pierfrancesco Alaimo Di Loro (LUMSA University)

Environmental risk assessment via nonhomogeneous hidden semi-Markov models with penalized vector auto-regression

Alfonso Russo (University of Rome Tor Vergata)

Parsimonious hidden semi-Markov models for cyclical multivariate time

Francesco Lagona (Roma Tre University)

Nonhomogeneous hidden semi-Markov models for toroidal data

12:05 - 13:15 Contributed: Statistical methods and environmental studies II*Aula Valori*

Chair: Massimo Ventrucchi

Sachinda Ekanayake (University of South Australia)

Impact of climate change on agriculture and the necessity for adaptation

Sara Selvaggia Guerini (University of Bergamo)

Dynamic copula modelling for mobility time series

Fabio Divino (University of Molise)

A unified framework of information divergences for flexible ecological similarity assessment

Giulia Marcon (University of Palermo)

Time series bootstrap of renewable resources for microgrid assessment

12:05 - 13:15 Solicited: Methods for uncertainty and policy in environmental and ecological systems

Sala Pia

Chair: Anna Simonetto

Anna Simonetto (University of Brescia)

Generalized Cross Entropy: a promising approach to ecological data analysis

Sara Pasquali (CNR-IMATI)

The role of development uncertainty in population dynamics

Francesco Biancalani (IMT School for Advanced Studies Lucca)

Counterfactual evaluation of traffic restriction effects on air quality in Milan's Area C via nuclear norm-based matrix completion

13:15 - 14:15 Lunch break

14:15 - 15:15 GRASPA assembly

15:15 - 15:30 Closing ceremony and Best Poster Award
