PERSONAL INFORMATION

Beatrice Sambo

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Sex Female | Date of birth 14/01/1995 | Nationality Italian

WORK EXPERIENCE

From September 2021- ongoing

PhD student Environmental Sciences
Ca' Foscari University of Venice- Scientific Campus Via Torino- Via Torino 155, 30170 Venice-Mestre, Italy
EURAC Research Center- Viale Druso Drususallee, 1, 39100 Bolzano, Autonome Provinz Bozen - Südtirol
"*Assessing climate change impacts on water resources: towards a systemic risk approach for water-energy-food-ecosystems nexus from source to sea*"
The main goal of the PhD activities is to develop a systemic multi-risk approach to better understand and model in an integrated way the impact of climate change and anthropogenic activities on all the WEFE nexus' components including ecosystem services within the Adige River basin (Italy). Integrating Ecosystem Services (ESs) as common assessment endpoints will allow to disentangle critical feedbacks occurring among WEFE sectors and thus contributing to reveal potential interdependencies between policy sectors and unlock opportunities for delivering integrated solutions.

From May 2021- to August 2021

Research Fellow
CMCC@CaFoscari, Building Porta dell'Innovazione, Via della Libertà, 12 - 30175 Venezia Marghera
BRIDGE project -> Analysis of resilience to disasters and climate change in the Metropolitan City of Venice and its lagoon:
- Analysis of the risks impacting the Metropolitan City of Venice and its lagoon;
- Comparison between two emission scenarios (RCP4.5 and RCP8.5);
- Development of multi risk maps and risk statistics by GIS tool.

From January 2021- to April 2020

Research Fellow
CMCC@CaFoscari, Building Porta dell'Innovazione, Via della Libertà, 12 - 30175 Venezia Marghera
VENEZIA2021 project -> Analysis of the risks associated with climate change in the Metropolitan City of Venice and its lagoon:
- Data collection for the case study area related to climate change;
- Development of climate indicators for the analysis of the risks associated with climate change in the Metropolitan City of Venice and its Lagoon;
- Development of methodological approach for multi-hazard and multi-risk assessment of the impacts of climate change on the Metropolitan City of Venice and its Lagoon;
- Contribution to the elaboration of a scientific paper on climate risk assessment.

TEACHER-CE project -> Analysis of flood and drought impacts on drinking water
- Contribution to a review of the best management practises for the water resources assessment in the context of climate change;
- Analysis of the most representative documents for the identification of main gaps in different water resources' fields (drinking water, groundwater, drought, water-related ecosystems).

From August 2020- to December 2020

Research Fellow

CMCC@CaFoscari, Building Porta dell'Innovazione, Via della Libertà, 12 - 30175 Venezia Marghera
BRIDGE project -> Analysis of resilience to climate related events on coastal areas:

- Development of a scenario-based Multi Criteria Decision Analysis methodology for assessing the resilience of coastal areas to extreme events and impacts of climate change;
- Implementation of the methodology with two climate scenarios: RCP8.5 and RCP4.5 to analyze their influence on the results.
- Contribution to the elaboration of a scientific paper on resilience assessment to climate related extreme events.
- Contribution to the elaboration of a scientific paper on climate risk assessment.
- Organization and participation to the workshop "Costruire la resilienza della Città Metropolitana di Venezia e della sua laguna ai disastri" held online on 16th December 2020 with local stakeholders of the Metropolitan City of Venice.

From April 2020- to August 2020	**Research Fellow**

CMCC@CaFoscari, Building Porta dell'Innovazione, Via della Libertà, 12 - 30175 Venezia Marghera

VENEZIA2021 project -> Hazards assessment in the Metropolitan city of Venice and its lagoon:

- Development of hazard indicators for the characterization of extreme events which could potentially affected the metropolitan city of Venice and its lagoon under climate change scenarios;
- Collection and analysis of climatic, environmental and socio-economic dataset to characterize the case study area;
- Elaboration of a multi hazard framework based on the built dataset for the characterization of the system identifying synergies between different climate change impacts;
- Production of a first paper's draft dealing with risk and hazard scenarios: review of the state of art and description of the methodology.

TEACHER-CE project -> Contribution to the elaboration of the document "Documentation of CC impacts on water management components based on existing studies and knowledge" within WP2.

From March 2020 – ongoing	**Affiliated junior researcher**

CMCC@CaFoscari, Building Porta dell'Innovazione, Via della Libertà, 12 - 30175 Venezia Marghera
SAVEMEDCOAST2 -> the activities are focused on the multi-risk analysis for climate change impacts on coastal areas.

EDUCATION AND TRAINING

From 18/09/2017 to 09/03/2020	**Master's degree in Environmental Science- Curriculum Global Environmental Change** EQF 7

Ca' Foscari University of Venice- Scientific Campus Via Torino- Via Torino 155, 30170 Venice-Mestre, Italy

Climate change causes and effects on global environment; analysis of climate policies; statistical analysis with R programme; analysis of risk, resilience and impacts of climate changes. Collection, manipulation and elaboration of environmental and climate data.

Master thesis: "Building the resilience of coastal systems to extreme events: the case of the Metropolitan City of Venice and its lagoon". Grade: 110/110 with honours

Supervisor: Prof Andrea Critto

Main Activities:

- Review of climate extreme indicators for the analysis and characterization of climate-related extreme events in the Metropolitan city of Venice and its lagoon;
- Development and application of a scenario-based Multi Criteria Decision Analysis methodology to rank optimal risk management measures to build the resilience to climate-related extreme events in coastal areas and for the risk management measures ranking;
- Application of a Climate Change Risk Assessment methodology for the analysis of climate change impacts on coastal zone;
- Development of hazard, vulnerability and risk maps for the evaluation of climate extreme events risk by means of GIS-based tools;
- Elicitation of stakeholders' needs and perspectives by means of individual questionnaires and group works.

From 09/09/2018 to 02/02/2019	**Erasmus Program**

Antwerp University, Universiteitsplein 1, Antwerp 2610, Belgium

Global change physiology; use of R statistical programme for climate data analysis; Ecosystem terrestrial functioning; Conservation and society, climate policies, natural parks, environmental protection.

From 14/09/2014 to 04/11/2017	**Bachelor's degree in Environmental Science** EQF 6

Ca' Foscari University of Venice- Scientific Campus Via Torino- Via Torino 155, 30170 Venice-Mestre, Italy

Environmental chemistry, environmental law, ISO / EMAS, environmental management systems, planning, environmental ecology, biology, microbiology, organic and inorganic chemistry, ecology, environmental communication.

Bachelor thesis: "Determination of biologically active organic compounds in atmospheric aerosol". Grade 93/110

Supervisor: Prof. Andrea Gambaro

Main activities:

- Analytical chemistry;
- Aerosol sampling campaign (winter 2016-2017);
- Samples preparation in clean room;
- Development of the methodology.

TEACHING ACTIVITIES

May 2022	Assistant instructor training carried out within the PhD course in 'Environmental Impacts related to climate change' program in Science and Management of Climate Change, University Ca' Foscari of Venice
May 2021	Assistant instructor training carried out within the PhD course in 'Environmental Impacts related to climate change' program in Science and Management of Climate Change, University Ca' Foscari of Venice
April 2020	Assistant instructor training carried out within the PhD course in 'Environmental Impacts related to climate change' program in Science and Management of Climate Change, University Ca' Foscari of Venice
April 2019	Assistant instructor within the training carried out within the MSc course in 'Environmental impacts related to climate change' Program in Environmental Sciences, University Ca' Foscari of Venice

PERSONAL SKILLS

Mother tongue(s)	Italian				

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	C1	C1	B2
	IELTS				

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages
IELTS 6.5 overall- Listening 6.0- Speaking 7.0- Reading 7.0- Writing 6.5

Communication skills
- Good communication abilities gained through my university experience and internship and through the participation at scientific conferences.
- Competent use of scientific language and references.

Organisational / managerial skills
- I have good relational attitude gained through my career as a PhD student, as fellow research, and during university's years and during the trainee at the CMCC@CaFoscari.
- I am good at team working, having been involved in national and international projects;
- I am good at organizing events gained during my trainee and period of thesis at CMCC@CaFoscari where I participated in the organization of the workshops held in Venice (2019-2021) and online (2020).
- I am in good at solving problems, I had to face different kind of problems during my experience as fellow research and during my PhD;
- Competence in writing reports gained through fellow research activities and university experience (laboratory's reports, final thesis, contribution to scientific papers elaboration).
- Good attitude in public involvement acquired during the organization of the two workshops with BRIDGE project by means of telephone interviews conducted with stakeholders and during the conferences I have attended to.

Computer skills
- Mac OS X and Windows
- Microsoft Office Programs (Word, Excel, Power Point)
- Safari and Google
- Social networks (Facebook, Instagram, Twitter)
- R statistic programm: competent knowledge acquired during university courses
- DEcision support SYstem for COastal climate change impact assessment (DESYCO): basic knowledge gained through a university course
- Geographic Information Systems (QGIS, ArcGis): basic knowledge gained during university's experience and trainee

Driving licence
B with car

ADDITIONAL INFORMATION

Extended abstracts and conference proceedings

- **Beatrice Sambo**, Andrei Munteanu, Anna Sperotto, Silvia Torresan, Massimiliano Pittore, Marc Zebisch, Andrea Critto. *A literature-based review on methodologies and models for the Water- Energy- Food- Ecosystem Services (WEFE) nexus assessment in the context of climate change.* Ecosystem Service Partnership (ESP2022), 10-14 October 2022, Heraklion- ONLINE

- Silvia Cocuccioni, **Beatrice Sambo**, Stefano Terzi, Fabio Carnelli, Massimiliano Pittore, Giacomo Bertoldi, Andrea Critto, Silvia Torresan, Marc Zebisch. *The Water, Energy, Food, Ecosystem (WEFE) Nexus approach for mapping sectorial interconnections, conflicts and challenges across the Adige River Basin.* International Mountain Conference (IMC2022), 11-15 September 2022, Innsbruck.

- **Beatrice Sambo**, Andrei Munteanu, Anna Sperotto, Silvia Torresan, Massimiliano Pittore, Marc Zebisch, Andrea Critto. *Analyzing Water- Energy- Food- Ecosystem Services (WEFE) nexus assessment in the context of climate change: a literature-based review on methodologies and models.* Dresden Nexus Conference, 23-25 May 2022- ONLINE

- **Beatrice Sambo,** Marta Bonato, Anna Sperotto, Silvia Torresan, Elisa Furlan, James H. Lambert, Igro Linkov, Andrea Critto. *Multi-risk analysis for the comparison of climate change scenarios in the Metropolitan City of Venice and its lagoon.* SRA2021 Conference, 5-9 December 2021- ONLINE

- **Beatrice Sambo**, Marta Bonato, Anna Sperotto, James H. Lambert, Igor Linkov, Andrea Critto, Silvia Torresan, Antonio Marcomini. *Enhancing the resilience of the Metropolitan City of Venice (Italy) to climate-related impacts: a multi-risk perspective.* SRA2020 Conference, 13-17 Decembre 2020- ONLINE

- **Beatrice Sambo**, Marta Bonato, Anna Sperotto, James H. Lambert, Igor Linkov, Andrea Critto, Silvia Torresan, Antonio Marcomini. *Resilience assessment for coastal systems to natural disasters: the case study of the Metropolitan City of Venice.* CLIMRISK2020- 8th SISC Annual Conference, 21-23 October 2020, Venice- ONLINE

- Marta Bonato, **Beatrice Sambo**, Anna Sperotto, Silvia Torresan, Andrea Critto, James H. Lambert, Igor Linkov, Elisa Furlan, Antonio Marcomini. *A scenario-informed methodology to assess the resilience of coastal systems to natural disaster: the case study of the Venice Lagoon (Italy).* EUROLAG9 20-24 January 2020, Venice

- Anna Sperotto, Marta Bonato, Silvia Torresan, Andrea Critto, James H.Lambert, Igor Linkov, Antonio Marcomini, **Beatrice Sambo**. *Assessing resilience of coastal systems to natural disasters: a scenario-informed methodology for the case study of Venice (Italy).* SRA 8-12 December 2019 - Arlington, Virginia.

Peer-reviewed papers

- **Beatrice Sambo,** Marcello Sano, Marco Zanetti, Anna Sperotto, Silvia Torresan, James H.Lambert, Igor Linkov, Andrea Critto. "Sensitivity analysis for a participatory approach to enhance the climate resilience of Venice, Italy." *Submitted to Risk Analysis*

- **Beatrice Sambo**, Marta Bonato, Anna Sperotto, Silvia Torresan, Elisa Furlan, James H. Lambert, Igor Linkov, Andrea Critto. "Framework for Multi-Risk Climate Scenarios across System Receptors with Application to the Metropolitan City of Venice". *Under revision to Risk Analysis*

- Marta Bonato, **Beatrice Sambo**, Anna Sperotto, James H. Lambert, Igor Linkov, Andrea Critto, Silvia Torresan, Antonio Marcomini. "Resilience of systemic priorities to climate-related disasters in the Metropolitan City of Venice". Risk Analysis. https://doi.org/10.1111/risa.13823

| Contribution in collaborative research projects | **NEXOGENESIS** (financed by the European Commission under the H2020 programm), Facilitating the next generation of effective and intelligent water-related policies utilising artificial intelligence and reinforcement learning to assess the water-energy-food-ecosystem (WEFE) nexus. |

NEXOGENESIS (financed by the European Commission under the H2020 programm), Facilitating the next generation of effective and intelligent water-related policies utilising artificial intelligence and reinforcement learning to assess the water-energy-food-ecosystem (WEFE) nexus.

- Contribution to nexus conceptualization within WP3 in the case study of Adige river basin;
- Analysis of possible conflicts within the WEFE sectors;
- Contribution to the quantitative assessment.

BRIDGE (funded by the Italian Ministry of Foreign Affairs and International Cooperation), Building the resilience of society to natural disasters: improved methodologies and solutions for Italy and US, focusing on the provision of tools to assess resilience of coastal communities to natural disasters.

- Development and application of a scenario- informed MCDA (Multi Criteria Decision Analysis) for the resilience analysis;
- Analysis of climate- related extreme events impact on the Metropolitan city of Venice and its lagoon;
- Stakeholders' involvement through telephone interviews, work groups during two workshop and individual questionnaires.
- Contribution in the creation of facebook and Instagram pages.

VENEZIA2021 (funded by the Interregional Provveditorato of Veneto, Trentino Alto Adige, Friuli Venezia Giulia of the Ministry of Infrastructure and Transport, as part of the measures for the protection of Venice and its lagoon), Research programme for a "regulated" Lagoon, aimed at providing the state of the art of available knowledge on risk and vulnerabilities of the Venice Lagoon to global changes.

- Analysis of climate change scenarios and impacts, in particular related to the case study area of the Metropolitan City of Venice and its lagoon;
- Risk analysis of climate- related extreme events with spatial identification of the areas more impacted;
- Analysis of climate indicators characterizing weather related extreme events.

TEACHER-CE (funded by Eu-Interreg), "joinT Efforts to increase water management Adaptation to climate CHanges in central EuRope": integration previously funded projects' results recognizing their links to topic V-Climate change (CC) adaptation and risk prevention. The main objective is to develop an integrated TEACHER-CE Toolbox focusing on management of water resources, including CC, floods/heavy rain/drought risk prevention, small water retention measures and protection of water resources through sustainable land-use management.

- Contribution to the elaboration of document "Documentation of CC impacts on water management components based on existing studies and knowledge" within WP2.
- Contribution to the elaboration of a catalogue of measures within the WP2: identification of best management practices for wetlands and identification of the main fields of actions involved.
- Contribution to the review working group WP4: analysis of planning documents (River Basin Management Plan: RBMP), identification of gaps in implementation of CC adaptation issues in water management.

SAVEMEDCOAST-2 (funded by European Commission DG ECHO) "Sea Level Rise Scenarios Along the Mediterranean Coasts": the project aims at preventing natural disasters caused by combined effects of sea level rise (SLR) and land subsidence (LS) in the major exposed coastal zones of the Mediterranean region.

| Organized Workshops | **"Comprendere e migliorare la gestione idrica nel bacino del fiume Adige" 10/10/022 Trento** |

"Comprendere e migliorare la gestione idrica nel bacino del fiume Adige" 10/10/022 Trento
Contribution in the organization of the workshop within NEXOGENESIS project and within PhD research activities.
Presentation of the conceptual model and moderator of the related discussion.

"Il progetto europeo NEXOGENESIS per comprendere le relazioni tra Acqua, Cibo, Energia ed Ecosistemi nel bacino del fiume Adige" 04/05/2022- online
Contribution to the organization of the workshop within NEXOGENESIS project and within PhD research activities.
Presentation of the project and related activities to local stakeholders to have feedbacks on main conflicts and issues within the Adige River basin.

"Costruire la resilienza della Città Metropolitana di Venezia e della sua laguna ai disastri" 16/12/2020- online
Organized by BRDIGE project research team.

"Costruire la resilienza della Città Metropolitana di Venezia e della sua laguna ai disastri" 30/10/2019- CMCC@CaFoscari (Venice)
Organized by BRIDGE project research team.

Attended Workshops and Seminars

"Untangling the role of Ecosystems and their Services in the Water-Energy-Food Nexus: an interdisciplinary hybrid workshop" 05/09/2022 Workshop organized by University of Florence and University of Oulu. Held in presence and online, attended online.

"Evaluating Ecosystem Services with Remote Sensing" 23-25-30/08/2022 Webinar organized by ARSET-NASA. Held online

"La politica degli invasi e i nessi cibo-acqua-energia" 04/07/2022 Workshop organized by professor Osti from University of Padua. Held both in presence and online, attended online.

"Revisiting Priorities for Large-Scale Systems with Environmental and Pandemic Stressors" 11/11/2021
Held in Venice by Professor James H. Lambert

"Stakeholder training workshops for integrated toolbox (CC-ARP-CE) testing" 09/11/2021
Workshop held in Parma organized within TEACHER-CE project. Aimed at presenting the project and the toolbox-texting with local actors

"CMCC annual meeting" 02-03/11/2021
Annual meeting held in Lecce for CMCC's division presentations.

"Innalzamento del livello del mare e resilienza climatica: valutazione della situazione attuale, identificazione e definizione delle priorità delle misure di adattamento" 26/10/2021
Workshop organized by SAVEMED-COAST2 in collaboration with the BRIDGE project; aimed at presenting the projects to local actors and at identifying with them risks and measures.

Presentation of the BRIDGE project: "*Priorità delle iniziative di resilienza per i disastri legati al clima nella città metropolitana di Venezia*".

"Artificial Intelligence for the Wellbeing and Sustainability of Societies" 09-11/06/2021
Held online and organized by the Basque Centre for Climate Change (BC3) and Basque Centre for Applied Mathematics (BCAM)

"Eco-cultural and Environmental Threats to Venice" 22/03/2021
Seminar organized by Silvio Laccetti foundation, Ca' Foscari Alumni organization and General Consulate of Italy in USA; the event allowed the exchange of information dealing with environmental and socio-economic threats in Venice by some Italian and USA high schools.

Presentation of the work: "Coastal Cities and Natural Disasters: How to Build Resilience in Times of Climate Change Adaptation" together with Dr. Silvia Torresan.

"Multi-Hazards During the COVID-19 Pandemic – Science, Preparedness, and Potential Response" 18/11/2020
held online, organized by the *"Earth Sciences and Cultural Heritage Italy- U.S. Working group*"

"JoinT Efforts to increase water management Adaptation to climate CHanges in central EuRope" 20/10/2020
held online, organized by AdbPo (Autorità di bacino distrettuale del fiume Po) e CMCC (Euro-Mediterranean Center on Climate Change

- Workshop carried out within the project TEACHER-CE;
- Tools and strategies for water resources management;
- Which indicators have be used? Which are the tools for climate adaptation?

VeUMEU – Venice Universities' Model European Union 5/7-05-2017
- Role of Latvia president in European Council;
- Legislative procedure on two topics: Equal treatment and Renewable energy sources.

Certification
- Safety and health course in teaching and research activities: online course of general training (4 hours). Certification assigned by University Ca' Foscari of Venice (03/2021)
- IELTS: B2 (24/02/2020)
- Safety and health course in teaching and research activities: (i) online course of general training (4 hours); (ii) presence course with specific training (12 hours). Certification assigned by University Ca' Foscari of Venice (04/2015)

Venice 01/12/2022