

EUROPEAN FORMAT OF THE CURRICULUM VITAE



PERSONAL INFORMATION

Name

MATHILDA VOGT

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Nationality

German

Date of birth

14th February 1999

PROFESSIONAL EXPERIENCE

- 02/01/2026 - ongoing

Affiliate researcher

**CMCC - RAAS Division "Risk Assessment and Adaptation Strategies"
CMCC@Ca' Foscari-Centro Euro-Mediterraneo sui Cambiamenti Climatici-
Università Ca' Foscari, Venezia, Italy**

Research activities on the analysis of the impacts of climate change and land use change on water security in a mountain context.

- 19/02/2024 – 19/04/2024

Erasmus+ Internship

Basque Centre for Climate Change (BC3) Klima Aldaketa Ikergai, Bilbao, Spain

Implementation of spatial model for the assessment of surface water quality by means of Artificial Intelligence-driven approaches

- Data manipulation and preprocessing (e.g., Data on water quality, climate, land use, socioeconomic, soil properties from netcds files, shape files, raster data, excel files) using R, QGIS, Excel, k.lab, ARIES, WEKA, GENIE;
- Training on semantic and ontologies for modelling complex sustainability and environmental problems;
- Application of ARIES (ARtificial Intelligence for Environment and Sustainability) for environmental modelling following FAIR principles;
- Application of Bayesian Networks for the development of a spatial model to assess the conjoined impacts of climatic and land use factors on water quality parameters at the river reach scale;
- Involvement in the activities of the Integrated Partnership Modelling platform.

- 24/07/2023 – 24/10/2023

Internship

**CMCC@Ca' Foscari-Centro Euro-Mediterraneo sui Cambiamenti Climatici-
Università Ca' Foscari, Venezia, Italy**

Analysis of the impacts of interactions between water-energy-food sectors on water quality in mountain regions

- Literature review of water quality implications of the Water-Energy-Food Nexus;
- Development of a DPSIR framework capturing the most important implications of the WEF Nexus on water quality in mountain areas.
- Review of the relevant Nexus pressures in the case study area in scientific literature and reports from local authorities
- Collection of existing open data for the case study area (Adige River Basin): Water quality, Soil characteristics, climatic data, land use, socioeconomic information

• 07/01/2022 – 15/08/2022

QA-Analyst

TransPerfect Translations SL, Barcelona, Spain

- Transcribing of Audio recordings
- Quality Control and corrections of Transcriptions
- Research of relevant Information needed for transcribing

• 01/09/2019 – 16/10/2019

Internship

Sönnichsen&Weinert – Hydraulic Engineers and Water management, Minden, Germany

- One dimensional modelling of waterbodies using the software JABRON;
- Spatial analysis with the geographic information system ArcGIS;
- Carrying out terrain and water surveys with a GPS rover;
- Support in field work (e.g., biotope type mapping, photos, surveying);
- Participation in the creation of measures for Alpine newts and European newts (creation of a still water);
- Participation in the preparation of explanatory reports.

EDUCATION AND TRAINING

• September 2024 – ongoing

PhD in Science and Management of Climate Change

Ca' Foscari University of Venice, Sestiere Dorsoduro, 3246, 30123 Venezia, Italy

Research Topic:

Understanding mountain water resilience under the conjoined impacts of changing land use and climate change: A WEF Nexus Approach

Supervisors: Prof. Andrea Critto, Dr. Anna Sperotto

• September 2024 – ongoing

Master of Research in Science and Management of Climate Change

Ca' Foscari University of Venice, Sestiere Dorsoduro, 3246, 30123 Venezia, Italy

Master's Degree within the PHD Program in Science and Management of Climate Change provided by CMCC Foundation and Università Ca Foscari of Venice

• September 2022 –31/10/2024

Master's Degree Environmental Science – Global Change and Sustainability

Ca' Foscari University of Venice, Sestiere Dorsoduro, 3246, 30123 Venezia, Italy

Main topics: Climate System; Climate of the past; Ecosystems and Ecosystem services; Climate change causes and effects on global environment; Climate Economics and Policies; statistical analysis with R program; Geographic Information Systems QGIS

Final Grade: 110 e Lode (110/110 with Honours)

Master thesis: "Disentangling the water quality Dimension of the Water-Energy-Food nexus: A Case Study in the Upper Adige river basin"

Supervisor: Prof. Andrea Critto

Co-Supervisor: Dr. Anna Sperotto

Main Activities:

- Identification and analysis of Water-Energy-Food Nexus implications on water quality in the Upper Adige region;
- Implementation of a spatial Bayesian Network powered by Artificial Intelligence to model pollutants levels in river reaches;
- Support the research activities that were carried out within the iNEST project.

• 01/10/2017 – 21/03/2021

Bachelor's Degree Environmental Science

Technische Universität Braunschweig, Universitätspl. 2, 38106 Braunschweig, Germany

Main topics: Basics of Natural Sciences; Environmental Systems; GIS, Environmental Informatics and Data analysis with R; Laboratories (physics, chemistry, pedosphere, aquatic ecosystems); Water resource management; hydraulic engineering; Aquatic Ecosystems; Environmental Ethics

Bachelor thesis: “Effects of competition on water uptake of species *Triticum aestivum*, *Viola arvensis* and *Alopecurus myosuroides*”

Grade: 1,9 (good)

Supervisor: Prof. Dr. Wolfgang Durner

Main Activities:

- Experimental part: growing of the three species in a greenhouse, documentation of above-ground growth under different growth condition. Documentation of water consumption and soil water content;
- Interpretation of growth and water consumption results with respect to growth conditions;
- Collaboration to the activities of the JKI (Julius-Kühn Institut; Federal Research Centre for Cultivated Plants).

CERTIFICATIONS

- GIS for Environmental science course (30 hours): Certification issued by TU Braunschweig (01/2019)
- Italian Language course C1 (70 hours): Certification issued by Ca' Foscari School for International Education (06/2024)
- Italian Language course B2 (70 hours): Certification issued by Ca' Foscari School for International Education (01/2024)
- Italian Language course B1 (70 hours): Certification issued by Ca' Foscari School for International Education (06/2023)
- Italian Language course A2 (50 hours): Certification issued by Ca' Foscari School for International Education (02/2023)
- Safety and health course in teaching and research activities: online course of general training (4 hours) Certification issued by University Ca' Foscari of Venice (07/2023)
- Italian Language course A1 (4 ECTS): Certification issued by TU Braunschweig (07/2020)
- Spanish Language course A2 (4 ECTS): Certification issued by TU Braunschweig (07/2019)

EXTENDED ABSTRACTS AND CONFERENCE PROCEEDINGS

- **Mathilda Vogt**, Anna Sperotto, Alba Marquez Torres, Stefano Balbi, Andrea Critto. “Machine Learning a supporto dell’analisi degli impatti dei cambiamenti climatici sulla qualità delle risorse idriche”. Adige Water Fair, Bolzano, Italy. 19.05.-20.05.2025
- **Mathilda Vogt**, Anna Sperotto, Alba Marquez Torres, Stefano Balbi, Andrea Critto. A “Machine Learning tool to predict climate and land use change implications for water quality: a nexus perspective.” Dresden Nexus Conference 2025, Dresden, Germany. 08.04. – 10.04.2025.
- **Mathilda Vogt**, Anna Sperotto, Alba Marquez Torres, Stefano Balbi, Andrea Critto. “Bayesian Network application to assess Water Quality from a Water-Energy-Food Nexus perspective: A case study in the Upper Adige River Basin (Italy)”. EGU 2025, Vienna, Austria. 27.04. – 02.05.2025. <https://doi.org/10.5194/egusphere-egu25-9694>
- Anna Sperotto, **Mathilda Vogt**, Stefano Balbi, Alba Marquez, Andrea Critto. “Leveraging AI and Machine Reasoning to Model the Water-Energy-Food Nexus in the Adige River Basin (Italy)”. AGU 2024, Washington, USA. 09.12. – 13.12.2024. <https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1621443>
- Andrea Critto, Diep Ngoc Nguyen, Olinda Rufo, **Mathilda Vogt**, Samuele Casagrande, Jacopo Furlanetto, Hung Vuong Pham, Anna Sperotto, Silvia Torresan. “An Artificial Intelligence Approach for Multi-Risk Dynamics of Water Quality Under Anthropogenic Pressures and Climate Change”. SETAC Asia Pacific Conference, Tianjin, China. 21.09.-25.09.2024.
- Jacopo Furlanetto, Diep Ngoc Nguyen, Olinda Rufo, **Mathilda Vogt**, Samuele Casagrande, Hung Vuong Pham, Anna Sperotto, Silvia Torresan, Andrea Critto, “Multi-Risk Dynamics of Water Quality under Climate Change and Anthropogenic Pressures: An AI Approach Across Spatial Scales” 5th International Workshop on High Temporal Resolution Water Quality Monitoring and Analysis. The James Hutton Institute. 2nd Circular. 17.6.-

19.6.2024. <https://www.crew.ac.uk/news/5th-international-workshop-high-temporal-resolution-water-quality-monitoring-and-analysis>

- Anna Sperotto, **Mathilda Vogt**, Stefano Balbi, Ferdinando Villa, Andrea Critto, “Disentangling the water quality dimension of the Water-Energy-Food nexus in the Adige River basin (Italy)”, EGU 2024, Vienna, Austria. 14.04.-19.04.2024. <https://doi.org/10.5194/egusphere-egu24-17232>

**CONTRIBUTION IN
COLLABORATIVE RESEARCH
PROJECTS**

iNEST - Interconnected Nord-Est Innovation Ecosystem; in Spoke – 1: Ecosystems for mountain Innovation (August 2022 - December 2025)-European Union NextGenerationEU (PNRR)

- Main Activities: Analysis of the impacts of interactions between water-energy-food sectors on water quality in mountain regions; Identification of main nexus pressures in the Adige River Basin, modelling of Water quality in the Upper Adige river basin using a Bayesian Network and AI; supporting role in management of the project (meeting organization, reporting, dissemination)

**PERSONAL SKILLS AND
COMPETENCES**

MOTHER TONGUE

GERMAN

OTHER LANGUAGE(S)

	Understanding		Speaking		Writing
	Listening	Reading	Spoken Interaction	Spoken production	
ENGLISH	C2	C2	C2	C2	C2
ITALIAN	C1	C1	C1	C1	C1
SPANISH	A2	A2	A1	A1	A1

SOFTWARE SKILLS

- Windows and MacOS;
- Microsoft Office Programs (Word, Excel, Power Point);
- Mozilla Firefox, Google, Social Networks;
- Geographic Information Systems (QGIS, ArcGIS): competent knowledge acquired during university courses and interning activities;
- R and Phytion: competent knowledge acquired during university courses and interning activities;
- Vensim: basic knowledge acquired during university courses
- k.lab and Artificial Intelligence for Environment and Sustainability (ARIES): basic knowledge acquired during interning activities;
- GENIE and WEKA for Bayesian Network analysis: basic knowledge acquired during interning activities;
- JABRON: basic knowledge acquired during interning activities.

Last Update: December 2025