

Christoph von Matt

Geographer (M.Sc)



Personal Information

I'm a physical geographer by trade (M.Sc) with a main focus on meteorology, climatology and hydrology. I have a strong background in spatial data analysis, forecast verification and climate change assessments. I have advanced programming skills (mainly Python, R), intermediate knowledge of GIS software (ArcGIS, QGIS) and some knowledge in web-technologies (D3.js).

Contact

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Github

codicolus

Expertise

- ❖ R & Python
- ❖ Automatization
- ❖ (Spatial) Data analysis & visualization
- ❖ Hydro-meteorological processes
- ❖ Forecast verification
- ❖ Climate impact/change assessments

Experience

- 01/2022 - present** **Scientific Collaborator (80%)**
Climate impact group, University of Bern (OCCR)
(Hydrological) Drought research. Catchment sensitivity to hydro-meteorological water deficits (HYD-RESPONSES). Compound droughts under climate change in Switzerland (COM-DROUGHTS).
- 09/2022 - 10/2022** **Scientific Collaborator (80%)**
11/2021 - 12/2021 Federal Office for the Environment FOEN
Verification of the operational hydrological forecast models. Method development, conceptualization and implementation in R. Focus on flood situations.
- 01/2021 - 10/2021** **Internship Hydrology (80%)**
Federal Office for the Environment FOEN
Extreme value analysis (high and low flows), (semi-automated) data and metadata validation and processing. Development of a Shiny-App for flood situation overview graphics.
- 05/2020 - 12/2020** **Internship Weather Forecaster (50%)**
Meteotest AG
Weather analysis/forecasting, weather reports for print media (Python routines), client consultation, (Live-) broadcast interviews, educational outreach in meteorology and natural risks (junior high school level).
- 12/2018 - 04/2019** **Undergraduate Research Assistant (40%)**
Mobilier Lab for natural risks (OCCR)
Project "Impact-oriented flood warnings". Geomorphological stream channel mapping in QGIS. Flood hydrograph generation in R.

Education

- 09/2017 - 05/2020** **MSc Geography, University of Bern**
Thesis title: ZDR-column detection in Switzerland – verification, sensitivity analysis and associations with MeteoSwiss hail products
Meteorology, climatology, remote sensing, applied statistics, open (government) data, geoprocessing and programming (data analysis, visualization and modelling in Python, R and D3.js).
- 09/2013 - 07/2017** **BSc Geography, University of Bern**
Minors in geoscience, computer science & mathematics
Focus on physical geography (meteorology, climatology, hydrology) and geoprocessing (ArcGIS, QGIS, photogrammetry).

Skills

Languages

German	Mother tongue
English	Level B2
French	Grammar School Level
Italian	Level A2 4-week intensive course (Italy)

Technical Skills

Operating Systems (OS)

Windows	Linux
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Office Suite

Microsoft	Libre Office
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Geographic Information Systems (GIS)

ArcGIS	Intermediate knowledge
QGIS	Intermediate knowledge

Programming & Web Development

Python	Advanced
R	Advanced
Shell Scripting	Intermediate knowledge
D3.js	Intermediate knowledge
HTML & CSS	Basics
JavaScript	Basics
LaTeX	Basics
Java	Basics
IDL	Basics

Version Control

Git	Github
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Workshops & MOOCs

EDORA Drought Workshop

16-17th June 2022, Joint Research Centre, Ispra (IT)
Kickoff-Workshop organized by the European Drought Observatory for Resilience and Adaptation (EDORA).

MOOC Machine Learning in Weather & Climate

January - April 2023, ECMWF
MOOC organised by the European Centre for Medium-Range Weather Forecasts (ECMWF) in partnership with the International Foundation Big Data and Artificial Intelligence for Human Development (IFAB). Certificate of Completion.

Publications & Acknowledgements

Preprints

von Matt, C. N., Mülchi, R., Gudmundsson, L., and Martius, O.: Compound droughts under climate change in Switzerland, Nat. Hazards Earth Syst. Sci. Discuss. [preprint], <https://doi.org/10.5194/nhess-2024-6>, in review, 2024.

Acknowledgements

Burger, M., Gubler, M., Brönnimann, S., 2022. Modeling the intra-urban nocturnal summertime air temperature fields at a daily basis in a city with complex topography. PLOS Climate 1, e0000089. <https://doi.org/10.1371/journal.pclm.0000089>

Lanz, T., 2020. Lagrangian Analysis of Thunderstorms in Switzerland. Master thesis, Oeschger Centre for Climate Change Research (OCCR), Institute of Geography, Faculty of Science, University of Bern. <https://occrdata.unibe.ch/students/theses/msc/300.pdf>.

Conference-Poster

Compound Drought Events in Switzerland

Swiss Global Change Day (SGCD) 2023
https://scnat.ch/en/uuid/i/462ef471-162e-561f-a8fe-05604b2036d3-23rd_Swiss_Global_Change_Day

ZDR-Column Detection in Switzerland

European Conference on Severe Storms (ECSS) 2019
<https://meetingorganizer.copernicus.org/ECSS2019/ECSS2019-17.pdf>

Heatwaves and Cold Spells in the SATSTACE Daily Global Temperature Data Set

European Conference for Applied Meteorology and Climatology 2018
<https://meetingorganizer.copernicus.org/EMS2018/posters/29542#>