RESEARCH & PROJECT PORTFOLIO

Dr. Michael Schultz

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SCAN FOR MY WEBSITE

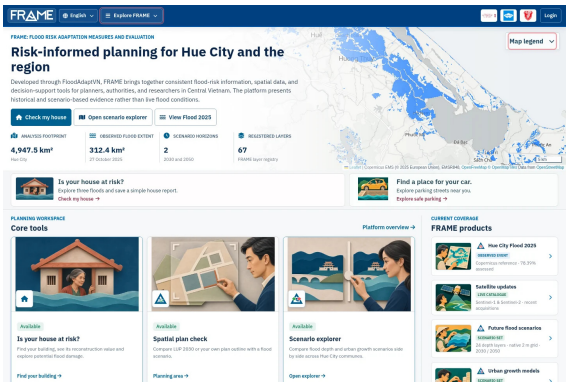


From space to better decisions.

I connect satellite observations, machine learning and open data with questions about land use, climate, infrastructure and environmental change. My work combines research methods with practical platforms for exploration, reporting and decision-making.

CURRENT WORK / FLOOD RISK & TRADE

01 · HUẾ / CENTRAL VIETNAM



BMFTR supports FloodAdaptVN's current implementation phase.

Flood Risk Adaptation Measures and Evaluation

FRAME · FloodAdaptVN · BMFTR funding

Flood scenarios, exposure and adaptation options for Huế and Central Vietnam. I connect geospatial research with accessible tools for exploring flood risk and local planning.

frame-vn.org

02 · AFRICAN BORDER CROSSINGS



The indicator estimates occupied area, not direct vehicle counts or crossing times.

Trade Fluidity & Border Monitoring

World Bank · Border Observatory

Satellite-based vehicle-occupancy estimates support research on congestion, logistics and African trade. Explore historical border observations and Chirundu in 3D.

Explore the Border Observatory

Reproducible research · World Bank

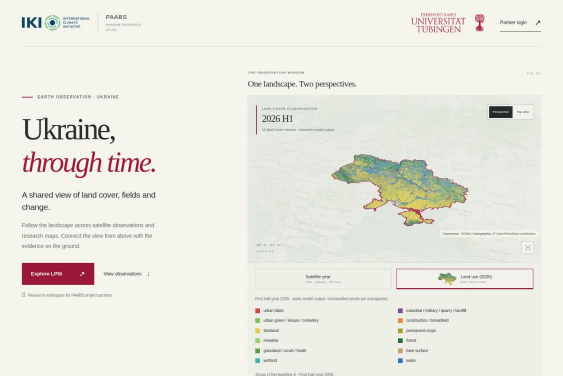
Portal previews: FRAME and Border Observatory. Chirundu basemap © OpenStreetMap contributors.

Land information. Climate decisions.

Open geospatial data, practical mapping and reproducible workflows.

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03 · UKRAINE / BLACK SEA REGION



Sentinel-2, OpenStreetMap-derived training data and reproducible land-cover classification.

Braunschweig 2026 · Sentinel-1 damage proxies

Darmstadt 2026 · Copernicus-Landmonitor Ukraine

Paris Agreement & Black Sea Adaptation

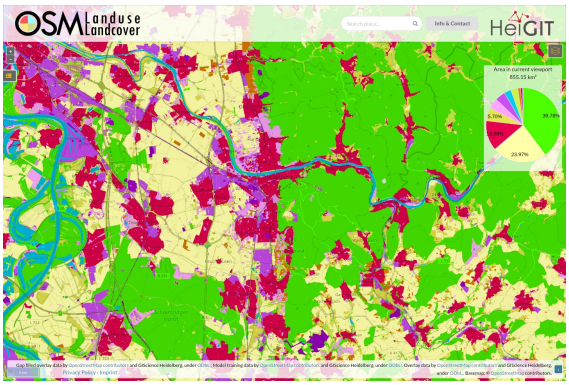
International Climate Initiative (IKI) · GIZ

Supporting Ukraine in the implementation of the Paris Agreement and adaptation to the impact of climate change in the Black Sea region (PAABS).

My contribution: satellite-based land monitoring for greenhouse-gas reporting. The paabs.de research atlas makes this work accessible to project partners.

paabs.de

04 · EUROPE / HEIDELBERG



2020 reference year · Scientific Data, 2025.
Map data © OpenStreetMap contributors.

OSM Land Use

Heidelberg University · HeiGIT

European land-use information at 10-metre resolution, combining OpenStreetMap and Sentinel-2. I co-led the project with Alexander Zipf and contributed methods for filling mapping gaps using deep learning, with Hao Li and Zhaoyan Wu.

osmlanduse.org

Open dataset · heiDATA

METHODS THAT CONNECT THE WORK

Satellite time series · Machine learning · OpenStreetMap
Greenhouse-gas estimation · Reproducible processing · Interactive geospatial tools

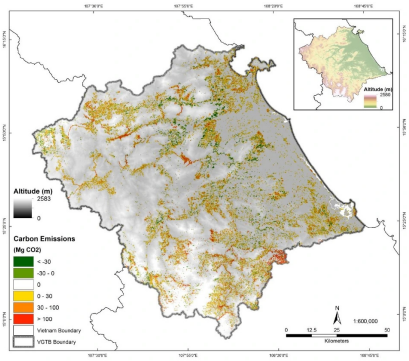
Programme names, funding context and full project credits: schultzheidelberg.github.io/projects/ and /sources/.

Forests, carbon and conservation.

Research and applied experience across tropical landscapes.

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05 · VIETNAM / LAO PDR · 2011–2020



Vietnam carbon map · Avitabile et al. (2016); Schultz (2018), Fig. 2.5.

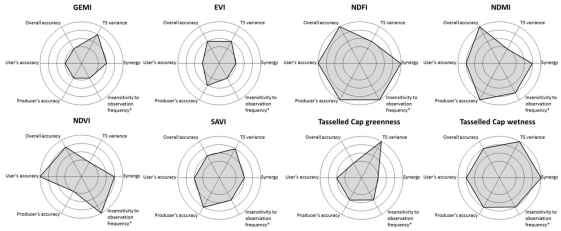
Forest Carbon & REDD+

Jena · Wageningen · WWF / Österreichische Bundesforste

Landsat observations and forest inventories supported estimates of carbon emissions and removals in Central Vietnam. For Xe Pian in Lao PDR, I contributed baseline analysis, reporting, validation and local training for REDD+ work under the Verified Carbon Standard.

Carbon study · 2016

06 · TROPICAL FORESTS · 2016–2018



Relative index performance · Schultz et al. (2016); Schultz (2018), Fig. 4.7.

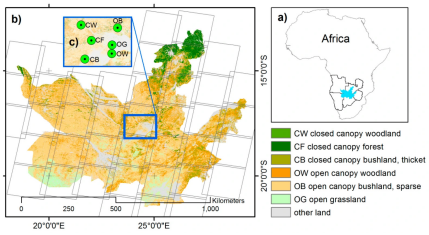
Tropical Forest Monitoring

PhD thesis · Wageningen University · 2018

My doctoral research investigated tropical deforestation with Landsat time series and breakpoint detection. A 2016 study compared eight vegetation indices across Brazil, Ethiopia and Vietnam.

Doctoral thesis · Wageningen

07 · SOUTHERN AFRICA · 2016–2018



KAZA map · Schultz et al. (2018), Fig. 1.
CC BY 4.0.

Kavango–Zambezi Monitoring

WWF · Peace Parks Foundation

Landsat forest and vegetation-change monitoring in the KAZA conservation area, combining field validation in Zambia and Namibia, operational processing workflows and local training.

Research paper · 2018

Further greenhouse-gas research: land-use carbon fluxes in Baden-Württemberg and street-level vehicle emissions in Berlin, both published in 2023.

Original figure excerpts; data unchanged. Full studies and image credits: schultzheidelberg.github.io/sources/.

Research you can build on.

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A selection of journal articles, alongside open data and applied tools.

2026 **Assessment of ground deformation in Mandalay, Myanmar, using InSAR with Sentinel-1 data after the March 2025 earthquake**

Taghi-Lou, B., Schultz, M., Braun, A. & Hochschild, V.
Science of Remote Sensing, 13, 100358.
doi.org/10.1016/j.srs.2025.100358

2025 **OSMlanduse a dataset of European Union land use at 10 m resolution derived from OpenStreetMap and Sentinel-2**

Schultz, M., Li, H., et al.
Scientific Data, 12(1), 750.
doi.org/10.1038/s41597-025-04703-8

2023 **Carbon fluxes related to land use and land cover change in Baden-Württemberg**

Ulrich, V., Schultz, M., Lautenbach, S. & Zipf, A.
Environmental Monitoring and Assessment, 195(5), 616.
doi.org/10.1007/s10661-023-11141-9

2018 **Forest Cover and Vegetation Degradation Detection in the Kavango Zambezi Transfrontier Conservation Area Using BFAST Monitor**

Schultz, M., Shapiro, A., Clevers, J. G. P. W., Beech, C. & Herold, M.
Remote Sensing, 10(11), 1850.
doi.org/10.3390/rs10111850

2016 **Performance of vegetation indices from Landsat time series in deforestation monitoring**

Schultz, M., et al.
International Journal of Applied Earth Observation and Geoinformation, 52, 318-327.
doi.org/10.1016/j.jag.2016.06.020

2016 **Carbon emissions from land cover change in Central Vietnam**

Avitabile, V., Schultz, M., et al.
Carbon Management, 7(5-6), 333-346.
doi.org/10.1080/17583004.2016.1254009

Let’s connect.

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