Dr. Eduardo Queiroz Marques

Expert in remote sensing, climatological patterns, and data science

Postdoctoral Researcher
Postgraduate Program in Forest Science
Federal Rural University of Amazônia (UFRA), Brazil
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Google scholar: https://scholar.google.com.br/citations?user=znMlchUAAAAJ&hl=en

EDUCATION

- Doctorate in Ecology and Conservation. UNEMAT, conclusion in 2023.
- Master in Ecology and Conservation. UNEMAT, conclusion in 2016.
- Graduate in Biology. UNEMAT, conclusion in 2013.

PROFESSIONAL EXPERIENCE

2023 – current – UFRA - Federal Rural University of Amazônia
Position: Postdoctoral Researcher.
Researcher focused on the dynamics of land use in fragmented landscapes of the Pará Amazon, examining the relationship between productive activities and the conservation of forest remnants and ecosystems. My work spans the fields of Geosciences, Physical Geography, Climatology, and Ecology.
Supervisor: Dr. Divino Vicente Silvério (divino.silverio@ufra.edu.br)

2023 – IPAM – Amazon Environmental Research Institute
Position: Postdoctoral Researcher.
As a postdoctoral researcher in the "YALE - CARBONO Project", my research primarily investigated the relationship between extreme climatic events and vertical forest structure in the southern Amazon. My work spans the fields of Climatology and Ecology.
Supervisor: PhD. Ludmila Rattis (lrattis@woodwellclimate.org)

2022 – Eidgenössische Technische Hochschule Zürich (ETHZ) and Helmholtz-Zentrum für Umweltforschung (UFZ)
Position: Short-term Visitor Researcher.
Researcher in the project "Risk assessment of critical ecological thresholds in Amazonia and Cerrado", a collaboration between Brazil, Switzerland and Germany. Working on the relationship between extreme weather events and tree mortality in burned Amazon forests. Including data analysis and statistical modeling on composite climate events and the associated impacts on forest degradation.
Coordenators: PhD. Sonia I. Seneviratne (sonia.seneviratne@ethz.ch) and PhD. Jakob Zscheischler (jakob.zscheischler@ufz.de)

2019 - 2023 – UNEMAT
Position: PhD Candidate.
PhD Candidate at the UNEMAT and research on Amazon Environmental Research Institute

(IPAM). Working with satellite image analysis for disturbances and forest degradation by climate and anthropogenic actions.
Advisor: PhD. Paulo Monteiro Brando. **E-mail:** pmbrando@ipam.org.br

2017 - 2019 – University of Leeds and UNEMAT
Position: Technical Researcher.
Technical researcher of bilateral cooperation between the University of Leeds and UNEMAT for the implementation of activities associated with the TREMOR project, funded by the Natural Enverionment Research Council. Working mainly with environmental and climate data collection equipment and coordinating field and laboratory activities. Also acting in the analysis of data and development of tools and methods of data collection.
Coordenator: PhD. Emanuel Gloor. **E-mail:** E.Gloor@leeds.ac.uk

2016 - 2017 – IPAM – Amazon Environmental Research Institute
Position: Research Assistant.
Researcher and scholarship of Technology and Industrial developed (DTI-C), in Amazon Environmental Research Institute (IPAM). Through the project "Feedbacks between deforestation, agricultural expansion and climate change in southeastern Amazon: opportunities and threats". Acting mainly in the areas of Geoprocessing, cartography, landscape ecology, organizing and analyzing geographic data bank by region of MATOPIBA, Goiás and Mato Grosso state and writing scientific results.
Coordenator: PhD. Paulo Monteiro Brando. **E-mail:** pmbrando@ipam.org.br

2014 - 2016 – LABEV – Vegetation Ecology Laboratory
Position: Master degree Scholarship.
Master degree scholarship, acting mainly in geoprocessing, cartography, phytogeography and landscape ecology, with studies about Amazon / Cerrado transition.
Coordenator: Dr. Bem Hur Marimon Junior. **E-mail:** bhmjunior@gmail.com

2010 - 2013 – LANA – Environmental Analysis Laboratory
Position: Trainee.
Acted mainly in the area of climatology, GIS, cartography, phytogeography, soils, ecology and conservation. During my trainee I ad skills in softwares how ArcGis, Patch Analyst (ArcGis extention for analysis fragmentation landscape) and SpecWare (climatology e meteorology). Also worked in project about climatology, where I opered meteorological stations and management data and writing results.
Coordenator: Dr. Amintas Nazareth Rossete. **E-mail:** amnrote@uol.com.br

TECHNICAL SKILLS

Programming languages and software:
- R Statistical Language (Tidyverse, ggplot2, raster, rgdal, terra)
- Google Earth Engine (GEE)
- ArcGis, ENVI, ERDAS and QGIS.

Languages:
- Portuguese (native)
- English (written and spoken)
- Spanish (spoken)

Additional competences:
- Expert in environmental data analysis, cartography, geoprocessing and satellite imagery.

- Experience in environmental and climatic data collection equipment (Thermal cameras, Weather stations, Soil moisture sensors).

- Experience in handling big data, data science, and machine learning (Random Forest).

COURSES

Introdução ao ambiente estatístico R (as professor). Universidade do Estado de Mato Grosso, UNEMAT, Brasil. 2019.

Produção de Mapas e Geoprocessamento (as professor). Universidade do Estado de Mato Grosso, UNEMAT, Brasil. 2018.

MaxEnt: modelos de distribuição espacial de espécies. Universidade do Estado de Mato Grosso, UNEMAT, Brasil. 2018.

Thermography and Spectroscopy of Tropical Forest. University of Leeds, Leeds, UK. 2017.

Forest Monitoring with CLASlite. Stanford University, USA. 2016.

PUBLICATIONS (articles and books)

AGUIAR, C.M.C., FRANCO, R.Y.D.S., SILVÉRIO, D.V., ARAÚJO, T.D.O.D., MARQUES, E.Q., MEIGUINS, B.S. **ClimaInfo: Information Visualization Dashboard for Climatological and Environmental Data**. In: Computational Science and Its Applications. ICCSA 2024. Lecture Notes in Computer Science, vol 14819. Springer, Cham. https://doi.org/10.1007/978-3-031-65282-0_25.

RATTIS, LUDMILA; BRANDO, PAULO M; MACEDO, MARCIA N; SPERA, STEPHANIE A; CASTANHO, ANDREA D. A; MARQUES, EDUARDO Q; COSTA, NATHANE Q; SILVERIO, DIVINO V; COE, MICHAEL T. **Climatic limit for agriculture in Brazil**. Nature Climate Change, v. 11, p. 1098-1104, 2021.

TIWARI, RAKESH; GLOOR, EMANUEL; CRUZ, WESLEY JONATAR A; ... GALBRAITH, DAVID. **Photosynthetic quantum efficiency in south-eastern Amazonian trees may be already affected by climate change**. PLANT CELL AND ENVIRONMENT, v. online, p. 1-12, 2021.

MARQUES, EDUARDO Q; MARIMON-JUNIOR, BEN HUR; MARIMON, BEATRIZ S; MATRICARDI, ERALDO A. T; MEWS, HENRIQUE A; COLLI, GUARINO R. **Redefining the Cerrado-Amazonia transition: implications for conservation**. BIODIVERSITY AND CONSERVATION, v. 28, p. 39-56, 2020.

SANTOS, F. P; PEREIRA, W. S; MARQUES, E. Q; UMETSU, R. K; ELIAS,F; ROSSETE, A. N. **Fragmentação da cobertura vegetal no entorno de uma unidade de conservação na transição Cerrado-Amazônia, Mato Grosso, Brasil**. Enciclopédia Biosfera, v. 10, p. 2286-2301, 2014.

CONFERENCE COMMUNICATIONS

MARQUES, E. Q; RIBEIRO, A. F.S; SILVERIO, D. V; SENEVIRATNE, S. I; ZSCHEISCHLER, J; BRANDO, P. M. **Understanding the impacts of compound precipitation and wind extremes on Amazonian Forests previously degraded by fire**, 2022. DAMOCLES - Perspectives and ways forward in Compound Event research. Lisbon, Portugal, Instituto Dom Luiz, 2022.

MARQUES, E. Q; REBELATTO, B. F; SILVERIO, D. V; BRANDO, P. M. **Sensibilidade dos índices de vegetação na detecção de degradação florestal causada por fogo no sul da Amazônia**, 2021. Anais da 1ª Semana Acadêmica da Pesquisa e Inovação. Cáceres, UNEMAT, 2021.

MARQUES, E. Q. ; RATTIS, L. ; SILVERIO, D. V. ; BRANDO, P. M. **Integrated effects of forest fire and wind storms on tropical forests**, 2019, Cáceres. Artigos Vol. 9 (2019): Jornada Científica da UNEMAT, 2019. v. 9.

RATTIS, L; BRANDO, P. M; MARQUES, E. Q; QUEIROZ, N; SILVERIO, D. V; MACEDO, M; COE, M. T. **Forest amount affects soybean productivity in Brazilian agricultural frontier**, 2017, New Orleans. 2017 AGU Fall Meeting, 2017.

MARQUES, E. Q; BRANDO, P. M; SILVERIO, D. V. **Estimativa da produtividade agrícola com base em dados EVI do MODIS em municípios do Vale do Araguaia**. CIÊNCIA ALIMENTANDO O BRASIL. Nova Xavantina: UNEMAT Editora, 2016. v. 4.

BEU, R. G; ELIAS, F; MARQUES, E. Q; MARIMON, B. S. **Importância da heterogeneidade ambiental na demarcação de unidades de Conservação no Brasil**. SEMANA CIENTÍFICA/ANAIS. Nova Xavantina: UNEMAT editora, 2015. v. 3.

MARQUES, E. Q; PEREIRA, W. S; SANTOS, F. P; SILVA, I. C. M. **Análise da distribuição pluviométrica no município de Nova Xavantina**. Congresso de Iniciação Científica. Cáceres: UNEMAT, 2013. v. 8.

SANTOS, F. P; SILVA, I. C. M; MARQUES, E. Q; PEREIRA, W. S**. Análise da Fragmentação da Paisagem no Parque do Bacaba, Município de Nova Xavantina-MT**. Congresso de Iniciação Científica. Cáceres: UNEMAT, 2013. v. 8.

MARQUES, E. Q; BRASIL, L. S; SANTOS, J. O; SILVA, S. M; UMETSU, R. K. **O Uso da Biodiversidade por produtores rurais do Município de Nova Xavantina**. 63° Reunião Anual da SBPC. Goiânia : SBPC, 2011. v. 63°.

MARQUES, E. Q; ROSSETE, A. N. **Análise de precipitação pluviométrica da bacia hidrográfica do Córrego do Bacaba**. VII Congresso de Iniciação Científica. Cáceres: UNEMAT, 2011. v. 7.

MARQUES, E. Q. **Lista Comentada de Mamíferos de Pequeno Porte do Parque do Bacaba**, **Nova Xavantina - MT**. VI Congresso Interno de Iniciação Científica. Nova Xavantina: UNEMAT, 2010. v. 6.

PRESENTATIONS OF WORK

MARQUES, E. Q; MOREIRA, F. G. **Drone: Introdução e Aplicação**. Nova Xavantina: UNEMAT, 2019.

MARQUES, E. Q. **Clima e Meio Ambiente: Qual o papel da Floresta?**. Nova Nazaré: UNEMAT, 2018.