

## Master Thesis Project

### Human causes of vegetation fires in the seasonally arid tropics – a meta-analysis

The MONSOON team is looking for a Masters student to analyze human caused fires in West Africa and India. Within the team we seek to better understand the relationship between humans and the environment in the seasonally arid tropics. The study will be in collaboration with the international research project FURNACES which researches future fires and the interactions with ecosystems and societies.

#### **Background**

Wildfires function as important agents shaping the diversity and ecological patterns of terrestrial ecosystems. Likewise, they are an integral part of land management for some societies. Fires are used by humans to quickly clear vegetation, release nutrients to the soil and as a tool to manage forests, savannas and arable land, for instance during traditional farming practices. Wildfires however can also be harmful for humans and the environment. If not managed correctly they can spread and destroy large landscapes and harm flora, fauna and people. According to the FAO 90% of wildfires are caused by humans, wherefore it is crucial to research the social drivers behind fires. Socioeconomic development, culture and political regulations all affect the occurrence, magnitude and behavior of fires. There is a lack of overall understanding of (1) the relationship between people and wildfires as a land management tool and (2) the role of fire regimes in different socioeconomic dynamics. **The aim of this study is to better understand the decision-making process and underlying drivers of human caused fires in seasonally arid tropics.**

By conducting a meta-analysis on case studies which report about anthropogenic fires and their drivers, we will be able to characterize fire and fire actor typologies and aim to explain the spatial and temporal patterns of fire regimes. The outcome of this study is highly valuable for stakeholders such as policy makers, forest and land owners. Subsequently this study will contribute to make future land management scenarios more certain and provide insight on how ecosystems and societies will be affected by future changes in fire regimes.

#### **Applied methods**

- 1) identification of eligibility criteria of case studies
- 2) systematic literature search/screening
- 3) data collection and coding
- 4) analysis and synthesis of the coded information

#### **What should you bring with you?**

- 1) Interest in climate change and interaction between wildfires, land use and human activity in the seasonally arid tropics
- 2) Basic skills in statistics (R, SPSS) and geoinformation systems (ArcGIS, QGIS) and interest in extending your skill set. *Don't be afraid you will be guided step by step!*
- 3) Motivation in literature-based research and working independently and self-organized from home. Due to the current Corona Situation supervision will be held mostly via Zoom/Skype.

You will be supervised by Silvia Schrötter (PhD student) and Prof. Dr. Peter Fiener from the Water and Soil Resource Research Group of the Geography Institute at the University of Augsburg.

Are you interested in the topic? Please contact me at [silvia.schroetter@geo.uni-augsburg.de](mailto:silvia.schroetter@geo.uni-augsburg.de).