

# UNCOVERING HUMAN-LANDSCAPE INTERACTIONS ON MADEIRA ISLAND

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## **Resumo/Abstract**

The island of Madeira (Lat.: 32° 38' to 32° 52'N; Long.: 16° 39' e 17° 16' W) has been untouched by human activities until its official discovery in 1419. Since then the small volcanic island has undergone profound changes.

With the arrival of the first colons and the beginning of agricultural activities the anthropogen shaping of the island began. Indigenous forests were turned into arable land and forest resources were selectively used, altering native vegetation communities. The harsh mountain conditions with its steep slopes and deep canyons required very special adaptation measures for successfully performing agricultural activities. Different slope gradients, soil and construction material availability were key elements for the development of very distinct terrace systems, predominantly in mountainous coastal regions.

This strongly expressed interaction and mutual adaptation between both humans and landscape has been mentioned in several historical sources, but has never been analyzed in detail. What exactly are the human impacts and induced changes on landscape level? Actually the consequences and changes provoked by exploitation of resources and extension of humanized area are reflected by various indicators: Main indicators identified are the actual vegetation cover and the extension, spatial distribution and architecture of garden terraces and their sustaining walls as well as access routes into the mountains.

To better access this human interaction with the mountain landscape a multi-proxy approach involving methods ranging from vegetation ecology, over interviews within the local farming community, assessment of local toponymy to geoarcheological methods of terrace system analysis has been applied in this project. The project area in the north of Madeira Island, close to Ponta Delgada village offers a rich patrimony of agricultural terraces with some areas still cultivated. The surroundings of the village have not been affected by recent infrastructure measures, thus maintaining historical structures and allowing an in depth analysis of landscape features.

This work shows the spatial and qualitative dimension of human-landscape interaction in the valleys above Ponta Delgada and which information has been retrieved from different sources and disciplines and how they complement each other. For spatial analysis and visualization GIS has been chosen as an adequate tool.

## **CV**

### **Sandra Kiesow**

02/2013 – present - Doctoral student at Graduate School “Human Development in Landscapes” at Kiel University

10/2011 – present - Assistant Researcher at the Institute for Ecosystem Research at Kiel University.

09/2009 – 09/2011 - Master student at Kiel University, faculty of agronomy. Master thesis on cocoa production on the island of São Tomé

09/2003 – 09/2009 - Student at Kiel University, faculty of agronomy Thesis on hydrology of the island of Madeira

09/2002 – 09/2003 Professional course in ecotourism in Portugal at Escola de Hotelaria e Turismo da Madeira, Funchal (Tourism school in Funchal, Madeira, Portugal)

08/1993 – 06/2002 High school education at “Jungmann Gymnasium Eckernförde”

Research projects:

2013-2016 - PhD-project: "Cultivated Mountain slopes in the north of Madeira Island, Portugal. A geomorphological, paleoecological and historical analysis of agricultural dynamics and their consequences since the early 15th century".

2012 - Assistant in geomorphologic Project in Arslan Tepe, Turkey.

2011 - Master-project: "Cocoa culture on São Tomé" Agricultural production and its effects to society and the islands environment

Research areas: Environmental History, Geomorphology, Island Ecosystems, Paleoecology, Toponymy, Historical analysis of land-use practices and their long term effects to soil quality and vegetation cover