

# HOW DETERMINANT ARE ACCESSIBILITY AND DISTANCE TO EXPLAIN DIFFERENCES ON THE STRUCTURE AND COMPOSITION OF MOUNTAIN VEGETATION COMMUNITIES AT MADEIRA ISLAND?

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## **Resumo/Abstract**

Madeira is a mountainous island of volcanic origin located at the subtropical margin of the eastern North Atlantic (Lat.: 32° 38' to 32° 52'N; Long.: 16° 39' e 17° 16' W). Human impacts on vegetation began in the first quarter of the 15th century, and promoted important changes on the physiognomy, structure and composition of vegetation communities. Those impacts were associated to different types of land/resources exploitation (firewood collection, agriculture, charcoal production, animal food collection, timber, agriculture crafts, grazing).

On mountain areas (>500m) some of the vegetation types have been explained as the result of land-use, such as grasslands related to grazing. But for other communities, such as the laurel forest and heath micro-forests, the impact of land use has very often not been clearly identified. This work aims to disentangle the impact of past land-use on different types of vegetation, trying to associate differences on structure and composition to the type, intensity of use, and span since abandonment. This is also the first attempt to build a spatial model that helps to identify the contribution of factors, such as distance to settlements and topographic constraints, on the explanation of differences in terms of structure and composition of vegetation communities associated to similar ecological conditions and seral stage. The validation of the model is carried out at the scale of the island, and a detailed analysis will be carried out for Ribeira da Camisa catchment.

Key words: land-use, native vegetation, physical accessibility, disturbance.

## **CV**

### **Albano Figueiredo**

Department of Geography – University of Coimbra

Auxiliary professor

Coordinator for Physical Geography – Degree in Geography

#### **EDUCATION**

2013 – PhD in Geography – University of Coimbra

*Assessing climate change impacts on the distribution of flora and vegetation at Madeira Island*

2005 – Master in Physical Geography and Environmental Studies – University of Coimbra

*Natural Potential Vegetation within a context of high disruption: the case of the Chaves depression*

2001 – Degree in Geography – University of Coimbra

## PROFESSIONAL ACTIVITIES

Since 2013 – Auxiliary Professor – Department of Geography – University of Coimbra

2011– 2013 – Assistant Dean – Department of Geography – University of Coimbra

2005– 2013 – Assistant - Department of Geography – University of Coimbra

## RESEARCH

Since 2007 - Integrated Member at the Centre for Studies in Geography and Spatial Planning. Research group 1: Nature and Environmental Dynamics

Since 2009 – Member of the Madeira Botanical Group

RESEARCH AREAS: species distribution modeling; climate change impacts on flora and vegetation; invasion processes by alien plants; vegetation dynamics; land use changes; islands flora and vegetation

## RESEARCH PROJECTS

2014-2016: Current areas of natural vegetation at Madeira Island: evaluation of spatial attributes from remote sensing

2013-2016: Historical dynamics of laurel forests within natural reserves. Comparative analysis.

2010-2011: Flooding risk assessment at Madeira Island.

2008-2013: Assessing climate change impacts on flora and vegetation at Madeira Island.

2003-2007: Land use changes on North and Centre inland Portugal.

## 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