

Marburg, Carsten¹; Kolb, Thomas²; Schleicher, Anja-M.³; Varga, György⁴; Gärtner, Andreas^{5,1}; Faust, Dominik¹; Roettig, Christopher-B.¹

Introducing DFG-research project RO 7078/2-1: Late Pleistocene dune archives spanning from the Canary to the Tyrrhenian Basin – Paleoenvironmental reconstruction via dust imprint from source areas in northern Africa

¹*Dresden University of Technology, Institute for Geography, Dresden, Germany;*

²*Justus-Liebig-Universität Gießen, Institute for Geography, Gießen, Germany;*

³*GFZ German Research Centre for Geosciences, Potsdam, Germany;*

⁴*HUN-REN Research Center for Astronomy and Earth Sciences, Geographical Institute, Budapest, Hungary;*

⁵*Senckenberg Natural History Collections Dresden, Section for Mineralogy, Dresden, Germany;*

carsten.marburg@tu-dresden.de

Saharan dust input is a well-known phenomenon worldwide but especially concerning landscapes around the Mediterranean Sea and on the Canary Islands since the largest dust source areas on earth are located in the northern African continent. This dust transport is not just a recent process but has been going on for hundreds of thousands of years with changing intensities. The availability of dust depends mainly on the vegetation cover in the source areas and is therefore a function of changing climate. Its effects have been imprinted in several geoarchives and are especially well known from aeolianite archives. These coastal dune archives typically form in dependence of changes in sea level and are comprised of pale coloured carbonate sands, intercalated by reddish silty layers. The reddish silty layers are what we call paleo surfaces and they are heavily influenced by dust imprint from the northern African continent. The aim of our research project is hence to conduct detailed analyses on those layers to reconstruct the local and supraregional environmental conditions during the last glacial.

In view of the good temporal resolution over the last glacial our sites on Lanzarote (Canary Islands), Cabo Roig (SE-Spain), Formentera and Eivissa (Balearic Islands) and Sardinia offer best conditions to answer the following research questions, building on each other: (i) What are site-specific characteristics of the dust enriched layers and what information about the local environmental conditions are stored within our geoarchive? (ii) Are there differences or systematical similarities in terms of quantities and admixture of dust material when comparing the different paleo surfaces within a single site/profile? (iii) Can we identify distinct source areas of dust as well as dominating dust pathways? (iv) Are we able to correlate the different sites from the Canary to the Tyrrhenian basin and what supraregional patterns are deducible?

Besides extensive fieldwork we plan to realise a variety of laboratory analyses, for example luminescence dating, (grain size specific) XRF- and XRD-analysis, micromorphology and isotopic analysis. With this, we hope to contribute to the understanding of the large-scale development in the Western Mediterranean region and on the Canary Islands during the last glacial.

Session: *DEUQUA Session: Terrestrial records of paleoenvironments and – climates*

Keywords: *Drylands, Aeolianites, Stratigraphy, Saharan dust*