ABSTRACT VOLUME

and

FIELD TRIP GUIDE

IV International Rhodolith Workshop

Abstract Volume and Field Trip Guide

Edited by

Julio Aguirre, Anja Rösler and Juan C. Braga

Facultad de Ciencias
Universidad de Granada

17-21 September 2012

Organizing Committee

Julio Aguirre
Anja Rösler
Juan C. Braga

Miocene to Recent rhodoliths of the Azores: Systematics, palaeoecology and palaeobiogeography

Rebelo, A.C.[1,2], Rasser, M.W.[3], Neto, A.I.[4,5] and Ávila, S.P.[1,2]

[1] CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, InBIO Laboratório Associado, Pólo dos Açores & Departamento de Biologia, Universidade dos Açores, Rua Mãe de Deus, 9501-855 Ponta Delgada, Azores, Portugal
[2] MPB-Marine PalaeoBiogeography working group, Departamento de Biologia, Universidade dos Açores
[3] Staatliches Museum für Naturkunde Stuttgart, Rosenstein 1, 70372 Stuttgart, Germany
[4] Centro Interdisciplinar de Investigação Marinha e Ambiental (CIIMAR), Laboratório Associado, Laboratório de Investigação Aquática Insular (LAIR), Rua dos Bragas 289, 4050-123 Porto, Portugal
[5] Grupo de Biologia Marinha & CIRN, Departamento Biologia, Universidade dos Açores, 9501-801 Ponta Delgada, Açores, Portugal

In the Azores, fossil rhodoliths are known only from the island of Santa Maria, and recent rhodoliths are known, so far, from the islands of São Miguel, Pico and Graciosa (Fig. 1). Studies on this subject are still sporadical (e.g. Amen et al., 2005; Rosas-Alquicira et al., 2009). Since 2000, a local team at the University of the Azores (MPB-Marine PalaeoBiogeography) has been studying the fossiliferous outcrops of this archipelago, having as result a series of checklists of different organisms, descriptions of the outcrops and palaeobiogeographical studies.

A study on rhodolith fossil deposits will help to understand if the local factors were more important in deciding the relative scarcity or surplus of rhodoliths than some of the possible global influences that also impacted the middle Miocene world (Halfar & Mutti, 2005; Johnson et al., 2010).

Rhodoliths will be collected from several Late-Miocene-Early Pliocene outcrops in Santa Maria Island.

The project aims to produce the first taxonomical study of the Late-Miocene-Early Pliocene rhodolith coralline algae for the Azores and to produce check-lists of the rhodolith coralline algae species by Island collected from selected outcrops. The outcrops will be studied geologically, chronostratigraphically and geochronologically in the frame of the project "The Route of the Fossils". Data sets will be used to establish the (palaeo)-biogeographical relationships between the Atlantic archipelagos (Azores, Madeira, Canaries and Cape Verde). The results will be compared with those of other marine organisms (mollusks, echinoderms, littoral fishes, bryozoans, ostracods).

Living rhodoliths will be studied in order to understand the environmental conditions and compared with their fossil equivalents.

The Miocene rhodolith assemblages from the Macaronesian archipelagos will provide new data for the exciting biogeographic puzzle that these oceanic island systems pose.

This paper aims to present the project that has started in 2012 as well as first results on palaeoeology and taxonomy.

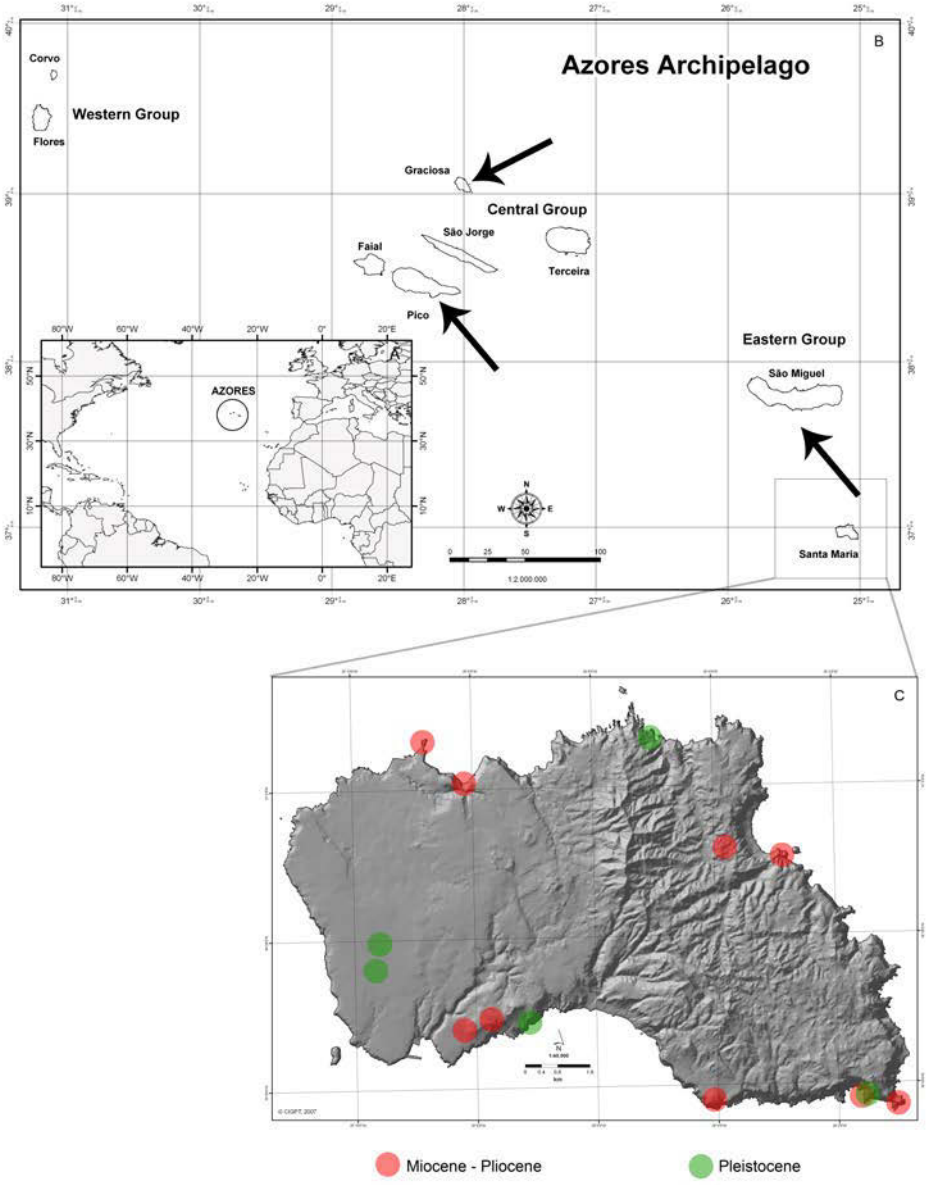

Figure 1. A: Location of the Azores Archipelago; B: islands where Recent rhodoliths can be found (arrows); C: location of the Miocene-Pliocene and Pleistocene outrocops from Santa Maria island.

References

Amen, R. G.; Neto, A. I. & Azevedo, J. M. N. (2005) Coralline-algal framework in the Quaternary of Prainha (Santa Maria Island, Azores). *Rev. Esp. Micropaleontol*, 37: 63-70.

Halfar, J. & Mutti, M. (2005). Global dominance of coralline red-algal facies: A response to Miocene oceanographic events. *Geology*, 33:481-484.

Johnson, M. E.; Marques da Silva, C.; Santos, A.; Baarli, B. G.; Cachão, M.; Mayoral, E. J.; Rebelo, A. C. & Ledesma-Vázquez, J. (2010). Rhodolith transport and immobilization on a volcanically active rocky shore: Middle Miocene at Cabeço das Laranjas on Ilhéu de Cima (Madeira Archipelago, Portugal). *Palaeogeography, Palaeoclimatology, Palaeoecology*, 300: 113-127.

Rosas-Alquicira, E. F.; Riosmena-Rodríguez, R.; Couto, R. P. & Neto, A. I. (2009). New additions to the Azorean algal flora, with ecological observations on rhodolith formations. *Cah. Biol. Mar.*, 50: 143-151.