

## Recent ostracods from the Azores archipelago

Ricardo P. MEIRELES, Antonio FRIAS MARTINS & Sérgio ÁVILA

The Azores is an archipelago in the Atlantic Ocean between Europe and North America. It lies on the Lisbon parallel, on latitudes  $39^{\circ} 43'/36^{\circ} 55'$  N. The nine islands cover a total land surface of 2,333 km<sup>2</sup>, with an economic exclusion zone of 984,300 km<sup>2</sup>. Islands full of intense volcanic and seismic activities, which modulate their landscape and determine their main ecologic features. Geomorphology, associated with different volcanic activities and deposits, is generally characterized by deep valleys, coastal ravines and mountains (Pico main cone, with 2,351 m above sea level, is the highest point of Portugal). Particular landscape morphologies, like the volcanic “caldeiras”, the coastal platforms called “fajãs”, large inland rocky cliffs or fissures and the lava caves, increase the number of particular habitats.

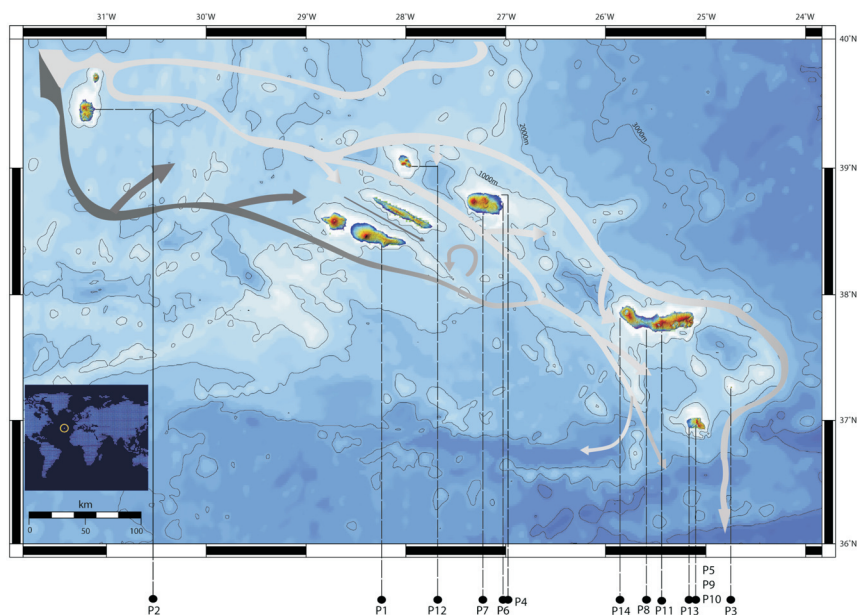


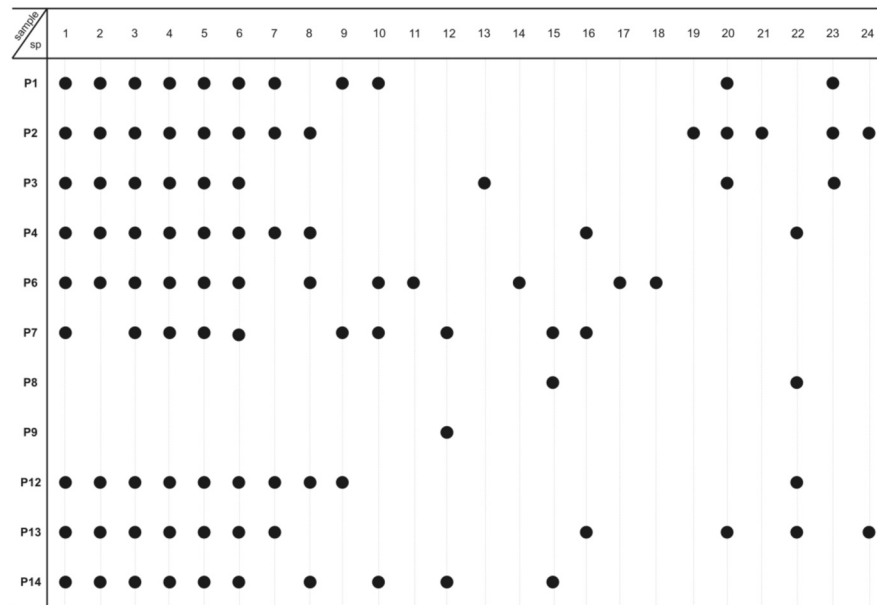
Fig. 1: Geographical location of the Azores archipelago and samples station (P). Sub-superficial (30.6 m depth) Azores Current modified by JOHNSON & STEVENS (2000).

The oldest rocks (8 Million years old) are found in Santa Maria Island, the first report of fossil ostracods from the Azores by MEIRELES et al. (2010), the geological map detailed by SERRALHEIRO et al. (1987).

The Azores Current is a meandering jet across the Atlantic at around latitude 35°N just south the Azores islands to the east of the Mid-Atlantic ridge. The wintertime position of the Azores front is marked at around 150 m depth by temperatures of 16–18°C and salinities around 36.3 ppm (Fig. 1). It is the northern boundary of the subtropical gyre. It is part of the eastern recirculation of the Gulf Stream in the eastern North Atlantic with branches going towards Gibraltar and towards the central Canary basin (JOHNSON & STEVENS 2000).

The material analyzed originates from samples carried out of the coastal zone (beach and intertidal) of the different Azores islands and 14 stations designated by prefix P. This is a first systematic paper to study the Azores ostracoda faunal. This is a part of the PhD thesis the first author. One 100 g sub-sample of sediments was prepared and sorted using binocular microscopes. All the figured species (Fig. 2) were illustrated using SEM and they are housed at the Ostracoda section in the collection of the Department of Biology of the University of Azores, Portugal.

The ostracod assemblages studies in both areas are represented by marine shallow water species. A total number of 24 species have been recovered, of specimens recovered, representing 12 families, 17 genera but one gen. and sp. indet.



Tab. 1: Ostracoda distribution vs. sample station. Numbers legends see Fig. 1.

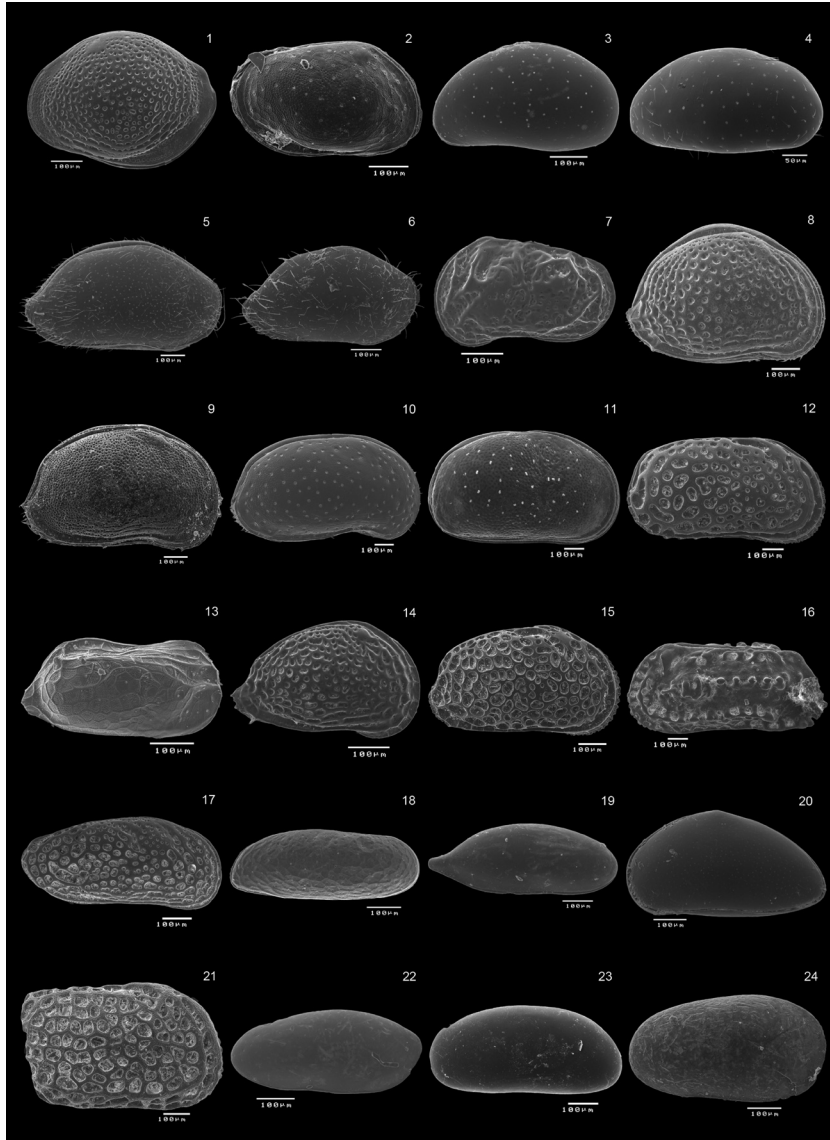


Fig. 2: 1) *Loxoconcha rhomboidea*; 2) *Loxoconcha* sp. 1; 3) *Xestoleberis reymenti*; 4) ?*Cytherella* sp. 1; 5) *Neonesidea rochae*; 6) *Neonesidea* sp. 1; 7) *Callistocythere oertlii*; 8) *Aurila convexa*; 9) *Heterocythereis albomaculata*; 10) *Heterocythereis* sp. 1; 11) gen. and sp. indet; 12) *Urocythereis oblonga*; 13) *Semicytherura* sp. 1; 14) *Pokornyella minor*; 15) *Urocythereis* aff. *U. oblonga*; 16) ?*Costa* sp. 1; 17) *Leptocythere* sp. 1; 18) *Neocytherideis* sp. 1; 19) *Paradoxostoma* sp. 1; 20) *Propontocypris pirifera*; 21) ?*Urocythere* sp. 1; 22) *Paradoxostoma* sp. 2; 23) *Parakrithe* sp. 1; 24) ?*Cytherella* sp. 2.

The analysed material shows the dominance of *Loxoconcha rhomboidea* and *Loxoconcha* sp. 1 in São Miguel, Terceira, Graciosa and Flores. The dominance of *Xestoleberis reymonti* in Santa Maria, Pico and Formigas. The complete distribution show in Table 1. Samples P5-P10-P11 not occurrences.

A preliminary statistical cluster analyses show a 3 groups preferences, with relationship to environment hydrodynamic system. Areas with lower water circulation tend has a between then similarity and more abundance (P6-P7-P14) (Fig. 1). The south current show influence on one group (P1-P2-P3), and a third group is influenced to high circulation and high oxygenation and probable by north current (P4-P12-P13) (Fig. 1).

---

### Acknowledgements

The authors would like to thank Dr. Paulo Amaral BORGES (CVARG – University of Azores) for some sedimentary samples; Dr. Jorge MEDEIROS for the SEM support. The first author gratefully acknowledges the FCT (Fundação para a Ciência e Tecnologia) from Portugal, grant no. SFRH/BD/60518/2009, which enabled him to initiate this study.

### References

- JOHNSON, J. & STEVENS, I. (2000): A fine resolution model of the eastern North Atlantic between the Azores, the Canary Islands and the Gibraltar Strait. – Deep-Sea Research part I, 47: 875-899, Kidlington.
- MEIRELES, R.P., CORDEIRO, R., MADEIRA, P., FRIAS MARTINS, A. & ÁVILA, S. (2010): New data about the Miocene marine Ostracodes from the Azores. – Third International Palaeontological Congress, London.
- SERRALHEIRO, A., ALVES, C.M., FORJAZ, V.H. & RODRIGUES, B. (1987): Carta Vulcanológica dos Açores, Ilha de Santa Maria. – Centro de Vulcanologia INIC, Ponta Delgada.

Authors addresses:

Ricardo P. Meireles

Departamento de Biologia, Universidade dos Açores, 9501-801 Ponta Delgada, and Centro do CiBio da Universidade dos Açores, Ponta Delgada, and Centro do IMAR da Universidade dos Açores, Horta, Azores, and MPB- Marine PalaeoBiogeography Working Group, University of Azores, Portugal  
ricomeireles@gmail.com

Antonio Frias Martins

Departamento de Biologia, Universidade dos Açores, 9501-801 Ponta Delgada, and  
Centro do CiBio da Universidade dos Açores, Ponta Delgada, Azores, Portugal

Sérgio Ávila

Departamento de Biologia, Universidade dos Açores, 9501-801 Ponta Delgada, and  
Centro do CiBio da Universidade dos Açores, Ponta Delgada, and MPB- Marine Palaeo-  
Biogeography Working Group, University of Azores, Portugal