



5TH INTERNATIONAL TSUNAMI FIELD SYMPOSIUM



Abstract Volume

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Foreword

The International Tsunami Field Symposium (ITFS) is the ideal forum for scientific discussions within the tsunami geoscience community. Sixty two abstracts (37 oral presentations and 25 posters) contribute to stimulate those discussions and all are presented in this document.

We very much acknowledge the authors' commitment and involvement that, coupled with the constructive reviews from the members of 5th ITFS Scientific Committee, contributed decisively to raise the scientific quality of this Symposium.

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Finally, we are very thankful to all participants and hope we all have a great time at the 5th ITFS in Portugal.

Obrigado!

The Editors

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Glacial-age tsunami deposits prove the tropical-ward geographical range expansion of marine cold-water species

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Abstract

The expansion and contraction of geographical range distribution of species (taxon cycles) is a common and well-studied biogeographical process. For terrestrial taxa, both fossil and extant records document poleward shifts, with range expansion of tropical species and range contraction of temperate species. For extant marine species, the geographical range contraction of cold-water taxa to higher latitudes as a result of the current global warming, as



well as the range expansion of warm-water species to higher latitudes are also documented. With reference to the fossil record, outcrops on volcanic oceanic islands testify the range expansion of tropical marine species towards higher latitudes during interglacials (Ávila et al., 2015). To date, no studies have shown the expected range expansion of cold-water marine species during glacial episodes. This is probably because such deposits are seldom preserved due to erosion by rising sea levels during the subsequent interglacial. Thus, tsunami events occurring during glacial times and transporting large amounts of sediments onshore, away from the erosive action of interglacial high sea levels, are probably the only way to have access to glacial fossil assemblages. Here we document and discuss, for the first time, the palaeobiodiversity of the Tarrafal tsunami deposit (Santiago Island, Cape Verde), attributed to a flank collapse of Fogo volcano ~73 ky ago (Paris et al., 2011; Ramalho et al., 2015), which conclusively proves the tropical-ward geographical shift of marine molluscs during the glacial MIS 5a.

Keywords

Tsunami deposits, glacial episodes, MIS 5a, palaeobiogeography, Cape Verde, mollusca

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