



# 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 5<sup>th</sup> 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 5<sup>th</sup> ITFS in Portugal.

*Obrigado!*

*The Editors*

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**Fields of stranded megaclasts as potential evidence for tsunami inundation in Sal Island (Cape Verde)**

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**Abstract**

The recent confirmation that a ~73 ka catastrophic flank collapse of Fogo volcano triggered a megatsunami with devastating effects on nearby Santiago Island (Ramalho et al. 2015), necessarily raises the question whether or not this megatsunami incurred in widespread devastation across the Cape Verde Archipelago and even further beyond. Here we document possible evidence for important tsunamigenic inundation on Sal Island, tentatively attributed to the impact of Fogo's megatsunami. The evidence reported here comprises fields of megaclasts stranded over the topographic surface of the W (north of Palmeira), and N sectors of Sal Island, and as far as 1.2 km inland from the present-day coastline. These megaclasts (with a mass of up to 20 Mg) dominantly correspond to submarine lava flows, either composed of fragile pillow lavas and hyaloclastites – which crumbled to form isolated piles of pillow rubble – or to more massive submarine sheet flows – which are more coherent and consequently still stand largely unbroken. Importantly, all these megaclasts correspond to lithologies that, on northern Sal, are only (but seldom) exposed along the adjacent coastline, at or below sea level, suggesting an origin at lower elevations and attesting to an extreme inland transport and deposition. Previous interpretations have assigned these features as vestigial remains of a submarine volcanic unit subsequently eroded, however no clear unequivocal in situ outcrops were found so far to support this hypothesis. The distribution of the megaclasts



dominantly inland from the western shore of northern Sal possibly denotes the impact of a tsunami incoming from the western quadrant, consistent with the Fogo event. These preliminary results therefore suggest that Fogo's megatsunami possibly resulted in significant devastation even as far away as Sal, which is located ~240 km from the tsunamigenic source. Surface exposure dating (cosmogenic  $^3\text{He}$ ) will be used to determine the boulders' depositional age and therefore test this hypothesis.

### **Keywords**

Collapse-triggered tsunami, Cape Verde, Sal, Fogo, megaclasts

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