

SATELLITE IMAGE ANALYSIS OF TECTONIC LINEAMENTS FROM MADEIRA ISLAND (PORTUGAL)

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The volcanic island of Madeira is located within the oceanic part of the African plate (32°N, 17°W) where the lithosphere is 130 Ma and 100 km thick. The synthesis of the published isotopic age determinations show that the emerged formations were mainly generated during the Plio-Pleistocene, with the shield-building phase developing between circa 2.5 and 1 Ma. Consequently, Madeira is younger than the neighbouring island of Porto Santo, 40 km to Northeast, where the exposed lava's were dated from 18.8 to 10.2 Ma. The demonstration, by MATA, that some important Madeira quasi-linear geomorphological features are characterised by the same orientation as the fractures deduced from the alignments of vents of scoria cones, show the importance of the tectonic activity on Madeira island and justify a systematic study of the Madeira lineaments. Such work was started through the analysis of a 1/50 000 satellite image acquired by the SPOT satellite (CNES-SPOT IMAGE) for the Projecto de Cooperação Luso-Francês - CORINE Land Cover Ilha da Madeira, and published by Centro Nacional de Informação Geográfica (CNIG), Secretaria de Estado da Ciência e Tecnologia e pelo Ministério do Planeamento e da Administração do Território. The present work can be regarded as an improvement to the preliminary tectonic lineament study carried out by the authors.