



The seismically triggered deep-seated landslide of Praia do Telheiro (SW Portugal)

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Approximately 2km NNE of S. Vicente cape, at the SW end of coast of Portugal, there are fresh evidences of a 0.85km long deep-seated landslide, that affects the 60m high sea cliffs, cut in very strong lower Jurassic dolomites overlying Keuper Marls. Evidences include large slumped and tilted backwards rock blocks, landwards limited by a 10 to 40m high near vertical scarp.

The geometrical reconstruction of parts of the failed rock mass and of their movements, were based on a recent and detailed aerophotogrammetric map, aerial photographs interpretation and field surveys, led to the conclusion that it is a deep seated landslide with a dominant rotational component.

The limit equilibrium back analysis of the landslide shows that, under static loading and considering extremely high piezometric levels, located at the level of the former topographic surface, the movement would only be possible considering very low strength properties, not compatible with the actual strength of the rock masses affected, even considering residual strength conditions.

The only plausible triggering factor for this landslide is a strong seismic action, that is also supported by a pseudo static back analysis.

No conclusive dating of the landslide is available: the landslide movement is more than one century old, and field observation suggests an age not exceeding a few centuries. These indications and the requirement of a strong seismic action as triggering factor suggests the possibility that this landslide may have been triggered by the 1755 earthquake, deserving further research.