

Estimation of deposition temperatures of the first pumice fall of the Minoan eruption at Santorini determined by palaeomagnetic analysis.

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The Minoan eruption (Bronze age-1613 AD) of Santorini volcano is one of the most violent eruptions in the Bronze age and historical times and it produced a great volume of volcanic products. These deposits completely covered the island and destroyed any human activity at that time. The first product (phase I) of the Minoan eruption that covered the pre-Minoan palaeosoil and interacted with the human settlements on the island was a plinian pumice fall composed by white pumice clasts and lithic fragments. Then the deposition of pyroclastic surge deposits, phreatomagmatic pyroclastic flows and ignimbrites followed. We present here the preliminary results of the deposition temperatures of the first Minoan volcanic products as determined by standard palaeomagnetic analysis. Few small ceramic fragments that were lying on the surface of the pre-Minoan palaeosoil and lithic clasts embedded in the pumice fall have been collected from different sites that were distributed at the southern part of the Island in distances around 4 to 6 km from the presumed vent of the Minoan eruption. The palaeomagnetic data obtained by progressive thermal demagnetizations show a clear two-component magnetic behaviour and suggest that most of the samples were re-heated at temperatures around 180-220 °C. In few ceramics a higher temperature component is also present, probably related to the original heating or the use of the ceramics before the eruption. Thermal demagnetization of the lithic clasts shows similar deposition temperatures for the first pumice fall that vary from 220 to 240 °C. The obtained results are in good agreement with previously published data and with available archaeological evidences.