Geophysical Research Abstracts, Vol. 9, 09094, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-09094

Radiocarbon date of the Minoan eruption of Santorini - not affected by old volcanic CO_2 emissions

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A unique find of an olive tree, buried alive in life position by the tephra of the Minoan eruption on Santorini (Thera) in Greece resulted in a direct and precise radiocarbon date of the eruption, which is a global Bronze Age time marker.

We applied so-called radiocarbon wigglematching to a ^{14}C sequence of tree-ring segments to constrain the eruption date to the range 1627–1600 B.C. with 95.4% probability (2σ). Our result is in the range of previous, less precise and less direct results of several scientific dating methods, but it is a century earlier than the date derived from traditional cultural linkage to Egyptian chronologies.

Since the olive tree grew in about 150 m above sea level and about 2.5 km away from the nearest point of active volcanic zone of that time, we argue a negligible risk that the tree was affected by old CO_2 emissions from the magma chamber during the years up to the eruption.

Reference: Walter L. Friedrich, Bernd Kromer, Michael Friedrich, Jan Heinemeier, Tom Pfeiffer, Sahra Talamo: Santorini Eruption Radiocarbon Dated to 1627-1600 B.C. Science 28 April 2006 vol. 312, p. 548