A TEPHRA FROM ISCHIA ISLAND ORIGIN IN BLACK SEA CORE MD04-2754 ?

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A few cm thick, almost pure glass shards, deposit was found in marine core MD04-2754 (Black Sea: 41°59,23N & 28°40,99E, 453m b.s.l.). This tephra is interbedded at 1775-1777 and 1819-1825 cm) (NB: uncorrected depths due to rare voids along the core). So, a volcanic was recorded during the poorly dated lacustrine phase of this Sea, before the last marine transition (dated at about 7.5 ka BP).

Any land-sea correlation for a volcanic deposit is well established if: i)-age ; ii)-major elements chemistry and iii)-trace elements contents can be precised.

-*The age :* A comparison with several Black Sea cores of similar depths and sedimentation rates gives a possible time interval of 30-50 ka BP for this volcanic event..

-*Major elements chemistry:* SEM investigations allow a previous regional attribution (Cf: Fig 1 : « Selected Land and Mediterranean Sea volcanic deposits between 30 and 59 ka BP »). K2O and Na2O contents allow to discard a turkish origin (only rare and weak explosive events take place at this time interval, moreover they are characterized by low K2O content. Ref 1). Campanian deposits display frequently a ratio K2O /Na2O > 1,5 . Ischia deposits from the Green Tuff serie (55-28 ka BP, Ref 2) present several good candidates with K2O/Na2O ratio <1,5. Among these, the Cittara tuff (40+-2 ka BP) can be underlined because it also corresponds to the widespread tephra C13 already described in central and eastern Mediterranean Sea (Ref 3 & 4). A tephra quoted TM18 from an italian lake, attributed to a Campanian origin by S. Wulf et al., does not fit well, either (Ref 5). NB: No data from volcanic events in Caucasus are available at this step of discussion.

-*Trace elements distribution:* INAA investigation allows to precise a land-sea correlation based on several elements contents or ratios. This is illustrated by some of these results in the marine core MD04-2754, in a Cittara tuff sample (Ischia island) and in marine Mediterranean tephra C13 (ref 3 & 4; Fig : 2).

At depths 1775-1825 cm in Black Sea core MD04-2754, an ash layer deposit originated from Ischia island (Italy) is interbedded. This tephra can be correlated with the so-called Cittara tuff (dated 40+-2 ka BP, ref 2 to 4).

Direct ages of tephra (Ar :Ar method) and of organic matter (14C method) in sediment near this tephra are presently scheduled..

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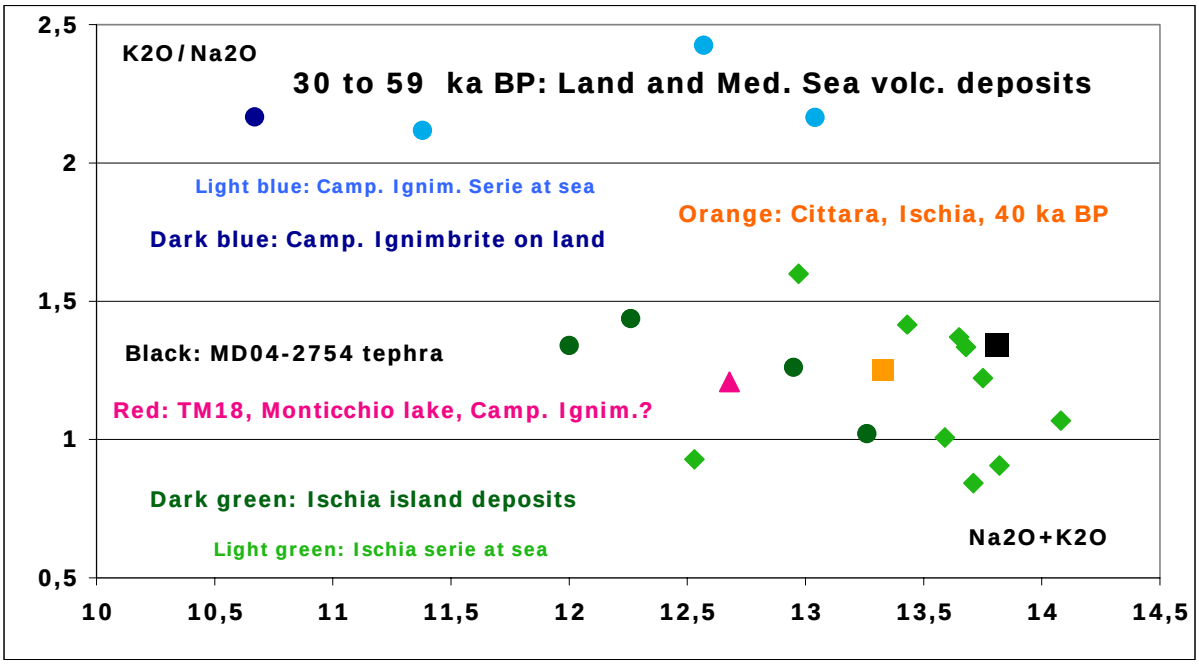

Figure 1. Land and sea tephra from italian areas and Mediterranean Sea compared with tephra in MD04-2754. The present figure, based on Na2O and K2O contents, is one among other discriminant possibilities.

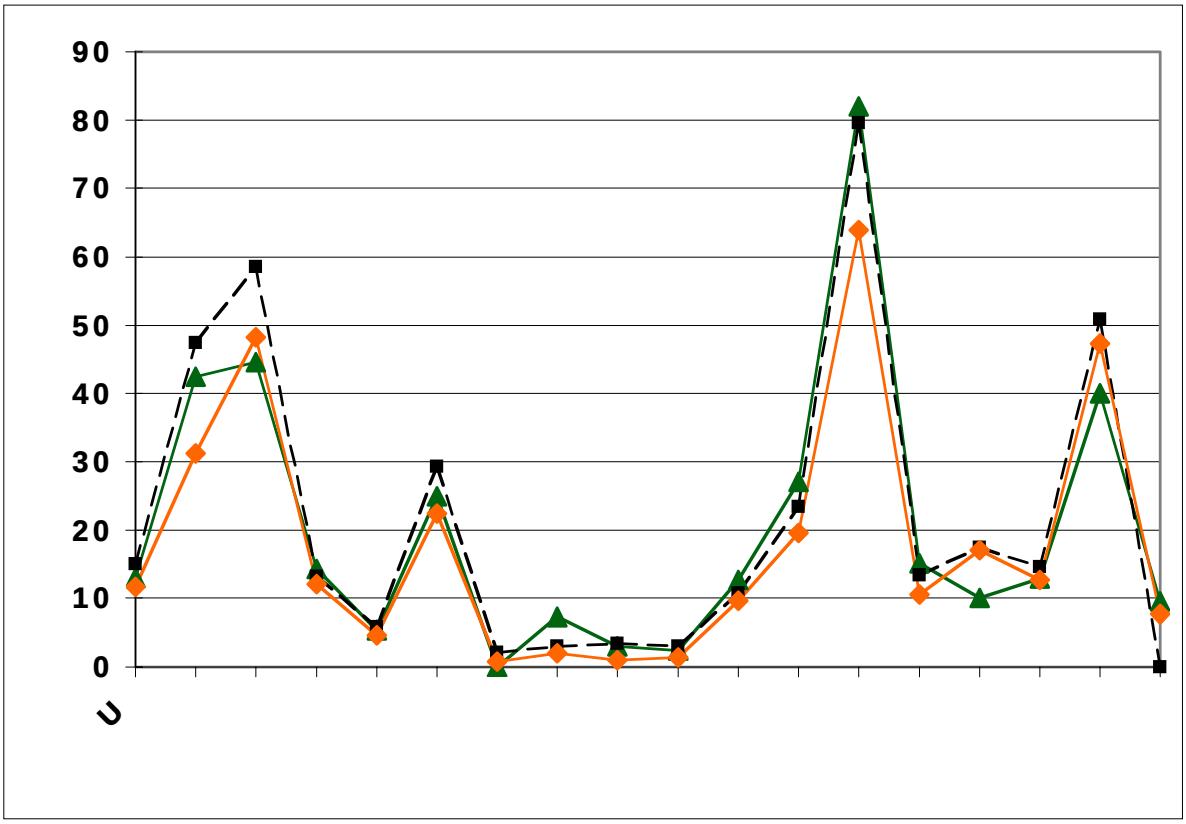

Figure 2. Preliminary trace elements data in Cittara tuff sample of Ischia Island, in Mediterranean tephra C13 and in the ash layer found in core MD04-2754 . Vertical scale for some selected elements are multiplicated or divided 10 times for figure convenience ; consequently vertical scale is in ppm, ppm*10 or ppm/10 depending on the element, as indicated on the horizontal axis . Tephra C13 is described in ref. 3 & 4.