

Challenges and opportunities extending the INTIMATE tephra event stratigraphy into the Levant

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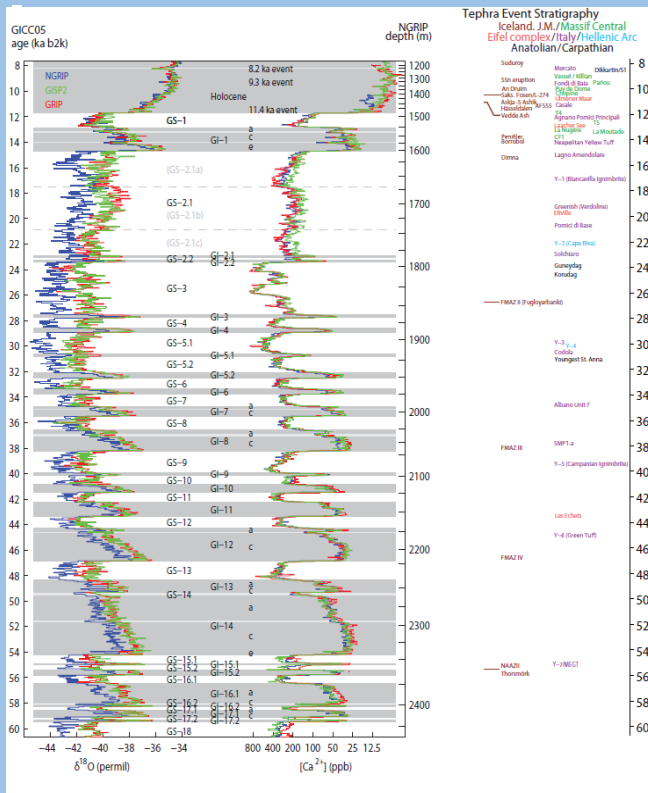
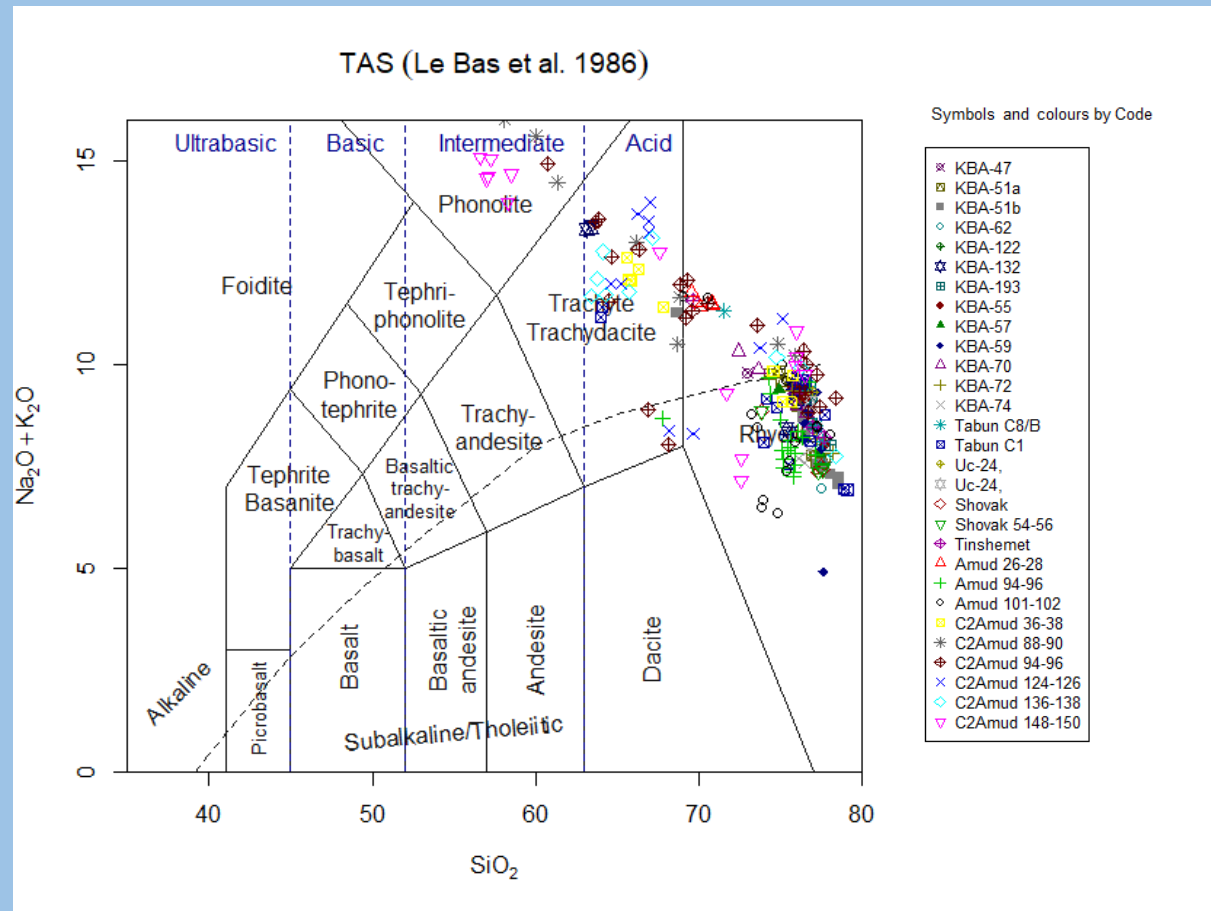


Figure 1 the INTIMATE event stratigraphy 8-60ka BP, showing tephra in the north Atlantic and Mediterranean over the last 60 ka BP, against Greenland ice core climate events (adapted from Blockley et al., 2014)

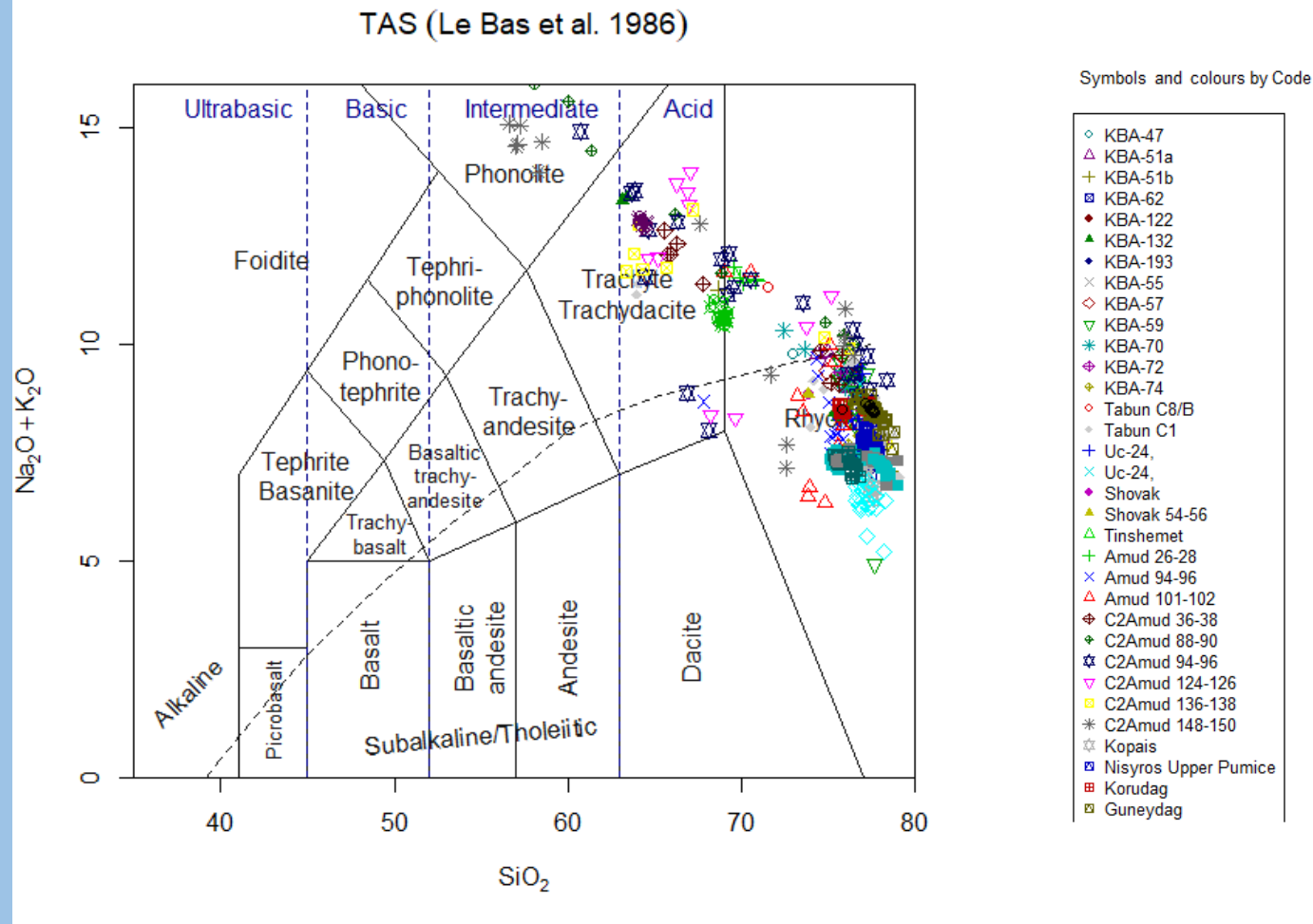
An event stratigraphic framework for correlating between palaeoclimate and other archives using tephra is well established for the North Atlantic realm and central Mediterranean, at least for the last 60,000 years (Blockley et al., 2014). While this event stratigraphy has been extended partly into the Eastern Mediterranean, as far as the Hellenic Islands as part of the RESET project and other ongoing initiatives.

However there is not at present a detailed tephra event stratigraphy for the Eastern Mediterranean, and the Levant and

As part of an ongoing collaboration between archaeologists, palaeoenvironmental specialists and chronologists we have been testing the potential to expand the INTIMATE tephra-based event stratigraphy into the Levant and Arabia.



Palaeolithic archaeological sites from across the Levant, mostly covering the time period 40-70ka BP, have been analysed for cryptotephra using density flotation methods adapted from Blockley et al., (2005). Although shard concentrations in most sites are small it has been possible to obtain major and minor element geochemical analyses on single shards from six of the studies sites so far. Two sites, Kebara and Amud, dominate the available geochemistry and display some chemical similarities. The majority of the shards are rhyolitic with a small population of intermediate tephra.



Attempts to correlate the tephra to individual known eruptions are difficult, due to the lack of a detailed long tephrostratigraphic record for the Eastern Mediterranean. Current investigations of marine cores and lake records in the region (Zhang et al., and Neugebauer et al., this session). However, comparison to geochemical data from Hellenic and Turkish volcanic centres (RESET project database) suggests the majority of the Levantine tephra are from these sources.