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Stratigraphy and eruption history of pre-Green Tuff peralkaline welded ignimbrites, Pantelleria, Italy

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A revised volcanic stratigraphy is presented for the ignimbrites of Pantelleria, a peralkaline caldera volcano situated in the submerged continental rift between Africa and Sicily. The volcano has been active for $\geq$325 ka (Mahood & Hildreth, 1986), producing eight major ignimbrites from large central eruptions, which appear to have alternated with numerous minor pumice falls and lavas from scattered local centres. The main ignimbrites can be traced along superb coastal exposures and have been logged in detail. Eruption-units have been defined by the position of palaeosols and a type section designated. Lithic breccias and pumice fall deposits associated with these major ignimbrites are interpreted as part of the same eruption overcoming correlation problems encountered by previous workers (cf Mahood & Hildreth, 1986).

The ignimbrites are 2 to >20 m thick, welded to rheomorphic and cover most of the island, recording devastating, radial, high-temperature density currents. Five of the eight major ignimbrites contain lithic breccias, which have commonly been interpreted as recording caldera collapse events, but the details of individual calderas are not clear. The ignimbrites were erupted between 181 and 50 ka suggesting that the early history of the island (325 to 181 ka) differs from later stages in that only local pumice and lava-producing eruptions have occurred. This means that the amount of erupted magma increased in the later stage as the ignimbrites represent eruptions of many times the volume of the local centres.

Distal peralkaline tephras have been found around the Mediterranean as far away as $\sim$1200 km. With only this volcano erupting peralkaline compositions, it suggests that eruptions from Pantelleria have had a substantial impact on their environment. We infer that there were few Plinian events on the island, and that the distal tephras may be co-ignimbrite ashfall deposits.

REFERENCES: Mahood, G.A., Hildreth, W., (1986) *Bulletin of Volcanology* **48,** 143-172.