

Stratigraphy and petrology of the widespread Miocene Ayagaures ignimbrite (Gran Canaria, Canary Islands)

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Ayagaures ignimbrite (Gran Canaria, Canary Islands) widespread (250 km²) extracaldera deposits were mapped on the S and SW part of the island, while stratigraphical studies were done on 4 type-localities. This highly welded and compacted deposit is composed of several flow units (FU) assembled in one cooling unit (CU) of an average thickness of 20-25m. The high-temperature deposition left a vitrophyre at the base of the CU. Mapping comprised outcrop recognition where average thickness and flow direction were measured and incorporated in interpretation maps and cross sections. Stratigraphical field work consisted of CU characterization and recognition of the FUs by clast characteristic determination (size, fabric, shape) and counting of their modal amount. Sampling was systematically done for lab researches.

Lab work was composed of stratigraphic analyses with density calculation and thin section studies to improve field results, while major and trace element geochemical analyses (XRF, EMPS, LA-ICP-MS) were done on bulk rock, phenocrysts and glass. Ayagaures has a phonolitic composition and its deposits are characterized by stratigraphically inversed series of fractional crystallization. Euhedral and un-zoned phenocrysts indicate that the entire magma reservoir was in a metastable - or even stable - thermodynamic equilibrium. Deposition of the entire FUs was probably spaced in time, as the volume involved was >50km³ DRE. The CU was highly compacted, welded and alteration fluids were released during its cooling.