A giant blast deposit covering much of central and western Tenerife (Canary Islands) represents the terminal explosive event of the Cacahuache volcano ca. 0.18 m.y. ago. The thickness of the deposit is some 8 m near source and ca. 1 m near coastal exposures. Its large areal extent and volume of solids expelled (several km³) are much greater than previously recognized blast deposits. The blast expanded radially and cospecially from the source area unique in restricted sectors as in Mt. St. Helens and Buziosmaia. The deposit consists of a basal unit generally <50 cm thick with fine-grained and poorly sorted proximally but well-sorted and in the coarse ash to fine lapilli range in medial and distal outcrops. It is also generally discontinuously layered with minor diatreme and rhyolite channels reflecting unmixed lava. In the distal and medial outcrops locally abundant grooves subparallel to transport direction suggest sourcing by long-distance explosive. This deposit is not more than 2 km wide, almost invariably inversely graded, a significant fraction of its rock content reflecting locally scoured lithology. High turbulence is inferred to explain the formation of the basal layer. The deposit forms an obvious central vent area formed by deposition from suspension. The passive juvenile material (except locally) is thought to indicate fragmentation of an unusually explosively hydrothermal system during slope failure. The abundance of fresh mafic microlite xenoliths and local presence of very crystal-rich, slightly pumiceous phonolite suggests that the entire transport of an active hot magma reservoir was placed in a water saturated, very coarse grained sedimentary system was depressurized and fragmented as well. Lahars are associated with the blast deposit especially along the canyon such as Barranco de Orzola. The post-eruptive enclaves in the Aikenite-Ascarite series of the same age is still uncertain. Several major types of blast were associated with the event: flank collapse, historic, concentrated high-speed blast and tsunami.

The islands of Niayos, Yali, Kos, Santorini, Milos, Poros, Methana and Aegina constitute the South Aegean volcanic arc as a result of the west-directed subduction of the African plate beneath the Aegean microplate. The islands of Niayos, Santorini, Milos and Methana are considered today the most active areas in terms of a potential volcanic reactivation. Therefore, these islands were chosen for a detailed noble gas investigation. The combination of noble gas ratios, such as He/Ne and Ne/Ar, can be used to determine the source component with will allow an appropriate discussion on magma degassing, the amount of atmospheric, meteoric and hydrothermal contamination, as well as the determination of the temperature at which the volcanism took place. The proportion of Ne/Ar revealed that the volcanic eruption did not involve calcite collapse, ring-fractures cut the floor of the pre-1600 AD horneschoe-shaped caldera and of the 1600 AD collapse of the funnel-shaped caldera collapse. Finally, the paroxysmal eruption generated a severe regional aftermath and global climatic effects over the entire seventeenth century.

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