



Cities on Volcanoes 9
November 20-25, 2016
Puerto Varas, Chile

'Understanding volcanoes and society: the key for risk mitigation'



40Ar/39Ar dating of Holocene volcanism on Ascension Island

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Keywords: 40Ar/39Ar geochronology, Ascension Island, Holocene, lava flows, basalt

Ascension Island is part of a British Overseas Territory, located in the South Atlantic Ocean ~ 90 km west of the Mid-Atlantic Ridge axis. It is the sub-aerial portion of an ocean island volcano rising to 859 m above sea level. The sub-aerial deposits mainly comprise mafic lava flows punctuated by scoria cones, with pyroclastic deposits, silicic lava flows and domes predominant in the central and eastern regions [1]. Discovered in the early 16th Century, but only occupied since 1815, Ascension has no historical record of activity and the ages for the most recent eruptions are unknown [2, 3]. Here, we present new 40Ar/39Ar ages for geomorphologically 'young' basaltic lava flows thought to be products of the most recent eruptions on Ascension. These sub-1 ka ages demonstrate that the 40Ar/39Ar dating technique can further bridge the gap between the historical and geological records, even with relatively low-K (whole rock: < 1.9 wt. % K₂O) basaltic samples. It is essential that comprehensive eruption histories be determined in order to produce accurate volcanic hazard assessments in these often-isolated communities, as well as to enhance understanding of the construction and behaviour of ocean island systems. References: [1] Nielson & Sibbett (1996) *Geotherm.* 25, 427-448; [2] Atkins et al. (1964) *Nature* 204, 722-724; [3] Weaver et al. (1996) *Geotherm.* 25, 449-470.