

THE VILLA SENNI ERUPTION UNIT: AN EXAMPLE OF A MAFIC PYROCLASTIC FLOW DEPOSIT

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The Villa Senni Eruption Unit (VSEU) represents the final eruption of the Tuscolano-Artemisio phase of the Alban Hills Volcano, which is located approximately 30 kilometres south east of Rome, Italy. The products of the Alban Hills Volcano are predominantly K-foiditic to phono-tephritic. The Tuscolano-Artemisio phase was the first and largest of three main eruptive phases of the volcano, and is characterised by extensive deposits of pyroclastic density currents which stretch radially for 30 kilometres or more from the central vent area, a rare phenomenon for basaltic volcanoes. The VSEU is characterised internally by two distinct facies. The lower facies consists predominantly of ash and scoria clasts which have been cemented by the growth of zeolites and/or clays over almost its entire extent. The upper facies is more fines depleted, contains abundant scoria and spatter clasts, a significantly higher percentage of crystals, lava and xenolith lithic clasts, and is almost entirely unconsolidated. These two facies represent two distinct phases in the eruption, recording changes in explosivity, hydromagmatic influences, vent collapse and various other factors. Internal grain size, component and facies changes within the VSEU strongly suggest that this unit was deposited due to progressive aggradation, with variation and structures predominantly due to changing eruption dynamics and component supply at vent, as well as local topographic and flow dynamic effects.