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Pyroclastic density currents from Teide-Pico Viejo (Tenerife, Canary Islands): implications for hazard assessment

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The Teide–Pico Viejo stratovolcanoes constitute one of the major potentially active volcanic complexes in Europe but have traditionally been considered to be non-explosive and not to represent a significant threat to the island of Tenerife. However, the reconstruction of their eruptive record is still far from complete, and better knowledge of their volcano-stratigraphy and physical volcanology is required to undertake a comprehensive hazard assessment of these volcanoes. We conducted a detailed field investigation of the northern side of Teide–Pico Viejo, a poorly known area, and identified several deposits of explosive eruptions of phonolitic magmas. Herein we report for the first time the presence of density current deposits, including ignimbrites and block and ash deposits, in the Holocene eruptive history of the Teide–Pico Viejo stratovolcanoes. We discuss the characteristics of these deposits, their eruption mechanisms and their implications for hazard assessment at Teide–Pico Viejo.