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Interactions between volcano-tectonic events and volcanic tremor at Teide - Pico Viejo volcanic complex, Canary Islands

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The volcanic complex of Teide - Pico Viejo showed its last effusive eruption in 1909, while the latest explosive one is dated ca. 2000 years b.p. The volcanic complex is currently in a phase of possible reawakening that is under investigation with an increasing monitoring effort by several Spanish and international Institutions. In this talk we show seismic features connected to this unrest, including the presence of volcanic tremor and of a bidirectional interaction between this tremor and volcanotectonic (VT) events. On one side, rather stable spectral and dynamical features in the time evolution of the volcanic tremor are abruptly interrupted by VT events. On the other side, the time evolution of the RSAM computed on the continuously recorded seismic signal, notwithstanding the superposition of tremor of volcanic origin and human-made noise, can be used with the material failure forecast method, to successfully forecast the time of occurrence of some of the particularly energetic VT events and/or of the VT events swarms. Such bidirectional interactions have been detected at different seismic stations installed on the island of Tenerife.