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Geophysical monitoring of a complex geologic framework: the multi-disciplinary sensor networks in Sicily (Italy)

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Since 2004 the Osservatorio Etneo INGV has begun a new approach to the geophysical monitoring of volcanic and seismic areas of Sicily (Italy) where the core is a new type of remote infrastructure able to efficiently accommodate different kinds of sensor. In particular our multi-parametric network is mainly focused on the monitoring of different geophysical parameters (seismic ground velocity and acceleration, infrasound and ground deformation GPS).The whole seismic network consists of 66 broad band digital stations, 19 analog stations, 13 accelerometric stations and 12 infrasonic stations, for a total of 110 stations while the Continuous GPS network consist of 80 stations. Every station is equipped with solar panels in order to satisfy the power requirements of the instruments and with satellite-based communication systems. In this work we show both the technical solutions of this integrated network and its main advantages, if compared with older kinds of remote stations. Moreover we show some examples of the more interesting scientific results achieved thank to this technologically advanced network.