

GNSS monitoring of Belpasso-Ognina Fault, the southern boundary of Mt. Etna unstable flank

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The Belpasso-Ognina Fault extends for almost 20 km along the southern flank of Mt. Etna. This structural alignment does not show topographic evidence indeed it was detected using InSAR interferometric technique (Froger et al., 2001), lately implemented using PS InSAR technique (Bonforte et al., 2011). We present the results of a GNSS monitoring, performed for the first time along the Belpasso-Ognina structural lineament. The network, composed by 6 benchmarks, was realized after a detailed study about geometric e geological parameters of the fault; monitoring campaigns have been carried out from December 2018 to March 2020, every 2-3 months in static mode, with 8 hours of acquisition time. In post-processing we computed the velocity field in a fixed Hyblean reference frame. Results show the trend of movement of the Belpasso-Ognina Fault towards eastern sectors, which is consistent with the motion of the entire Mt. Etna eastern flank (Froger et al., 2001; Bonforte et al., 2011,2012; Mattia et al. 2015; De Guidi et al., 2018). Ps InSAR analysis carried out from 1995 to 2000, (Bonforte et al., 2012) shows that Belpasso-Ognina Fault is characterized by an abrupt velocity variation in the southeastern sector where it interrupts the high rate of uplift of almost 5-10 mm/years, related to the Catania Anticline (De Guidi et al., 2015). The monitoring of Belpasso-Ognina Fault within the volcano-tectonic context of Mt. Etna, confirms that it plays the role of southern boundary of the Mt Etna unstable flank (see also Bonforte et al., 2012).

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