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I2: Detecting the unrest of an active volcano through High Rate GPS data

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One of the major challenges for geodetic volcano monitoring is the research of reliable parameters indicating impending volcano unrests. In this paper, we explore a new algorithm called I2 that, applied to real time and continuously processed time series of High Rate GPS data, can improve our capability to detect meaningful variations in the volcano's activity state, revealing new magma inputs from depth, and the possibility of impending eruptions. We also show an applications of this algorithm to Stromboli volcano for the period spanning from 2006 to 2010 also compared to other geophysical parameters. This comparison confirm the importance of I2 as a tool for volcanic hazard mitigation.