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Satellite thermal monitoring of Balkan region by means of Robust Satellite Techniques: the case of Albania (26 November 2019, Mw 6.4) earthquake

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Since 2001, Robust Satellite Techniques (RST; Tramutoli 1998, 2007) has been used to study - by analyzing long-term TIR observations provided by passive satellite sensors - the enhancement of the Earth thermally emitted radiation, possibly related to seismic activities.

Such an approach has demonstrated to be able (especially when applied to geostationary satellite radiances) to isolate TIR anomalies possibly related to earthquake occurrence from those expected as a consequence of others natural (e.g. meteorological) or observational (e.g. measurement time and/or place) sources. Among the others TIR anomalies, those more significant (in term of Signal/Noise ratio), extended (in space) and persistent (in time) have been considered (SSTAs, Significant Sequence of TIR Anomalies, Eleftheriou et al., 2016) for further analyses. Up to now, long-term statistical correlation analyses between seismic events and RST-based SSTAs carried out in different European seismic regions (i.e. Greece, Italy and Turkey by using MSG-SEVIRI) highlights that the 75% of SSTAs are in apparent space-time relation with earthquakes with magnitude greater than 4. In all testing regions/periods a non-casual relation has been found.

In this paper, we will show the results achieved by real-time thermal monitoring over Albania region at time of the strong earthquake of magnitude Mw 6.4 occurred on 26 November 2019. Moreover, we will discuss about the impact of the use of the "RST-based satellite TIR anomalies" parameter in the framework a multi-parametric system devote to the seismic hazard assessment in the short-term.