

## **An integrated approach to pre-earthquake physics study: some results from the SAFE Project**

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SAFE ("Swarm for Earthquake study") project (funded by ESA in the framework of "STSE Swarm+Innovation") deals with the integrated analysis of more physical parameters whose abnormal variations have been found to be possibly associated with impending earthquakes. These observations are mainly: electromagnetic variations; total electron content and the electron density in the ionosphere, measured both from Swarm satellites and ground-based observatories. Twelve case studies have been deeply analysed and the main results confirm the lithosphere-atmosphere-ionosphere coupling (LAIC) before most of the major earthquakes, and the importance of the use of satellite data.