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PRE-EARTHQUAKES, an European FP7 Project for Integrating Observations and Knowledge for Earthquake Precursors Studies: preliminary results and perspectives.

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A large scientific documentation is to-date available about the appearance of anomalous space-time patterns of geophysical parameters measured from days to week before earthquakes occurrence. Nevertheless up to now no one measurable parameter, no one observational methodology has demonstrated to be sufficiently reliable and effective for the implementation of an operational earthquake prediction system. To this aim, the combined use of different observations/parameters together with the refinement of data analysis methods, are expected to give major improvements in order to reduce false alarm rates and improve reliability and precision (in the space-time domain) of predictions.
In this frontier research field EU and Russia are playing, since years, a worldwide scientific leading role and dispose of unique, satellite and ground based, Earth Observation systems and capabilities.
Main aims of PRE-EARTHQUAKES (Processing Russian and European EARTH observations for earthQUAKE precursors Studies) project are to commit EU and Russian researchers to integrate different observational data (and particularly ESA and ROSKOSMOS satellite data) and to improve, by cross-validating, their methodologies, in order:

• to substantially improve our knowledge of preparatory phases of earthquakes and their possible precursors;
• to promote a worldwide Earthquake Observation System (EQuOS) as a dedicated component of GEOSS (Global Earth Observation System of Systems);
• to develop and offer to the international scientific community an integration platform where independent observations and new data analysis methodologies devoted to the research on/of earthquake precursors can be collected and cross-validated;

Object of this paper will be the presentation of main starting points and preliminary achievements of a project that will attempt - by validating, comparing and integrating different ground and satellite based observations, different data analysis methods, different measured parameters - to move the research in this filed behind its present frontiers.