

Use of high resolution satellite images for tracking of changes in the lineament structure, caused by earthquakes, situated nearly the Pacific coast of the North and South America.

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The Pacific coast of the North and South America is one of the most seismically and volcanically active regions in the world forming part of the so-called Ring of Fire. More than 10 earthquakes with the Richter scale magnitude >4.5 were analyzed. They were located in the regions with small seasonal variations and limited vegetation to facilitate the tracking of features associated with the seismic activity only. High resolution Aster satellite images were used to extract the principal lineaments using "The Lineament Extraction and Stripes Statistic Analysis" (LESSA) software package. It was found that the number and orientation of lineaments changed significantly about one month before an earthquake approximately, and a few months later the system returns to its initial state. This effect increases with the earthquake magnitude, and it is much more easily detectable in case of convergent plate boundaries (for example, Nasca and South American plates). The results obtained open the possibility to develop a methodology able to evaluate the seismic risk in the regions with similar geological conditions.