

## The correlation of the 16 April 2016 Ecuador earthquake M7.8 with the potential nodes (M6.5+) defined in Ecuador in 2010

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The shallow April 16, 2016 M 7.8 earthquake occurred in the central coast of Ecuador. In 2010 Chunga et al. (2010) recognized seismogenic nodes in the entire Ecuador territory using the methodology for identification of earthquake prone areas based on the pattern recognition approach. The methodology treats the nodes, forming around the intersection of the morphostructural lineaments, as most likely locations of large earthquakes. In Ecuador, the nodes have been delineated with morphostructural zoning method incorporating in the analysis morphological, tectonic, geologic data, and satellite images without using the a priori knowledge of regional seismicity. Nodes capable of generating earthquakes M6.5+ have been defined by the pattern recognition algorithm Cora-3 from the analysis of morphometric, geomorphic, geological, and gravity parameters characterizing the nodes. As a result, all nodes hosting the M6.5+ events have been properly recognized. Additionally, a number of nodes where earthquakes of the target size are not documented so far have been also defined prone to M6.5+. The April 16, 2016 M 7.8 earthquake occurred exactly at one of such node, in the 150 km vicinity of which events M6.5+ have not recorded till 2012. This fact once more validates the methodology for identification of earthquake prone areas based on the pattern recognition applied to morphostructural data.

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