



## **Volcano and earthquake deformation at Ararat and Tendurek, Eastern Turkey, shown by InSAR time series**

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Historical and instrumental data suggest that volcanoes and fault zones in eastern Turkey might both be active. However, little is known about the relationship of eruptions and earthquakes, as well as associated processes.

Mt. Ararat and Tendurek are located in a pull apart basin, and have been affected by earthquakes reaching magnitudes up to 7.4 in 1840 and again in 1976, causing 10,000 and 5,000 fatalities, respectively. Since then, both volcanoes have not been erupting, thus considered to be dormant.

We present first results of an InSAR study to elaborate present tectonic and volcanic processes. We use SAR images acquired by the ENVISAT satellite in ascending and descending orbits to show that both volcanic regions and their surrounding are actively deforming. A large number of interferograms allows us to infer the velocity of the deformation and to investigate its pattern and changes at unprecedented spatial and temporal detail.

The InSAR data shows various localized but evident deformation processes related to volcano flank motion, summit subsidence as well as shallow earthquake activity.

Using elastic dislocation modeling we infer the source of the deformation and discuss the interaction of different volcano-tectonic processes responsible for the apparent unrest.