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Monitoring dynamics of an active plate boundary: Peceneaga-Camena Fault

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Peceneaga-Camena Fault (PCF) is one of the well-known regional faults on the Romanian territory, separating the Central Dobrogea from the North Dobrogea structures. Despite its first mentioning more than hundred years ago, some aspects related to its track, nature and dynamics are still debated.
After the first geological models assuming it as a reverse fault, or the overthrust plan along which the Upper Proterozoic Green Schist series of Central Dobrogea overthrusted the North Dobrogea Paleozoic structures, PCF started to be considered more as a strike-slip fault.
First geophysical evidence (the international DSS line Calarasi-Galati) revealed a 10 km step along it at the both Conrad and Moho levels, thus advocating for its trans-crustal feature. Later on, the re-interpretation of the data provided by Calixto experiment clearly showed in depth extension of the contact down to more than 150 km. This way it becomes clear the lithospheric nature of PCF, as a plate boundary between Moesian Microplate and East European Plate.
Concerning the PCF nature and dynamics, several authors have been previously considered the fault as an active trans-current contact along which its southern flank would be pushed towards NW, thus generating the recent Pleistocene folds in the SE bending zone of East Carpathians. The Baspunar experiment was designed and accomplished in order to bring direct evidence on the active character of the PCF.
Geomagnetic investigations conducted under the umbrella of a joint project between the Institute of Geodynamics of the Romanian Academy and the Institute of Geophysics of the Ukrainian Academy of Sciences have revealed the presence of an additional local geomagnetic field, due to the inductive currents circulating along the fault plane, which associates well with its assumed active character.
A geodetic experiment, during which two Leica TC &TCR total stations were installed and monitored the distance between the PCF flanks, has brought direct evidence on the active nature of the fault, mainly behaving as a right-lateral trans-current plate boundary, in full agreement with previous geodynamic models based on indirect geological evidence.