



2013 SEISMIC SWARM RECORDED IN GALATI AREA, ROMANIA- FOCAL MECHANISM SOLUTION

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An unusual seismic swarm started on September 23, 2013, close to Galati city, in Izvoarele region (Romania), and lasted until November 12, 2013. 406 earthquakes were recorded during several phases of seismic activity. The strongest events – a magnitude 3.9 seism, occurred on September 29, and two M_L 3.8 shocks, occurred on October 3 and October 4, respectively, were accompanied by specific seismicity bursts.

The seismogenic region of the swarm is situated between two main crustal faults, oriented SE-NW: Sf. Gheorghe fault (located in North Dobrogea, in the Scythian Platform) to the North, and Peceneaga Camena fault (which separates North Dobrogea block from the Moesian Platform) to the South.

The epicentral zone belongs to a complex tectonic area, in which a secondary fault system – lying NE-SW, perpendicular to the dominant system – is present too.

The space distribution of the epicenters, which are aligned in NE-SW direction (see Figure 1), indicates that the seismic swarm was generated by this second fault system.

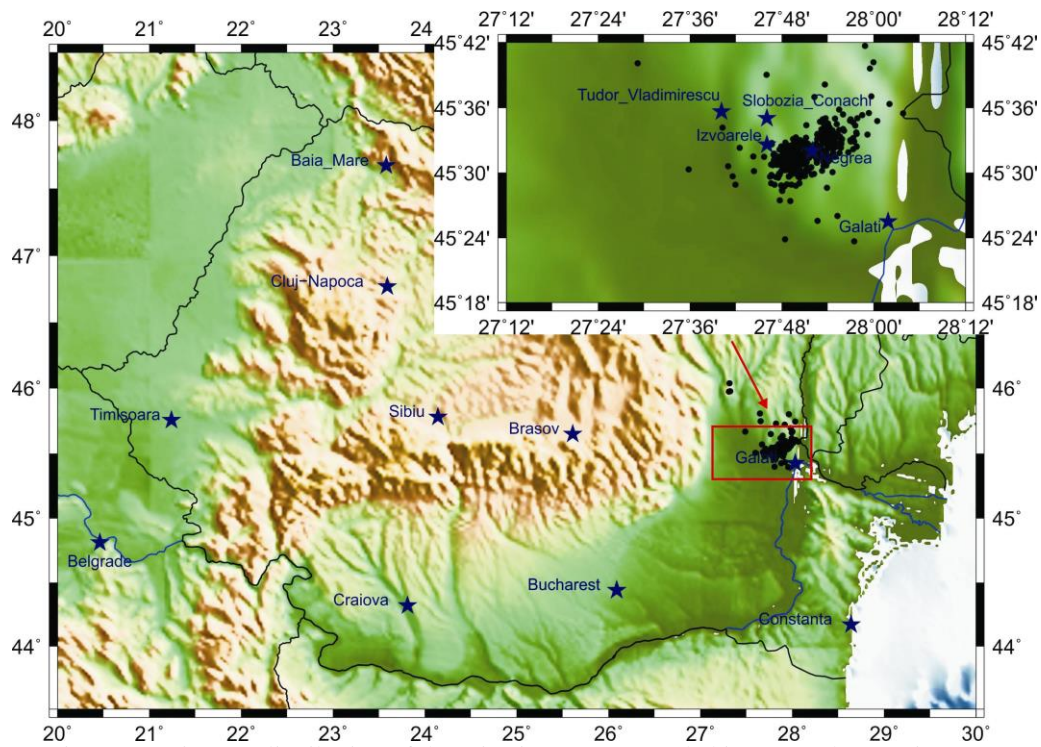


Figure 1. Epicenter distribution of the seismic swarm recorded in Izvoarele area, in 2013.

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The focal mechanisms are determined using SEISAN algorithm (Ottmoller, et al., 2013), which is based on P-wave polarities. They show normal slip, with one of the nodal planes oriented roughly in NE-SW direction. Figure 2 displays the fault plane solutions of the strongest shocks of the swarm.

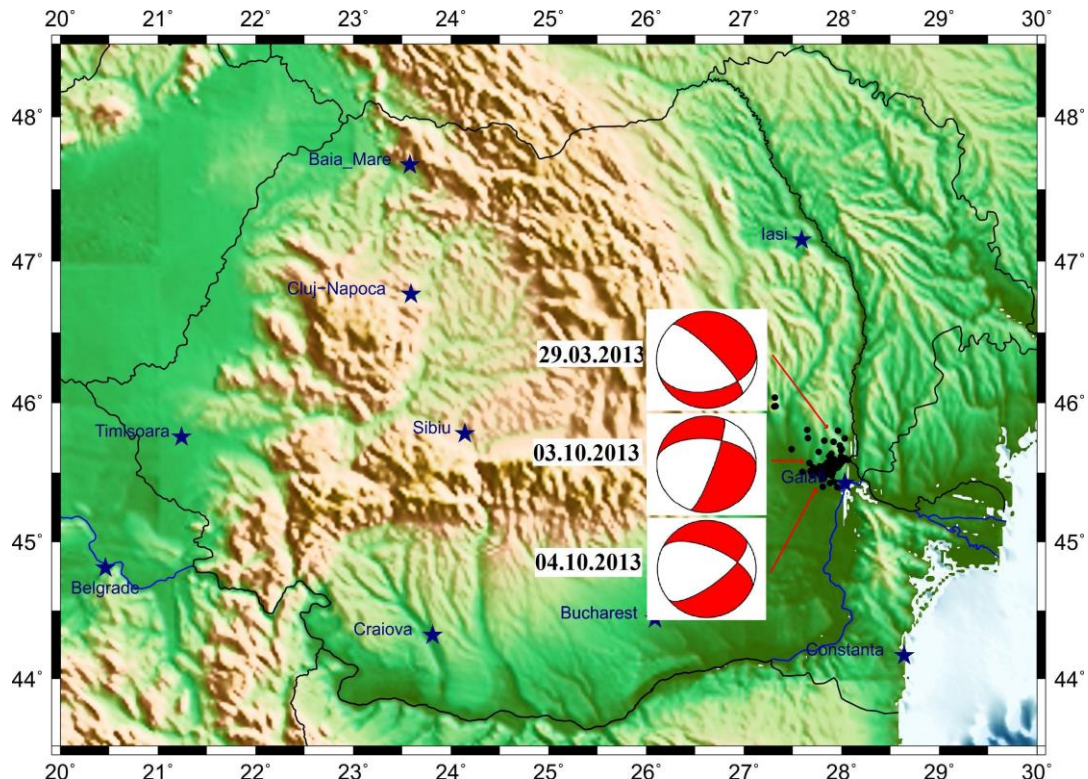


Figure 2. The fault plane solutions of the strongest events of the swarm occurred in Izvoarele area, in 2013.

The results are discussed and interpreted in relation with the regional seismotectonics, our study aiming to emphasize new elements and implications for seismic hazard evaluation in the Galati area.

REFERENCES

Ottmoller L., Voss P and Havskov J, SEISAN earthquake analysis software for WINDOWS, SOLARIS, LINUX and MACOSX , 2013.