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Temperature variations in mineral springs preceding earthquake swarms in the West-Bohemia/Vogtland region

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The western part of the Bohemian Massif (West-Bohemia/Vogtland region at the Czech-German border) is characterized by relatively frequent intraplate earthquake swarms and by other manifestations of present-day geodynamic activity. During the strong earthquake swarm at the turn of the years 1985 and 1986, significant co-seismic changes were observed in the discharge of many mineral springs at the spa of Františkovy Lázně. The spa is situated at a distance of about 15 km from the main epicentral area. Most of the changes were clearly related to the main shock of December 21, 1985. Some discharge changes were very distinct, amounting up to 40 %. Further detailed analyses of the springs parameters, performed only recently, have also revealed certain variations in the temperature of some mineral springs. The temperature variations were less noticeable, but preceded the beginning of the swarm by several months. The highest temperature increase was about 3°C. The temperature variations represent a weak, but significant precursory phenomenon of the earthquake swarm. We shall attempt to find out whether the last weaker earthquake swarm of October 2008 was also preceded by analogous temperature variations.

Reference:
V. Stejskal, J. Malek, O. Novotny (2008): Variations in discharge and temperature of mineral springs at the Frantiskovy Lazne Spa, Czech Republic, during a nearby earthquake swarm in 1985/1986. Stud. Geophys, Geod., 52, 589-606.