Summary

A radiogeochimical exploration in the area of Chrastava - Bogatynia belonging into lujic region was conducted in the years 2012 - 2013. This exploration's objective was to search for and investigate radioactive water manifestations with radioactivity concentration reaching minimal value of 1500 Bq/l 222Rn. This boundary is set in the spa law no. 164/2001 Sb. as a minimal radioactivity concentration for radioactive mineral water. In this area, 30 water manifestations were discovered meeting the boundary of >1500 Bq/l 222Rn.

The most significant cluster is located in Albrechtice by Frýdlant. Close to Kančí vrch (Boar Hill) 12 radioactive water springs were discovered. In the town of Albrechtice, a discovery of dissolved salts-rich radioactive mineral water was made, concerning springs Soumar and Matka. The most mineralized spring Soumar contains more than 1 g/l of dissolved salts (hydrochemical type Na-Ca-Cl water with total mineralization up to 1,5 g/l) combined with it's 222Rn activity surpassing 1500 Bq/l.

Another significant cluster is located near the town of Nová Ves by Chrastava, where the most active source of the whole area, Mikulášský pramen (Mikulash Spring), with activity up to 2821 Bq/l 222Rn, was found. Another three radioactive water springs were found in this area. Also, probable dry CO2 source was discovered near the town of Dolní Vítkov.

Isolated floe of tanvald granite near Bedřichovka also proved significant. Four springs with activity surpassing 1500 Bq/l boundary were discovered there.

Almost all of the discovered sources were found in jizera ortogneisses, rumburk granodiorite or tanvald granite. Nevertheless, there was also one radioactive water spring discovered in the jizera granite near the fojtka hybride granodiorite body. This manifestation, undesirable spring with activity 1535 Bq/l, is currently the most active known water manifestation in the jizera or liberec granite area.