Geochemical Atlas – Erzgebirge and Vogtland

Barium in stream sediments

Barium (Ba) shows a slightly right skewed log distribution. Its maximum amounts to 3330 mg/kg, whereas the values of more than 1000 mg/kg constitute less than 1 % of the total. The minimum is 10 mg/kg. The arithmetic average is 138 mg/kg, and the median is 90 mg/kg. The element is mainly related to baryte–fluorite vein mineralisation. Absolute concentrations are possibly underestimated due to limited solubility of Ba in aqua regia used for the analyses.

Areas of high concentration (Ba > 400 mg/kg) form an arc between the Freiberg mining district and Dippoldiswalde where barite mainly accompanies the exploited polymetallic and Sn deposits as gangue. Apart from this arc, a circular area of 3 km diametre with elevated Ba coincides with fluorite and baryte veins NW of the Marienberg deposit in the central Erzgebirge. Further Ba elevations mark the baryte deposit of Brunndöbra, the baryte veins west of the Bergen granite, the deposit of Grünberg north of Augustusburg, and an area NW of the Aue-Bärengrund deposit, where baryte was observed in debris during stream sediment sampling. Lower elevations of Ba > 160 mg/kg characterise the gneiss cupola of Schwarzenberg, the baryte–fluorite deposits of Langenstriegis, Niederschlag-Bärenstein, and the area NW and SW of Oelsnitz dominated by Devonian sediments and volcanics. The lowest concentrations of barium (Ba < 40 mg/kg) characterise the granites of Eibenstock, Kirchberg, Fichtelgebirge, Markersbach, the gneisses of the southern central Erzgebirge between Sayda and Marienberg, and areas of Cambro-Ordovician metasediments east of the Westerzgebirge complex deposit and southwest of the Eibenstock granite.

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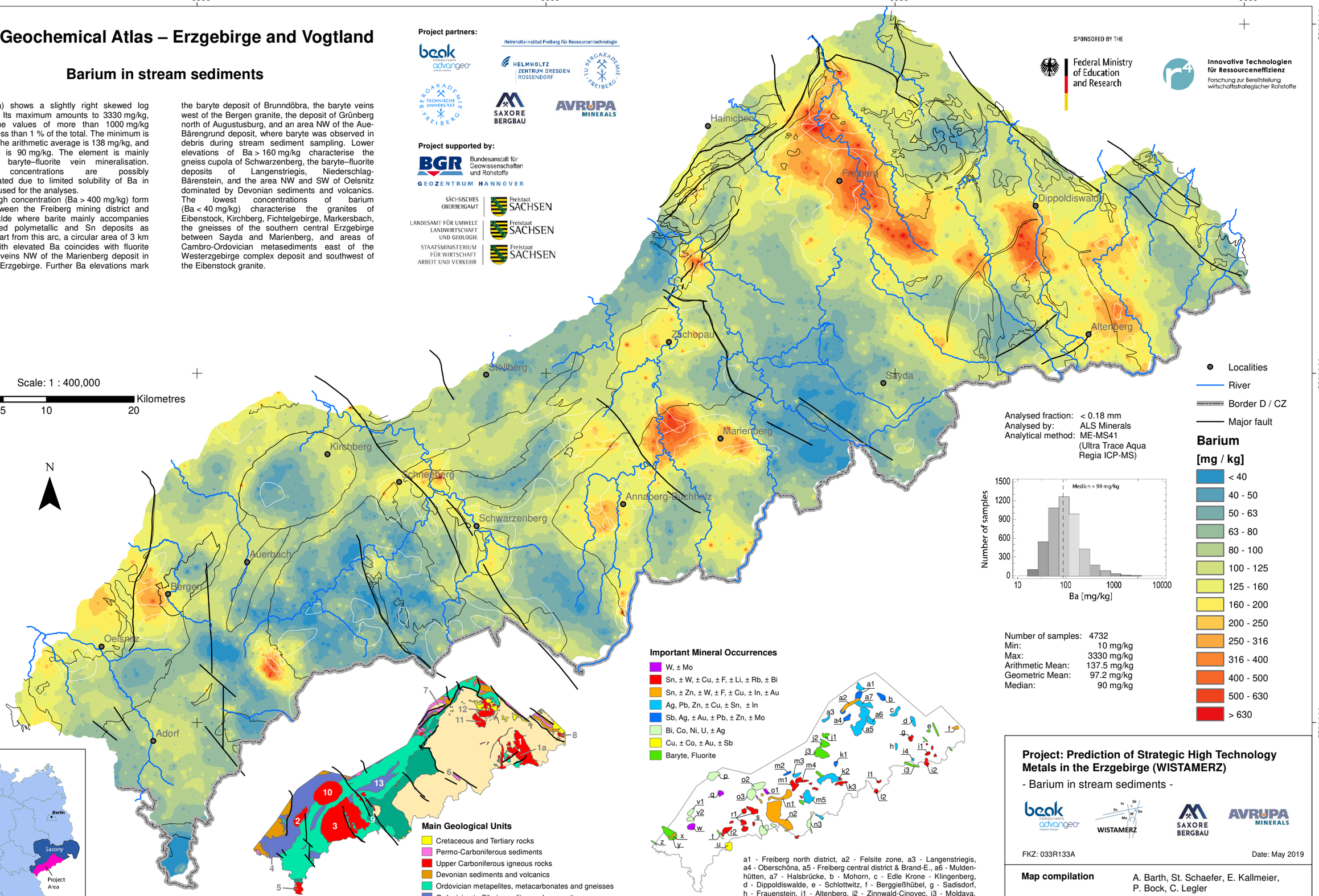

1 – Altenberg-Teplice-Caldera (incl. 1a - Schellerhau granite), 2 – Bergen Pluton 3 – Eibenstock Pluton, 4 – Eichigt Pluton (concealed), 5 – Fichtelgebirge Pluton, 6 – Flöha Fault Zone, 7 – Frankenberg Crystalline Complex, 8 – Markersbach Pluton, 9 – Gera-Jachymov Fault Zone, 10 – Kirchberg Pluton, 11 – Niederbobritzsch Pluton, 12 – Tharandt Volcanic Complex, 13 – Lößnitz-Zwönitz Syncline

a1 - Freiberg north district, a2 - Felsite zone, a3 - Langenstriegis, a4 - Oberschöna, a5 - Freiberg central district & Brand-E., a6 - Muldenhütten, a7 - Halsbrücke, b - Mohorn, c - Edle Krone - Klingenberg, d - Dippoldiswalde, e - Schlottwitz, f - Berggießhübel, g - Sadisdorf, h - Frauenstein, i1 - Altenberg, i2 - Zinnwald-Cinovec, i3 - Moldava, i4 - Rehefeld, j1 - Grünberg, j2 - Augustusburg, j3 - Zschopau k1 - Lengefeld, k2 - Marienberg - Wolkenstein, k3 - Pobershau, l1 - Seiffen, l2 - St. Katharinaberg, m1 - Geyer, m2 - Hormersdorf, m3 - Thum, m4 - Ehrenfriedersdorf, m5 - Annaberg-B., n1 - Lauter-Elterlein, n2 - Westerzgebirge complex deposit, n3 - Niederschlag-Bärenstein, o1 - Aue-Bärengrund, o2 - Bad Schlema-Alberoda, o3 - Schneeberg, p - Neumark (U), q - Pechtelsgrün, r1 - Sn Deposits of the Eibenstock Granite, r2 - Gottesberg-Mühlleiten, s - Johanngeorgenstadt, t - Brunndöbra & Schneckenstein, u - Klingenthal-Kraslice, v1 - Zobes, v2 - Bergen, w - Tirpersdorf, x - Oelsnitz, y - Schönbrunn, z - Wiedersberg

Project: Prediction of Strategic High Technology Metals in the Erzgebirge (WISTAMERZ)

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