Geochemical Atlas – Erzgebirge and Vogtland

Arsenic in stream sediments

Arsenic (As) shows a log normal distribution with a tendency to right skew. Arithmetic average and median are at 57 mg/kg and 27 mg/kg, respectively. The range between maximum (6830 mg/kg) and minimum concentration (0.6 mg/kg) is enormous. Arsenic is a ubiquitous element accompanying various mineralising events. Average As levels in areas of Neoproterozoic and Lower Paleozoic metamorphic rocks are higher than in areas with intrusive and younger Paleozoic sedimentary rocks. Areas of high As content (As > 250 mg/kg) coincide with the central Freiberg mining district, the Gottesberg Sn-greisen deposit as well as the Brunndöbra (Ba) and Schneckenstein (U) deposit. Also, areas with As > 100 mg/kg include the greisen and vein deposits of Geyer-Ehrenfriedersdorf, the BiCoNi district of Johanngeorgenstadt and Schneeberg, stratiform Sn mineralisation of the Westerzgebirge complex deposit and polymetallic deposits of Marienberg and Wolkenstein. In the eastern Erzgebirge only two areas of As > 100 mg/kg exist encompassing the Freiberg mining district and the area between the Sadisdorf and Rehefeld deposits. At the Sadisdorf deposit, Cu, Ag and Sn were historically mined and processed. In contrast, the Rehefeld deposit includes carbonate hosted stratiform Pb-Zn mineralisation. Small spots of similar As levels accompany the Ag/Pb/Zn vein deposit of Mohorn-Grund and an area NE of Seiffen. Furthermore, As levels > 60 mg/kg occur near the Sn-greisen deposits of Altenberg and Zinnwald-Cinovec as well as in the area of the ring-shaped phyllite and micaschist envelope of the Schwarzenberg gneiss cupola. Minima (As < 10 mg/kg) occur in metasediments near Adorf and in gneisses of the southern central Erzgebirge.

Project partners:

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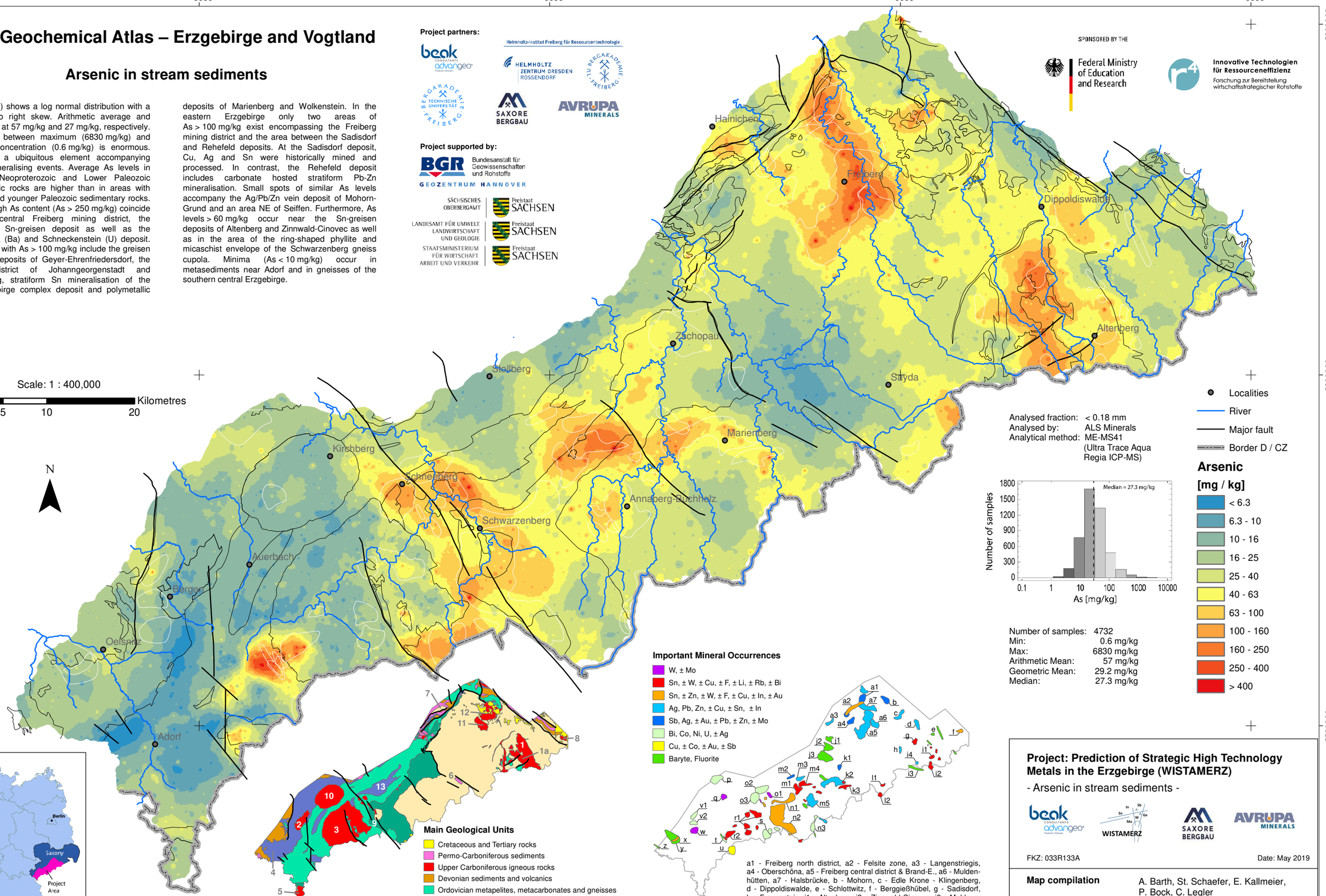

1 – Altenberg-Teplice-Caldera (incl. 1a - Schellerhau granite), 2 – Bergen Pluton 3 – Eibenstock Pluton, 4 – Eichigt Pluton (concealed), 5 – Fichtelgebirge Pluton, 6 – Flöha Fault Zone, 7 – Frankenberg Crystalline Complex, 8 – Markersbach Pluton, 9 – Gera-Jachymov Fault Zone, 10 – Kirchberg Pluton, 11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

- Arsenic in stream sediments -

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