Geochemical Atlas – Erzgebirge and Vogtland

Cadmium in stream sediments

The distribution of Cadmium (Cd) in stream sediments is log normal with a slight tendency to left skewness. The median is 0.9 mg/kg and the arithmetic average is 1.7 mg/kg. The minimum concentrations are close to the detection limit of 0.005 mg/kg, the maximum values are to 84 mg/kg. Areas with gneiss hosted polymetallic vein deposits show significantly higher average Cd contents than granite massifs and Ordovician to Devonian metasedimentary rocks. Areas of Cd > 5 mg/kg are related to the Freiberg mining district and to an ESE adjacent area of approximately 10 km E-W extension that partially hosts Pb-Zn-Ag bearing veins. Other areas of similar concentration occur in the vicinity of stratiform Fe-Zn-Sn mineralisation of the Westerzgebirge Complex deposit, extending beyond the study area´s south-eastern tip at the Czech border. Areas with Cd > 3 mg/kg occur in Ordovician to Devonian metapelites and metabasites SW of Oelsnitz, e.g. in the vein districts of the central Erzgebirge (Annaberg-Buchholz, Ehrenfriedersdorf, and Marienberg-Wolkenstein), in the surrounding of the Sn-greisen deposits of Altenberg and Zinnwald-Cinovec, and near to the carbonate hosted stratiform Pb-Zn deposit of Rehefeld-Hermsdorf. Also, the polymetallic mineralisation of Mohorn-Grund with its remnants of mining activity coincides with elevated Cd levels. Furthermore, Ordovician metapelites of the northern Erzgebirge rim generally contain around or less than 1 mg/kg Cd. The lowest contents (Cd < 0.1 mg/kg) are related to the western part of the Eibenstock granite, whereas the neighbouring Kirchberg and Bergen granites do not contrast with their metasedimentary envelope.

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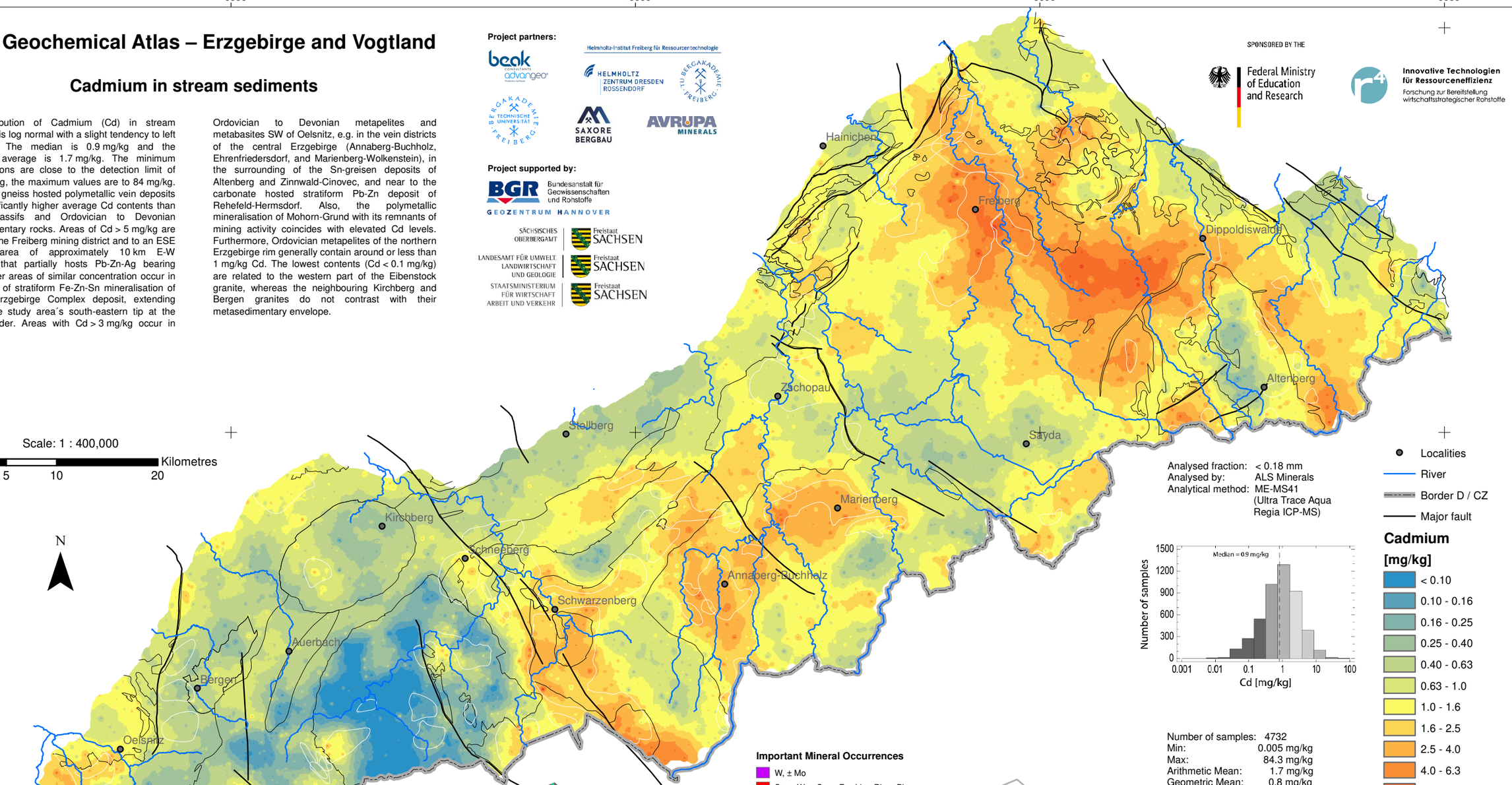

1 – Altenberg-Teplice-Caldera (incl. 1a - Schellerhau granite), 2 – Bergen Pluton 3 – Eibenstock Pluton, 4 – Eichigt Pluton (concealed), 5 – Fichtelgebirge Pluton, 6 – Flöha Fault Zone, 7 – Frankenberg Crystalline Complex, 8 – Markersbach Pluton, 9 – Gera-Jachymov Fault Zone, 10 – Kirchberg Pluton, 11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

- Cadmium in stream sediments -

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