Geochemical Atlas – Erzgebirge and Vogtland

Thallium in stream sediments

Thallium (Tl) shows a right skewed log distribution. Its concentration spreads between a maximum value of 22 mg/kg and a minimum of 0.02 mg/kg. The arithmetic average amounts to 0.35 mg/kg and the median to 0.19 mg/kg. Tl is affine to acidic igneous rocks, which show concentrations four times higher than the average remaining rocks. However, particular intrusions differ greatly in their Tl contents so that no distinct secondary maximum appears in the histogram. The highest concentrations recorded plot at the Eibenstock granite, predominantly in the area of Sn deposits north of the Johanngeorgenstadt district. These zones are included in the only existing area with Tl > 2.5 mg/kg. Areas with Tl > 1.0 mg/kg are limited to two regions, the Eibenstock granite on the one hand and the Schellerhau granite including SE adjacent rhyolites and the Zinnwald mining district on the other hand. Further spots match Sn-greisen deposits NE and N of this area including the Sadisdorf deposit. Areas of Tl > 0.6 mg/kg include the Markersbach granite, parts of the central and northern Freiberg mining district, polymetallic mining districts of the central Erzgebirge (Marienberg-Wolkenstein, Pobershau, Ehrenfriedersdorf and Annaberg-Buchholz), and the BiCoNi districts of Bad Schlema–Alberoda and Schneeberg. Additionally, a few small spots of elevated Tl occur east of Adorf where Ordovician metapelites and siliceous shales are locally co-enriched in Mo and other metals. The Kirchberg and Bergen plutons correspond to less pronounced elevations of Tl > 0.4 mg/kg. Minimum concentrations of Tl < 0.06 mg/kg occur in Ordovician phyllites SW of the Eibenstock massif and at the northern Erzgebirge rim around Stollberg over approx. 30 km length.

Project partners:

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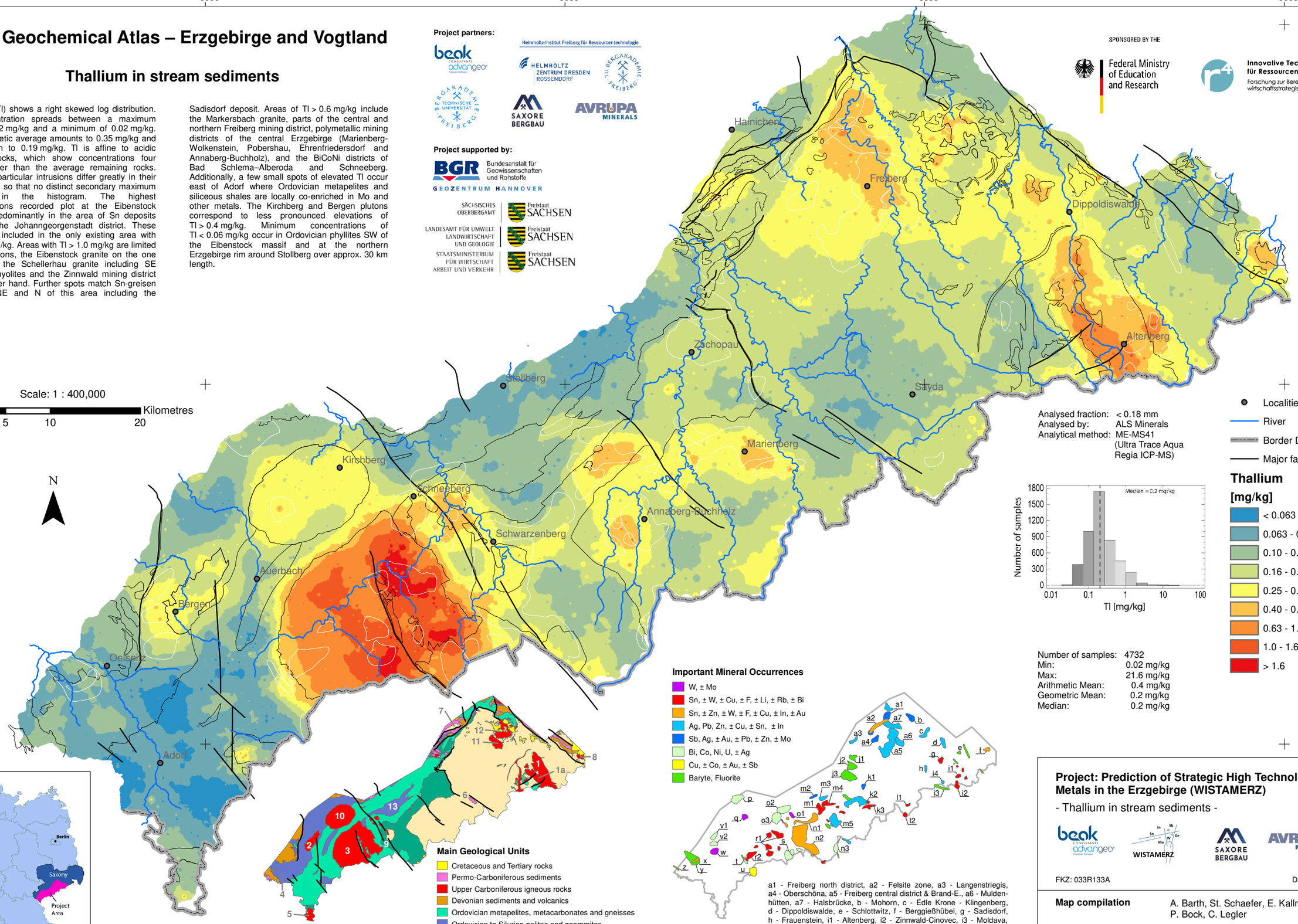

Analysed fraction: < 0.18 mm
Analysed by: ALS Minerals
Analytical method: ME-MS41 (Ultra Trace Aqua Regia ICP-MS)

Number of samples:	4732
Min:	0.02 mg/kg
Max:	21.6 mg/kg
Arithmetic Mean:	0.4 mg/kg
Geometric Mean:	0.2 mg/kg
Median:	0.2 mg/kg

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)

- Thallium in stream sediments -

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Map compilation	A. Barth, St. Schaefer, E. Kallmeier, P. Bock, C. Legler
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