Geochemical Atlas – Erzgebirge and Vogtland

Niobium in stream sediments

Niobium (Nb) shows a maximum concentration of 21 mg/kg, a minimum of 0.1 mg/kg, an arithmetic average of 1.5 mg/kg and a median of 1.0 mg/kg. The histogram indicates a close to log normal distribution in proximity to the median, whereas higher concentrations of 4 to 7 mg/kg form a secondary maximum related to the granites of Eibenstock and Schellerhau. Core areas with Nb > 6 mg/kg traverse these two massifs in a NW-SE strike. Areas with Nb > 4 mg/kg match their outer limits and additionally form a 5 km zone in the NE part of the Kirchberg granite. Also the Markersbach granite in the easternmost part of the study area shows slightly elevated Nb. Further, areas with Devonian sedimentary and volcanic rocks northwest of Oelsnitz (western Erzgebirge), the metapelites of the Lössnitz-Zwönitz Syncline and small spots within the Bergen granite are characterized with Nb > 2 mg/kg. In contrast, the central part of the Erzgebirge and vast parts of the gneiss dominated areas of the eastern Erzgebirge are characterized by diffuse distribution of slightly elevated Nb (0.5 – 1.0 mg/kg). The same area is co-enriched in Rb and Ti. Lowermost concentrations of Nb < 0.6 mg/kg occur predominantly in the phyllite rich northern Erzgebirge rim around Stollberg and in a triangle of mainly Ordovician metasediments between the Fichtelgebirge granite to the south, the Eibenstock granite to the east, and the town of Oelsnitz to the west. Nb generally correlates with elements showing affinity to acid magmatites such as Sn, W and Cs.

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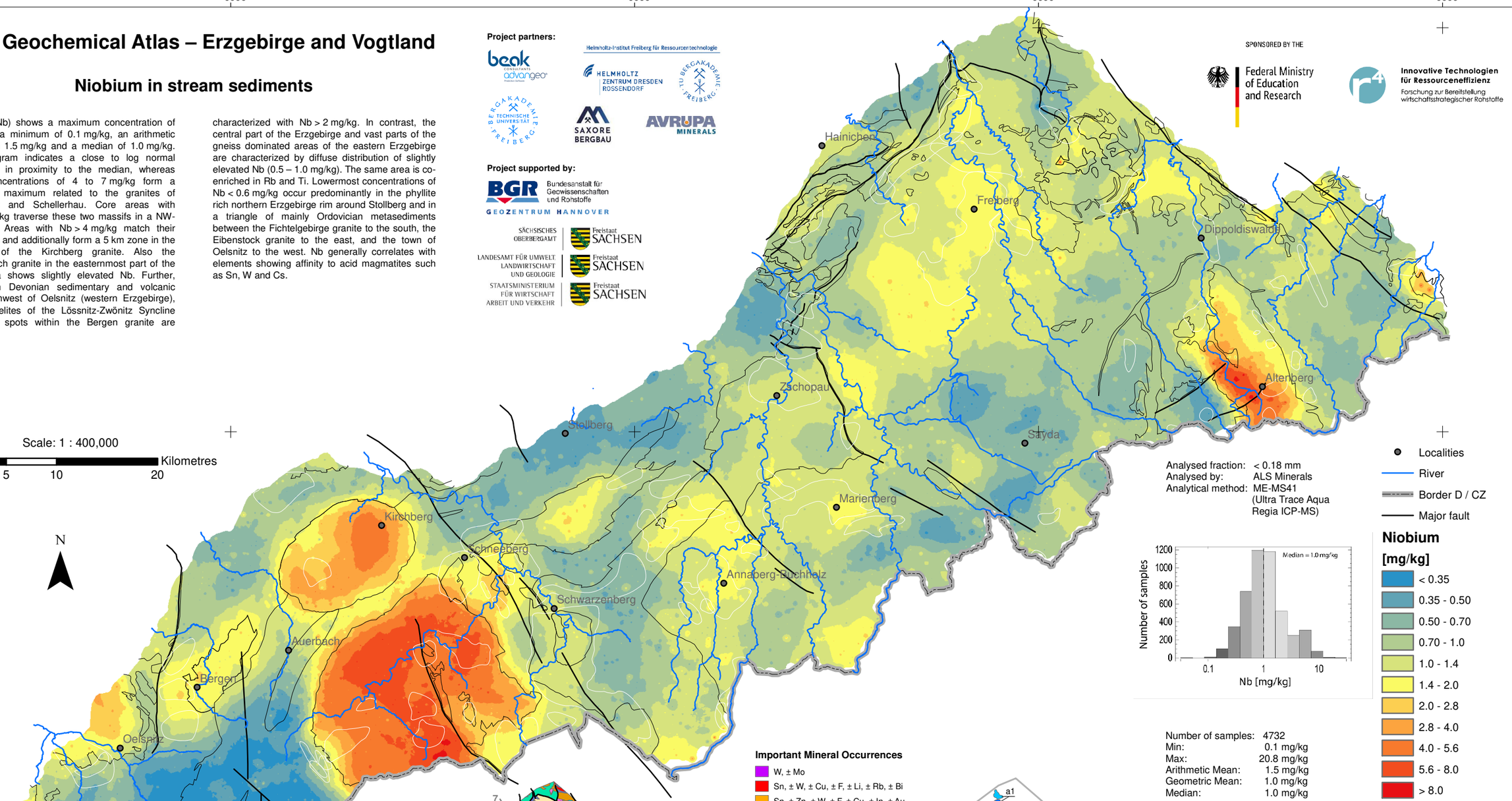

1 – Altenberg-Teplice-Caldera (incl. 1a - Schellerhau granite), 2 – Bergen Pluton 3 – Eibenstock Pluton, 4 – Eichigt Pluton (concealed), 5 – Fichtelgebirge Pluton, 6 – Flöha Fault Zone, 7 – Frankenberg Crystalline Complex, 8 – Markersbach Pluton, 9 – Gera-Jachymov Fault Zone, 10 – Kirchberg Pluton, 11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

- Niobium in stream sediments -

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