

# Geochemical Atlas – Erzgebirge and Vogtland

## Lithium in stream sediments

The maximum concentration of Lithium (Li) amounts to 640 mg/kg, the minimum to 1.2 mg/kg. The arithmetic average is 54 mg/kg and the median is 40 mg/kg. In proximity to the median and up to 100 mg/kg, the distribution is close to log normal, whereas values above 150 mg/kg form a secondary maximum that is related to the granites of Eibenstock in the western and Schellerhau in the eastern Erzgebirge. These granites host Li bearing mica. The Schellerhau granite is also related to tin bearing greisen. Among the two areas with Li > 160 mg/kg, the Eibenstock granite coincides with a 15 km wide area, whereas at the Schellerhau granite only a 2.5 km wide anomaly is visible. Narrow zones with Li > 100 mg/kg surround the two granites and form an area SE of the Schellerhau granite where rhyolites are underlain by Li-greisen of the Zinnwald-Cinovec deposit. The maximum Li

value measured originates from here. Areas with Li > 60 mg/kg are partially related to Ordovician metasediments of the Vogtland north and west of Adorf. Almost the entire western part of the study area and parts of the phyllite and schist dominated northern Erzgebirge rim show Li levels > 40 mg/kg. In contrast to the Eibenstock granite, Li levels of the Kirchberg granite are inferior to its metasedimentary surroundings. Lowest contents of Li < 25 mg/kg characterise the central and NE part of the eastern Erzgebirge in Neoproterozoic gneisses west of Sayda, areas with Carboniferous rhyolites east of the Sadisdorf district and the Tharandt Volcanic Complex. Rb, Cs, Sn and W show good correlation to Li, revealing a similar affinity to granitoid lithology.

### Project partners:



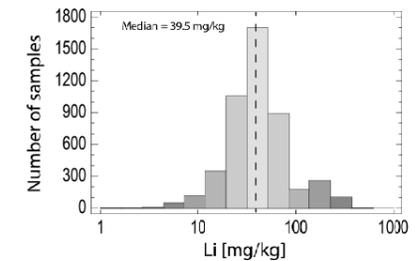
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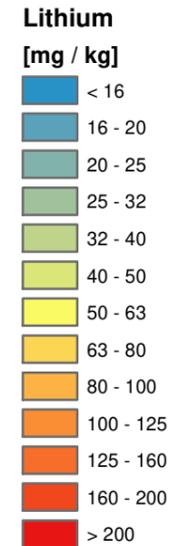
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Analysed fraction: < 0.18 mm  
Analysed by: ALS Minerals  
Analytical method: ME-MS41 (Ultra Trace Aqua Regia ICP-MS)

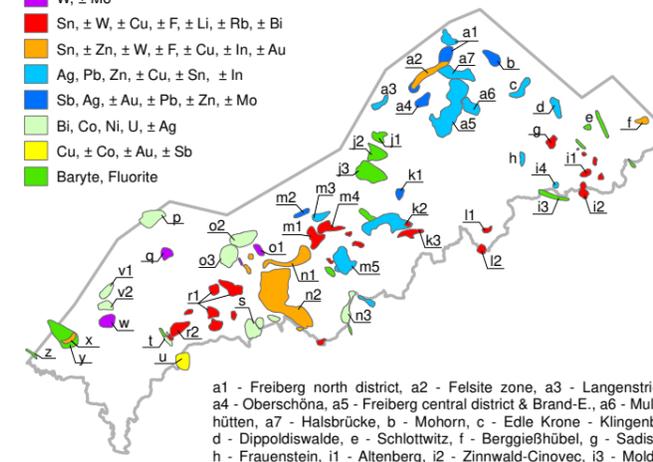


Number of samples: 4732  
Min: 1.2 mg/kg  
Max: 640 mg/kg  
Arithmetic Mean: 54.2 mg/kg  
Geometric Mean: 40.7 mg/kg  
Median: 39.5 mg/kg



### Important Mineral Occurrences

- W, ± Mo
- Sn, ± W, ± Cu, ± F, ± Li, ± Rb, ± Bi
- Sn, ± Zn, ± W, ± F, ± Cu, ± In, ± Au
- Ag, Pb, Zn, ± Cu, ± Sn, ± In
- Sb, Ag, ± Au, ± Pb, ± Zn, ± Mo
- Bi, Co, Ni, U, ± Ag
- Cu, ± Co, ± Au, ± Sb
- Baryte, Fluorite

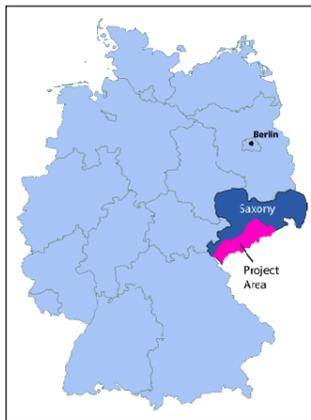


- a1 - Freiberg north district, a2 - Felsite zone, a3 - Langenstrieigis, a4 - Oberschöna, a5 - Freiberg central district & Brand-E., a6 - Muldenhütten, a7 - Halsbrücke, b - Mohorn, c - Edle Krone - Klingenberg, d - Dippoldiswalde, e - Schlottwitz, f - Berggießhübel, g - Sadisdorf, h - Frauenstein, i1 - 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. Katharinenberg, m1 - Geyer, m2 - Homersdorf, 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 - Johannegeorgenstadt, t - Brunnödra & Schneckenstein, u - Klingenthal-Kraslice, v1 - Zobes, v2 - Bergen, w - Tirpersdorf, x - Oelsnitz, y - Schönbrunn, z - Wiedersberg

### Main Geological Units

- Cretaceous and Tertiary rocks
- Permo-Carboniferous sediments
- Upper Carboniferous igneous rocks
- Devonian sediments and volcanics
- Ordovician metapelites, metacarbonates and gneisses
- Ordovician to Silurian pelites and psammities
- Cambrian to Ordovician metasediments
- Neoproterozoic and Lower Paleozoic gneisses

- 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 - Märkersbach Pluton, 9 - Gera-Jachymov Fault Zone, 10 - Kirchberg Pluton, 11 - Niederbobitzsch Pluton, 12 - Tharandt Volcanic Complex, 13 - Löbnitz-Zwönitz Syncline



**Project: Prediction of Strategic High Technology Metals in the Erzgebirge (WISTAMERZ)**  
- Lithium in stream sediments -



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