



# Geochemical Atlas – Erzgebirge and Vogtland

## Titanium in stream sediments

Titanium (Ti) shows a slightly right skewed log distribution and ranges between a maximum of 0.78 % and minimum values below the detection limit of 0.003 %. The arithmetic average is 0.036 % versus a median of 0.025 %. Elevated Ti contents in the western Erzgebirge are mainly related to volcanic rocks and their products (sedimentary and metasedimentary rocks). Three areas show  $Ti > 0.16\%$ , two of which are located near the SW tip of the study area in Devonian rock sequences NW and SW of Oelsnitz. The third area matches the central Löbnitz-Zwönitz syncline with Silurian and Devonian sedimentary and volcanic rocks. In the central Erzgebirge area, elevated grades of  $Ti > 0.1\%$  are related to Tertiary volcanism preserved in basaltic plateaus, e.g. SW of Annaberg-Buchholz (Scheibenberg), E of Annaberg-Buchholz (Pöhlberg) and SW of the Niederschlag-Bärenstein deposit (Bärenstein mountain).

Another area is hosted in gneisses SSW of Freiberg, enclosed by a larger NNE-striking zone with  $Ti > 0.063\%$ . The area of next lowest concentration ( $Ti > 0.04\%$ ) connects these sites to a corridor about 65 km length between the SW tip of the Neoproterozoic gneiss platform and the northern Freiberg mining district. Its NW flank is sharply controlled by the contact to Cambro-Ordovician metasediments with low Ti content. Ti is further elevated in two narrow NE-striking zones east of Hainichen, which correspond to Devonian metavolcanics and shows a good correlation with Zr and Nb. Absolute Ti concentrations are possibly underestimated due to limited solubility of minerals like rutile in aqua regia used for the analyses.

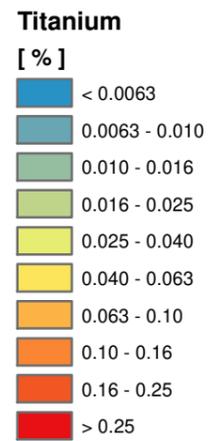
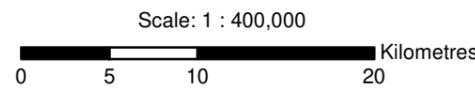
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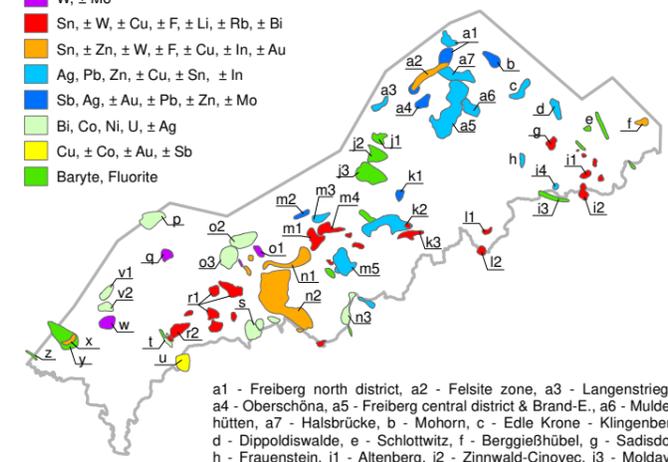


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### Important Mineral Occurrences

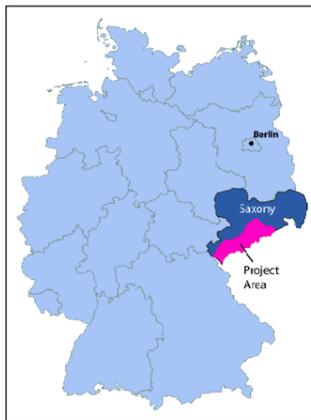
- W, ± Mo
- Sn, ± W, ± Cu, ± F, ± Li, ± Rb, ± Bi
- Sn, ± Zn, ± W, ± F, ± Cu, ± In, ± Au
- Ag, Pb, Zn, ± Cu, ± Sn, ± In
- Sb, Ag, ± Au, ± Pb, ± Zn, ± Mo
- Bi, Co, Ni, U, ± Ag
- Cu, ± Co, ± Au, ± Sb
- Baryte, Fluorite



### 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 – Markersbach Pluton, 9 – Gera-Jachymov Fault Zone, 10 – Kirchberg Pluton, 11 – Niederbobritzsch Pluton, 12 – Tharandt Volcanic Complex, 13 – Löbnitz-Zwönitz Syncline



### Project: Prediction of Strategic High Technology Metals in the Erzgebirge (WISTAMERZ)

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