Geochemical Atlas – Erzgebirge and Vogtland

Lead in stream sediments

Lead (Pb) shows a slightly right skewed log distribution. The arithmetic average is 74 mg/kg, the median 42 mg/kg. A maximum concentration of 8460 mg/kg stands opposite a minima of 0.2 mg/kg. A major plumbiferous enrichment covers the gneiss dominated northeastern study area with a 15 km x 8 km core zone of Pb > 250 mg/kg at the central Freiberg mining district and extending into the Halsbrücke, Brand-Erbisdorf and Muldenhütten sub districts. In the southeastern part of the Freiberg mining district even Pb > 1000 mg/kg are reached, which, together with strongly elevated Sn and Zn levels, might indicate industrial contamination. Pb was mined and processed for decades as either as a main target or a by-product of Ag and other metals. Furthermore, an N striking area 3 km NE of the Sadisdorf deposit also exhibits Pb > 250 mg/kg. Together with the Freiberg mining district, the entire region is enclosed by a 40 km aureole of Pb > 100 mg/kg. In contrast, in the central Erzgebirge, areas of Pb > 60 mg/kg coincide only slightly with the major polymetallic mining districts like Annaberg-Buchholz, Marienberg-Wolkenstein, Ehrenfriedersdorf, Schneeberg and Schwarzenberg. Notwithstanding, Pb is almost equally elevated across the mica schist dominated northern parts of the study area without well-known mineralisations e.g. between the deposits of Langenstriegis and Augustusburg and in the narrow NW-striking zone between the Thum deposit and Stollberg. The entire "tin corridor" between the deposits of Ehrenfriedersdorf and Augustusburg is co-enriched in Pb. Elevated contents seem to be truncated by the Gera-Jachymov-Fault Zone towards the SW where even the Sn mining district of Gottesberg does not show relevant Pb levels. Minima of Pb < 16 mg/kg occur in the Fichtelgebirge granite, in adjacent Cambrian metasediments, and in the western and northern Eibenstock granite.

Project partners:

beak consultants advangeo

Helmholtz-Institut Freiberg für Ressourcentechnologie
HELMHOLTZ ZENTRUM DRESDEN ROSSENDORF

Bergakademie Freiberg

Technische Universität Bergakademie Freiberg

SAXORE BERGBAU

AVRUPA MINERALS

Project supported by:

BGR Bundesanstalt für Geowissenschaften und Rohstoffe
GEOZENTRUM HANNOVER

Sächsisches Oberbergamt – Freistaat SACHSEN

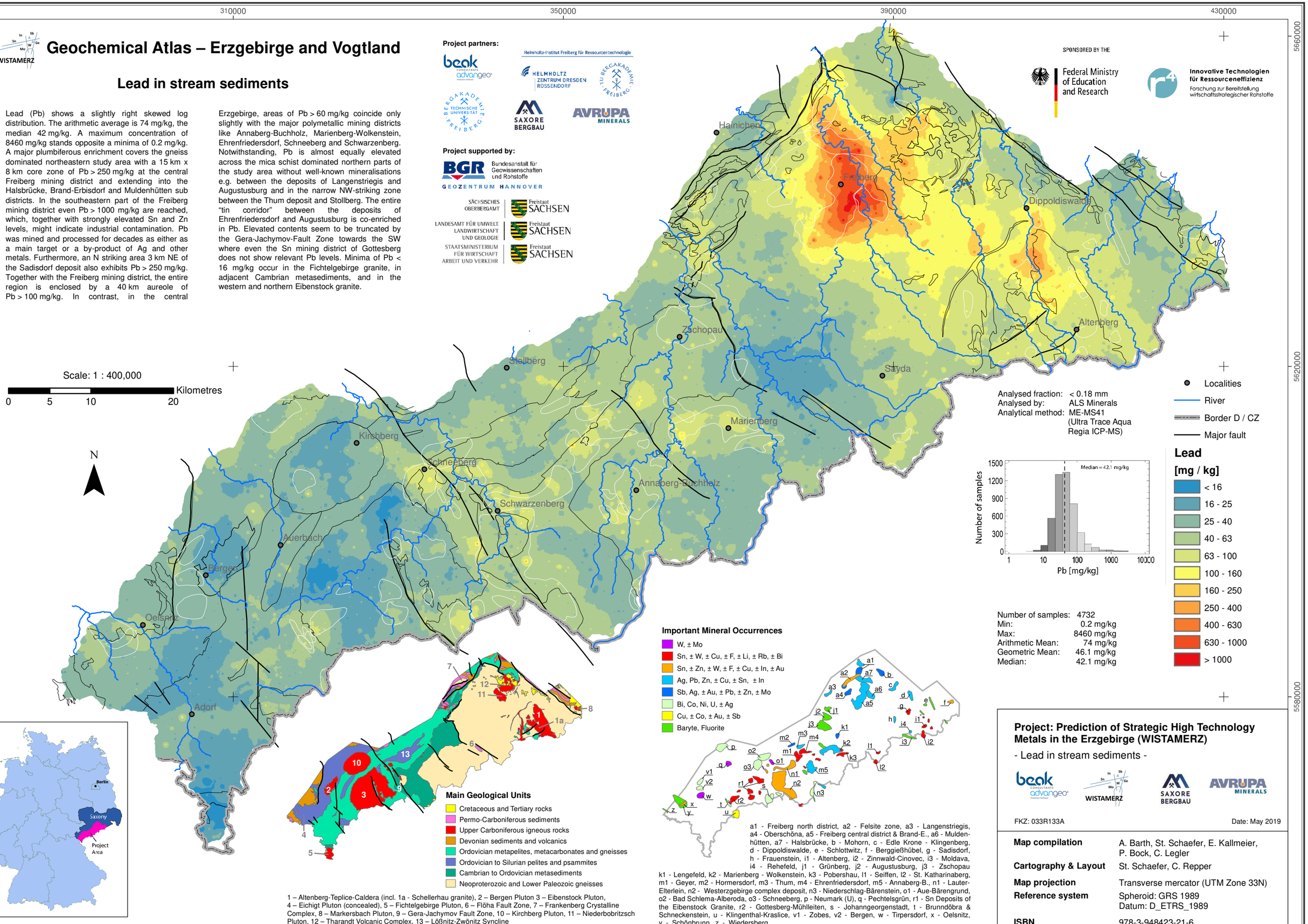
Landesamt für Umwelt, Landwirtschaft und Geologie – Freistaat SACHSEN

Staatsministerium für Wirtschaft, Arbeit und Verkehr – Freistaat SACHSEN

SPONSORED BY THE

Federal Ministry of Education and Research

Innovative Technologien für Ressourceneffizienz
Forschung zur Bereitstellung wirtschaftsstrategischer Rohstoffe



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)

- Lead in stream sediments -

beak consultants advangeo · WISTAMERZ · SAXORE BERGBAU · AVRUPA MINERALS

FKZ: 033R133A

Date: May 2019

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

Cartography & Layout St. Schaefer, C. Repper

Map projection Transverse mercator (UTM Zone 33N)

Reference system Spheroid: GRS 1989
Datum: D_ETRS_1989

ISBN 978-3-948423-21-6