NI 43-101 Technical Report
The Viogor-Zanik Project
Eastern Bosnia and Herzegovina

Prepared for: Terra Balcanica Resources Corp.

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1: Summary

This Report has been produced at the request of the management of Terra Balcanica Resources Corp.

1.1 Background Information

Terra Balcanica Resources Corp. ("the Company") is a private company incorporated under the BCBCA on May 19, 2020. The company is focused on resource exploration in Eastern Europe, specifically the Balkans.

Terra Balcanica Resources Corp. entered into an agreement with two vendors then holding 100% interest in a Serbian company Tera Balkanika doo on January 25, 2021 (the "Purchase Agreement"), pursuant to which Terra Balcanica Resources Corp. acquired Tera Balkanika doo as a wholly owned subsidiary. On completion of the acquisition contemplated by the Purchase Agreement, the business of Tera Balkanika, being the exploration of Viogor-Zanik ("the Project") through its Bosnian subsidiary Drina Resources doo, became the business of Terra Balcanica Resources Corp. After acquiring Tera Balkanika doo, the Company owned 90% of the Viogor-Zanik Project which is the basis of this Report. 1.2: Property description

Terra Balcanica Resources Corp.'s Viogor-Zanik Project is in Eastern Bosnia & Herzegovina, within its entity of Republic of Srpska, immediately to the west from the Drina River which constitutes the border with the Republic of Serbia (Fig. 1.1). The property consists of three separate licenses (Fig. 1.2) totaling 216.819 km^2. Olovine and Čumavići, together encompassing 167.503 km^2 were granted to the company in February and May 2019, respectively, whereas a third license, Čauš, of 49.316 km^2 was granted on March 29th, 2021. The licenses are in good standing for three years starting at the grant date. The three licenses surround the town of Srebrenica (Lat. 44.1° N; Long. 19.3° E) which is itself not part of the exploration licenses.

The local temperatures range from average daily maxima and minima of, respectively, 28°C and 17°C in August to +6°C and -1°C in January with a mean annual precipitation of ca. 770 mm distributed throughout the year. The area is extensively vegetated by deciduous forests dominated by beech and oak and to lesser extent by pasture for sheep and cattle and small-scale fruit and vegetable plantations where topography permits. The climate allows for year-round access and operation although access to field areas is limited due to snow cover from December to March.

The town of Srebrenica, which is situated in the center of the three properties (Fig. 1.2). As a result of the civil war between 1992 and 1995 there are several areas with unexploded ordnance and landmines. Subsequent to the civil war, the landmines were well mapped, and the Company has mitigated all risks through the services of external de-mining experts and consultants whereby all exploration targets are focused on areas without landmines.

1.2: Property ownership

The exploration licenses were granted to Drina Resources d.o.o. Banja Luka ("Drina Resources"), a company incorporated under the laws Bosnia and Herzegovina and the Republic of Srpska therein, which is an indirect partially-held subsidiary of Terra Balcanica Resources Corp. ("Terra Balcanica" or the "Company"), through Tera Balkanika d.o.o. Beograd – Novi Beograd ("TB Belgrade"), Terra Balcanica's wholly owned subsidiary company registered in Serbia. TB Belgrade holds 90% of the interest in Drina Resources.

1.3: Geology and Mineralization

The Srebrenica district where the Viogor-Zanik Project is located in a historically significant mining region where primarily silver and lead have been mined as early as the Roman times. Currently, Mineco Ltd.'s Gross Pb-Zn-Ag mine (formerly known as the Sase Mine) is the only operating mine in the district. Terra Balcanica's exploration licenses surround Mineco Ltd.'s mining permits (Fig. 1.2).

Figure 1.1

Location and access to the Srebrenica district from Sarajevo, Bosnia & Herzegovina's capital and Belgrade, Serbia. International borders shown as black lines. Inset shows regional context of area shown. Coordinate system used throughout the report is World Geodetic System 84 (WGS84) Universal Transverse Mercator zone 34 N (UTM 34N). Background map is from OpenStreetMaps which includes OpenDemEurope using Copernicus data and information funded by the European Union - EU-DEM layers.

The Srebrenica district (in some technical publications referred to as "Srebrenica Orefield") is part of the Podrinje Metallogenic District of eastern Bosnia & Herzegovina. The district constitutes the Northwesternmost extent of the Serbomacedonian-Rhodope metallogenetic belt which extends from the Bosnian Dinarides to the Rhodopes (southern Bulgaria), Thrace (northern Greece) and as far as northwestern Turkey. This belt is dominated by Oligo-Miocene polymetallic Pb-Zn-Ag-Au deposits, but also contains porphyry Cu-Au deposits in the Southeastern portion of the belt.

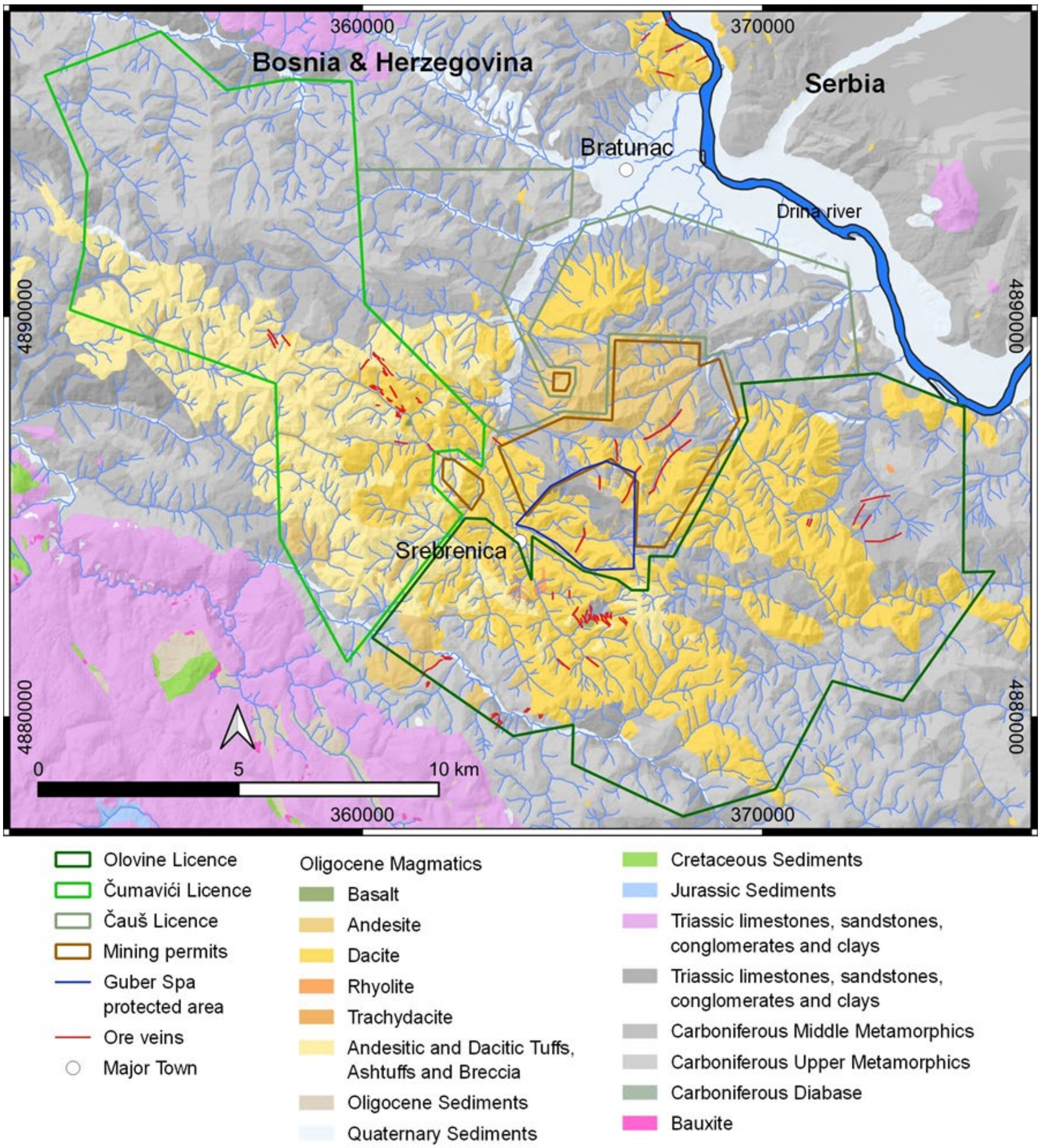


Figure 1.2

Terra Balcanica's exploration licenses and third-party mining permits. Geological map in background based on Kubat (1968) and the company's own mapping. Background digital elevation model has a 30 m resolution.

Mineralization in the Srebrenica district is hosted in the NW elongated Srebrenica volcanic complex and underlying Carboniferous schists, quartzites and phyllites (Fig. 1.2). The volcanic and hypabyssal rocks of the complex are described as calc-alkaline andesite to dacite with subordinate quartz-latite. Litho-geochemical data of least altered units obtained by Terra Balcanica suggest that the dominant compositions are high-K calc-alkaline andesite to dacite with subordinate rhyolitic compositions.

Two principal styles of mineralization are documented in the district. These are cassiterite-bearing Sn (-Cu, Ag, Pb, Zn) mineralization related to quartz-tourmaline-muscovite (greisen-style) alteration and polymetallic, Pb–Zn bearing hydrothermal veins with variable concentrations of Ag, Sn, Au and Sb, as well as potentially elevated contents of critical elements such as In and Ge. Historic and current mine production comes largely from this latter mineralization style.

The exploration focus thus far was on underground mineable vein-hosted mineralization. Over 100 mineralized polymetallic veins are known from the district, 30 of which have been mined to date. Production since WW II at the Gross mine came from 16 of these veins. Mineralized structures may extend over strike lengths of up to 3 km and vary in thickness from < 0.5 m to locally 10 m. The veins are arranged in a roughly radial pattern around the central Kvarac hill which is located in the Guber Spa protected area (Fig. 1.2). Four mineralization domains have been defined based on location and geometry. The Northeast Domain is the economically most significant and includes veins with a predominant northeastern orientation, and some are currently being exploited at the Mineco operated Gross Pb-Zn mine. The Central Domain includes the Olovine, Guber, Gorušica and Vukosavljevići veins with predominantly north and northwest striking vein trends which extend from Terra Balcanica's Olovine license to the north beyond the license boundary. This part of the district is likely close to a magmatic-hydrothermal center. The North Domain includes north striking veins at Vitlovac, Divljakinje, Čardaklije, Kvarac, all located on third party ground. The Northwest Domain includes northwest oriented veins at Čumavići, Ćumurnica, Joševa on Terra Balcanica's Čumavići license, as well as the historic Kazani mine (part of Mineco Ltd.'s mining permits), just west of the town of Srebrenica.

Overall, the Srebrenica district has geological features consistent with peraluminous granite related magmatic-hydrothermal systems as known from the Erzgebirge or the eastern Andes. However, the dominant igneous rock compositions are andesitic to dacitic and the intrusions are magnetite bearing suggesting a less evolved and less reduced character than some eastern Andean examples.

1.4 Status of Exploration

Current exploration is at an early stage. At the time of writing 469 newly acquired stream sediment as well as 174 rock chip and 1970 soil geochemical analyses were available for review. Stream sediment data are consistent with the overall zonation of the district with proximal portions of a magmatic-hydrothermal system, characterized by high Cu-Sn-Te-Bi, together with high Pb-Ag-Au located on the Olovine license, whereas Čumavići having a more distal element association (Zn-Mn-Tl and As-Sb). Historic stream sediment and soil data from the 1970s show, for a limited element suite, concentration ranges and distribution patterns similar to those for the samples collected recently. However, Cu values were historically reported at about one order of magnitude higher than the recent surveys undertaken by Terra Balcanica. The latter are considered more reliable.

Soil samples collected during 2021 confirm the district-wide zonation and allow localization of anomalies and in some areas identification of mineralized trends.

Geophysical data (airborne magnetics and widely spaced ground-based gravity measurements) were collected in the late 1970s. Several areas characterized by relatively high magnetic response and low density have been identified and suggest possible presence of intrusions at depth that may be associated with hydrothermal activity. The historic aeromagnetic data were flown by fixed-wing aircraft which, due to the topography, is not considered ideal. A new helicopter-borne magnetic and electromagnetic (VTEM) survey was carried out in May 2021 and provides a high resolution and high-quality dataset as a basis for improved geologic interpretation and more accurate exploration targeting.

Historic drilling includes 45 holes on the Čumavići license and 8 holes on the Olovine license, but collar locations are commonly not known with great precision and drill core is not preserved. Historic drillholes, as far as documented, have an average length of ca. 150 m and generally targeted vein-hosted mineralization.

1.5: Mineral Resource and Mineral Reserve Estimates

There are no mineral resource or reserve estimates on the project.

1.6: Conclusions

The Srebrenica district has a long history of mining but has had limited systematic exploration based on current understanding of mineral systems and ore deposit models. Thus, the combination of demonstrated historic productivity of the district with limited degree of modern-day exploration opens a unique opportunity for exploration and potential discovery.

The veins in the Srebrenica district are roughly radially distributed around the central Kvarac hill, characterized by quartz-tourmaline-sericite greisen-style alteration and silicification. This type of alteration is characteristic for proximal alteration around peraluminous granitic-intrusion related Sn (-Pb, Zn, Ag, Cu, Au) systems whereas Pb-Zn-Ag veins associated with argillic to propylitic alteration are typical for the more distal portions. This general zonation is also supported by recently collected stream sediment data. The overall dimension of this mineral system encompassing proximal and distal alteration and mineralization features amounts to 10 km or more in the NW-SE direction which is similar in size to well-known systems in the Central Andes of South America. However, it is currently unknown whether the mineral system contains any economically exploitable mineralization.

The geophysical data are consistent with presence of multiple hypabyssal intrusions more extensive intrusive bodies at depth than would be evident from the currently mapped vein and alteration distribution. This opens the possibility for the presence of additional mineralized centers.

Published mineralogical studies in the district, particularly at Čumavići, documented a large variety of sulfide and sulfosalt minerals. At this stage, no data on potential metal recoveries and metallurgical performance are available but the complex mineral assemblages may provide challenges for mineral processing. On the flip side, there is some indication that critical elements such as In, Ga, or Ge may be enriched in some mineralized zones. This has been confirmed by recent rock-chip sampling with up to 31 and 34 ppm In at Seoce and Brezani, respectively.

As is in the nature of early-stage exploration there is no guarantee that exploration will lead to definition of economic mineralization and significant risk remains, especially when exploring for styles of mineralization that has previously not been the focus of exploitation.

Historic and current mining in the region is focused on vein-hosted mineralization exploited by underground methods. In addition to vein hosted mineralization future exploration may also consider lower-grade, but higher tonnage Cu or Zn bearing mineralization as viable targets. However, it should be borne in mind that open pit exploitable, bulk tonnage mineralization and its economic viability remains to be proven in the district.

1.7 Recommendations

The Srebrenica district has a long history of small-scale mining. However, much of that history is poorly documented or information is not available in electronic or geospatial format. Moreover, the last serious exploration effort took place in the 1980s. Thus, the Srebrenica district will benefit from a systematic approach following state-of-the-art techniques and protocols. A series of recommendations are provided below.

Exploration in the district appears to have been focused on individual veins or mineralized zones testing mostly shallow mineralization. However, since there is indication that the district hosts one or several potentially large-scale mineral systems, exploration should focus on identifying large scale zonation from areas proximal to distal to magmatic-hydrothermal centers and on identification of larger mineralized zones potentially present deeper than historically drilled. Both, bulk-tonnage stockwork or disseminated styles as well as high-grade vein-style mineralization are viable targets to explore for.

A crucial element of future exploration is the new airborne geophysical survey. This allows identification of magnetic intrusive bodies, and magnetite destructive alteration zones. It also provided the basis for a district-scale structural model which will help with targeting, follow-up geochemical sampling, and eventually drilling or trenching. The electromagnetic data will lead to identification of conductive and resistive zones. Conductive zones may be related to sulfide mineralization whereas resistive zones indicate presence of intrusions around which disseminated mineralization may be present.

The district scale stream sediment and soil geochemical survey provides an excellent basis for identifying prospective drainages within which to follow up with more targeted soil geochemistry. Additional stream sediment sampling is required only in the western part of the Čauš license. Soil results, in combination with geophysical data provide a basis for identifying potential drill targets. However, historic mine workings and potential contamination should be taken into consideration when interpreting the soil geochemistry prior to drill targeting.

Exploration should be focused on areas where likely mineralization styles support a realistic mining scenario. This includes focusing on areas of sufficient vein thickness to allow underground mining or, where disseminated or stockwork mineralization allows for bulk tonnage exploitation. The latter may be present at depth in the Olivine and Brezani area.

The Srebrenica district shares some similarities with In and Ga-rich Sn-Zn polymetallic systems in the Erzgebirge and elsewhere. Exploration efforts should take mineral potential for critical elements such as In or Ga into account as these are potential credit elements although Pb, Zn, Cu, Ag and Au remain the principal exploration focus.

Continued engagement of local experts in managing the risk of unexploded ordnance and landmines is strongly encouraged as it is a critical element for safely advancing exploration in the district. Likewise, maintaining a positive community engagement will be important for the success of the project.

The geochemical, geophysical, and structural analyses resulted in definition of three general zones of high prospecitvity: 1) Olovine locality, more specifically the Kiseli Creek and Cicevac Creek areas, 2) the general Brezani village area, and 3) the Čumavići village zone. Seven drill pad locations were identified as most prospective with drilling done in a staged manner each step being conditional of the success of the previous one. A 1,200 m, first-pass drill program has been recommended to start at the Olovine locality in Q1 of 2022.

The drill core will be oriented, split, structurally and mineralogically logged after which composite 1-m homogenized samples derived from ½ half of the split core will be sent to the ALS laboratory facility in Bor, Serbia for crushing and grinding in advance of 4-acid (near total) digest geochemical analysis by ICP-MS. Gold will be determined by fire assay on a 30 g sample split.

In addition to the 1st pass drilling activities at the Viogor-Zanik project, the Company will undertake a program of exploration trenching in the locality of Brezani within the mineral exploration licence of Olovine. Ca. 290 m of 2-m deep trenches will be excavated, mapped, logged and samples in 2 m-long composite intervals to better understand the anomalous distribution of gold, silver, lead, zinc, arsenic and copper detected in the soil sampling activities from 2021.

The principal milestones to execute the work program for the Viogor-Zanik Project are detailed in Table 1.1. In Q2, 2022 Completion of 1,200-meter, Phase I drill program at the Viogor-Zanik Project including the Olovine and Čumavići target areas with all associated costs is included. In addition, for Q3, 2022 Completion of 290 meters of trenching at the Viogor-Zanik Project is included.

Item	Total for 2022	Comments
Administration cost	$45,500.00	office expenses, facility rentals, bank, taxes
Personnel cost	$114,613.00	salaries
Travel	$14,000.00	
Outside technical services	$14,750.00	legal, accounting
Field logistics	$76,800.00	Vehicle and facility rentals, field camp, fuel, food, consumables
Analytical services	$91,358.74	1080 DDH assays ($66/sample); 290 rock chip from channeling
Subject matter expert services	$17,940.00	
Drilling/Trenching	$205,620.00	1,200 m ($134/m); 50 m additional trenching
Land Acquisition	$2,500.00	private land access
Total exploration cost	**$583,082.74**	
Contingency (3%)	$17,492.45	during the 3 months of drilling
Total projected costs	**$600,574.19**	

Table 1.1

Projected exploration cost for 2022.

2: Introduction

This Report has been produced at the request of the management of Terra Balcanica Resources Corp. ("Terra Balcanica" or the "Company").

Thomas Bissig is **independent** of Terra Balcanica, TB Belgrade, and its Bosnian subsidiary Drina Resources.

The report is based on field observations, a desktop study taking into consideration publicly accessible geological and property information as cited throughout the report as well as data provided by Terra Balcanica. The author has visited the Viogor-Zanik Project between May 5th and May 9th and TB's Belgrade office on May 10th, 2021. Field observations were made on all three of TB's licenses and found to be consistent with previous publications and data. These are detailed and cited below where applicable.

All maps and coordinates in this report are in World Geodetic System 84 (WGS84) datum and Universal Transverse Mercator Zone 34 N (UTM34N) projection.

Due to the early stage of exploration activities and lack of recent drilling the report does not include a resource estimate. There are no historical resource estimates on the project.

3: Reliance on Other Experts

For the purpose of this report, the author has relied on ownership information provided by Terra Balcanica Resources Inc. as detailed in Section 4. Thomas Bissig has been provided with original license grant documents and a legal opinion on the property and its ownership (Golub, 2021), but has not independently researched property title or mineral rights for the Viogor-Zanik Project and expresses no legal opinion as to the ownership status of the property.

4: Property Description and Location

Terra Balcanica's Viogor-Zanik Project is located in Eastern Bosnia & Herzegovina, within its entity of Republic of Srpska, immediately to the west from Drina River which constitutes the border with the Republic of Serbia (Fig. 4.1). The project consists of three exploration licenses according to the Mining Act of the Republic of Srpska surrounding the town of Srebrenica (Lat. 44.1° N; Long. 19.3° E) and area of the active Gross mine (formerly known as Sase) which is located on third party property and operated by the Mineco group (Fig. 4.1; Table 4.1). The three licenses include Čauš, to the north of Gross mine; Čumavići to the northwest of Srebrenica; and Olovine to the south of Gross mine (Fig 4.2). Olovine and Čumavići were granted to Terra Balcanica on February 4th, 2019, and August 5th, 2019, respectively, whereas Čauš was granted on March 26th, 2021. The license fees were paid as required within 30 days of the license grant date. The fees were 7758 Bosnian Marks (BAM) for Čumavići (~ 8630$ CDN), 8,941 BAM for Olovine (~6775$ CDN) and 11,368 BAM for Čauš (~5880$ CDN). With payment of these fees, the licenses are in good standing for three years starting on the grant date (Table 4.1) and provide the surface and subsurface exploration rights. Olovine encompasses 90.079 km^2 Čumavići 77.424 and the Čauš license 49.316 km^2, together totaling 216.819 km^2. The license boundaries have a buffer of 250 m separating them from third party claims and mining licenses (Mineco Ltd.'s properties) as well as the Guber Spa protected area. The land within the exploration licenses is either state or privately owned and can readily be accessed via public roads. Any surface work and access are subject to negotiation with the owners or the state. Terra Balcanica does currently not have mining permits.

Figure 4.1:

Location and access to the Srebrenica district from Sarajevo, Bosnia & Herzegovina's capital and Belgrade, Serbia. International borders shown as black lines. Inset shows regional context of area shown. Coordinate system used throughout the report is World Geodetic System 84 (WGS84) datum Universal Transverse Mercator zone 34 N (UTM 34N) projection. Background map is from OpenStreetMaps which includes OpenDemEurope using Copernicus data and information, funded by the European Union - EU-DEM layers.

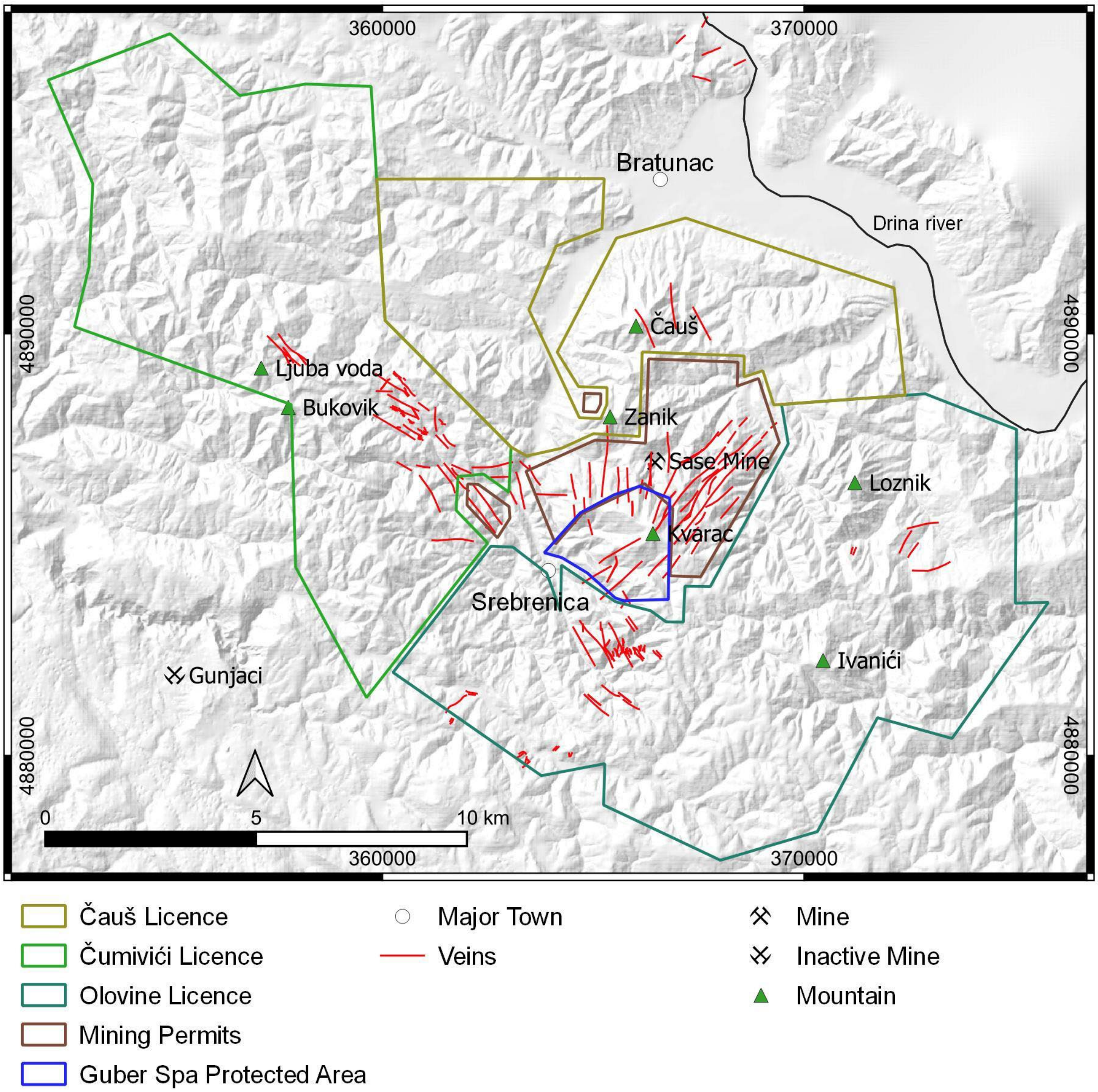


Figure 4.2:

Exploration licenses held by Terra Balcanica. Key landmarks and towns as well as polymetallic veins are shown. Note that locations and extent of veins shown is approximate since reliable spatial information is not available for all and additional mineralized structures may be present. See text and Table 4.1 for more information on the properties. The mining permits shown are held by a third party (Mineco Ltd.). Background is a digital elevation model with 30 m resolution.

Unit	Area (km^2)	Tenement	Date issued	Expiry date	Permit number
Čauš	49.316	Čauš	29/3/2021	29/3/2025	05.04/310-166-3/21
Olovine	90.079	Olovine	4/2/2019	4/2/2022	05.07/310-319-1/19
Čumavići	77.424	Čumavići	5/8/2019	5/8/2022	05.07/310-539-1/19

Čauš			Čumavići			Olovine		
Point_ID	X	Y	Point_ID	X	Y	Point_ID	X	Y
1	359859	4893661	1	359617	4881373	1	360249	4881968
2	365255	4893671	2	357937	4884465	2	362569	4884960
3	365204	4892488	3	357833	4888318	3	363088	4884940
4	364117	4892074	4	352695	4890162	4	363888	4884327
5	363469	4890568	5	353038	4891584	5	364221	4883412
6	364666	4888006	6	353127	4893552	6	364238	4884513
7	365174	4887986	7	352068	4896010	7	365523	4883644
8	365318	4888318	8	354958	4897109	8	366359	4883430
9	365323	4888721	9	356612	4895641	9	366726	4883165
10	364647	4888741	10	358177	4895915	10	367131	4883161
11	364140	4889560	11	359728	4895859	11	367169	4884012
12	365543	4892263	12	360058	4890313	12	367769	4884003
13	367186	4892740	13	363046	4887309	13	369620	4887387
14	372131	4891081	14	362996	4886239	14	369461	4888320
15	372392	4888538	15	362394	4886669	15	372868	4888572
16	369275	4888309	16	361788	4886611	16	375034	4887728
17	369018	4889119	17	361743	4885812	17	375004	4883609
18	368566	4888974	18	362494	4885036	18	375789	4883632
19	368577	4889469				19	373502	4880404
20	366157	4889565				20	371735	4880895
21	366092	4887562				21	370312	4878196
22	365003	4887628				22	368010	4877517
23	364242	4887281				23	365240	4878825
24	363415	4887099				24	365269	4879806
25	363046	4887309				25	363766	4879521
26	360058	4890313						

Table 4.1:

Terra Balcanica Exploration licenses and polygon points.

4.1: Royalties and other agreements

To the extent known, there are no royalties or other agreements, except for a $900,000 USD buy-back clause for the remaining 10% of the project which Tera Balkanika d.o.o. Belgrade, the 100% owned subsidiary of Terra Balcanica Resources Corp., can exercise until September, 2024 in order to gain 100% ownership of the project from two minority shareholder of Drina Resources.

4.2: Permitting

Under Bosnia-Herzegovinian law, the right to drill is included in the rights for mineral licenses issued to Drina Resources. However, the land access needs to be negotiated with the landowner. If the land belongs to the State, i.e. the Forestry Corporation of Republic of Sprske (Šume Republike Srpske), then there is a standard sub-agreement signed with the Government specifying the access route taken and what the construction of access as well as drill platforms entails. The access pricing is determined based on the type and categorization of land affected. If the land is privately held then access and drilling pads are negotiated with each of the landowners through separate contracts by offering same terms to all stakeholders regarding fallen trees, road cutting and sump construction.

4.3 Environmental liabilities

To the extent known, there are no environmental liabilities. However, the project area shows evidence for acid rock drainage (Fig. 4.3) which occurs naturally (including at the Guber mineral spring) but may also be facilitated by historic mine adits. The mineral waters from Guber were described as iron-rich with up to 2100 mg/l Fe and 17 mg/l As (Miošić and Samardžić, 2016). Although not legally obligated to do so, Terra Balcanica has requested an initial environmental baseline study in March 2021 from the Public Scientific Research Institution Institute for Protection and Ecology of the Republic of Srpska, Banja Luka. A total of 4 sites were monitored for air quality (for 24 hours each), 30 sites for soil quality and 10 streams for water quality. Each stream was sampled both upstream and downstream from potential work areas. Both organic and inorganic compounds and metals were be monitored. The testing followed the guidelines governed by the laws of the Republic of Srpska, Bosnia and Herzegovina. These are specifically the Environmental Protection Act, The Air Protection Act and the Waters Act as published in the Official Gazette of the Republic of Srpska. The environmental baseline study is meant to establish the levels of metals and other potential pollutants prior to any ground disturbance from Terra Balcanica's exploration activities. It is possible that some contaminants are present in the form of medieval slag deposits (Olovčić et al. 2017) or naturally from the weathering of rocks. The environmental baseline study was not reviewed or independently verified by the author of this report.

4.4. Other risks

The other risk factor is the occurrence of landmines throughout the entire country of Bosnia and Herzegovina due to the conflict in the 1990's. This has been detailed in Section 5 of this Report. The Company has done extensive work on the risk of landmines, and it has been deemed through the risk assessment exercise completed by the Company that there is limited to no risk in the area of active exploration.

There are no other significant risks or factors that affect access, title or the right and ability to perform work on the property.

Figure 4.3:

Naturally occurring iron-rich spring water flowing into the Crveni stream, on the Olovine exploration licence. Coord.365431/4882315. Photograph taken in May 2021.

5: Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Viogor-Zanik Project has excellent road access and can count on all necessary infrastructure for exploration and development at or near the work areas.

The town of Srebrenica is located in the center of the exploration area described in this report (Fig. 4.2). The town itself has some 3000 inhabitants although the wider municipality of Srebrenica which includes smaller surrounding villages has approximately 15,000 inhabitants. Accommodation and basic services are available locally. Besides modest agriculture, one of the most important sources of employment for the local population is the nearby Gross Pb-Zn mine.

The area is approximately 133 km east-northeast of Sarajevo and 181 km southwest of Belgrade (Serbia) by road. Access is via paved roads (Routes E761, M19 and R454 and R453) from Bosnia & Herzegovina's capital Sarajevo, through the town of Bratunac in about 2.5 hours (Fig. 4.1). Alternatively, Srebrenica can be reached from the city of Tuzla some 104 km to the NW where the closest international airport is located. Climatic conditions are temperate with summertime mean maxima and minima around 28 and 17° C and January maxima and minima of +6 and -1° C, respectively (Fig. 5.1). The mean annual precipitation is about 770 mm with precipitation distributed throughout the year without a pronounced wet and dry season although the spring months (April to June) are typically the wettest (www. meteoblue.com). The project can be accessed year-round, but access to the field sites may be inhibited during the winter months (December to March) due to snow cover.

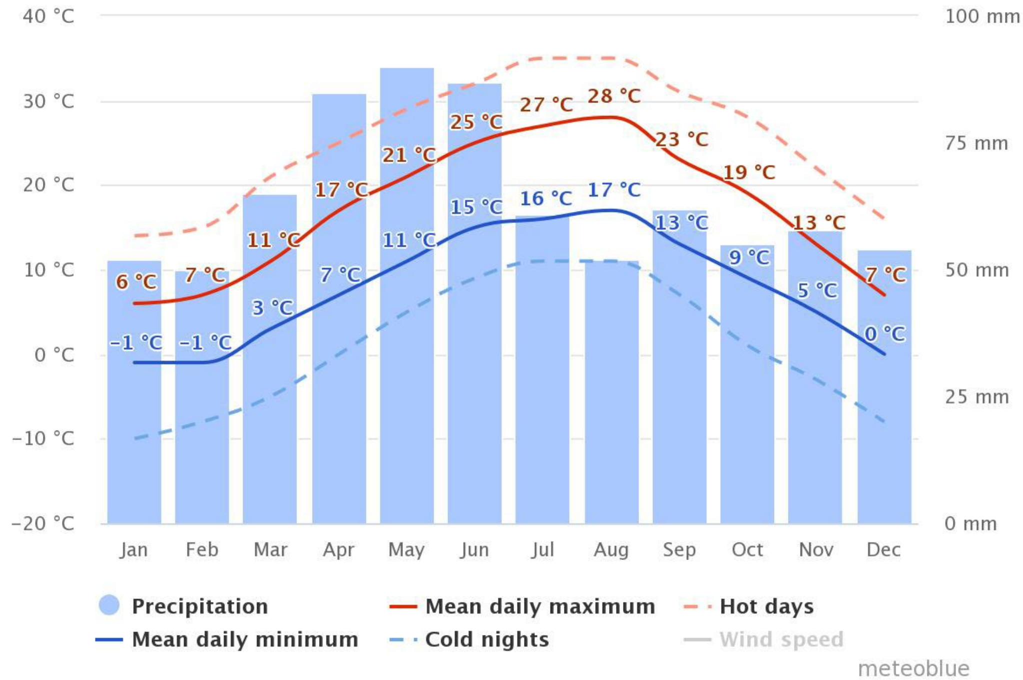


Figure 5.1:

Climate chart for the town of Srebrenica. Taken from meteoblue.com

Figure 5.2:

Panoramic view from Kvarac hill towards the west and northwest, taken in May 2021. It illustrates the typical physiography and vegetation of the Viogor-Zanik project area. The town of Srebrenica is located in the valley in the middle-ground and Čumavići is in the hills on the right side of the photograph.

The area is hilly and elevation ranges from ~200 m a.s.l. in the East at the Drina River terrace to 1013 m a.s.l. at the prominent Kvarac peak, some 2.5 km east of Srebrenica (Figs. 4.2; 5.2). Additional topographically distinct peaks include Zanik (830 m), Čauš (769 m), Loznik (822 m), Ivanići (991 m), Ljuba Voda (887 m) and Bukovik (917 m), the latter of which interpreted as a volcanic neck.

Outcrop is generally confined to road cuts as well as exposures along creeks and rivers. The area is not covered by significant transported sedimentary material away from alluvial plains, but it is extensively vegetated with deciduous forests dominated by beech and oak, particularly in the higher and steeper terrain. Pasture for cattle and sheep as well as small-scale vegetable and fruit plantations are present where topography permits.

Electrical power and water are readily available on the Viogor Zanik project. Due to the early stage of the exploration project, it is unknown where potential exploitable resources are located and no comment on potential locations of tailings, heap-leach or water disposal sites can be made at this time. However, room for industrial infrastructure exists in the Ćićevačka Rijeka valley between Srebrenica and Bratunac.

As part of the 3-year armed conflict, unexploded ordnance and landmines are widely distributed in Bosnia and Herzegovina. At Srebrenica and surroundings, some areas do have landmines which have an impact on access to some parts of the exploration licenses. These areas of limited access are well mapped (Fig. 5.3). Terra Balcanica has contracted the services of Sijuks d.o.o. from Belgrade, Serbia for a risk assessment and control of mine and explosive ordnances (MEO; Sijuks, 2020). A field assessment of the existing MEO maps was carried out in early September 2020 and in November 2020. Fieldwork is being carried out after consultation with Sijuks experts and sampling points which are potentially located in mine contaminated areas are assessed by a de-mining expert prior to accessing and sampling and if necessary, samples are omitted. The Company has limited activities in areas with landmine risk as per the risk assessment completed and has focused exploration efforts on areas with no landmine risk. Table 5.1 details the access restrictions and procedures as laid out by Sijuks. Landmine contamination did not prevent obtaining a good coverage of stream sediment data but will exclude some areas from systematic follow-up exploration work before the mines can be cleared.

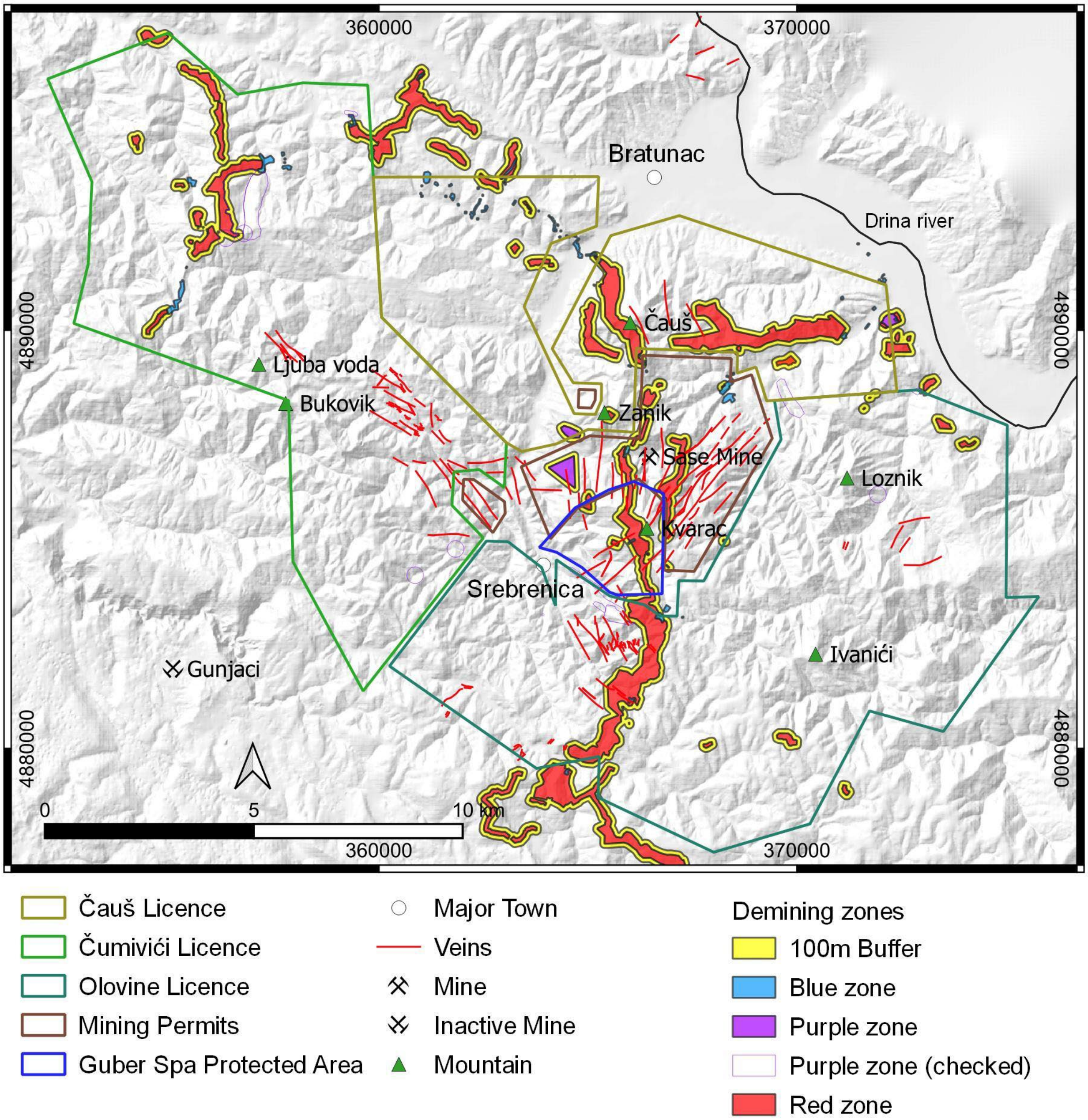


Figure 5.3
Distribution of areas potentially contaminated with landmines and unexploded ordnance. Red zones: minefields; yellow zones: safety buffer around minefields; blue zones: de-mined areas; purple zones: additional potentially dangerous areas identified by Sijuks (2020). See table 5.1 for procedures around the landmine contaminated zones.

	Description	Instruction for safety movement
Red zones	Officially highly dangerous zones. Shape of this zones are tooked from the official BH MAC map.	Moving through these zones is forbidden and against Bosnian law. To move through these zones requires the approval of the authorities.
Yellow zones	Buffer zone, 100 m wide, determined by team of experts and is located around red and purple zones.	**Moving through yellow zones is possible only in presence of team for demining.** If the expert team past through the yellow zone and confirmed that this zone is safe, that that part of yellow zone becomes green zone.
Purple zones	Zones of temporarily undefined danger, which were subsequently learned from locals or by finding potentially dangerous objects in the field (warning table, wire, trench).Their spatial circumference (shape and size) should be defined as well as possible, and if that is not possible, take a coordinate, and draw a purple circle with a radius of 200 m and a yellow buffer around it. The purple zones passed by demining team become safe zones.	**Movement is possible only in the presence of members of the demining team.** To move through the liberated purple zones, the presence of members of the demining team is not necessary, but only additional caution and constant communication.
Green zones	Green zones are safe zones for movement and work in the field according to the official information of BH MAC. These zones are not cartographically marked with color.	Unlimited movement is possible.
Green zones*	Green zones in which stream springs are in red or yellow zones or whose basins spatially "lean" on red zones. These are zones of temporarily presumed danger, and on the map they are marked as transparent green polygons which include the mentioned watercourses in a radius of 75 m from the stream bed.	**Movement through the transparent green zone is done in the presence of demining team members.** If the team of Sijuks doo passed through these streams, those zones are "released" and become safe. The presence of members of demining team is not required to move through the liberated transparent green zones.
Blue zones	Blue zones are demined zones and as such safe for movement according to BH MAC information. Tera Balkanika doo will consider these zones as zones of temporarily assumed danger.	**Movement through the blue zones will be done in the presence of members of the demining team.** After the initial visit, moving through the blue zones will not require the presence of a demining team, but only caution and constant communication.

Table 5.1:

Restrictions and procedures for managing access to potentially landmine contaminated zones. Taken from Sijuks (2020). The text in green refers to the initial field visit of Sijuks personnel.

6: Mining History

6.1 Ancient Mining History

The Srebrenica district, in some publications, is referred to as “Srebrenica Orefield”. Although there are no historical resource estimates on the Viogor-Zanik Project, the district has a long mining history dating back to Roman and Medieval times. Srebrenica in Roman times was known as Argentaria (Silver mines) whereas Srebrenica means the same in ancient Slavic (cf. modern srebro = silver). Olovo means lead in Bosnian (cf. Olovine). The historic name of the Sase mine (now Gross mine) reflects the Medieval exploitation by the Saxons (Sase). The current extent of the Gross mine is not part of the Viogor-Zanik project. The corresponding mining and exploration licenses are surrounded by Terra Balcanica’s licenses, but old mine workings are evident across the entire district. After the 6th century, mining declined due to Slavic conquests but resumed in the 13th century and continued until at least the middle of the 17th century (Olovčić et al. 2017). Evidence for the long mining history is present in the form of slag deposits and numerous excavation pits and short adits throughout the district (Figs. 6.1, 6.2).

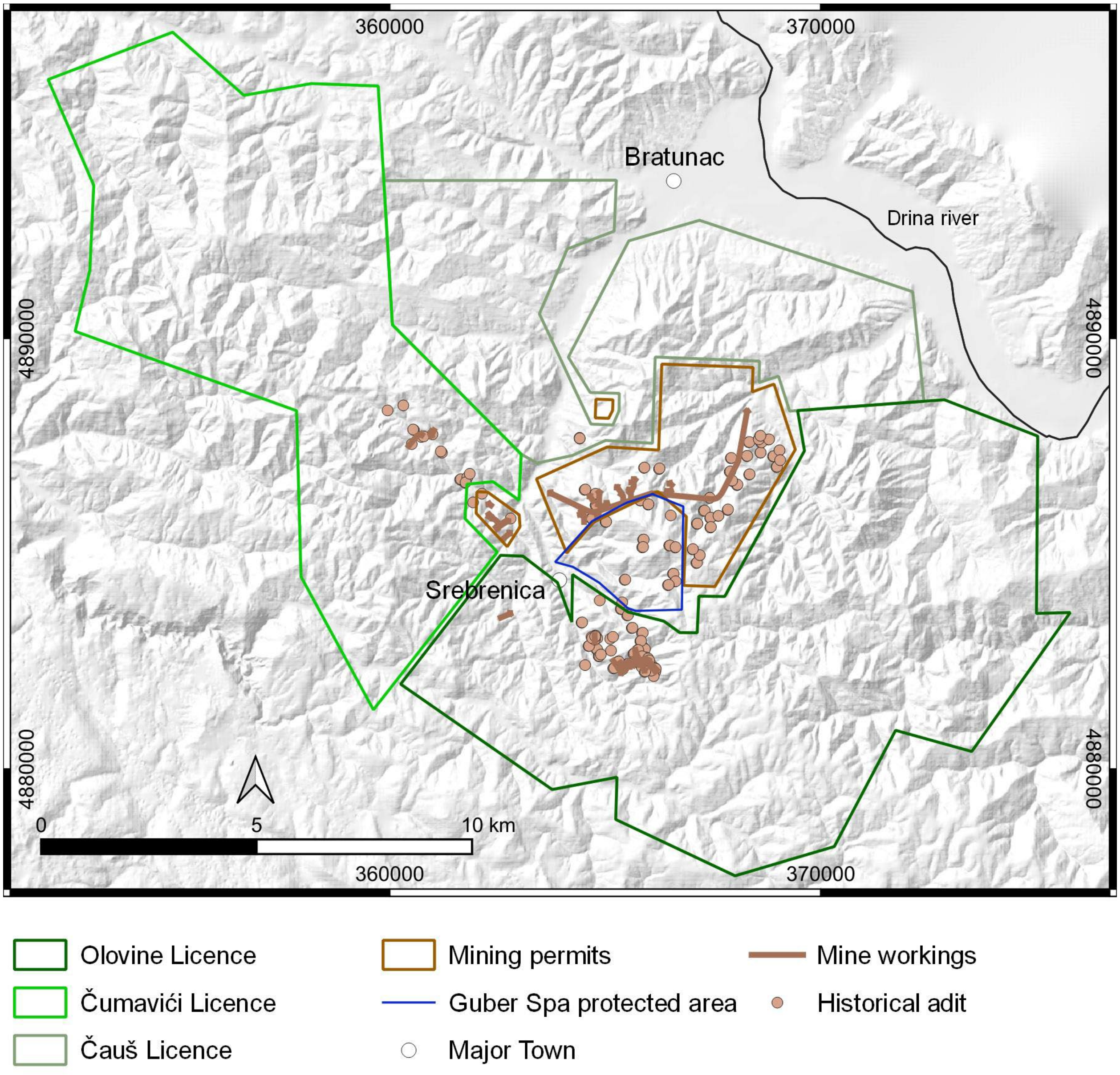


Figure 6.1:

Map showing locations of known historic mine workings. Mining in the area took place since medieval times, but the ages of individual workings are not known in detail.

Modern geological and exploration work started with an Austrian geologist E. Tietze who visited the region in 1880 and described sulfide hosting volcanic rocks that were historically mined. Mojsilović, Tietze and Bittner (1880) authored the first district-scale geological map of eastern Bosnia, including Srebrenica. The first modern description of the mineralization in the district is documented in a monograph dated in 1901, describing lead and silver mining in the Srebrenica district (Rücker, 1901).

Figure 6.2:

Evidence for historic mining activity in the Viogor Zanik project area. The exact age of the workings is not known. A) partially collapsed adit near in the Olovine area, ~ 2 km southeast of Srebrenica at Coord.: 364,757/4,883,105 near Kisjeli Potok ("Sour Stream" in Bosnian). B) Partially collapsed entrance to a mine adit at Ćumurnica on the Čumavići license. Coord.: 361,201/4,887,369. The fault (dashed line) exposed above the adit strikes northwest and dips steeply to the southwest. A rock-chip sample taken above the adit yielded 0.7% Pb and 3.91% Zn but primary sulfides are oxidized and were not observed. Photographs taken in May 2021.

6.2 Post Second World War History

The Srebrenica region achieved its full industrial potential in the former Yugoslavia after the second world war (WWII). Geological mapping and studies over the entire district, which includes the Viogor-Zanik project and adjacent properties, were conducted by the Geological Institute of the Socialist Republic of Bosnia and Herzegovina. Modern mining activity initiated in 1964 at the Sase mine (now Gross mine) and exploitation continued until the outbreak of the civil war in 1992. The Gross mine is located on third party ground in the center of the district and of Terra Balcanica's licenses but is itself not part of the Viogor Zanik project (Fig. 4.1). Limited mining activity recommenced at Gross in 1998 and full capacity exploitation recommenced in 2006 after the Mineco group purchased the mine. Production comes from a total of 16 veins although the bulk (>50%) of the ore is hosted in a single vein (No. 2 vein; Vukosavljević, 2017). Reliable data and original documents on historic and current production are difficult to locate and recent government filings are not public or do not include resource information accessible to the public (Vukosavljević, 2017). Geoinstitut Beograd (2000) estimated that 5.9 Mt at 2.8 wt.% Pb, 4.6 wt.% Zn and

45 ppm Ag have been processed at the Sase mine prior to 1986 whereas at that time 12 Mt of ore at 3.6 wt.% of Pb, 5.4 wt.% Zn and 65 g/t of silver were still contained in the measured, indicated and inferred categories. Mitrović (2011), estimated that ca. 8 Mt of ore were processed between 1967 and 2005, but no grade information was provided. Significant mineralization remains in the tailings (estimated 5.2 Mt with 0.3% Pb, 1.3 wt.% Zn and 7 ppm Ag: Geoinstitut Beograd, 2000). No current resource estimates are in the public domain for the Gross mine and the information above is only provided for context as it has not been verified.

For the exploration licenses held by Terra Balcanica, there are no historical resource estimates. Drilling at Viogor-Zanik was generally directed towards the northeast at dips of 46 to 60 degrees, although one hole (GČ 4/81) was drilled vertically. Vein intercepts are typically narrow with vein intercepts typically less than 2 m wide, to as low as 0.1 m. Drillholes were not surveyed downhole and the reported intercept widths may not be true widths. See Table 6.1 for details. Drill core for these holes is not preserved and was not examined but historic drill logs are available in Serbian language.

Since the 1980's, when the area was being explored by the Geoinstitut Beograd, there has been no formal exploration and no exploration license held on Terra Balcanica's current licenses.

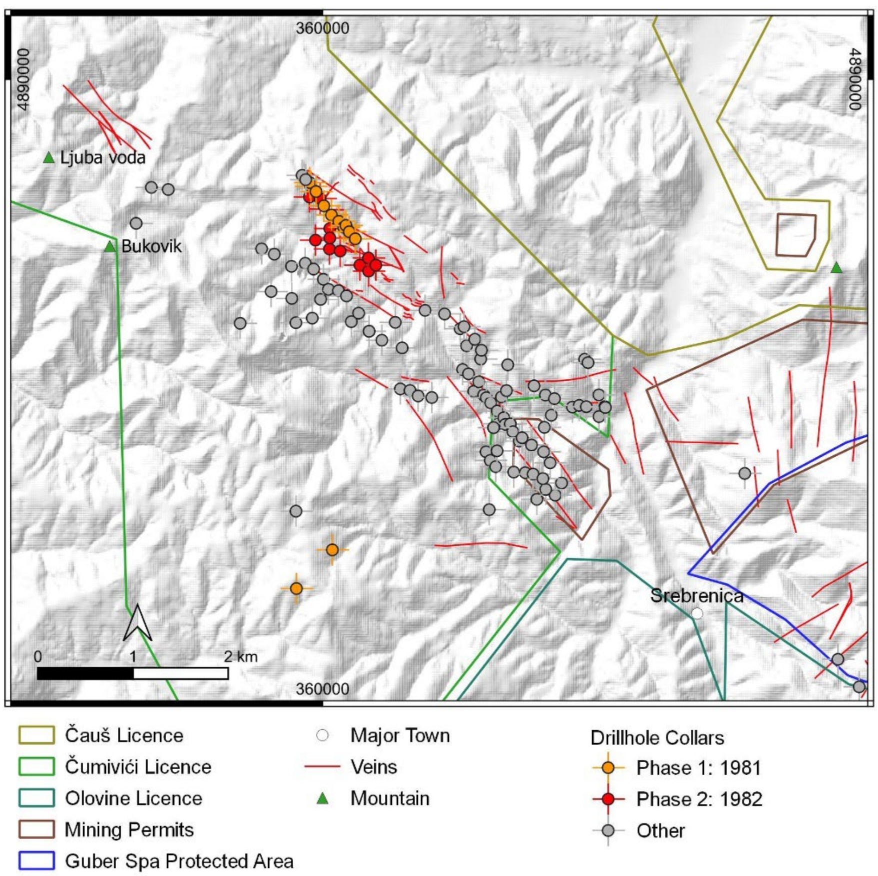


Figure 6.3:

Historic drilling and veins at Čumavići and adjacent areas. Drilling was mostly carried out between 1976 and 1984.

Hole ID	From	To	Intercept (m)	Au (ppm)	Ag (ppm)	Pb (%)	Zn (%)	Sb (%)	As (%)
Čumavići									
GĆ 1/81	22.7	24.8	2.1	0.59	266	3.79	13.46	2.03	0.09
	25.7	26.3	0.6	0.71	96	1.70	8.64	0.45	0.07
GČ 4/81	55.2	55.7	0.5	2.62	74	0.43	0.68	2.65	1.05
	53.8	57.7	3.9	0.45	83	1.64	3.32	0.57	0.00
GČ 12/82	93.3	93.7	0.4	1.00	489	0.38	6.00	8.12	0.08
	108.1	110.1	2.0	0.87	107	2.52	3.04	1.01	0.22
GČ 13/82	116.5	116.7	0.2	1.35	180	10.83	8.87	2.70	0.42
	122.8	128.2	5.4	2.26	28	1.35	3.94	0.90	0.72
GČ 15/82	137	137.1	0.1	30.0	1170	3.32	8.80	0.95	0.11
	179.2	179.8	0.6	3.60	600	8.20	17.80	5.75	1.58
Joševa (SE continuation of Čumavići)									
GČBG 19/84	6	6.5	0.5	0.83	null	null	null	0.23	0.45
	18.5	21.5	3.0	0.63	null	null	null	0.00	0.15
GČS 23/85	131	131.9	0.9	0.48	9	0.40	2.99	0.07	0.20
	257.8	260.6	2.8	0.62	4	0.16	0.98	0.19	0.29
GČZ 21/84	126.6	127	0.4	1.70	4	0.10	0.84	0.67	2.30
	155	156.5	1.5	0.30	10	0.17	1.00	0.40	0.23
	213.4	216	2.6	1.19	11	0.47	1.32	0.28	0.17
Ćumurnica (SW parallel to main Čumavići vein)									
GČĆ 3/84	226.5	227.1	0.6	0.96	310	0.65	0.86	0.89	0.19
GČR 14/84	159.3	160.4	1.1	0.60	15	0.10	0.40	1.10	0.19
	160.7	160.85	0.2	0.41	51	0.15	0.34	0.15	0.08
	160.4	160.85	0.4	0.49	17	null	null	0.85	0.00
Kutlići (at license boundary near Kazani)									
GČK 35/85	76.2	77.2	1.0	0.86	170	10.74	21.54	0.00	0.80

Table 6.1:

Historic drill intercepts at Čumavići reported by Topalović (1983)

7: Geological Setting and Mineralization

7.1: Geological Setting

The Balkan peninsula forms part of the Alpine-Balkan-Carpathian-Dinaride orogen which hosts a wide variety of ore deposits formed during subduction and collisional orogenic processes from the Late Cretaceous to the Neogene (Neubauer, 2002; Heinrich and Neubauer, 2002: Fig 7.1). The geology in this region is characterized by a series of microcontinents separated by suture zones that collided from the Late Cretaceous to Neogene times. Correspondingly, the metallogeny of the region varies over time and along strike. The Srebrenica mineral district constitutes the Northwesternmost extent of the Serbomacedonian-Rhodope metallogenetic belt (Fig. 7.1) which extends from the Bosnian Dinarides to the Rhodopes (southern Bulgaria), Thrace (northern Greece) as far as northwestern Turkey. This belt is dominated by Oligo-Miocene polymetallic Pb-Zn-Ag-Au deposits (e.g., Trepča and Lece, Kosovo) but the southeastern extents also contain important porphyry Cu-Au (e.g., Skouries, Greece) and associated epithermal deposits (Neubauer, 2002; Heinrich and Neubauer, 2002).

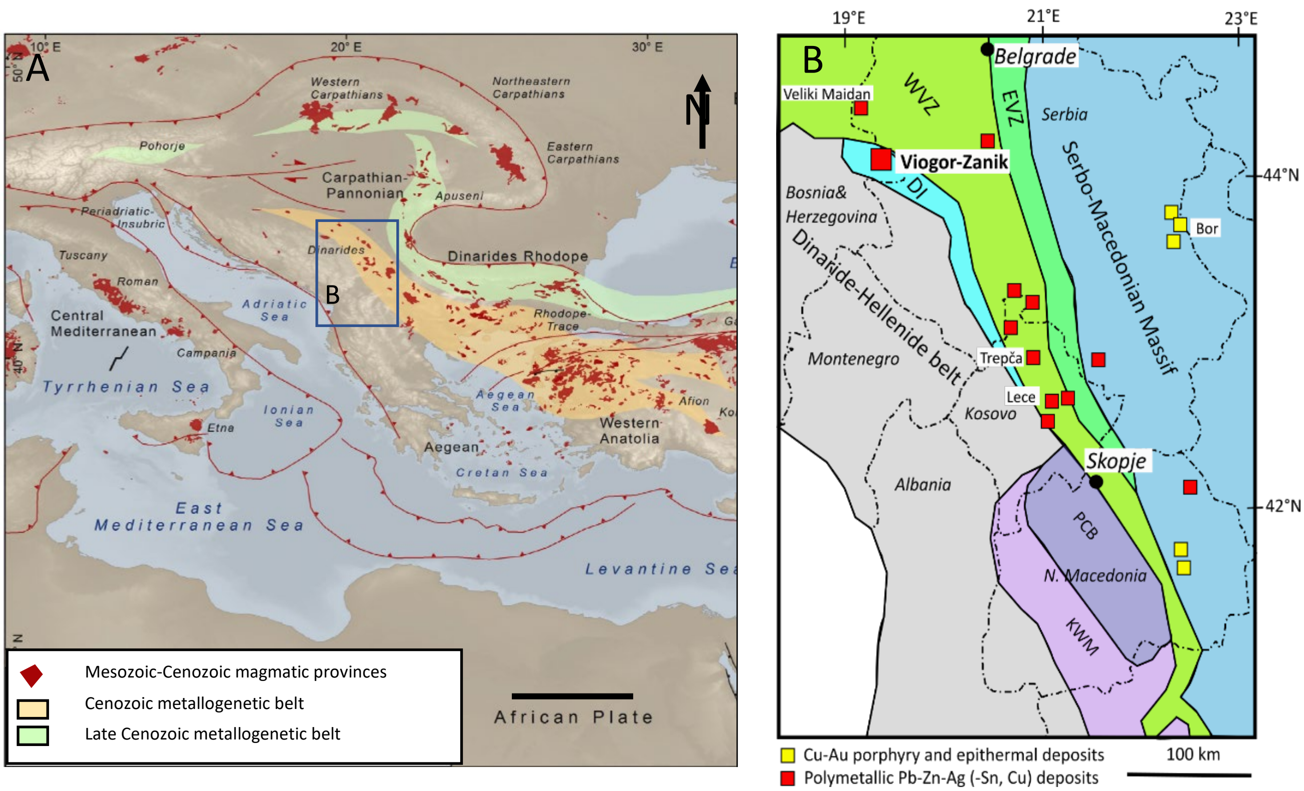


Figure 7.1:

Regional tectonic setting of Neogene polymetallic mineralization on the Balkan peninsula. A) Tectonic map and metallogenetic belts of the eastern Mediterranean region modified from Sánchez et al. (2016) and references therein. The Serbomacedonian-Rhodope metallogenetic belt is part of the Cenozoic metallogenetic belt shown. B) tectonic elements and mineral deposits of the Balkan peninsula. Selected deposits are labelled. Abbreviations: DI: Drina-Ivanjica Terrane; PCB: Pelagonian crystalline basement; KWM: Korab-Western Macedonian Terrane. Modified from Palinkaš et al. (2018). Geological elements from Dimitrijevic (2001) and Karamata (2006).

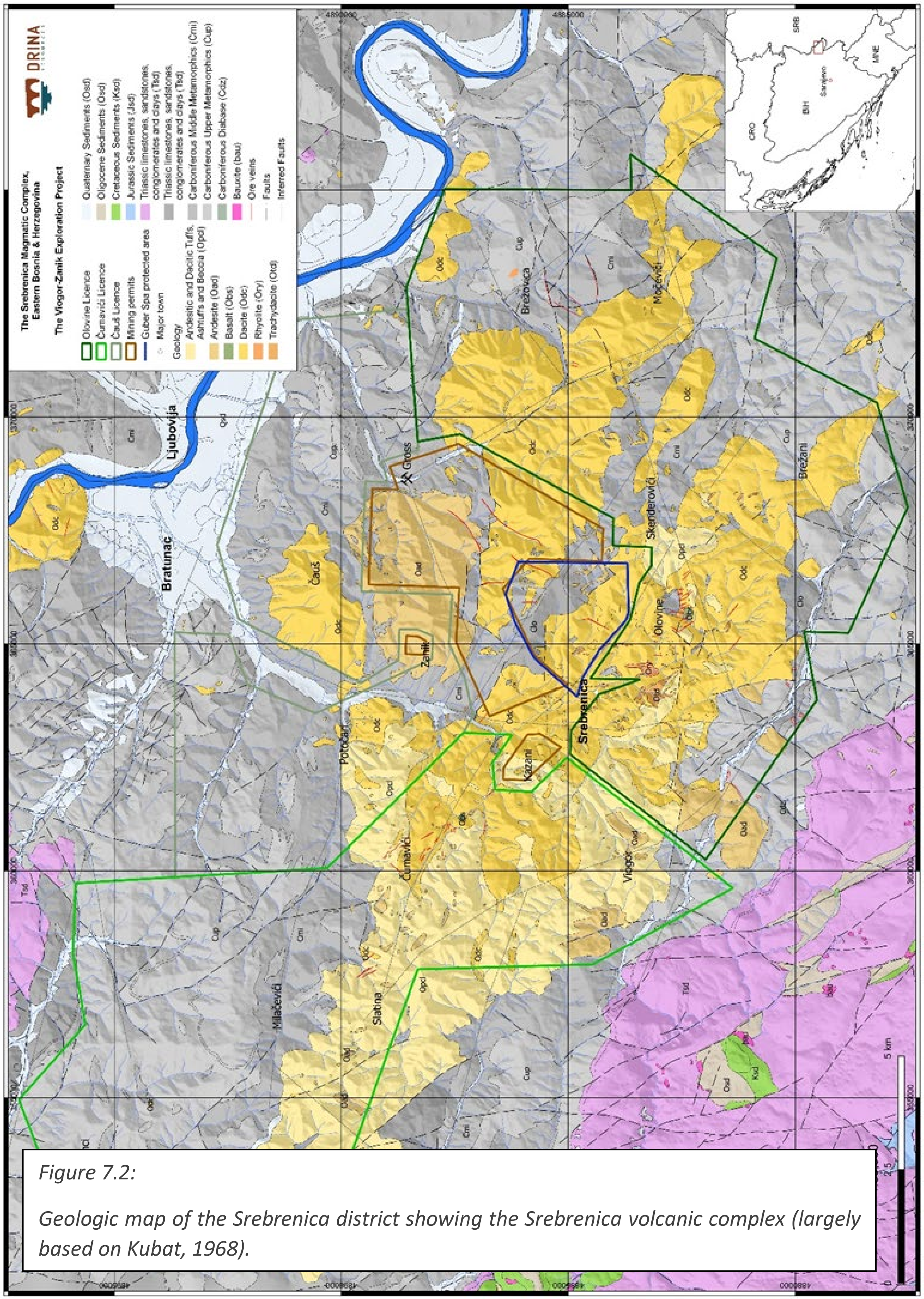


Figure 7.2:

Geologic map of the Srebrenica district showing the Srebrenica volcanic complex (largely based on Kubat, 1968).

The Srebrenica district is part of the Podrinje Metallogenic District of eastern Bosnia & Herzegovina. It is hosted in the NW elongated Srebrenica volcanic complex and underlying Carboniferous schists, quartzites and phyllites which form part of the Drina-Ivanjica terrane; a narrow sliver of continental crust accreted west of the Vardar ophiolitic suture zone and E of the Dinaride ophiolitic belt (Figs. 7.1; Karamata 2006, Porkoláb, 2019). The Drina-Ivanjica terrane was thrust westward onto the Dinaride ophiolitic belt in the Late Cretaceous to early Paleocene (Porkoláb, 2019).

Four samples of the Srebrenica volcanic complex have been dated by K-Ar on whole-rock between 28.52 ± 1.11 Ma and 30.4 ± 1.31 Ma (Pamić et al., 2000), which is similar in age to ultrapotassic minettes of the Veliki Majdan polymetallic mineral occurrence, some 20 km north of Srebrenica (Cvetković et al., 2004). The Srebrenica volcanic complex, like the nearby ultrapotassic rocks, was emplaced in a post-collisional setting during initial tectonic relaxation.

The volcanic rocks of the Srebrenica volcanic complex are described as calc-alkaline andesite to dacite with subordinate quartz-latite (Fig. 7.2; Kubat, 1968; Pamić et al. 2000), which is consistent with own field observations and Terra Balcanica's geochemical data.

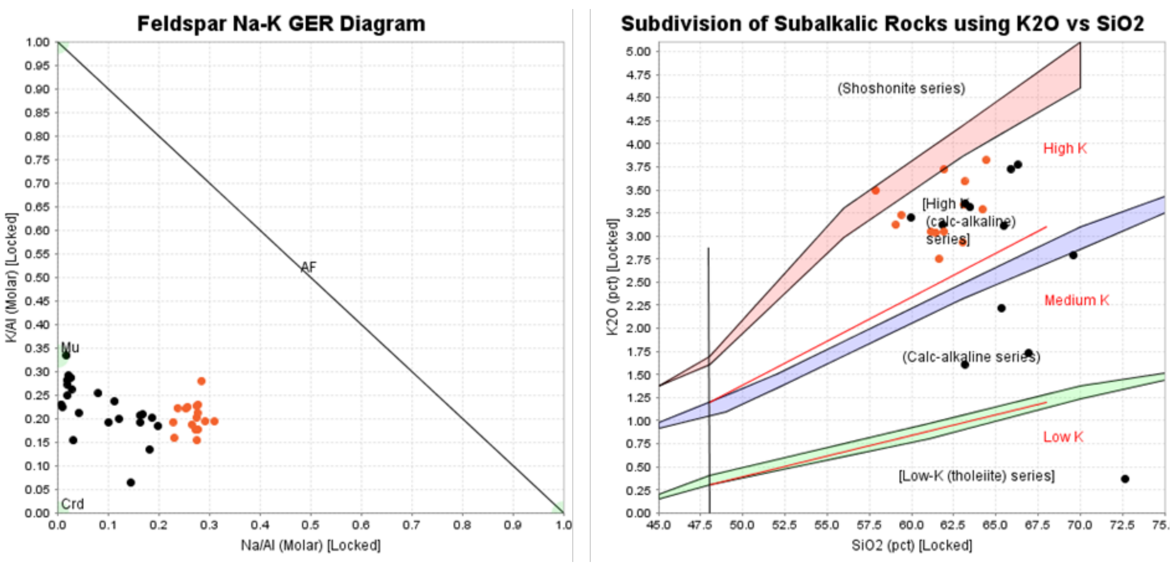


Figure 7.3:

Lithogeochemical classification of igneous rocks of the Srebrenica district. Data have been filtered to only include samples with < 5% Loss on Ignition (LOI). Red symbols show samples with low degree of feldspar alteration whereas black symbols show evidence for considerable muscovite (sericite) alteration. A) alteration classification based on molar element ratios; B) SiO_2 vs K_2O diagram showing the dominance of high-K calc-alkaline compositions. Note that major element oxide percentages and silica content were calculated from elemental percentages from 4-acid ICP-MS analyses.

Terra Balcanica obtained a petrographic report on 18 samples, of which 9 correspond to igneous rocks the Srebrenica volcanic complex collected mainly on the Olovine and to lesser extent on the Čumavići license (Colombo, 2021). The rock textures observed are porphyritic, suggesting extrusive or hypabyssal intrusive facies. Where not obliterated by alteration, phenocrysts include, in order of increasing abundance, orthopyroxene, amphibole, biotite, and plagioclase which is consistent with andesitic compositions. One sample corresponds to quartz-biotite-plagioclase phyric dacite or rhyolite. Tuffaceous facies were observed in two samples from the Čumavići license. Recent litho-geochemical data of least altered units obtained by Terra Balcanica are consistent with published information (Pamić et al. 2000) and suggest that the dominant compositions are high-K calc-alkaline andesite to dacite with subordinate rhyolitic compositions. "Least altered" samples here means < 5% Loss on Ignition (LOI), < 0.15% S, and molar Na/Al > 0.2 (Fig. 7.3). From geological mapping (Kubat, 1968) the southeastern part is dominated by coherent volcanic or hypabyssal facies whereas the northwestern end of the volcanic complex is dominated by pyroclastic facies with reported thicknesses of up to 300 m.

Field observations made during the site visit confirmed the general mapped geology from Kubat (1968). Near Olovine, hypabyssal porphyritic diorite to granodiorite was observed to intrude foliated basement rocks (Fig. 7.4A) and possibly older, overlying volcanic rocks, the latter being more altered and fractured than the intrusive rocks. Conversely, at Čumavići, crystal-rich tuffaceous rocks as well as monolithic coarse breccias with tuffaceous matrix are present. A crude bedding crosscut by goethite-rich veins can be discerned in some outcrops (Fig. 7.4B). The unconformity between the Paleozoic basement and overlying volcanic rocks is not at a constant elevation suggesting either significant pre-depositional topography and/or post-depositional deformation. The general geologic relationships described above suggests that the area around Olovine is more deeply eroded than the northwestern part of the district. This is also in agreement with geochemical data (see section 9 below).

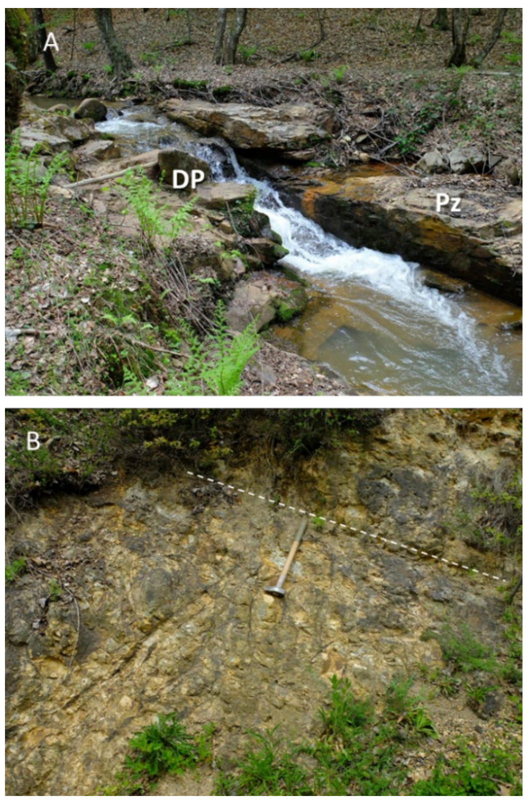


Figure 7.4:

Outcrop photographs showing rocks of the Srebrenica Volcanic Complex. A) intrusive contact between Paleozoic schist (Pz) and hypabyssal diorite to granodiorite porphyry (DP). The contact is parallel to Olovine creek. B) Crudely bedded crystal tuff crosscut by Fe and Mn oxide coated fractures, Ćumaviči area. Bedding indicated by dashed white line. Photographs taken in May 2021.

7.2: Structural setting

A preliminary structural interpretation on the basis of existing geological mapping and interpretation of topographic and historic geophysical data of the district was provided by M. Sánchez, consultant structural geologist in May 2021. According to this, the Srebrenica district is hosted in a thrust system with west to northwest trending, northeast verging thrust faults which are later offset by normal faults with a general northeasterly strike). The northeast verging thrust faults may represent back-thrusts related to the west verging thrusting of the Drina thrust sheet. The timing of the thrust faulting is late Cretaceous to Paleocene and thus earlier than the emplacement of the volcanic rocks, whereas a Miocene age has been proposed for the normal faulting (Porkoláb et al., 2019). The normal faults are responsible for the differential level of exhumation with pyroclastic volcanic facies cropping out to the northwest of a prominent northeast-oriented normal fault following the valley between Bratunac and Srebrenica whereas hypabyssal facies predominate to the southeast (Fig. 7.5). The area around Olovine, Kiseli Potok and Kvarac represent a domal setting with the greatest level of basement exhumation. Veins in the district radiate around this central area which is considered the core of the mineralized district. This is also consistent with geochemical and alteration data (see section 9 below).

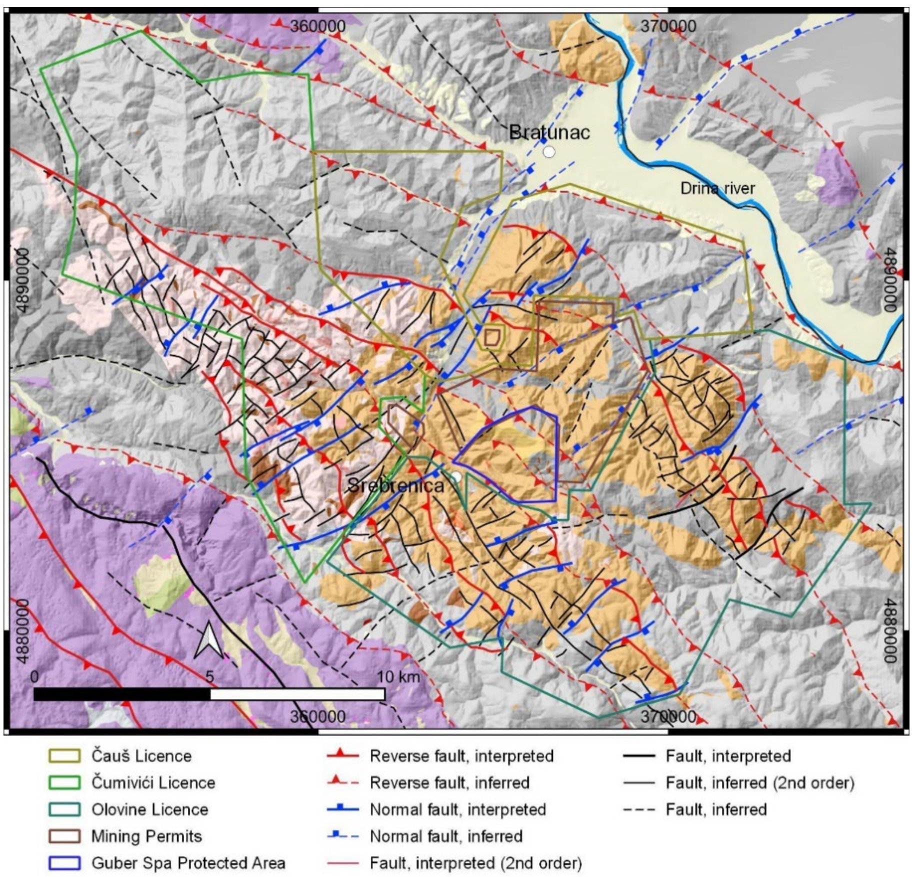


Figure 7.5:

Geologic map of the Srebrenica district with structural interpretation showing the Srebrenica volcanic complex. NE verging back-thrust faults related to the main SW verging Drina thrust sheet (Porkoláb, 2019) are offset by NNE-trending normal faults which exhume the eastern part of the district relative to western portions. Geologic map largely based on Kubat (1968).

7.2: Alteration

The volcanic rocks and to lesser degree the underlying Carboniferous rocks have been affected by widespread hydrothermal alteration (Fig. 7.6; Dangić, 1980). Alteration is zoned within the district with a central zone characterized by quartz-tourmaline-muscovite alteration (greisen) and occurrences of historically mapped "Neogene quartzite" interpreted to represent silicified zones along the unconformity between the Carboniferous basement and overlying Neogene volcanic rocks (Fig. 7.2: Kubat, 1968). A large area of quartz-tourmaline-muscovite alteration is mapped, and was observed during the author's field visit, along the ridge of the prominent Kvarac ("Quartz") peak, likely making the volcanic rocks more resistant to erosion compared to sericitic, argillic and propylitic altered areas. Additional quartz-tourmaline breccias zones have been observed 2.5 km SSE of Srebrenica, in the Olovine area (Fig. 7.6). Volcanic rocks hosting the mineralized veins at the Gross mine are described as variably silicified, biotite, K-feldspar or adularia, kaolinite, sericite and chlorite altered with a general zonation from biotite-sericite towards chlorite alteration more distal from veins (Dangić, 1980). Kaolinite-rich zones, interpreted as intense hydrothermal alteration of quartz-latitic rocks do occur proximal to mineralized veins as well (Kubat, 1974), but it is likely that those zones represent a supergene overprint since kaolinite is a common weathering product and likely overprinting sericitic alteration in the district.

Observations from thin section petrography combined with Short Wave Infrared Spectroscopy (SWIR; Colombo, 2021) suggest that the hypabyssal rocks have undergone an early alkali feldspar alteration, overprinted by white mica (i.e., sericite) chlorite, carbonate and clay. The latter is interpreted as a weathering product and, from SWIR data, includes kaolinite and montmorillonite.

7.3: Mineralization

The Srebrenica polymetallic district hosts two main styles of mineralization:

- Cassiterite-bearing mineralization related to quartz-tourmaline-muscovite (greisen-style) alteration (Fig. 7.6B).
- Polymetallic, Pb–Zn–Fe bearing hydrothermal veins and breccia zones with variable concentrations of Ag, Sn, Au and Sb (Radosavljević et al. 2005; 2016; Fig. 7.7).

Greisen hosted mineralization appears to be controlled by the contact of the Carboniferous basement with the overlying Neogene volcanic rocks and Sn in the form of cassiterite is concentrated in the upper parts of the greisen zone (Radosavljević et al. 2016). The greatest reported Sn grades (0.2-0.6%) are confined to tectonic breccia zones (Kubat, 1974).

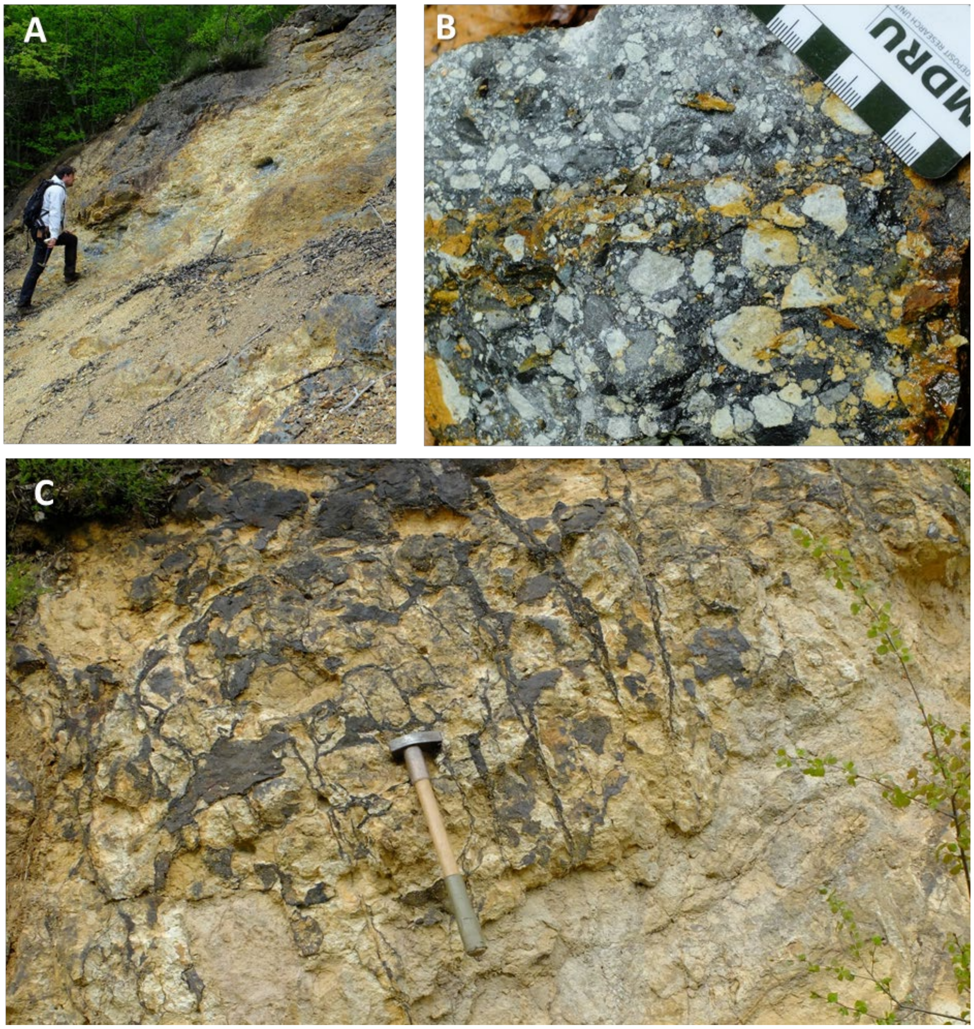


Figure 7.6:

Field photographs taken in May 2021, showing examples of altered outcrops.
A) intensely quartz-sericite-pyrite altered outcrop of unknown protolith, Olovine area, coord.: 364,518/ 4,882,963; B) Quartz-tourmaline cemented polymictic breccia with quartz-sericite altered clasts that include Neogene porphyritic andesite and Paleozoic schist clasts, 2.5 km south-southeast of Srebrenica. Coord.: 364,851/ 4,882,456. C) Quartz-sericite-clay altered crystal tuff cut by Mn-oxide-rich veins. Čumavići area, coord.: 360,294/ 4,888,632. All coordinates given as WGS84-UTM 34N.

Over 100 mineralized polymetallic veins are known from the district, at least 30 of which have been mined to date (these include 16 veins within the Mineco mining permits with recent and current production: Vukosavljević, 2017). Veins may extend over strike lengths of up to 3 km and vary in thickness from < 0.5 m to ~ 5 m; at vein intersections up to 10 m (Kubat, 1974; Mitrović, 2011). Veins are largely open space filling in coherent volcanic facies, but less well developed in tuffaceous and basement rocks (Kubat, 1974). They range from banded and brecciated textures and vary along strike (Vukosavljević, 2017). Veins have a roughly radial arrangement around the central quartz-tourmaline-muscovite zone at Kvarac hill (Fig. 7.2; Radosavljević et al. 2016). Four domains, in the literature referred to as “ore systems”, have been defined based on location and geometry (note, the use of the term “ore system” in this section does not imply an exploitable resource). The Northeast Ore System is the economically most significant and includes veins with a predominant northeasterly orientation, and some are currently being exploited at the Mineco operated Gross Pb-Zn-Ag mine, including No. 2 Vein which is the principal ore host. The Central Ore System includes the Olovine, Guber, Gorušica and Vukosavljevići veins with predominantly north and northwest striking vein trends which extend from Terra Balcanica's Olovine license to the north beyond the license boundary. This part of the district is likely close to a magmatic-hydrothermal center. The North Ore System includes north striking veins at Vitlovac, Divljakinje, Čardaklije, Kvarac, all located on third party ground. The Northwest Ore System includes northwest oriented veins at Čumavići, Ćumurnica, Joševa, as well as the historic Kazani mine, just west of the town of Srebrenica (Figs., 7.2, 7.5). Besides the mineralized veins, a series of mineral water springs are present in the area, most importantly the Guber springs, located near the quartz-tourmaline-muscovite alteration zone near the Central Ore System (Fig. 7.2). The area around Guber springs and Kvarac hill is a protected area off-limits for mineral exploration.

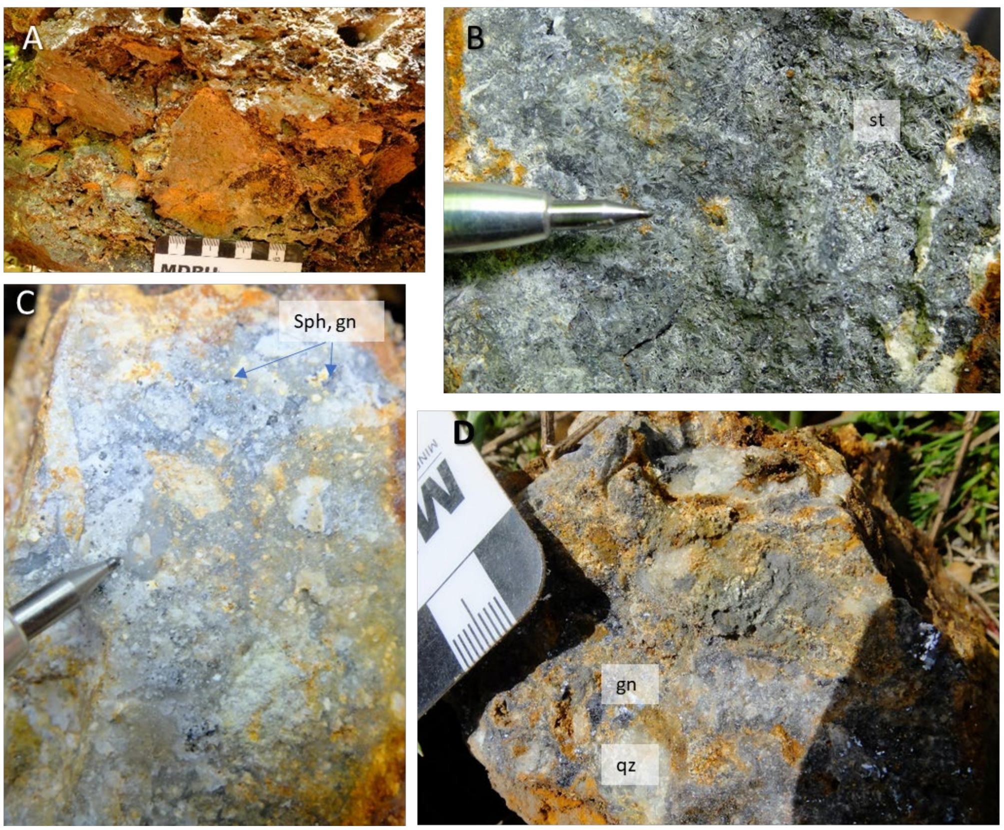


Figure 7.7:

Field photographs, taken in May 2021, showing examples of mineralization.
A) Olovine creek: heterolithic breccia with angular clasts and quartz sulfide cement (sulfides now oxidized to goethite). Approx. coord. 365,994/4,882,746; B) Ćumurnica: Massive sulfide sample from dump near historic adit. Minerals include acicular stibnite (st) and fine-grained galena and sphalerite. A sample from this location yielded > 13% combined Pb and Zn and > 1 % Sb together with 139 ppm Ag; C) Joševa: quartz cemented breccia with volcanic clasts and disseminated galena (gn) and sphalerite (sph; dark spots) in cement. Taken from a dump near collapsed mine adit. Coord.: 361,858/4,886,847; D) Lower Zanik: quartz (qz)-galena cemented breccia from dump near collapsed mine adit. Coord.: 364,398/4,887,729

The economically most important known mineralization is located on the property of Mineco Ltd.'s Gross mine. However, several zones of vein-hosted mineralization are located on Terra Balcanica's current exploration licenses. Key locations were visited in May 2021. The principal zones are described below and illustrated in Figs. 7.6 and 7.7).

Čumavići

This deposit is reasonably well documented and is hosted in a system of Sb-Pb-Zn-Ag +/- W, Au veins and breccias, and to lesser degree, stockwork and disseminated mineralization within the volcanic rocks. Veins form discontinuous trends over more than 1 km and strike northwest with a variable, 30-80-degree southwesterly dip and mineralized segments have strike lengths of few 10s of meters with up to 3.8 m thickness (Topalović, 1984; Arsenijević M., 1990; Radosavljević et al., 2016). The Čumavići area includes, besides the main Čumavići vein trend, the sub-parallel Ćumurnica vein trend (jointly referred to as Čumavići veins, hereafter), some 500 m to the southwest (Fig. 6.3). The Ćumurnica vein differs somewhat from Čumavići in that massive vein-hosted mineralization textures dominate over stockwork and breccia-style mineralization (Arsenijević, 1990). The mineralogy of the Čumavići veins is complex and includes a wide variety of sulfide and sulfosalt minerals. Two principal hypogene paragenetic stages of mineralization have been defined on the basis of archived samples from the exploration efforts in the 1980ies (Radosavlijević et al., 2016): 1) medium-temperature sphalerite–galena–marcasite–Mn–siderite; followed by 2) low-temperature sulfosalt-rich stages including quartz–sphalerite–galena-sulfosalts; quartz–sphalerite–berthierite–hübnerite-arsenopyrite; and chalcopyrite–Ge–Ag–Au-bearing-sulfosalts. Based on work on a limited number of samples Arsenijević (1990) reports locally high gold values (up to 21.5 ppm) in arsenopyrite as well as, albeit to a lesser degree, with pyrite and marcasite. Average gold grades reported by Topalović (1984) range from 0.1 to 1.26 ppm depending on the vein. Sphalerite varies from Fe (+/- Sn, Cu) rich in early paragenetic stages to Fe-poor varieties in later stages and locally high content of critical elements such as In (up to 0.11%) are documented in Cu-Sn-rich sphalerites (Radosavljević et al. 2016).

One sample from Čumavići vein infill taken from a historic mine dump was sent for petrography by Terra Balcanica (Colombo, 2021) and the observed sulfide assemblage is consistent with the mineralization style described above. It includes fine-grained aggregates of sphalerite, galena arsenopyrite as well as traces of pyrite and chalcopyrite with quartz and minor carbonate gangue as well as fine-grained iron oxides.

The Čumavići deposit has been drilled in the early 1980s at 80 to 200 m spacing along strike in a total of 19 short drillholes complemented by 7 surface trenches (Topalović, 1984). See Chapter 6 above.

During the author's field visit several locations along the Čumavići trend were visited. These include Sjenovo at the northern limit of the trend, Čumavići proper as well as two small adits at Ćumurnica and Joševa. Exposures are largely limited to altered volcanic rocks in outcrop. Mineralized rocks can be found in historic mine waste near old adits (Fig. 7.7).

Alteration is dominated by illite-sericite + quartz with variable, likely supergene, kaolinite overprint. Alteration intensity appears lowest at Sjenovo and generally increases towards the SE. The alteration assemblages are consistent with a relatively shallow and/or distal setting.

Outcrops are generally oxidized, and sulfides are typically not preserved. However, the distribution of goethite and Mn-oxides suggests that fracture-controlled pyrite ± quartz-carbonate veins were common. At Ćumurnica a sample from the waste-dump yielded > 13% combined Pb and Zn and > 1 % Sb together with 139 ppm Ag. This is consistent with macroscopic observations which show abundant stibnite, galena and sphalerite in semi-massive sulfide samples (Fig. 7.7). Besides Ćumurnica, samples from other historic mine waste locations, including Joševa and Čumavići, feature galena and sphalerite.

Olovine

Less information is available on Olovine compared to Čumavići but mineralization from different veins in the Olovine area has been documented by Kubat (1974; Fig. 7.8). Veins have a variable but generally northerly trend, dipping steeply (75-85°) to the east. Sulfide mineralogy is generally characterized by galena, sphalerite, pyrite, marcasite +/- pyrrhotite. Gangue is quartz-carbonate, including Mn carbonate, whereas wall rock alteration is described as sericitic, silicic and propylitic. Locally, at Gorušica – Olovine, silicification is the dominant wall-rock alteration and chalcopyrite is present together with sphalerite and pyrite with Cu grades from 0.9 to 2.5% reported (Kubat, 1974). Only limited drilling has been undertaken and no details on intersected mineralization are available (Fig.7.8).

Terra Balcanica sent one sample of brecciated massive sulfide material from Olovine for petrographic description (Colombo, 2021). Sulfides in fragments include, in order of decreasing abundance, pyrite, sphalerite, arsenopyrite, galena and tennantite/tetrahedrite. Some quartz is also present. The breccia contains a fine-grained oxidized rock-flour matrix with some pyrite cement.

The author visited several exposures along Olovo creek and nearby tributaries during the May 2021 field visit. While no formal geological mapping was carried out, outcrop observations suggest that intensely fractured, veined and oxidized volcanic rocks overlie Paleozoic basement. Hypabyssal diorite to granodiorite porphyries are less altered and were observed to intrude the basement (Fig. 7.4) and also inferred to intrude intensely altered and fractured volcanic rocks above. Hydrothermally cemented breccias were also observed, including a quartz-tourmaline cemented polymictic breccia at Coord.: 364,851/ 4,882,456 (Figs. 7.6; 7.7). Massive sulfide material (pyrite, galena) occurs as boulders in the creek and may have originated from historic mine dumps. Alteration and mineralization suggest that the system is not deeply eroded. However, compared to Čumavići, Olovine is more proximal to a magmatic-hydrothermal center.

Some of the creeks in this area have rusty brown mud deposits which is likely due to iron and other metals transported in acid rock drainage and deposited along creek beds. Since no recent mining took place, this is attributed to natural conditions or possibly historic mine workings.

Lower Zanik (Čauš license)

One location ~ 1 km southwest of Zanik hill was visited. The area appears to be an overgrown historic mine dump which includes quartz and galena cemented polymictic breccia material with abundant secondary iron oxide (Fig. 7.7). Host rock relationships are unclear but based on material exposed consists of Paleozoic schists intruded by diorite porphyry dykes.

Additional mineralized areas

Besides the mineralized zones described above, additional veins are known from Brezovice which is located in the eastern part of the Olovine license. This area was not visited during the May 2021 field visit and no information specific to this area is available from published sources.

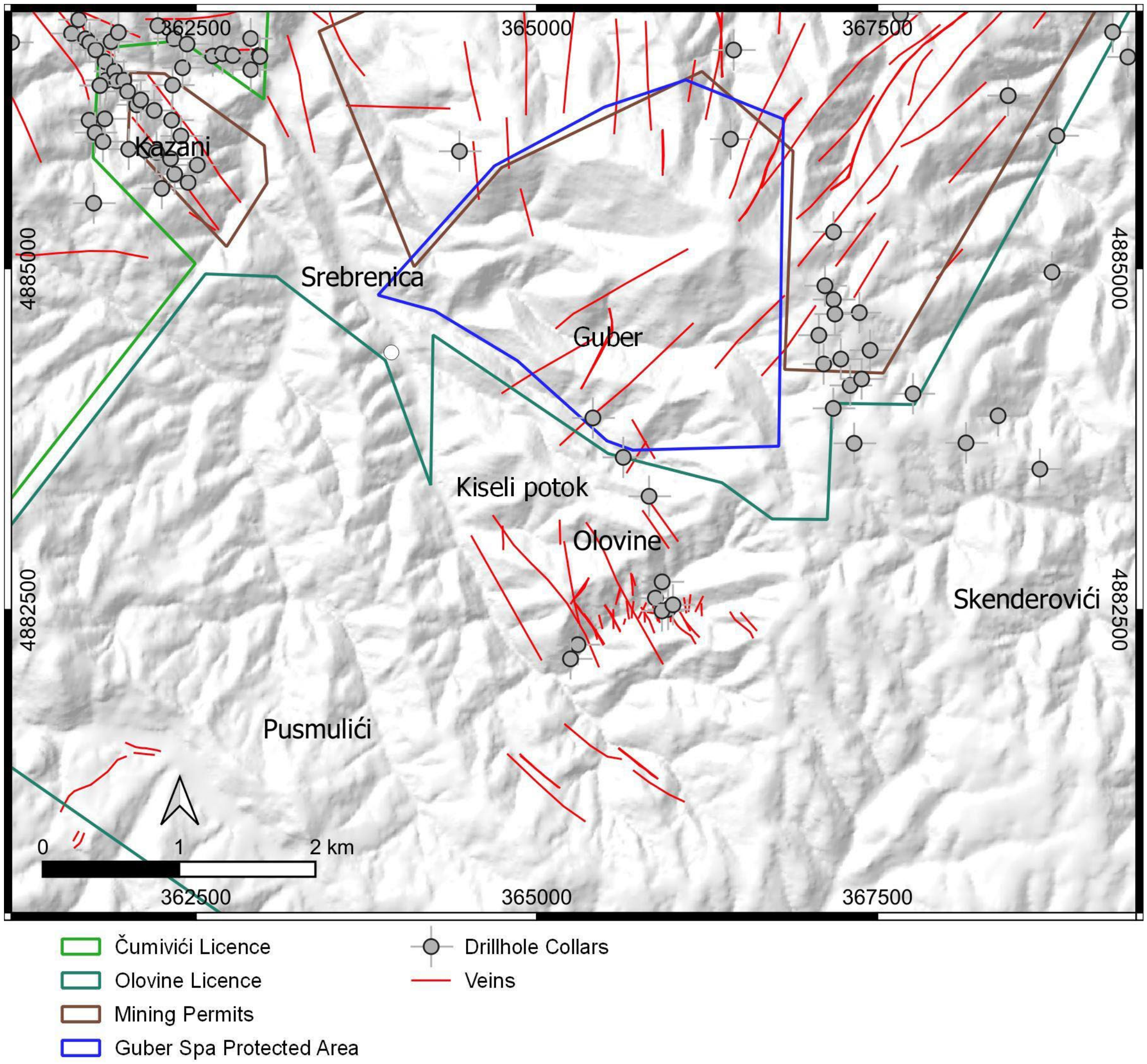


Figure 7.8:

Olovine and surrounding areas: drillhole collars and veins are shown. Veins and vein trends are approximate and were digitized from maps and trench locations. Mining permits shown belong to a third party.

8: Deposit Types

The Srebrenica district has the characteristics of a peraluminous granite-related magmatic-hydrothermal district (or "porphyry tin" district: Sillitoe, 1975) with a zonation from proximal to distal facies. It has similarities to the deposits in the Eastern Andean tin belt in element associations, district zonation and alteration (e.g., Huanuni and San Rafael: Cacho et al., 2019; Harlaux et al., 2020). Similarly, Srebrenica has also been compared by Radosavljević et al. (2016) to In-rich Sn-Ag-Zn-Pb polymetallic mineralization in the Erzgebirge (Seifert and Sandmann, 2006). However, the dominant rock compositions at the Srebrenica volcanic complex are andesitic to dacitic and the intrusions are magnetite bearing which differs from the peraluminous granites described from, e.g., San Rafael. Thus, Srebrenica has a more primitive and less reduced character than eastern Andean tin-rich deposits and may be more akin to classical porphyry systems. Porphyry-style Cu (-Au, Mo) mineralization has not been observed although its potential presence at depth is unknown and cannot be ruled out at this stage.

For Viogor-Zanik, proximal mineralization styles include cassiterite and sulfide Cu-Zn (-Pb) with locally reported high-grade Ag mineralization. These are associated with quartz-tourmaline-muscovite alteration. This style of alteration is most prominently mapped around the Central ore system including the north-striking veins of Vitlovac-Olovine and is interpreted to represent a relatively shallow-subvolcanic setting.

The Pb-Zn mineralization currently exploited at the Gross mine occurs to the northeast of Kvarac hill within the Northeast Ore System. Alteration here is zoned from proximal biotite to more distal sericite and sericite chlorite facies, consistent with a mesothermal environment lateral to a magmatic center (Dangić, 1980). However, it must be stated here that the described mineralization in some veins (e.g., No. 2 vein containing galena, sphalerite, boulangerite, marcasite-pyrite, Mn -siderite) is indicative of epithermal conditions, which is at odds with the described alteration halo which includes high-T (>~ 450° C) biotite alteration (Dangić, 1980) comparable to the potassic alteration zone in porphyry settings. The No. 2 vein is not on Terra Balcanica's exploration license and could not be accessed during the field visit. The relationship of alteration and mineralization could therefore not be resolved.

The veins in the Northwest Ore System, most importantly Čumavići, are consistent with relatively low temperature of formation which include a large variety of Sb-bearing sulfosalts alongside with base-metal sulfides. These veins may be considered epithermal in character and have likely been emplaced distally to a magmatic hydrothermal center.

The district scale vein arrangement appears to follow a radial pattern around the Central Ore System and the Kvarac hill, suggesting one or several magmatic centers to which mineralization is related in that location. However, geological mapping and a series of relatively magnetic zones suggests several additional possible magmatic centers and high-temperature alteration, whereas alteration mapping and localized field observations reveal occurrence of considerable silicic and quartz-tourmaline-sericite alteration (Fig. 7.6). Silicic alteration appears, at least in some cases, to be controlled by the contact between the volcanic rocks overlying carboniferous basement. Careful mapping in the district has the potential to locate additional centers of mineralization.

9: Exploration

Current exploration initiated in Q4 of 2020 with 5 field crews consisting of a geologist and field technician each. These teams are supported by two senior geologists, a logistics and community relations manager and an office manager. Early-stage exploration activities include geological mapping, stream sediment, soil and outcrop sampling. Most of the work thus far was concentrated on the Olovine and Čumavići licenses and to a lesser degree on Čauš.

Exploration datasets available include historic stream sediment and soil geochemical surveys as well as digitized historic aeromagnetic and ground gravity data. New datasets include 469 new stream sediment samples collected in late 2020 in the Čumavići and Olovine licenses, and 1970 new soil geochemical data. In addition, satellite-based remote sensing near visible, short and long wave infrared (VNIR/SWIR/LWIR) spectral data as well as synthetic aperture radar (SAR) were obtained (Pendock, 2020). Historic airborne geophysical data were digitized, re-processed and inverted i(Ballantyne, 2021). Collection of new airborne geophysical data was completed in May 2021. Ground radiometric data and soil samples were collected throughout the first half of 2021. The currently available datasets are described below.

9.1: Historic geophysical data

Electromagnetic (EM), self-potential (SP) and induced polarization (IP) surveys, along with an aeromagnetic survey are mentioned by Geoinstitut Beograd (2000). The aeromagnetic and gravimetric surveys cover all three of Terra Balcanica's licenses as well as areas north of the town of Bratunac and ground held by a third party around Gross mine. Other geophysical methods (SP and IP) only cover small areas around known veins and are not further discussed herein.

District-scale geophysical data available for review include an aeromagnetic survey over the entire district flown in 1977 and 1978. The aeromagnetic data are available in the form of contour lines which were digitized and used as a basis for 3D inversion modelling (Ballantyne, 2021). Some of the original survey characteristics could be determined by contacting the pilot who flew the survey. Thus, for the survey flown in 1977, flight lines were NNE-SSW oriented and spaced at 250 m at a ground clearance of ~ 120 m. The survey flown in 1978 was flown at 500 m ground clearance and 2 km flight line spacing (Ballantyne, 2021). The higher resolution 1977 dataset is considered more useful for inversion modelling (Ballantyne, 2021). The 1977 survey was done using a Geometrics G-803HP proton magnetometer mounted on a Antonov-2 fixed wing aircraft. Data collection frequency was 1 sec, which, together with the ground speed of 130-150 km/h translates to a measurement on average every 39 m. The height of the flight was in average 120 m above ground but given the topography and the aircraft used, significant uncertainty exists on the consistency of height above ground.

A regional gravity survey was also done in 1977. Measurement points and data are available for 119 data points plus an additional 46 points as Bouguer corrected values. The sparse data coverage puts some limitations on the resolution of gravity inversion models (Ballantyne, 2021).

Figure 9.1 illustrates historic magnetic and gravity data coverage. Several zones of magnetic highs coincide with low gravity responses (i.e., low-density rocks). Relative magnetic highs are evident at, e.g., the southern part of the Čauš license, around Olovine and in a northwest elongated trend to the southwest of the Čumavići vein trend (Fig. 9.1). Residual gravity lows parallel the Čumavići trend and also underlie the Čauš license (Fig. 9.1). Although the reliability of the geophysical data remains unconfirmed, the combination of gravity lows with magnetic highs may point to the presence of intrusive bodies at depth.

9.2 New Geophysical data

A new airborne magnetic and time-domain electromagnetic (TEM) survey (SkyTEM306HP) was completed in May 2021. The airborne instrumentation comprising a SkyTEM306HP system includes a TEM system, a magnetic data acquisition system and an auxiliary data acquisition system containing two inclinometers, two altimeters and three differential GPS'. All instruments are mounted on the frame suspended ~40 m below the helicopter. Data collection by SkyTEM took place between May 1st and May 8th, 2021. A total of 1331.3 line km were flown using an Eurocopter Astar 350 B2. Flight line orientation was northeast (035 azimuth) at a line spacing mostly at 150 m with some lower priority areas at 300 m. Five tie lines at 3000 m spacing were flown perpendicular to the flight lines (Fig. 9.2). Average groundspeed was 69.1 km/h at an average processed height above ground of 79.9 m. The geophysical data were processed and corrected according to standard practice. Such corrections include subtracting diurnal variations and corrections for the International Geomagnetic Reference Field (IGRF) for the model year 2020. Electromagnetic data were filtered to eliminate the effects of electrical powerlines, although complete elimination of those effects and separation from the bedrock signal was not possible. For TEM data, a 1D inversion along flightlines was performed.

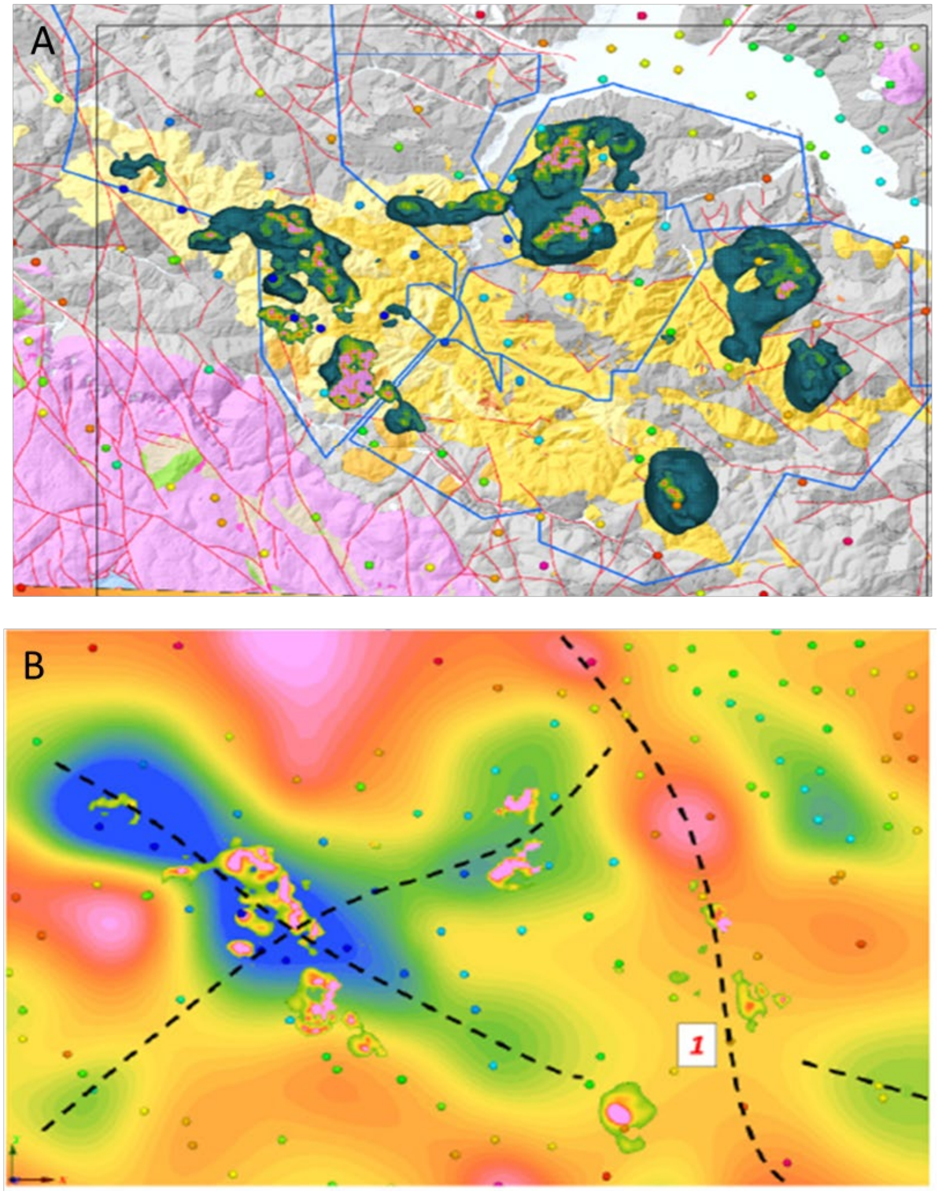


Figure 9.1:

Re-processed historic geophysical data taken from Ballantyne (2021). A) Inversion model from digitized Delta-T (DT) magnetic contours of the 1977 survey shown on top of a simplified geological map with yellow units representing the Srebrenica volcanic complex. The raw data were not available, and DT is assumed to represent residual total magnetic intensity (Ballantyne, 2021). The dark green to pink volumes represent areas of high magnetic intensity. B) Gravity inversion results at a -2000 m depth slice. Measurement stations are indicated with small circles. Magnetic highs are shown for reference. Black dashed lines represent interpreted structural trends based on the data shown.

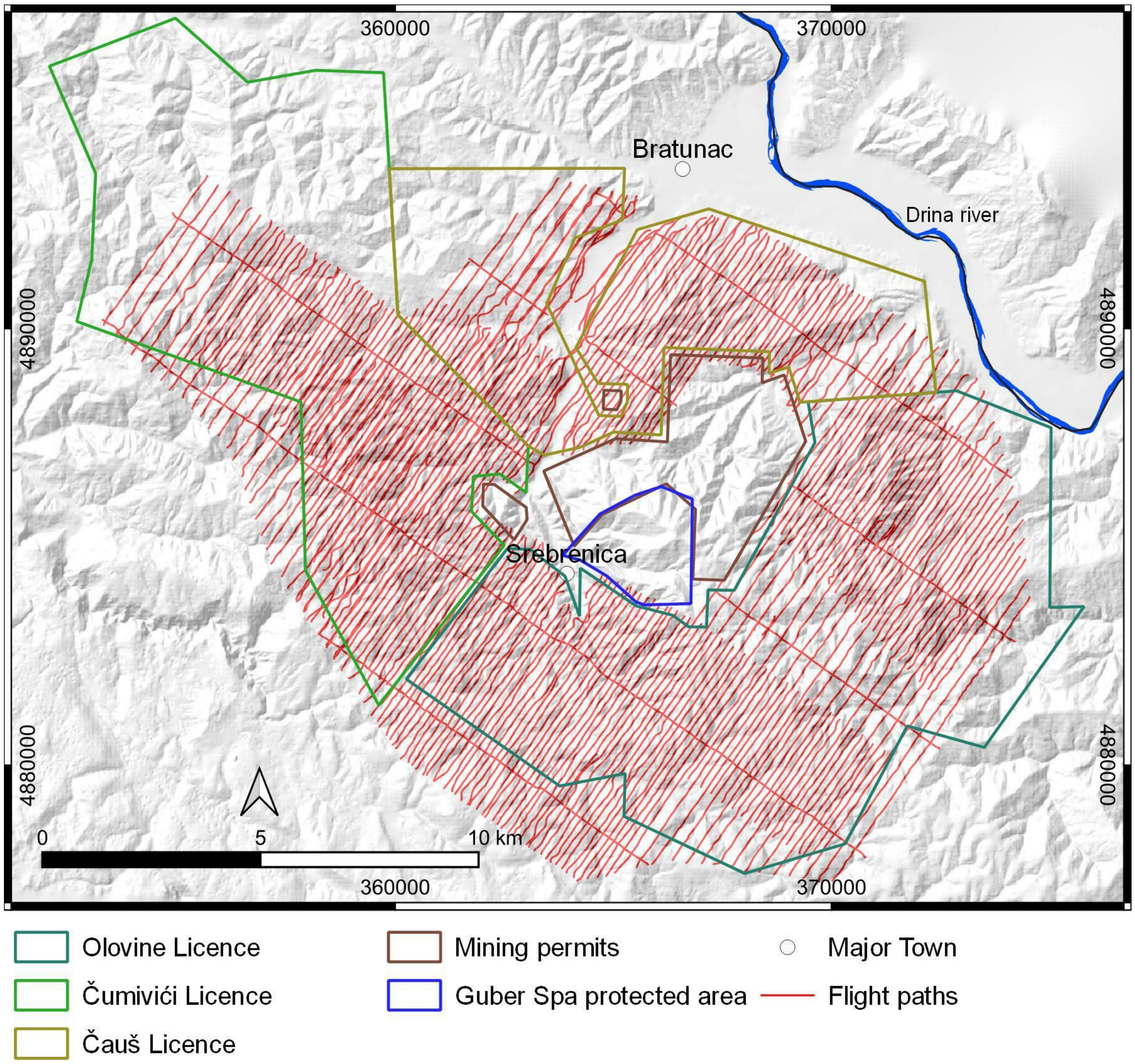


Figure 9.2:

Flight lines of the SkyTEM aeromagnetic and electromagnetic survey flown in May 2021. Green: planned lines; red, flown lines.

The newly collected magnetometric data are illustrated in Figure 9.3 whereas electromagnetic data are illustrated in Figure 9.4. In addition to the corrected data provided by the geophysical contractor SkyTEM, further data processing was performed to produce derivative products such as Reduced to Pole (RTP) or total gradient (TGA) maps for magnetic data. It is evident that areas of significant magnetic remanence exist, particularly in the north and northeast of the survey area (Fig. 9.3). These areas are evident from apparent magnetic lows in the RTP data combined with highs in the TGA map. A series of relatively small magnetic highs are evident in a broad northwest-southeast trend in the southwestern part of the survey. The magnetic highs, including those characterized by remanence, are interpreted as magnetite bearing intrusive bodies and generally occur where hypabyssal intrusive and volcanic rocks have been mapped.

The electromagnetic data illustrate electrical conductivity of rock units (Fig. 9.4). Conductive zones may indicate sulfide-rich rocks but could also delineate graphitic schists or areas of high groundwater saturation. Conversely, unaltered granitic rocks tend to be resistive. Two large areas of low conductivity are evident in the north and northeast of the survey which coincide with areas of high magnetic total gradient and evidence for magnetic remanence. These areas conceivably represent intrusive bodies. It should also be noted here that anthropogenic influences such as powerlines are inherent, particularly with respect to electromagnetic data. Although the data were corrected for those influences the electromagnetic data still show linear areas of high conductivity that coincide with powerlines (Fig. 9.4). This is to be expected in a populated area but should be considered carefully for geological interpretations.

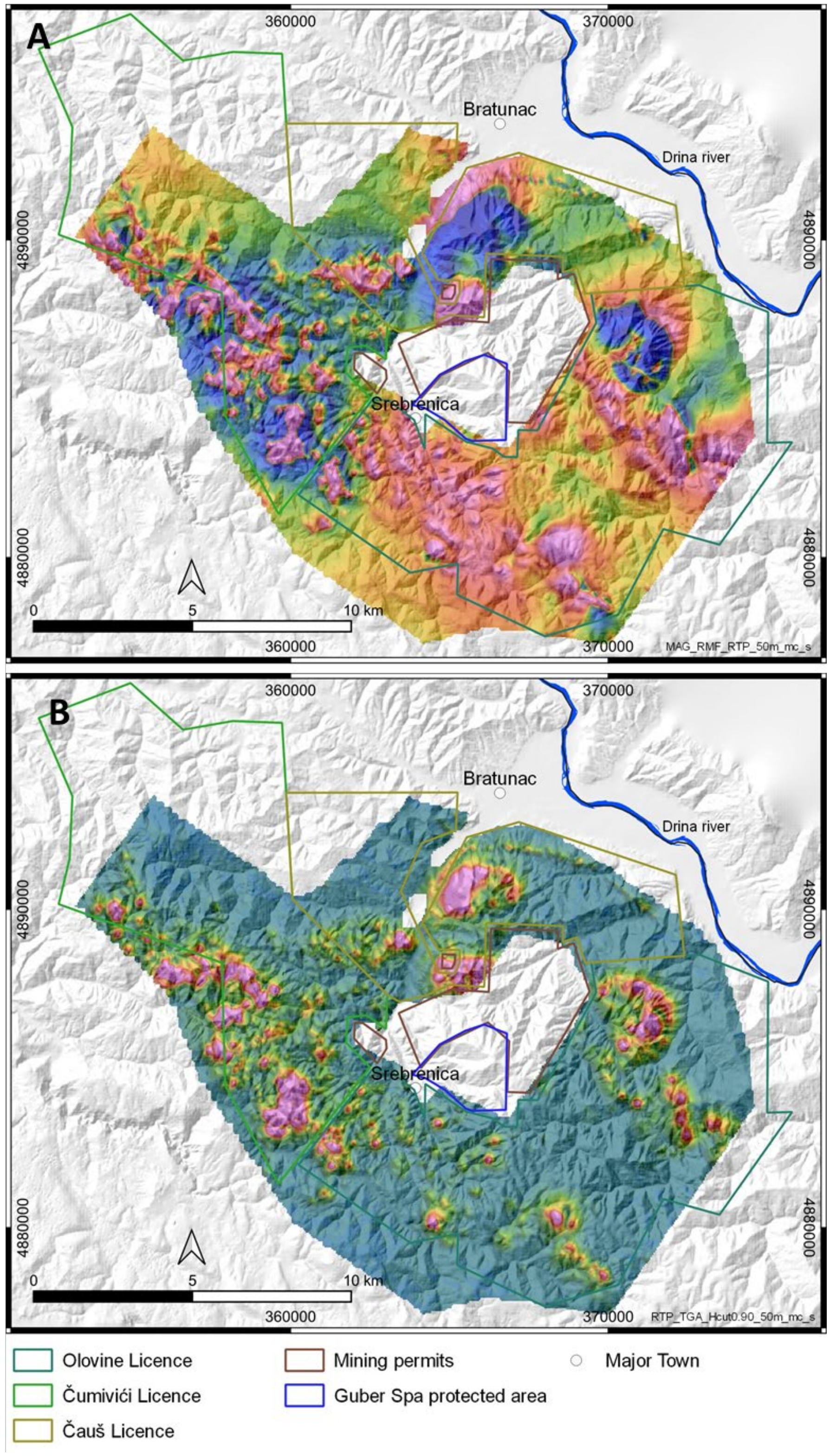


Figure 9.3:

Aeromagnetic data collected in May 2021. A) Reduced to Pole (RTP) magnetic data and B) Total Gradient (TGA).

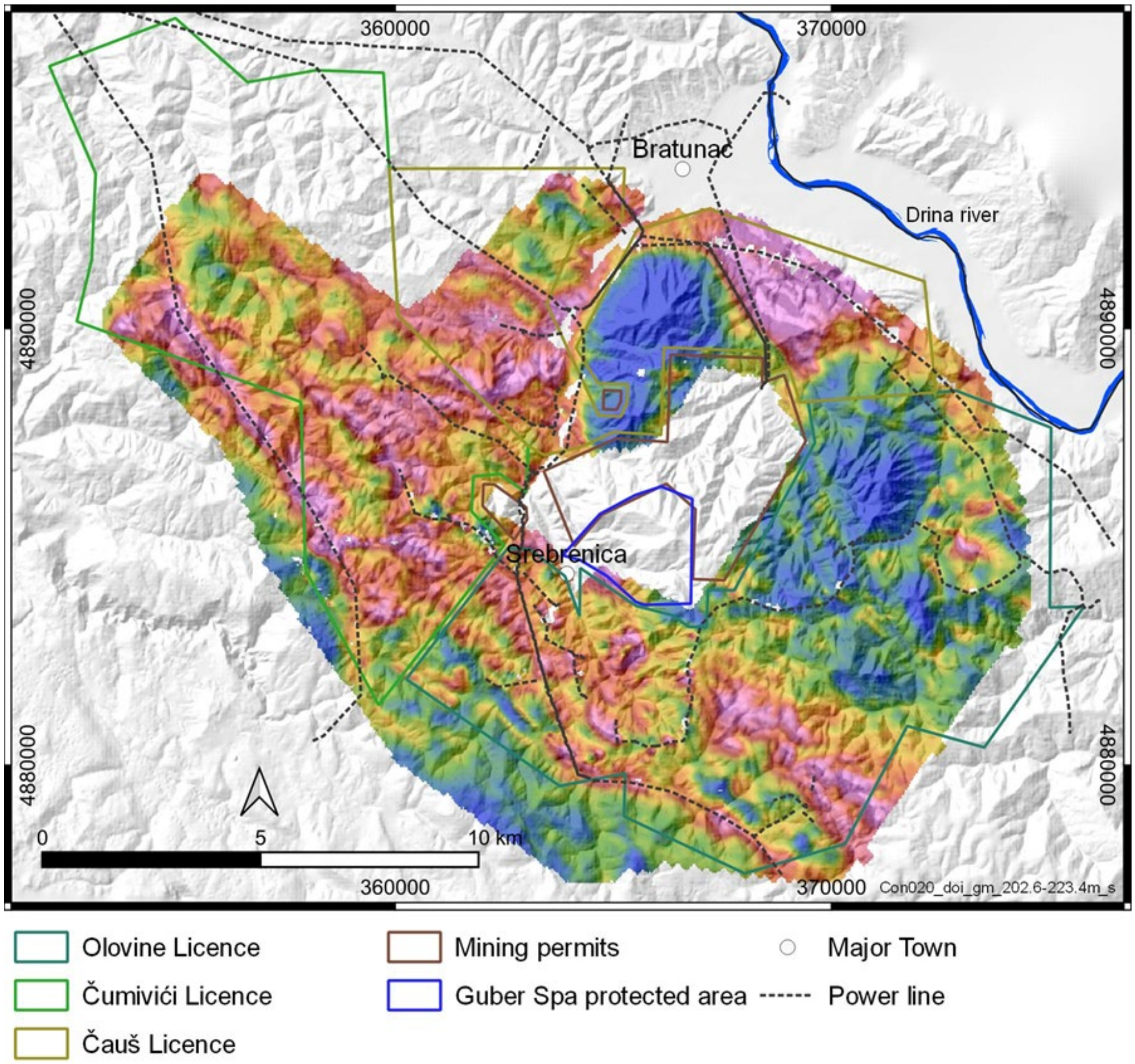


Figure 9.4:

SkyTEM electromagnetic data collected. Data shown are a gridded 200 m depth slice from the 1D inversion models.

A campaign of ground radiometry was completed in 2021 and a total of 1025 sample locations were measured within the Olovine and Čumavići licenses. Data were collected using two devices, a GT-40 MP Gamma Center and an RS-230 BGO Super-SPEC. Procedure was to identify an outcrop, remove vegetation and produce a fresh surface. The analysers were turned on and left to calibrate in air for 30 seconds before measurements commenced. This included collection of K (%), U (ppm) and Th (ppm). A total of 3 readings were taken at each sample location, which were then averaged, with measurement times set to 120 seconds each. Average values are used for K/Th ratio calculation. The aim of using K/Th ratio, rather than K (%) is to account for the variation in potassium between changing rock types. Potassic alteration will add K, without an increase in Th (Fig. 9.5).

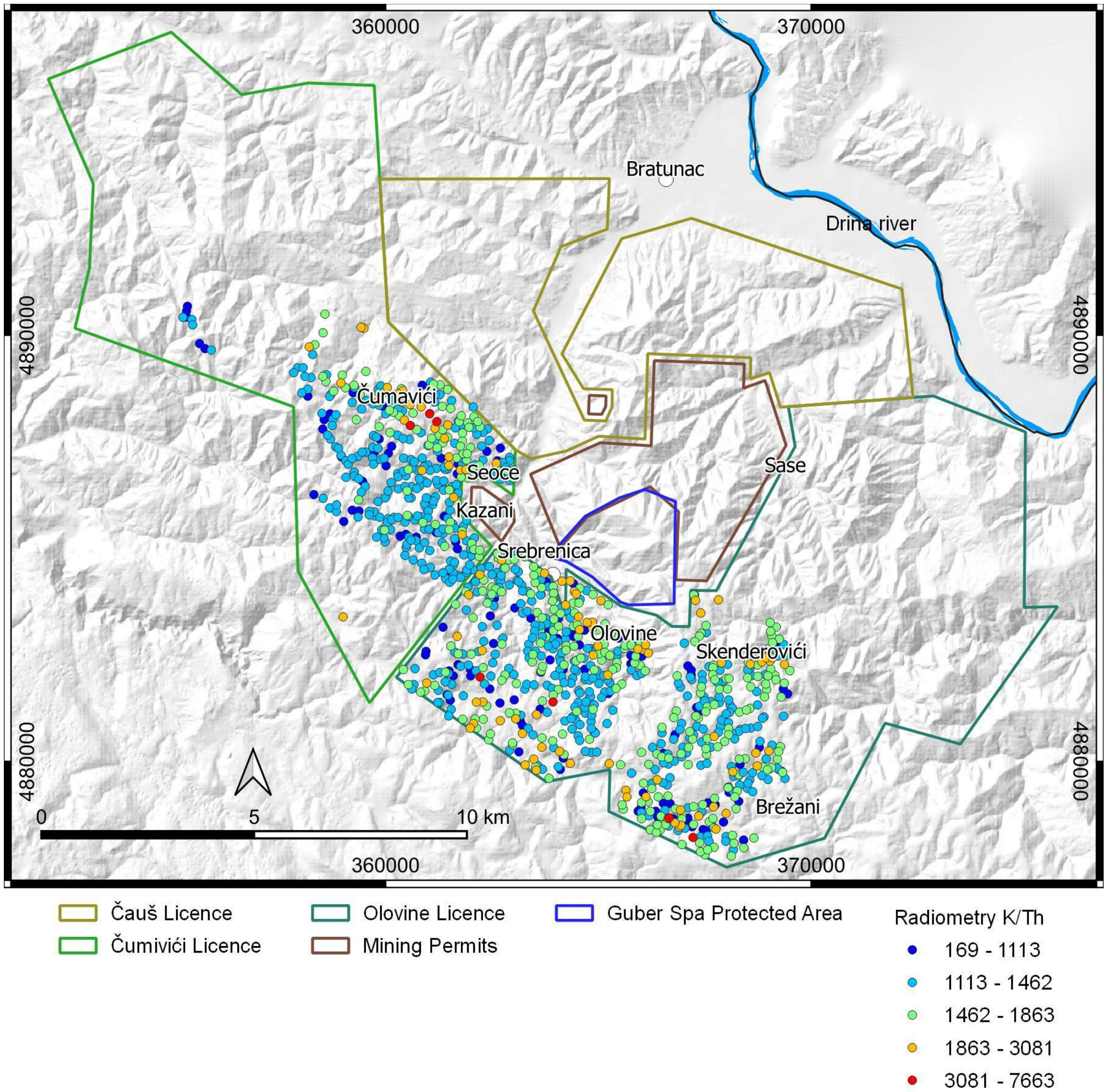


Figure 9.5:

Ground radiometric data over the Čumavići and Olovine licenses. Areas of elevated K indicating potassic or sericitic alteration are present at Čumavići and Olovine. The relatively high K/Th ratios along the southern border of the Olovine license are interpreted as lithologically controlled since Carboniferous basement rocks are exposed there (Fig. 7.2).

9.3: Historic geochemical data

Regional geochemical exploration datasets were collected during the late 1960ies through the 1980ies include stream sediment, soil and hydrochemical surveys (Geoinstitut Beograd, 1986), but metadata are limited, and original analytical certificates are not available. Geochemical data available for review include a stream sediment dataset and a soil dataset (Figs. 9.6, 9.7, 9.8). Stream-sediment samples were taken at 1915 locations and were only analyzed for Pb, Zn, Cd, Ag, Cu, Sn, Sb and As but only Cu data are available for all locations. The samples were collected in the 1970ies but no information on analytical method and sampling protocols are included (Geoinstitut Beograd, 2000). The database contains a large number of

“0” records which may include data below detection limit or elements not analyzed. Analytical values reach up to 1000 ppm which appears to be the upper limit of quantification, thus, apparently suggesting that some samples had more than 1000 ppm Cu, Pb or Zn. Most of the stream sediment samples with Cu clearly above typical abundance in the mapped lithologies were taken over third-party licenses near the Gross mine, but the dataset contains several locations with 300-1000 ppm Cu in the northern part of Terra Balcanica’s Čumavići license and throughout the Olovine license (Fig. 9.6A). However, such high Cu values could not be confirmed by the data collected recently where maximum Cu values do not exceed 154 ppm and Cu is, thus, roughly an order of magnitude lower than in the historic data (Fig. 9.6B). Lead in historic stream sediment data is most anomalous around the Gross mine but also near Olovine whereas other areas, including Čumavići have subtle Pb anomalies in stream sediments (Fig. 9.7A). Unlike Cu, Pb of the recent sample collection is more consistent with the historic data (Fig. 9.7B).

Besides the regional stream sediment data, a historic soil sample dataset with a total of 861 records covers a regular grid of 2 by 4 km with 100 m sample spacing, largely in the western portion of Terra Balcanica’s Olovine license (Fig. 9.8). Only Pb, Zn, Ag and Cu were analyzed, and, like the stream sediments, the soil data contain abundant “0” records particularly for Ag which are assumed to reflect data below detection limit. Likewise, the upper limit of quantification appears to have been 1000 ppm for Cu, Zn and Pb. Forty-two samples have Cu > 300 ppm and 207 samples have > 100 ppm Pb recorded which are assumed to be clearly anomalous with respect to expected background concentrations. However, given the inconsistency noted between historic and recent stream sediment data for Cu, it is likely that Cu values in the soil geochemical data are not reliable (see also the new data discussed below).

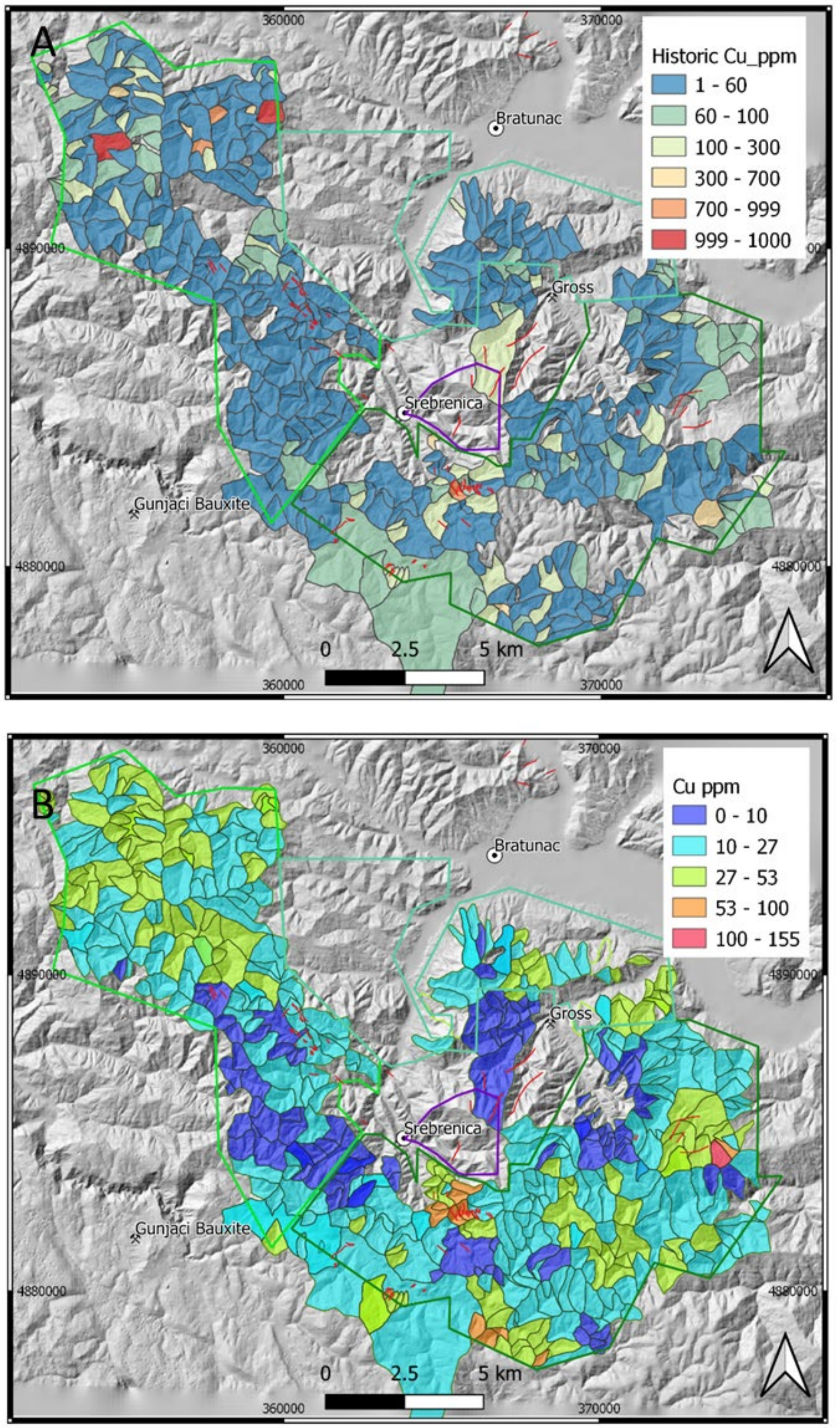


Figure 9.6:

Comparison between historic and recent stream sediment geochemical data for Cu. A) results for historic Cu data; B) results of recent program. Catchments colored by Cu content as indicated. Note the large discrepancy in absolute values suggesting historic Cu values are an order of magnitude too high.

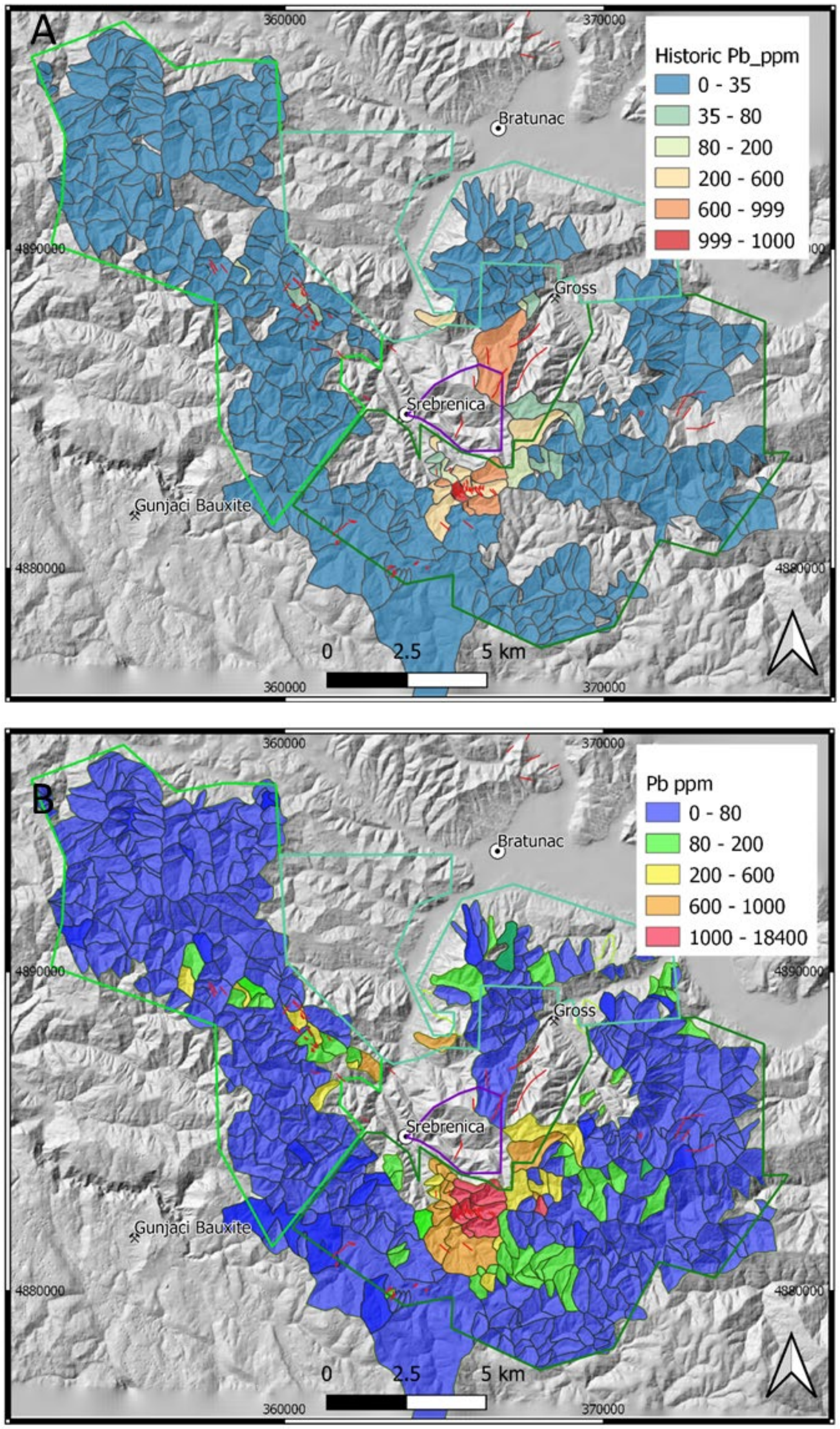


Figure 9.7:

Comparison between historic and recent stream sediment geochemical data. A) results for historic Pb data; B) results of recent program. Catchments colored by Pb content with similar color breaks. Unlike for Cu, for Pb historic and recent values have a similar range but note that the upper limit of quantification was 1000 ppm historically.

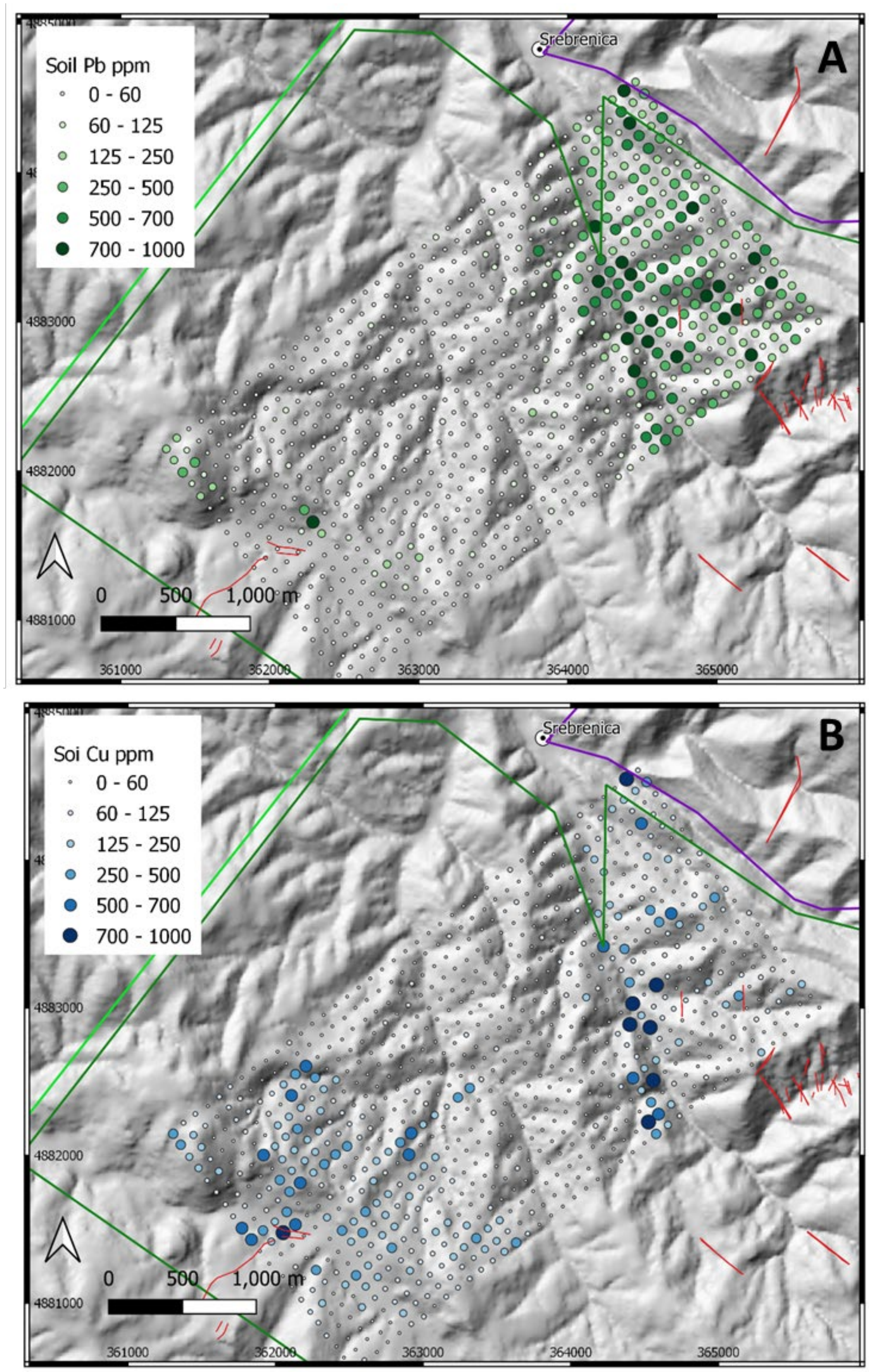


Figure 9.8:

Historic soil geochemical data for the western part of the Olovine license. Data are pre-1985 (Geoinstitut Beograd, 2000) and analytical methods and sampling protocols are unknown. A) results for Pb. B) results for Cu. Green lines delineate license boundaries. Note that upper limit of quantification is 1000 ppm meaning that some samples had > 1000 ppm Cu or Pb. It is also likely that Cu values are an order of magnitude too high but spatial patterns may be meaningful (cf. stream sediment data).

9.4: New geochemical data

New stream sediment samples have been taken and analyzed from 469 locations which equates to slightly more than 2 samples per km^2. Sample spacing along creeks is not homogeneous and varies between 0.1 and 1 km depending on the drainage configuration.

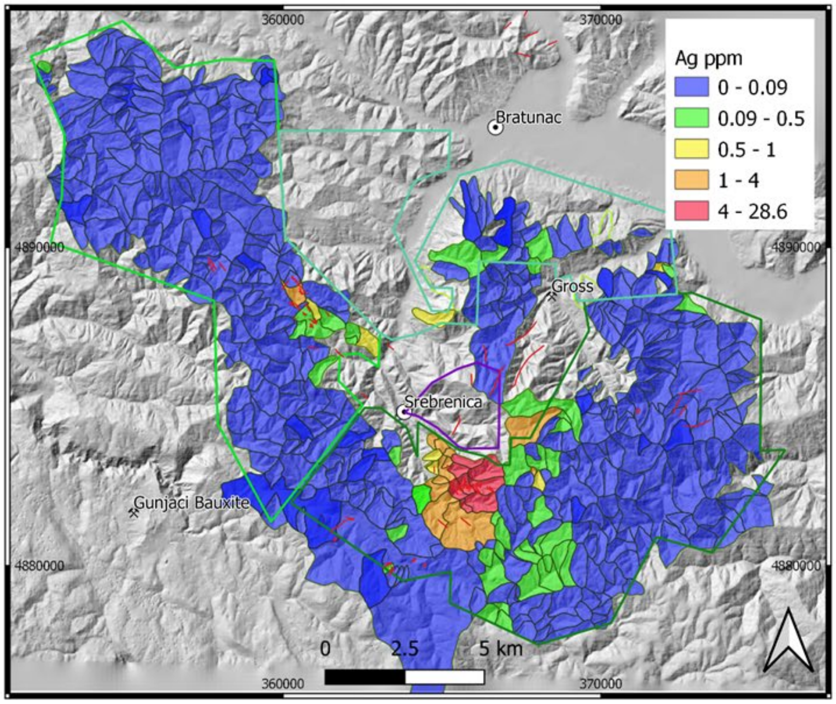
The stream sediment data show a large-scale element zonation characteristic for magmatic-hydrothermal centers (Figs. 9.9, 9.10). The data are suggestive of one or several overlapping magmatic-hydrothermal centers near the Olovine veins. This area is characterized by relatively high Bi, Te, Cu, Sn, Au, Ag, In and W. Conversely, high Mn, Zn, Tl, As and Sb are indicative of more distal portions of a magmatic-hydrothermal system. While the signatures of these elements overlap to variable degree with the Olovine area, they are elevated over Čumavići and in an apparent linear trend extending to the northwest from Čumavići (Fig. 9.10). Silver has a similar distribution to Pb whereas Au is distinct with anomalies scattered throughout the Olovine and to lesser extent Čumavići licenses (Figs. 9.9, 9.10).

Results for 1970 soil samples are available. A spacing of 250 x 250 m was continued throughout the Olovine and Čumavići licenses. Spacing was tightened over the Brezovice area (NE Olovine license) to 200 x 200 m spacing. Infill sampling was undertaken over the Brezani-Skenderovići target area and over Seoce, reducing the sample spacing to approximately 175 x 175 m and 125 x 125 m respectively. Ridge and spur sampling was undertaken in the northern part of the Olovine license, with a line spacing of approximately 200 m. Some areas were not sampled due to access limitations and potential for landmines. Figures 9.11 and 9.12 illustrate some of the soil sampling results. The soil samples agree well with the stream sediment data and highlight potential magmatic-hydrothermal centers, including around Olovine and Kiseli Potok. Follow-up detailed mapping by the exploration team has identified areas of potassic alteration typically found near the hydrothermal centers and locally massive sulfide outcrops (Fig. 9.13).

In the Olovine area the new data overlap extensively with the historic soil data described above (Fig. 9.8). The general patterns are consistent with the historic data but as for the stream sediment samples, the historic data for Cu have an order of magnitude higher concentrations than the recently collected data.

Data for 174 rock chip samples collected throughout the property are available. The material sampled varies from mineralized samples from mine dumps to representative lithologies. Sampling was not carried out on a systematic spatial pattern. The 4-acid digestion data allow evaluating the rocks for type and degree of hydrothermal alteration (Fig. 9.14). Based on molar K/Al and Na/Al ratios most rock chip samples have been intensely sericite altered, which is consistent with field and petrographic observation.

For both stream sediment and soil geochemical data, interpretation of the results should take the extensive mining history into consideration. Anomalous values could be caused by medieval slag deposits or historic mining activity (Olovčić et al. 2017).



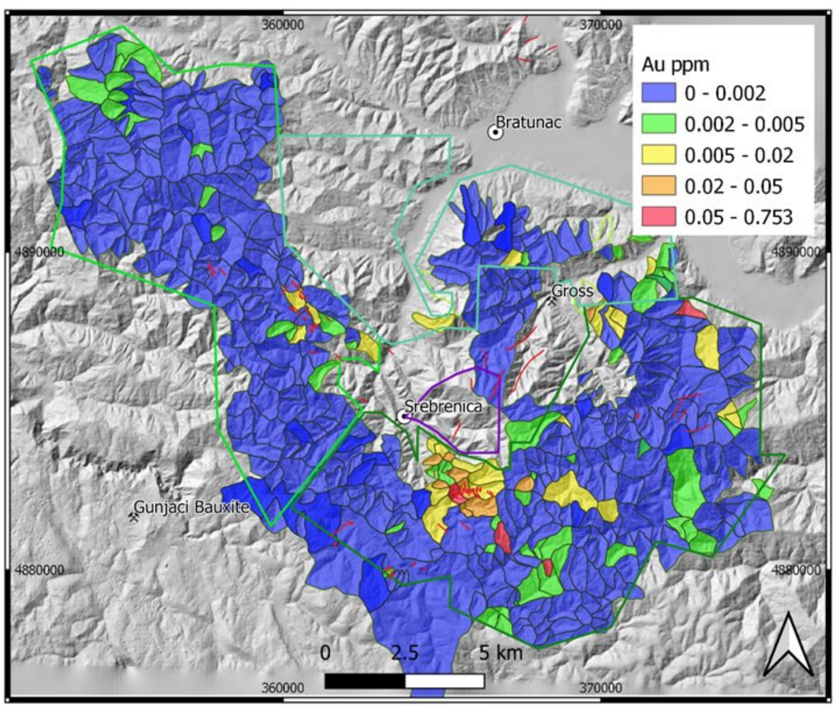


Figure 9.9:

New stream sediment data with catchments colored by silver (top) and gold (bottom). Silver shows a similar distribution as Pb.

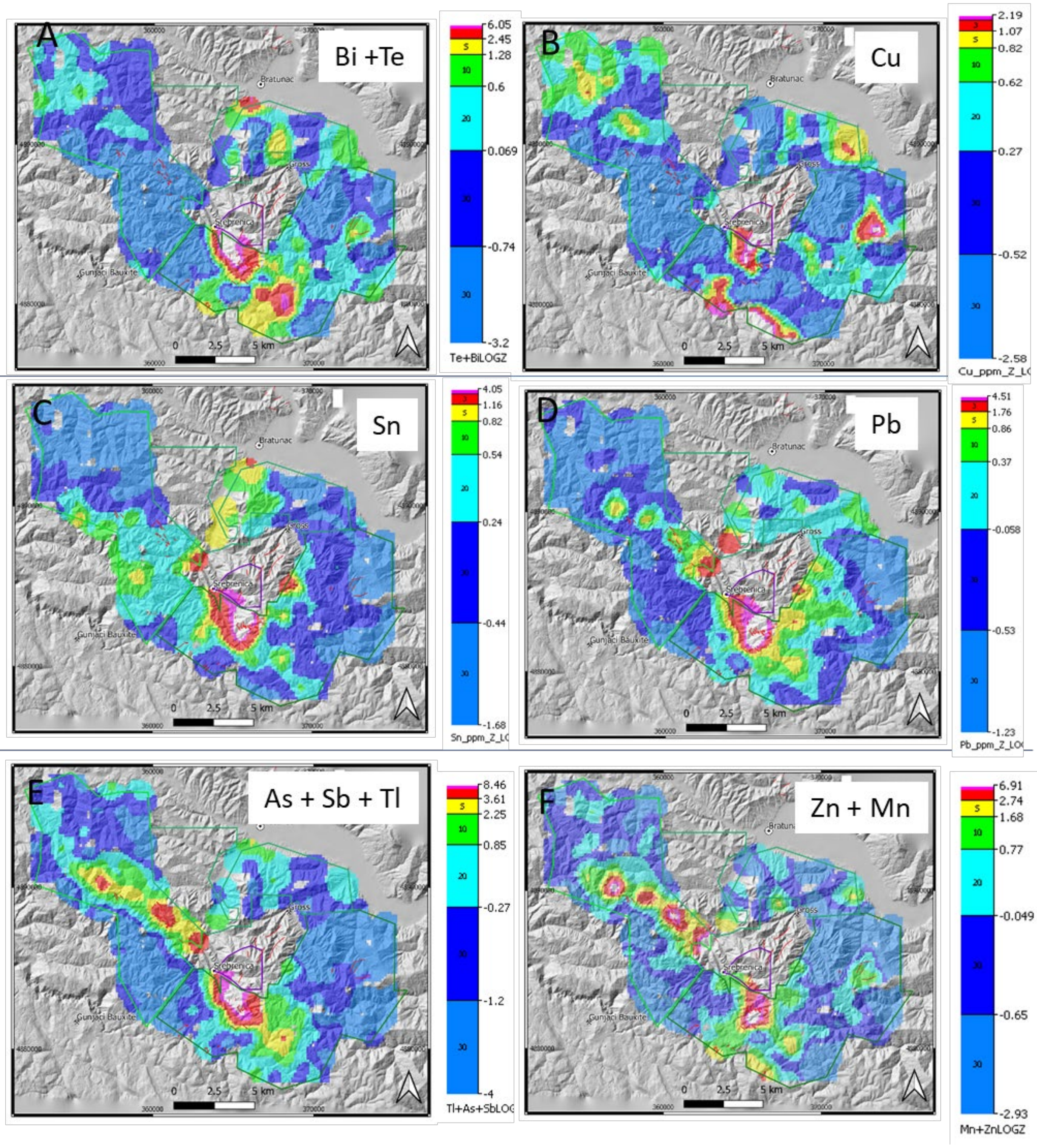
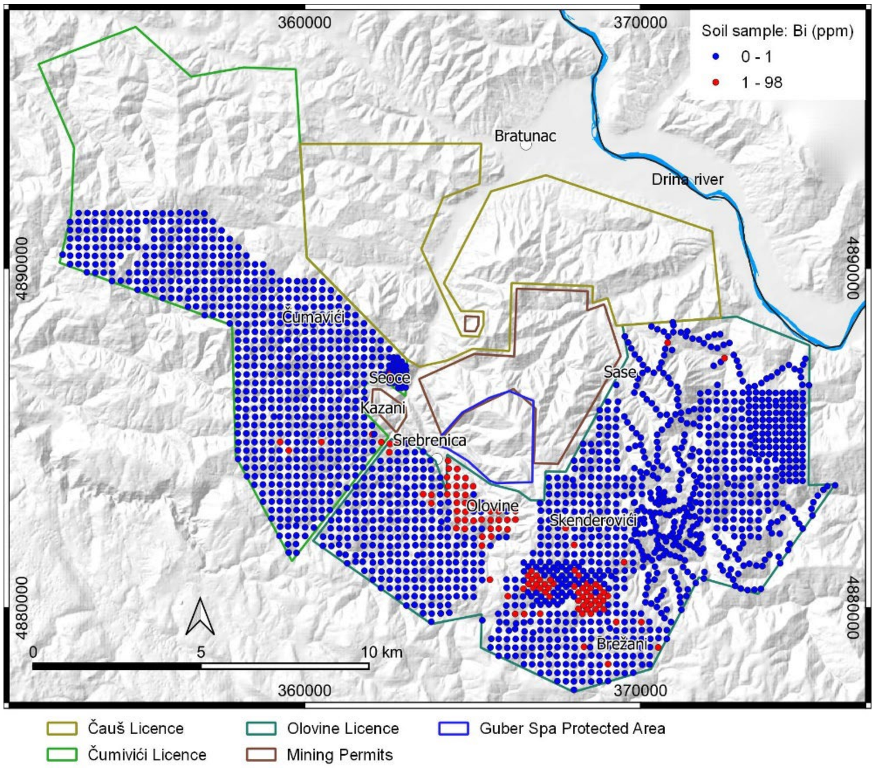


Figure 9.10:

Stream sediment data from recent campaign for selected elements showing district-scale zonation. Data are gridded at a cell size of 160 X 160 m and are shown as logged Z-Score values (approximately units of standard deviation), or sums of values where more than one element represented. A) through C): elements expected to be elevated near magmatic-hydrothermal centers; D) through F): elements expected to be highest in distal or upper parts of magmatic-hydrothermal systems. Čumavići has a distal, whereas Olovine has a proximal element association.



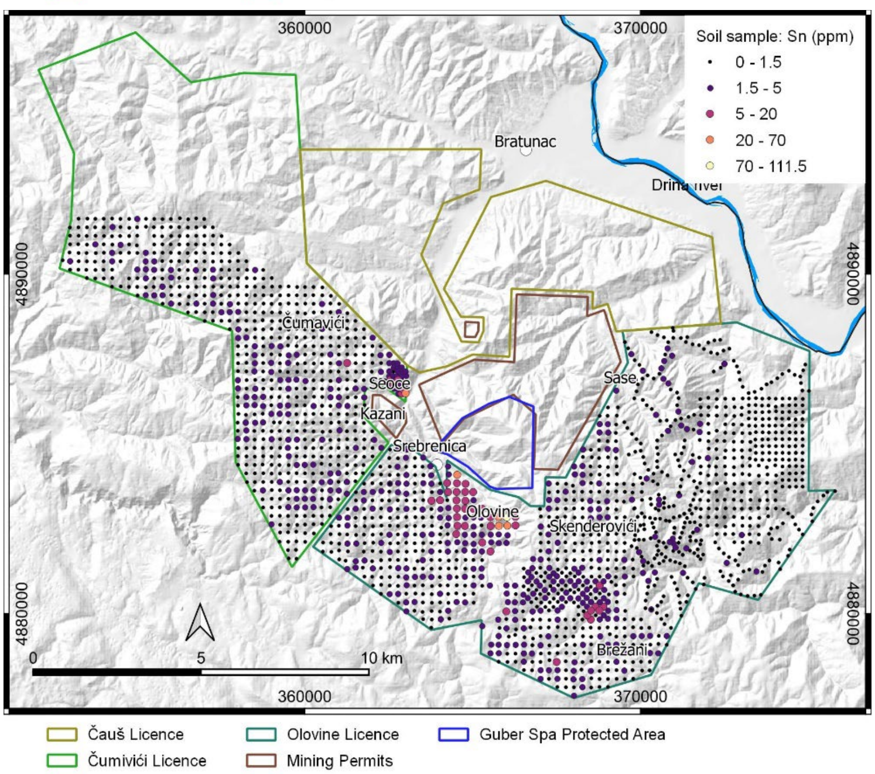


Figure 9.11:

Soil geochemical results for Bi (top) and Sn (bottom). These elements indicate potential magmatic-hydrothermal centers.

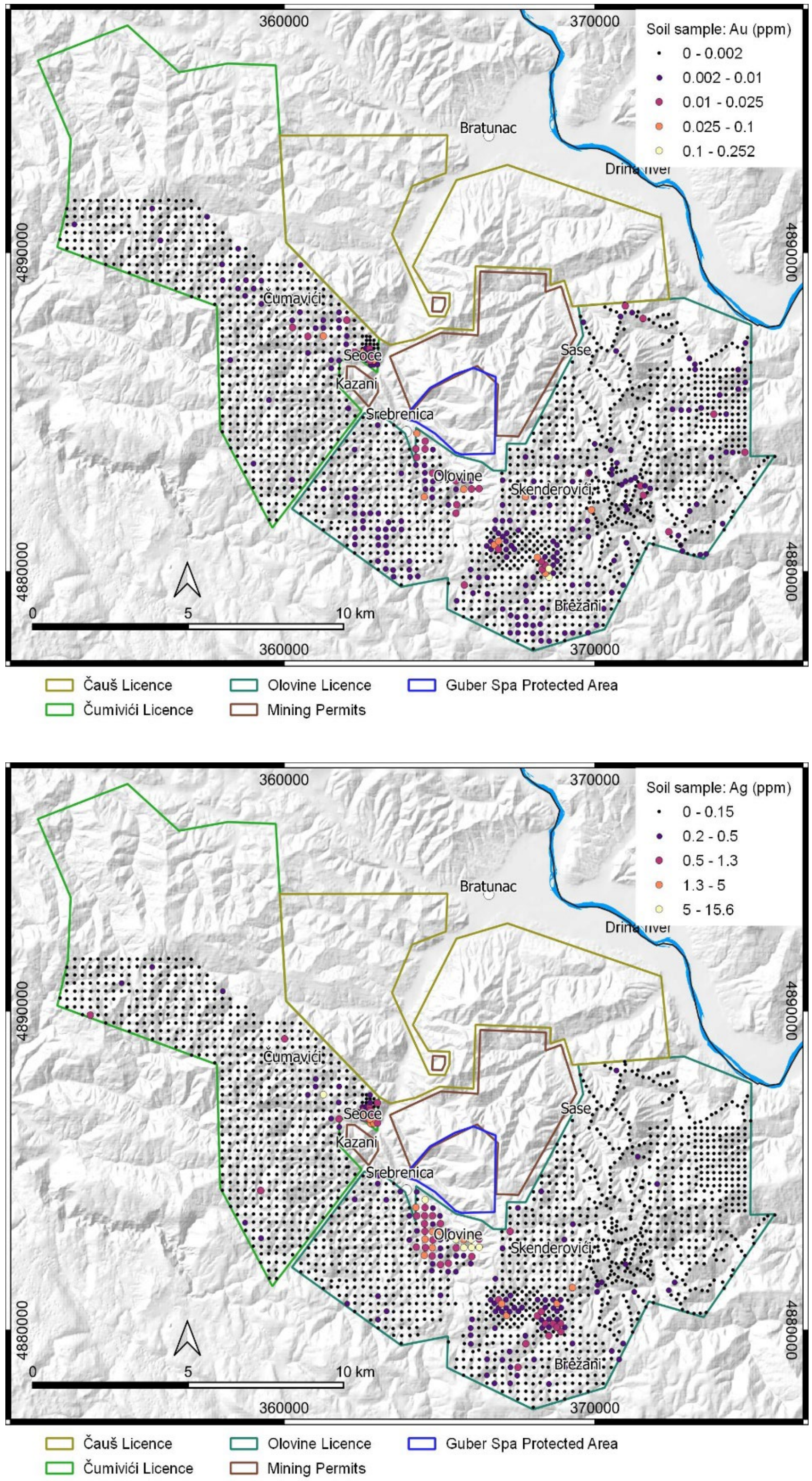


Figure 9.12:

Soil geochemical results for Au (top) and Ag (bottom).

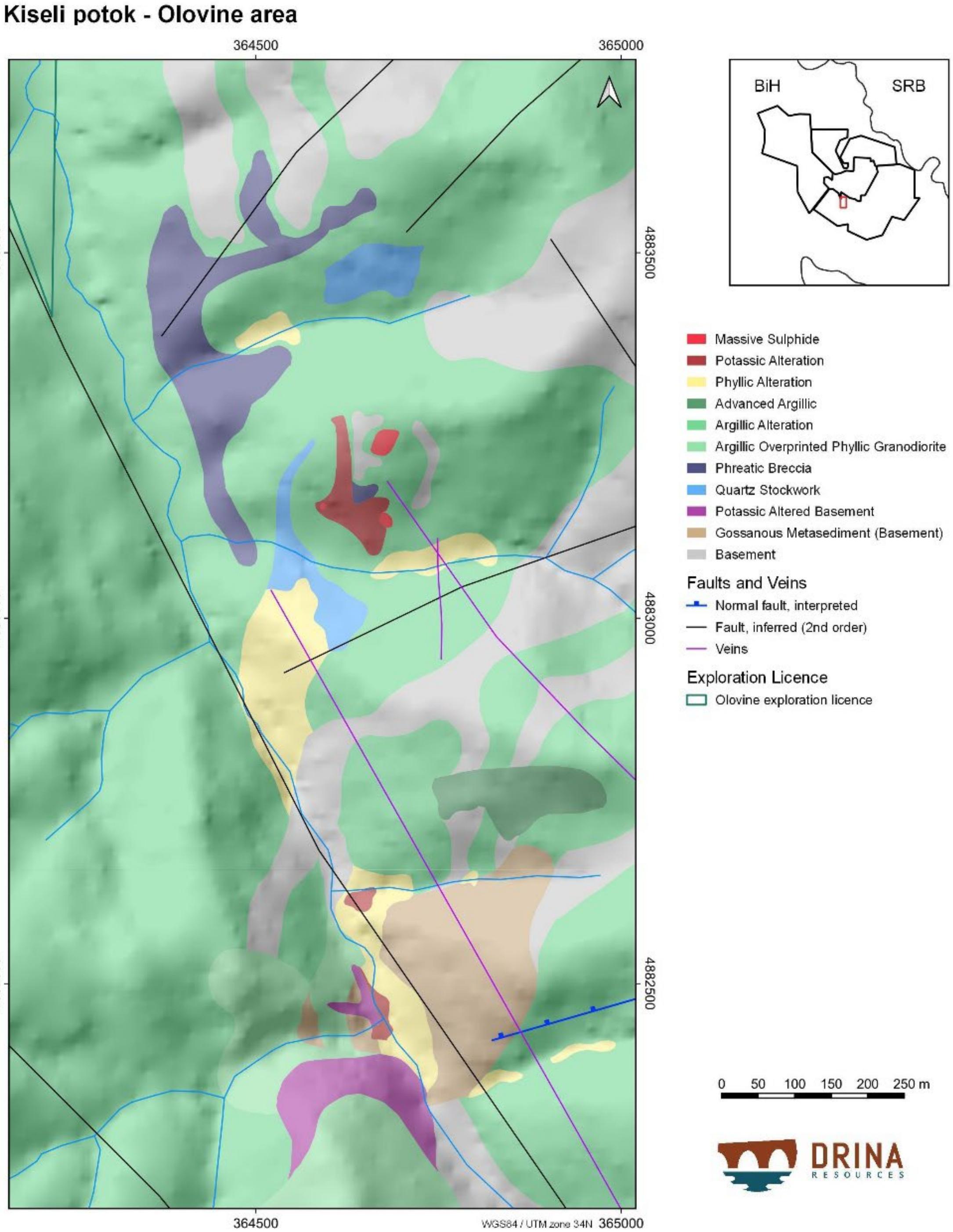


Figure 9.13:

Detailed alteration mapping around Kiseli Potok-Olovine which is where soil and stream sediment geochemistry suggests a magmatic hydrothermal center. Inset shows location of the mapped area.

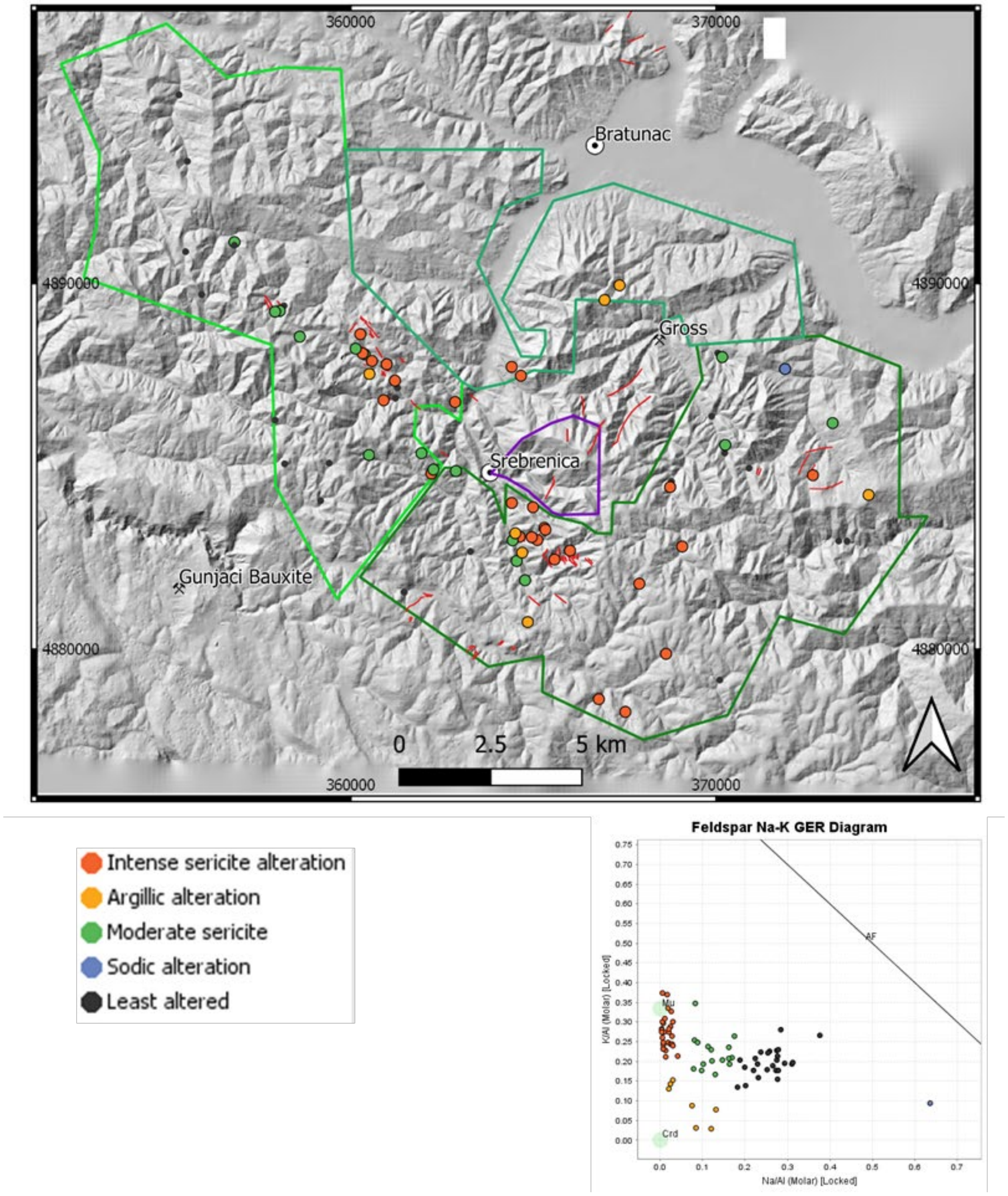


Figure 9.14:

Rock chip samples results colored by intensity of sericite or clay alteration based on K/Al vs Na/Al molar ratio diagram as shown. Note that areas of intense sericite alteration coincide with areas of high K/Th in radiometric data (cf. Fig. 9.5).

9.5: Remote sensing data

Terra Balcanica has commissioned a report (Pendock, 2020) to extract mineralogical and rock-property information from short and long wave infrared (SWIR/LWIR) bands from ASTER and Sentinel-2 satellite data. The general approach taken was to take the spectral signature of known areas of mineralization as training dataset and highlight other areas with similar characteristics. Examples of this approach are illustrated in Figure 9.15. It should be noted, however, that due to vegetation cover and moisture in the soil, satellite-based alteration mapping at Viogor-Zanik is not as straightforward as in desert environments. It is inherently difficult to identify specific relative mineral abundances given the vegetation cover of the area and the limited spectral resolution of satellite data. However, a general association of tourmaline, quartz, sericite and clay can be made for areas of alteration (Pendock, 2020).

The spectral satellite data highlight similar signatures to Čumavići around the Gross mine as well as an area in the southwestern corner of the Olovine license. Signatures like areas near Olovine are present to the south and east of Olovine. It is currently unclear how the areas highlighted by ASTER data analyses relate to rock-alteration and mineralization, but the technique highlights several potential follow-up targets for further ground truthing that may not be easily identified by other means due to limited access or rock exposure.

Besides spectral data, synthetic aperture radar (SAR) data from the Japanese ALOS-2 satellite were used to map conductivity based on measurements of the dielectric constants (DC's). Areas of high dielectric constants relate to areas of high conductivity and include standing water or water-saturated soils as well as geological features of high conductivity including areas with sulfides or Fe-oxides. Pendcock (2020) provided a first pass interpretation of the DC data which provide subtle signals over Gross and Čumavići. Additional processing and comparison to data obtained at different dates would be necessary to unravel geologic features, which would remain constant over time, from those related to moisture or standing water, which would be weather dependent. However, given the availability of high-resolution airborne EM data, this approach is unlikely to add critical additional insight.

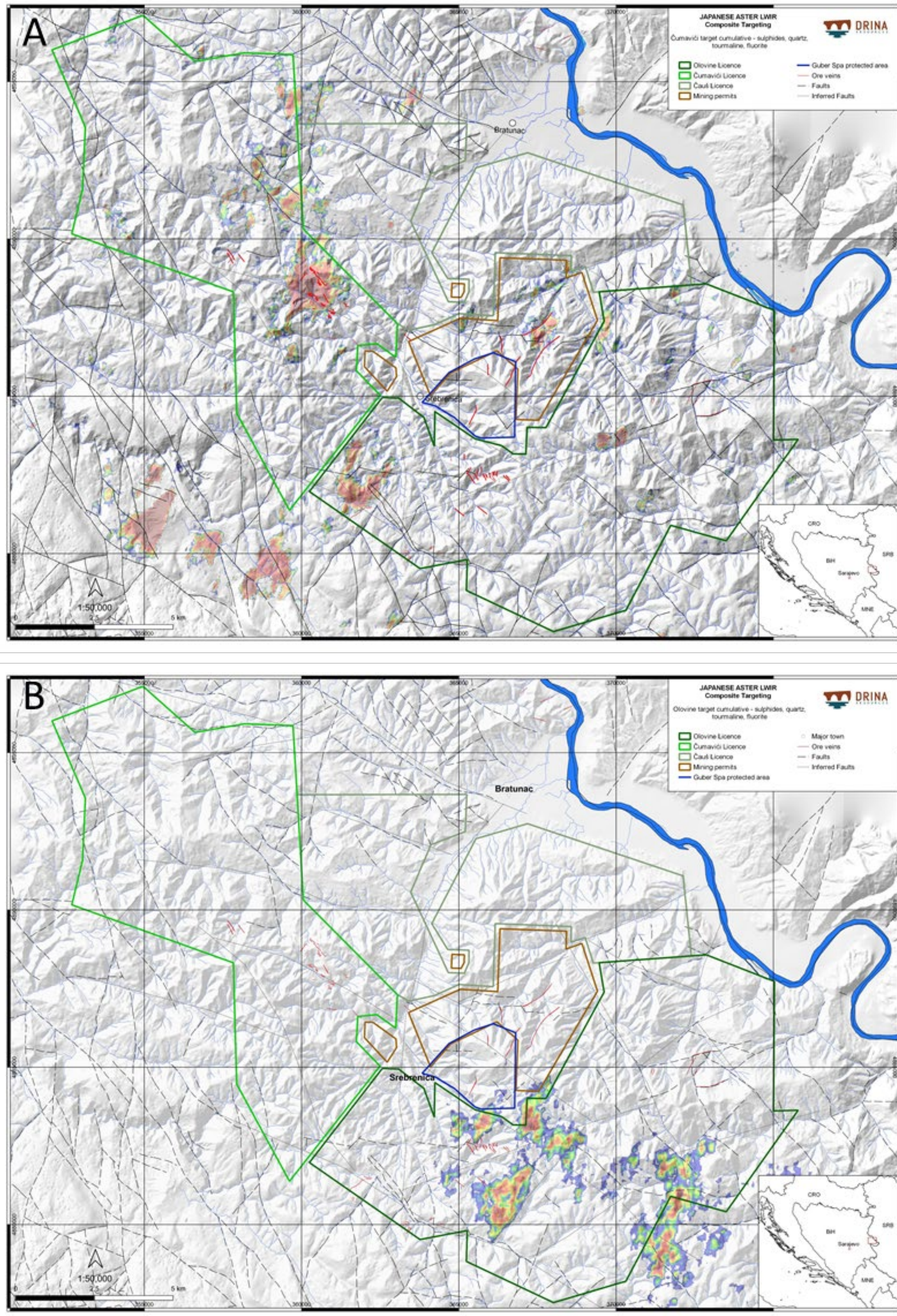


Figure 9.15:

Maps showing spectral patterns potentially related to alteration and mineralization. Algorithm is trained on the ASTER long-wave spectral responses of key exploration areas. A) Example of a map highlighting areas with similar spectral response as the Čumavići area. Spectral response is dependent on silicate, oxide and sulfide mineralogy present. B) map highlighting spectral responses similar to the Olovine area. Spectral maps from Pendock (2020)

10: Drilling

No drilling is currently in process or has, to date, been undertaken by Terra Balcanica. Historic drilling on Terra Balcanica's properties include 69 diamond drill holes (DDH) on the Čumavići license. An additional 15 holes were drilled on the Olovine license, all within 1.2 km from the northern license boundary (Fig. 7.7). For most drillholes no information other than a collar location, commonly digitized from old maps is available. Where recorded, drillholes are generally short and range from 12 to 390 m in length (average ca. 150 m). Drill core is no longer available for inspection. Drillhole strip logs and digitised sections are present for 20 diamond drillholes in the Čumavići Village area. This includes assays for sampled intervals for Ag, Au, Zn, Pb with occasional W, Hg values. However, for the majority of drillholes no geochemical information, including on mineralization intersected or the lack thereof, is available. Collar locations have not been confirmed and since some were digitized off old maps, considerable uncertainty on exact drilling locations remains. Where survey data are tabulated, it appears that drillholes were surveyed for collar locations, azimuth, and dip but no downhole survey was done, and drill core is not oriented. This practice likely introduced some uncertainty for understanding the vein geometry and may have resulted in erroneous estimation of true vein thicknesses. Any previously drilled area will require re-drilling if it remains of exploration interest to Terra Balcanica.

11: Sample Preparation, Analyses and Security

11.1: field sampling protocols

For currently on-going exploration programs, standard sampling procedures have been implemented. Coordinates of sampling points were generally recorded with a handheld GPS in the WGS84 UTM Zone 34N coordinate system. General metadata such as sampling date and sampler responsible are routinely being recorded. Field notes are taken by pen and paper and transcribed into a digital format (Microsoft Excel templates) on a daily basis.

For stream sediment samples, sediment is collected over about 10 m in the active streams for a representative composite. Sampling points are located a minimum of 50 m away from roads or other obvious disturbances. The samples are taken at >10-20 cm depth to avoid spurious results related to Fe-Mn oxide coatings. sediment samples are sieved to <2mm particle size in the field and about 0.5 kg of sieved material was sent to the laboratory. Information such as nature of the stream, directions, flow rate, organic content and description of the material sampled is recorded.

Rock chip and grab samples are collected from outcrops of interest. About 1-2 kg were collected from fine-grained, homogeneous lithologies whereas 2-4 kg were collected from more heterogeneous lithologies. Rock textures and mineralogy, as visible macroscopically, are described in the field.

Soil samples include ca. 1.5 kg un-sieved material and are collected from the B and BC horizon below the organic layer. Typical sampling depths are between 20-30 cm. The depth of sampling, soil horizon and color of sampled material as well as potential contaminants are recorded. In most places of the project area there is no evidence for significant transported cover on top of bedrock. Soil samples, thus, represent the underlying bedrock although the geochemical signal may have been dispersed significantly downslope. An additional consideration is the presence of historic mine dumps and old workings which may be overgrown and not readily be recognized. These features should be considered during data interpretation.

11.2 Chain of Custody

Each sample is marked with unique sample number on a cotton bag and with a paper sample tag put inside the bag. Samples are stored in a dry, lockable facility at the same location as where the crew is housed in Srebrenica (Fig. 11.1). Batches of samples are put into larger sturdy plastic bags for shipping. Those are closed with zip ties for security. Documentation for export from Bosnia-Herzegovina and import into Serbia are filled and included with the samples which are couriered directly from Srebrenica to the ALS Laboratory in Bor, Serbia. A bar code is assigned to the samples at ALS Bor where samples are prepared (crushed, pulverized and/or sieved depending on the type of material). Analytical work is performed by ALS Loughrea in Galway, Ireland. The analytical laboratory is independent of the issuer. ALS Loughrea in Galway is ISO 17025 certified by the Irish National Accreditation Board.

Figure 11.1:

Sample storage facility at an unused dining room where the crew is housed at Srebrenica.

11.3: Quality Assurance and Quality Control

For stream sediment samples duplicates were taken every 30th sample with consecutive numbering (e.g., 100030 is a duplicate of 100029) The duplicate was taken from the same field location but not from a split of the same sample. A blank (quartz sand) was included at the beginning of each batch (which includes up to 150 samples) submitted to the laboratory. ALS included additional blanks and reference materials as well as duplicates as per their standard operating procedure. The results are reported in the laboratory certificates

For rock samples one certified reference material (CRM) sample and one blank were included per batch. No field duplicates were included.

For soil samples one in every 50 samples is a field duplicate (2%). A blank was included at the beginning of every batch.

The field sampling protocols are considered adequate for the type of exploration carried out at Viogor Zanik. Since the aim of geochemistry at this early stage of exploration is primarily to identify anomalies and spatial patterns of element distribution the above QA-QC protocol is considered fit for purpose although additional blanks would be advisable for larger batches. More certified reference materials and blanks will be required for drilling, trench and channel samples (ca. 5% blanks and 5% reference materials).

11.4: Analytical Procedures

In general, the analytical methods and protocols are of high quality and adequate for the stage of exploration and type of samples collected.

For stream sediments samples were sent to the ALS laboratory in Bor, Serbia for preparation. ALS analytical codes are given below. Stream sediment samples are dried at < 60° C to preserve mercury and sieved to -80 mesh (-180 micros; PREP-41). The fine fraction is analyzed for 53 elements, including Au, by an aqua regia leach Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) package on a 50 g sample split (AuME-ST44). This method offers very low detection limits and is considered ideal for early-stage exploration, as is the case at the Viogor-Zanik project. The sample digestion method is a partial digestion. For elements normally hosted in sulfide or sulfosalt minerals or oxides (e.g., Cu, Zn, As, Sb, Ag, Au) the analytical values are at or slightly below the concentrations in the rock. For silicate forming elements such as Al, K, Na, Ca, Mg or Fe, analytical values are below the concentrations present in the sampled material.

Rock samples are crushed to > 70% passing 2mm and a 1 kg split pulverized to 85% passing 75 microns (PREP-31BY). The samples are analyzed for 48 elements by four acid digestion ICP-MS (ME-MS61). High-grade samples were analyzed for Ag, Pb, and Zn by four acid digestion ICP-Atomic Emission Spectroscopy (ICP-AES) (-OG62). Gold was analyzed by Fire Assay ICP-AES on a 30 g split. (Au-ICP21). Loss on ignition (LOI) was determined for 77 samples, which allows for a calculation of SiO_2. No CRMs other than blanks were included. The 4-acid digestion method is a near-total digestion. Analytical values for most elements except those hosted in the most refractory minerals (e.g., zircons) are near total.

Soil samples are dried and sieved to -180 microns (PREP-41) at ALS laboratory in Bor, Serbia. Like the stream sediment samples, an aqua regia leach on a 50 g sample split is performed. This is followed by an ICP-MS analysis for 53 elements including Au. The ALS analytical package used for soils is AuME-TL44 which is similar to the package used for stream sediments but has somewhat higher detection limits than the AuME-ST44 method for a number of elements.

11.4: Data management

All geological field data is collected in a excel spread sheet templates. These templates are specially designed with pick lists for Terra Balcanica exploration work. There are 6 drilling related templates, 4 templates for gathering point samples data and 2 templates for samples information.

One of the control measures when entering data into templates are validation lists that are created for over 50 attributes. Every attribute has code list which is attached for the corresponding column in the form of a drop-down list. Each list represents referent table that is also attached for official database importer. Values that are not in the reference tables cannot be imported into the database. For importing data into database, user friendly web interface is created. From here, all data are inserted to the Postgres database that is communicating directly with QGiS software. A database manager is assigned to maintaining database integrity.

12: Data Verification

As detailed above, historic exploration datasets lack the metadata required to evaluate suitability and reliability of the data. Geochemical data verification on historic drilling was not carried out due to lack of original analytical certificates and lack of access to drill core or other drilling sample materials. Thus, historic drilling data could not be verified.

For the recently completed stream sediment and rock sampling program discussed herein, field sampling points were reviewed and confirmed on maps. Typical field sampling sites were visited. Coordinates for the sampling points fall within drainages and corresponding sediment catchment areas are meaningful. Duplicate samples and Terra Balcanica's QA/QC protocols were reviewed and found to be within the expected range. Original certificates of analysis were also reviewed, and laboratory internal blanks were checked for signs of contamination. The data are adequate for the type of exploration under way at Viogor-Zanik. Likewise, the analytical methods and QA-QC procedures are deemed adequate and fit for purpose although the QA-QC protocols need to be adapted once exploration progresses and trench, channel and drill samples are analyzed.

13: Mineral Processing and Metallurgical Testing

To date no metallurgical testing or mineral processing has been undertaken by Terra Balcanica on materials extracted from their exploration licenses.

The currently operating Gross mine, adjacent to Terra Balcanica's exploration licenses, processes 330,000 t/a with a conventional froth flotation process to recover Pb and Zn. No further details on the processing or metal recoveries are publicly available.

Given the early stage of exploration on Terra Balcanica's licenses it is not known whether a mineral processing flowsheet similar to that used at the Gross mine would be adequate.

14: Mineral Resource Estimates

There are no mineral resource estimates on the project.

15: Adjacent Properties

The mineral claims held by Terra Balcanica surround the land tenure and mining permits held by Mineco Ltd., mostly around the Gross mine but include two exploration areas at Vitlovac and Kazani. These land holdings encompass most of the veins with production since WWII (See Fig 4.2). None of Mineco's mining permit areas have been visited by the author and information summarized below come from Mineco Ltd.'s website, Dangić (1980), Geoinstitut Beograd (1986), and Vukosavljević (2017). The author of this report has been unable to verify the information related to the mining permits held by Mineco. No inferences for the mineralization on Terra Balcanica's licenses can be made based on the information contained in this section.

At the Gross mine, ore has been extracted from 16 individual veins to date. Veins represent a system of sub-parallel mineralized faults striking north-northeast to northeast. The veins are numbered, with No. 2 and No. 5 veins representing the principal structures, whereas other veins are branches or extensions of those. The zone containing the veins is about 500 m wide and 3500 m along strike. Veins at surface dip steeply (> 80°) to the northwest but have shallower dips at depth. Strike and dip vary along strike. About 50% of the current reserves are contained in No. 2 vein which has a strike length of 2 km and is up to 5 m wide. Mine production comes from 11 mining levels or 500 m vertical extent to date (Vukosavljević, 2017; Dangić, 1980). It contains sphalerite, galena, pyrite, marcasite, boulangerite as well as Mn-Fe carbonate and quartz gangue (Dangić, 1980). The mineralogy of that vein is zoned along strike, containing marcasite and Fe-carbonate in the southwestern part with sphalerite-galena and quartz increasing towards the NE. Wall rock alteration is described to contain biotite and silica next to the vein, transitioning into chlorite alteration (Dangić, 1980). However, the ore mineral assemblage described suggests epithermal conditions (≤ 300°C) which is at odds with the described wall rock alteration which includes hydrothermal biotite suggestive of temperatures ≥ 450°C. Mineralization could be the result of an overprint of earlier high-temperature alteration or, alternatively, alteration assemblages may not have been correctly identified. Public information available does not allow resolving this uncertainty.

Besides the main veins in the immediate area of the Gross mine, a small part (~ 5%) of the overall resource base, albeit without current production, is contained at Vitlovac and Kazani (Vukosavljević, 2017).

Vitlovac includes 11 known widely spaced north striking, steeply west dipping veins which extend from the Guber Spa protected area to the north into Mineco Ltd.'s mining permit. The veins have historically been exploited but are generally narrow. Sulfide minerals include sphalerite with chalcopyrite and pyrrhotite exsolutions, pyrite, arsenopyrite with quartz and Mg carbonate gangue (Vukosavljević, 2017).

Kazani is a small, separate mining permit to the west of Srebrenica. The vein historically exploited in that area is northwest trending but no information on ore and gangue mineralogy is detailed in Vukosavljević, (2017).

Current Gross mines' production is ca. 330,000 t/yr and the mine employs some 530 people. No inferences on viability of exploitation and mineral resources on Terra Balcanica's licenses can be made based on resource and production data from the Gross mine.

Besides Gross, the past producing Gunjaci bauxite mine is clearly visible on satellite images. It is located some 4 km to the west of the Čumavići and Olovine licenses. The bauxite is hosted in Triassic sedimentary units which are back thrusted over the Paleozoic rocks of the Drina Ivanjica terrane. The Bauxite is not related to magmatic-hydrothermal activity and has a very different origin from the polymetallic mineralization in the Srebrenica district. It is not relevant for the potential economic viability of the Viogor-Zanik project and is not further discussed herein.

16: Other Relevant Data and Information

16.1 Health and Safety

Terra Balcanica has established internal standard operating and health and safety procedures. These are aimed at eliminating or mitigating risks around driving, field traverses, and core and sample handing. Workers are trained in safe work practices, including best practices for the prevention of COVID-19 transmission. Regular safety reviews are conducted. The company has 5 employees certified in occupational first aid. Medical facilities available at Bratunac. One significant risk factor at Viogor-Zanik but not common in other exploration projects are the landmines and unexploded ordnance. Each worker potentially exposed to that risk is trained prior to fieldwork. The risk management related to this is described above in section 5.

16.2: Community engagement

Terra Balcanica's personnel is required to adhere to the company's established code of ethics and conduct to ensure a positive relationship with the local population. Terra Balcanica has been actively involved in establishing community relations with various stake holders in Bosnia and Herzegovina including local landowners, the Ministry of Energy and Mines of Republic of Srpska, municipal governments and the citizens of Srebrenica and Bratunac at large. Lines of communication are kept open. To date, community engagement efforts included:

- Two direct meetings between the Company CEO and the mayors of Srebrenica, Mr. Mladen Grujičić, and Bratunac, Mr. Srdjan Rankić; one in February and the other in May of 2021 where a support for the project was obtained by the local governments.
- Holding a Srebrenica townhall meeting with the local government dignitaries, religious leaders on the 20th of April, 2021. The Company was represented by the chief safety geologist Ana Arifovic, the future country manager Pero Jokanović accompanied by the chief scientist from the Republic of Srpska Environmental Institute, Dr. Predrag Ilic, who is in charge of the environmental baseline study conducted on behalf of the Company's subsidiary Drina Resources d.o.o. – Banja Luka.
- Organizing a health and safety meeting with the Bratunac fire brigade on the 13th of April, 2021 in advance of the commencement of the SkyTEM airborne survey. As part of this effort 5 mobile radio stations were donated to the fire brigades of Srebrenica and Bratunac, each. These donations were based upon previous conversations held at the local level where a need for such equipment was expressed.
- Informing the local population of all the major upcoming exploration activities through press releases and local media announcements.

17: Interpretation and Conclusions

The Srebrenica district has a long history of mining, but limited systematic exploration based on current understanding of mineral systems and ore deposit models. Likewise, although geophysical and geochemical data coverage is considerable, the actual background information on methods, sampling protocols or data collection parameters are largely lacking. Thus, the combination of demonstrated historic productivity of the district combined with limited degree of modern-day exploration opens a unique opportunity for exploration and potential discovery.

The veins in the Srebrenica district are roughly radially distributed around a central point to the south of Kvarac hill, within the Olovine license. This area is characterized by quartz-tourmaline-sericite greisen-style alteration and to a lesser degree silicification. This type of alteration is characteristic for proximal alteration around peraluminous granitic-intrusion related Sn (-Pb, Zn, Ag, Cu, Au) systems as are common in the Cordillera Oriental of the Andes or in the Erzgebirge. The proximal zones contain Sn (-Cu) mineralization in veins and breccias whereas Pb-Zn-Ag veins associated with argillic to propylitic alteration are typical for the more distal portions.

Current geological mapping, geochemical data and vein arrangement suggests a principal magmatic-hydrothermal center near Kvarac hill but also at Olovine and Brezani. The overall dimension of this mineral system amounts to 10 km or more in diameter in the NW-SE direction. Thus, the overall extent of the mineral system is significant and of similar dimensions as examples in the Andes or the Erzgebirge. However, the currently available data are insufficient to confirm whether economic mineralization is present at the Viogor-Zanik project.

The historic magnetic and gravity data are consistent with more extensive intrusive bodies at depth than would be evident from the currently mapped vein and alteration distribution. This opens the possibility for the presence of additional mineralized centers. Magnetic data collected in May 2021 are broadly consistent with the historic datasets but are of considerably higher reliability and resolution.

The observed andesitic to dacitic rock compositions combined with the presence of magnetite as also evidenced by the geophysical data differ somewhat from the peraluminous granite associated systems in the eastern central Andes. More exploration work is required to determine whether potential for porphyry-style Cu (-Au, Mo) or polymetallic Cu-Sn-Pb-Zn mineralization exists at depth below Olovine.

Recently collected stream sediment and soil geochemical data prove to be an effective means in the region for identifying anomalous areas potentially related to polymetallic mineralization. However, it is not proven so far whether any soil or stream sediment anomalies directly relate to economic mineralization.

Recent stream sediment and soil data on Terra Balcanica's Olovine and Čumavići licenses suggests that the veins of Olovine have geochemical characteristics consistent with a proximal setting relative to a magmatic-hydrothermal center, whereas veins at Čumavići were emplaced more distally. This interpretation is also consistent with geological and mineralogical observations.

Mineralogical studies in the district, particularly at Čumavići, documented a large variety of sulfide and sulfosalt minerals. At this stage, no data on potential metal recoveries and metallurgical performance are available but the complex mineral assemblages may provide challenges for mineral processing. On the flip side, there is some indication that critical elements such as In, Ga, or Ge may be enriched in some mineralized zones.

Historic drilling generally targeted known veins or vein extensions. Drillholes are typically short, averaging about 150 m. Previously published estimates are not considered reliable and re-drilling would be required to for the definition of a compliant resource. No drill core was available for review.

As is in the nature of early-stage exploration there is no guarantee that exploration will lead to economic mineralization and significant risk remains especially when exploring for styles of mineralization that has previously not been the focus of exploitation.

Historic and current mining in the region is focused on vein-hosted mineralization exploited by underground methods. These veins are herein interpreted as part of one or several larger magmatic-hydrothermal systems. Exploration may focus on finding additional such polymetallic veins or larger, lower grade, but higher tonnage Cu and/or Sn, Zn, Pb, Ag bearing mineralization potentially exploitable by open pit methods. However, the economic viability of open pit mining remains to be proven in the district. Conversely, vein-hosted mineralization is a proven mineralization style, but given the long mining history it is likely that outcropping veins have largely been found. Additional veins, although potentially present, are unlikely to be outcropping, providing challenges for successful exploration. Moreover, it is unknown whether any additional veins are of sufficient strike length and width to make them viable for exploitation.

18: Recommendations

The Srebrenica district has a long history of small-scale mining. However, much of that history is poorly documented or information is not available in electronic or geospatial format. Moreover, the last serious exploration effort took place in the 1980ies. Thus, the Srebrenica district will benefit from a systematic approach following state-of-the-art techniques and protocols as has been initiated by Terra Balcanica. A series of recommendations are provided below. A table detailing required budgeted expenses for the upcoming 12 months is included below (Table 18.1). All dollar amounts are given as Canadian Dollars. A work program including ~$900,574 is proposed. In addition to that $291,500 was spent on the geophysical survey; $85,800 on geochemical analytical services as well as $643,000 on field logistics, personnel, and administration during the first two quarters of 2021. The projected budget for 2022 amounts to ~$900,574 and includes an initial drilling and trenching program, associated geochemical analyses as well as and additional geochemical data collection (soils, stream sediments, rock samples) and associated field logistics administration and personnel costs.

Historically, exploration in the district appears to have been focused on individual veins or mineralized zones. However, since there is indication that the district hosts one or several potentially large-scale mineral systems, exploration should focus on identifying large scale zonation from areas proximal to distal to magmatic-hydrothermal centers. Within those, areas most prospective for economic mineralization should be targeted. The mineral system targeting approach should all available datasets into consideration including documentation of alteration, lithology and mineralization by means of 4-acid ICP-MS geochemical methods as well as short wave infrared spectroscopy (SWIR). Ground-based radiometrics is an additional means of identifying areas of K-rich alteration. All of these datasets can be used for targeting in concert with remote sensing data.

Geophysical data collected in the late 1970ies suggest presence of variably magnetic intrusive centers and gravity suggests a large low-density intrusive body at depth. A crucial dataset for future exploration targeting is the recently obtained high-resolution airborne geophysical survey. This provides data to help identify magnetic intrusive bodies, and magnetite destructive alteration zones. It will also provide the basis for a district-scale structural model which will help with targeting, follow-up geochemical sampling, and eventually drilling or trenching The TEM data will lead to identification of conductive and resistive zones. Conductive zones may be related to sulfide mineralization whereas resistive zones may indicate presence of intrusions around which disseminated mineralization may be present.

The airborne geophysical data should form the basis for a structural interpretation by an expert structural geologist. This will help delineating main structural controls on mineralization and will be important for geological mapping.

The district-scale stream sediment geochemical survey provides an excellent basis to identify prospective drainages within which to follow up with more targeted soil geochemistry. Most of the exploration licenses are well covered with stream sediment samples but the western part of the Čauš license remains to be sampled. This should be completed soon. Soil geochemical sampling has been completed in Q3 of 2021. Initially the soil samples were taken at 250 m spacing which is sufficient to identify prospective areas, followed by 100 m sample spacing in areas identified to be most prospective. Conversely, areas of lower priority, e.g., where stream sediment results are not indicative of mineralization, will not require regular 250 m spaced soil samples. Those areas were covered by ridge and spur sampling and anomalies identified there should be followed up by additional sampling. Soil and stream sediment geochemical data interpretation should take historic mine workings into consideration. Ancient mine waste-dumps or tailings are not always readily recognizable.

Exploration and drilling should be focused on areas where likely mineralization styles support a realistic mining scenario. This includes focusing on areas of sufficient vein thickness to allow underground mining or, where disseminated or stockwork mineralization allows for bulk tonnage exploitation.

The geochemical, geophysical, and structural analyses resulted in definition of three general zones of high prospecitvity: 1) Olovine locality, more specifically the Kiseli Creek and Cicevac Creek areas, 2) the general Brezani village area, and 3) the Čumavići village zone. Seven drill pad locations were identified as most prospective with drilling done in a staged manner each step being conditional of the success of the previous one. A 1,200 m, first-pass drill program is recommended to start at the Olovine locality in Q1 of 2022. This should be expanded to include additional drilling in 2022 and beyond.

The drill core should be oriented, split, structurally and mineralogically logged after which composite 1-m homogenized samples derived from ½ half of the split core will be sent to the ALS laboratory facility in Bor, Serbia for crushing and grinding in advance of 4-acid (near total) digest geochemical analysis by ICP-MS. Gold will be determined by fire assay on a 30 g sample split.

In addition to the 1st pass drilling activities at the Viogor-Zanik project, a program of exploration trenching in the locality of Brezani within the mineral exploration licence of Olovine is recommended. Ca. 290 m of 2-m deep trenches will be excavated, mapped, logged and samples in 2 m-long composite intervals to better understand the anomalous distribution of gold, silver, lead, zinc, arsenic and copper detected in the soil sampling activities from 2021.

Health and safety as well as environmental stewardship are of primary importance to the success of any exploration program. In this context, continued engagement of local experts in managing the risk of unexploded ordnance and landmines is a critical element for safely advancing exploration in the district. Likewise, continuous consultation with the local community is essential.

Item	Total for 2022	Comments
Administration cost	$45,500.00	office expenses, facility rentals, bank, taxes
Personnel cost	$114,613.00	salaries
Travel	$14,000.00	
Outside technical services	$14,750.00	legal, accounting
Field logistics	$76,800.00	Vehicle and facility rentals, field camp, fuel, food, consumables
Analytical services	$91,358.74	1080 DDH assays ($66/sample); 290 rock chip from channeling
Subject matter expert services	$17,940.00	
Drilling/Trenching	$205,620.00	1,200 m ($134/m); 50 m additional trenching
Land Acquisition	$2,500.00	private land access
Total exploration cost	**$583,082.74**	
Contingency (3%)	$17,492.45	during the 3 months of drilling
Total projected costs	**$600,574.19**	

Table 18.1

Projected exploration cost for 2022.

19: References

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Certificate of qualified person

I, Thomas Bissig, Geologist, PhD

1. I am a consultant geologist providing services through Bissig Geoscience Consulting a sole proprietor registered company under the laws of British Columbia Canada.
2. I am a Qualified Person for purposes of this instrument.
3. I am independent from Terra Balcanica Resources Corp. My business address is 306-1750 Maple St., Vancouver, BC, V6J 3S6, Canada.
4. I have no previous involvement with Terra Balcanica Resources Corp. or the Viogor-Zanik project.
5. This certificate applies to the technical report titled "Viogor-Zanik Project, Eastern Bosnia & Herzegovina Terra Balcanica Resources" date effective January 24th, 2022 (the "Technical Report") with respect to the Olovine, Čumavići, and Čauš exploration licenses in the Srpska Republic, Bosnia & Herzegovina (the "Property").
6. I visited the Viogor Zanik property once for 5 days between May 5th and 9th of 2021.
7. As the sole author of this report, I am responsible for all sections of this report.
8. I have read the NI 43-101 instrument and this report. The report, to the best of my knowledge, has been prepared in compliance with this instrument.
9. To the best of my knowledge, information, and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
10. I am a practicing geologist and a registered member of the Association of Professional Engineers and Geoscientists of British Columbia, Canada (EGBC), registration number 40383. I am entitled to use the seal affixed to this report.
11. I graduated with a diploma in Earth Sciences from the Swiss Federal Institute of Technology (ETH) Zürich, Switzerland in 1997.
12. I obtained a PhD degree in geology from Queen´s University, Kingston, Ontario, Canada in 2001.
13. I have practiced my profession continuously since 1997.
14. I have worked extensively on a variety of ore deposits including epithermal and porphyry style deposits and polymetallic base and precious metal deposits in North and South America as well as Eastern Europe. During this time, I have worked with geochemical, mineralogical, remote sensing and geophysical data collected on deposits and exploration projects similar to Viogor-Zanik.

Date: May 26th, 2022

Signature: (Signed) "*Dr. Thomas Bissig*"