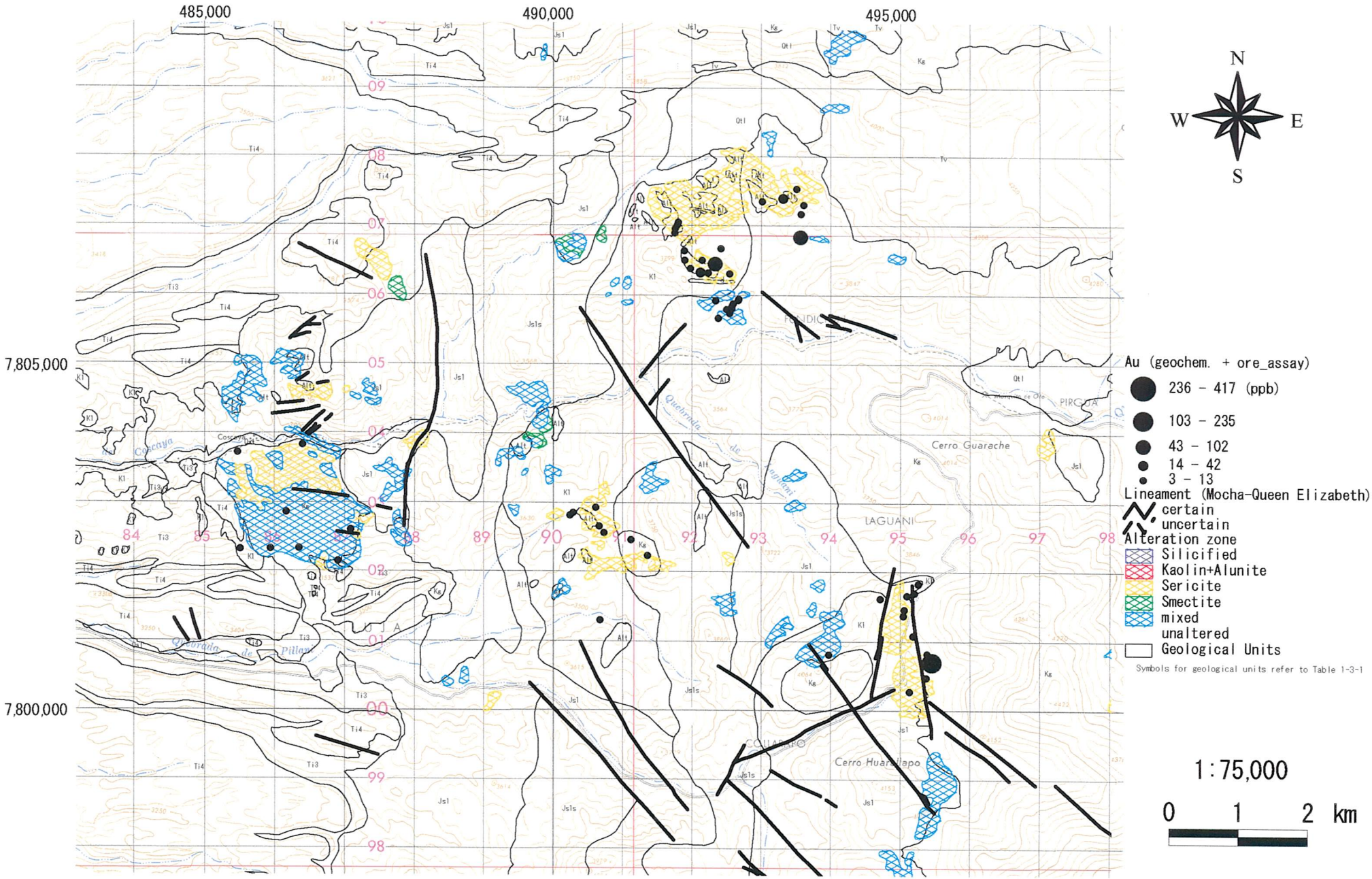


Fig. 2-2-30 (1) Geochemical Anomaly Map in the West Queen Elizabeth Area (Au)

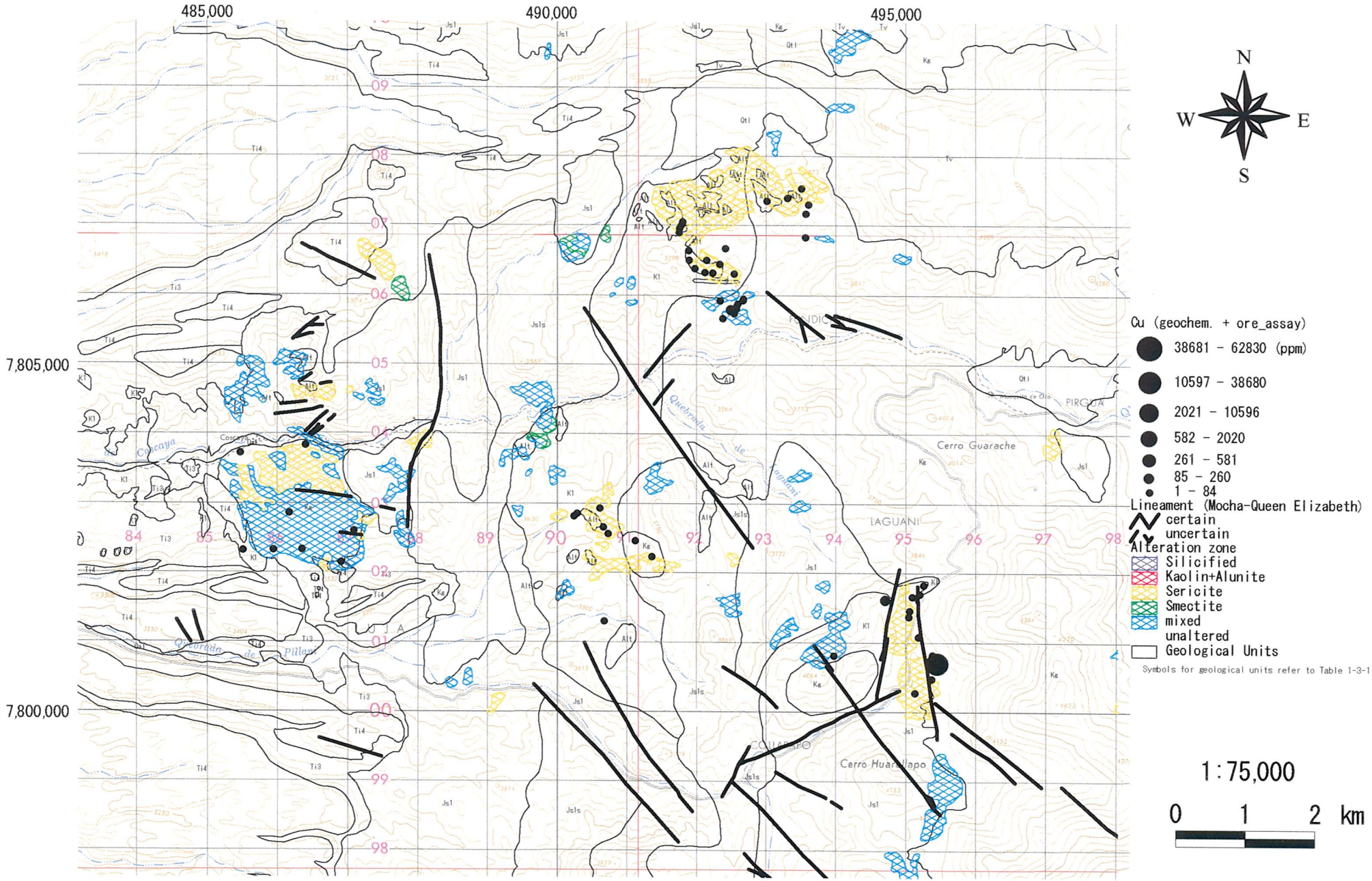


Fig. 2-2-30 (2) Geochemical Anomaly Map in the West Queen Elizabeth Area (Cu)

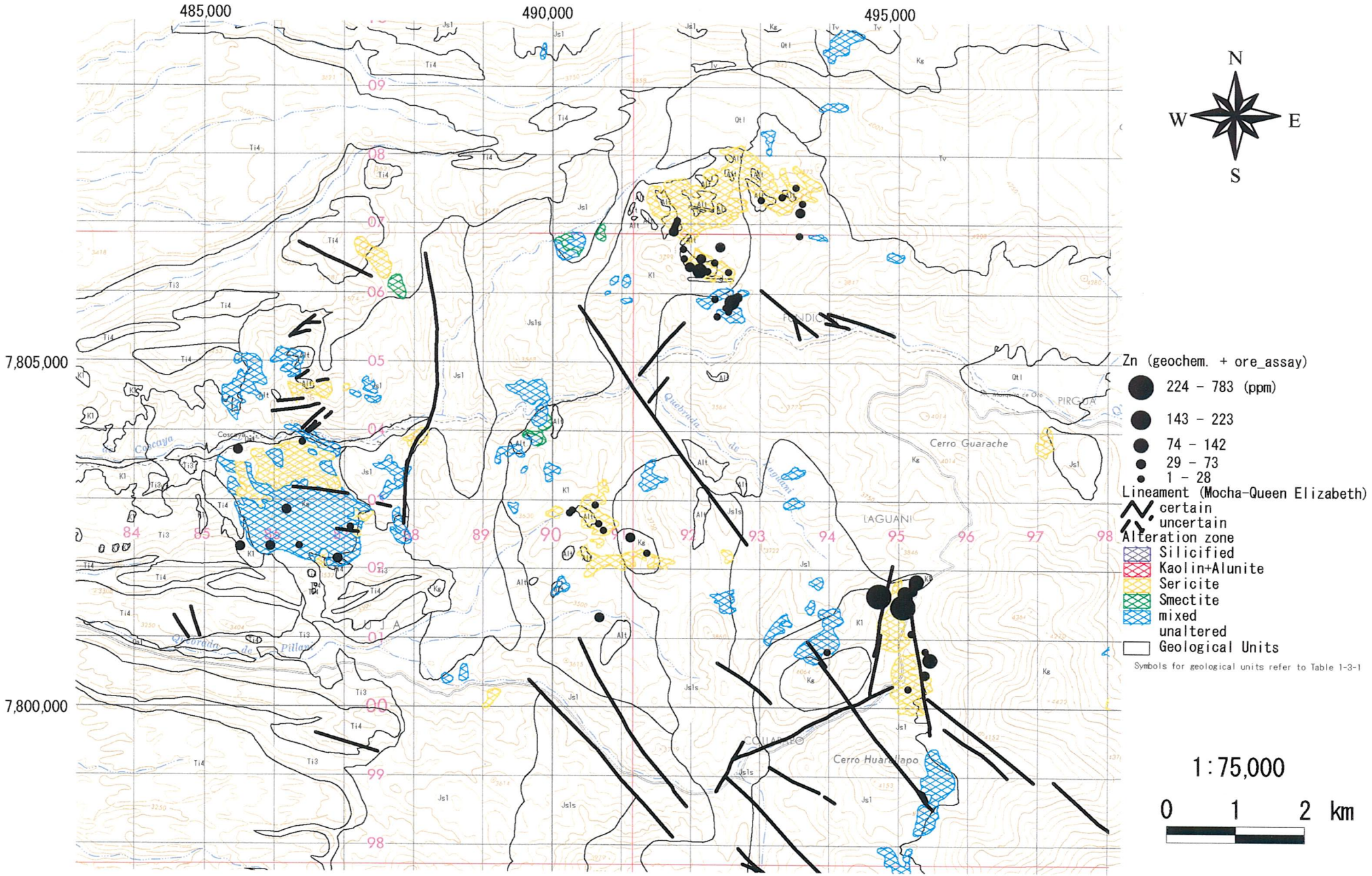


Fig. 2-2-30 (3) Geochemical Anomaly Map in the West Queen Elizabeth Area (Zn)

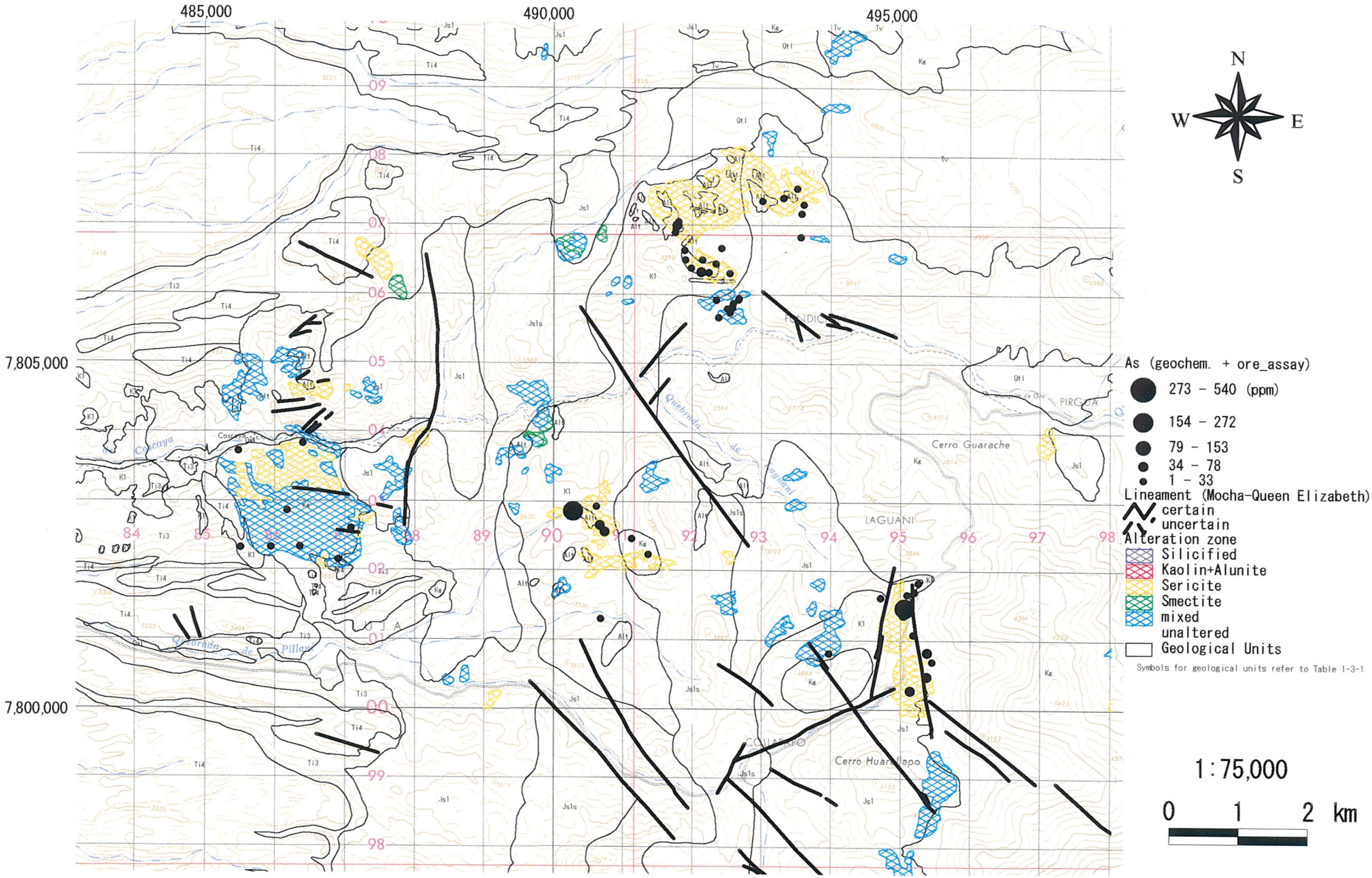


Fig. 2-2-30 (4) Geochemical Anomaly Map in the West Queen Elizabeth Area (As)

Alteration zones occur in four localities of this area, namely northern, central, southeastern, and western parts.

The northern alteration zone occurs in the Lower Cretaceous System and intrusive bodies (diorite, granite porphyry) and consists of silicification, sericitization, propylitization, and acidic alteration (kaolin, alunite, pyrophyllite). In this alteration zone, pyrite dissemination and limonitization are common, while quartz veins consisting partly of chalcedony are developed only locally. E-W trending andesite dikes occur in this zone.

The central alteration zone occurs in andesitic porphyry intruding Middle-Upper Jurassic System and in Lower Cretaceous System and consists of silicification, sericitization, propylitization, and kaolin. Pyrite dissemination and limonitization and hematitization are common in this zone. Development of quartz veins is not good, but NW-SE trending silicified zone is developed in this zone. This trend of the silicified zone coincides with the dominant direction of lineaments of this area.

The southeastern alteration zone occurs along the western side of the granodiorite body intruding into the Middle-Upper Jurassic System. A N-S extending lineament occurs along the western border of the intrusion and also a parallel lineament exist to the west. This alteration zone occurs between these two lineaments. This zone consists mainly of silicification and sericitization, and limonitization is also common. To the north of this zone, a 1m wide irregular magnetite vein occur for about 100m in the Jurassic System. Also to the south of this zone, quartz veinlets occur sporadically and green oxidized copper minerals, chalcopyrite, and pyrite are associated in parts of the veinlets, and biotite alteration is also observed.

The distribution of the western alteration zone coincides with that of the granite porphyry and the zone consists of silicification and sericitization, but ore minerals have not been found.

Notable rock geochemistry anomaly is high Au-Cu-Zn-As anomaly of the southeastern alteration zone, but its occurrence is local.

2 - 7 Tignamar district

For this district, geological map are shown in Figure 2-2-31, schematic geological column in

Figure 2-2-32, location of mineral showings in Figure 2-2-33, distribution of alteration minerals in Figure 2-2-34, and rock geochemical anomaly distribution in Figure 2-2-35.

The geology of this district consists of Paleozoic Erathem, Upper Cretaceous-Lower Tertiary System, Upper Tertiary System, and Upper Tertiary-Quaternary System.

The Paleozoic Erathem is composed of metamorphic rocks of sedimentary and volcanic origin, and gneiss.

The Upper Cretaceous-Lower Tertiary System is composed of andesitic~rhyolithic lava・pyroclastic rocks and terrigenous deposits.

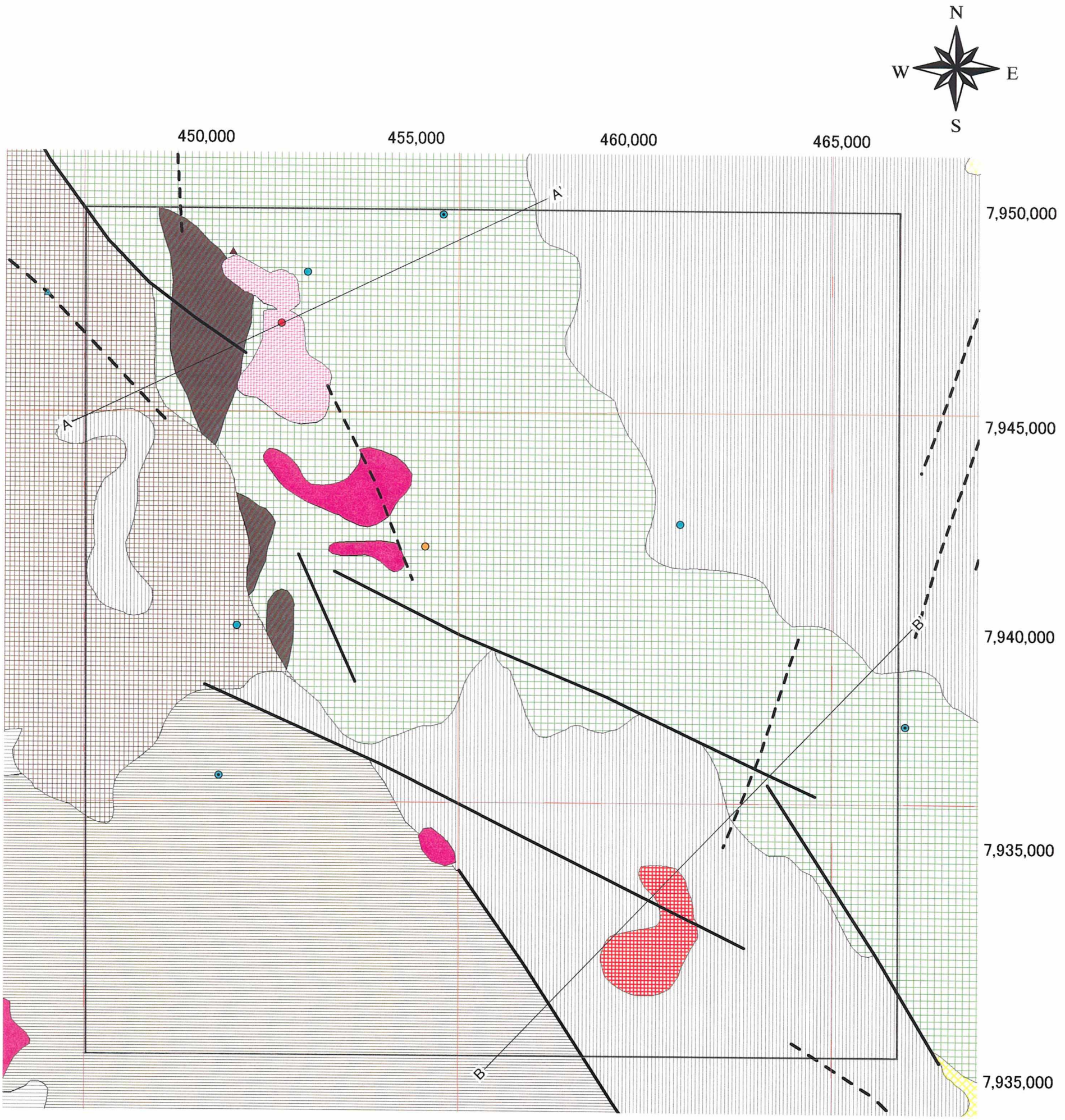
The Upper Cretaceous-Lower Tertiary System is intruded by Cretaceous to Tertiary igneous bodies. These intrusive rocks are granodiorite and porphyry. The Upper Cretaceous-Tertiary System and the intrusive bodies are overlain unconformably by Upper Tertiary System.

The Upper Tertiary System is composed of Miocene-Pliocene rhyolitic~basaltic lava・pyroclastic rocks・ignimbrite and intercalated terrigenous deposits.

The Upper Tertiary-Quaternary System is composed of Pliocene-Pleistocene andesitic~basaltic lava・pyroclastic rocks, and they are intruded by Neogene-Quaternary igneous bodies. These intrusive rocks are dacite~porphyry.

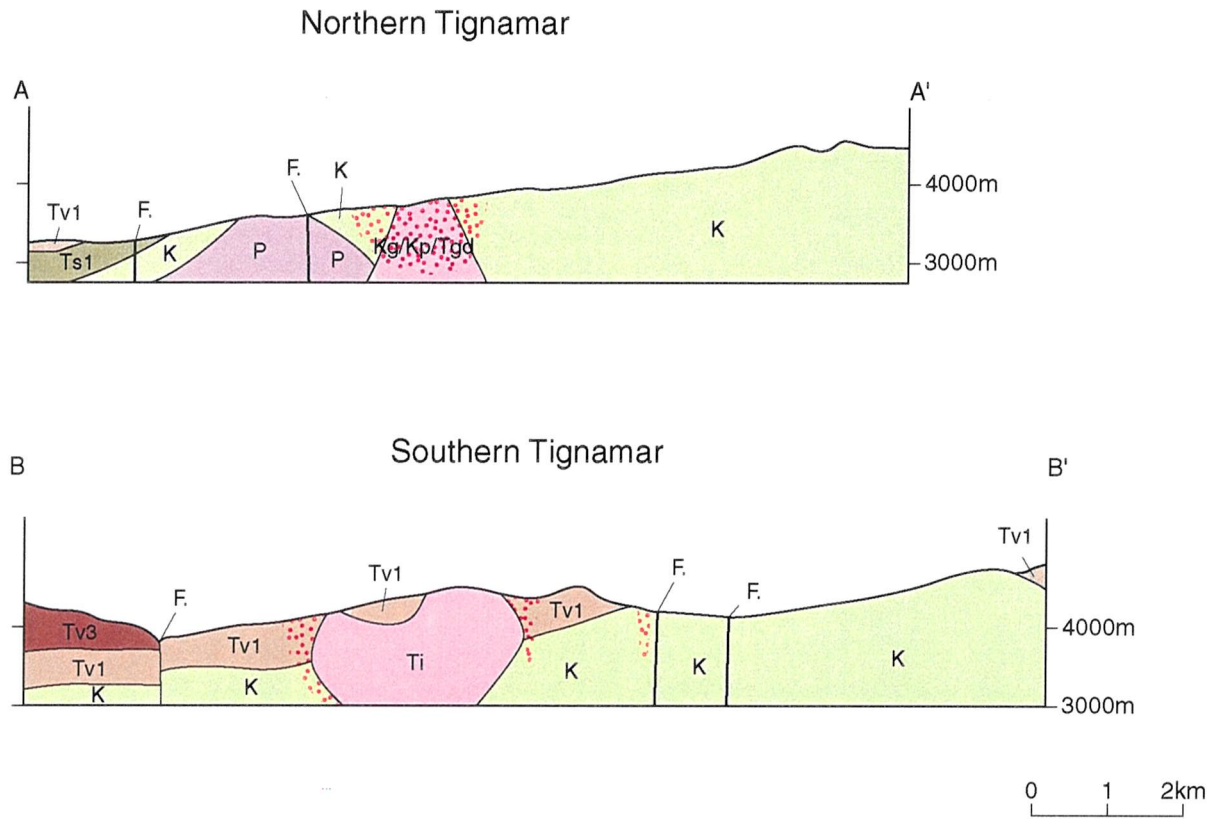
In this area, alteration zone occurs at two localities, one in the northern part and the other in the south.

The northern alteration zones are large and aligned in the NW-SE direction in the granodiorite・porphyry bodies and in the nearby Upper Cretaceous-Lower Tertiary System. The present survey was carried out for the zones on the northern side. This alteration zones consist of silicification, biotitization, sericitization, propylitization and kaolinization. Drilling and shafting have been carried out in parts of these zones. It has been reported that 12m-thick porphyry copper secondary enrichment zone was confirmed by a 30m-deep shaft dug in order to check the orebody encountered by drilling. Green oxidized copper minerals, coarse-grained pyrite accompanied by chalcopyrite, chalcocite-pyrite dissemination, and white coarse crystalline quartz veinlet fragments were found in the dump of this shaft. The vicinity of the shaft is oxidized leached zone consisting of quartz, kaolin, limonite, and



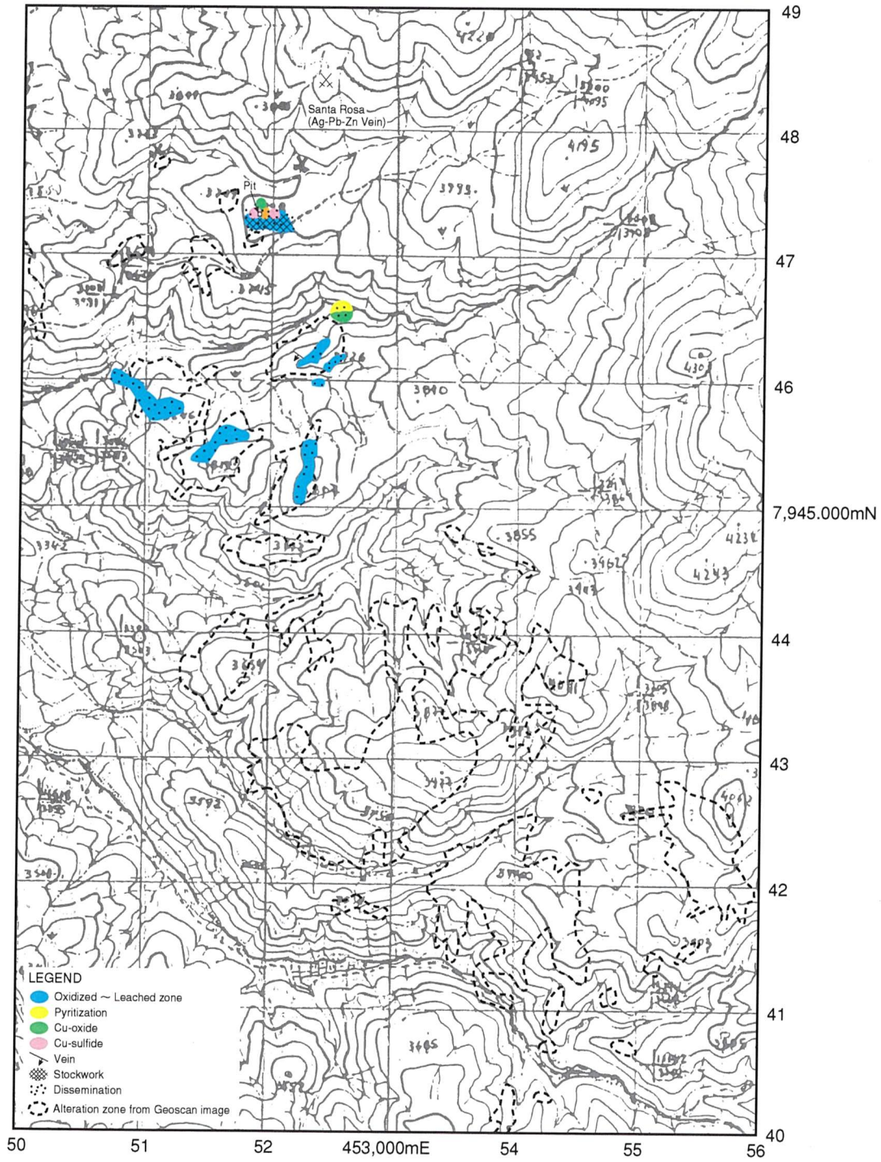
Symbols for geological units refer to Table 1-3-1

Fig. 2-2-31 Geological Map of the Tignamar Area

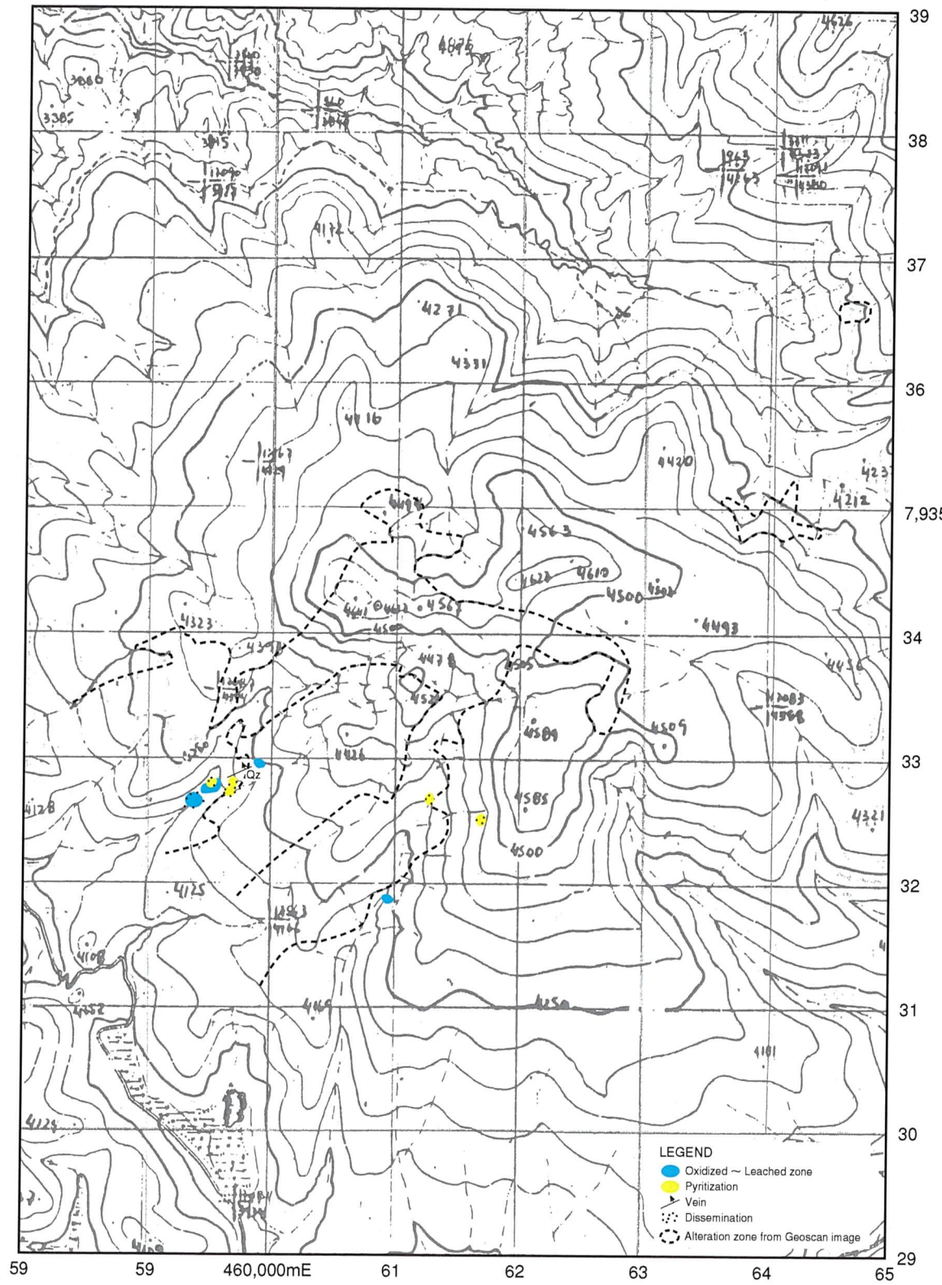


Geologic Time		Columnar Section	Lithology	Intrusives	Mineralization
CENOZOIC	QUATERNARY - LATE TERTIARY	Tv3, Tv1, Ti	Andesitic～basaltic lava/ volcaniclastics	Granodiorite, Porphyry(Kg/Kp/Tgd) ↑ Dacite, Porphyry(Ti) ↑	Porphyry copper type ↑ Epithermal type
	LATE TERTIARY	Ts1	Rhyolitic～basaltic lava/ valcaniclastics, Intercalation of continental sediments		
	EARLY TERTIARY				
MESOZOIC	EARLY TERTIARY - LATE CRETACEOUS	K, Kg/Kp/Tgd	Andesitic～rhyolitic lava/volcani-clastics Intercalation of continental sedimants		
PALEOZOIC			Gneiss, Metamorphosed sedimentary and volcanic rocks		

Fig. 2-2-32 Schematic Stratigraphic Columns and Profiles of the Tignamar Area

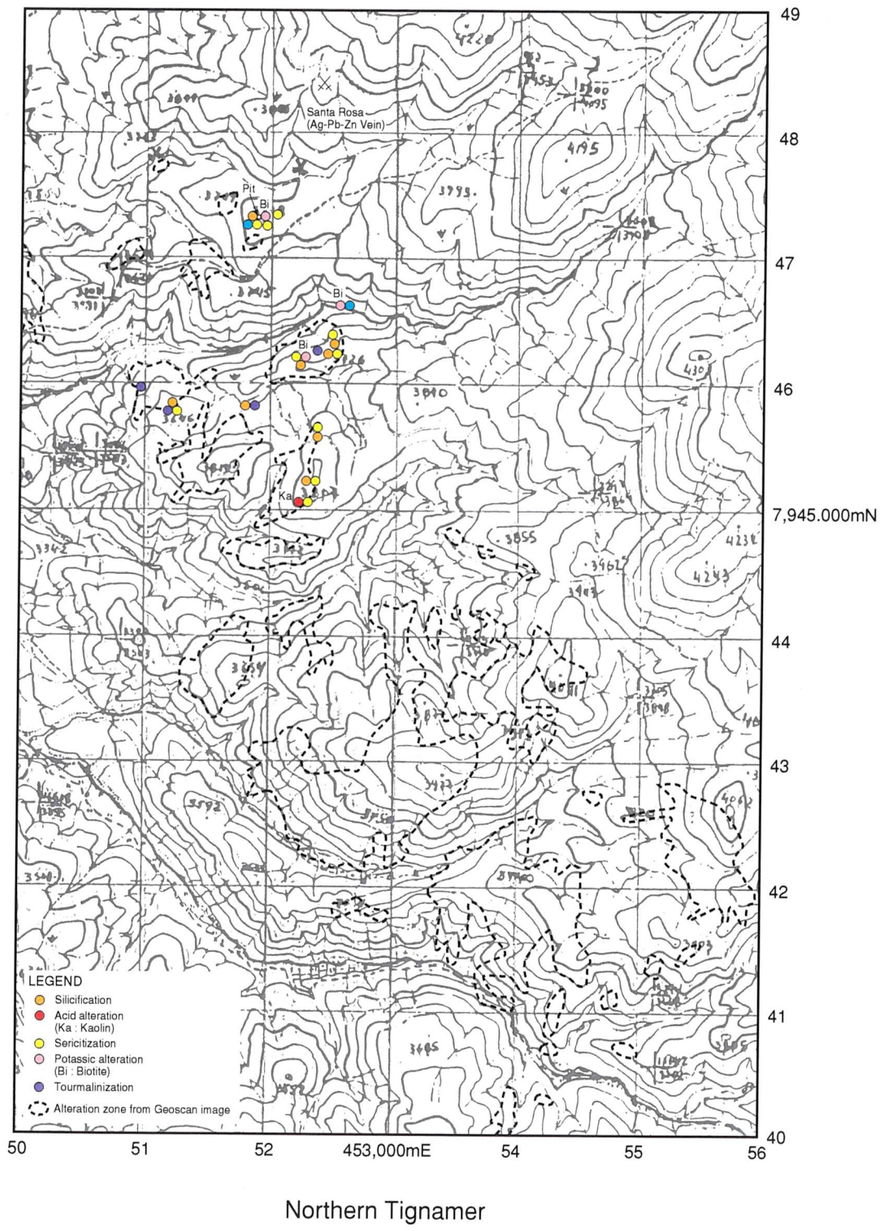


Northern Tignamer

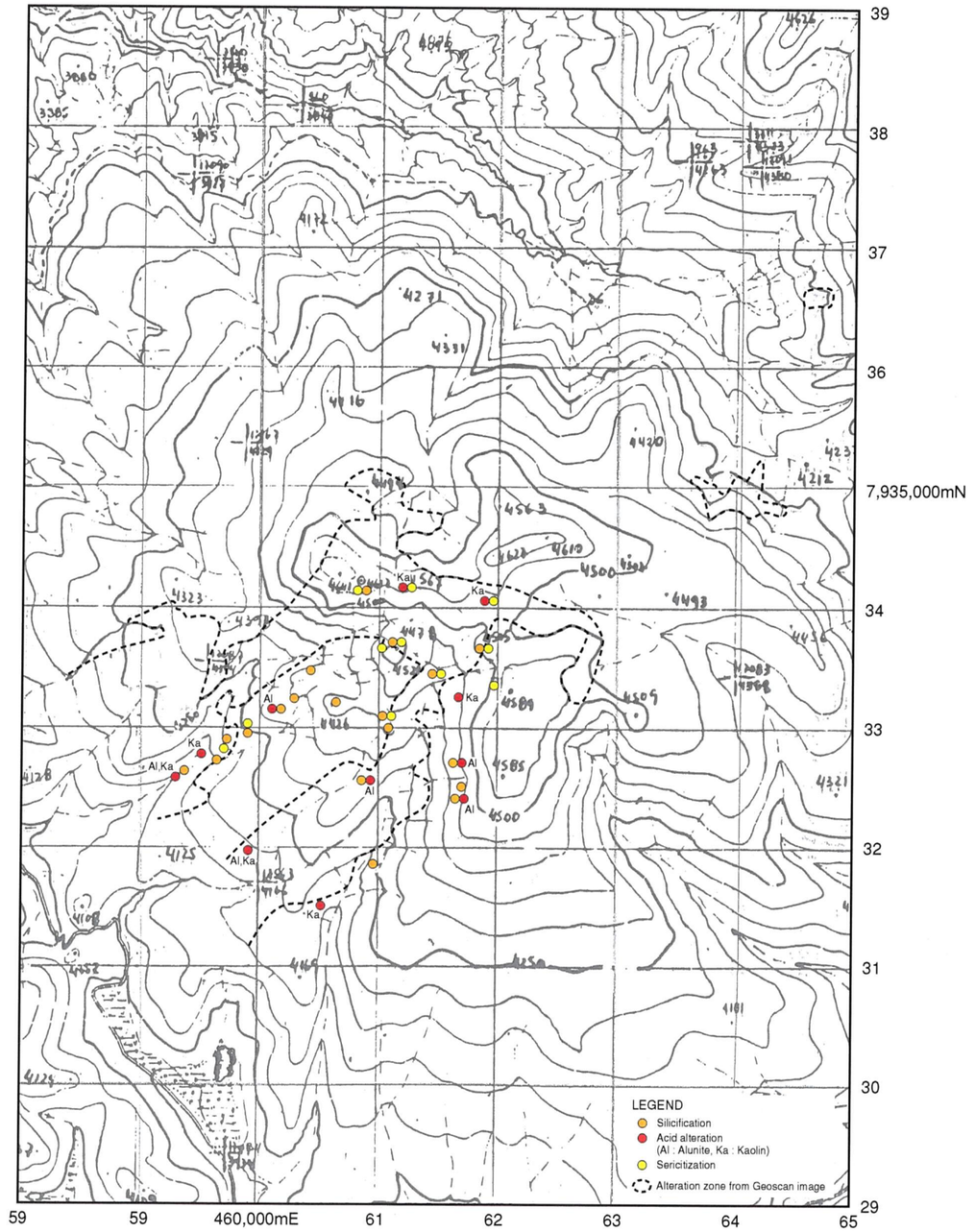


Southern Tignamer

Fig. 2-2-33 Mineralization Map of the Tignamar Area



Northern Tignamer



Southern Tignamer

Fig. 2-2-34 Distribution Map of Alteration Minerals at the Tignamar Area

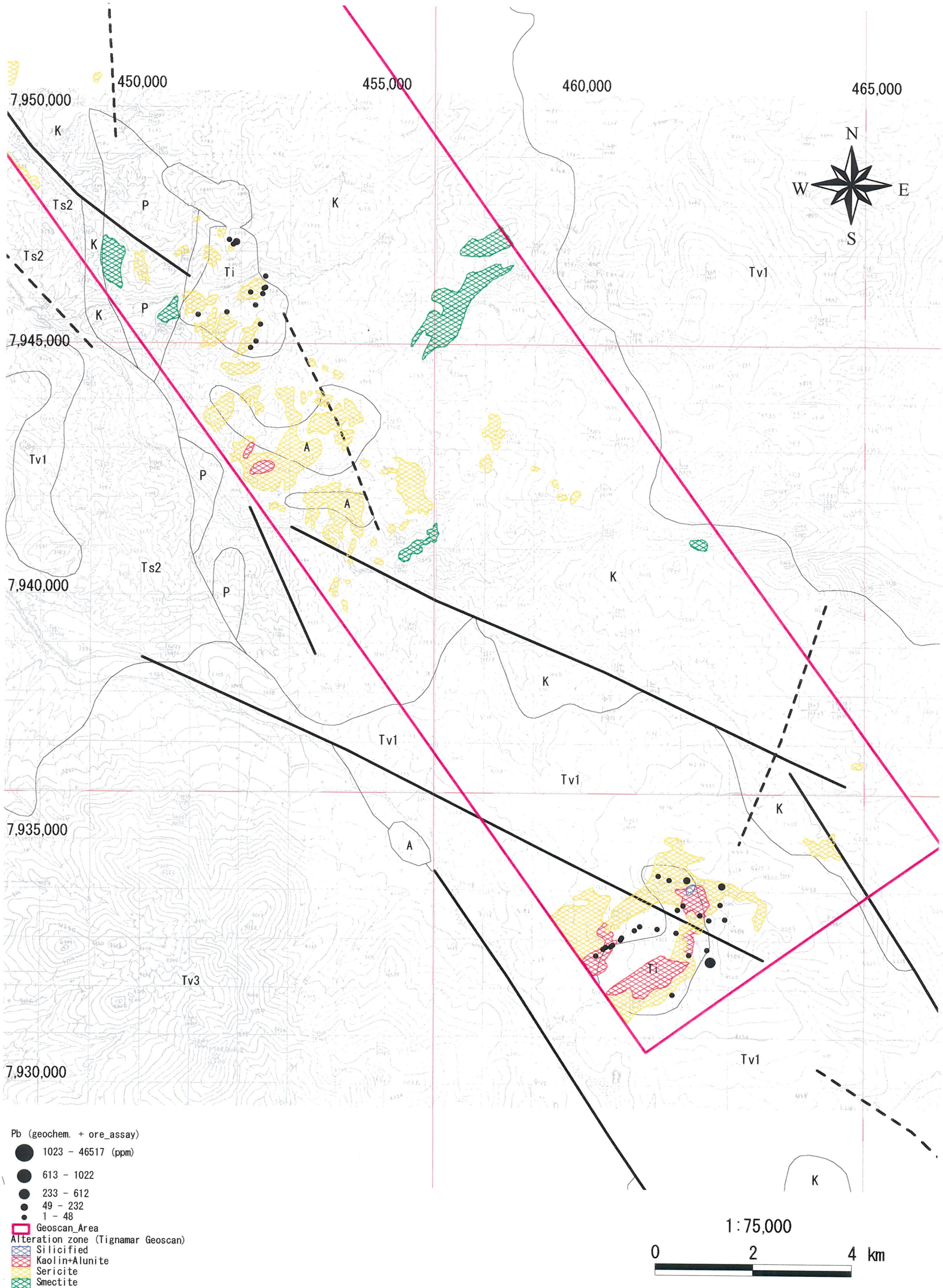


Fig. 2-2-35 (1) Geochemical Anomaly Map in the Tignamar Area (Pb)

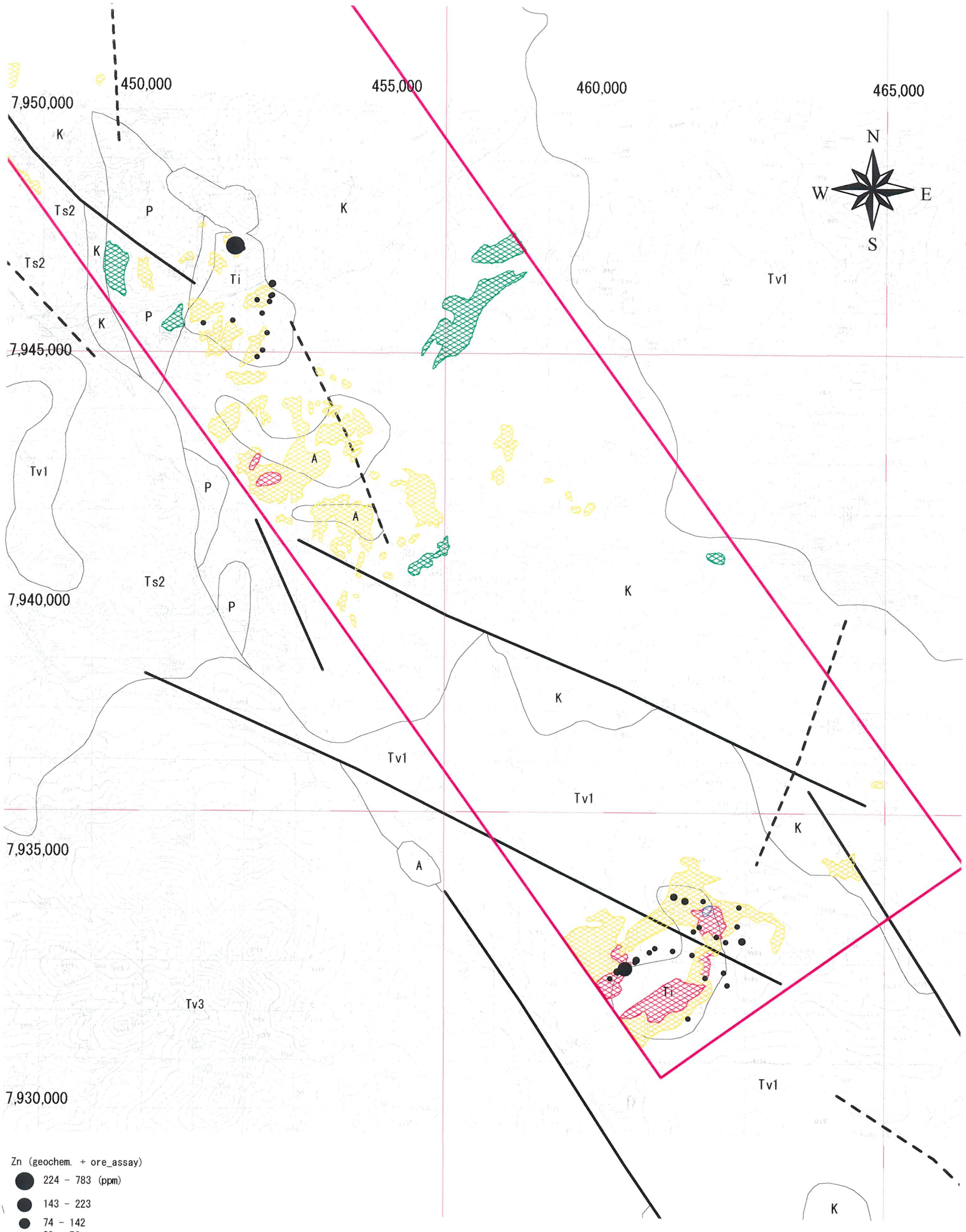


Fig. 2-2-35 (2) Geochemical Anomaly Map in the Tignamar Area (Zn)

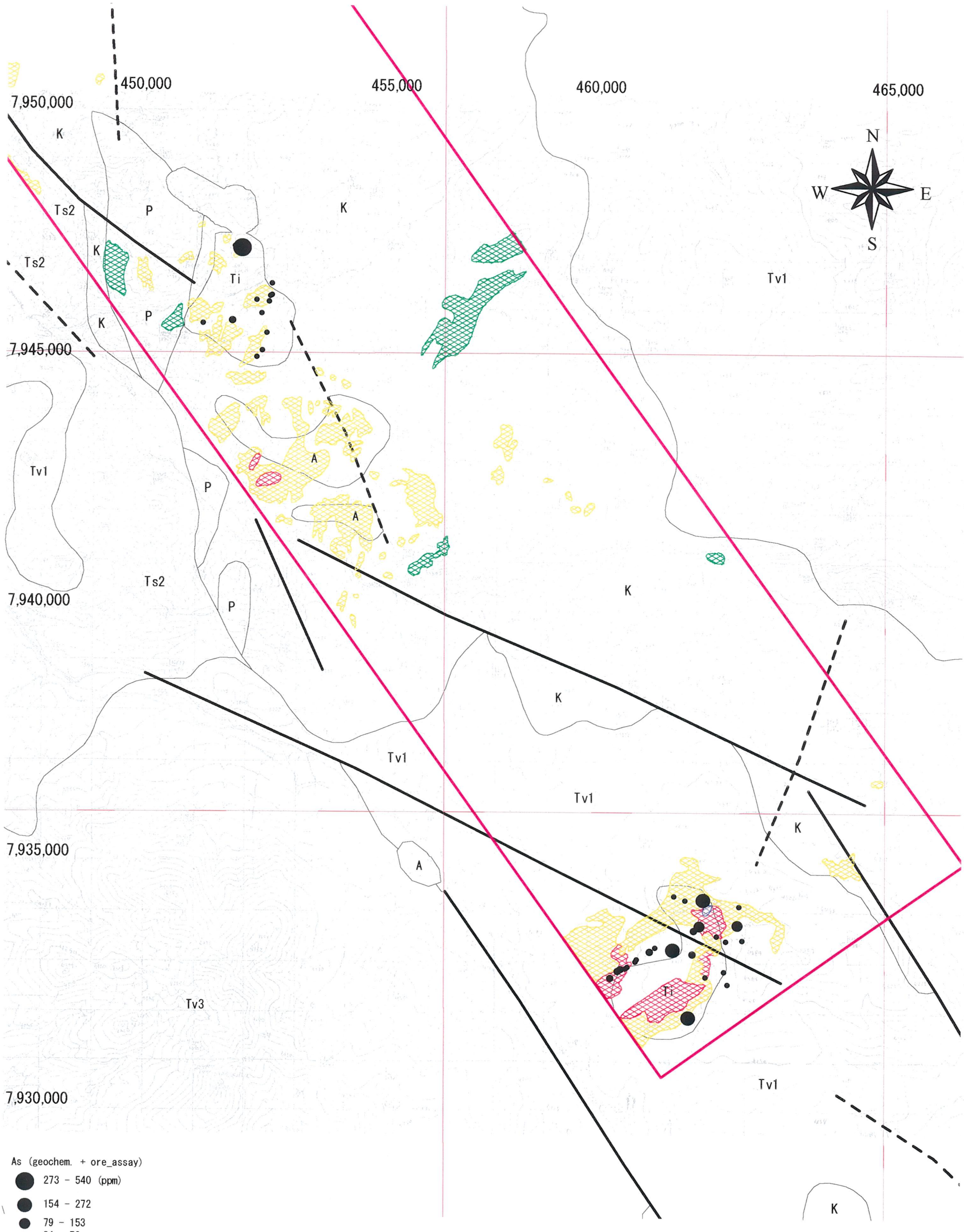


Fig. 2-2-35 (3) Geochemical Anomaly Map in the Tignamar Area (As)