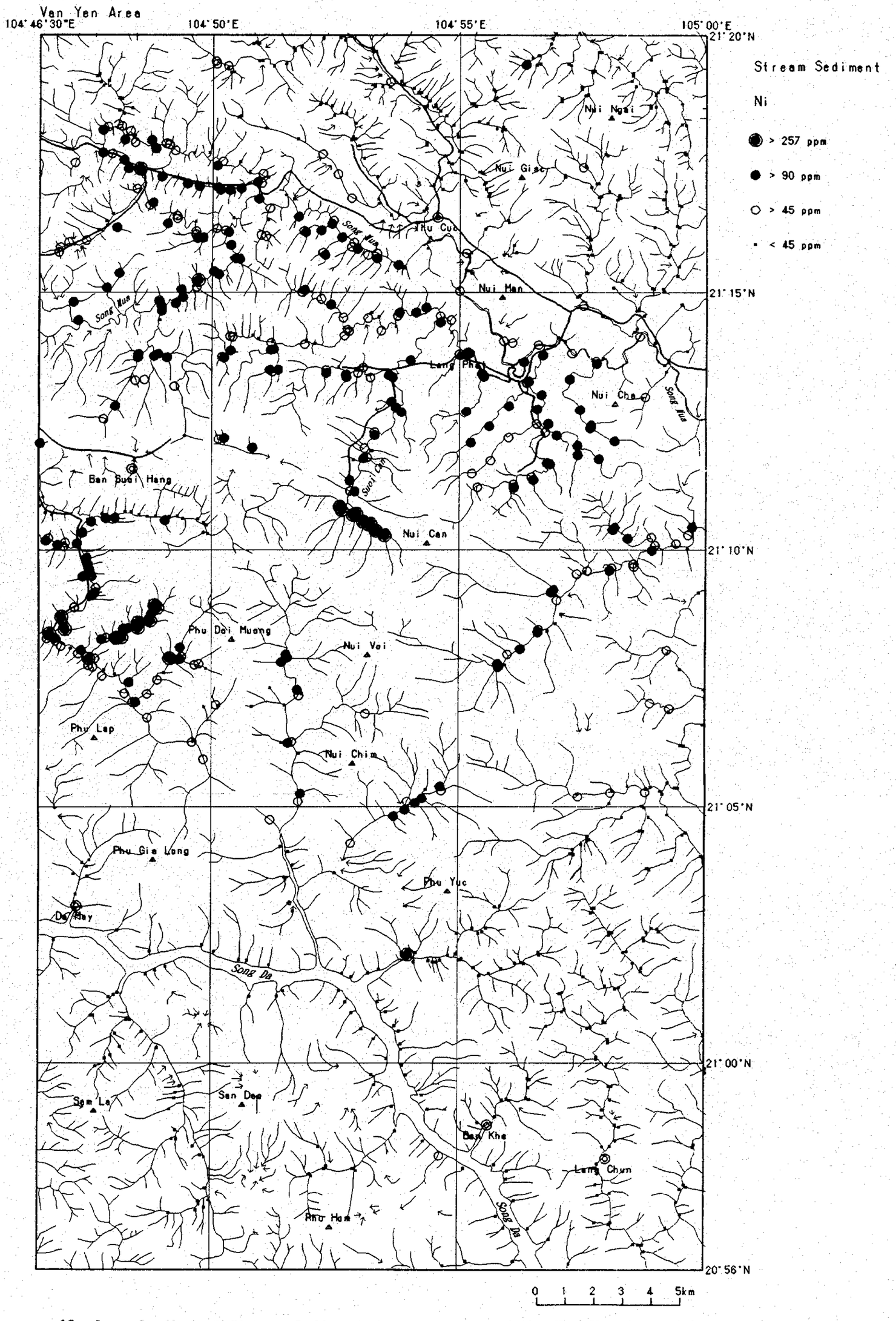
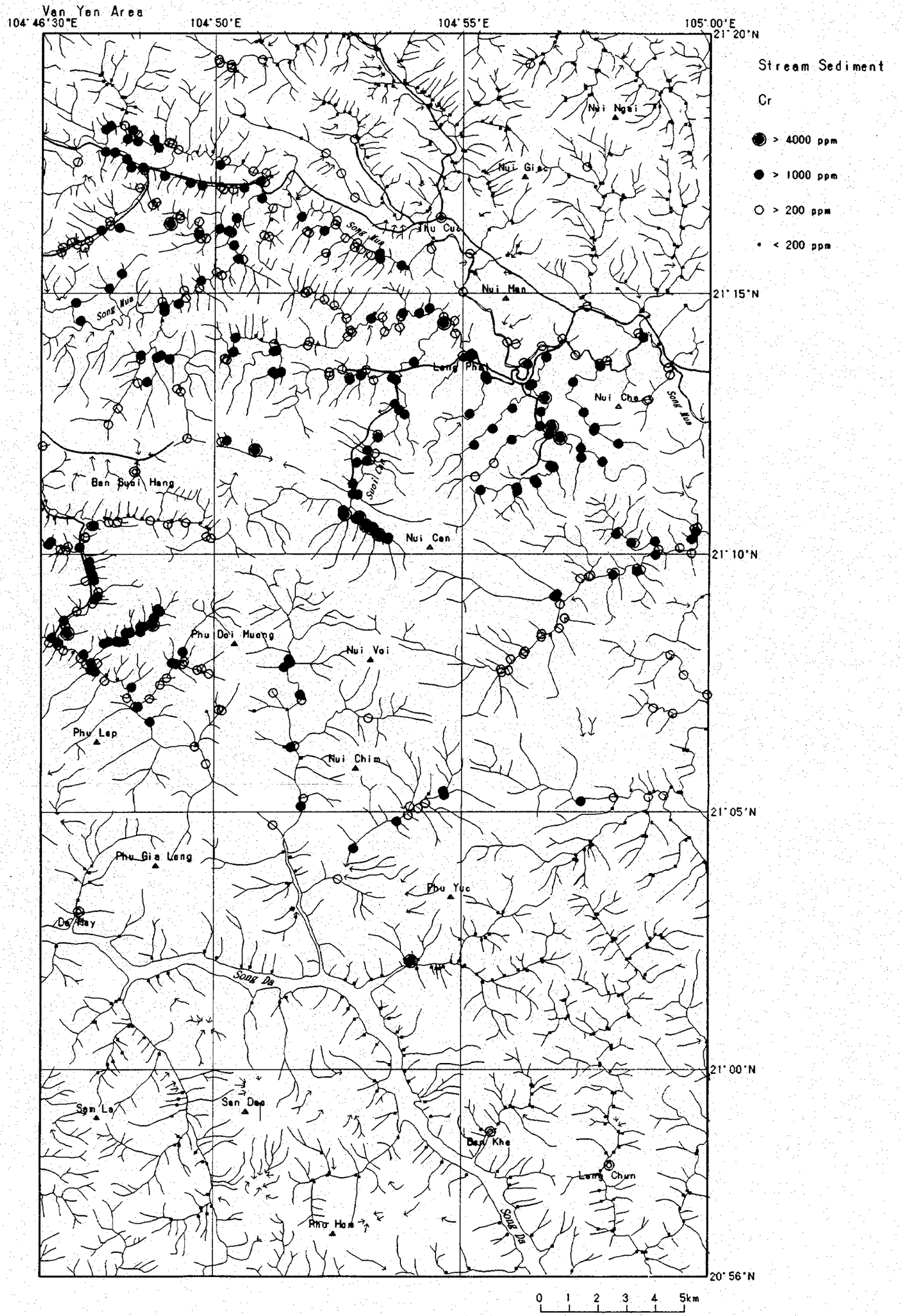
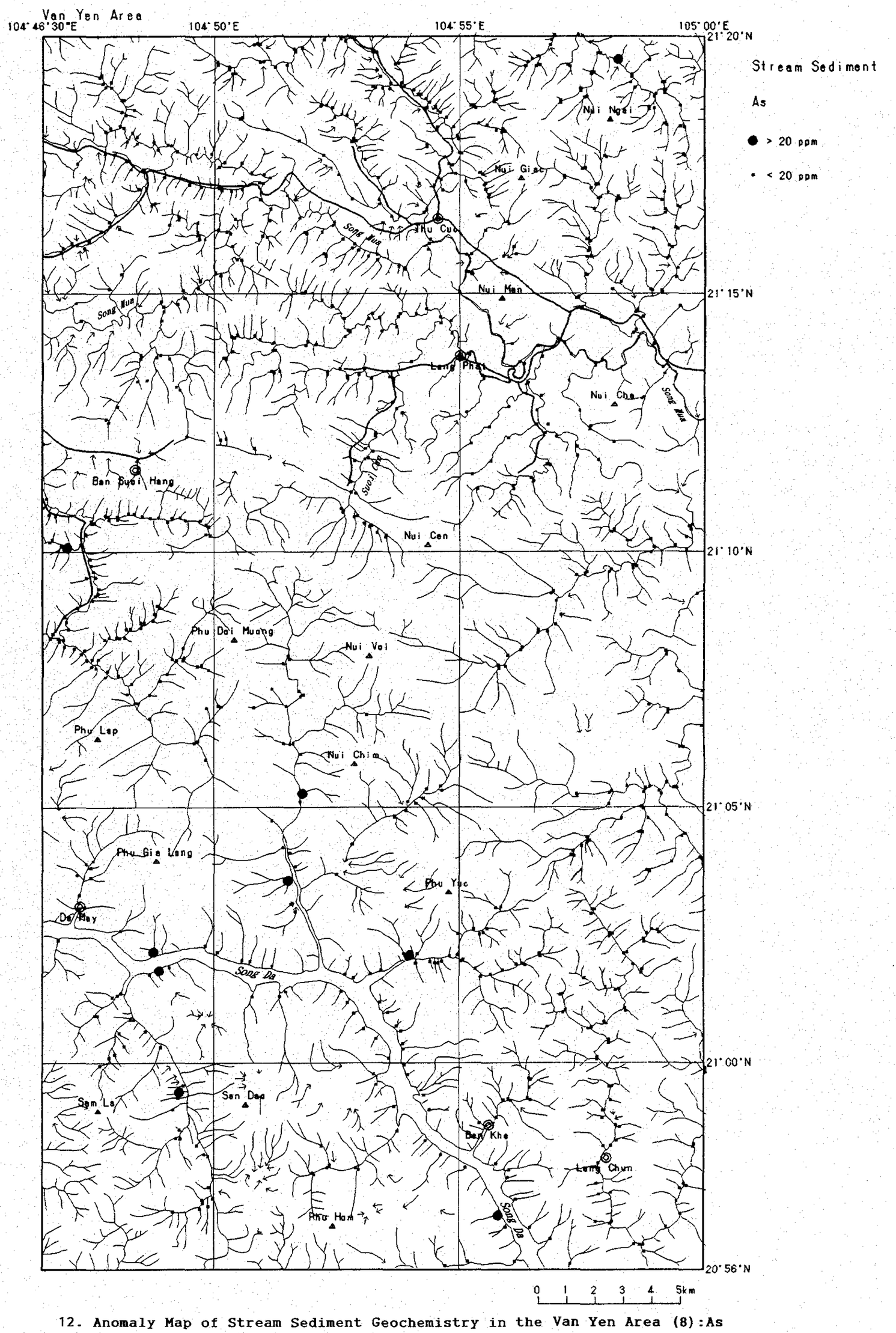


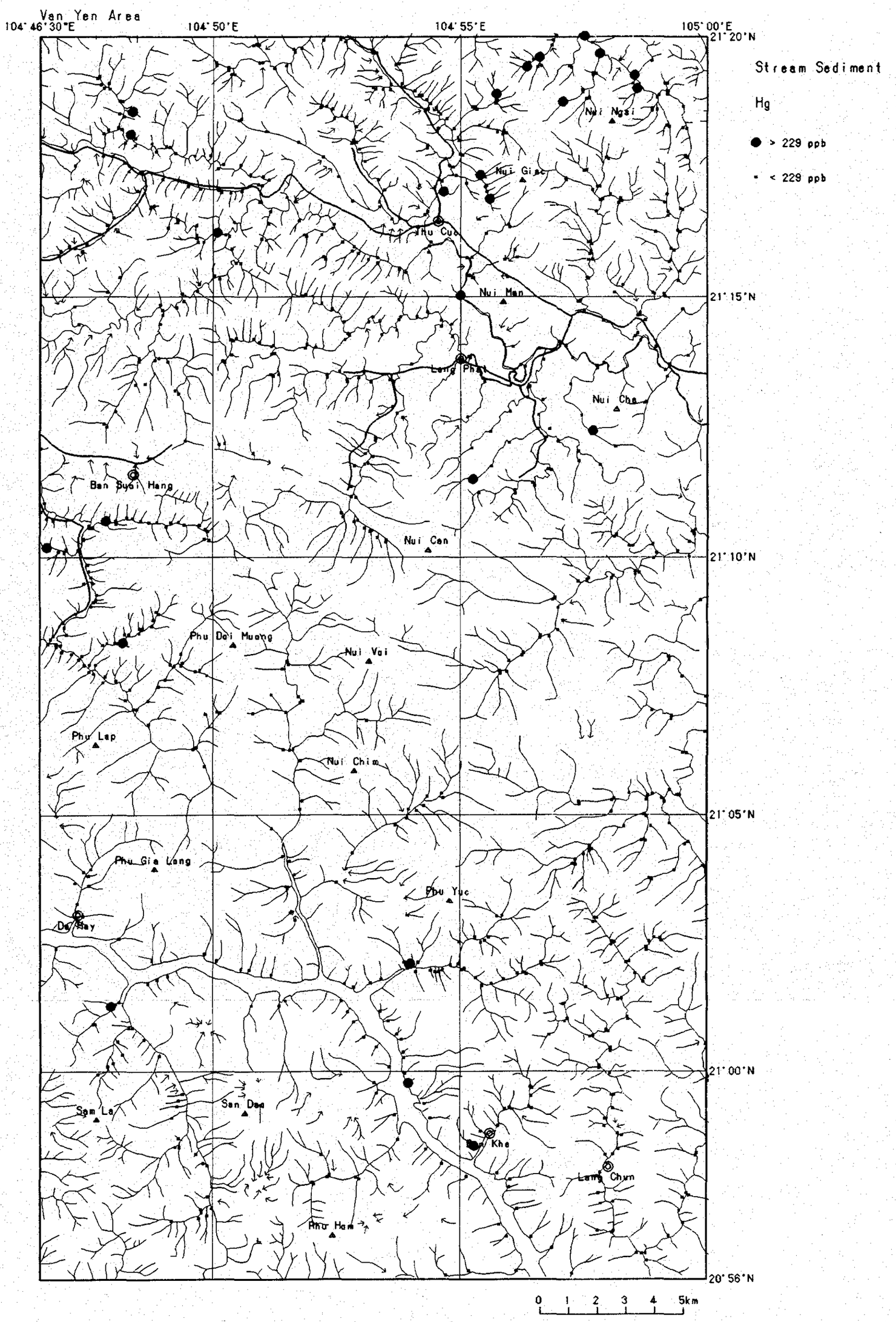
12. Anomaly Map of Stream Sediment Geochemistry in the Van Yen Area (6):Ni



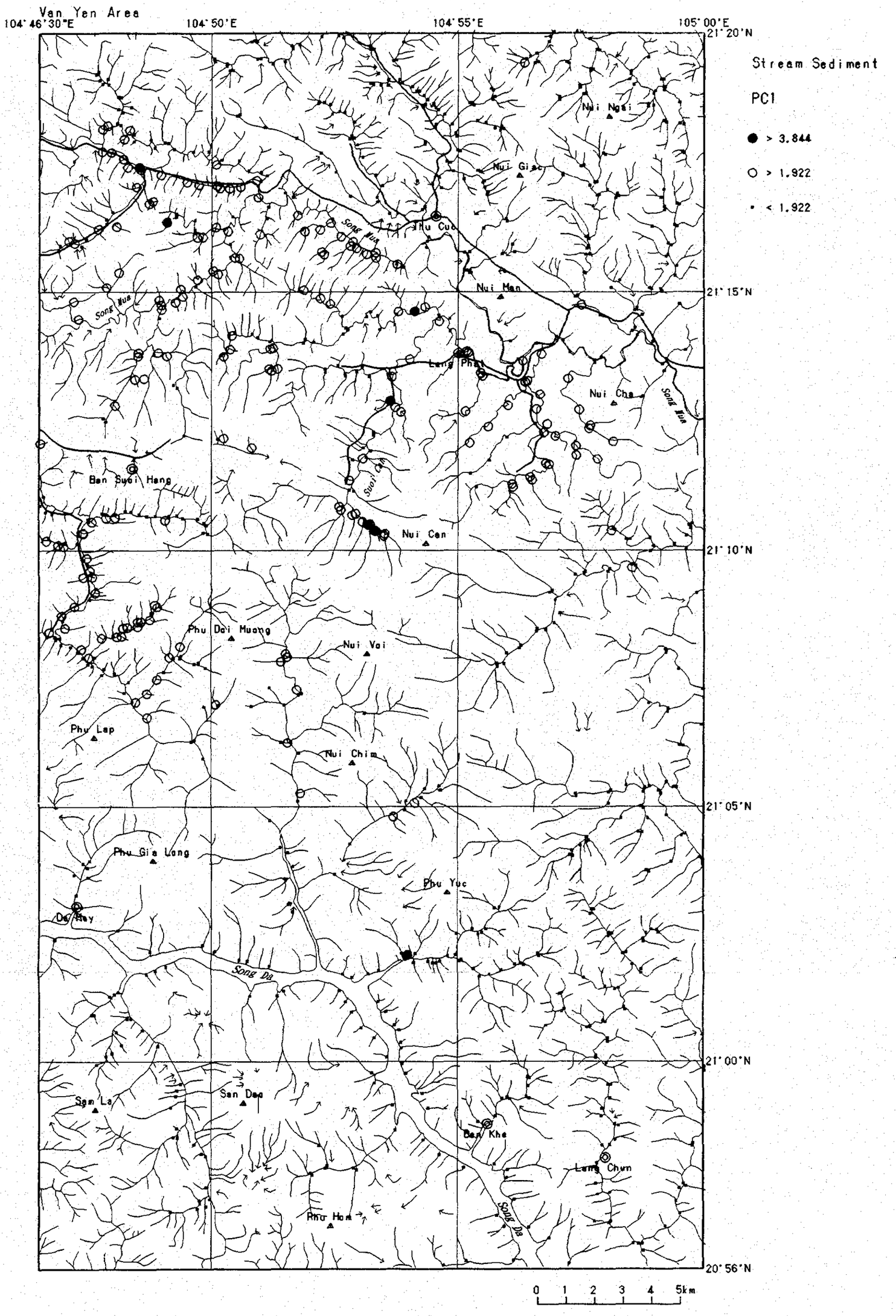
12. Anomaly Map of Stream Sediment Geochemistry in the Van Yen Area (7):Cr



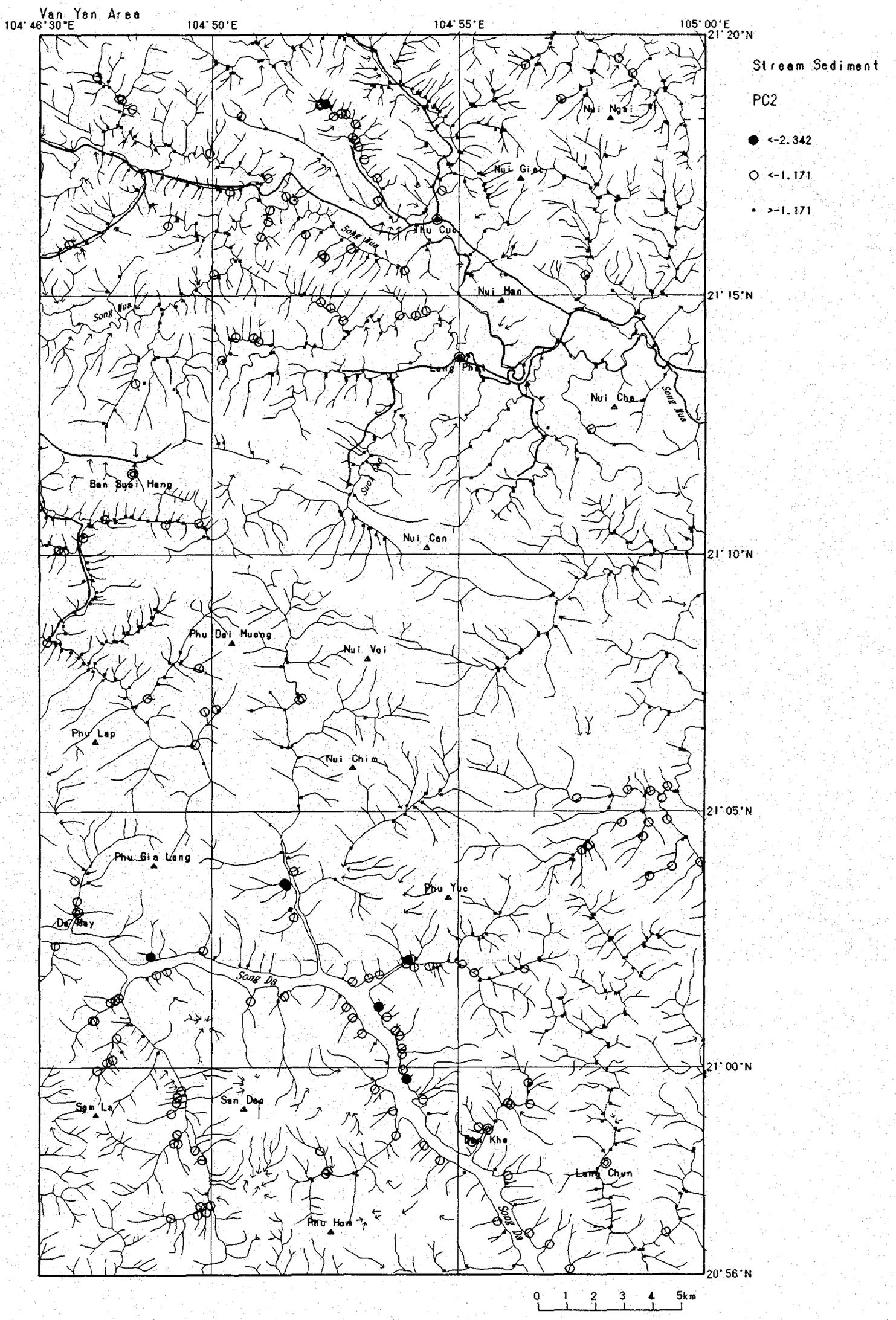
12. Anomaly Map of Stream Sediment Geochemistry in the Van Yen Area (8):As



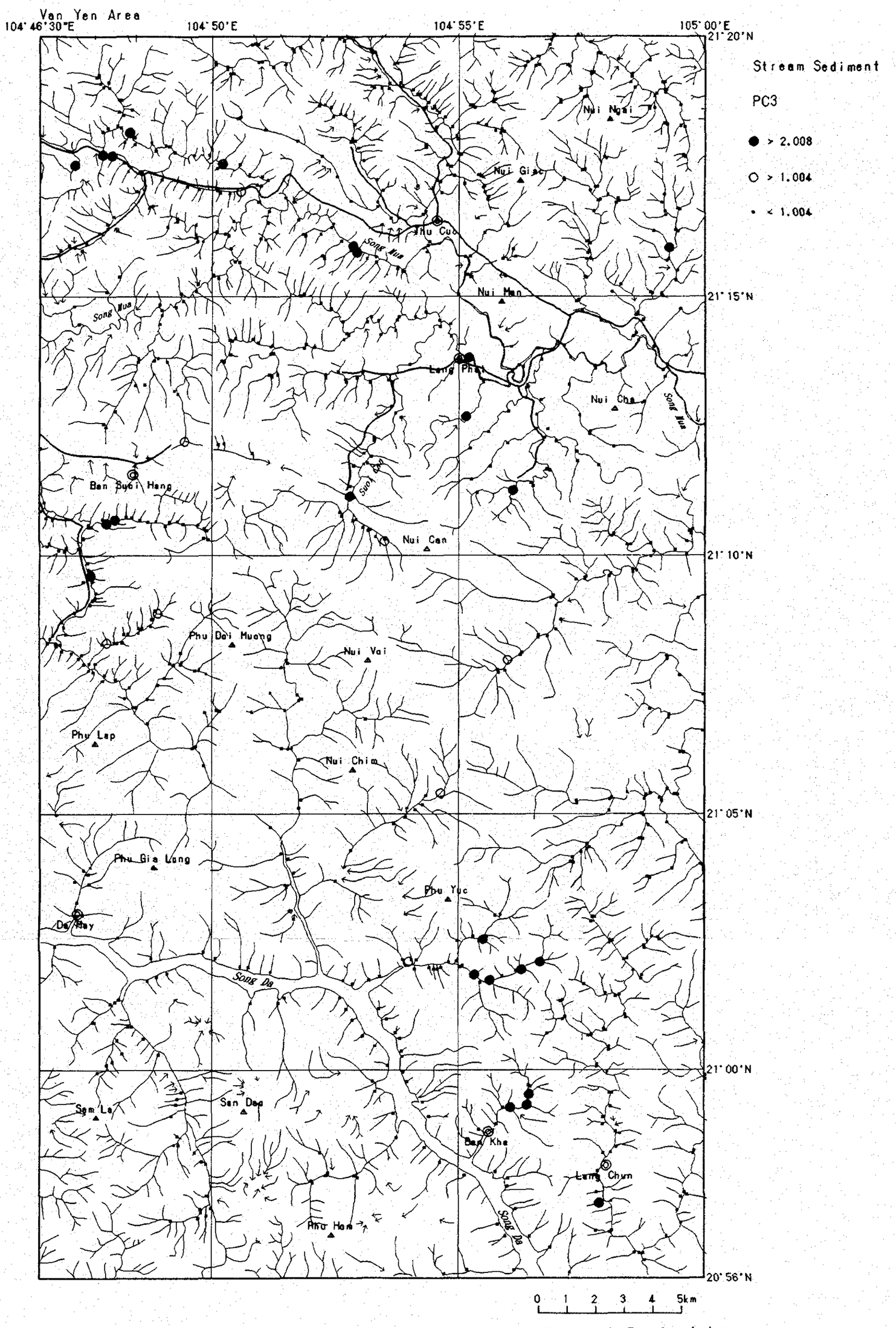
12. Anomaly Map of Stream Sediment Geochemistry in the Van Yen Area (9):Hg



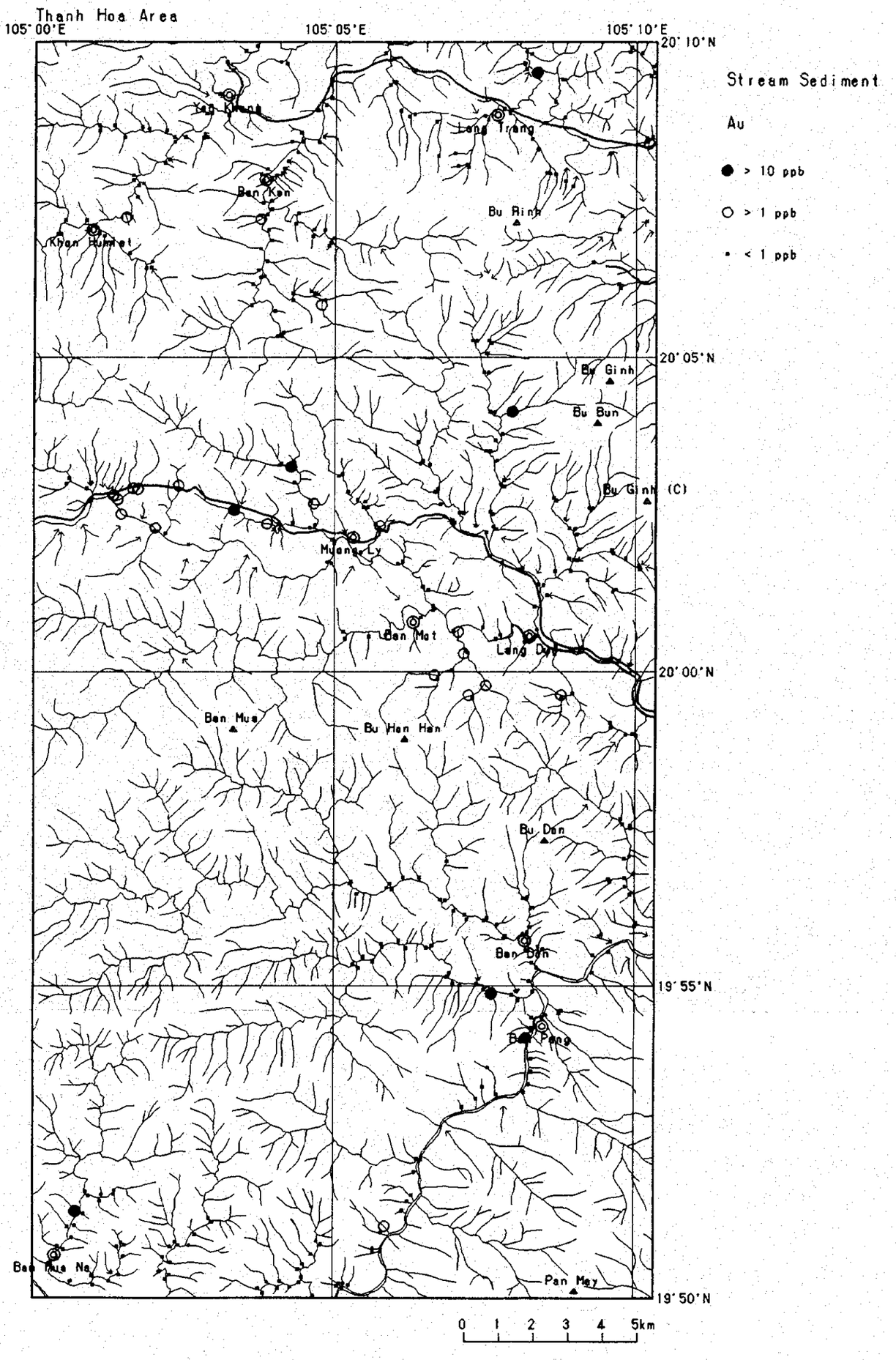
13. Score Value Map of Principal Component of Stream Sediment Geochemistry in the Van Yen Area (1)



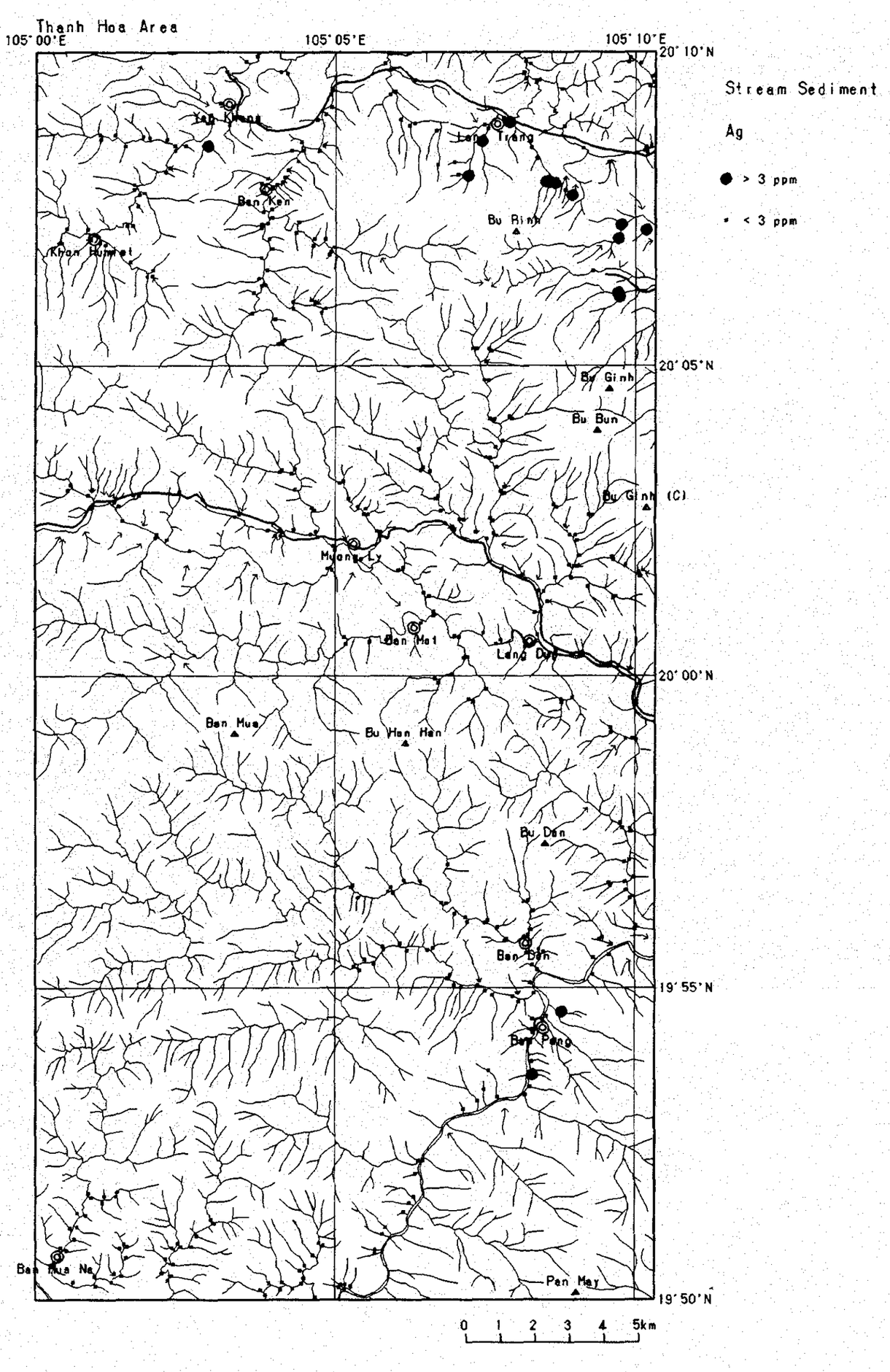
13. Score Value Map of Principal Component of Stream Sediment Geochemistry in the Van Yen Area (2)



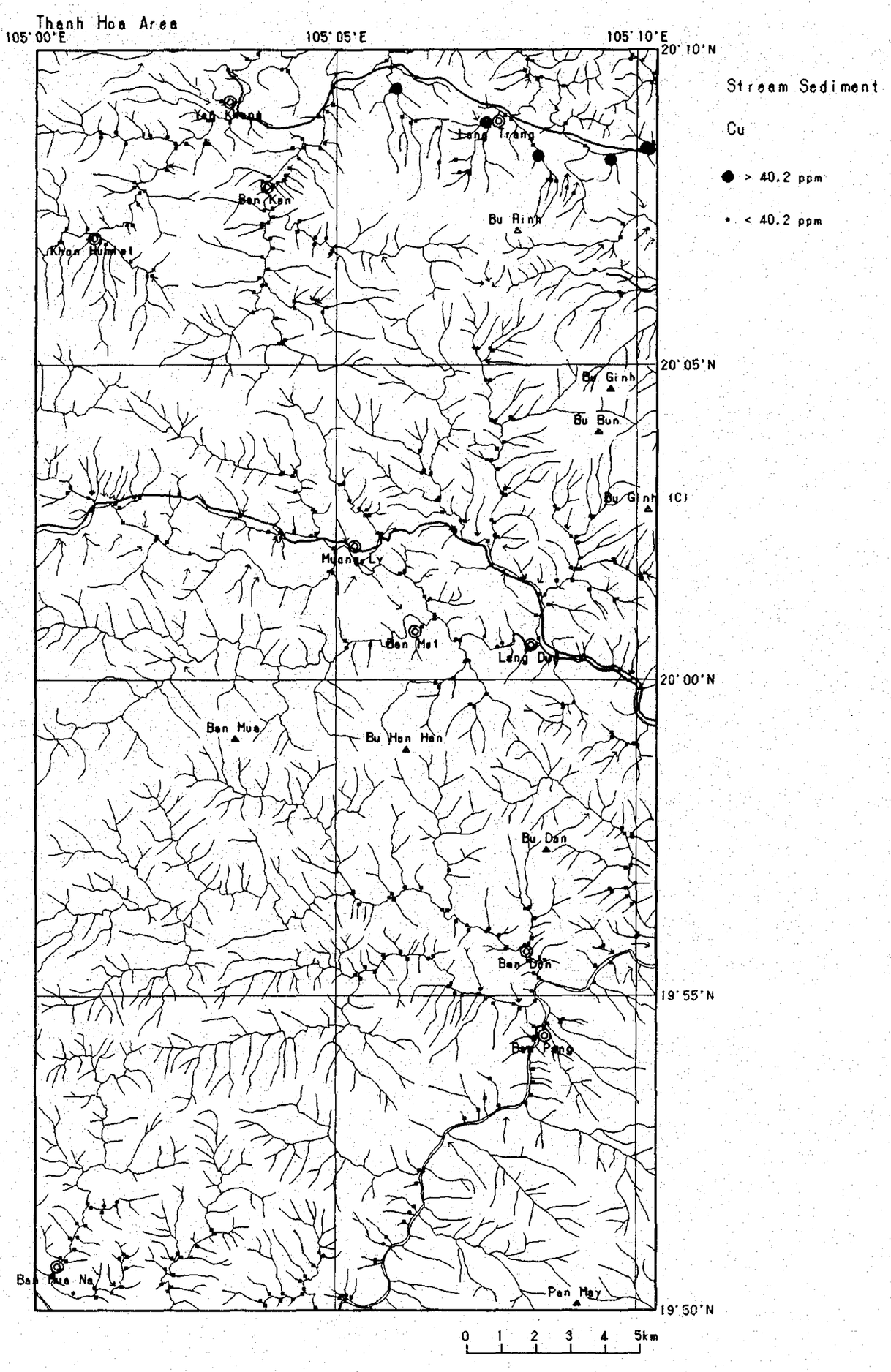
13. Score Value Map of Principal Component of Stream Sediment Geochemistry in the Van Yen Area (3)



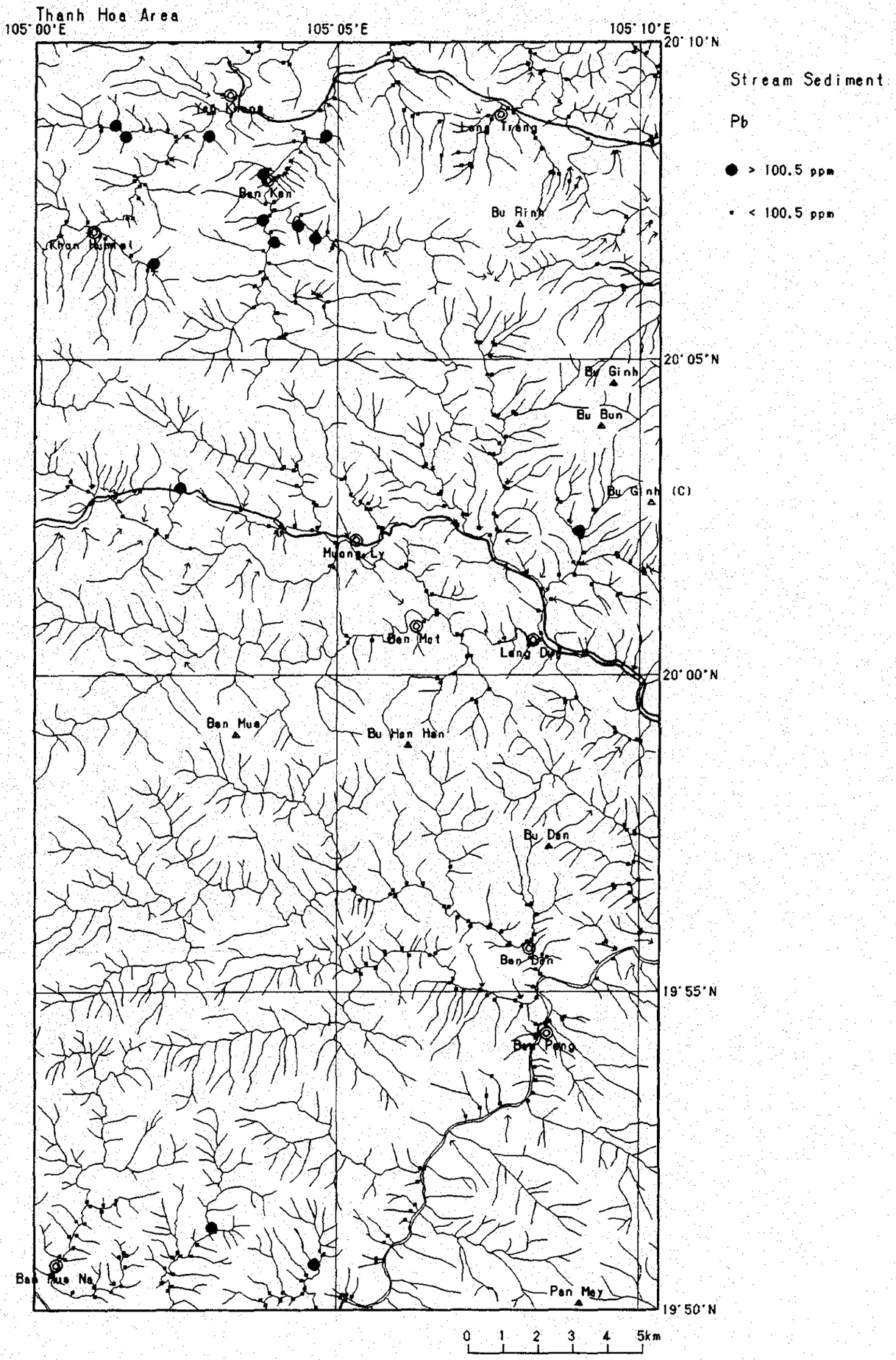
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (1):Au



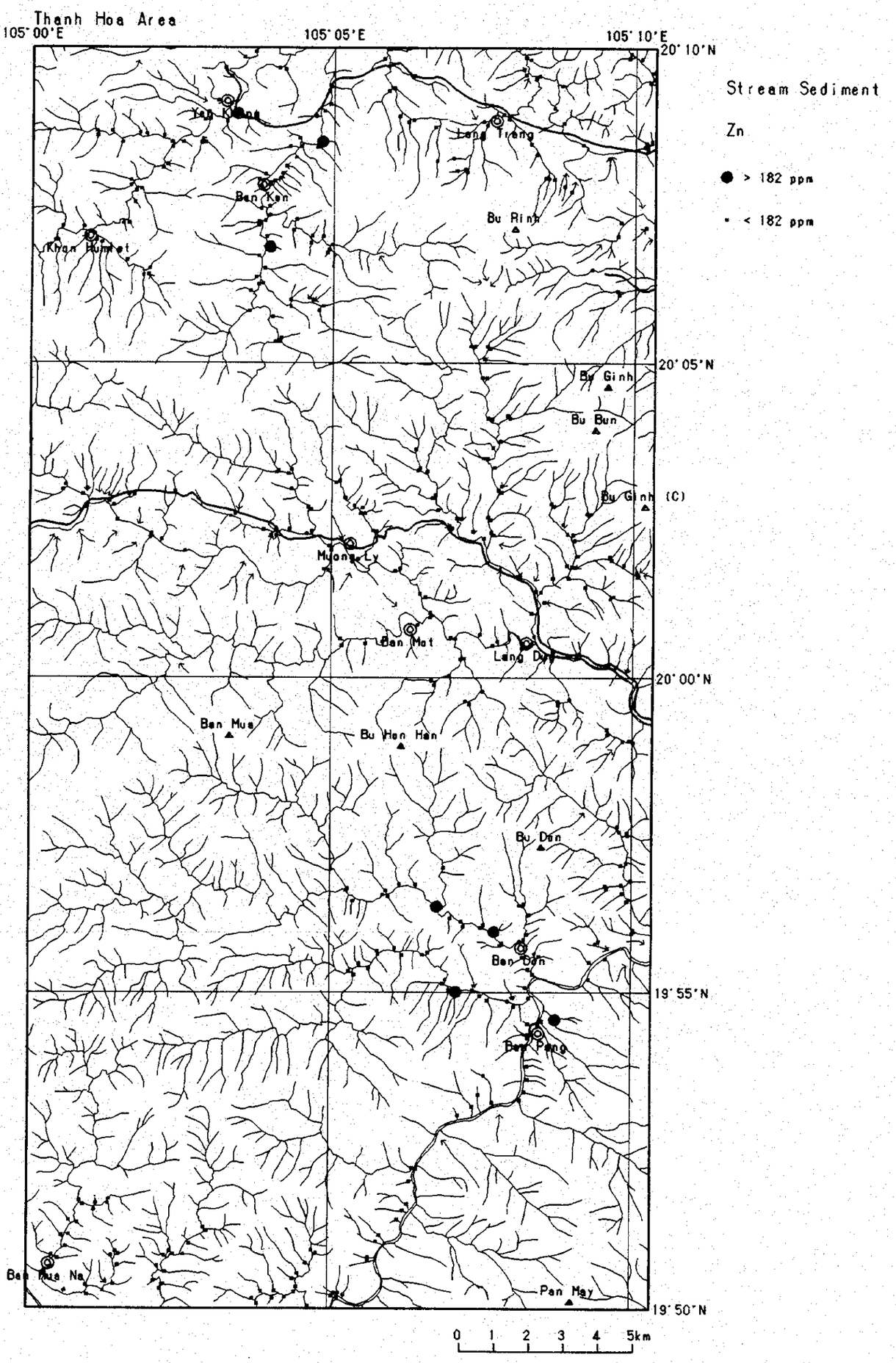
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (2):Ag



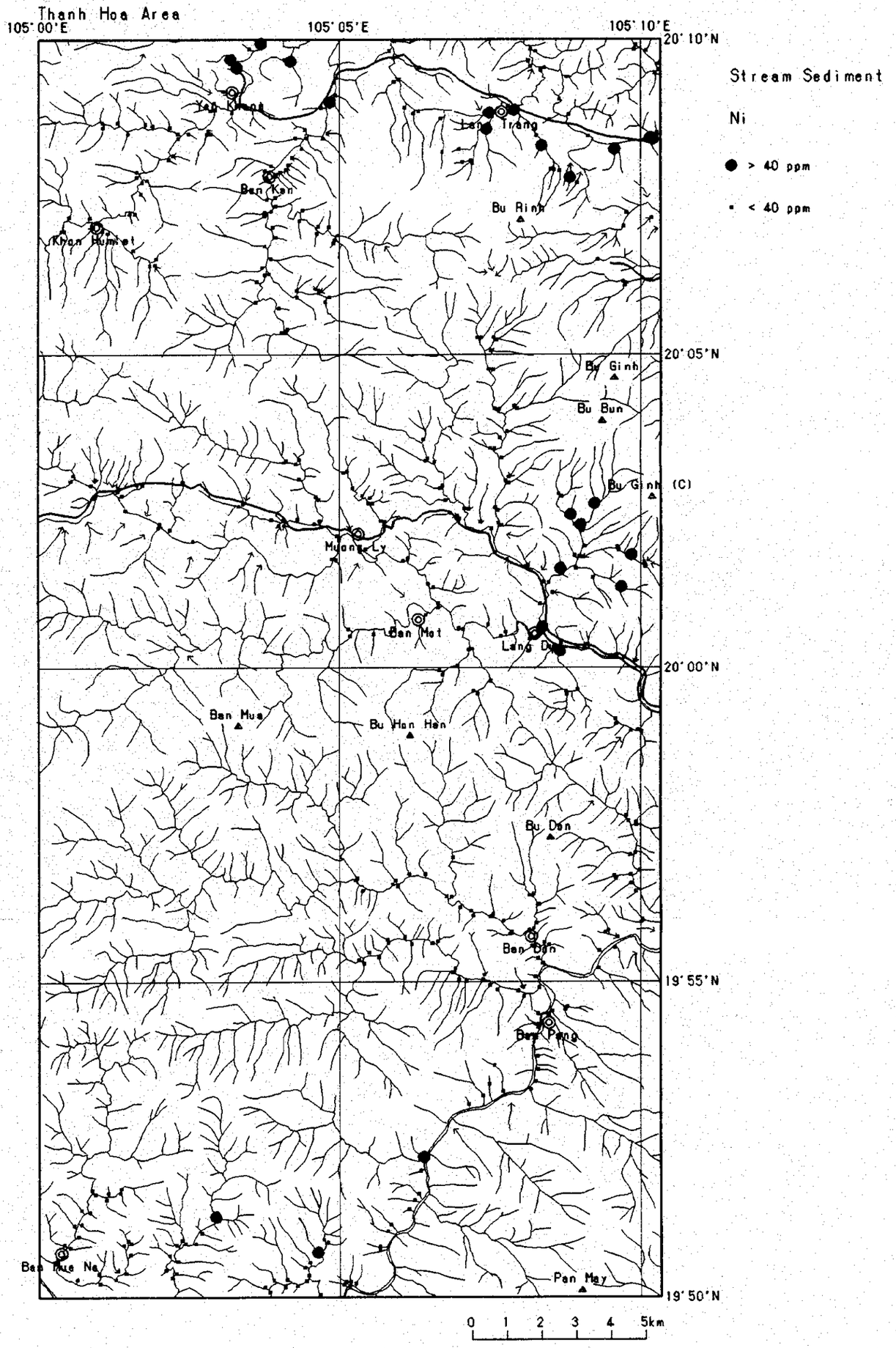
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (3):Cu



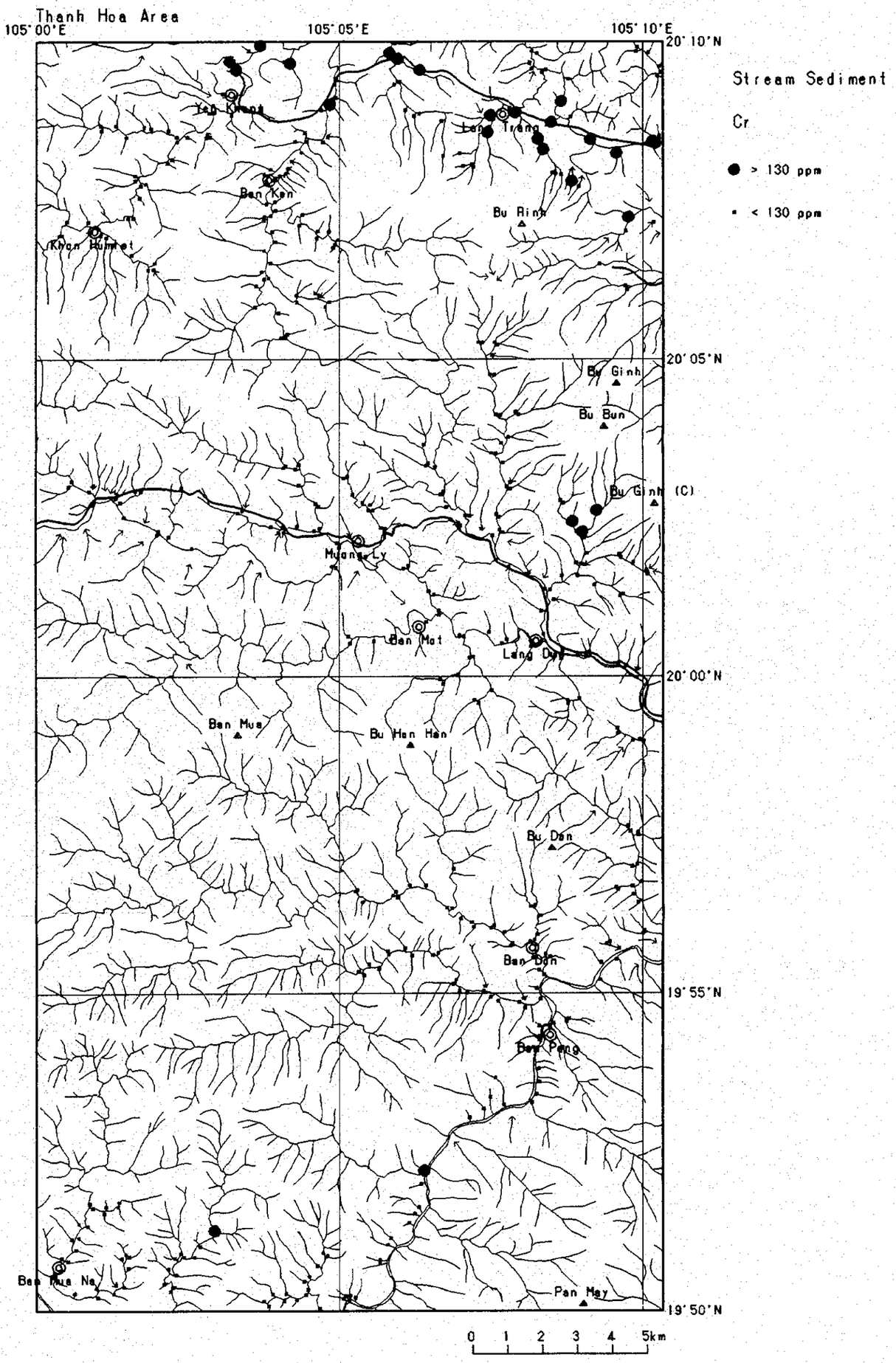
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (4):Pb



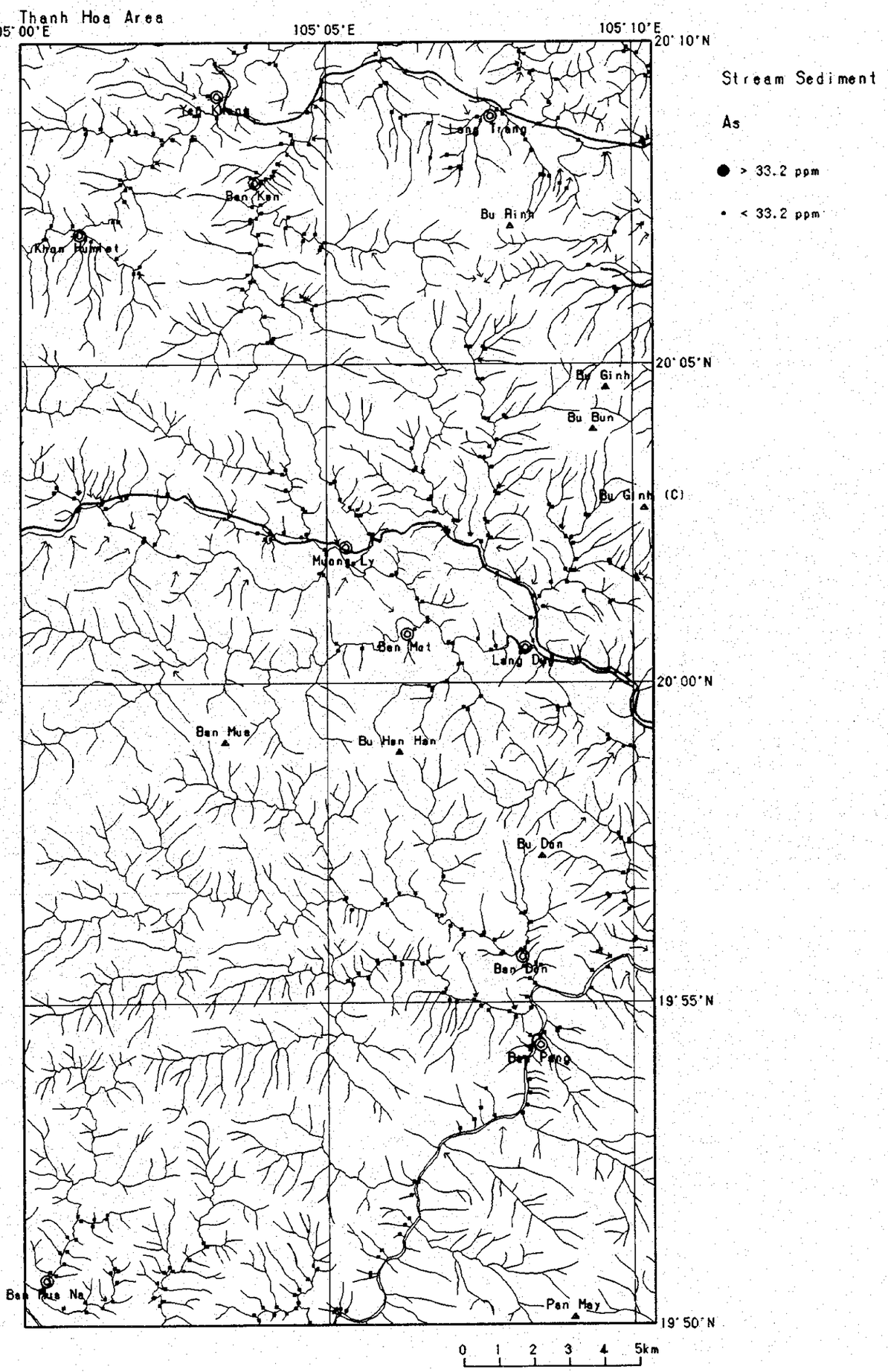
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (5):Zn



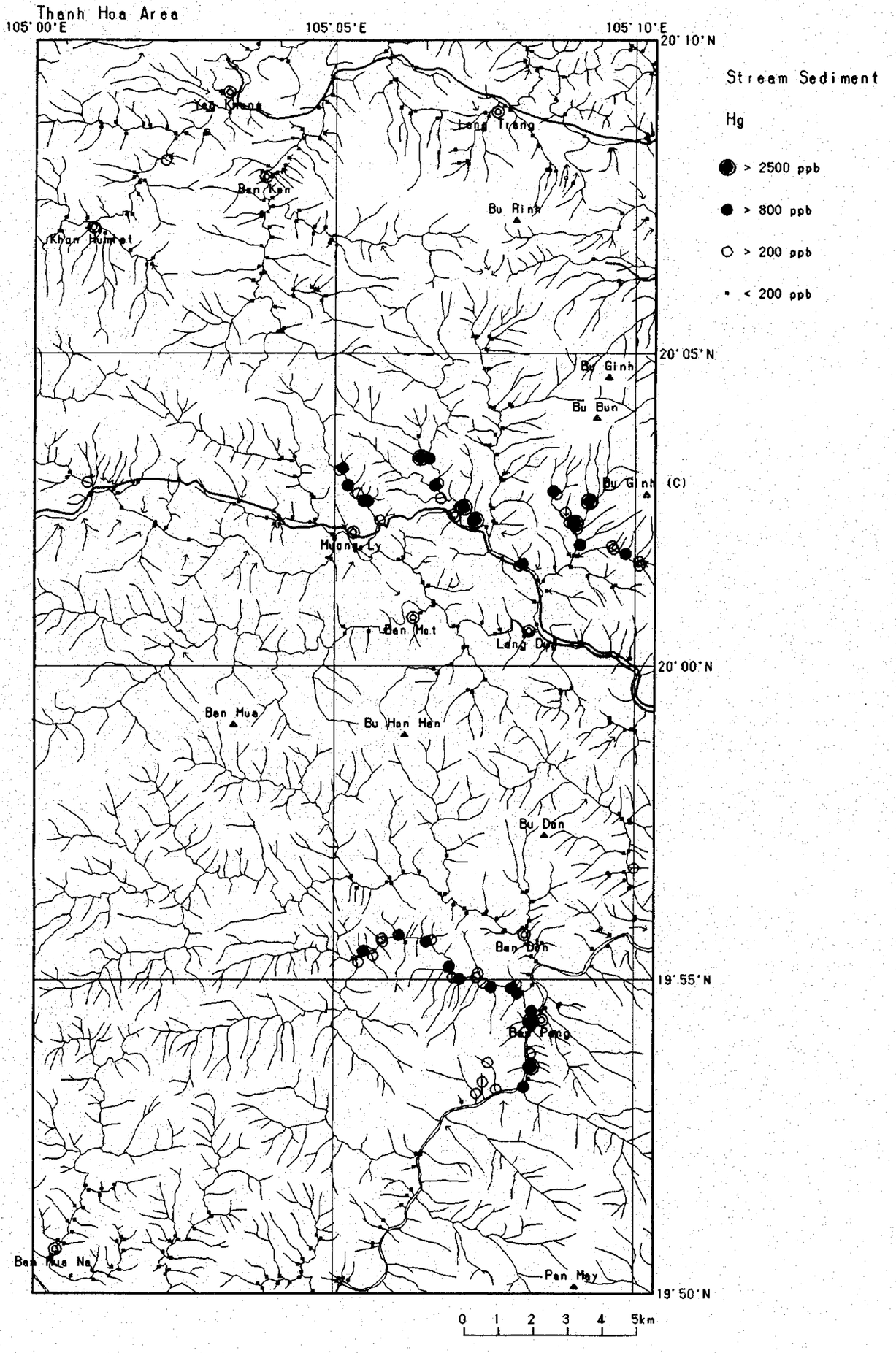
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (6):Ni



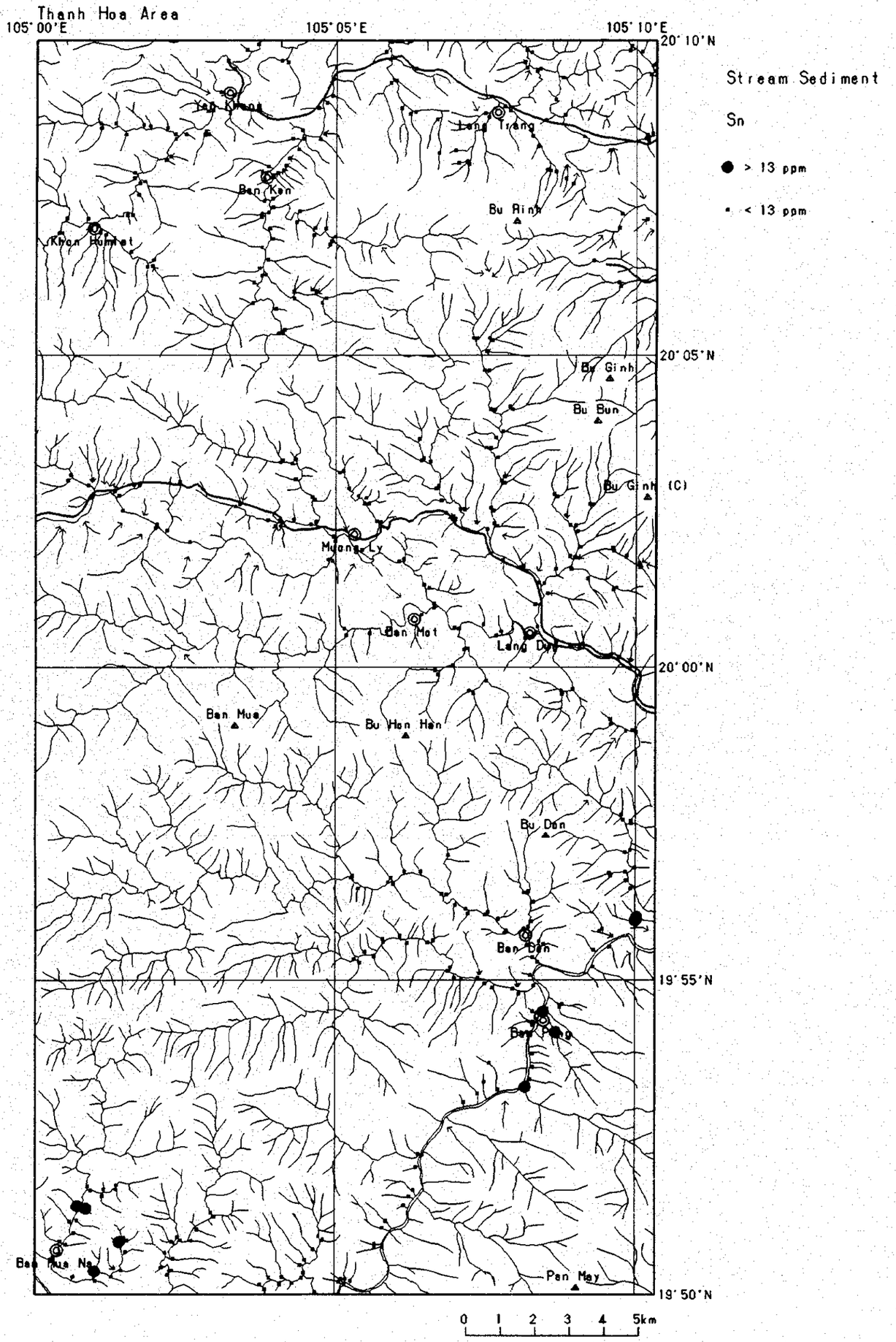
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (7):Cr



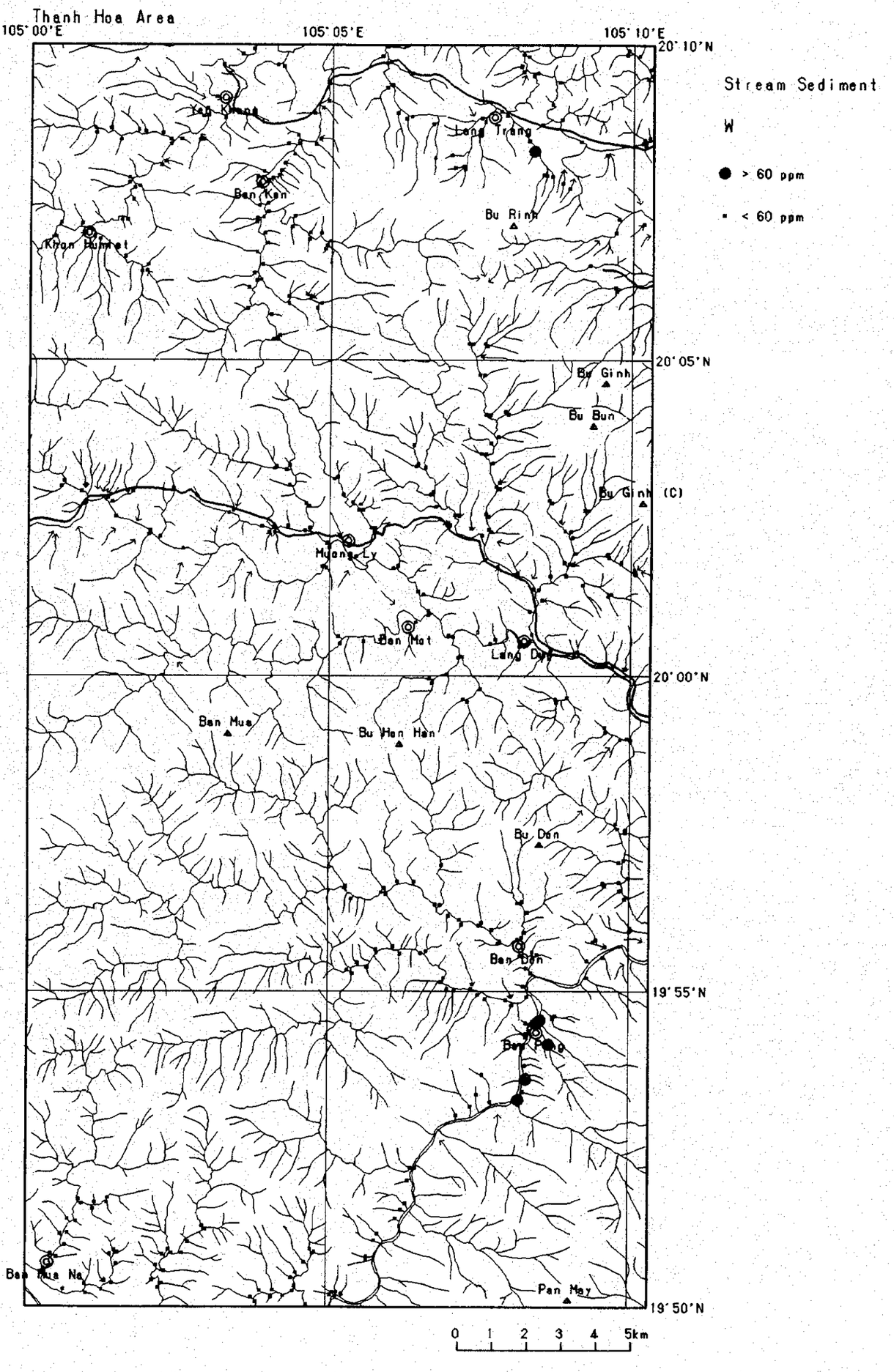
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (8):As



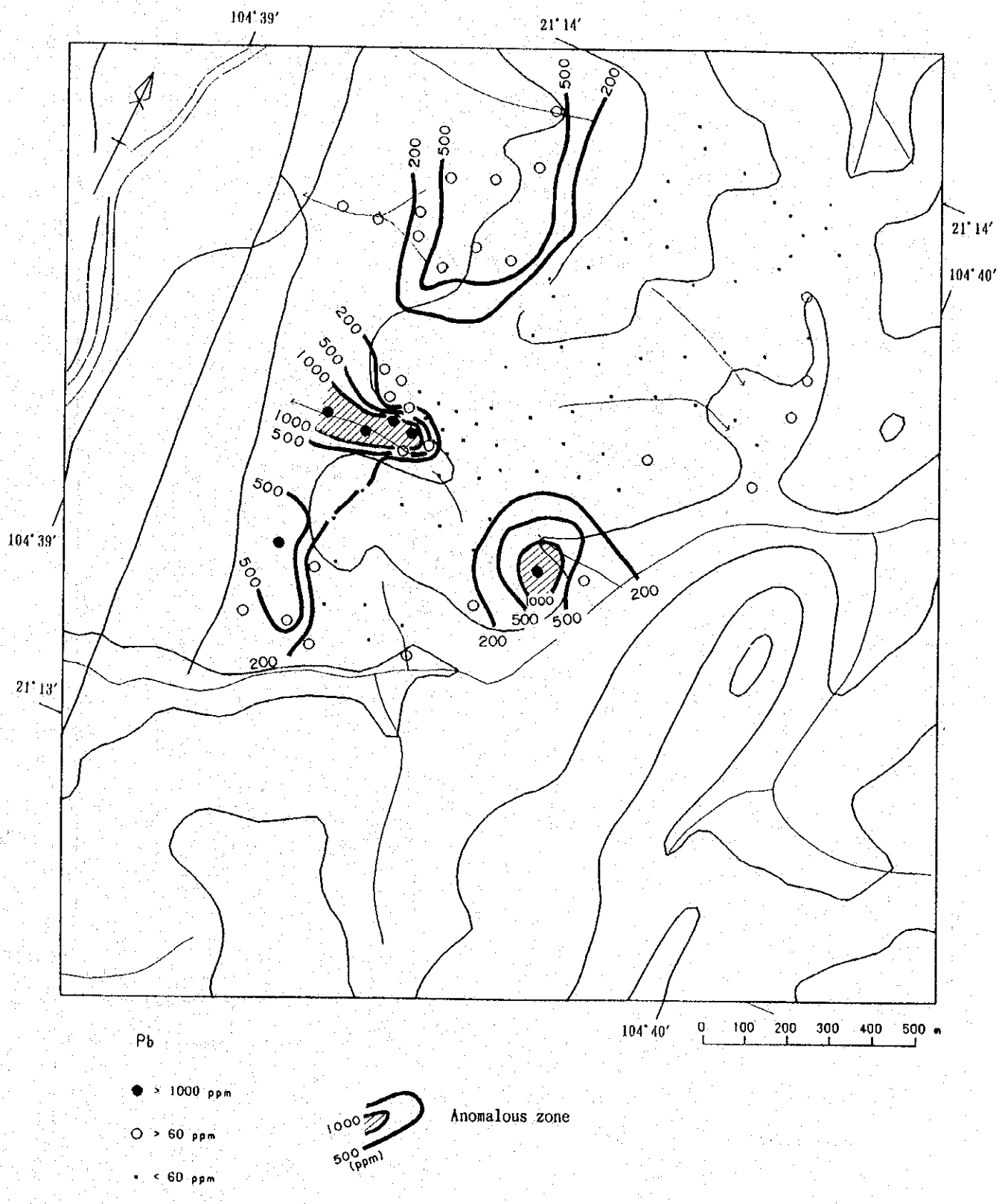
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (9):Hg



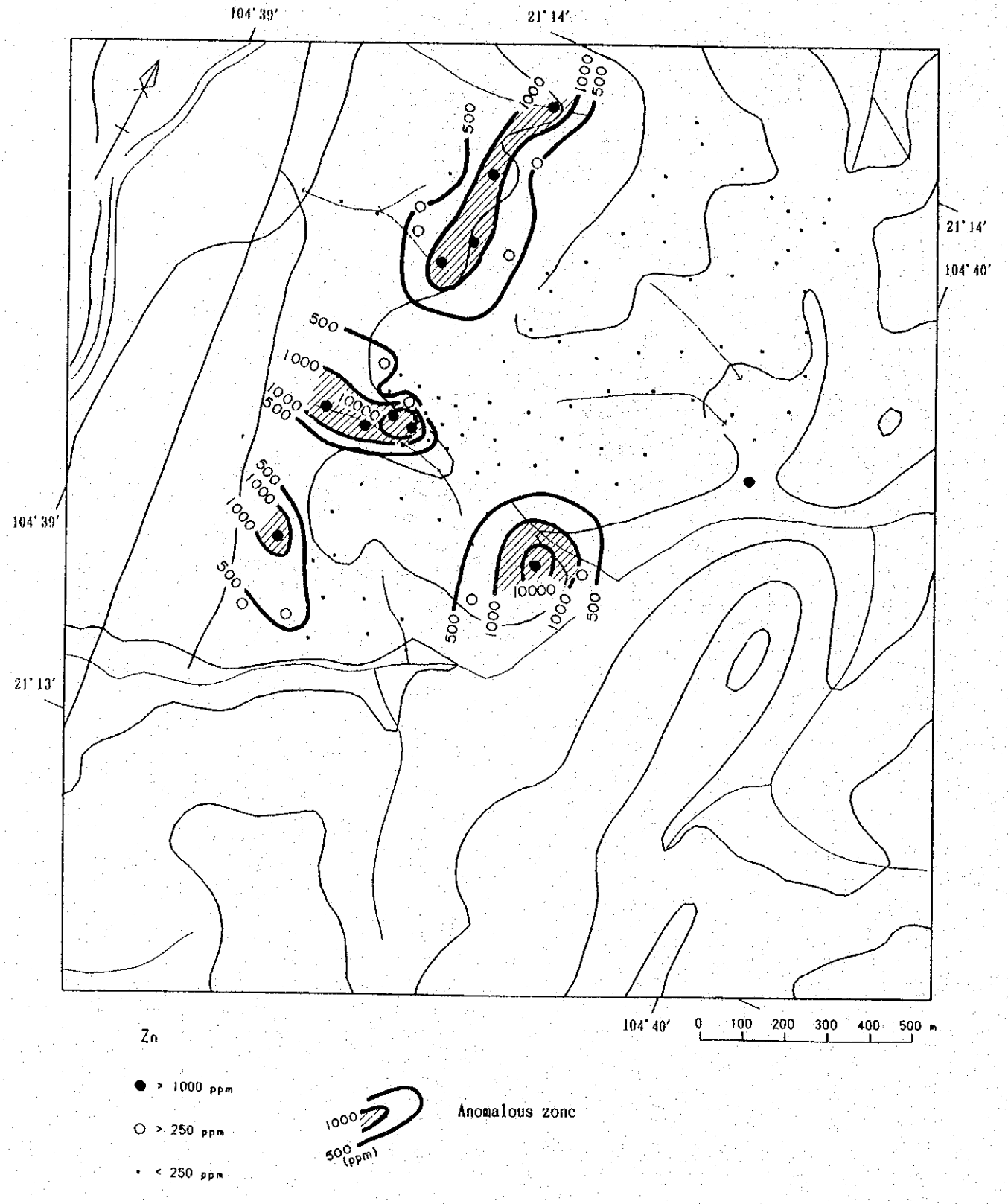
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (10):Sn



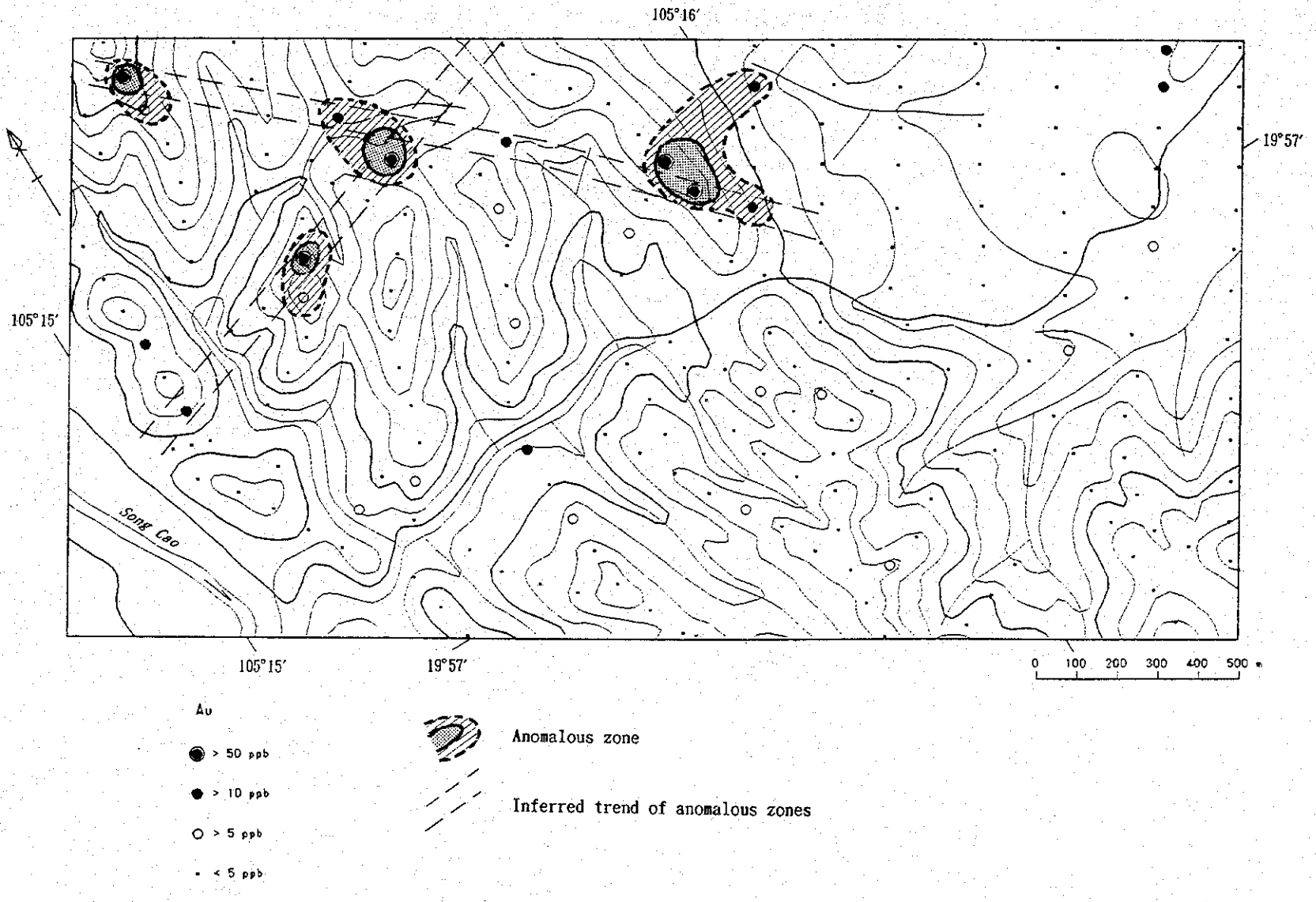
14. Anomaly Map of Stream Sediment Geochemistry in the Western Thanh Hoa Area (11):W



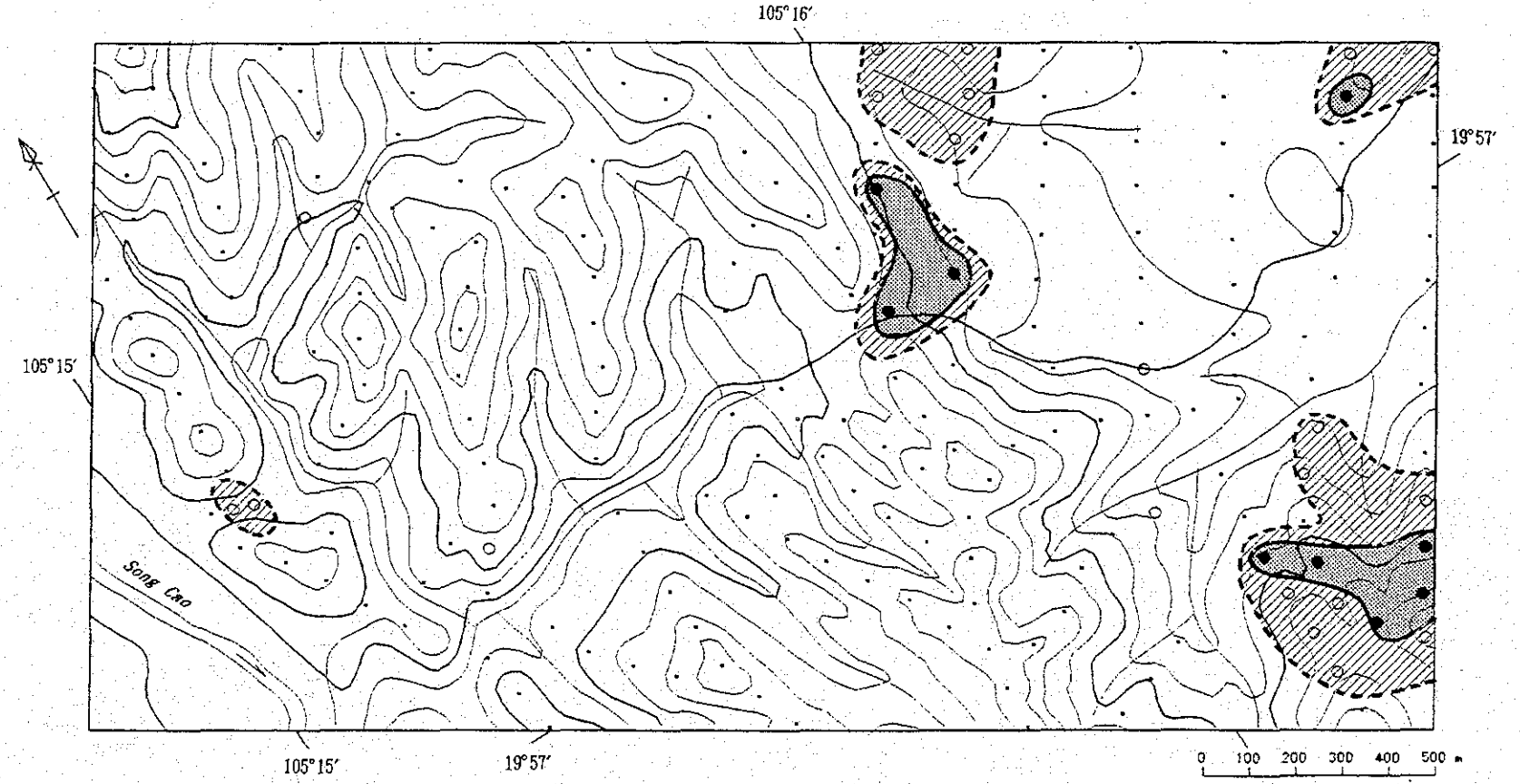
15. Anomaly Map of Soil Geochemistry in the Suoi Boc - Suoi Cu Mineralization Zone (1):Pb



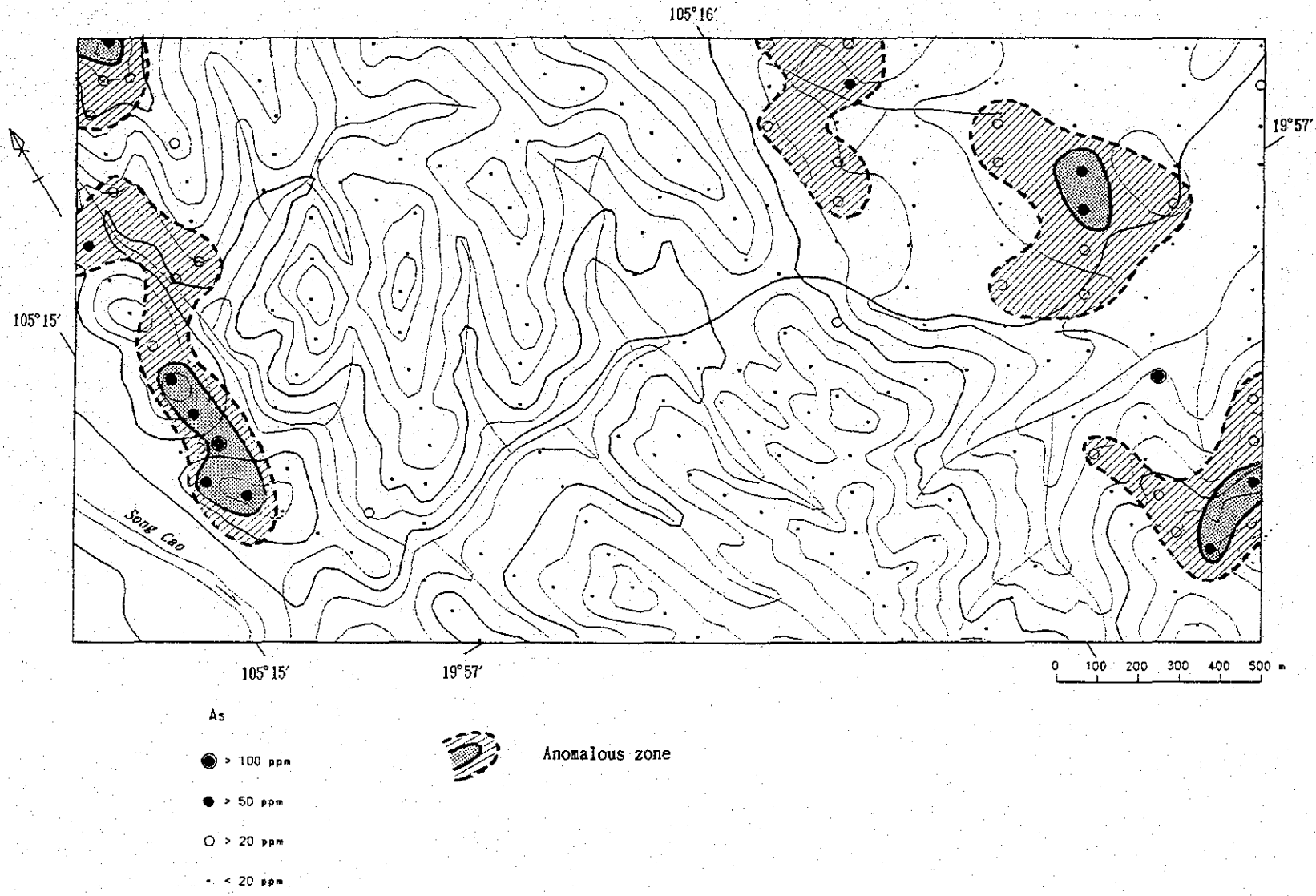
15. Anomaly Map of Soil Geochemistry in the Suoi Boc - Suoi Cu Mineralization Zone (2):Zn



16. Anomaly Map of Soil Geochemistry in the Luong Son Mineralization Zone (1):Au



16. Anomaly Map of Soil Geochemistry in the Luong Son Mineralization Zone (2):Ag

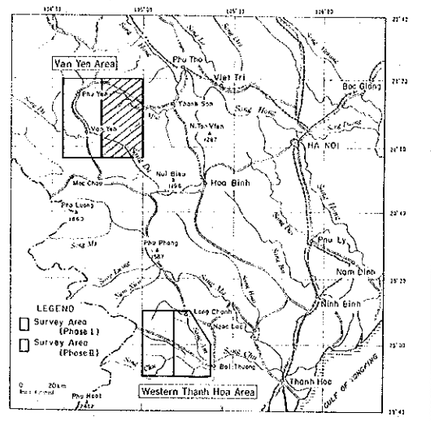


16. Anomaly Map of Soil Geochemistry in the Luong Son Mineralization Zone (3):As

REPORT ON THE COOPERATIVE MINERAL EXPLORATION IN THE VAN YEN AND WESTERN THANH HOA AREAS, THE SOCIALIST REPUBLIC OF VIETNAM

PHASE II

COMPREHENSIVE INTERPRETATION MAP OF THE AVAILABLE RELEVANT DATDA IN THE VAN YEN AREA



FEBRUARY 1995

JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

Scale 1:50,000

0 1 2 3 4 5km

104°40'30"E 104°50'E 104°55'E 105°00'E 21°20'N 21°15'N 21°10'N 21°05'N

L E G E N D

Quaternary — Q — Gravel, sand, silt, clay

Triassic — T_3 — Sandstone, siltstone, limestone, coal (T_3sb-zsb_1/T_3sb-zsb_2 ; Suoi Bang Formation)

Triassic — T_1 — Andesite, basalt, basaltic tuff, trachyte, rhyolite, dacite (T_1vn ; Vieu Nan Formation)

Permian — P_2 — Limestone (P_2bc ; Buong Can Formation)

Permian — P_1 — Limestone, siliceous limestone (P_1-P_2bl ; Ban Diet Formation)

Carboniferous to Permian — C-P — Limestone (C-P_1da ; Da Bai Formation)

Carboniferous — C_1dn — Sandstone, siltstone, siliceous limestone (C_1dn;Da Nteng Formation)

Devonian to Carboniferous — D_2-C_1 — Limestone, siltstone (D_2-C_1bc;Ban Coi Formation)

Devonian — D_2 — Limestone, siliceous limestone (D_2-D_2bp;Ban Pap Formation)

Devonian — D_2sk — Limestone, siliceous limestone (D_2sk;Suoi Khoang, D_2ho_1/D_2ho_2 ; Ban Nguon Formation)

Devonian — D_2sn — Conglomerate, sandstone, siltstone (D_2sn;Suoi Nanh Formation, D_2sn;Song Nua Formation)

Silurian — S_2 — Siltstone, sandstone, limestone, marl (S_2bb ; Ba Beng Formation)

Ordovician to Silurian — O_3-S_1 — Conglomerate, sandstone, siltstone ($O_3S_1sv_1$/$O_3S_1sv_2$; Sinh Vinh Formation)

Cambrian — C-O — Shale (C-Oqc ; Nui Giac Formation)

Proterozoic — PR_1 — Gneiss, Quartzite, amphibolite (PR_1-sc ; Suoi Chieng Formation/PR_1-sq ; Sinh Quyen Formation)

$\gamma\xi PZ_2$ — Granite ($\gamma\xi PZ_2bn$; Ban Nguon complex ; granosyenite, granite)

γPR_3 — Granite (γPR_3tg ; Ton Giau complex ; granite, granosyenite)

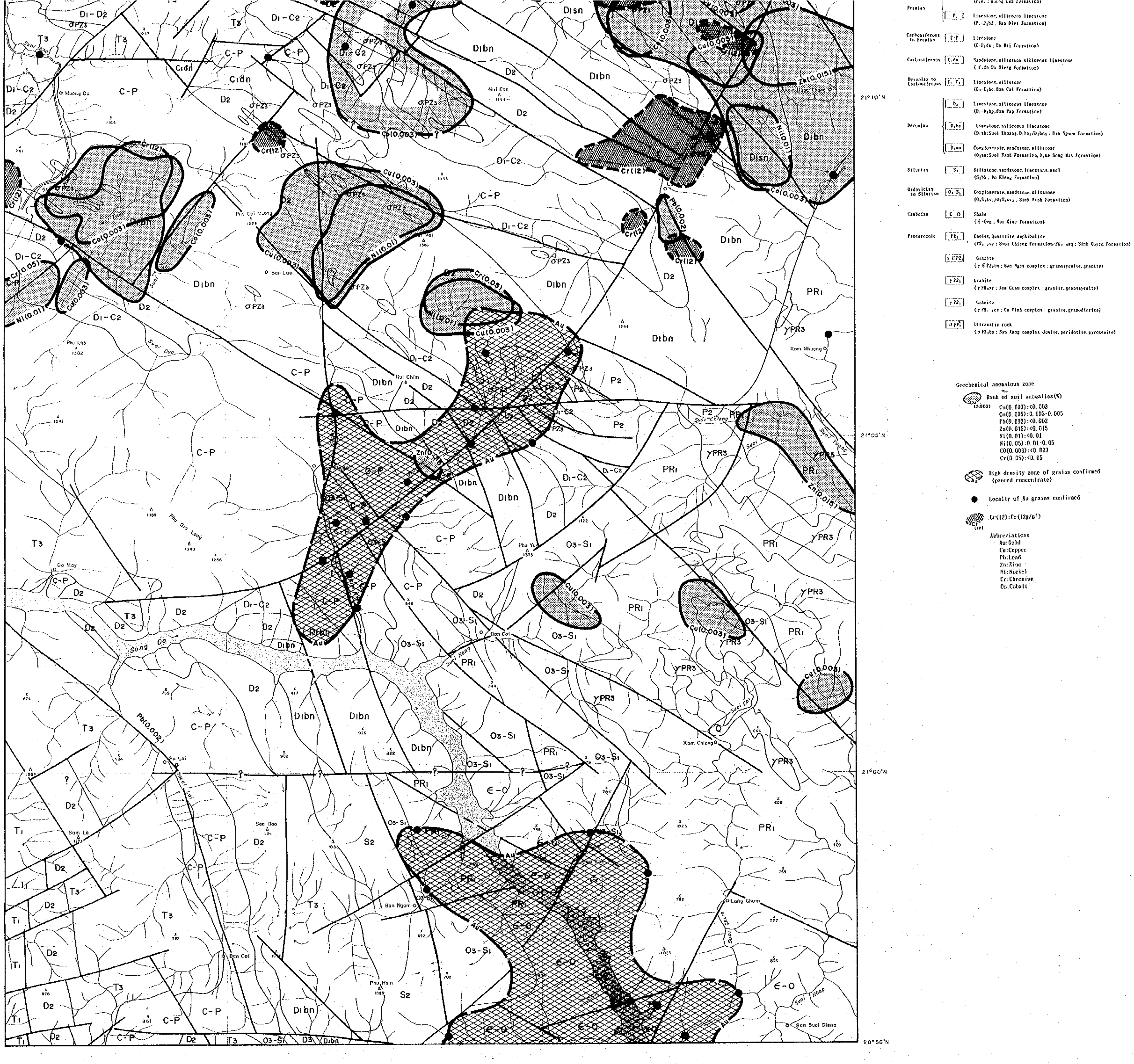
γPR_1 — Granite (γPR_1-cv ; Ca Vinh complex ; granite, granodiorite)

σPZ_3 — Ultramafic rock (σPZ_3ba ; Ban Jang complex-dunite, peridotite, pyroxenite)

Geochemical angomalous zone

Rank of soil anomalies(%)

(0.003) Cu(0.003):<0.003
Cu(0.005):0.003-0.005
Pb(0.002):<0.002
Zn(0.015):<0.015
Ni(0.01):<0.01
Ni(0.05):0.01-0.05
Co(0.003):<0.003
Cr(0.05):<0.05

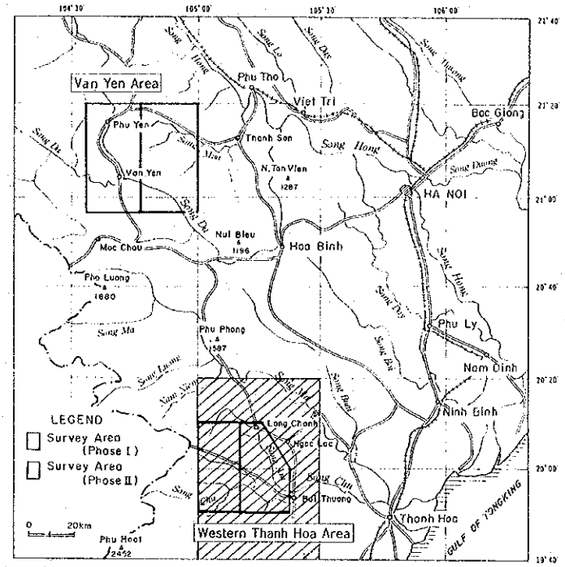


Permian
Limestone, siliceous limestone
(P-P bd ; Ban Diet Formation)
Carboniferous to Permian
C-P
Limestone
(C-P da ; Da Mai Formation)
Carboniferous
Sandstone, siltstone, siliceous limestone
(C dn: Da Nieng Formation)
Devonian to Carboniferous
Limestone, siltstone
(D-C bc ; Ban Cai Formation)
Devonian
Limestone, siliceous limestone
(D-D bp, Ban Pap Formation)
Limestone, siliceous limestone
Conglomerate, sandstone, siltstone
Silurian
Siltstone, sandstone, limestone, marl
(S bb ; Bo Bleng Formation)
Ordovician to Silurian
Conglomerate, sandstone, siltstone
(Sinh Vinh Formation)
Cambrian
Shale
(Nui Cine Formation)
Proterozoic
Gneiss, Quartzite, amphibolite
(Suoi Chieng Formation / Sinh Quyen Formation)
Granite
(Ban Ngan complex : granosyenite, granite)
Granite
(Xom Giau complex : granite, granosyenite)
Granite
(Ca Vinh complex : granite, granodiorite)
Ultramafic rock
(Ban Xang complex dunite, peridotite, pyroxenite)
Geochemical anomalous zone
Rank of soil anomalies(%)
Cu(0.003):<0.003
Cu(0.005):0.003-0.005
Pb(0.002):<0.002
Zn(0.015):<0.015
Ni(0.01):<0.01
Ni(0.05):0.01-0.05
CO(0.003):<0.003
Cr(0.05):<0.05
High density zone of grains confirmed
(panned concentrate)
Locality of Au grains confirmed
Cr(12):Cr(12g/m³)
Abbreviations
Au:Gold
Cu:Copper
Pb:Lead
Zn:Zinc
Ni:Nickel
Cr:Chromium
Co:Cobalt
21°10'N
21°05'N
21°00'N
20°56'N
Song Da
Muong Do
Ban Lop
Ban Coi
Xom Chieng
Xom Nhuong
Lang Chum
Ban Ngom
Ban Suoi Giang
Phu Gia Long

REPORT ON THE COOPERATIVE MINERAL EXPLORATION IN THE VAN YEN AND WESTERN THANH HOA AREAS, THE SOCIALIST REPUBLIC OF VIETNAM

PHASE II

COMPREHENSIVE INTERPRETATION MAP OF THE AVAILABLE RELEVANT DATA IN THE WESTERN THANH HOA AREA (GEOLOGY AND MINERALIZATION)



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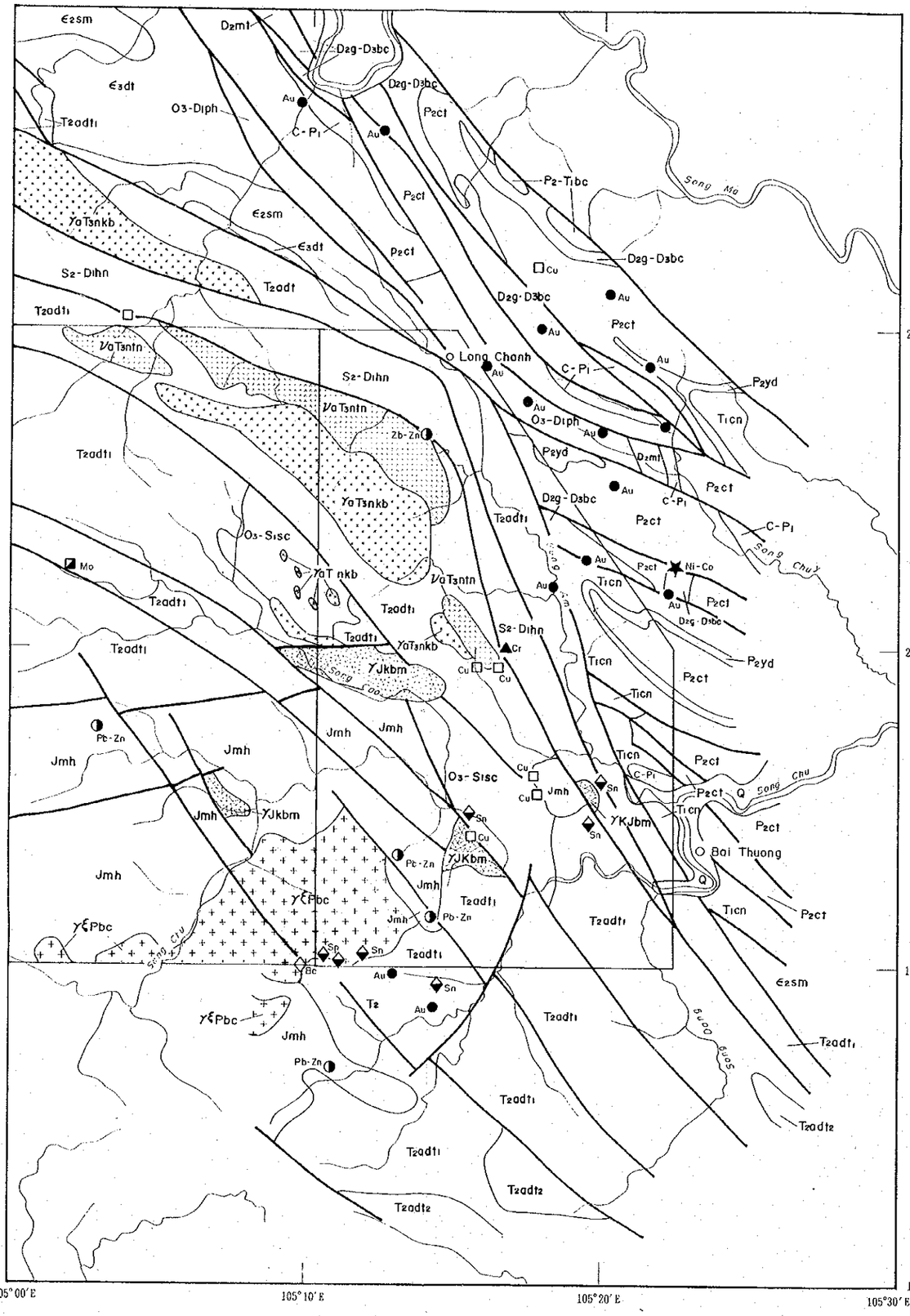
JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

Scale 1:200,000

0 1 2 3 4 5km



LEGEND

Quaternary	Q	Gravel, sand and soil
Jurassic	Jmh	Acidic volcanic rock, acdic tuff and conglomerate
Triassic	T_2adt_2	Shale, marl and limestone with intercalation of shale
	T_2adt_1	Sandstone and tuffaceous sandstone with conglomerate, acidic volcanic rocks, chert and lenticular limestone
	T_1cn	Conglomerate, sandstone, siltstone and shale with fine bedded chert
Persian to Triassic	P_2-T_1bc	Sericitic shale with beds of iron ore, sandstone, siltstone and shale
Carboniferous to Persian	P_2yd	Limestone and coal
	P_2ct	Basic volcanic rocks with lenticular limestone at the upper part and volcanic breccia
	$C-P_1$	White and greyish black limestone with black chert(at the lower part)
Devonian	D_2g-D_3bc	Limestone with blocks of fine bedded chert and lenticular manganese ore
	D_2at	Grey limestone
Silurian	S_2-D_1bh	Clayish shale and effusive rocks
Ordovician to Devonian	O_3-D_1pl	Limestone, volcanic rocks and shale
Cambrian	ϵ_2dt	Mainly sandstone with shale
	ϵ_2sn	Sandstone, siltston, shale, limestone and shale with coal and basic volcanic rocks

Intrusive rocks

$\gamma\epsilon Pbc$	Ban Chieng Complex: Biotite granite, porphyritic granite
$\gamma Jkbm$	Ban Muong Complex: Biotite granite, porphyritic granite
γaT_3nkb	Xin Boi Complex: Two mica granite and biotite granite
νaT_3ntn	Tri Nang Complex: Gabbro, diabase

Fault

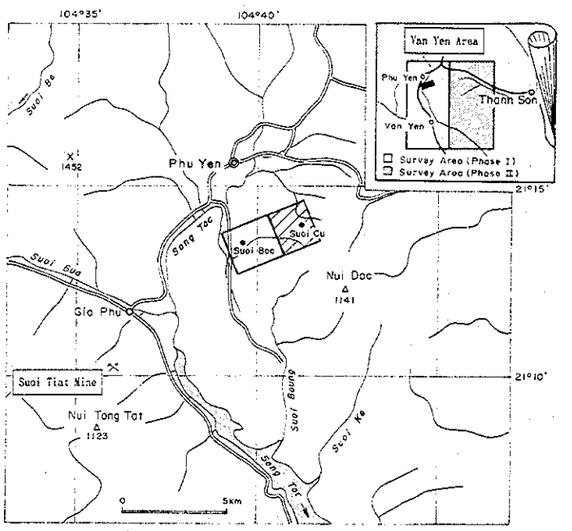
Mineralization

Au	Gold
Sn	Tin
Be	Beryllium
Pb-Zn	Lead-Zinc
Ni-Co	Nickel-Cobalt
Cr	Chromium
Cu	Copper
Mo	Molybdenum
	Survey Area (Phase I)
	Survey Area (Phase II)

REPORT ON THE COOPERATIVE MINERAL EXPLORATION IN THE VAN YEN AND WESTERN THANH HOA AREAS, THE SOCIALIST REPUBLIC OF VIETNAM

PHASE II

COMPREHENSIVE INTERPRETATION MAP OF THE AVAILABLE RELEVANT DATA IN THE SUOI CU MINERAL SHOWING



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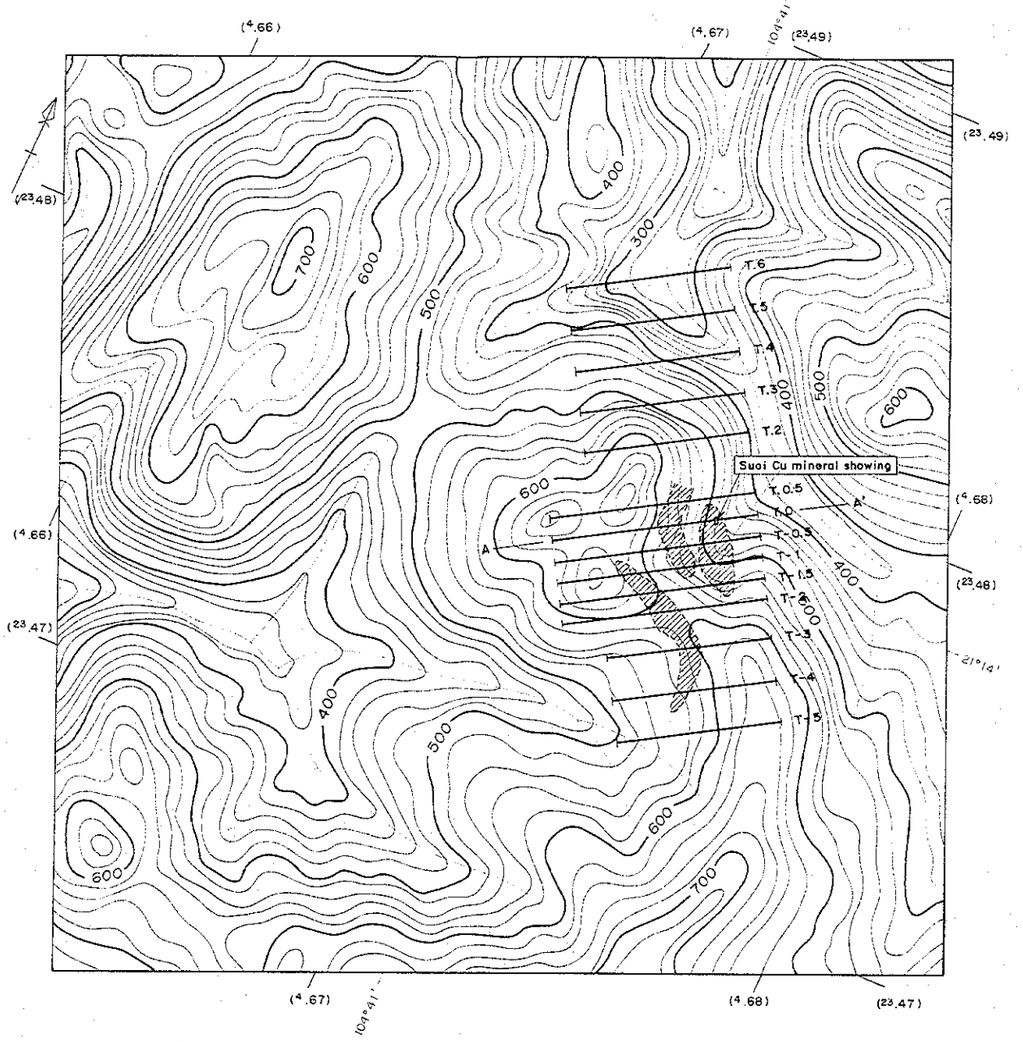
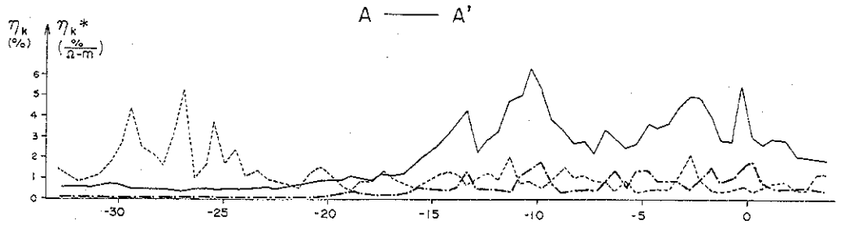
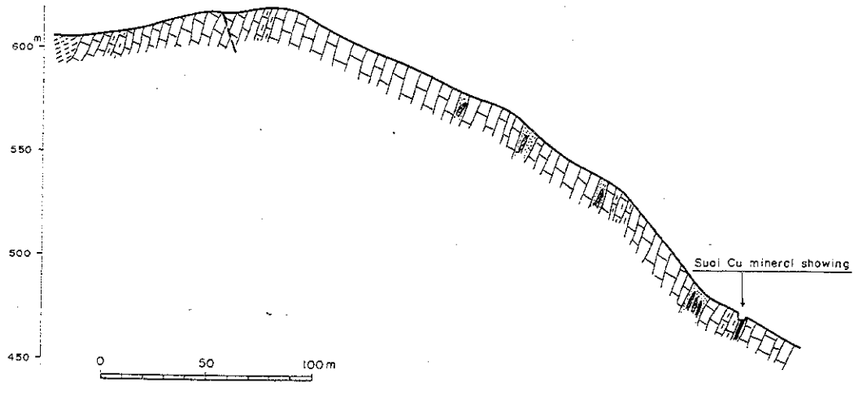
JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN



Scale 1 : 10,000

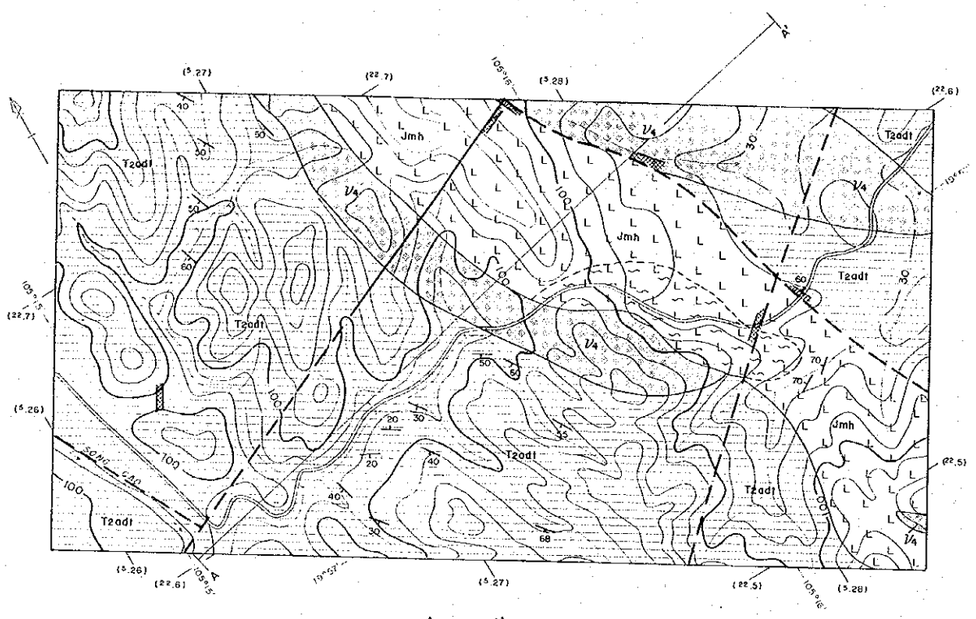
0 200 400 600 800 1000m

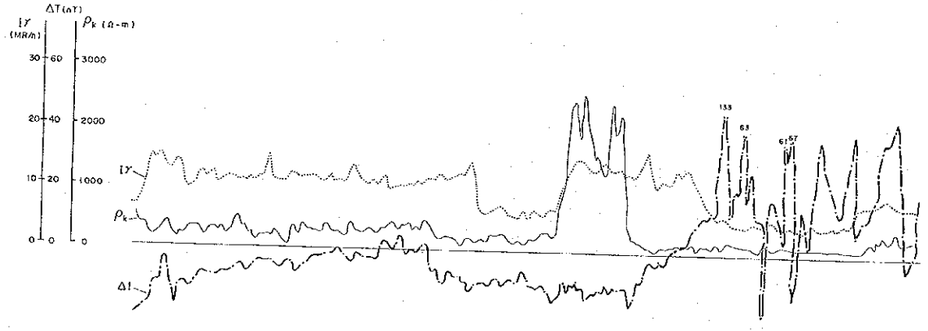




LEGEND

- Limestone
- Marl
- Sandstone, siltstone
- Pb-Zn Ore
- Pb-Zn Ore based on geophysical data
- Trench with Pb-Zn Ore
- Fault
- I P Anomalous zone
- FE (Frequency effect ; %)
- MCF (Metal conduction factor ; $\eta_k^* = \frac{\%}{\Omega\text{-m}}$)
- Resistivity (ρ_k = Ω-m)
- T.0 Geophysical survey line

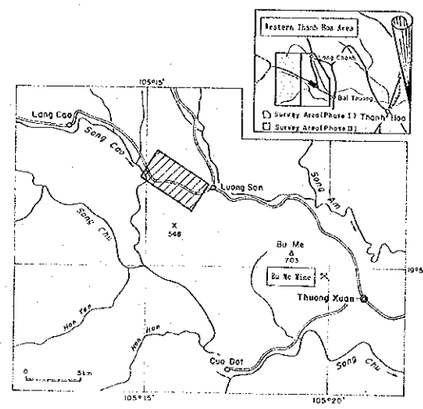




PL. 4

REPORT ON THE COOPERATIVE MINERAL EXPLORATION
IN THE VAN YEN AND WESTERN THANH HOA AREAS,
THE SOCIALIST REPUBLIC OF VIETNAM
PHASE II

COMPREHENSIVE INTERPRETATION MAP OF THE AVAILABLE RELEVANT DATA IN THE LUONG SON MINERALIZATION ZONE



FEBRUARY 1995

JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

Scale 1 : 10,000

0 200 400 600 800 1000m

LEGEND

- Jurassic System (Jmh)
- Middle Triassic Series (T2adl)
- Gabbro, diabase (V4)
- Dip and strike of bed
- Fault (confirmed / inferred)
- Quartz vein
- Kaolinization zone
- P_k : Resistivity
- Δt : Total magnetic intensity
- $I\gamma$: Radioactive intensity