



Technical Report on the Development of a Geochemical Atlas of Cyprus

Volume 3 – Atlas and Other Maps

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the University of New South Wales

A report to the
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4 RESULTS PART A – THE ATLAS AND OTHER MAPS

Order of presentation of maps

Variable or Element	Media	Method	In Atlas	Page
4.2 Physical parameters				
pH	Top soil	1:5 soil slurry	Y	3-9
LOI EC	i. Top soil ii. Top soil	1000°C calcining 1:5 soil slurry	Y	3-10
4.3 Mafic-ultramafic intrusives and basalt associated elements (siderophiles)				
Fe	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-11
Fe	i. Top soil ii. Sub soil	INAA INAA	Y	3-12
Fe	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-13
Mn	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-14
Na	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-15
Na	i. Top soil ii. Sub soil	INAA INAA	Y	3-16
Na	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-17
Al	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-18
Ga	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-19
Ge	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-20
Sc	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-21
Sc	i. Top soil ii. Sub soil	INAA INAA	Y	3-22
V	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-23
Mg	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-24
Ti	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-25
Cr	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-26
Cr	i. Top soil ii. Sub soil	INAA INAA	Y	3-27
Cr	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-28

Variable or Element	Media	Method	In Atlas	Page
Ni	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-29
Co	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS	Y	3-30
Co	i. Top soil ii. Sub soil	INAA INAA	Y	3-31
Co	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-32
P	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-33

4.4 Sulphide associated elements (chalophiles)

Cu	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-34
Zn	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-35
Zn	i. Top soil ii. Sub soil	INAA INAA	Y	3-36
In	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-37
Au	i. Top soil ii. Sub soil	INAA INAA	Y	3-38
As	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-39
As	i. Top soil ii. Sub soil	INAA INAA	Y	3-40
As	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-41
Sb	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-42
Sb	i. Top soil ii. Sub soil	INAA INAA	Y	3-43
Cd	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-44
Bi	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-45
Mo	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-46
Mo	i. Top soil ii. Sub soil	INAA INAA	N	3-47
Ag	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-48
Se	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-49
Pb	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-50
Pt	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-51

Variable or Element	Media	Method	In Atlas	Page
4.5 Alkali and alkaline earth elements (carbonate associated elements)				
Ca	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-52
Ca	i. Top soil ii. Sub soil	INAA INAA	Y	3-53
Ca	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-54
Ba	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-55
Ba	i. Top soil ii. Sub soil	INAA INAA	Y	3-56
Sr	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-57
Cs	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-58
Cs	i. Top soil ii. Sub soil	INAA INAA	Y	3-59
Cs	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-60
K	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-61
Li	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-62
Rb	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-63
Rb	i. Top soil ii. Sub soil	INAA INAA	Y	3-64
Be	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-65
Tl	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-66
Nb	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-67
Sn	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-68
U	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-69
U	i. Top soil ii. Sub soil	INAA INAA	Y	3-70
U	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-71

Variable or Element	Media	Method	In Atlas	Page
4.6 Incompatible (HFSE) elements				
Th	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-72
Th	i. Top soil ii. Sub soil	INAA INAA	Y	3-73
Th	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-74
Hf	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-75
Hf	i. Top soil ii. Sub soil	INAA INAA	Y	3-76
Hf	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-77
Zr	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-78
4.7 Rare earth elements				
Ce	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-79
Ce	i. Top soil ii. Sub soil	INAA INAA	Y	3-80
Ce	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-81
Dy	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-82
Er	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-83
Eu	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-84
Eu	i. Top soil ii. Sub soil	INAA INAA	Y	3-85
Eu	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-86
Dy	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-87
Gd	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-88
Ho	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-89
La	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-90
La	i. Top soil ii. Sub soil	INAA INAA	Y	3-91
La	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-92
Lu	i. Top soil ii. Sub soil	INAA INAA	Y	3-93
Nd	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-94

Variable or Element	Media	Method	In Atlas	Page
Pr	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-95
Sm	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-96
Sm	i. Top soil ii. Sub soil	INAA INAA	Y	3-97
Sm	i. Top soil / Sub soil ratio ii. Top soil	ar-ICPMS ar-ICPMS / INAA ratio	N	3-98
Tb	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-99
Tb	i. Top soil ii. Sub soil	INAA INAA	Y	3-100
Tm	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-101
Yb	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-102
Yb	i. Top soil ii. Sub soil	INAA INAA	Y	3-103
Y	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-104

4.8 Other elements and variables

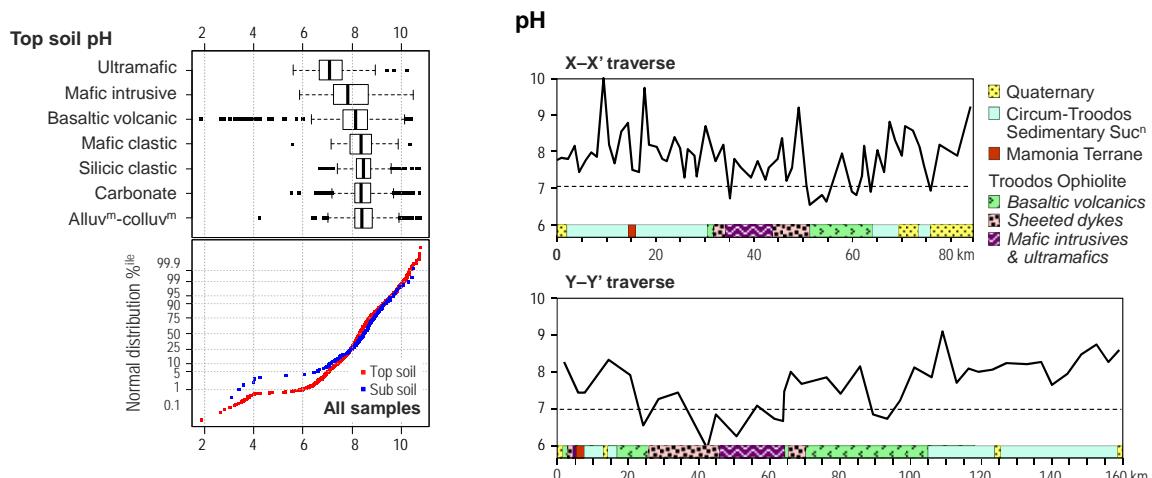
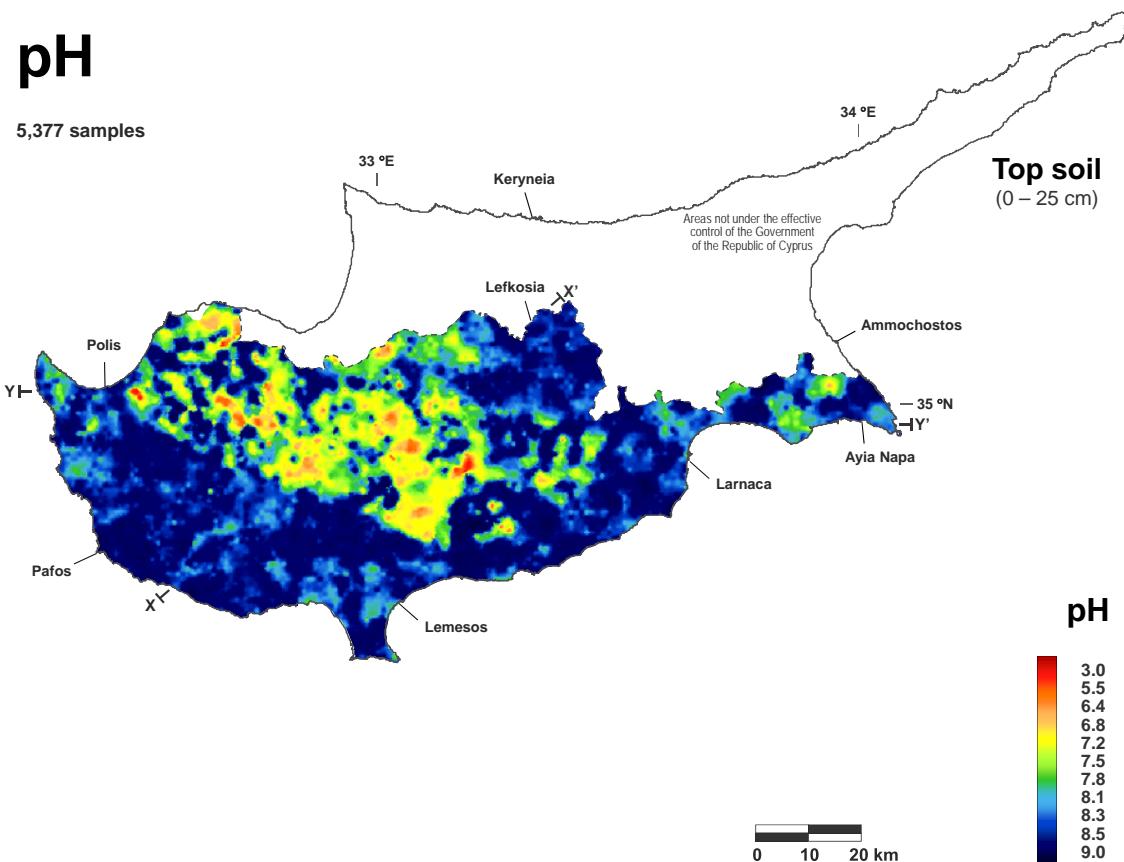
B	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-105
Br	i. Top soil ii. Sub soil	INAA INAA	Y	3-106
Hg	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-107
Re	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-108
Te	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	Y	3-109
W	i. Top soil ii. Sub soil	ar-ICPMS ar-ICPMS	N	3-110
Cl- F-	Top soil	Ion chromatography Ion chromatography	Y	3-111
NO₃- P₂O₅	Top soil	Ion chromatography XRF	Y	3-112
Total S SO₅-	Top soil	CN-analyser Ion chromatography	Y	3-113
SiO₂ TiO₂	Top soil	XRF XRF	Y	3-114
Total C Organic C	Top soil	CN-analyser CN-analyser	Y	3-115
MnO MgO	Top soil	XRF XRF	Y	3-116
Al₂O₃ K₂O	Top soil	XRF XRF	Y	3-117

5 RESULTS PART B – STATISTICAL ANALYSIS AND DETAILED STUDIES

Order of presentation of maps

Variable or Element	Media	Method	In Atlas	Page
Ba / Ca	i. Top soil	ar-ICPMS		
Cr / Fe	ii. Top soil	INAA		
U / Ca	iii. Top soil	ar-ICPMS	N	3-118
La / Sm	i. Top soil	INAA		
Eu / La	ii. Top soil	INAA		
Ce / La	iii. Top soil	INAA	N	3-119
Mg / Ca	i. Top soil	ar-ICPMS		
Cd / Zn	ii. Top soil	ar-ICPMS		
Hf / Cr	iii. Top soil	INAA	N	3-120
Ca	i. (Top – Sub) / Topsoil	INAA		
Rb	ii. (Top – Sub) / Topsoil	INAA		
La	iii. (Top – Sub) / Topsoil	INAA	N	3-121
Cr	i. (Top – Sub) / Topsoil	INAA		
Ni	ii. (Top – Sub) / Topsoil	INAA		
Hg	iii. (Top – Sub) / Topsoil	INAA	N	3-122
High values	i. Factor 1 (topsoil)	ar-ICPMS		
	ii. Factor 2 (topsoil)	ar-ICPMS		
	iii. Factor 6 (topsoil)	ar-ICPMS	N	3-123
High values	i. Hg (topsoil)	ar-ICPMS		
	ii. Hg (Sub soil)	ar-ICPMS		
	iii. B (topsoil)	ar-ICPMS	N	3-124
High values	i. Cr (topsoil)	INAA		
	ii. Ni (topsoil)	ar-ICPMS		
	iii. Co (topsoil)	ar-ICPMS	N	3-125
High values	i. Pb (topsoil)	ar-ICPMS		
	ii. Fe (topsoil)	ar-ICPMS		
	iii. Sm (topsoil)	INAA	N	3-126
"Outside" values, by rock group	i. Cu (topsoil)	ar-ICPMS		
	ii. Cr (Sub soil)	ar-ICPMS		
	iii. Ni (topsoil)	ar-ICPMS	N	3-127

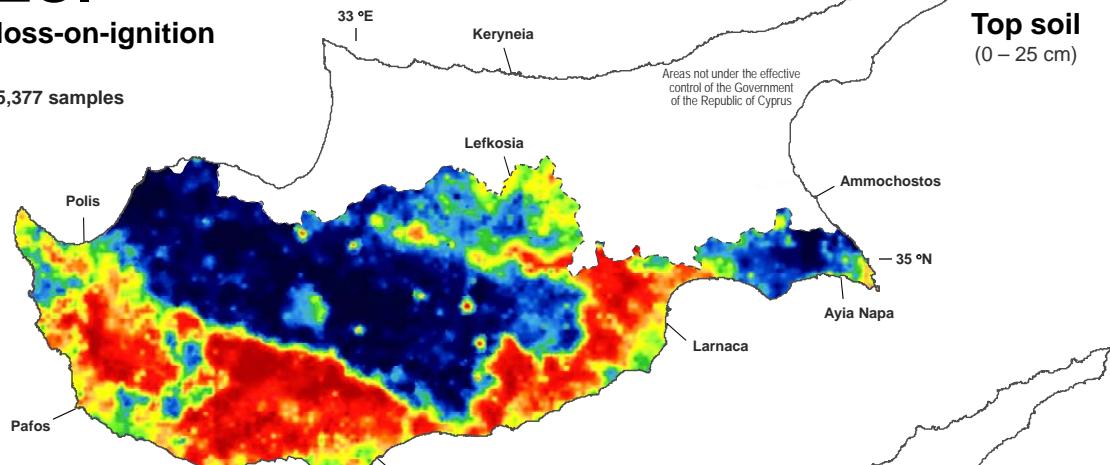
Variable or Element	Media	Method	In Atlas	Page
Indices	i. Hg*Cu*Pb*Sn/Fe ii. Ag*As*Cu*In*Zn iii. (Cr*Mg*Ni)/(Cu*Fe*Ca)	ar-ICPMS ar-ICPMS ar-ICPMS	N	3-128
Contamination	i. Pb and Hg ii. Cu iii. B	ar-ICPMS ar-ICPMS ar-ICPMS	N	3-129
Contamination	i. Cr ii. As iii. Ba	ar-ICPMS ar-ICPMS ar-ICPMS	N	3-130
Contamination	i. Ni ii. Sb iii. Zn	ar-ICPMS ar-ICPMS ar-ICPMS	N	3-131
Contamination	i. In ii. Cd iii. Sn	ar-ICPMS ar-ICPMS ar-ICPMS	N	3-132
Factor scores	i. Factor 1 ii. Factor 2	ar-ICPMS ar-ICPMS	Y	3-133
Factor scores	i. Factor 3 ii. Factor 4	ar-ICPMS ar-ICPMS	Y	3-134
Factor scores	i. Factor 5 ii. Factor 6	ar-ICPMS ar-ICPMS	Y	3-135
Factor scores	i. Factor 1 ii. Factor 2	INAA INAA	Y	3-136
Factor scores	i. Factor 3 ii. Factor 4	INAA INAA	Y	3-137
K-means clusters (8-cluster model)	i. K-means clusters ii. K-means cluster	ar-ICPMS INAA	N	3-138



LOI

loss-on-ignition

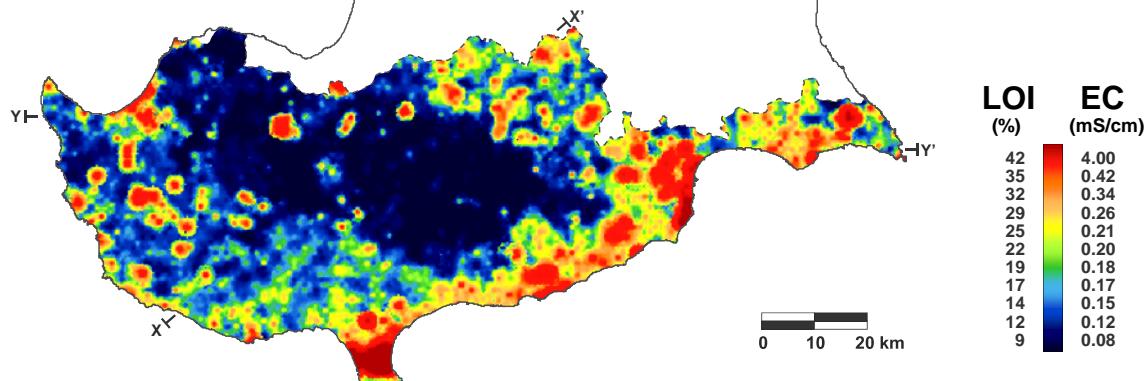
5,377 samples



Top soil
(0 – 25 cm)

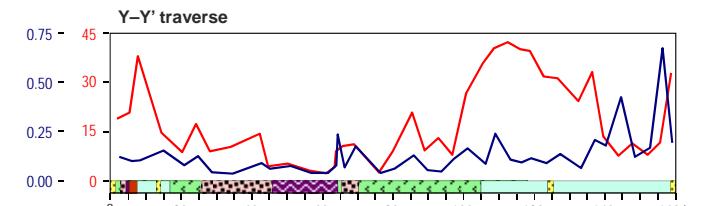
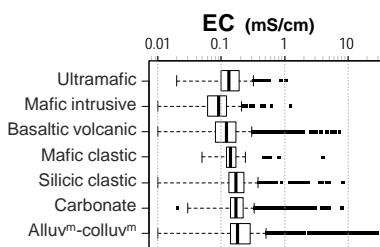
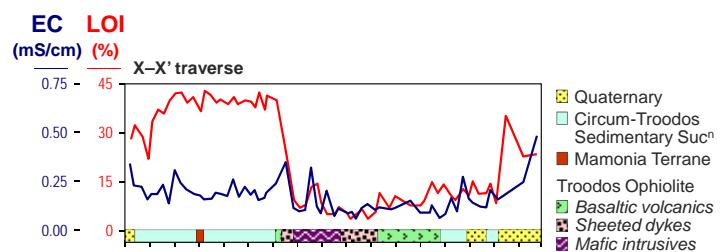
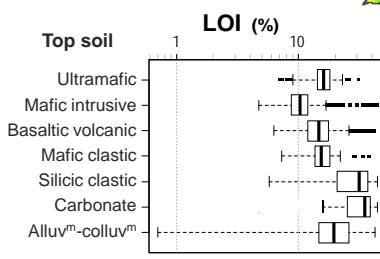
EC

electrical conductivity



LOI (%) **EC** (mS/cm)

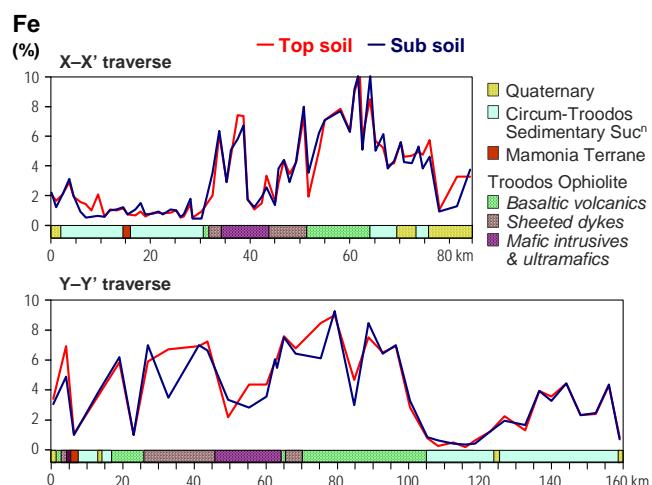
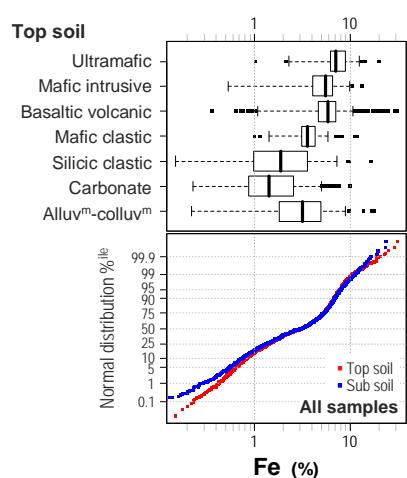
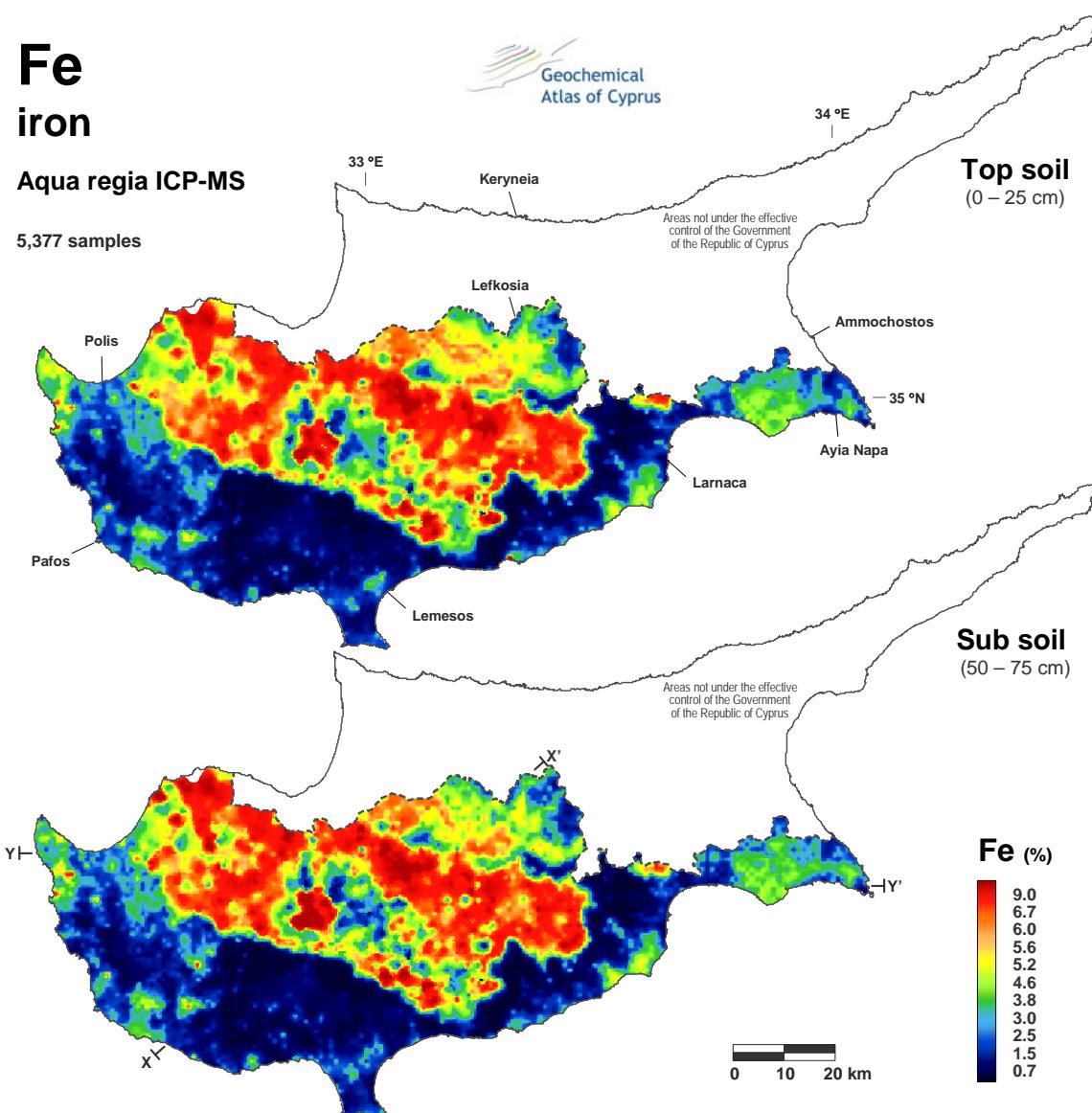
42	4.00
35	0.42
32	0.34
29	0.26
25	0.21
22	0.20
19	0.18
17	0.17
14	0.15
12	0.12
9	0.08



Fe iron

Aqua regia ICP-MS

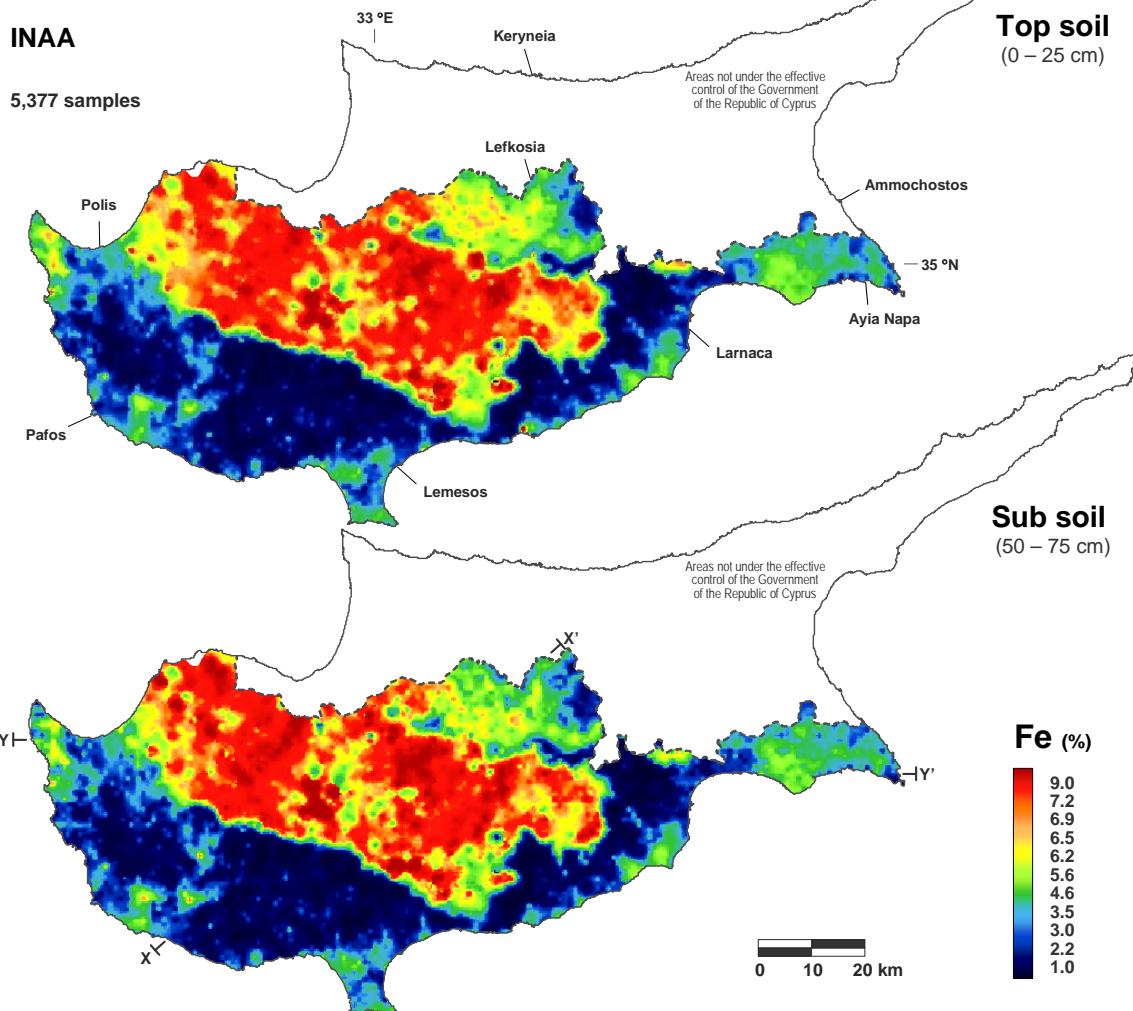
5,377 samples



Fe iron

INAA

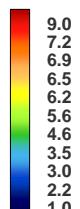
5,377 samples



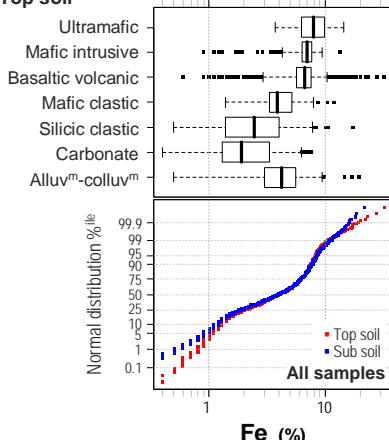
Top soil
(0 – 25 cm)

Sub soil
(50 – 75 cm)

Fe (%)



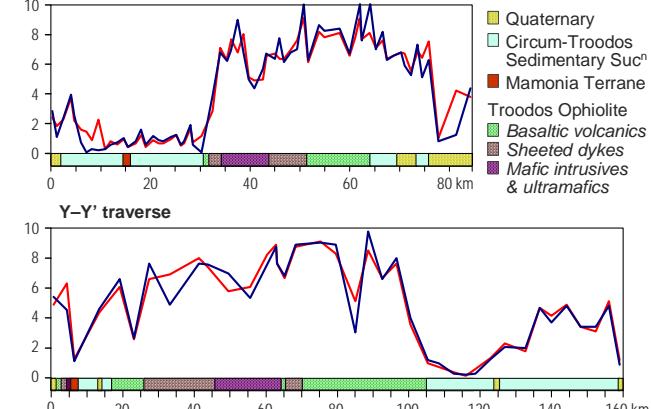
Top soil



Fe

(%) X-X' traverse

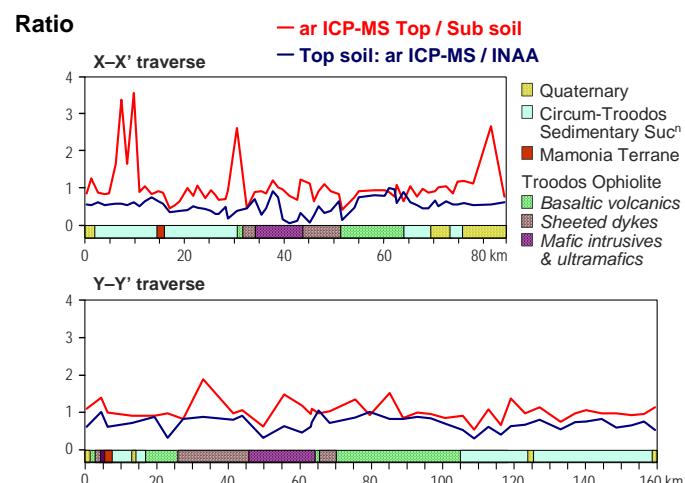
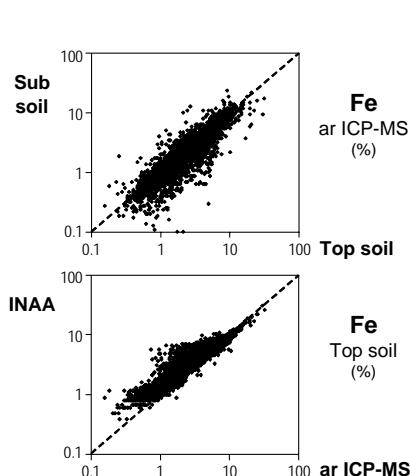
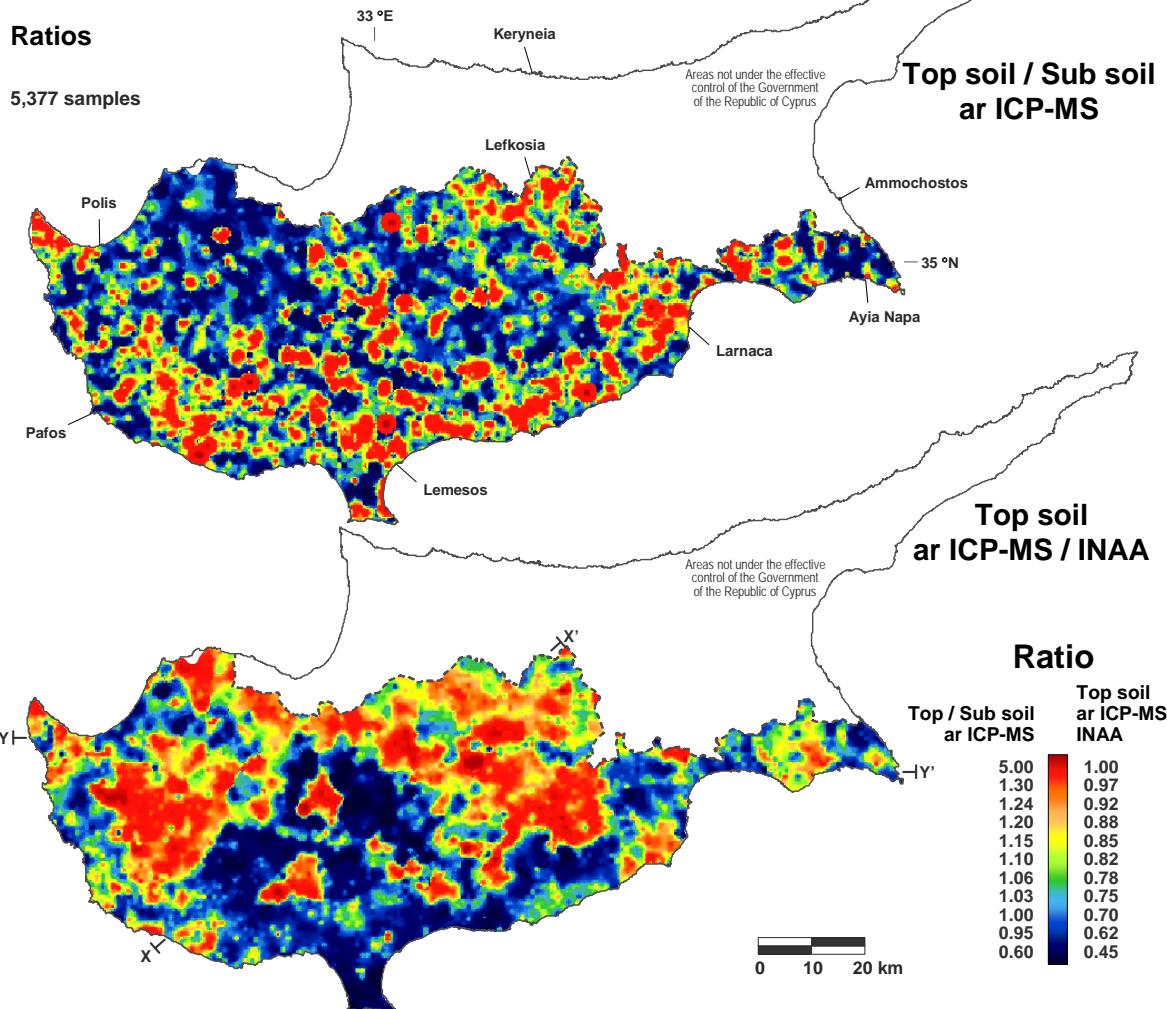
— Top soil — Sub soil



Fe iron

Ratios

5,377 samples

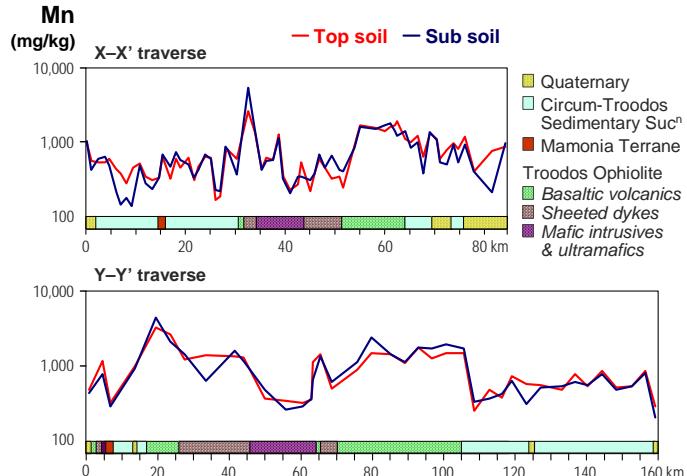
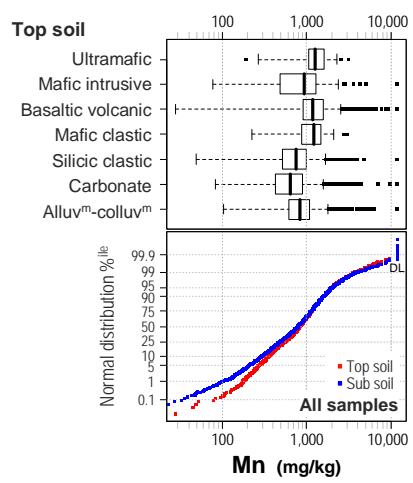
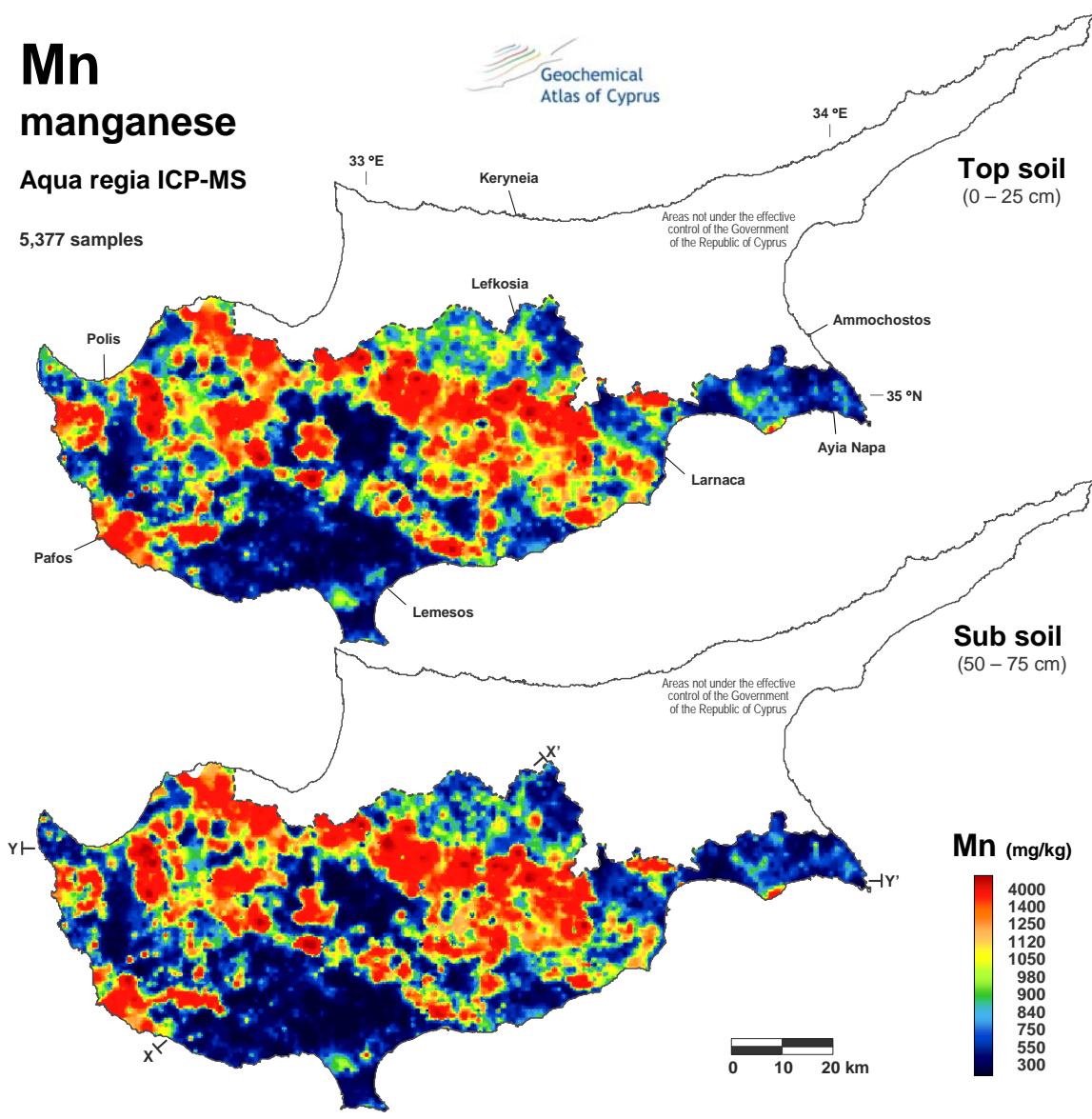


Mn

manganese

Aqua regia ICP-MS

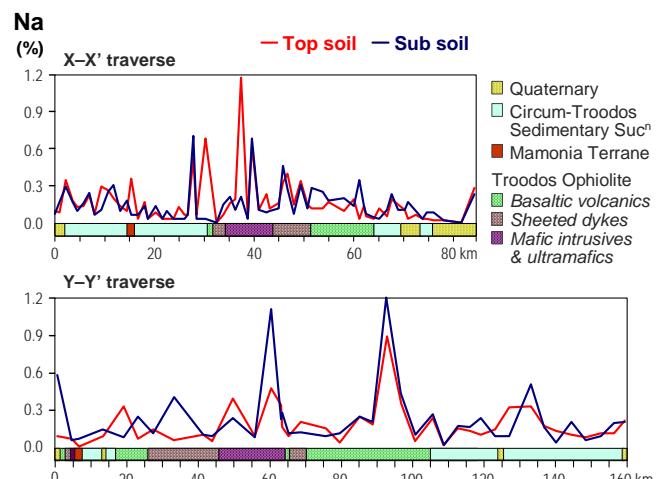
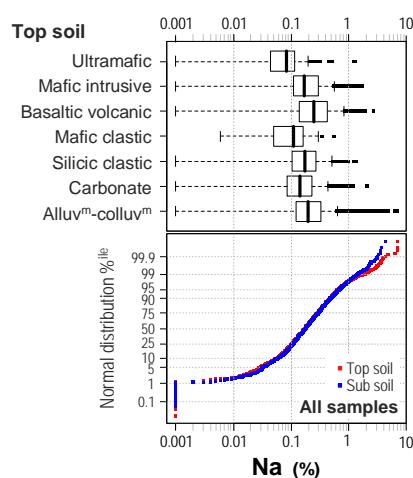
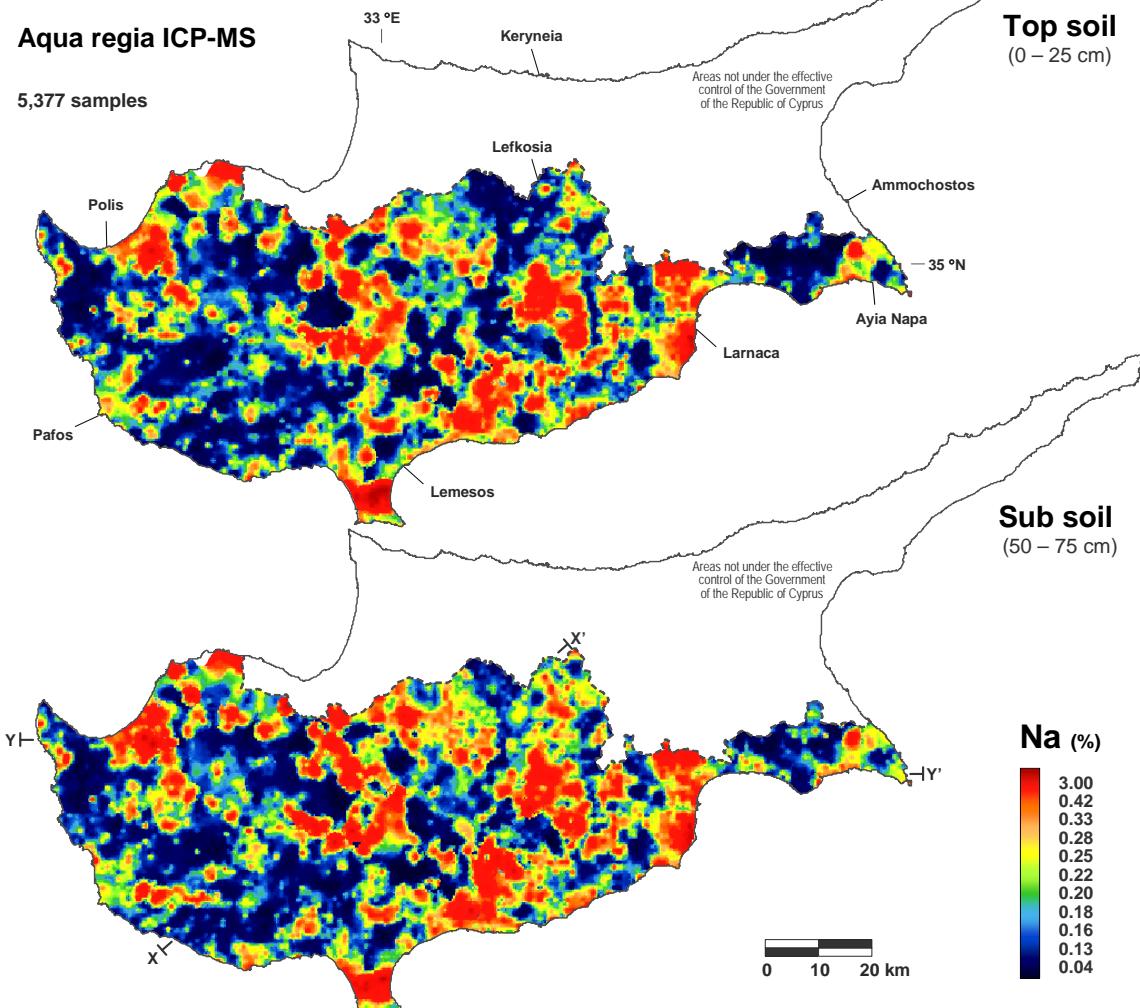
5,377 samples



Na sodium

Aqua regia ICP-MS

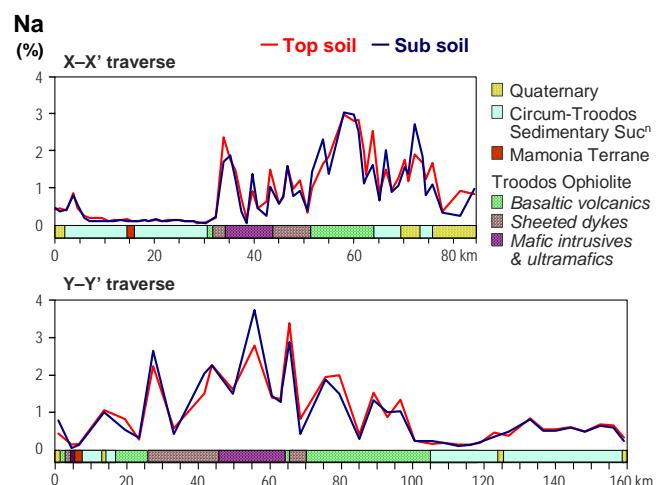
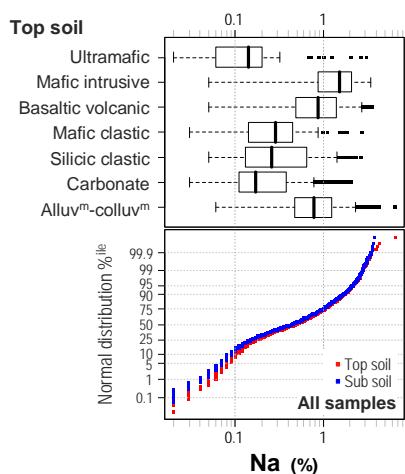
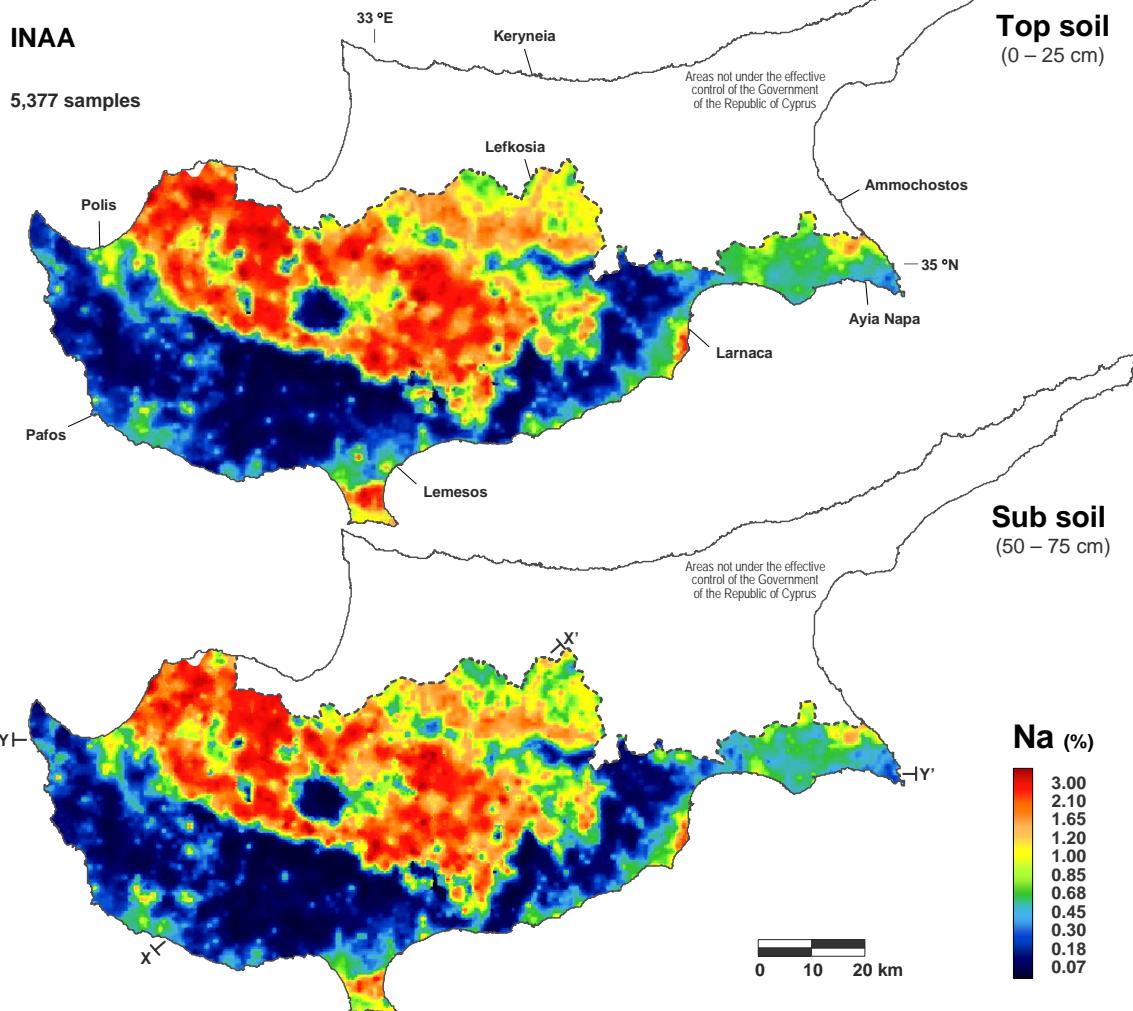
5,377 samples



Na sodium

INAA

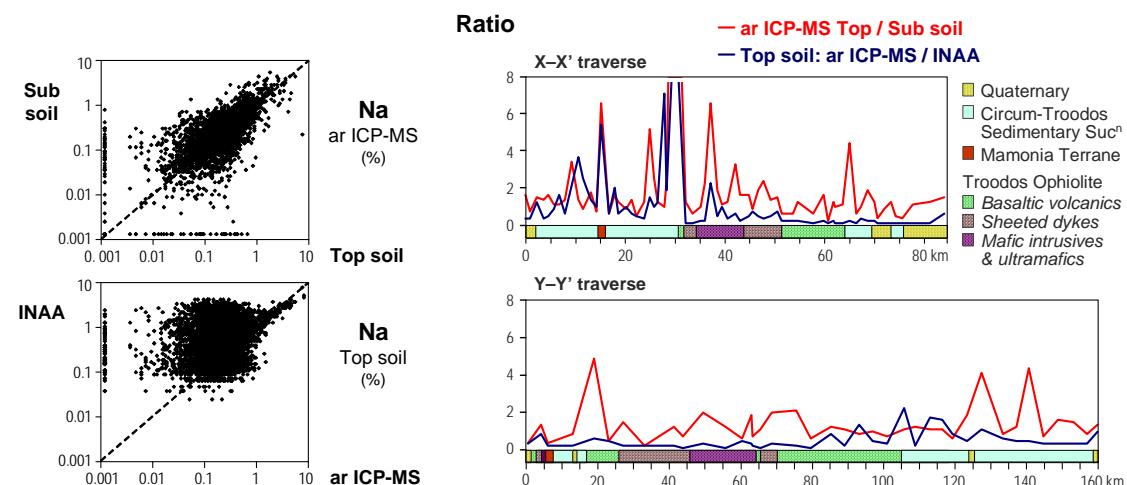
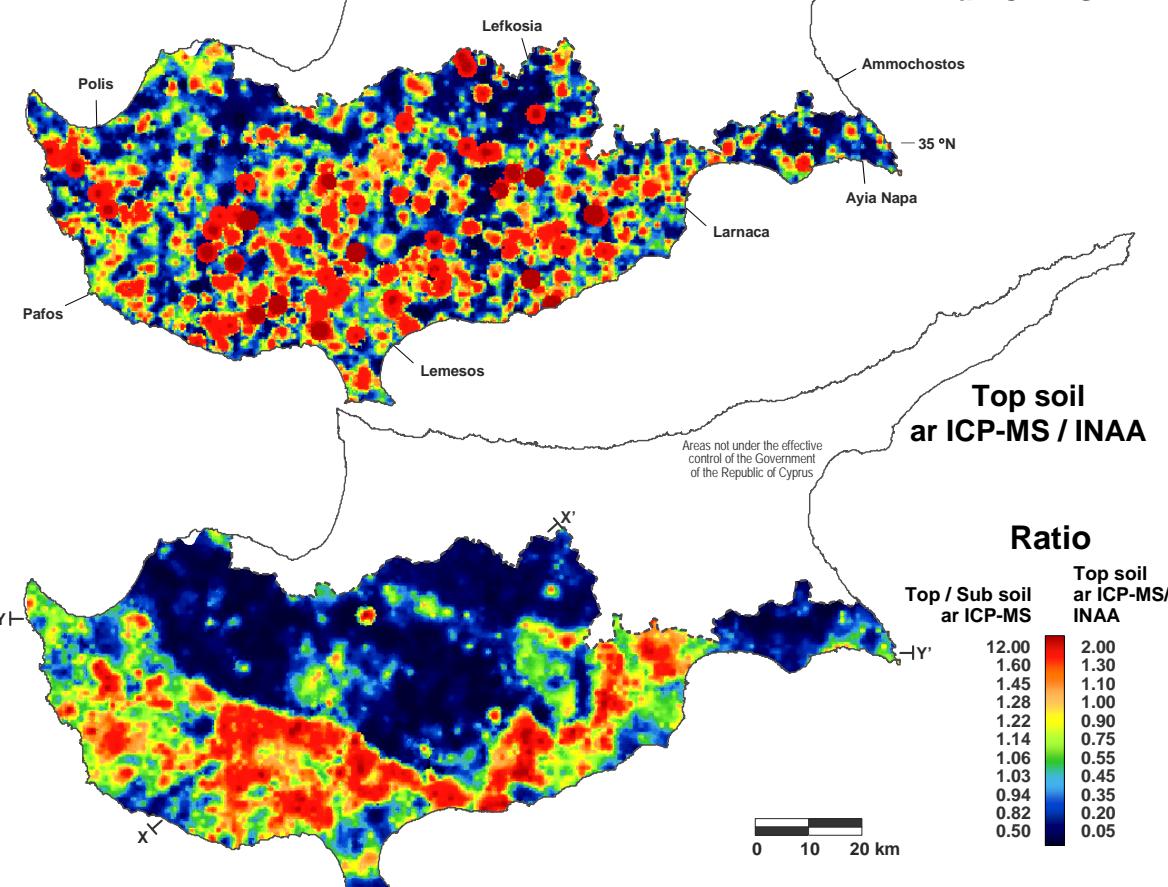
5,377 samples



Na sodium

Ratios

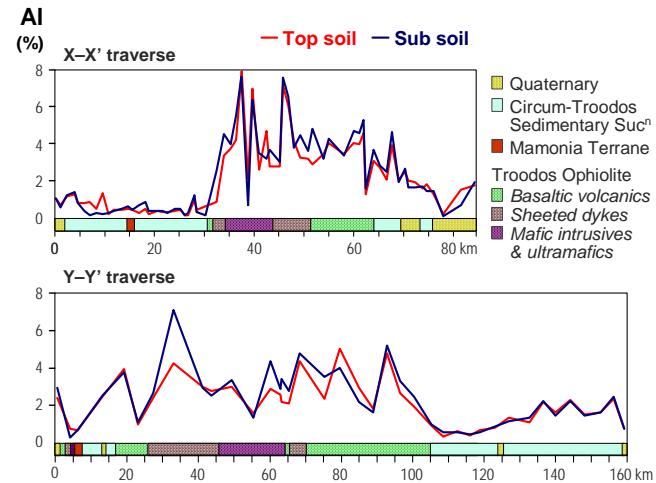
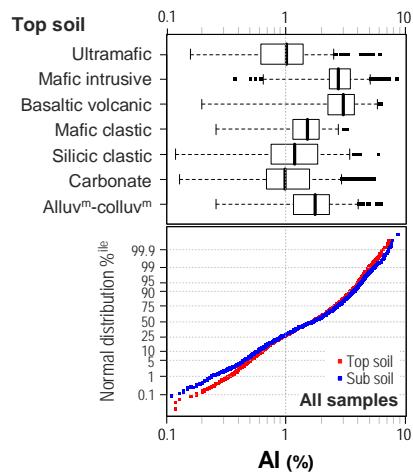
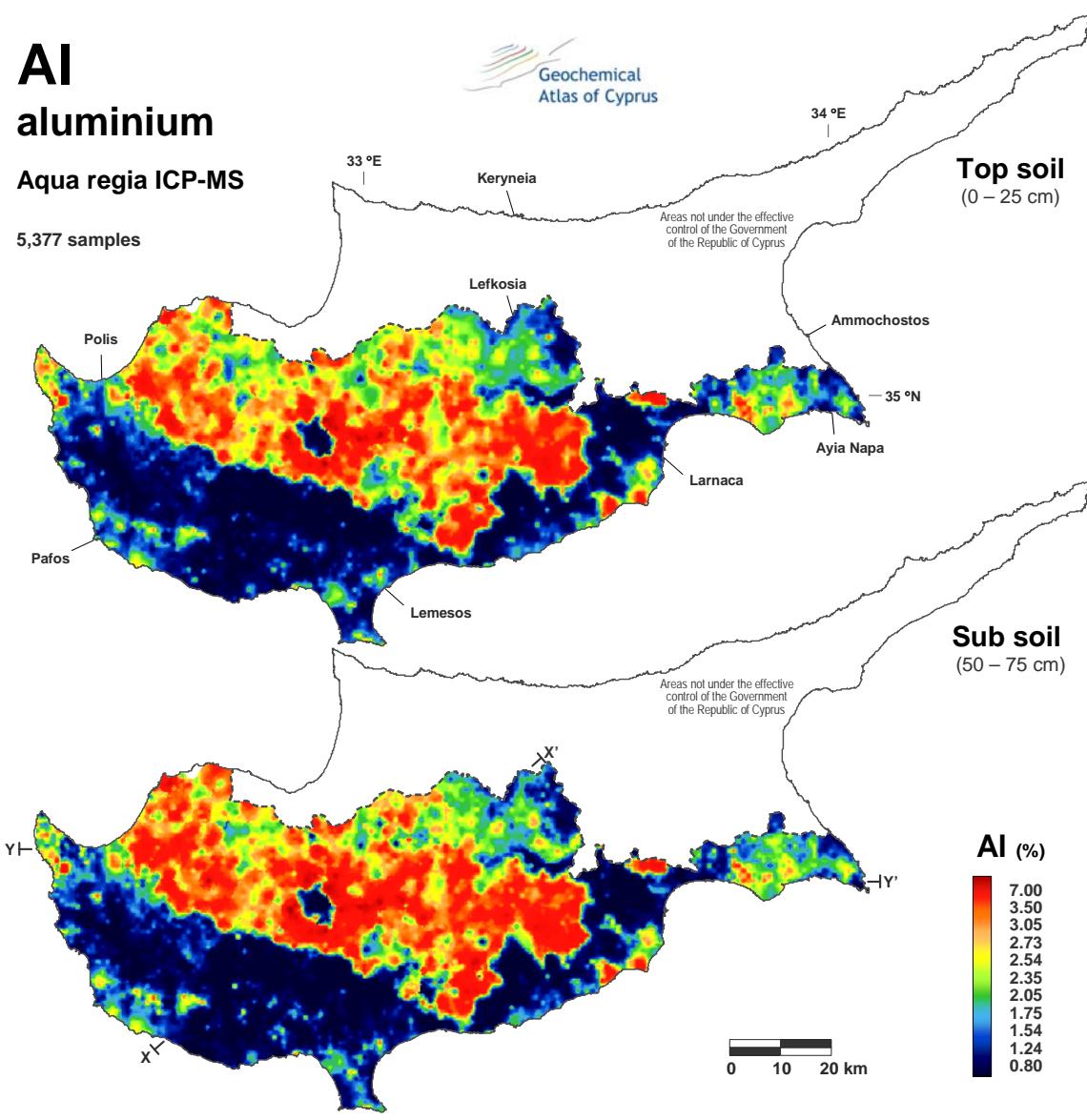
5,377 samples



AI aluminium

Aqua regia ICP-MS

5,377 samples

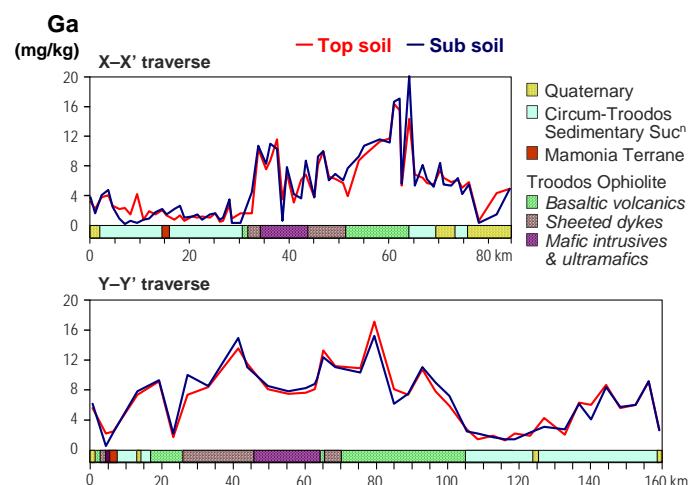
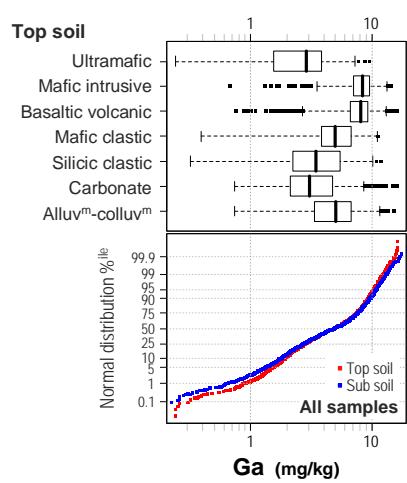
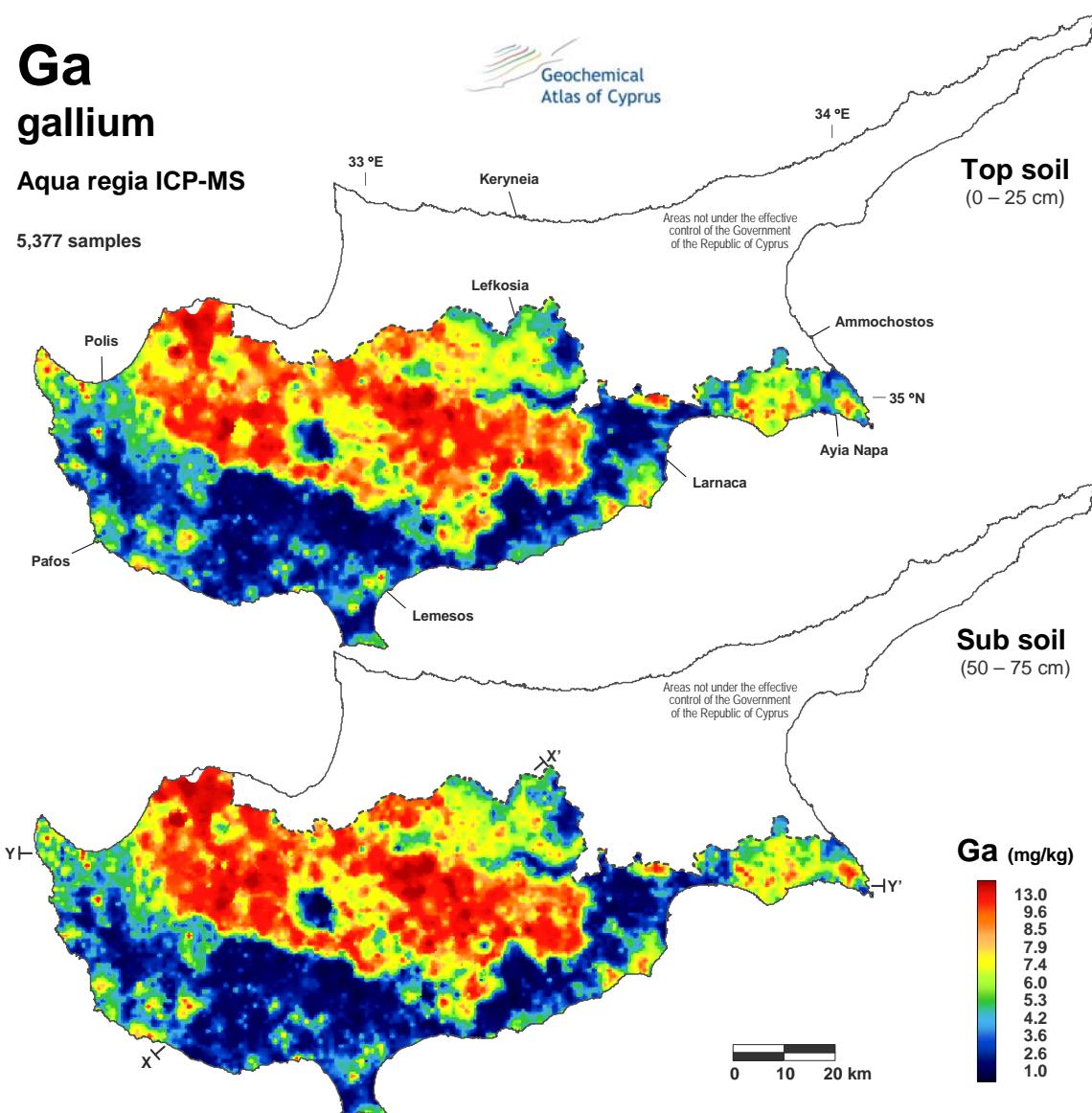


Ga

gallium

Aqua regia ICP-MS

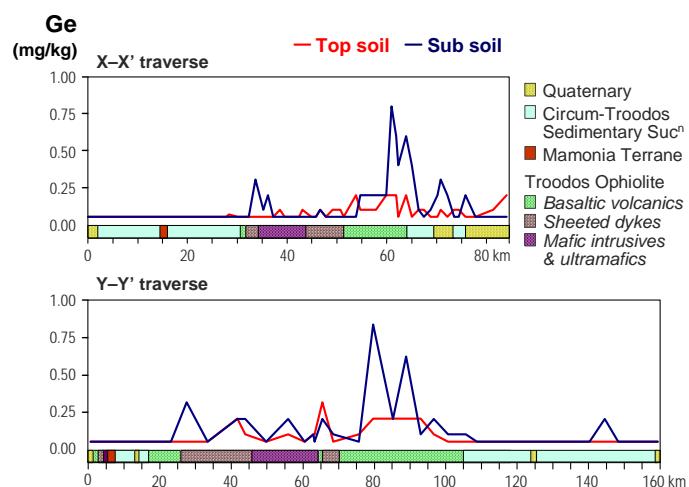
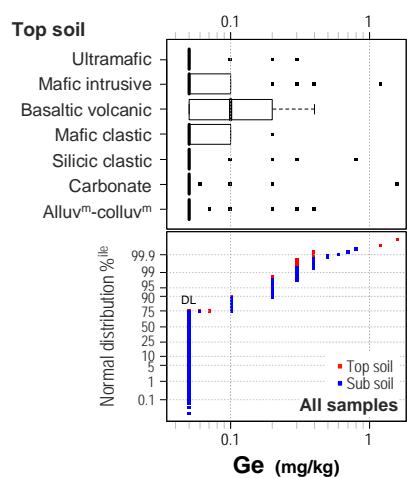
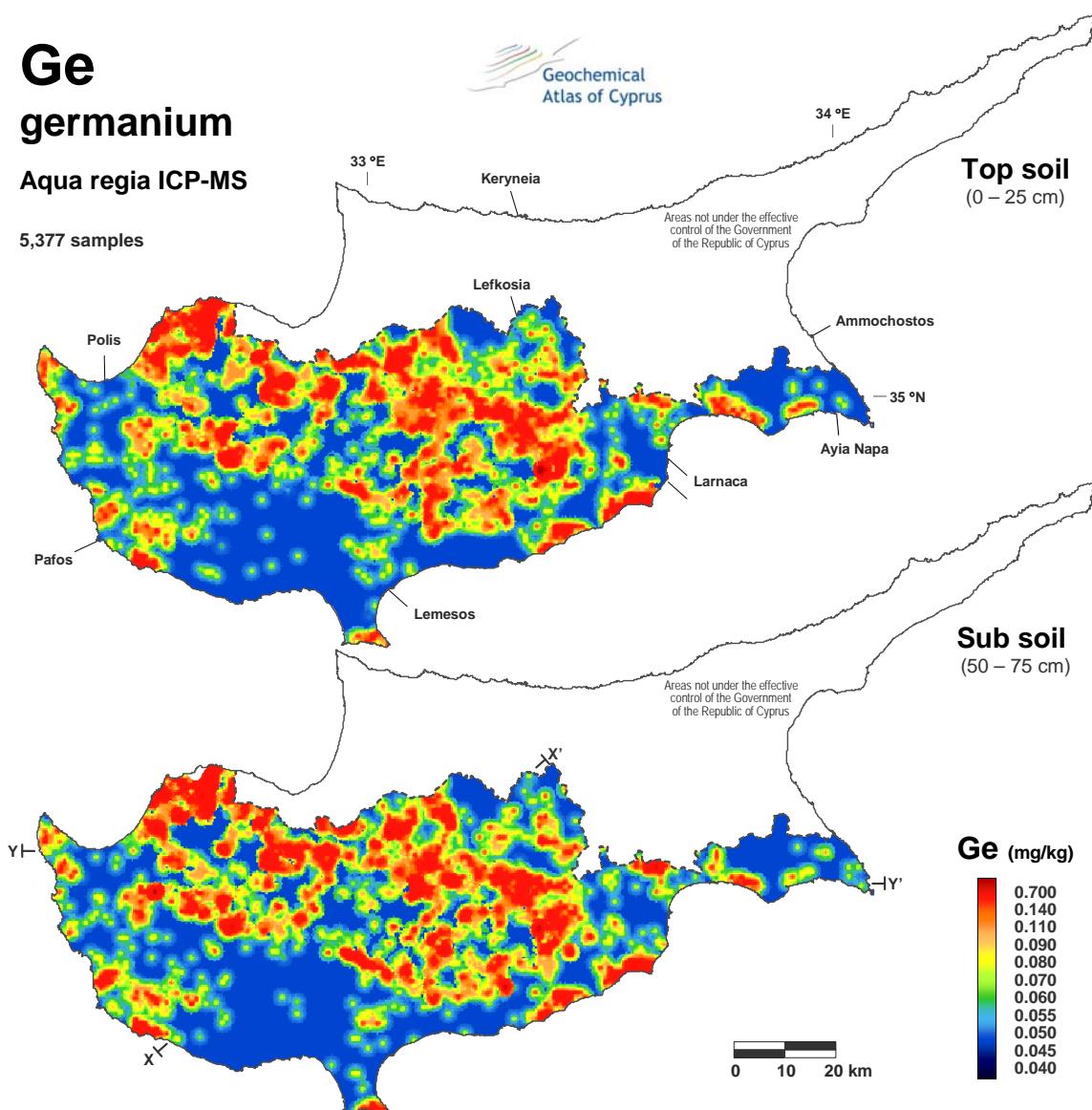
5,377 samples



Ge germanium

Aqua regia ICP-MS

5,377 samples

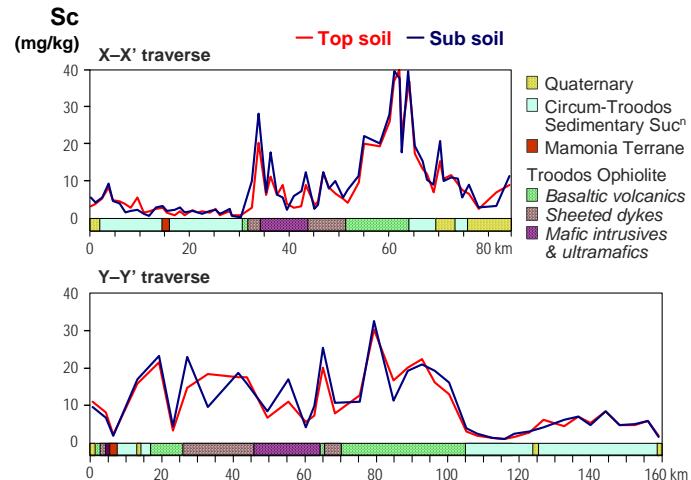
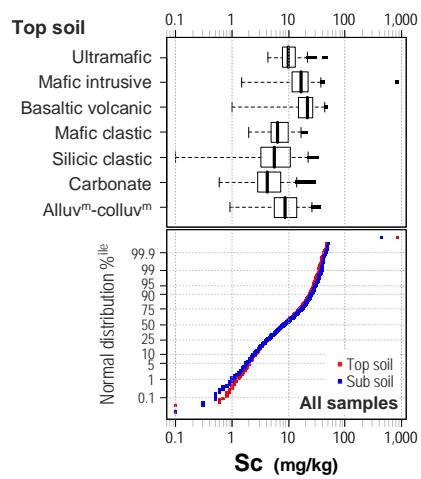
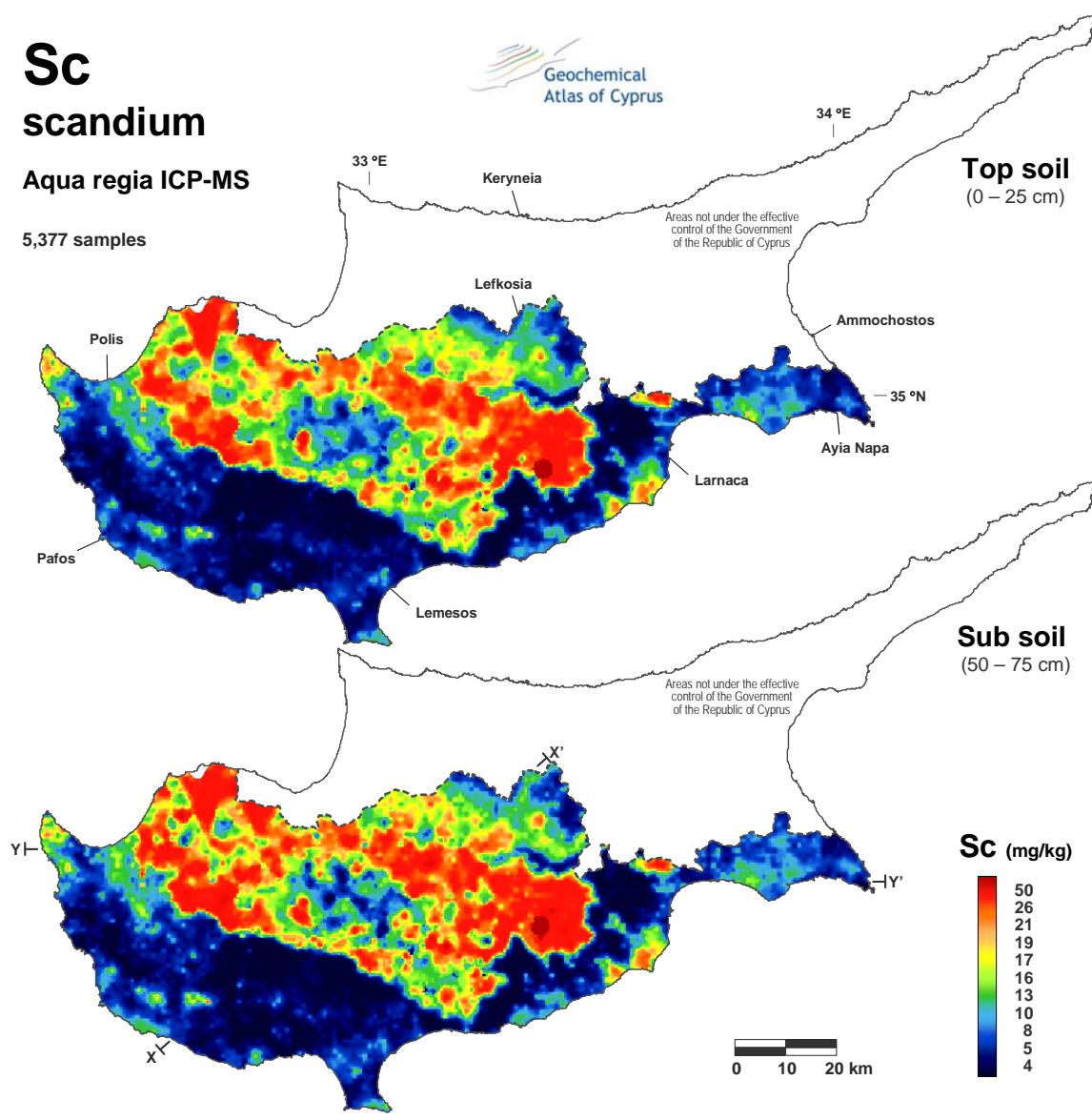


Sc

scandium

Aqua regia ICP-MS

5,377 samples

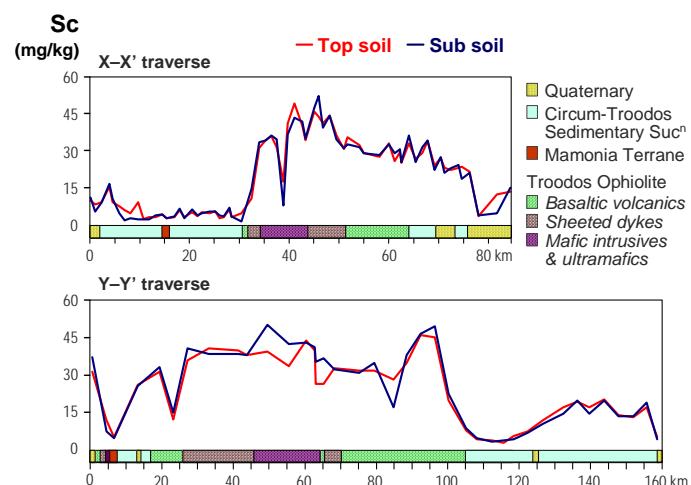
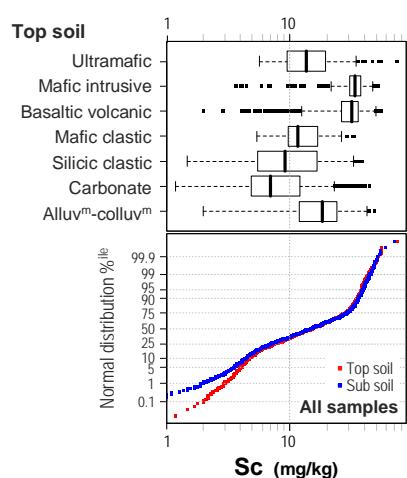
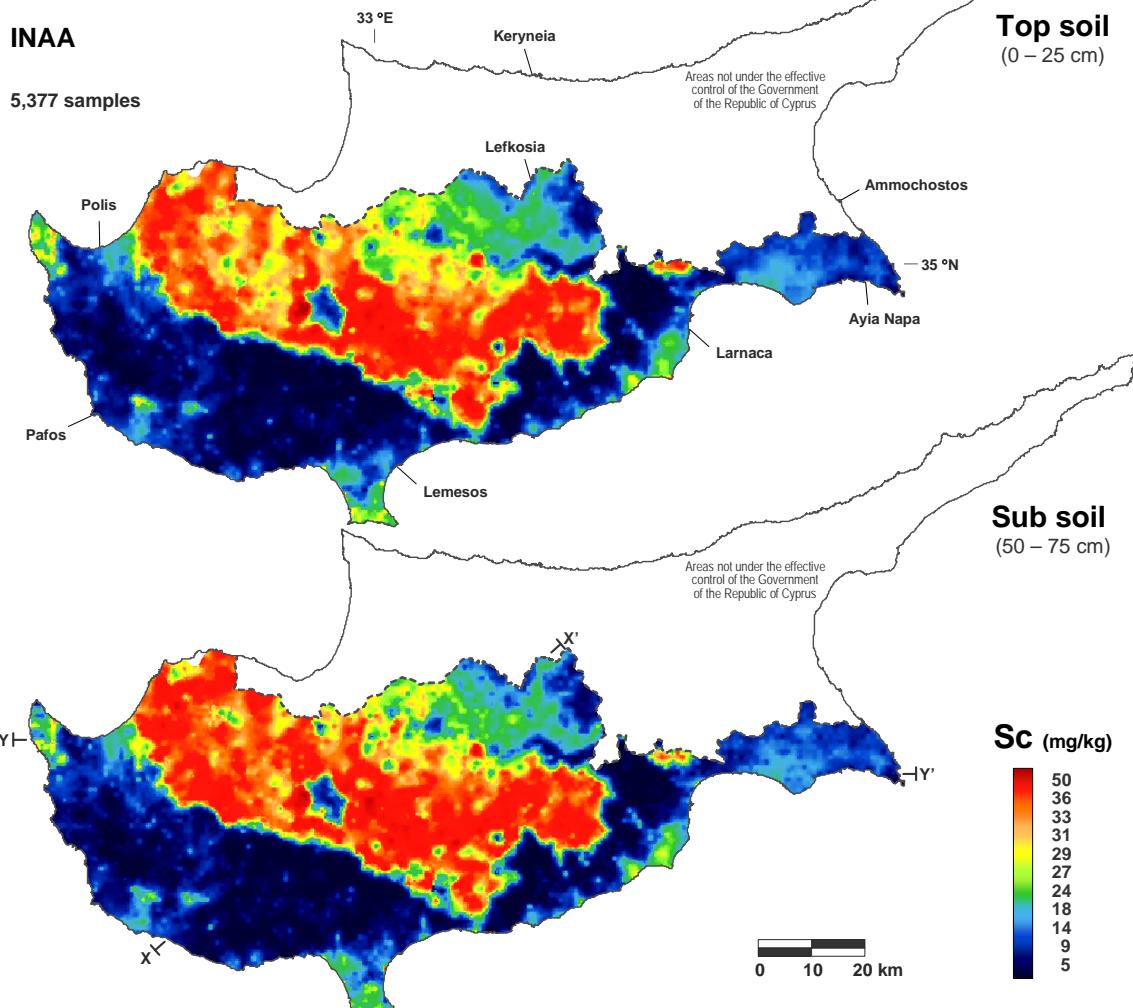


Sc

scandium

INAA

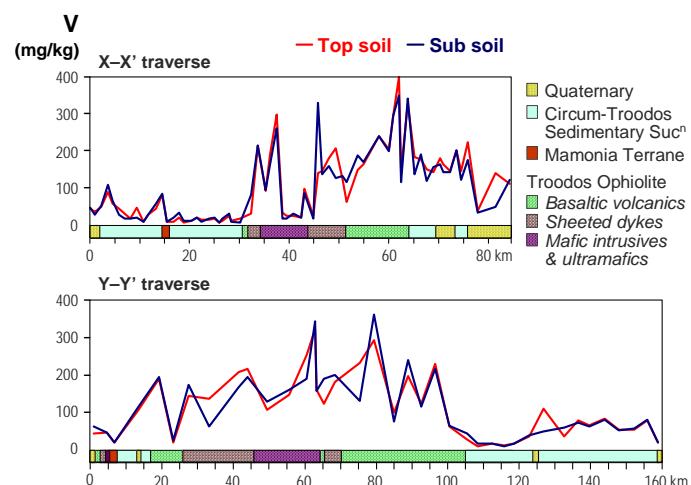
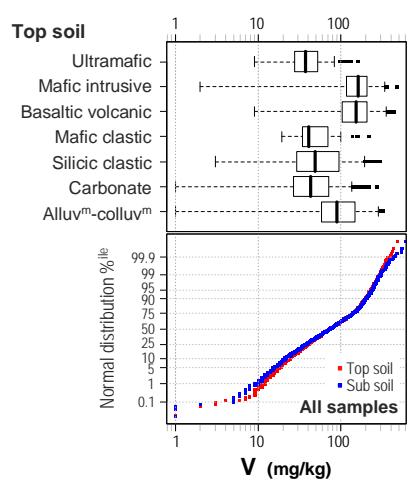
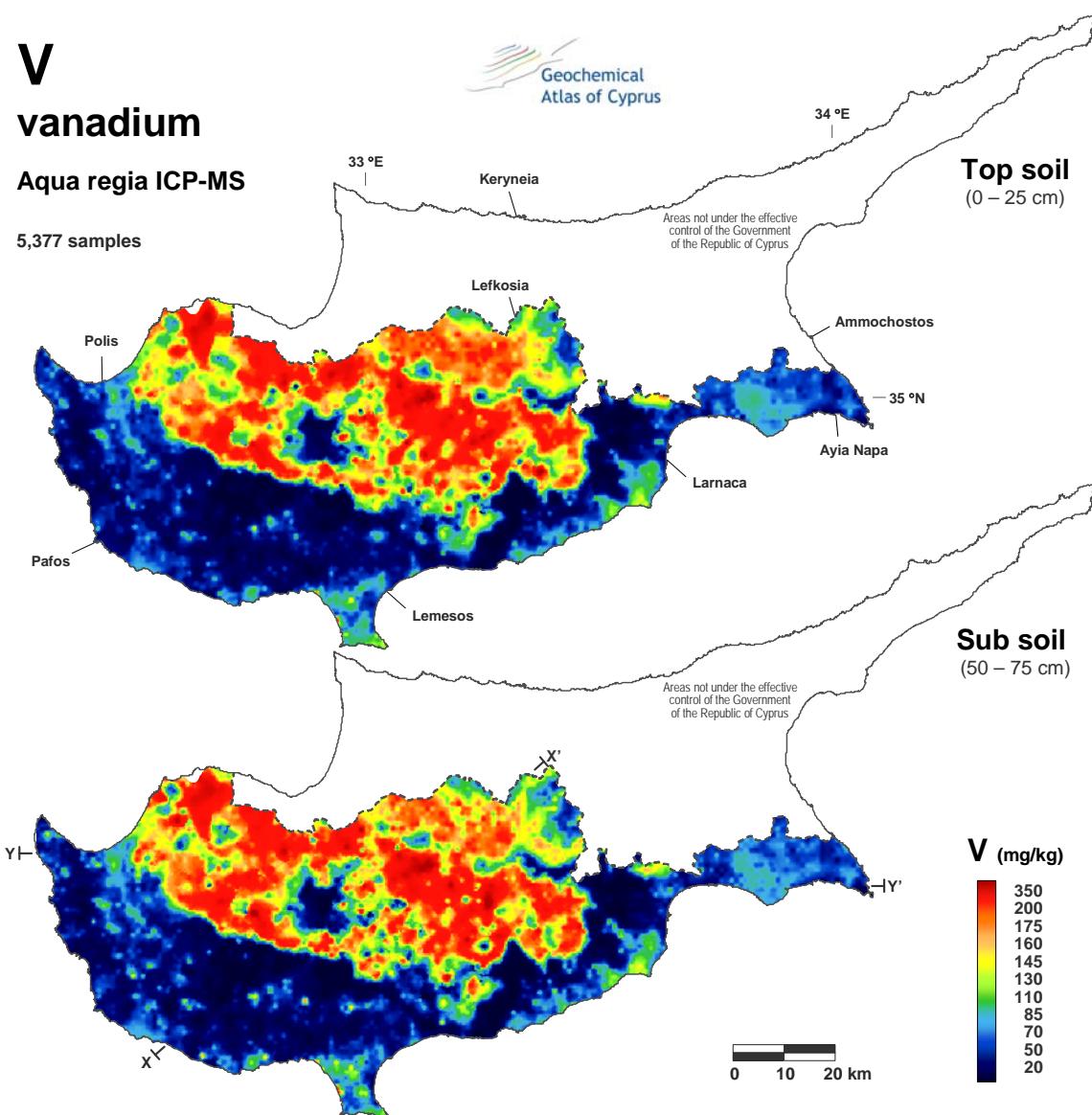
5,377 samples



V vanadium

Aqua regia ICP-MS

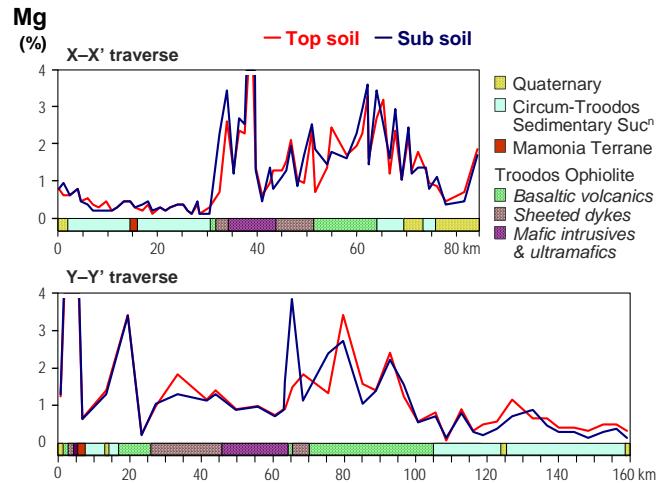
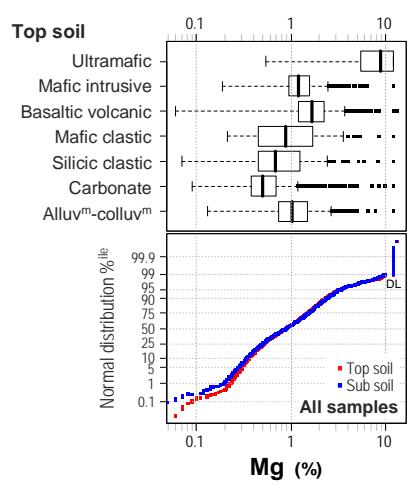
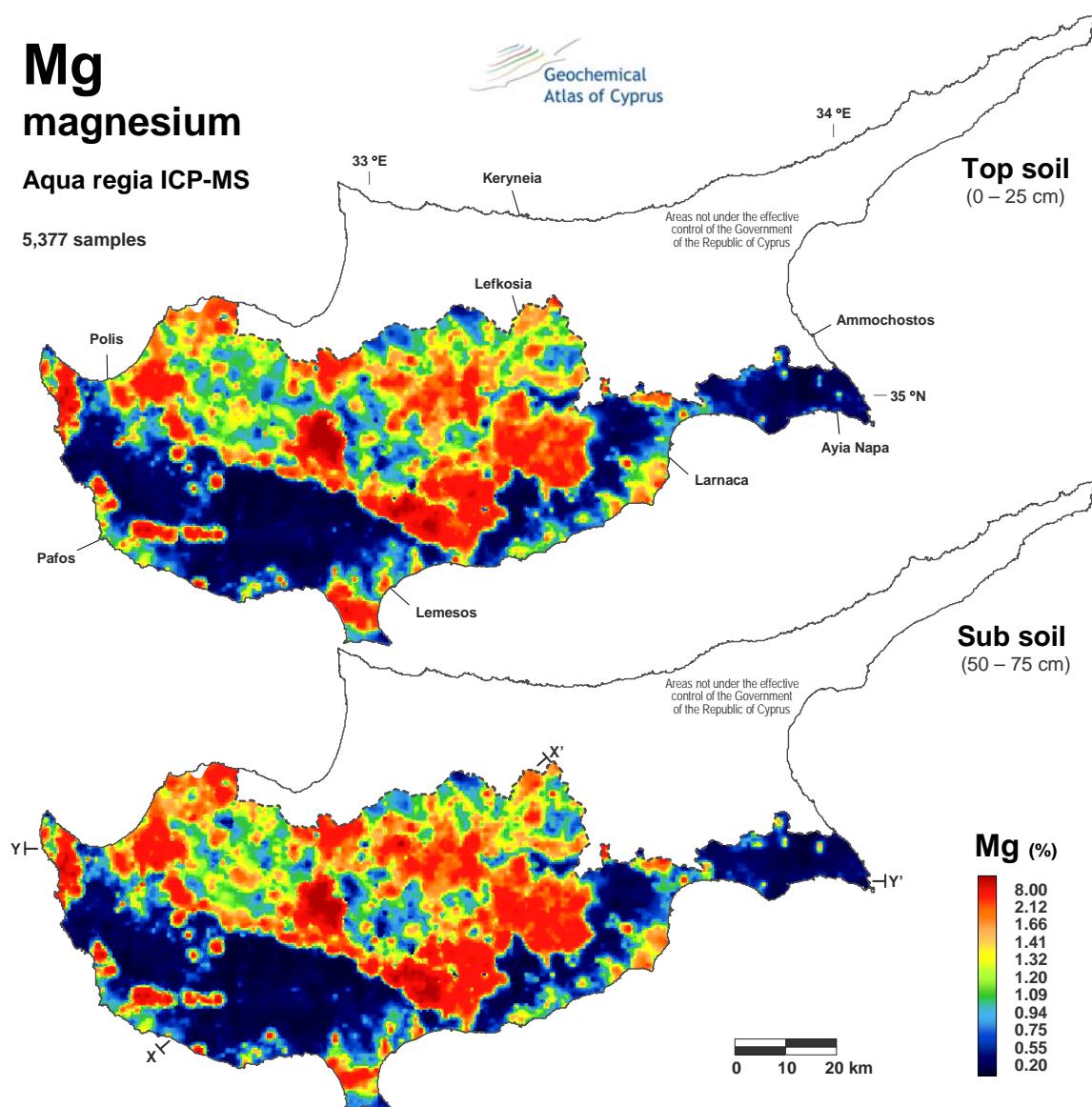
5,377 samples



Mg magnesium

Aqua regia ICP-MS

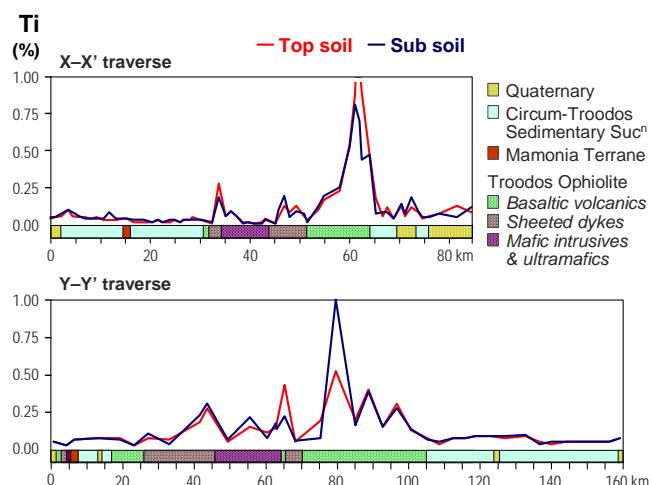
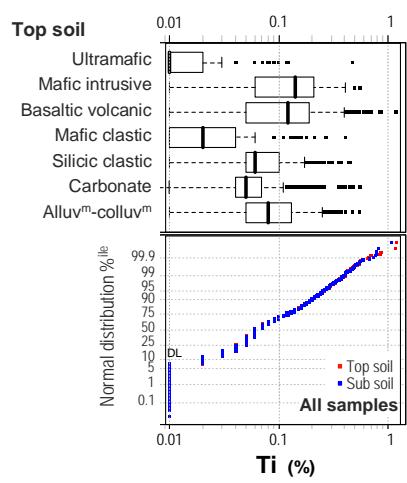
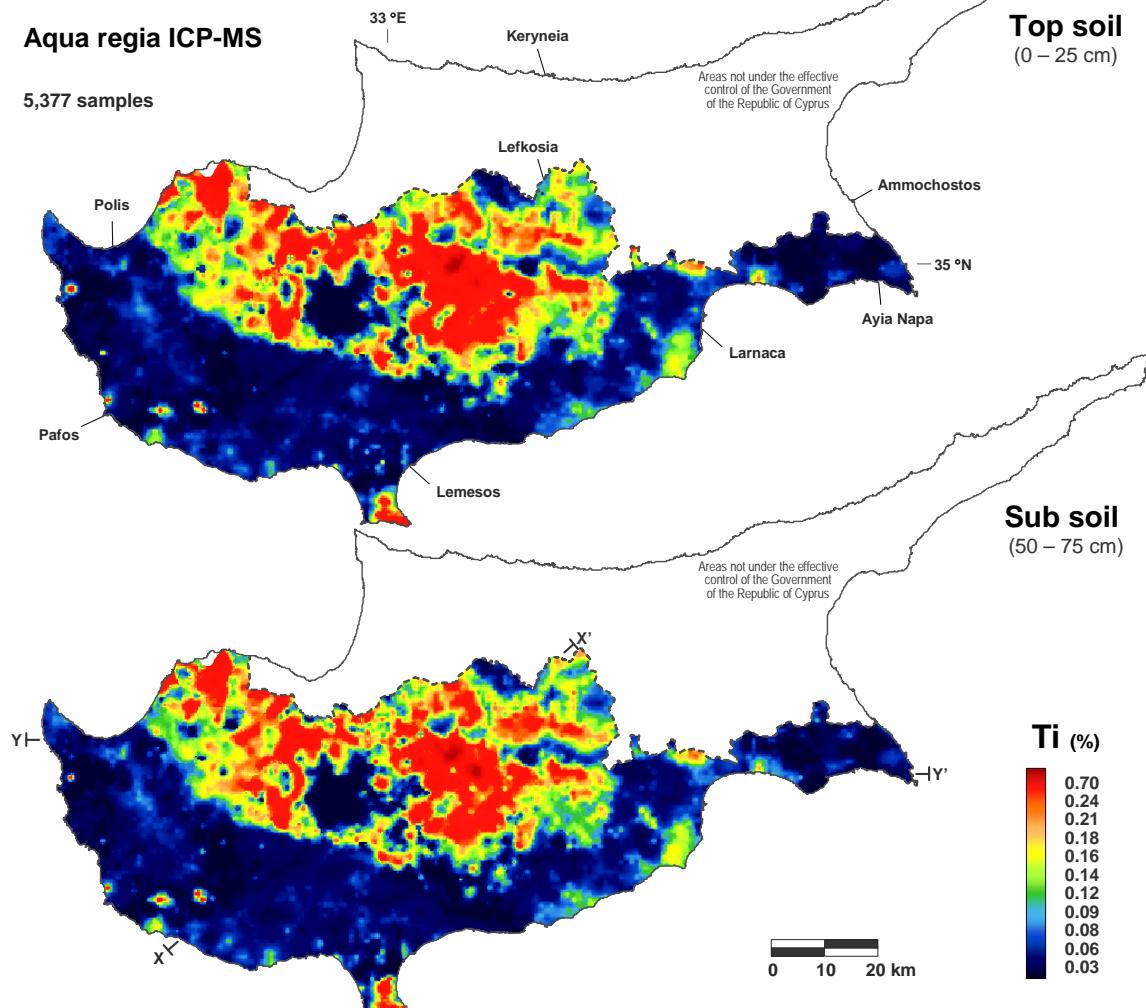
5,377 samples



Ti titanium

Aqua regia ICP-MS

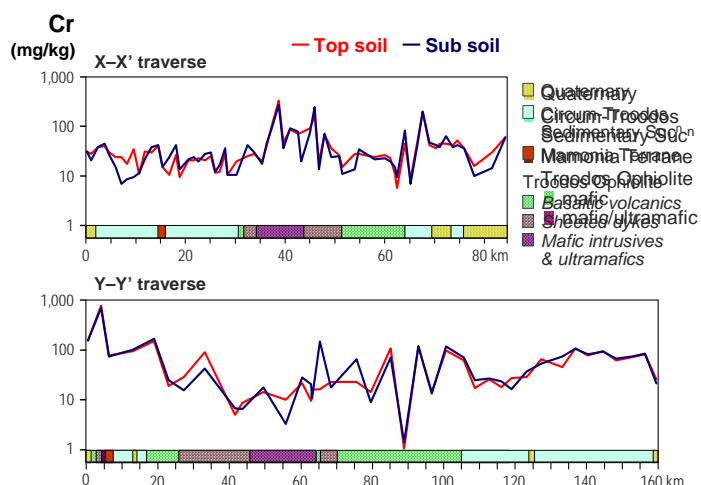
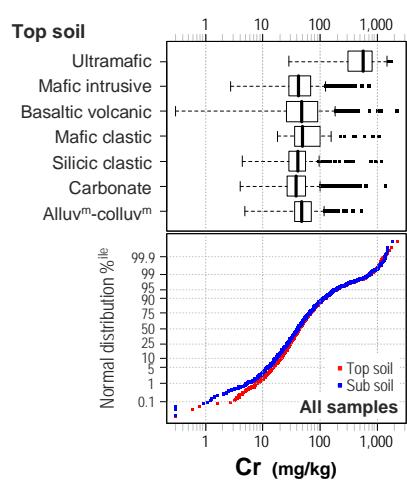
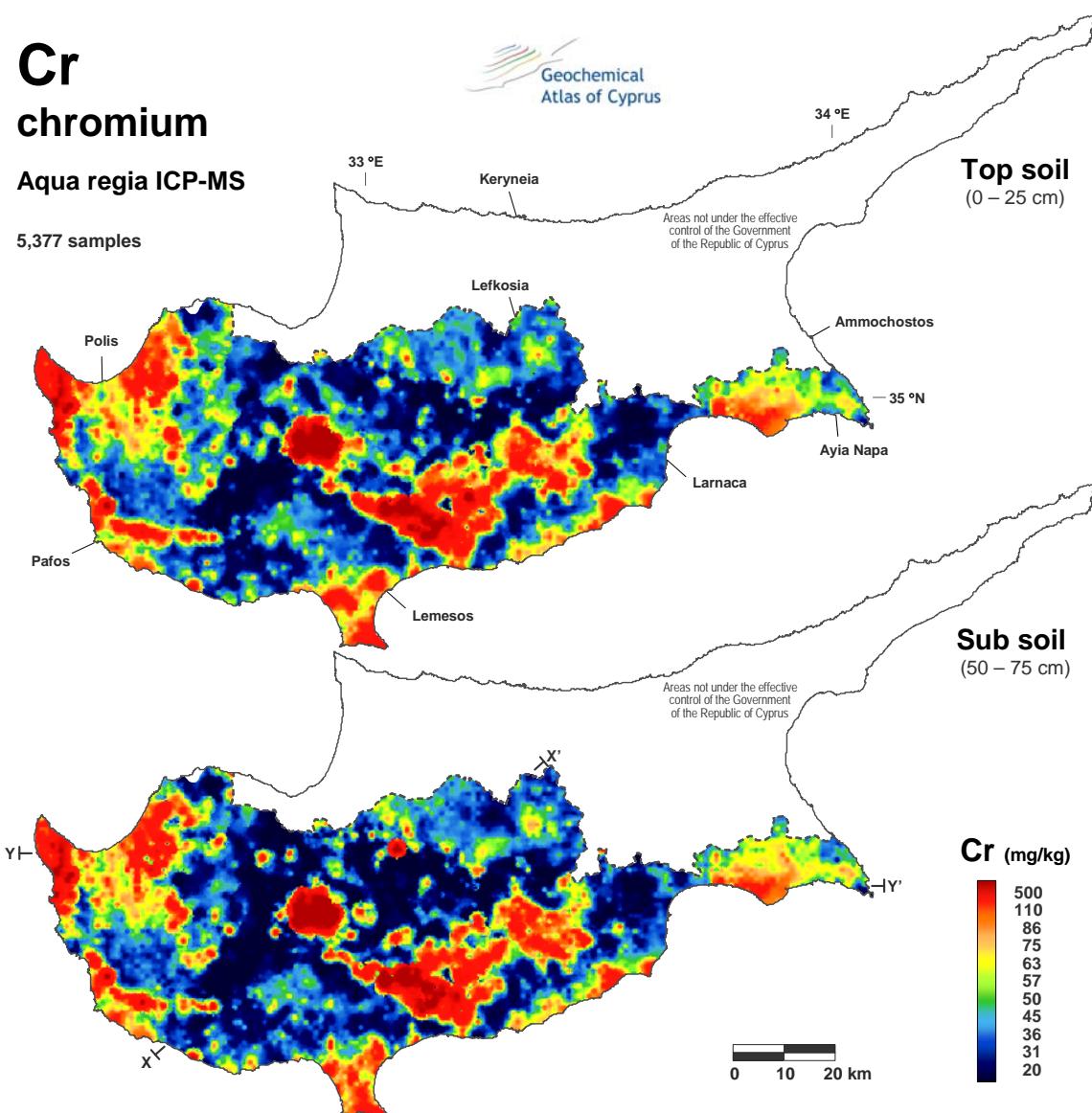
5,377 samples



Cr chromium

Aqua regia ICP-MS

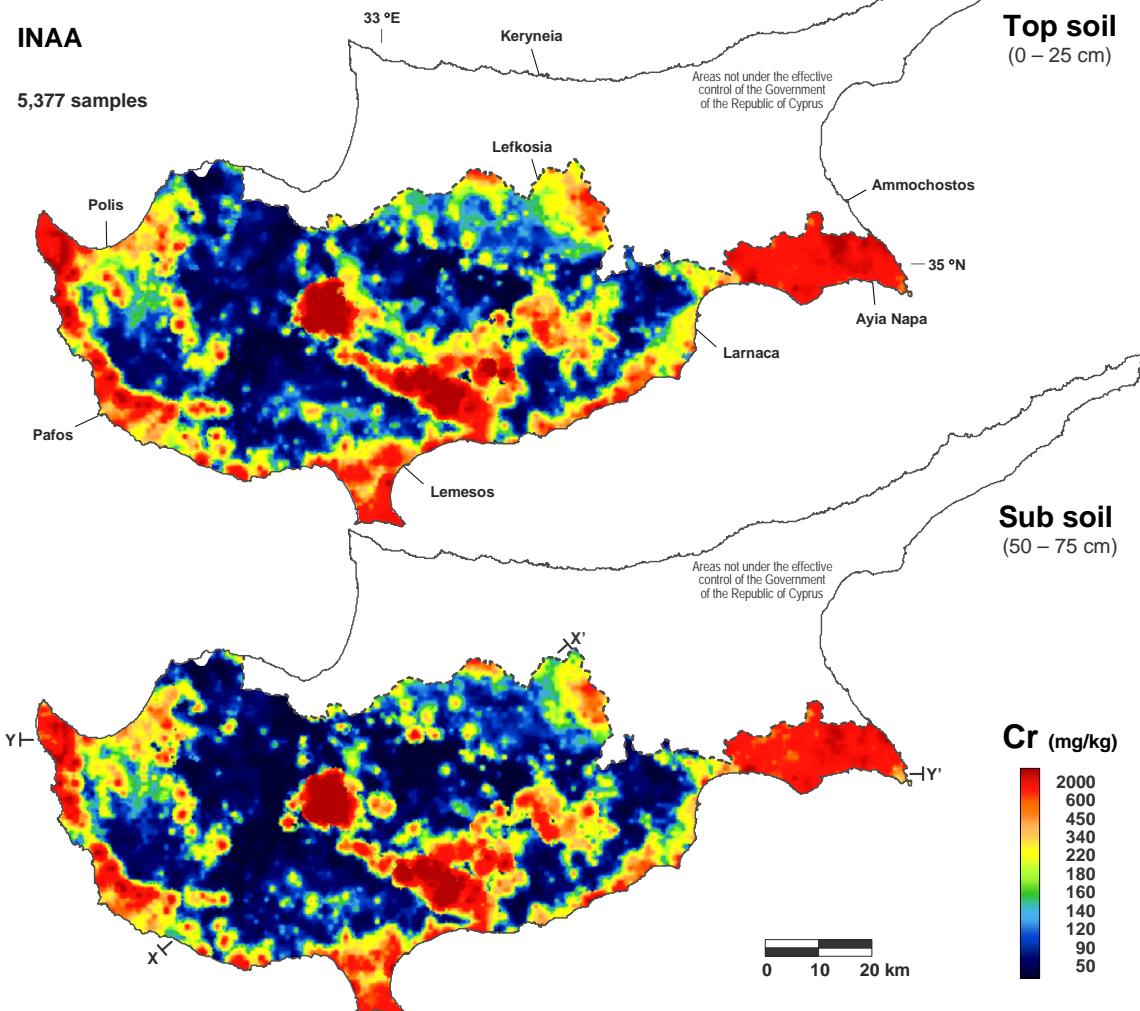
5,377 samples



Cr chromium

INAA

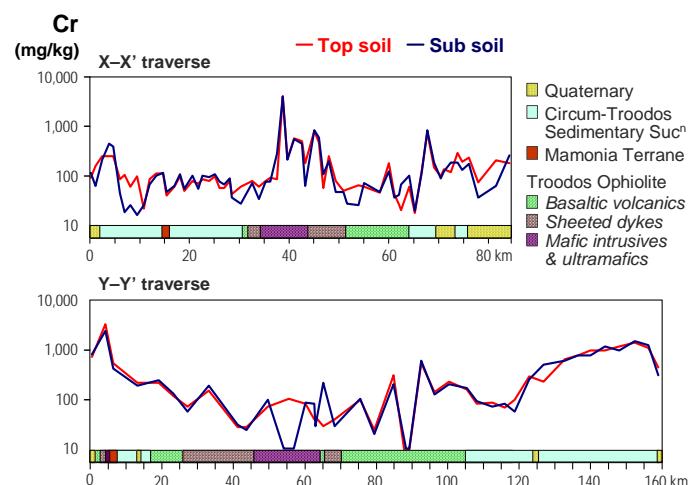
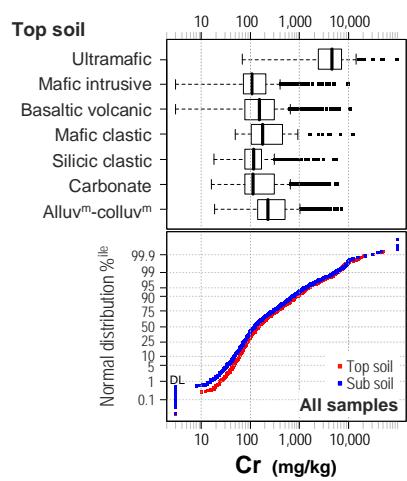
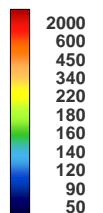
5,377 samples



Top soil
(0 – 25 cm)

Sub soil
(50 – 75 cm)

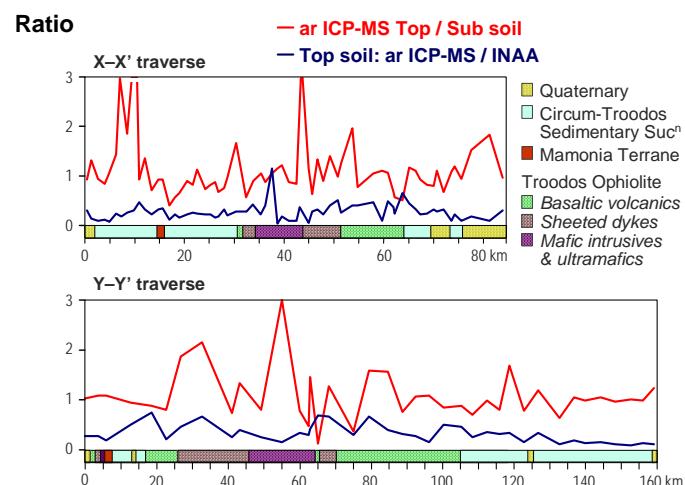
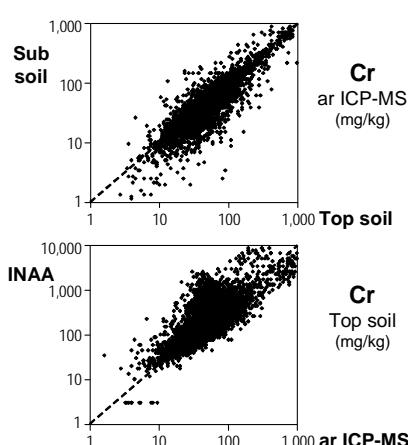
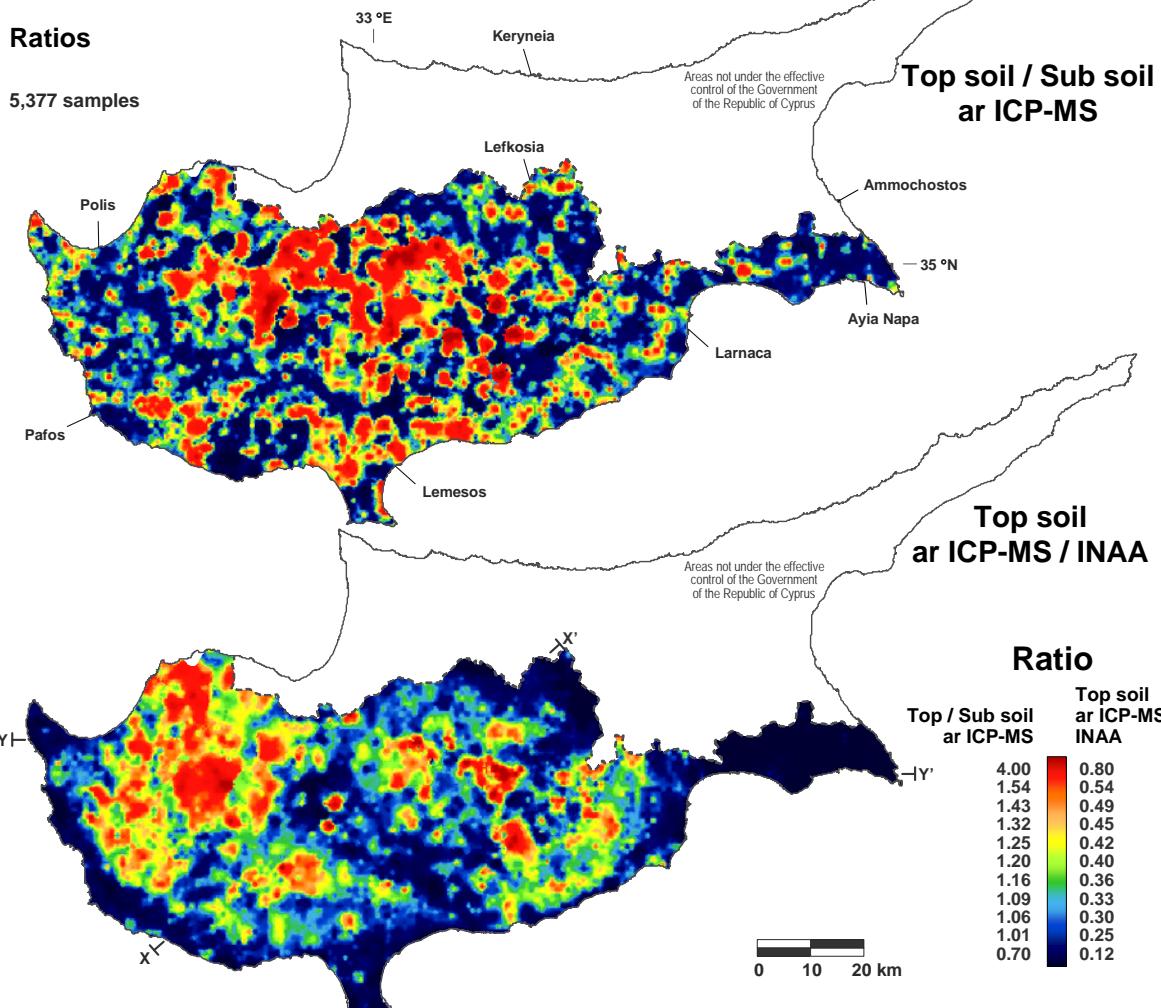
Cr (mg/kg)



Cr chromium

Ratios

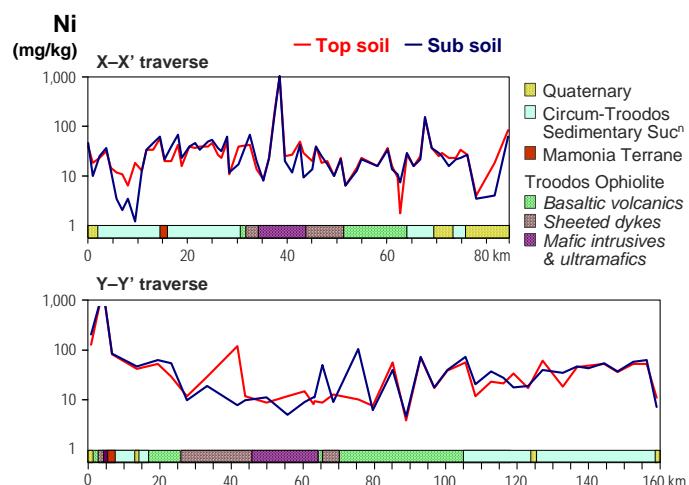
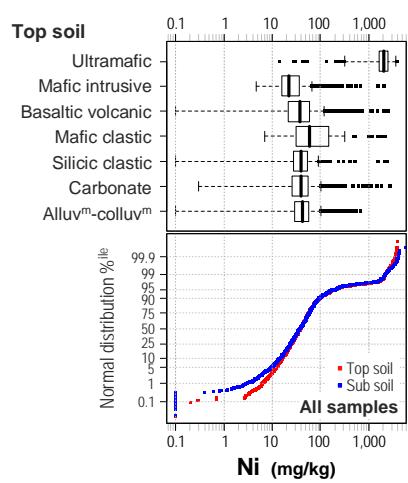
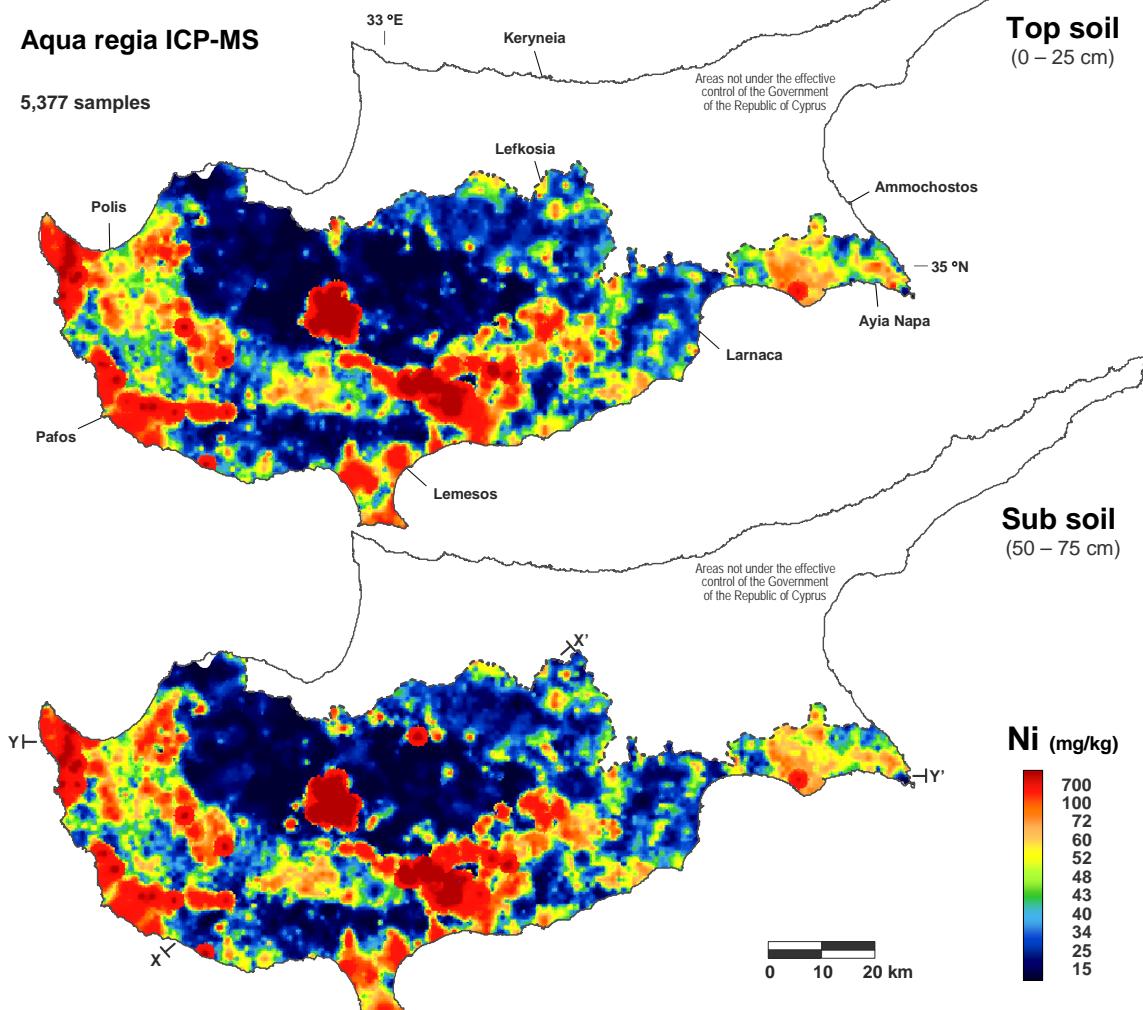
5,377 samples



Ni nickel

Aqua regia ICP-MS

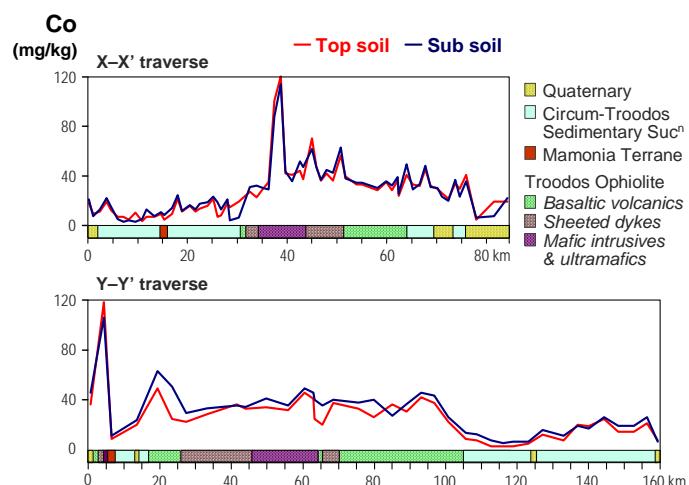
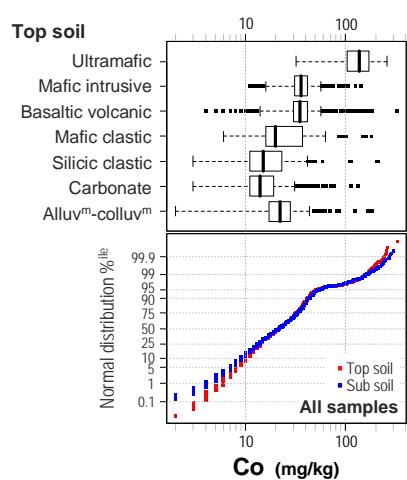
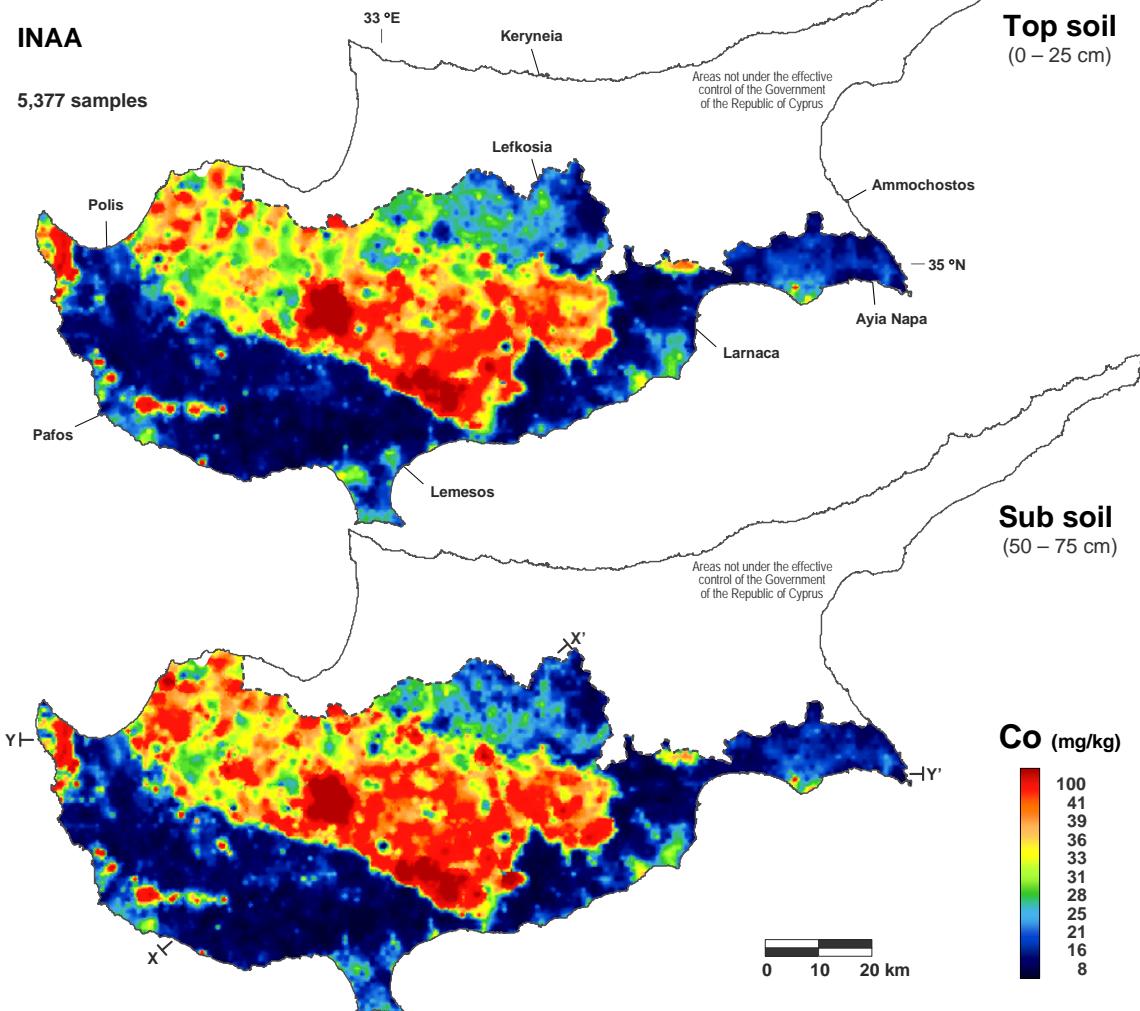
5,377 samples



Co cobalt

INAA

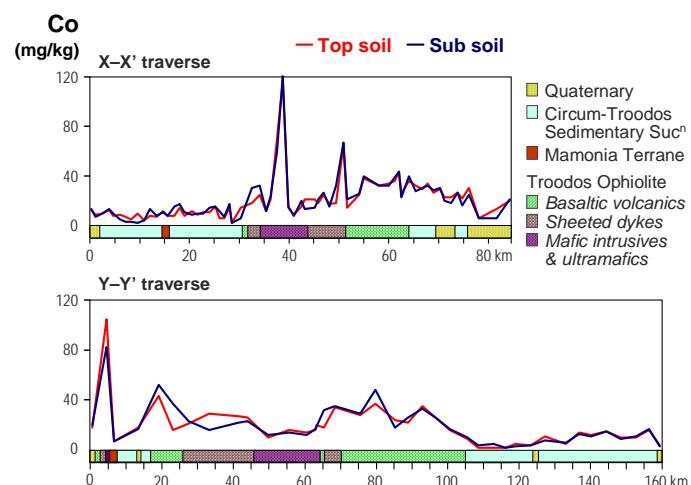
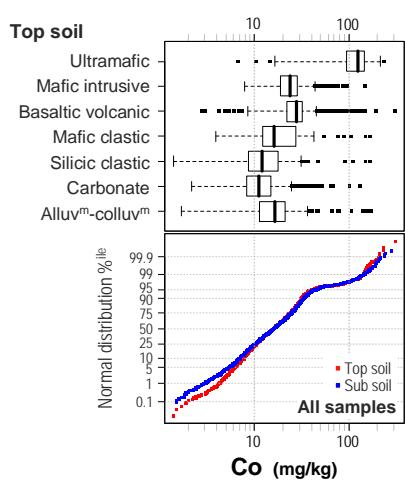
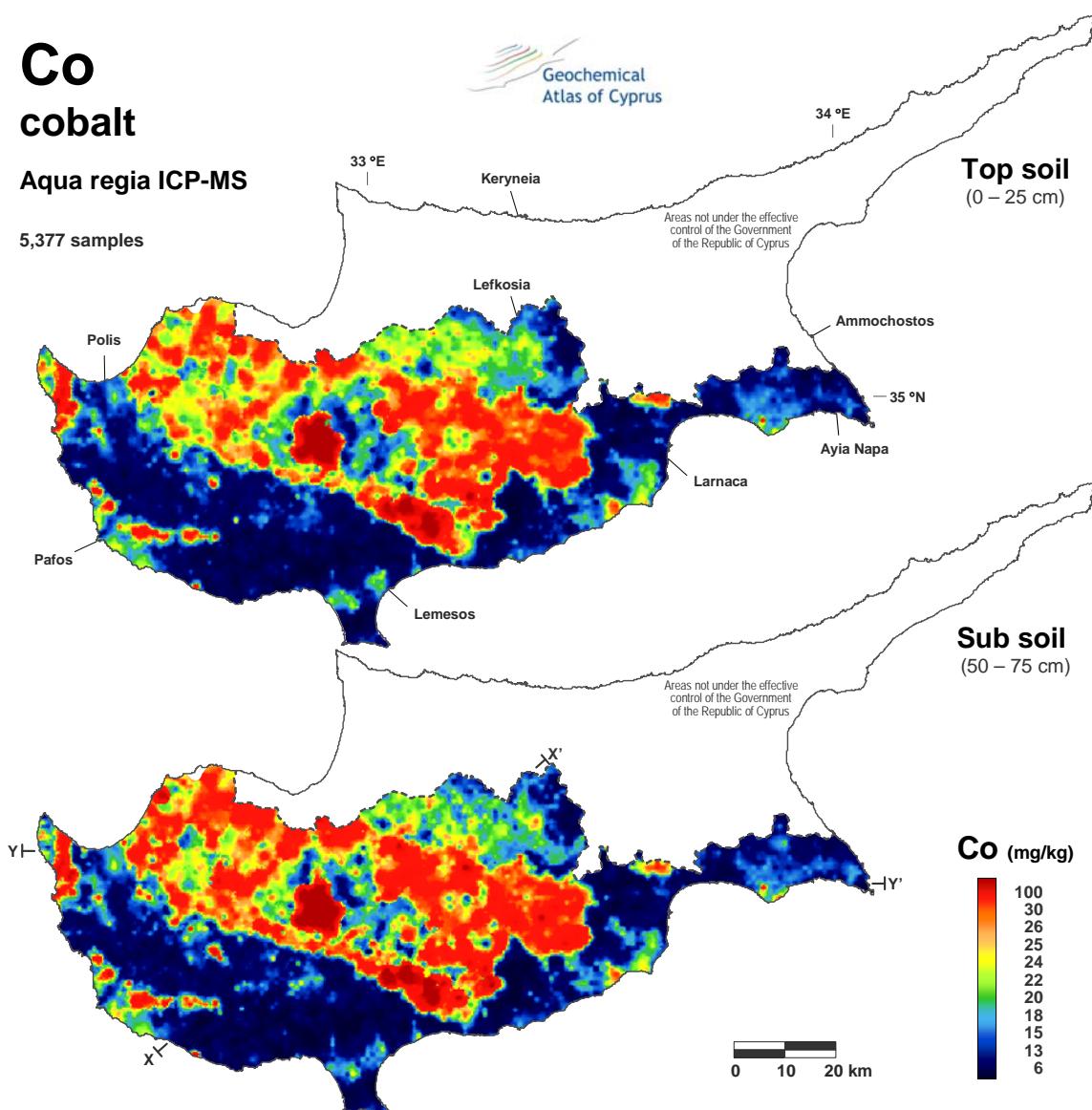
5,377 samples



Co cobalt

Aqua regia ICP-MS

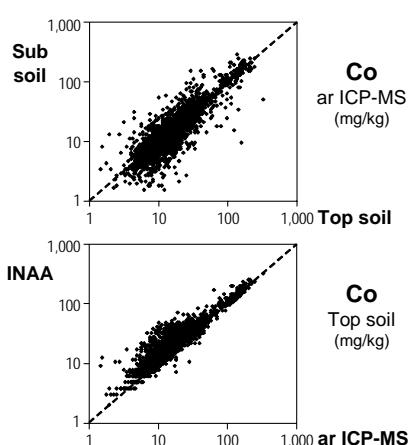
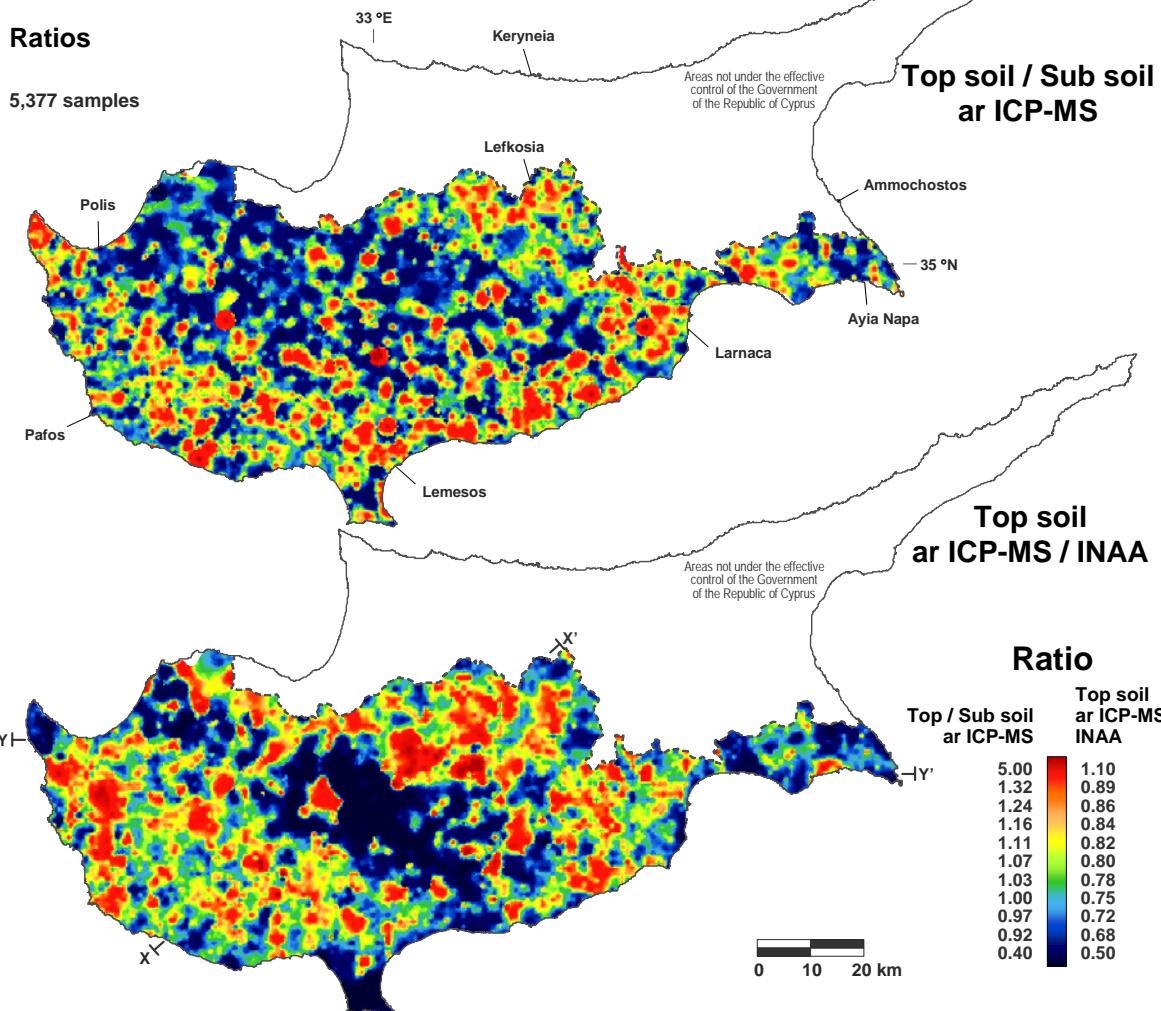
5,377 samples



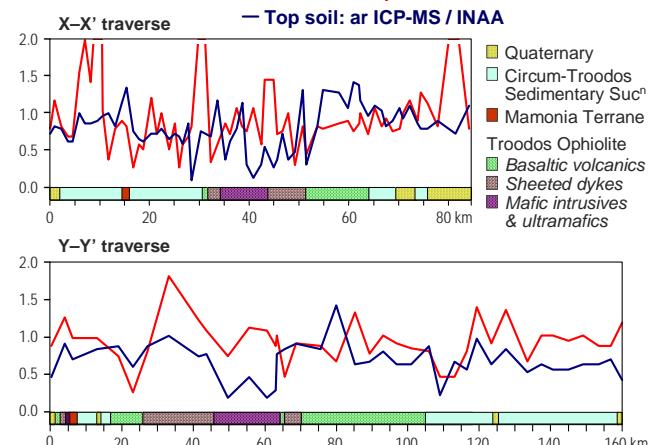
Co cobalt

Ratios

5,377 samples



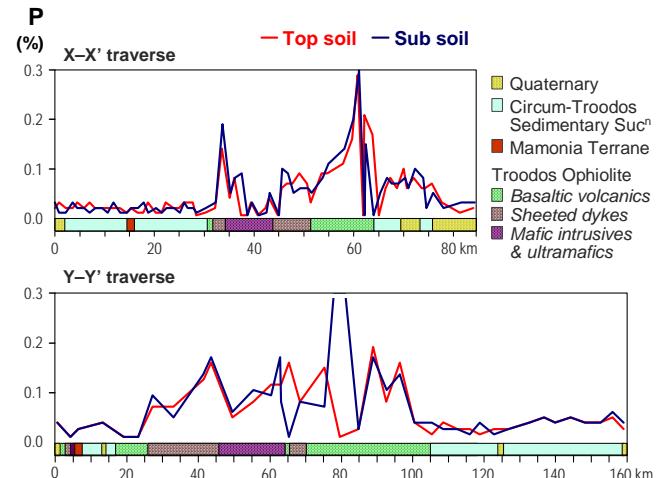
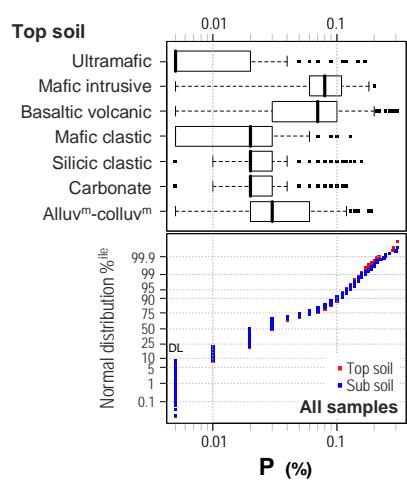
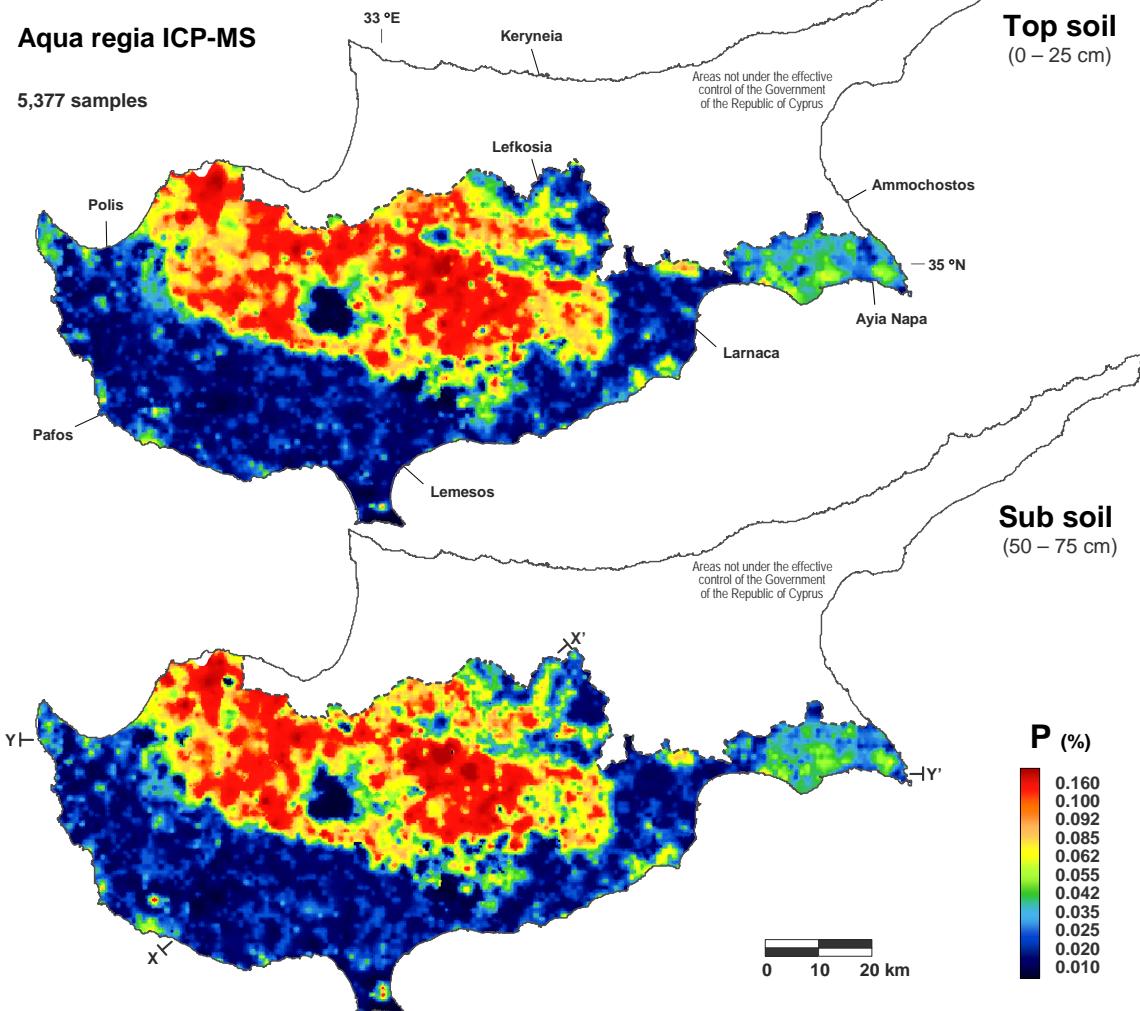
Ratio — ar ICP-MS Top / Sub soil
— Top soil: ar ICP-MS / INAA



P phosphorus

Aqua regia ICP-MS

5,377 samples



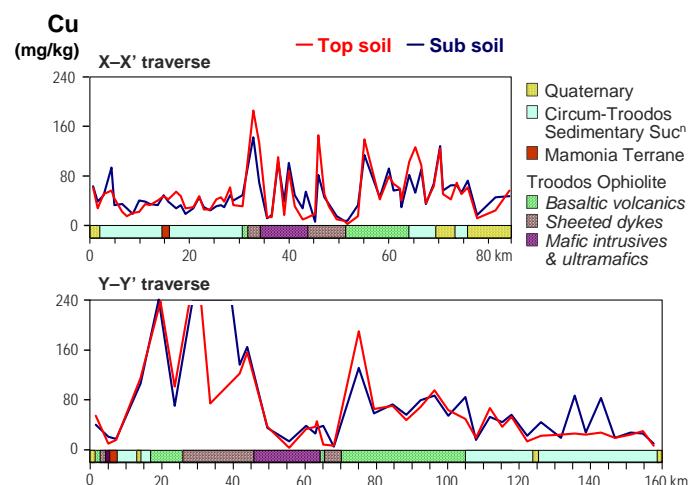
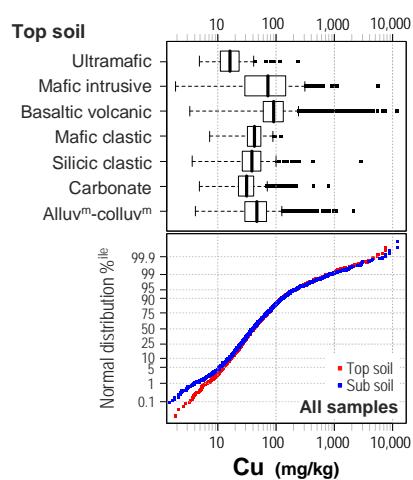
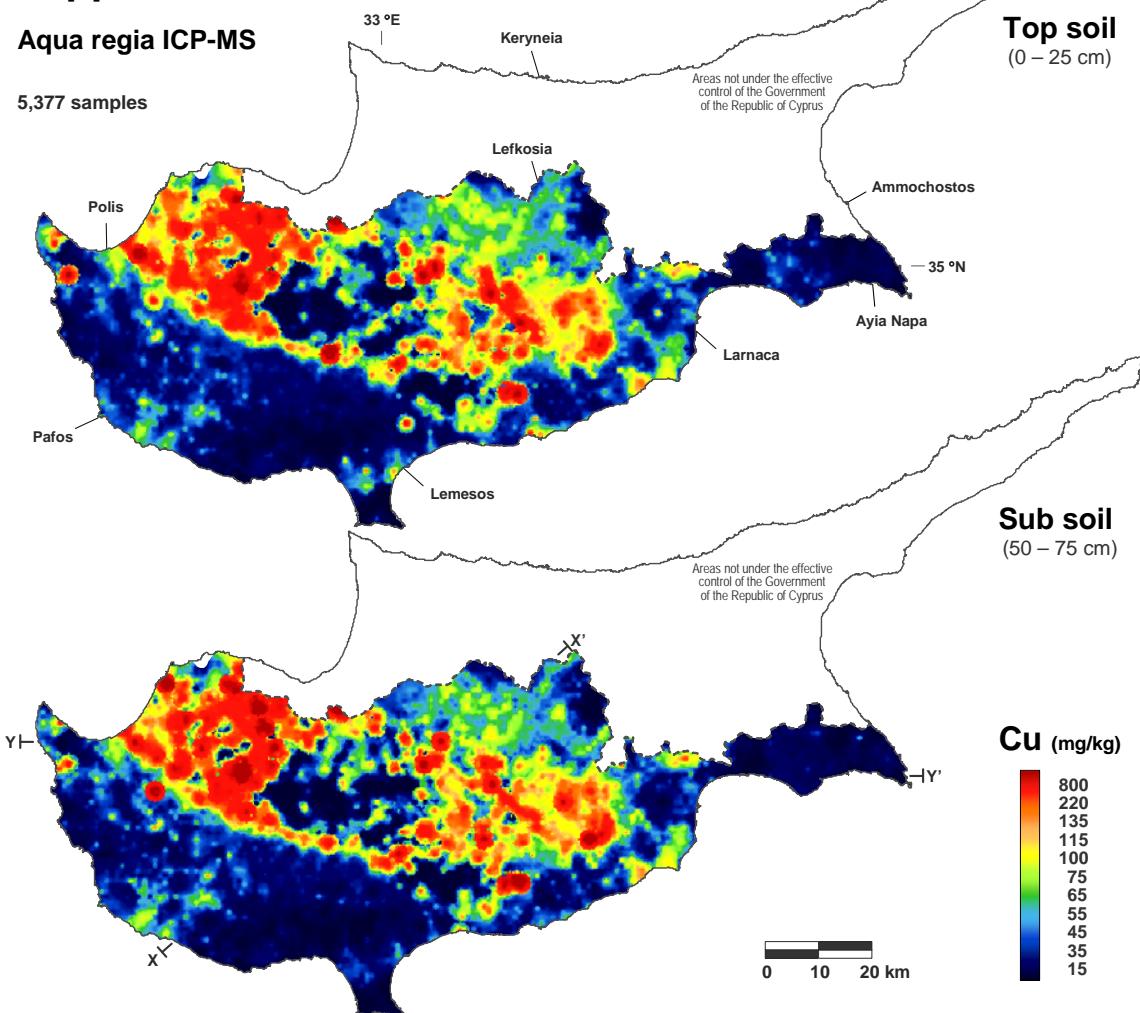
Cu

copper

Aqua regia ICP-MS

5,377 samples

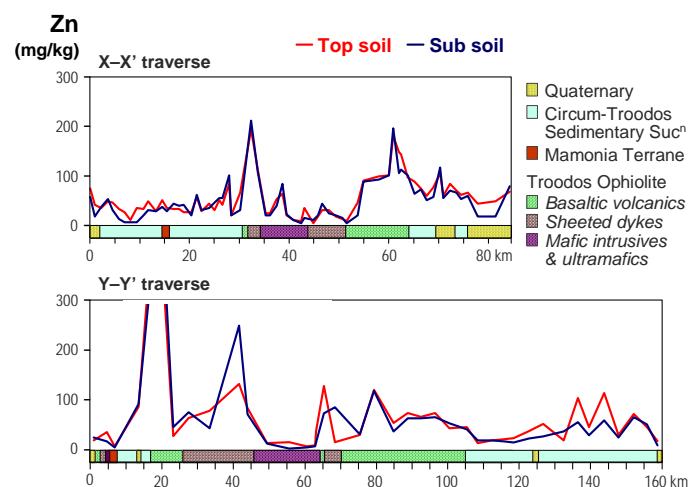
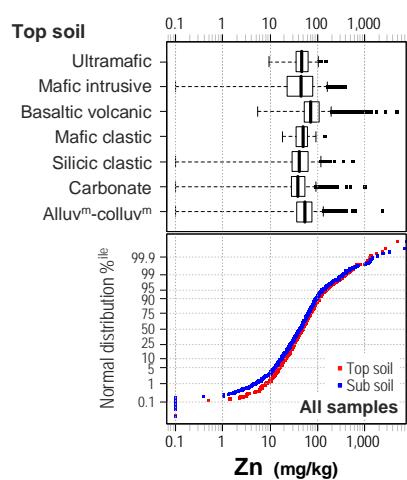
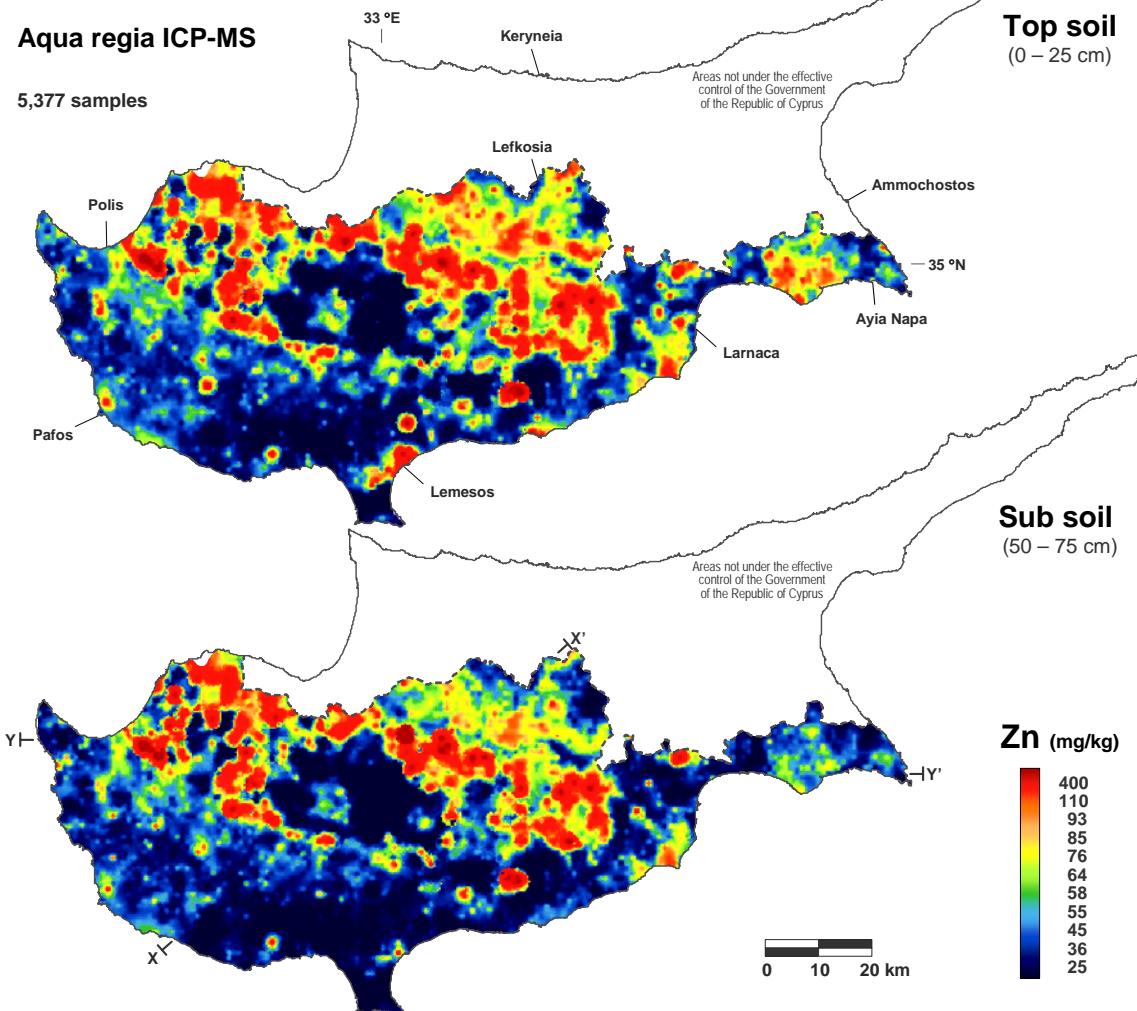
Geochemical
Atlas of Cyprus



Zn zinc

Aqua regia ICP-MS

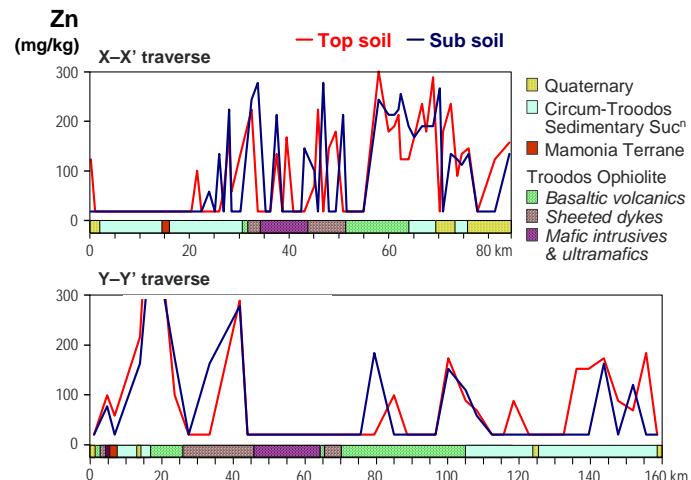
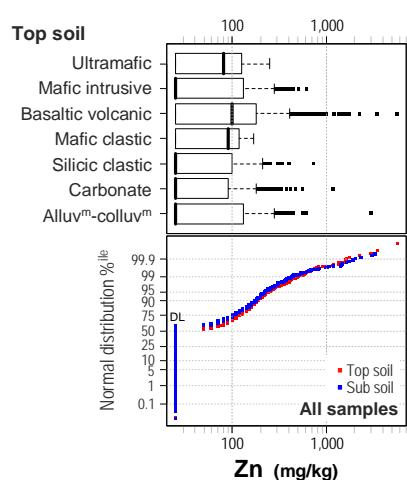
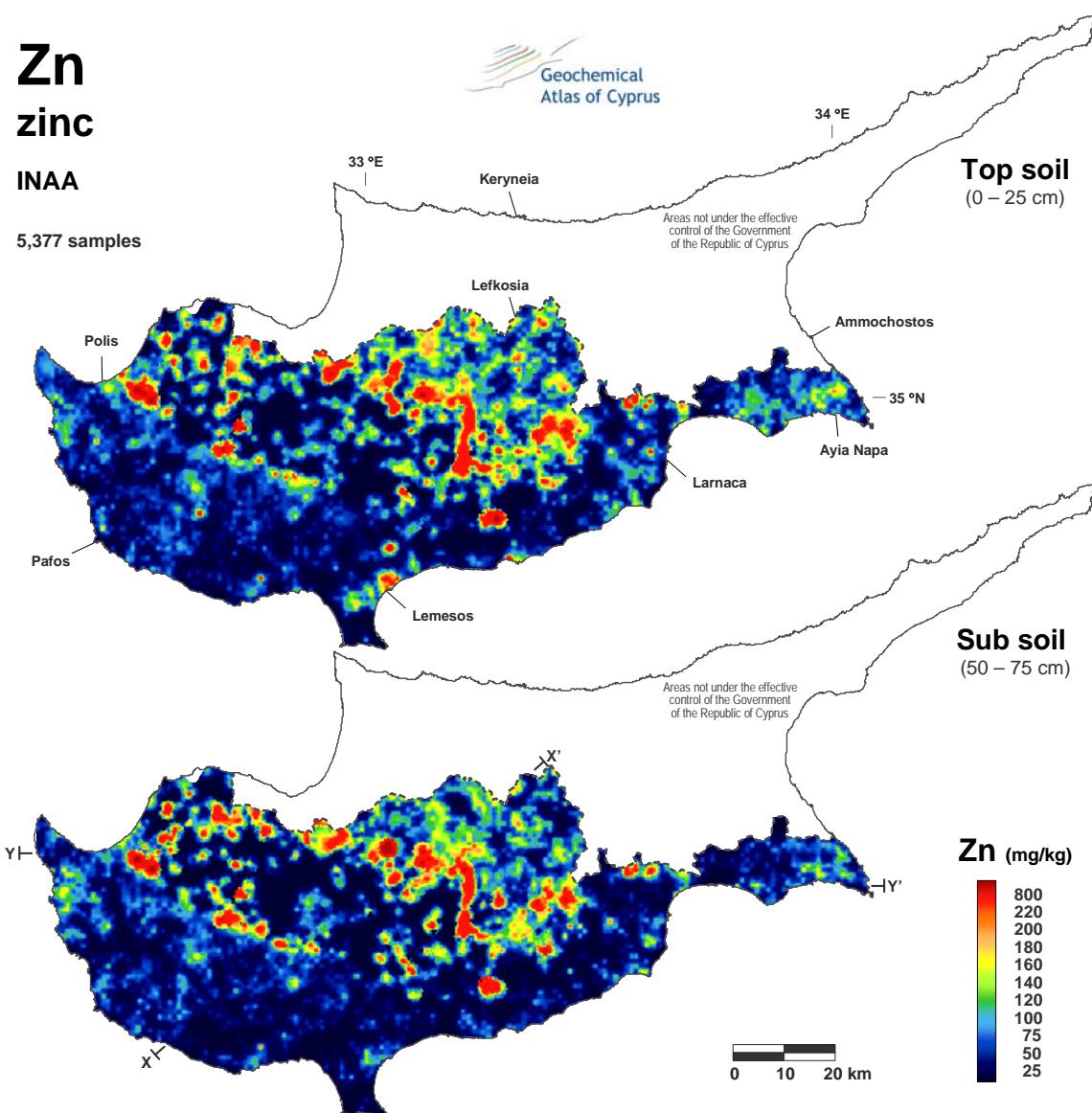
5,377 samples



Zn zinc

INAA

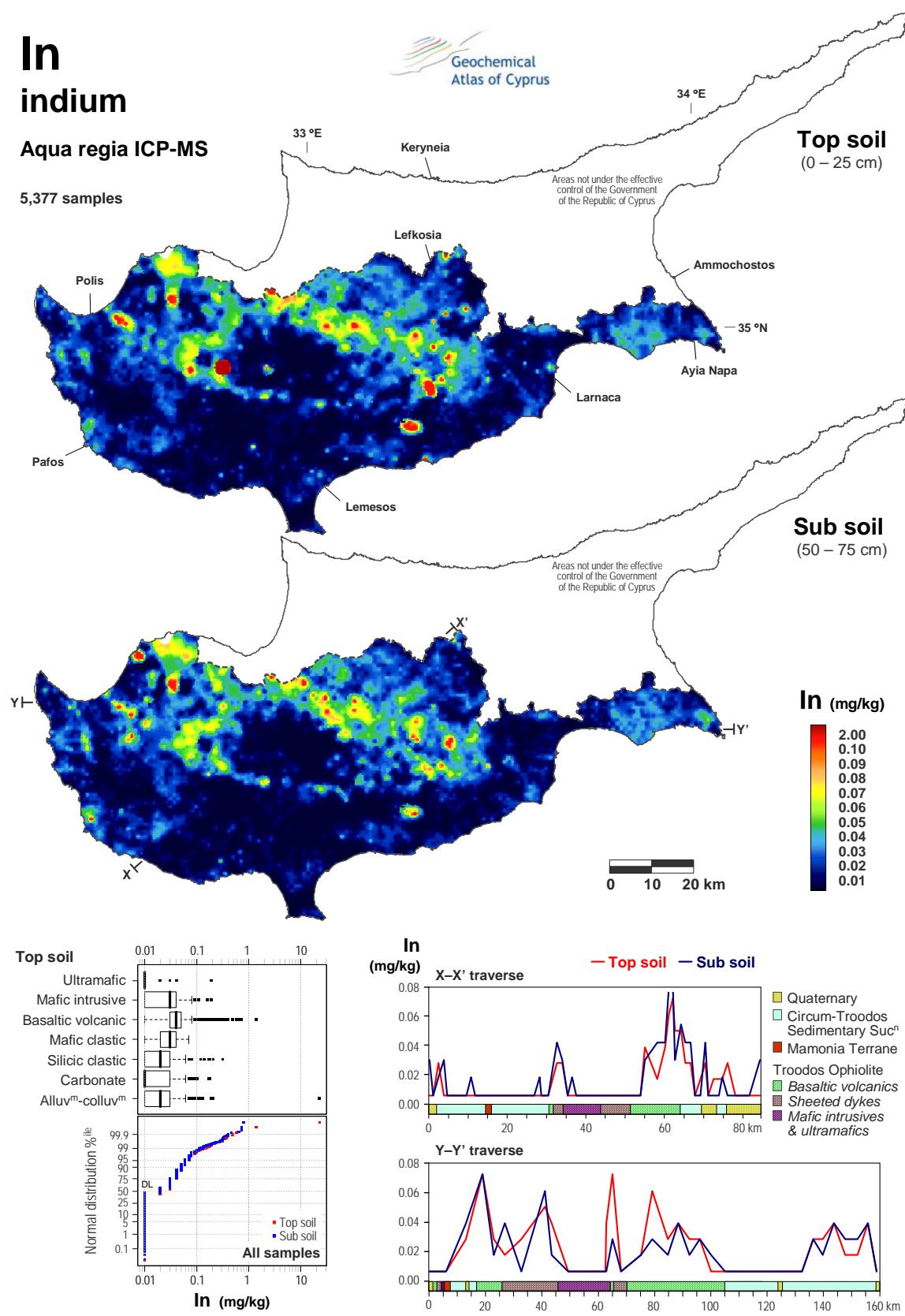
5,377 samples



In indium

Aqua regia ICP-MS

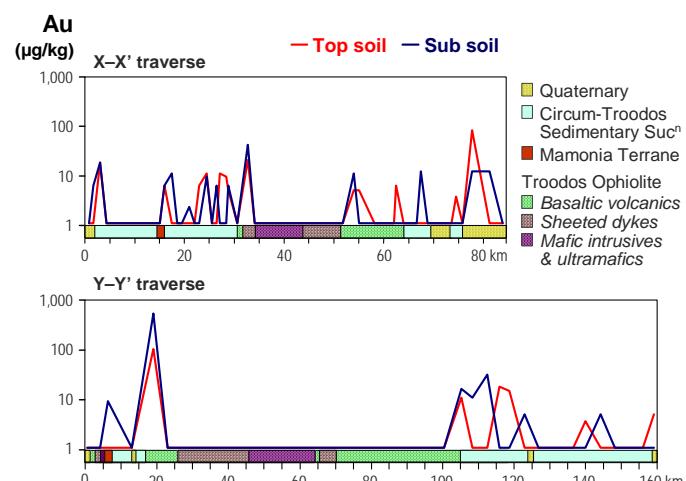
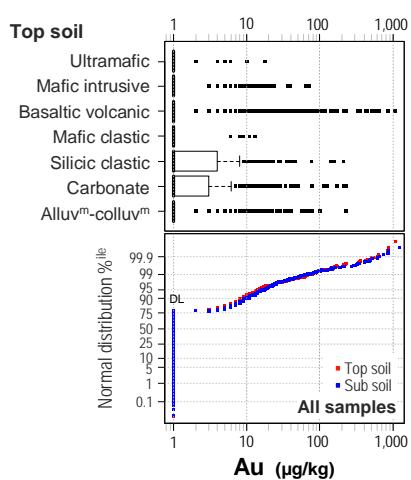
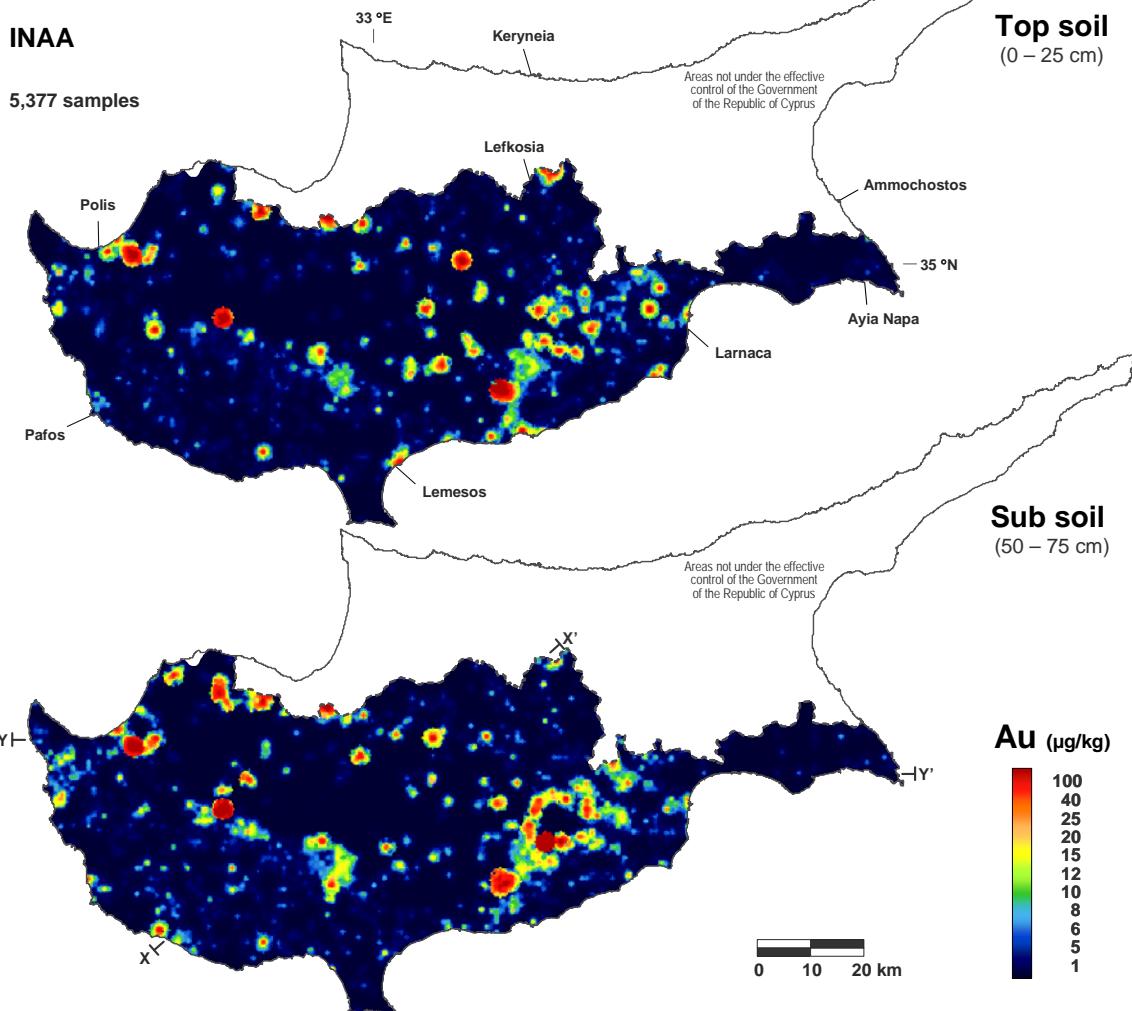
5,377 samples



Au gold

INAA

5,377 samples

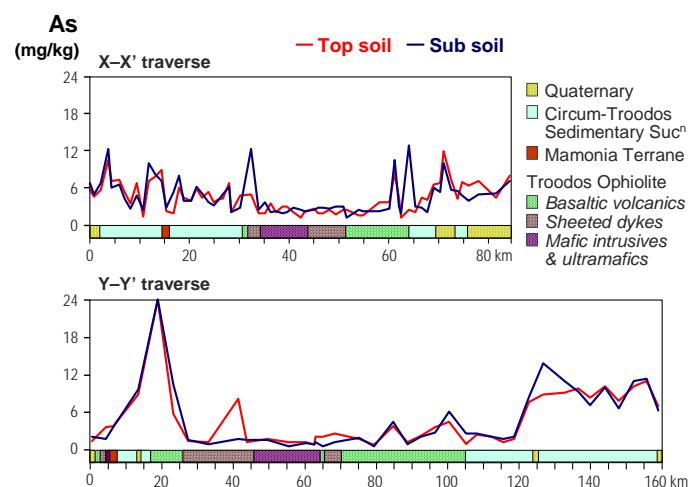
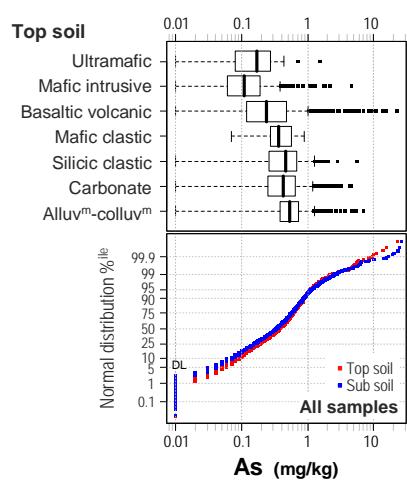
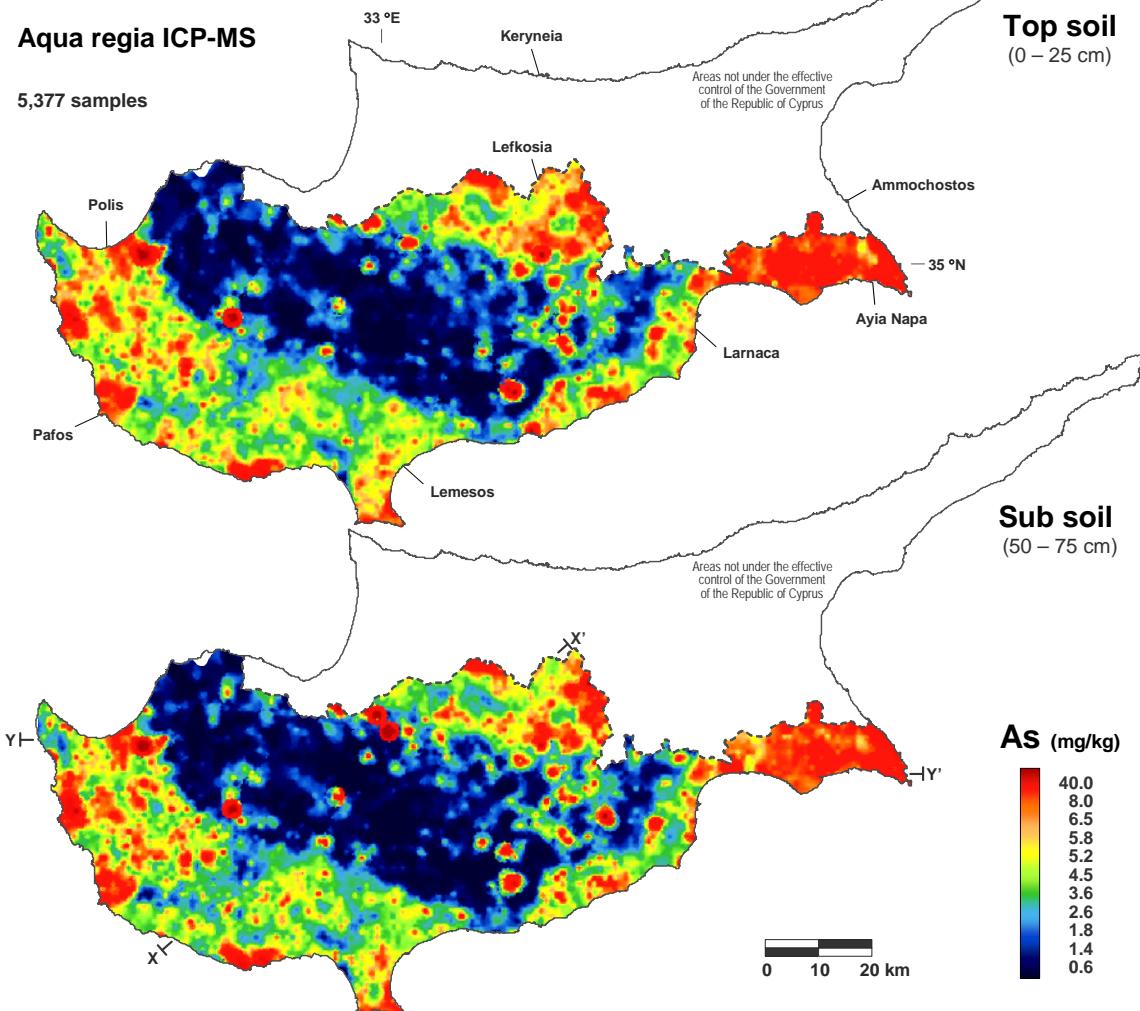


As

arsenic

Aqua regia ICP-MS

5,377 samples

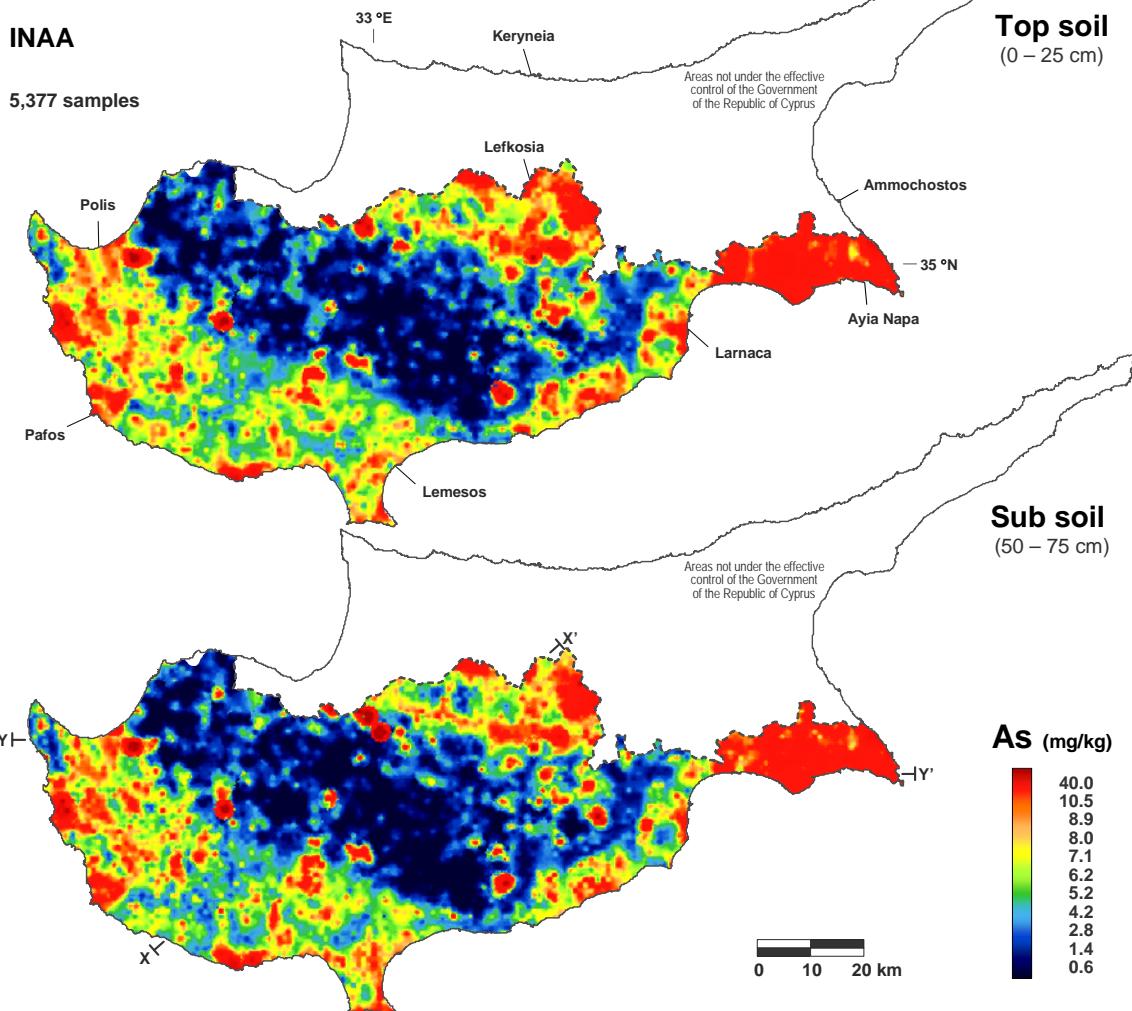


As

arsenic

INAA

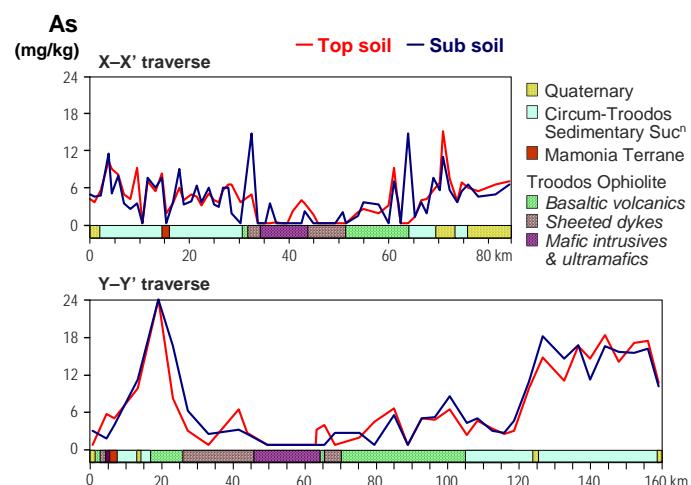
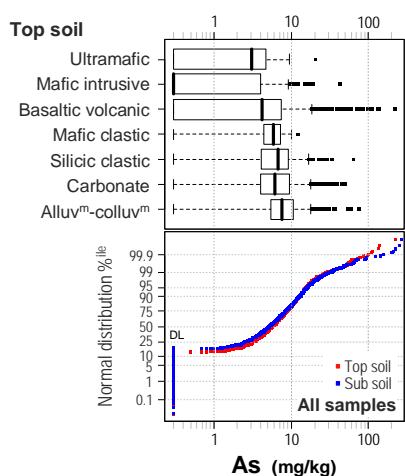
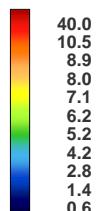
5,377 samples



Top soil
(0 – 25 cm)

Sub soil
(50 – 75 cm)

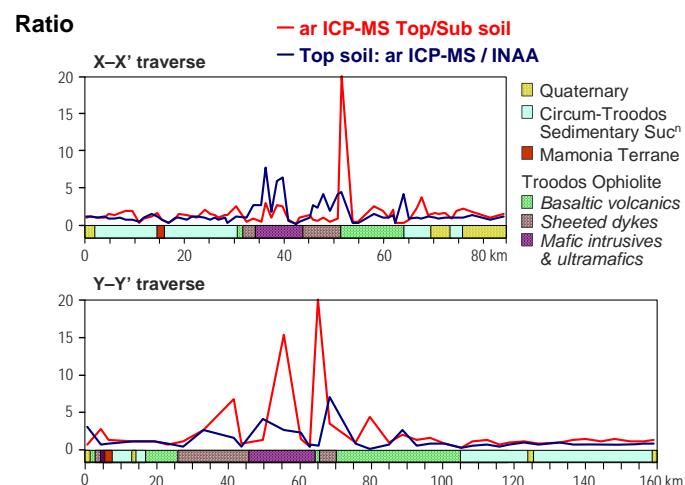
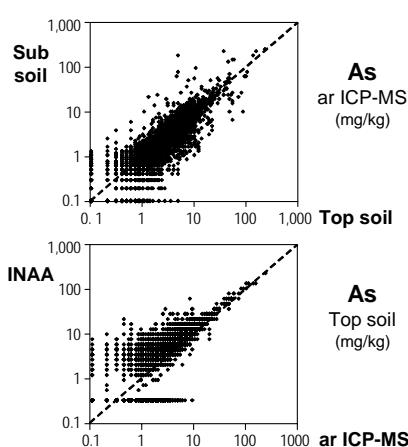
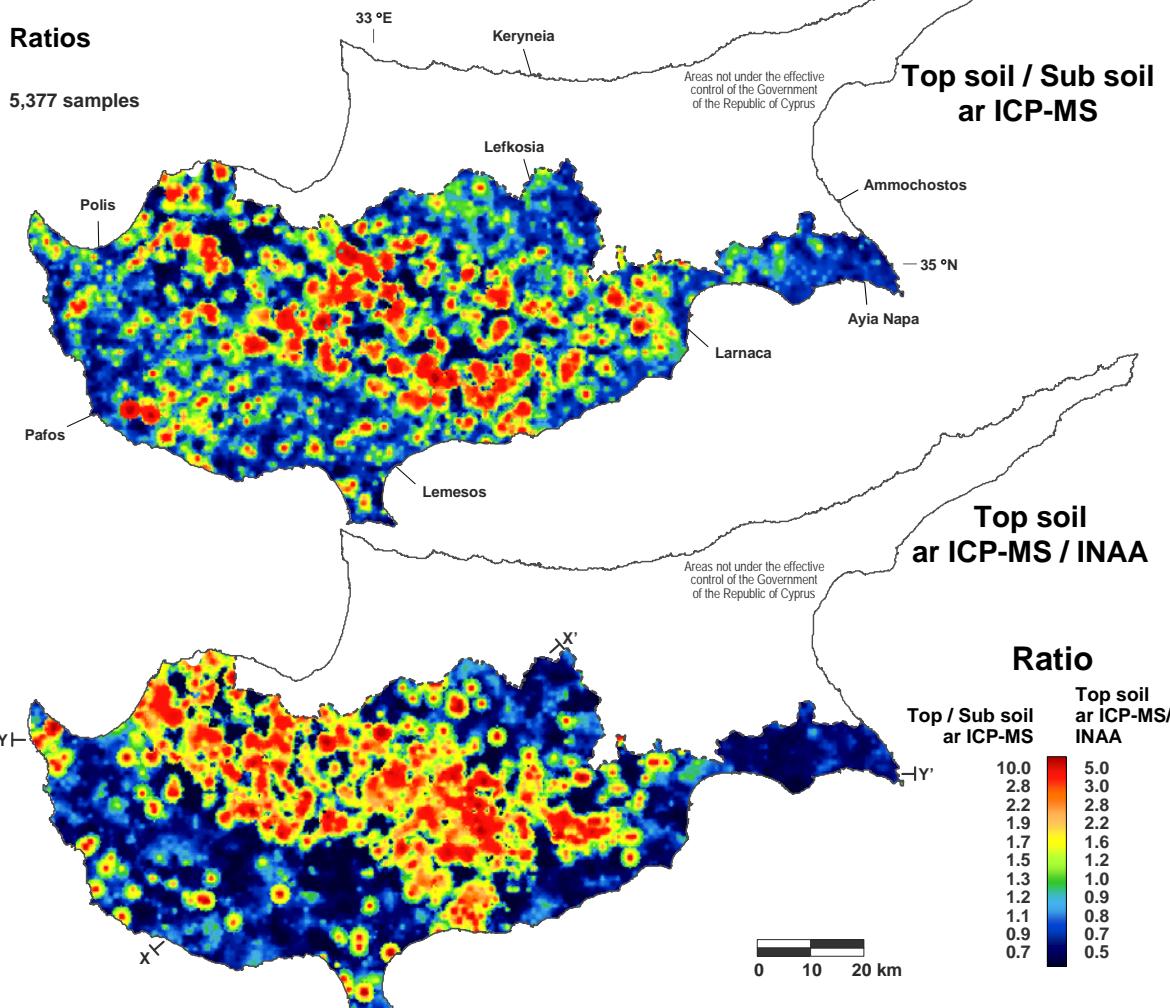
As (mg/kg)



As arsenic

Ratios

5,377 samples

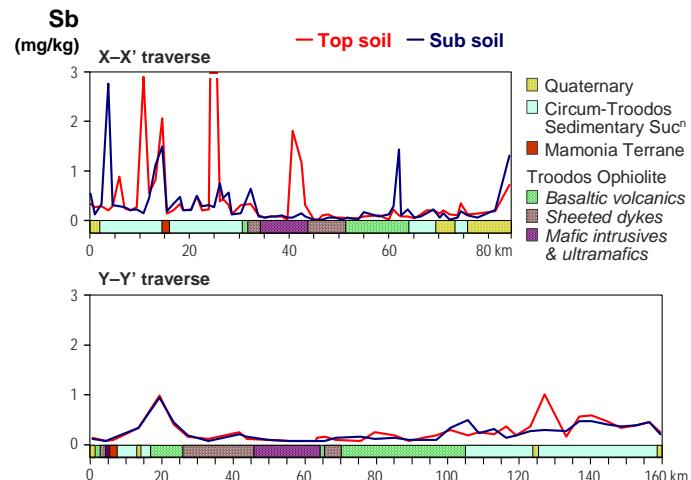
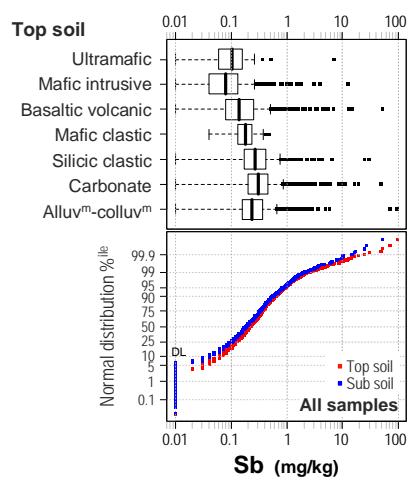
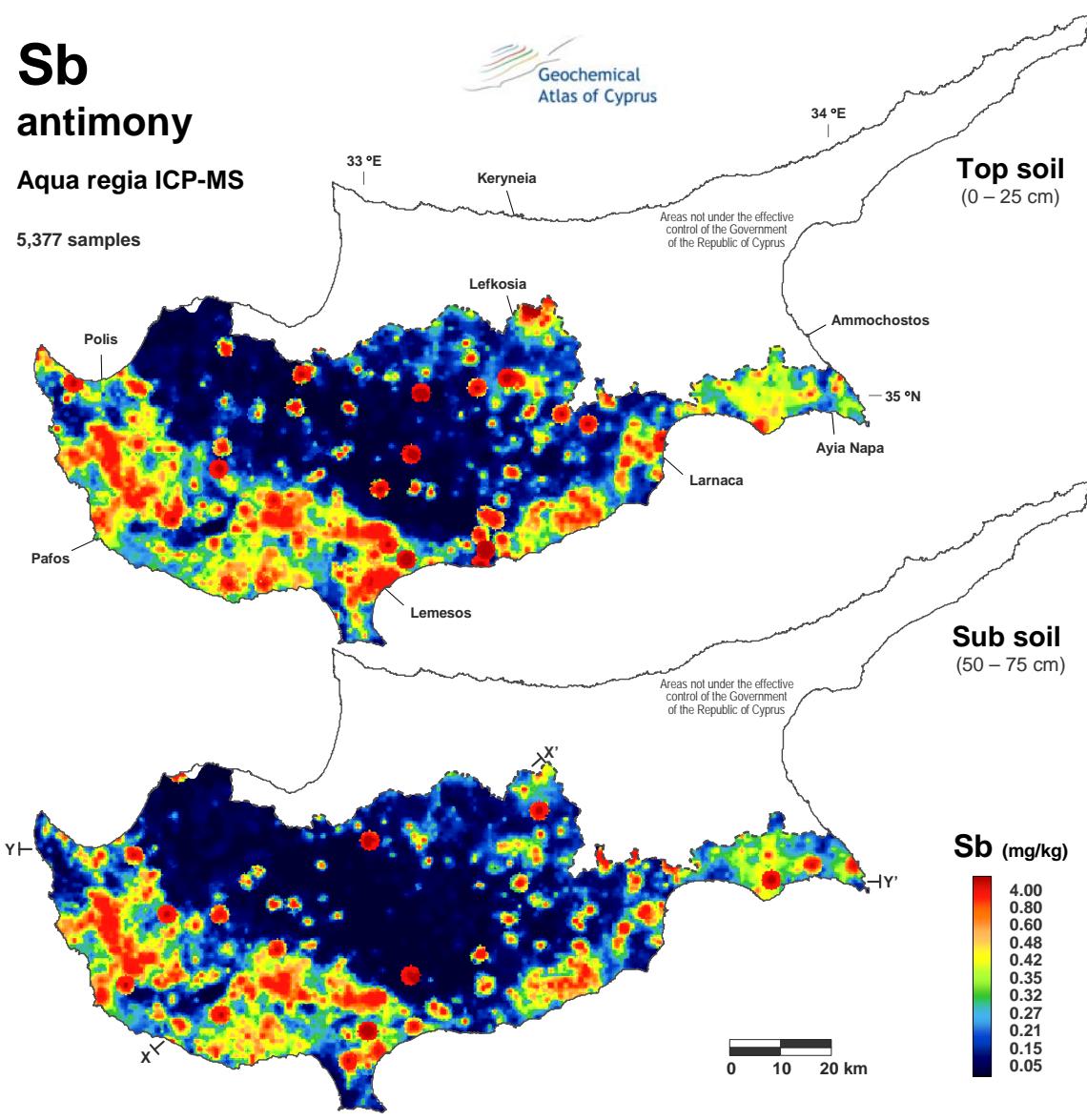


Sb antimony

Geochemical
Atlas of Cyprus

Aqua regia ICP-MS

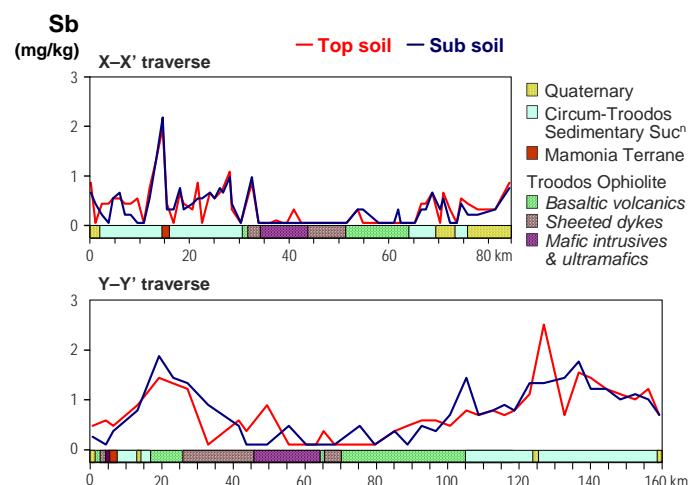
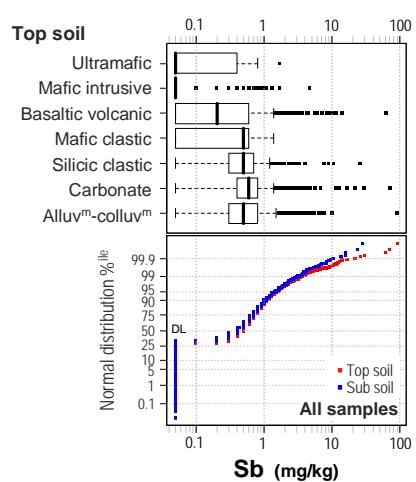
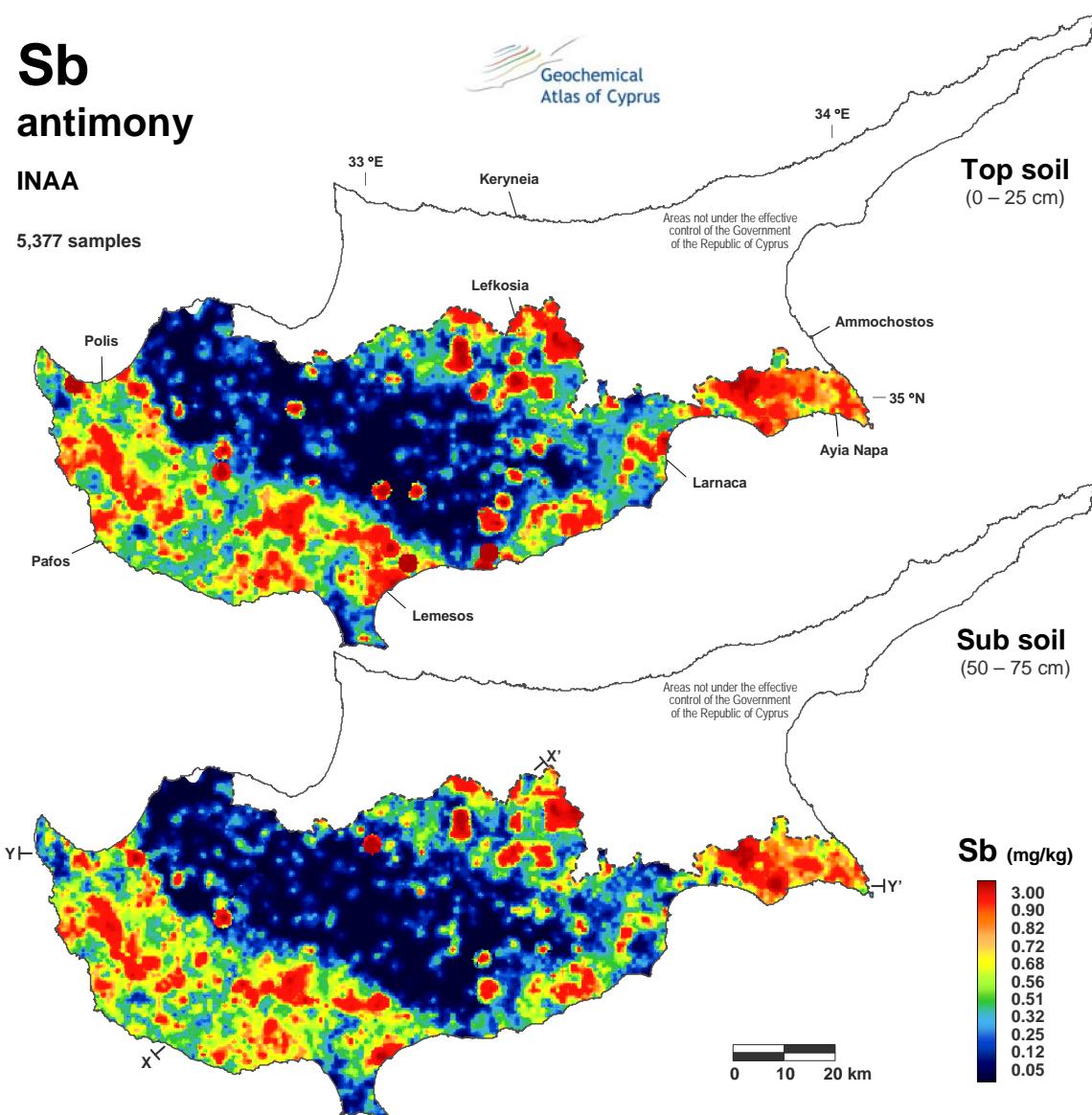
5,377 samples



Sb antimony

INAA

5,377 samples

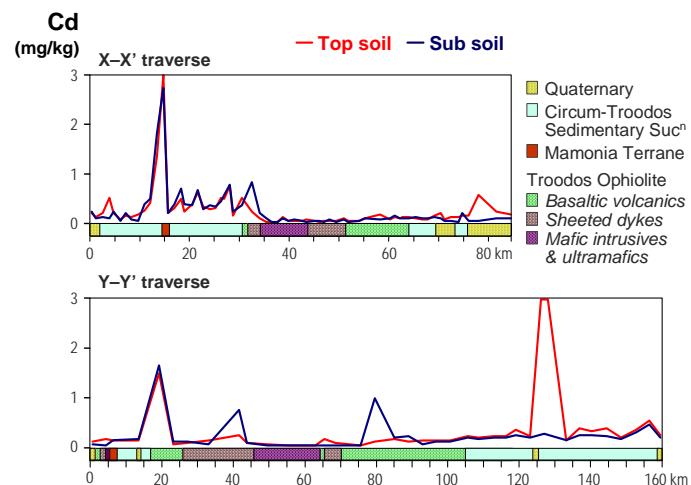
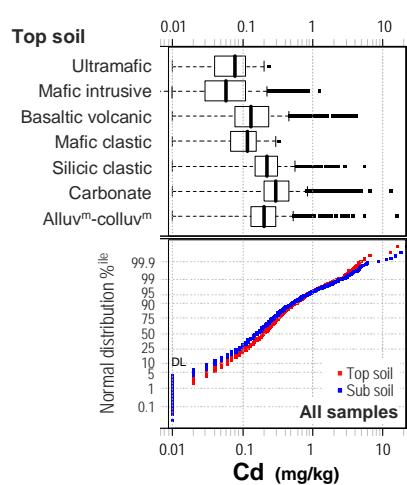
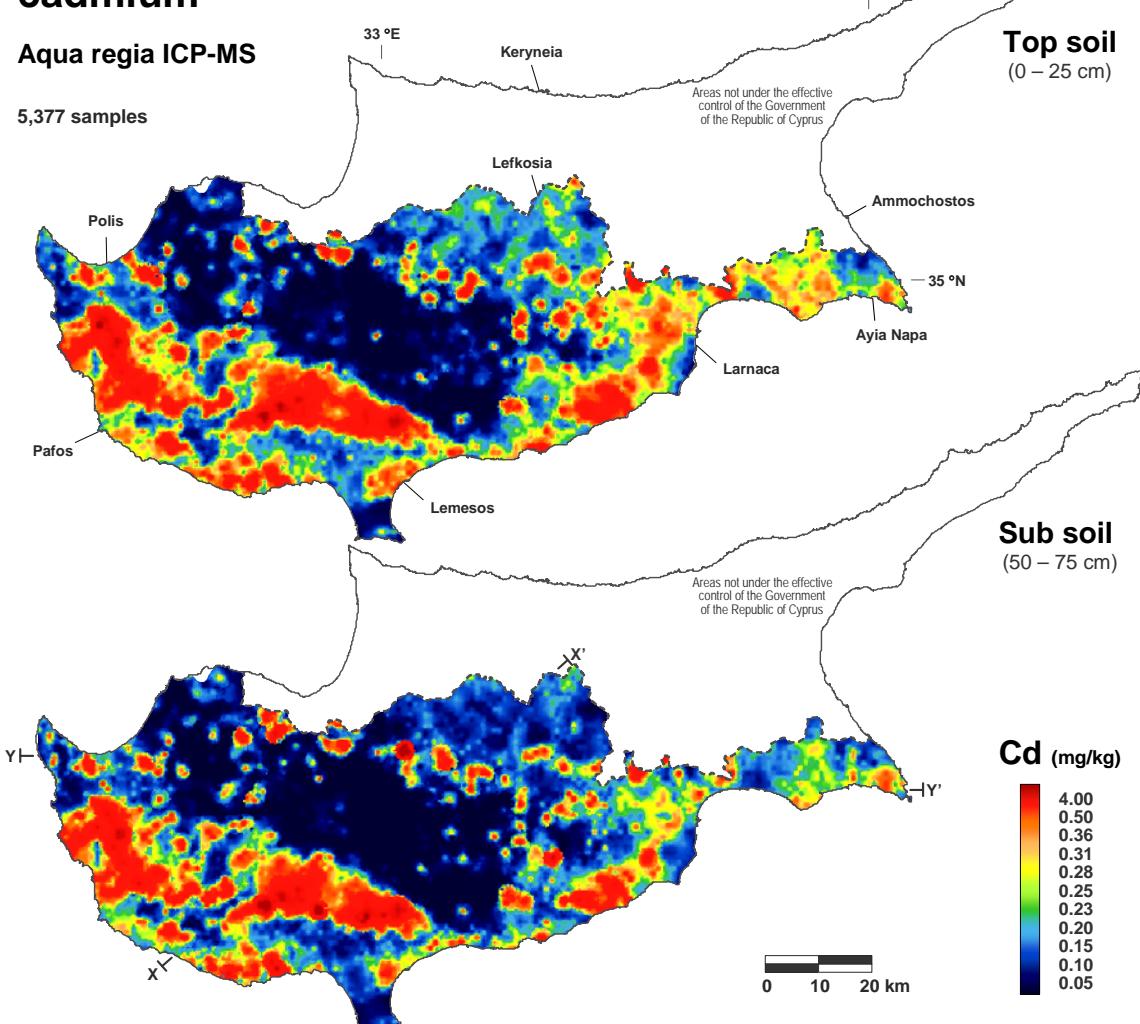


Cd cadmium

Aqua regia ICP-MS

5,377 samples

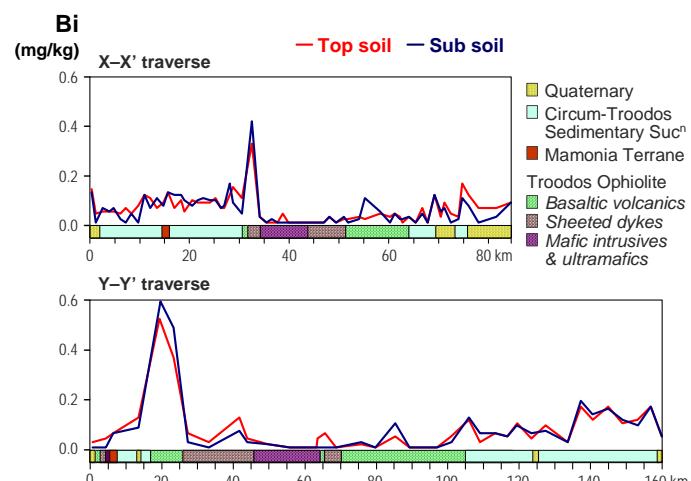
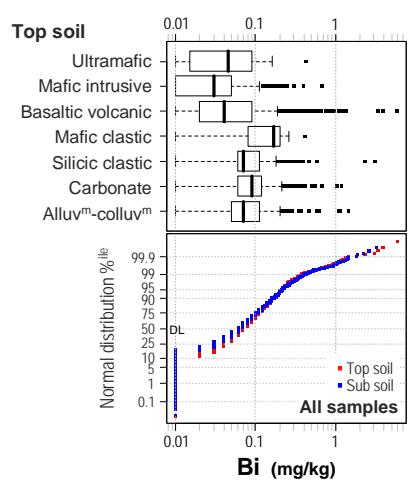
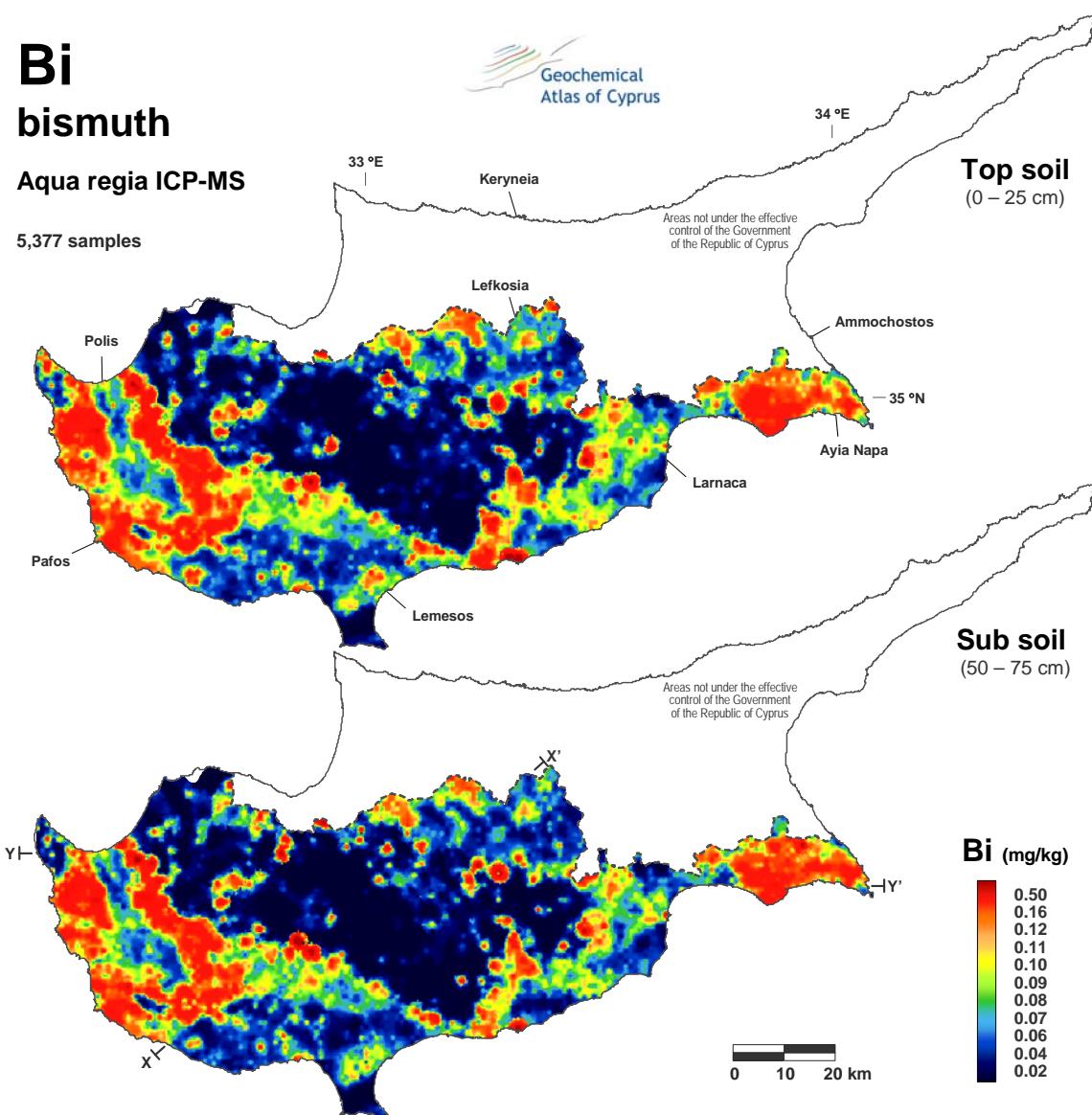
Geochemical
Atlas of Cyprus



Bi bismuth

Aqua regia ICP-MS

5,377 samples



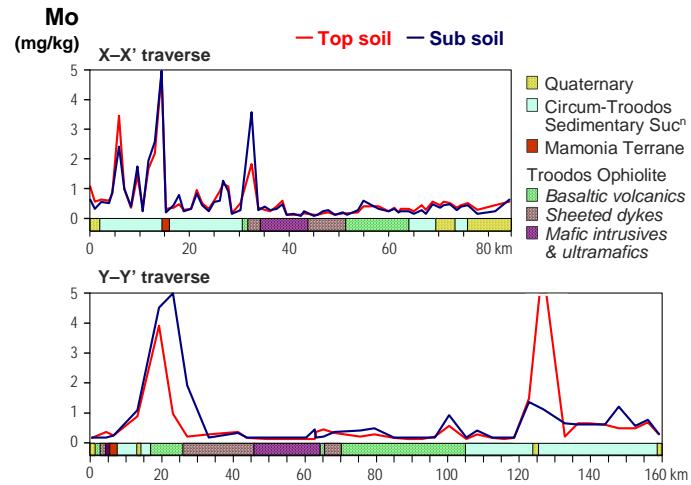
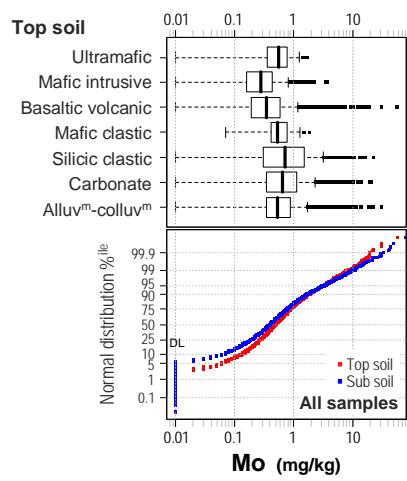
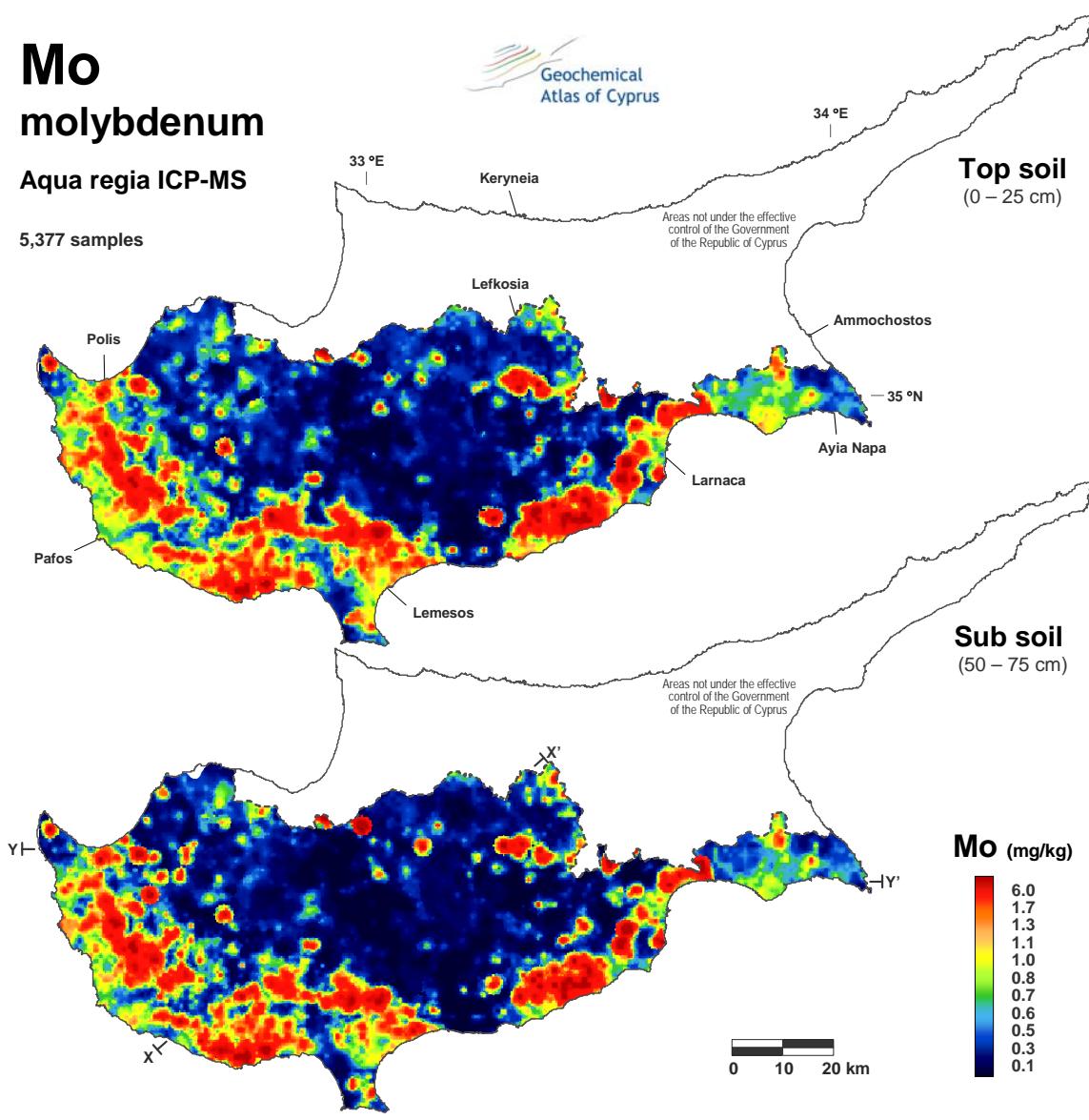
Mo

molybdenum

Aqua regia ICP-MS

5,377 samples

Geochemical
Atlas of Cyprus

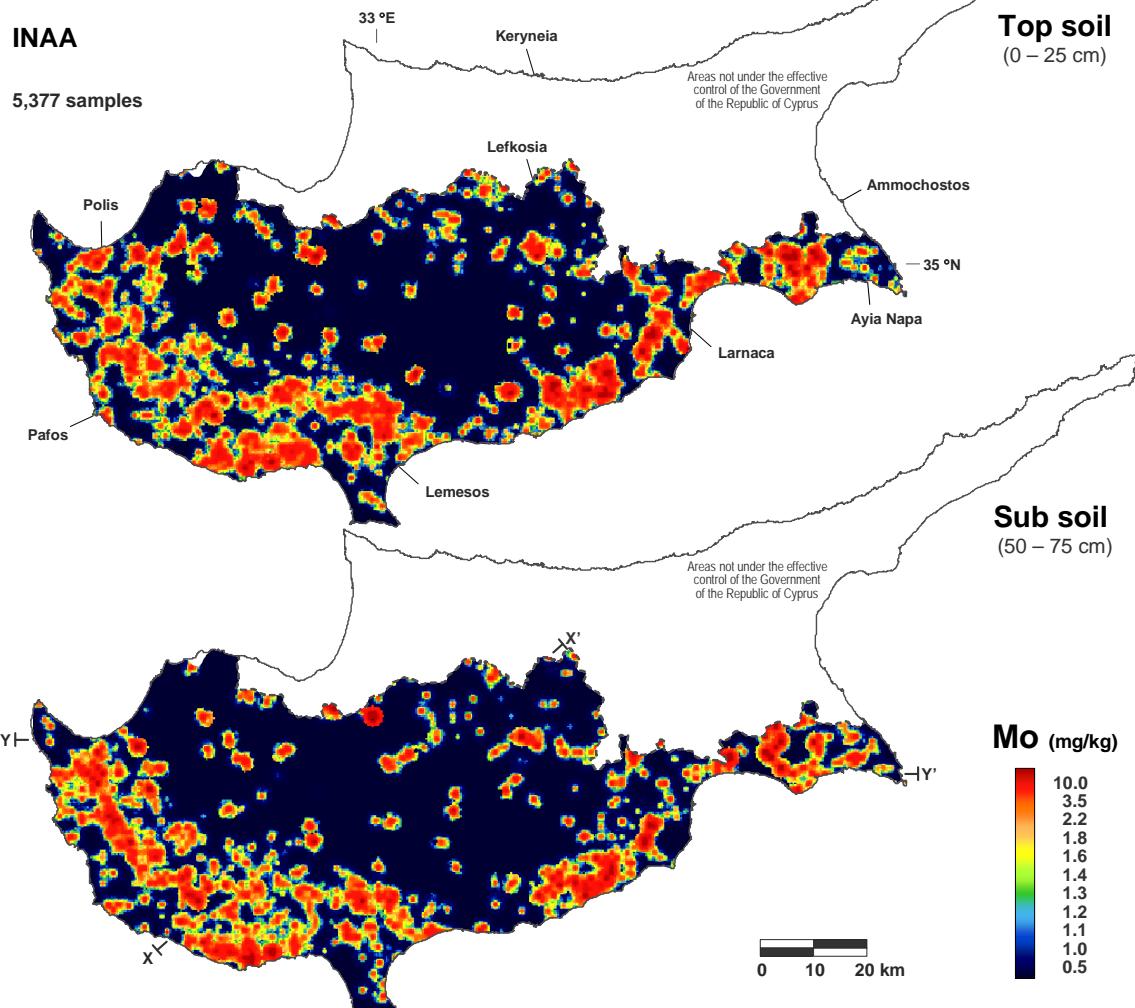


Mo

molybdenum

INAA

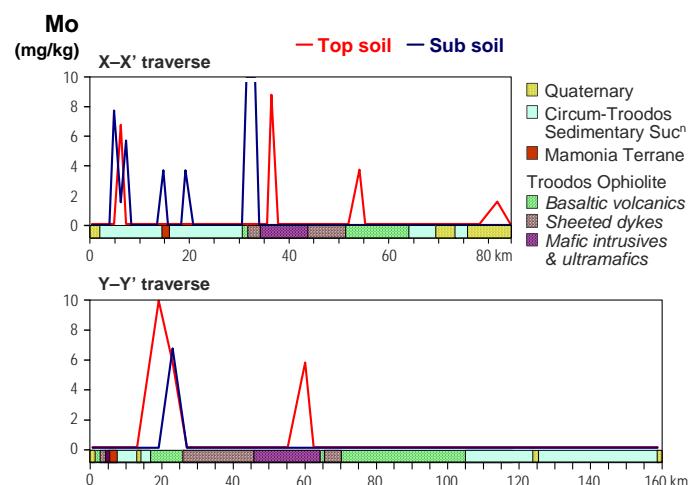
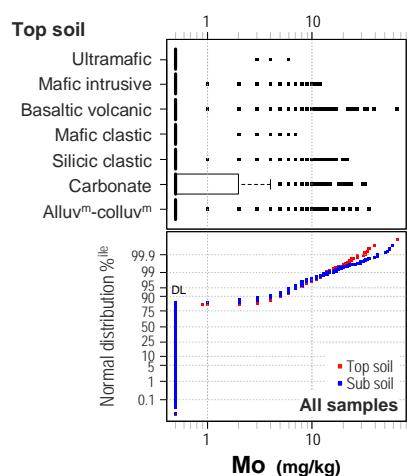
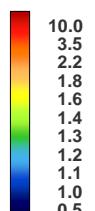
5,377 samples



Top soil
(0 – 25 cm)

Sub soil
(50 – 75 cm)

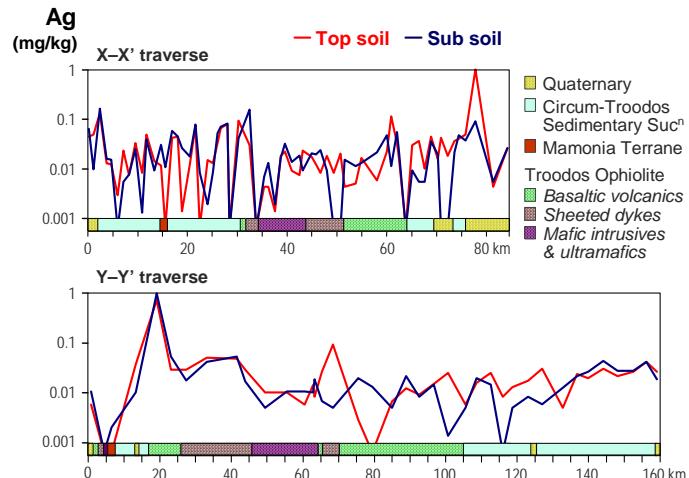
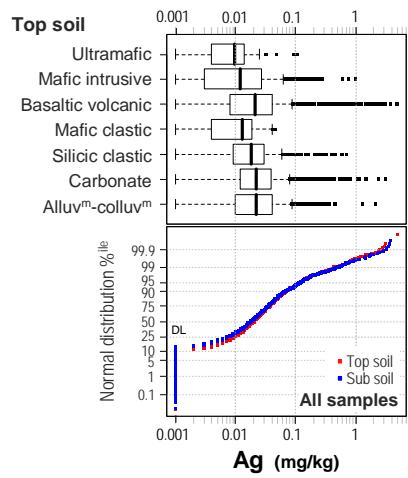
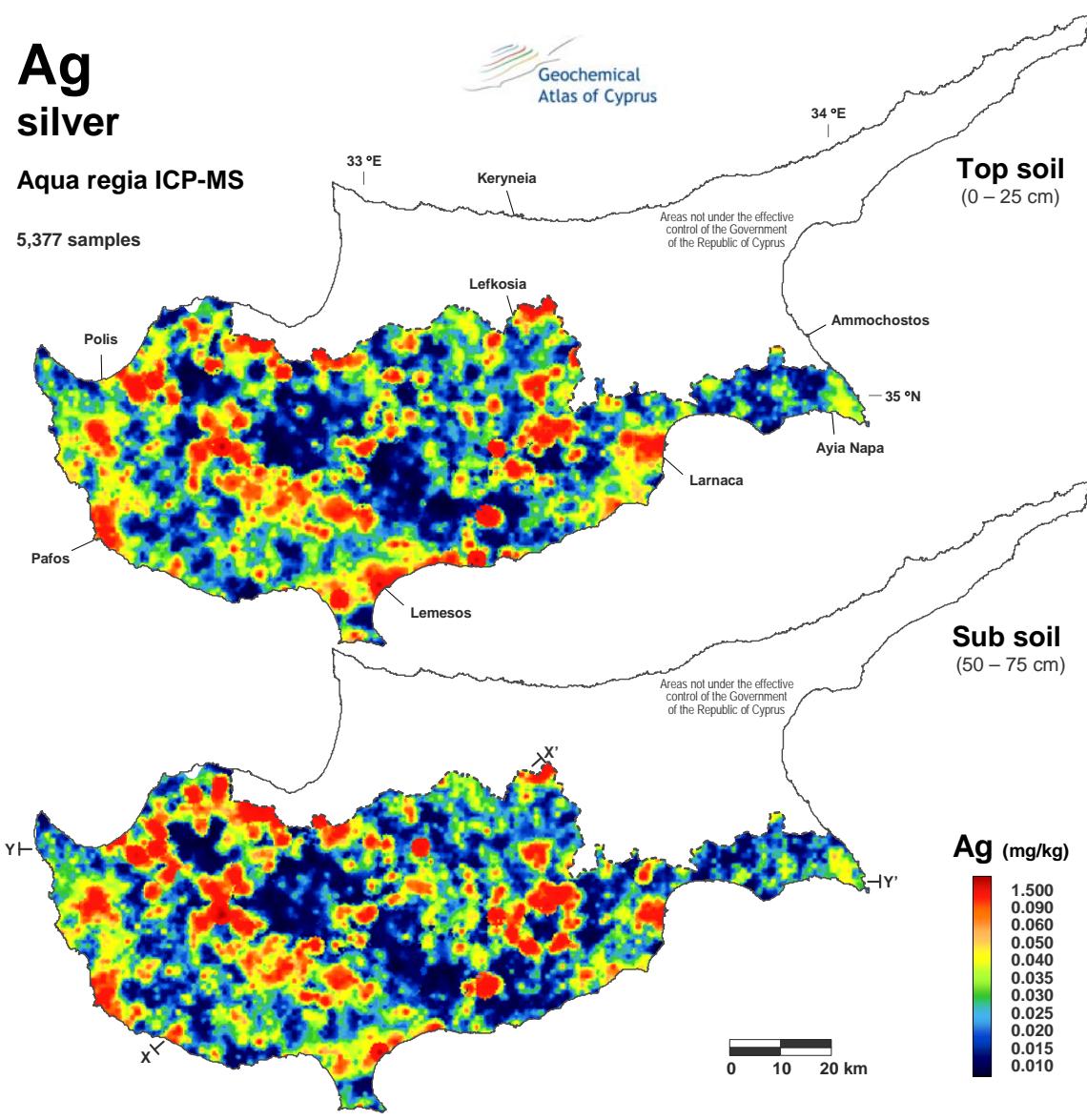
Mo (mg/kg)



Ag silver

Aqua regia ICP-MS

5,377 samples

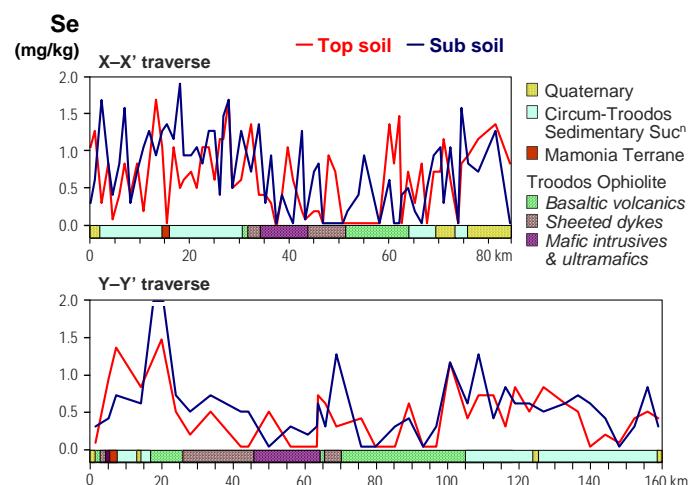
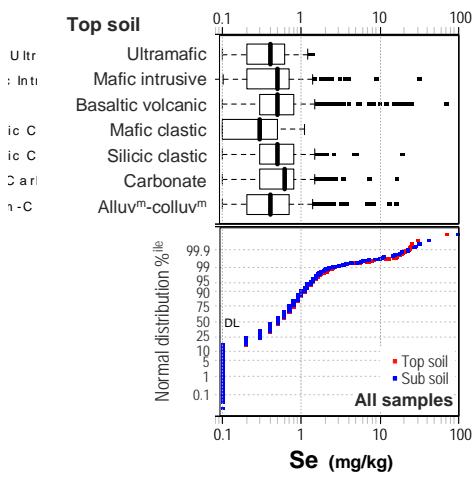
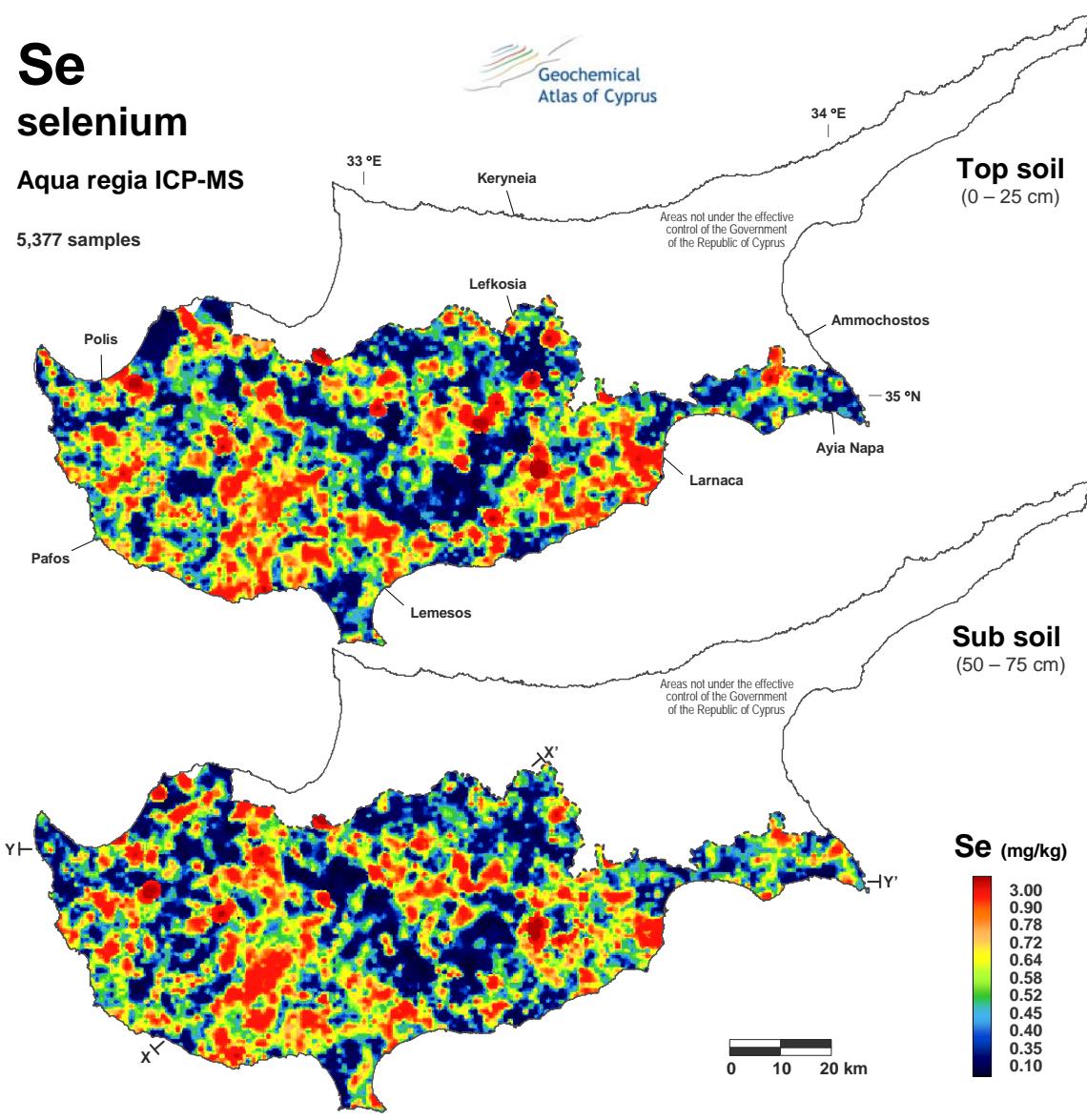


Se

selenium

Aqua regia ICP-MS

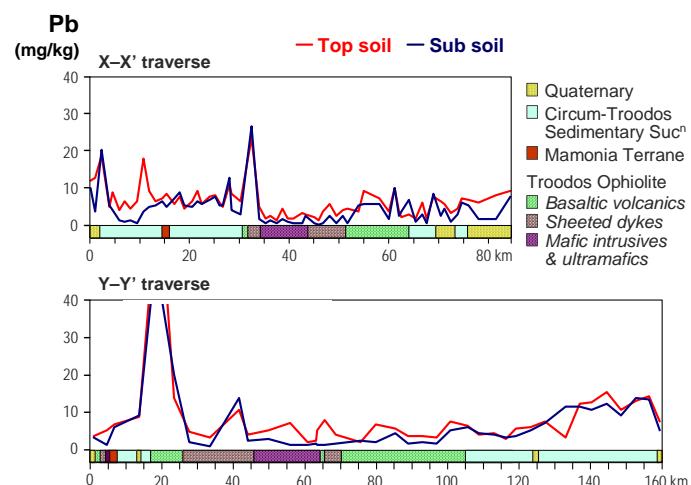
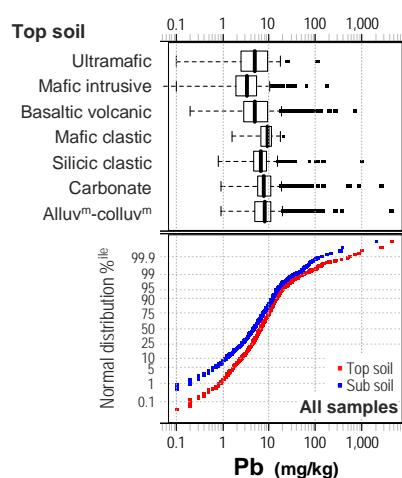
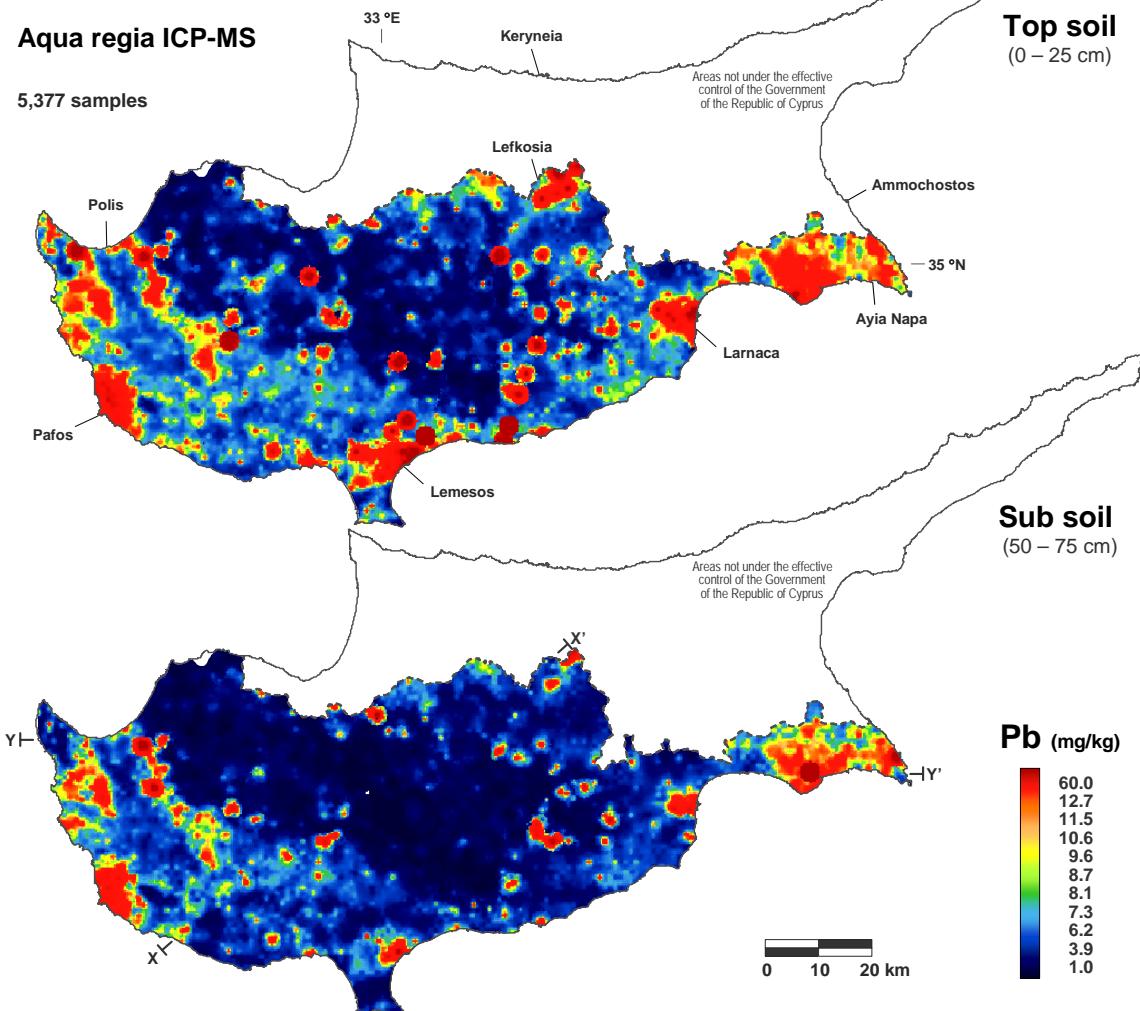
5,377 samples



Pb lead

Aqua regia ICP-MS

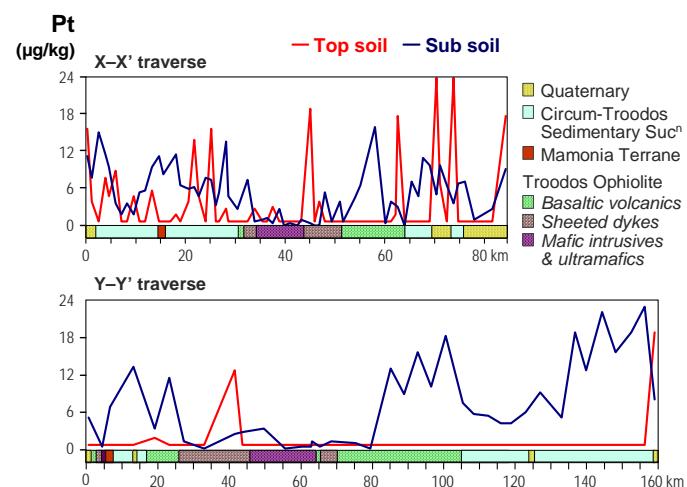
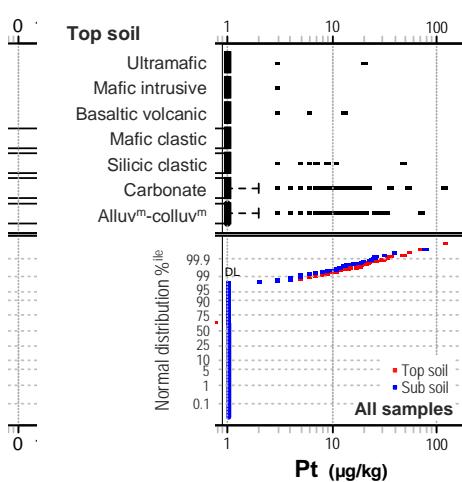
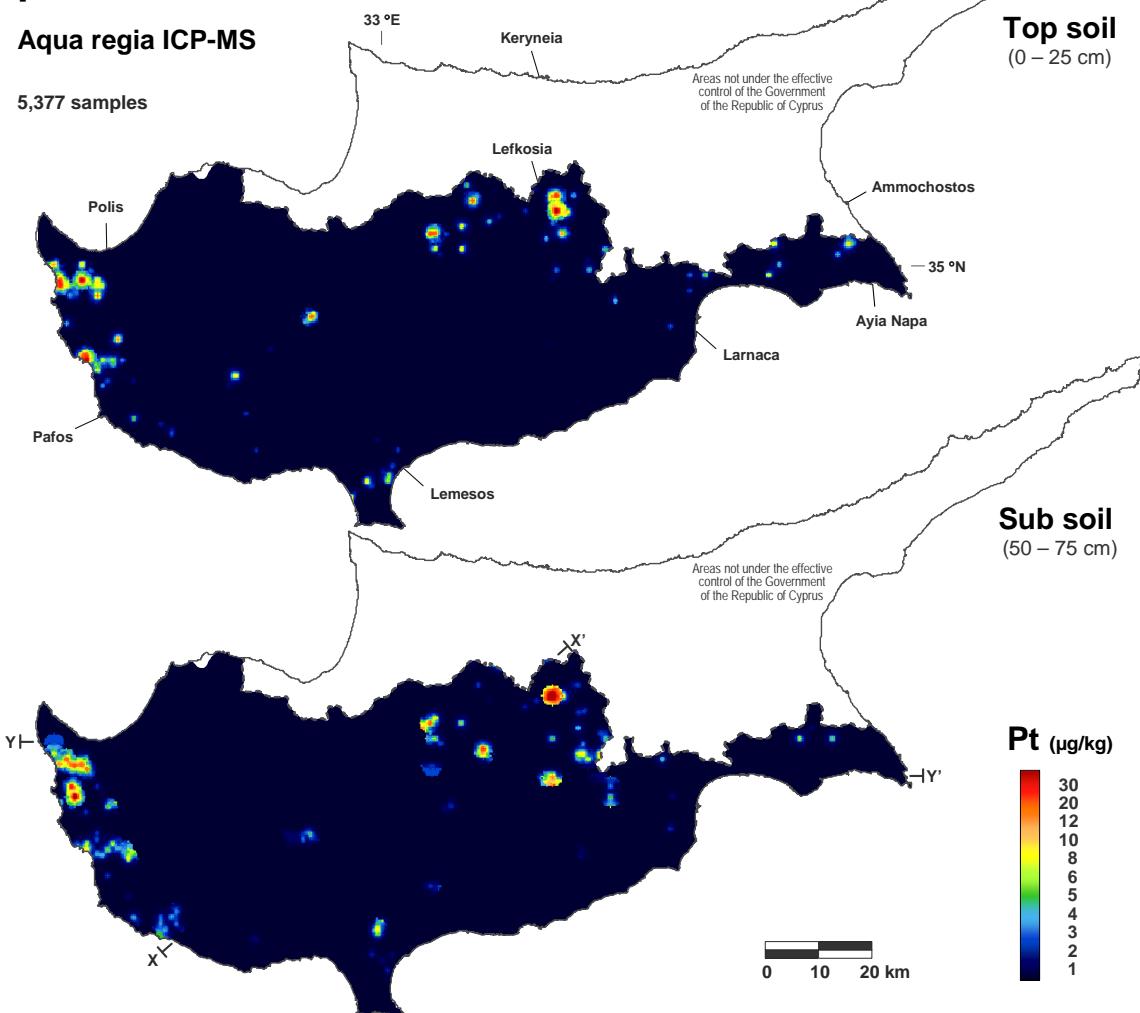
5,377 samples



Pt platinum

Aqua regia ICP-MS

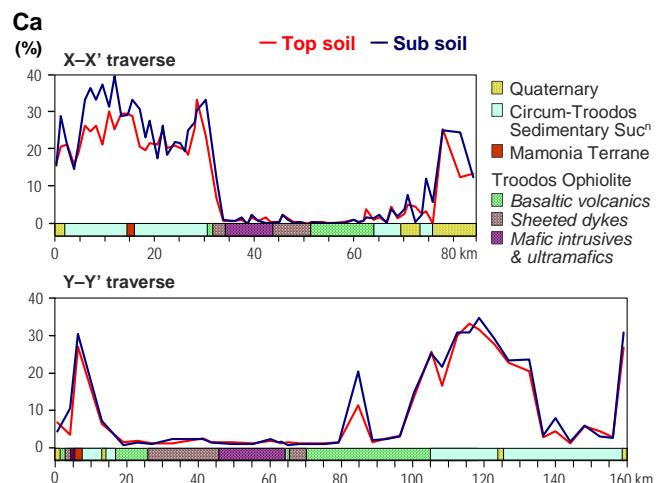
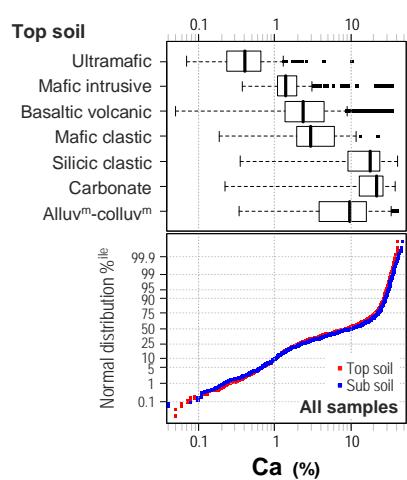
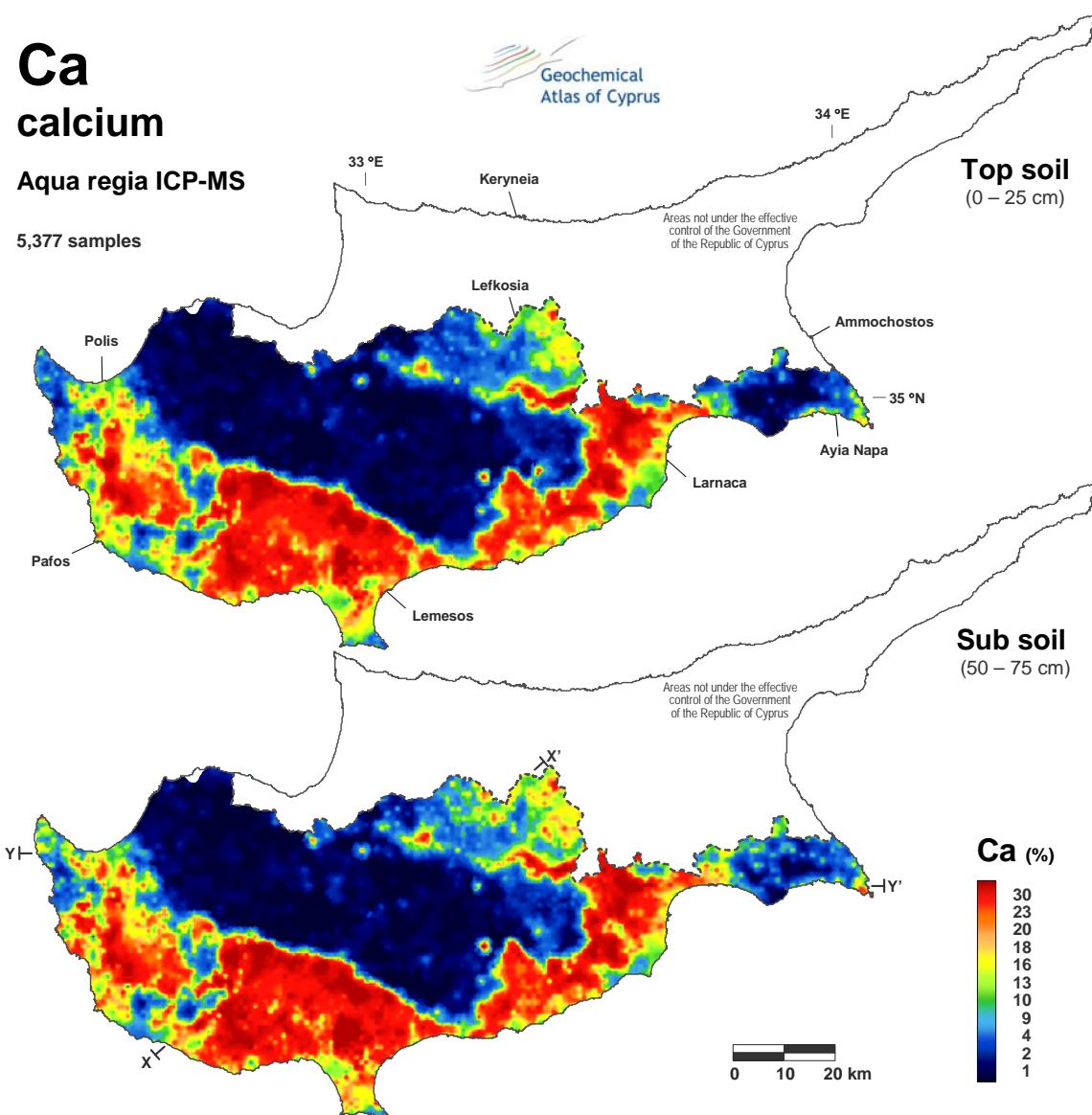
5,377 samples



Ca calcium

Aqua regia ICP-MS

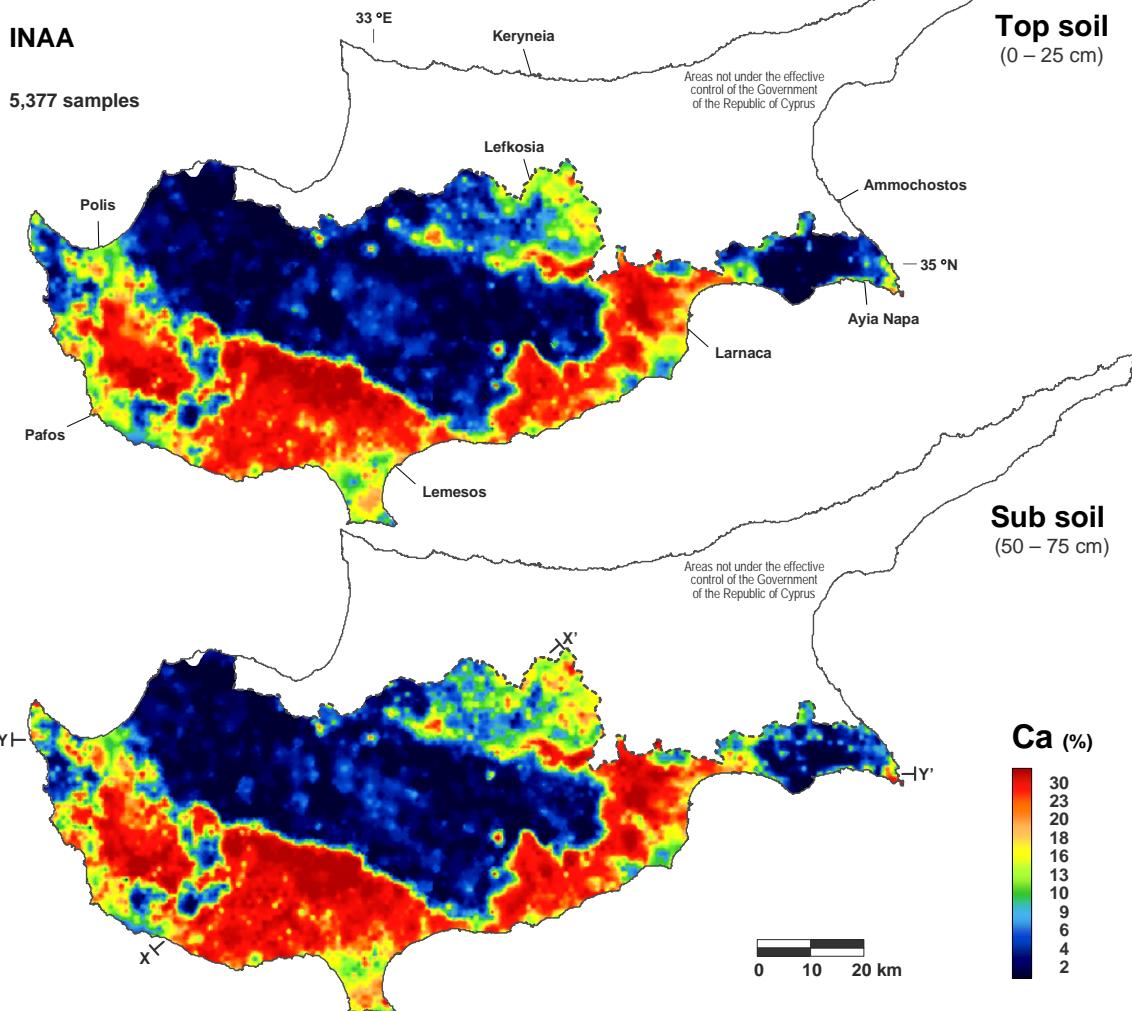
5,377 samples



Ca calcium

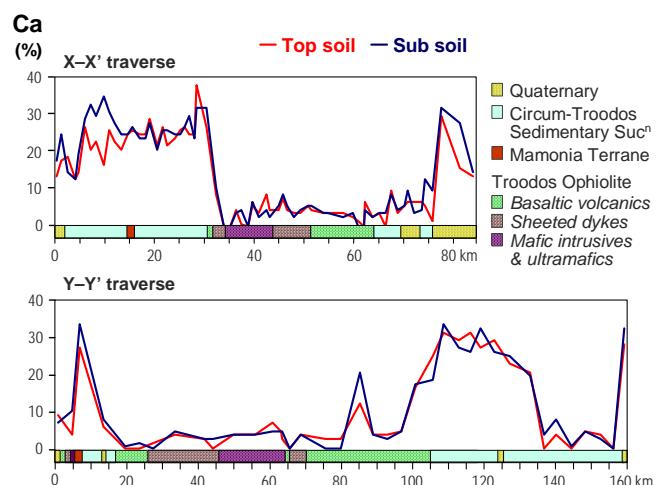
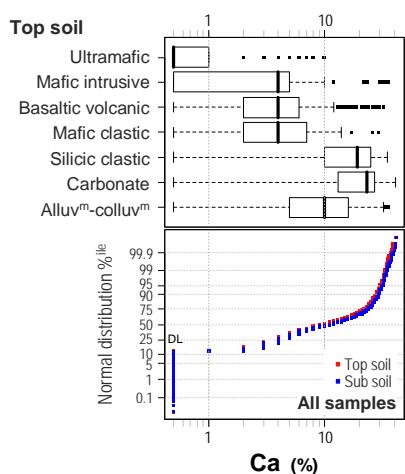
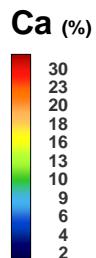
INAA

5,377 samples



Top soil
(0 – 25 cm)

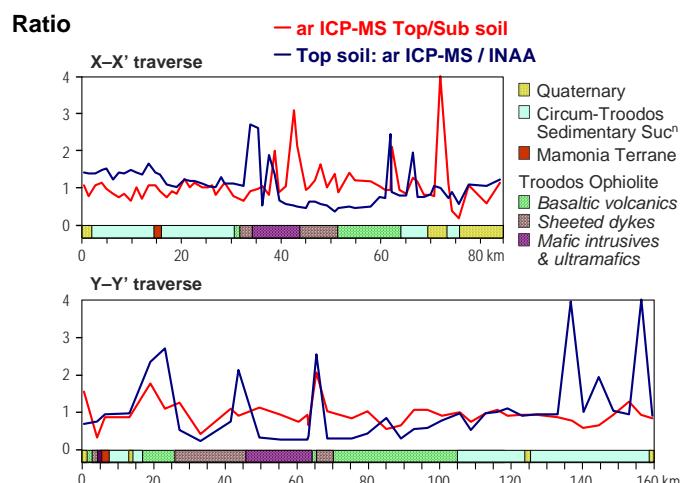
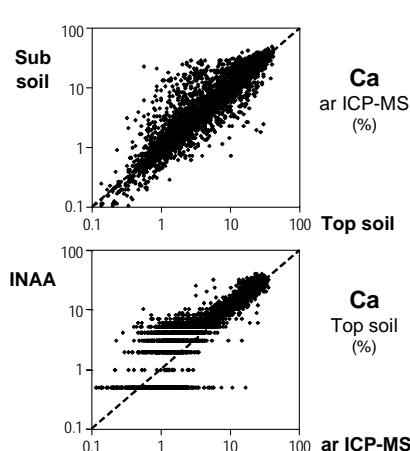
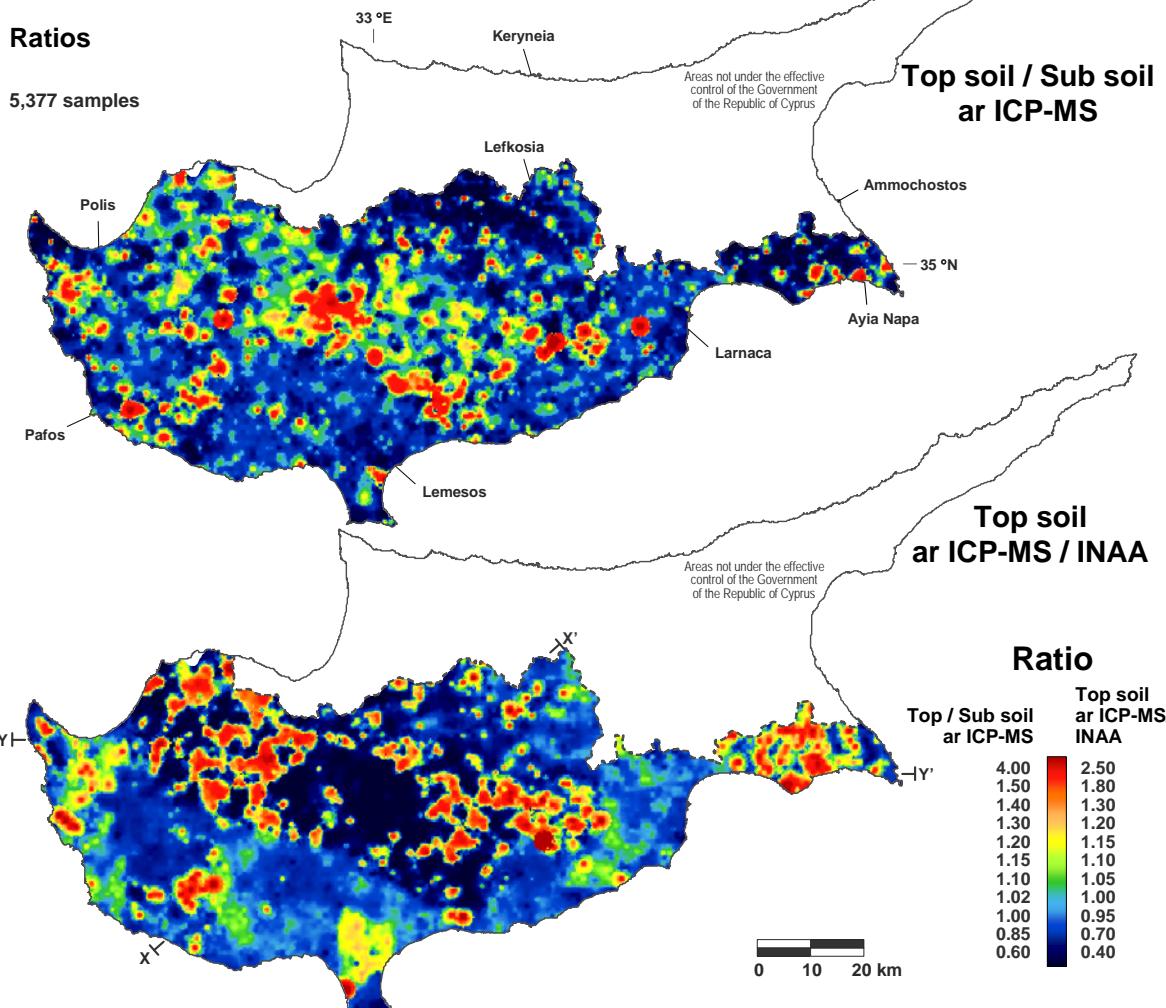
Sub soil
(50 – 75 cm)



Ca calcium

Ratios

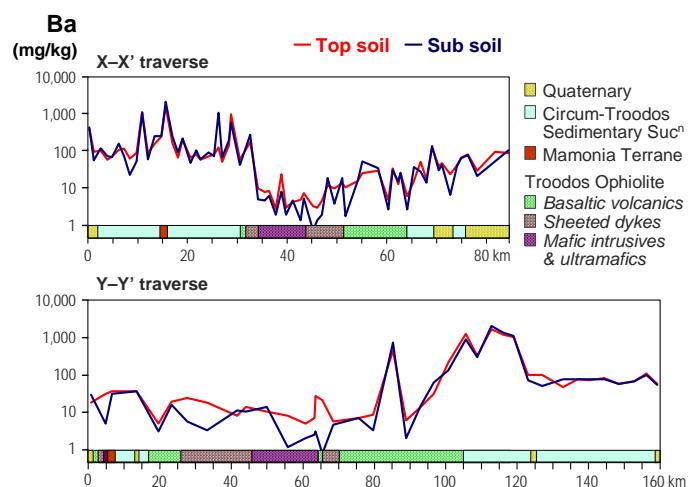
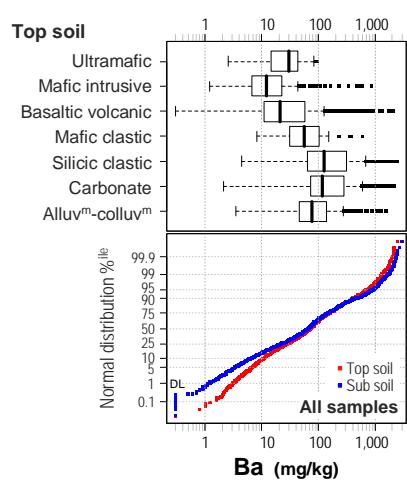
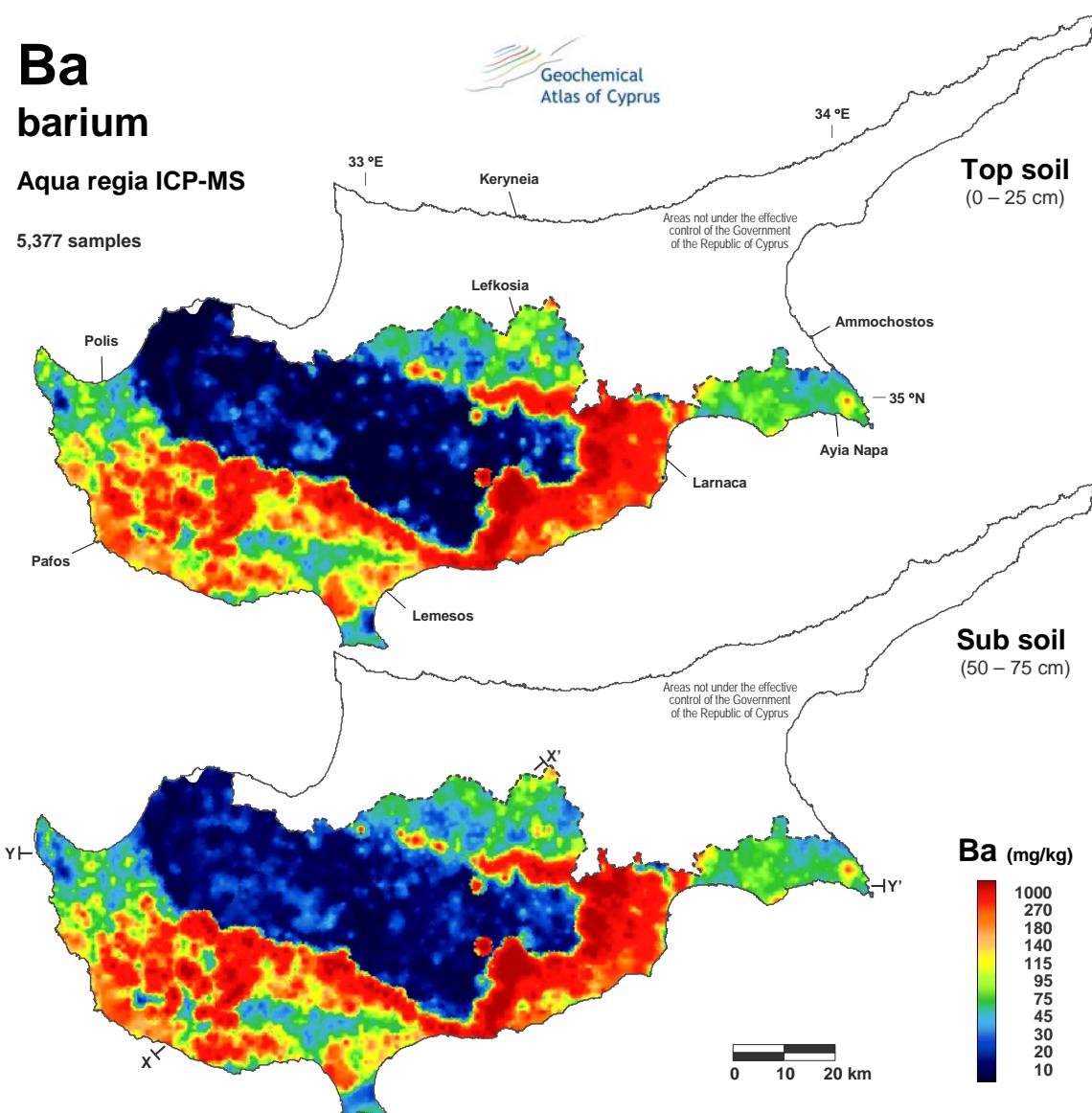
5,377 samples



Ba barium

Aqua regia ICP-MS

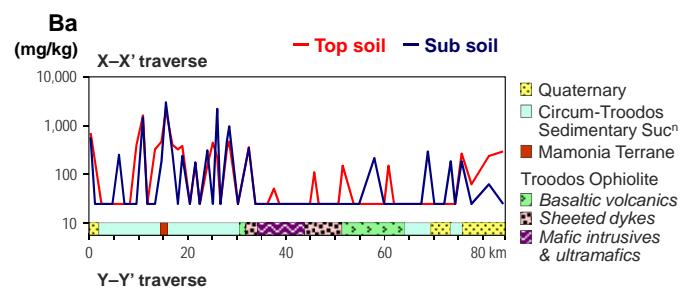
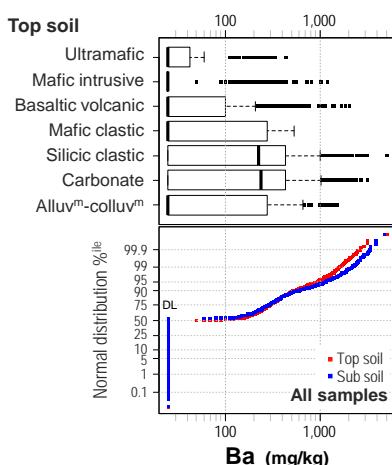
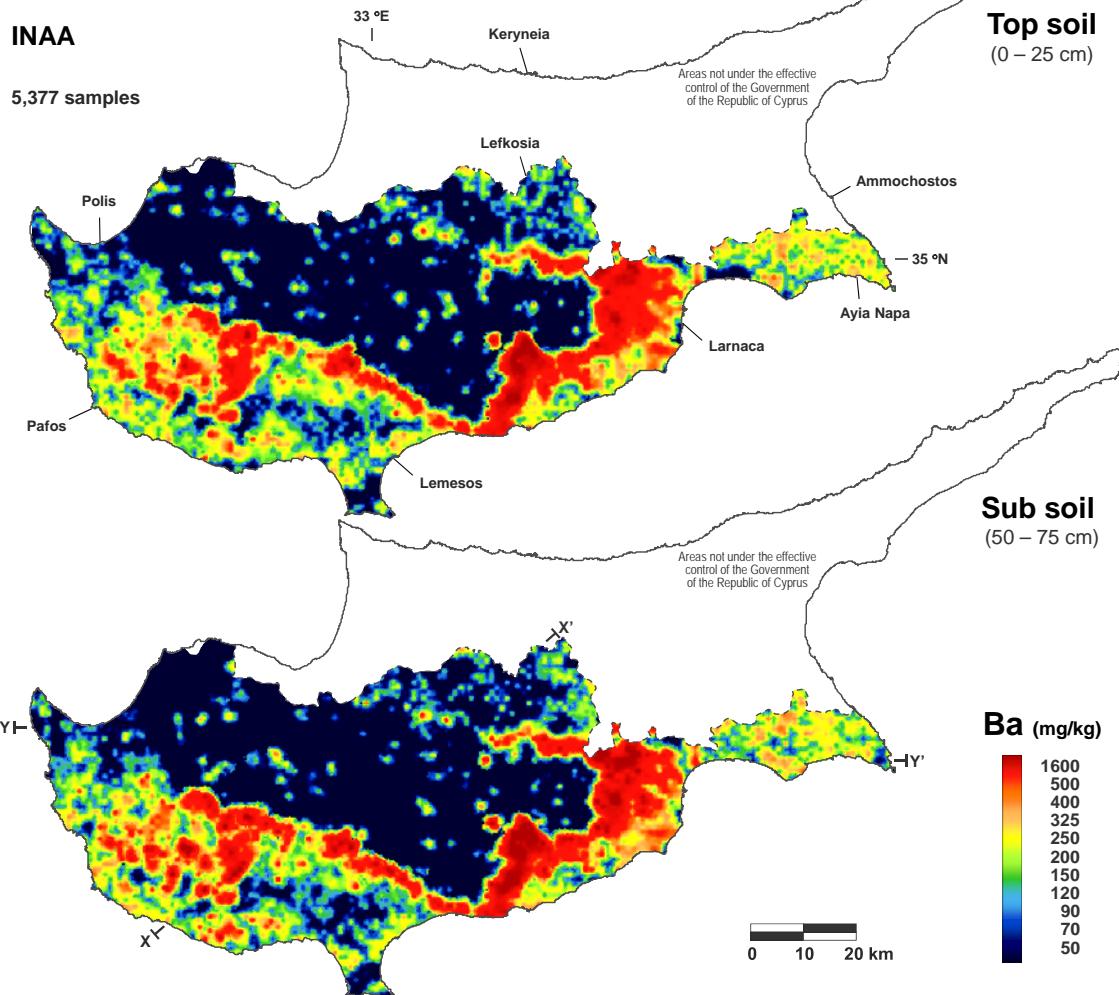
5,377 samples



Ba barium

INAA

5,377 samples

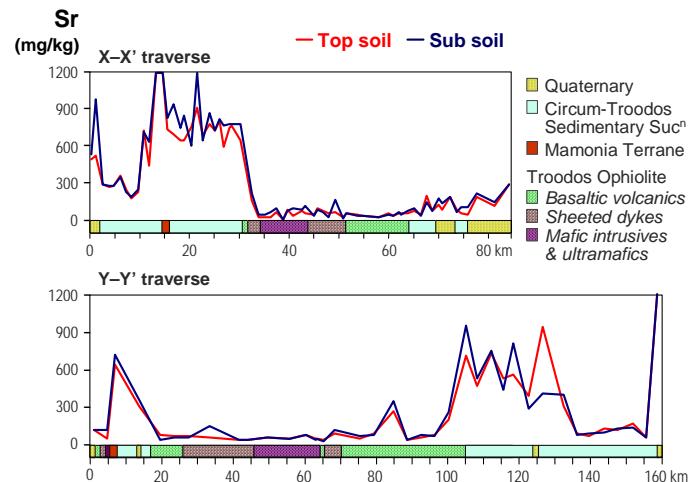
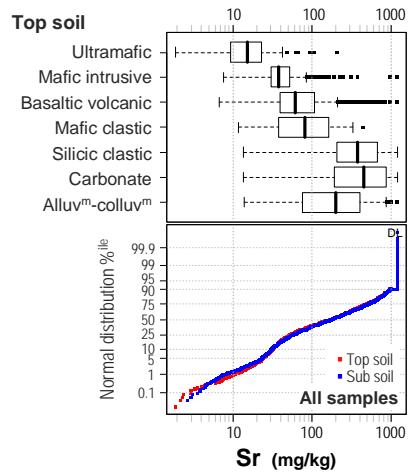
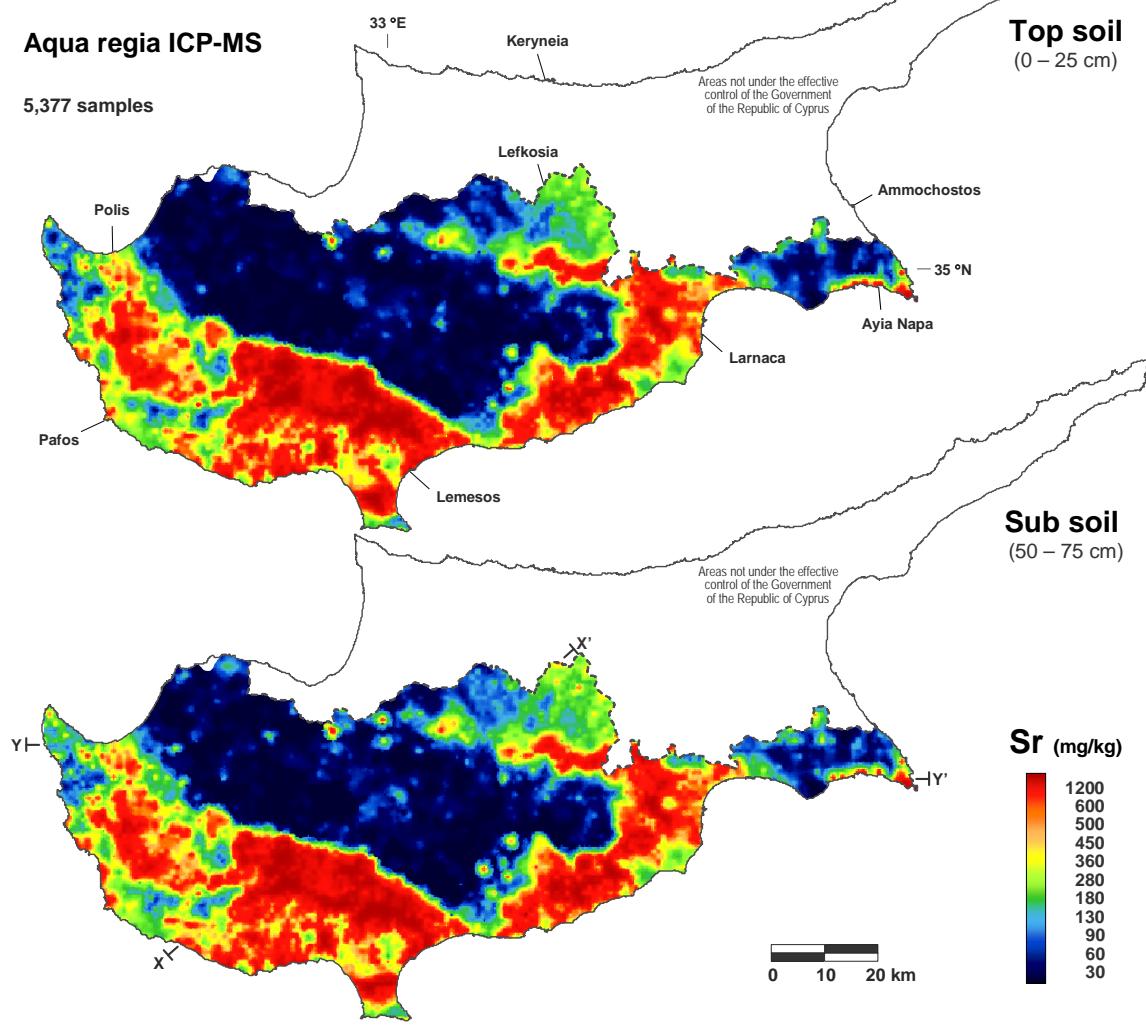


Sr strontium

Aqua regia ICP-MS

5,377 samples

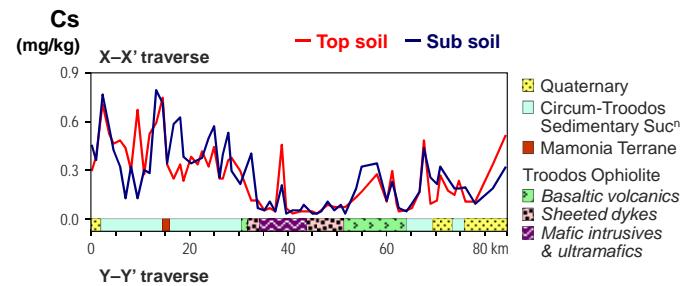
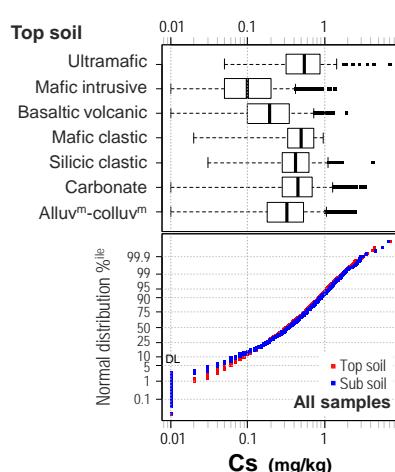
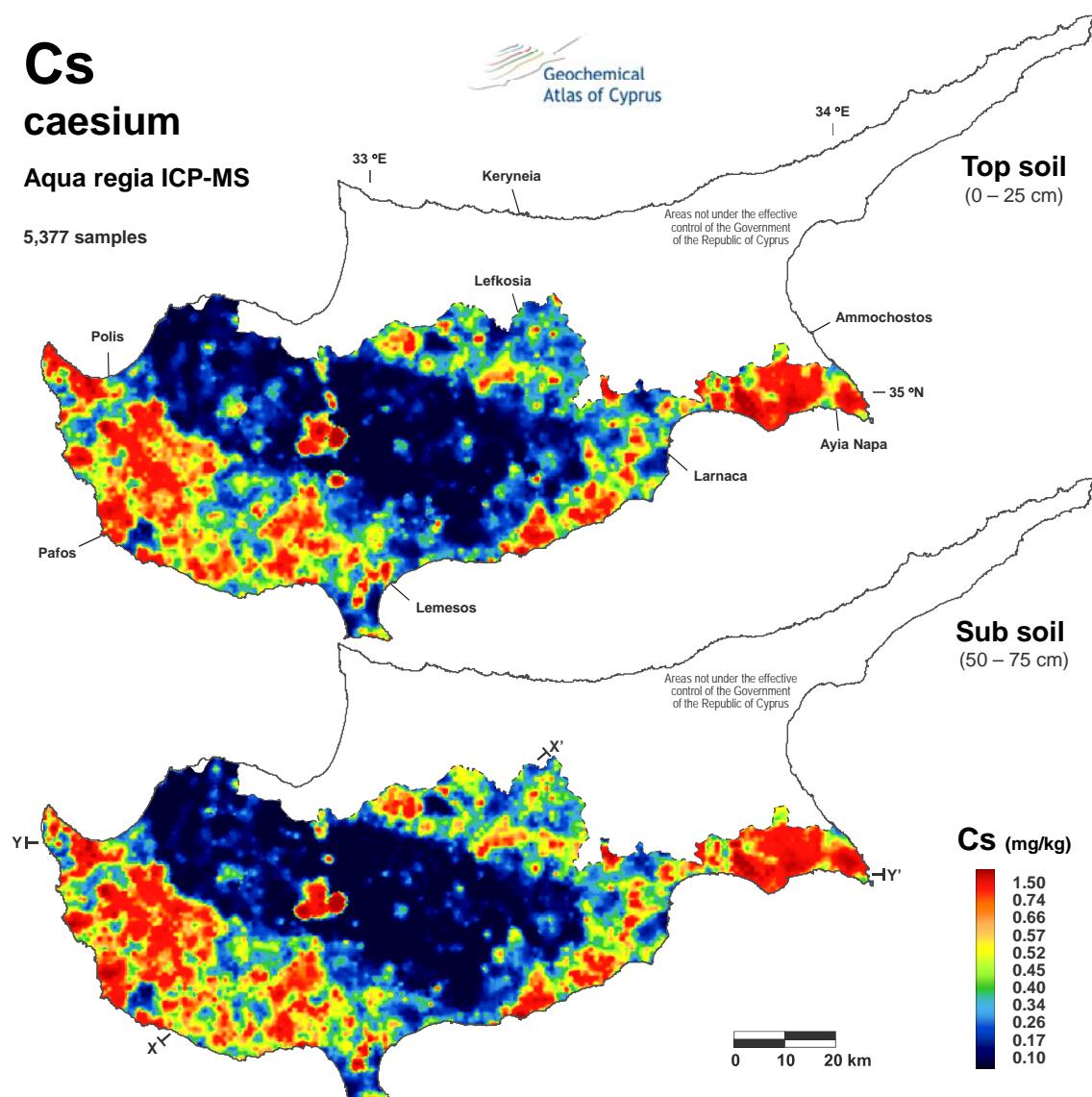
Geochemical
Atlas of Cyprus



Cs caesium

Aqua regia ICP-MS

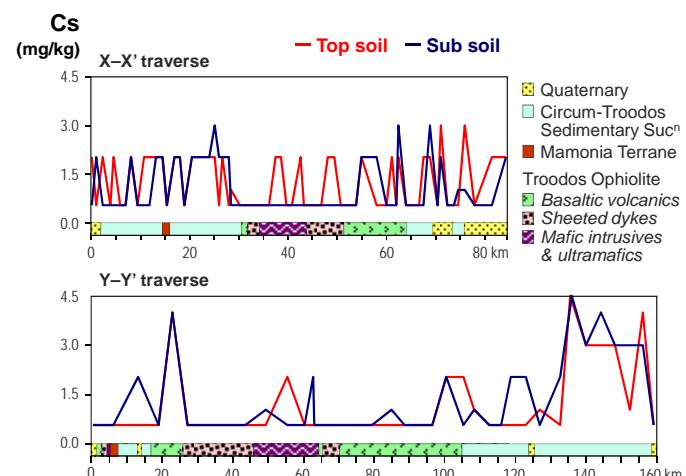
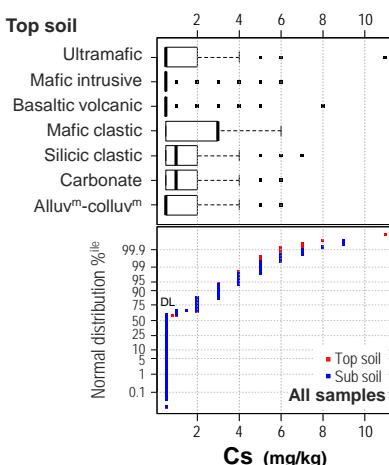
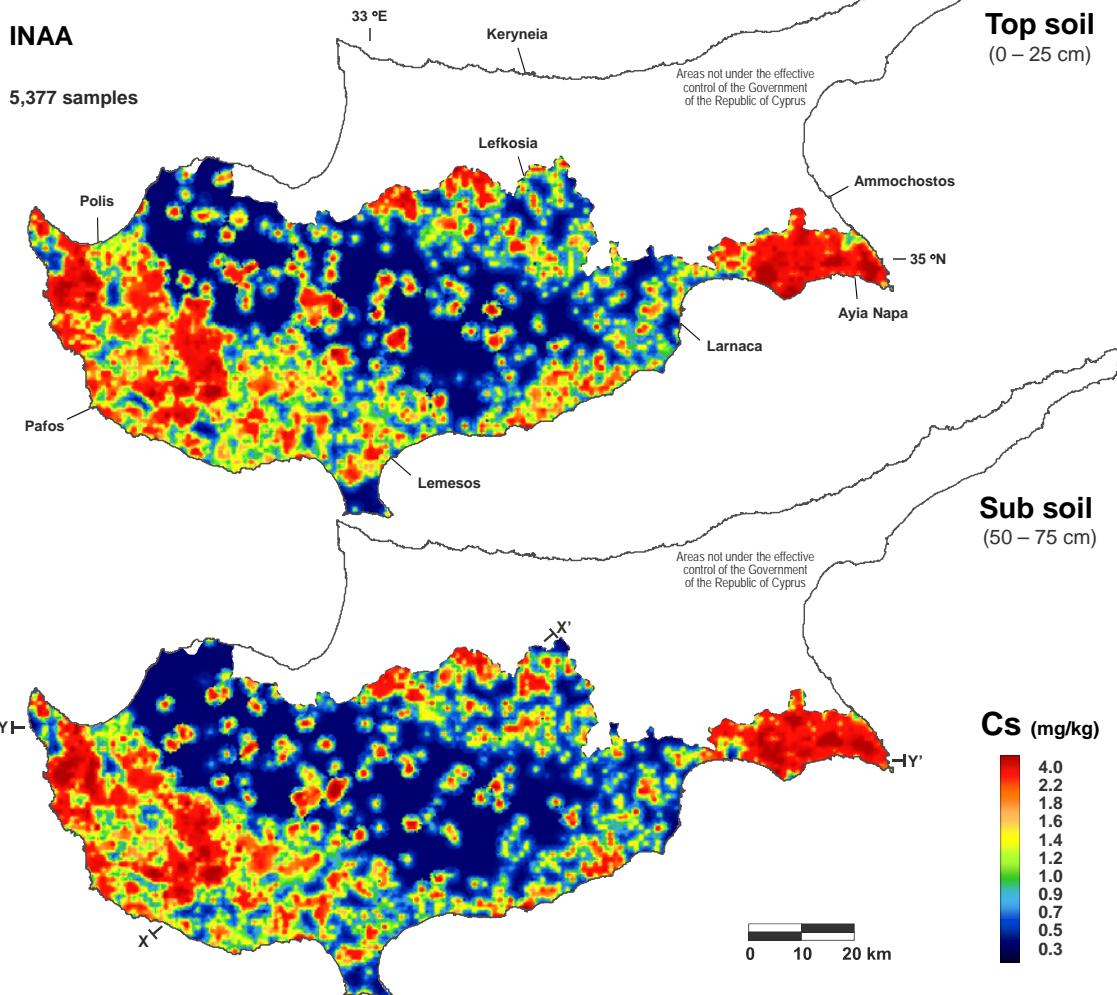
5,377 samples



Cs caesium

INAA

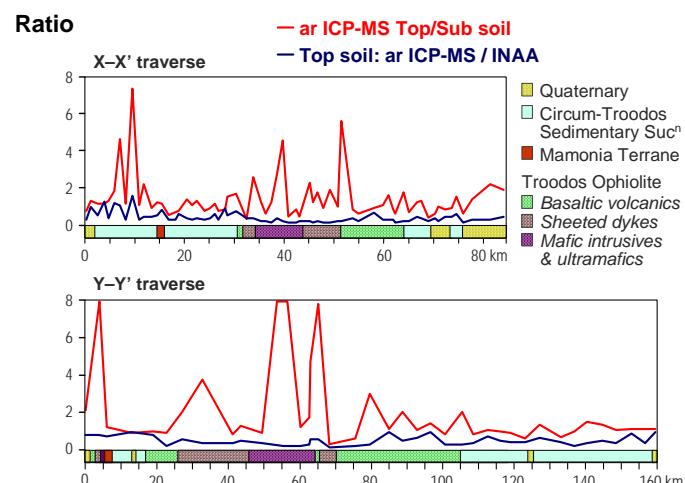
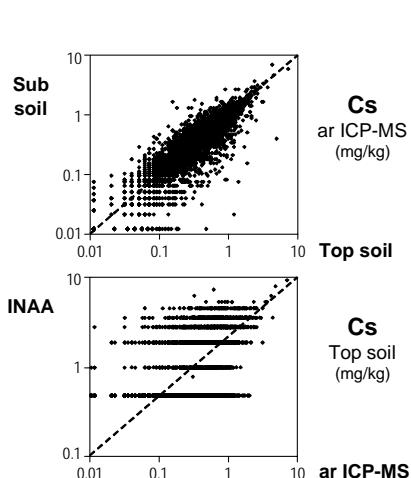
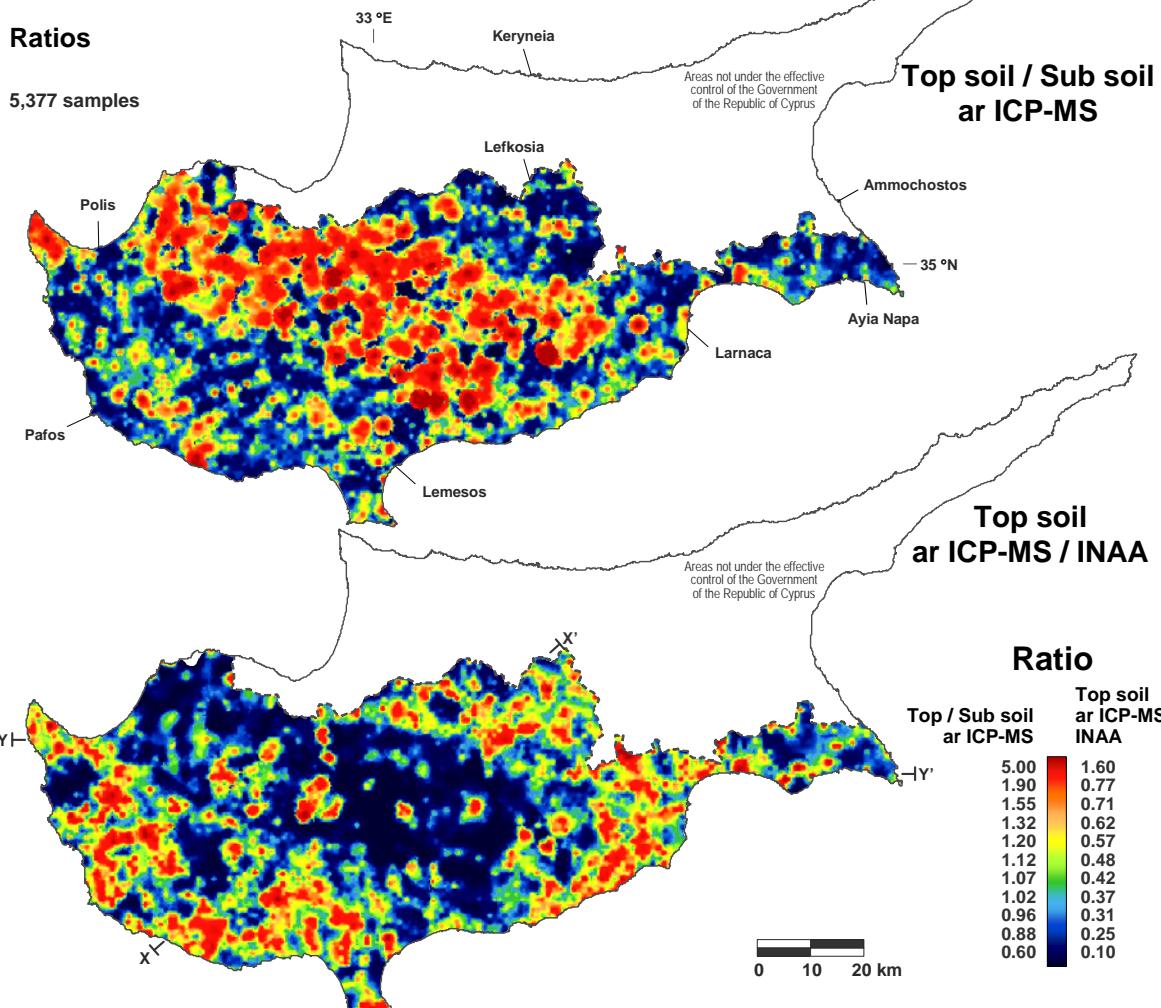
5,377 samples



Cs caesium

Ratios

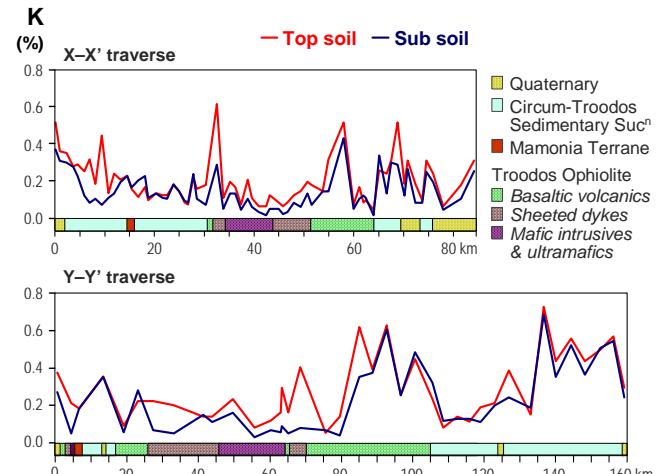
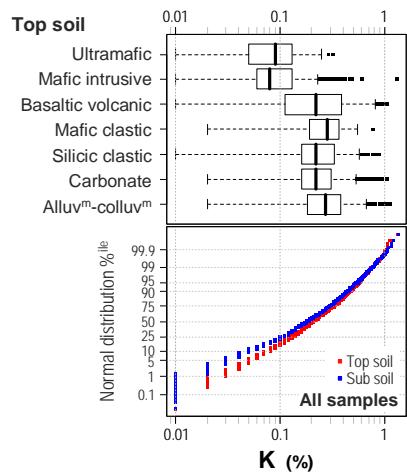
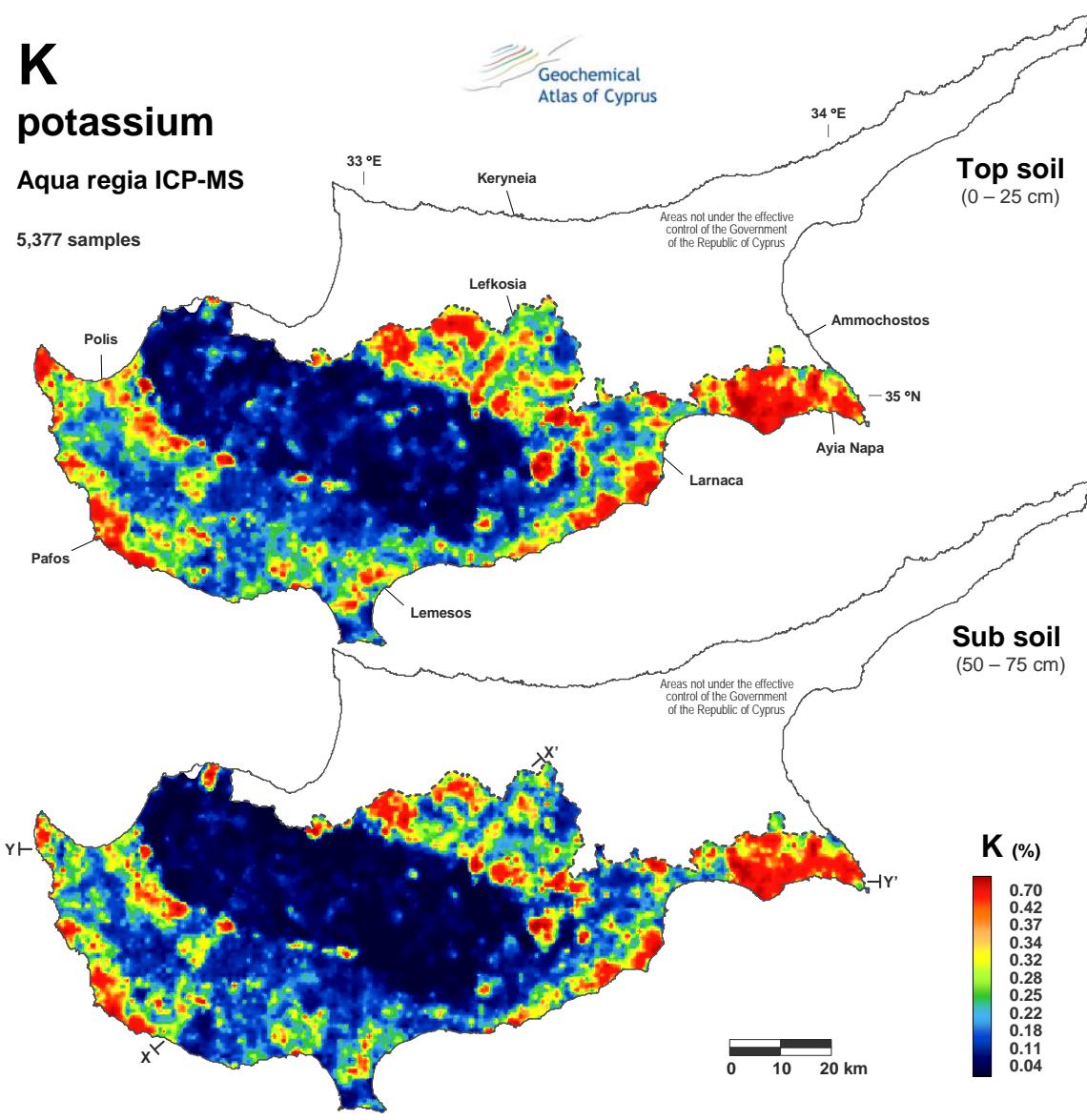
5,377 samples



K potassium

Aqua regia ICP-MS

5,377 samples

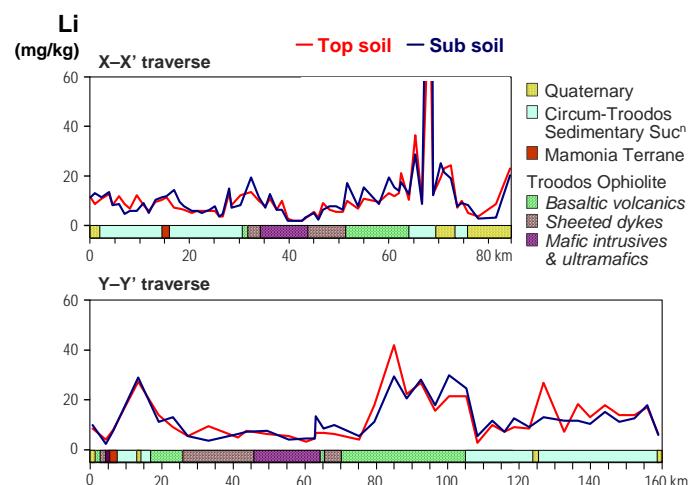
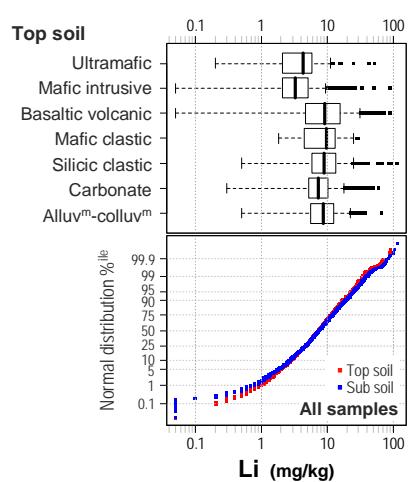
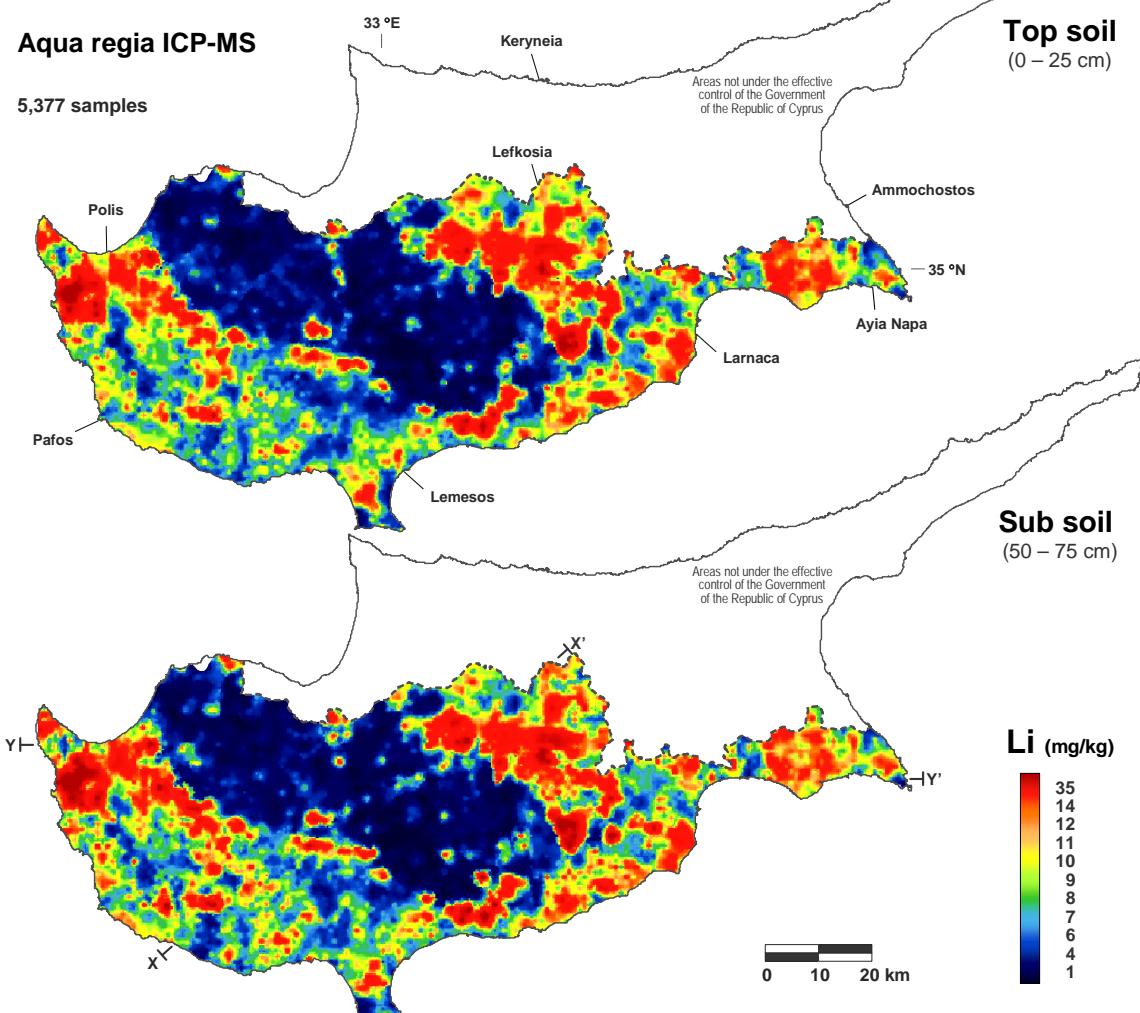


Li lithium

Aqua regia ICP-MS

5,377 samples

Geochemical
Atlas of Cyprus



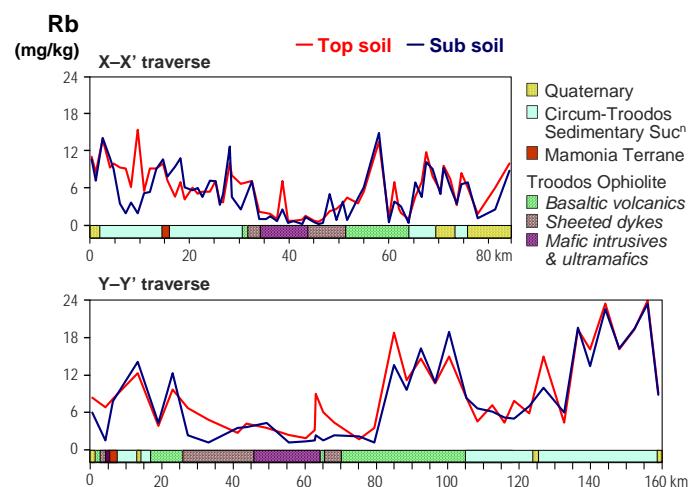
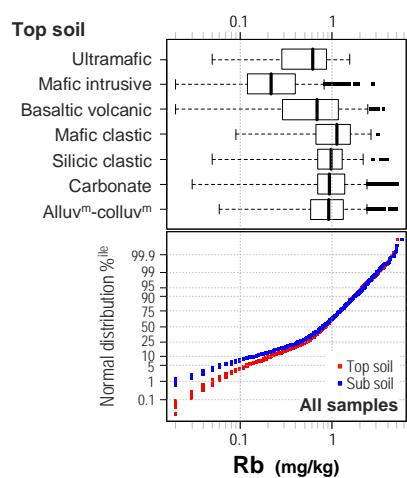
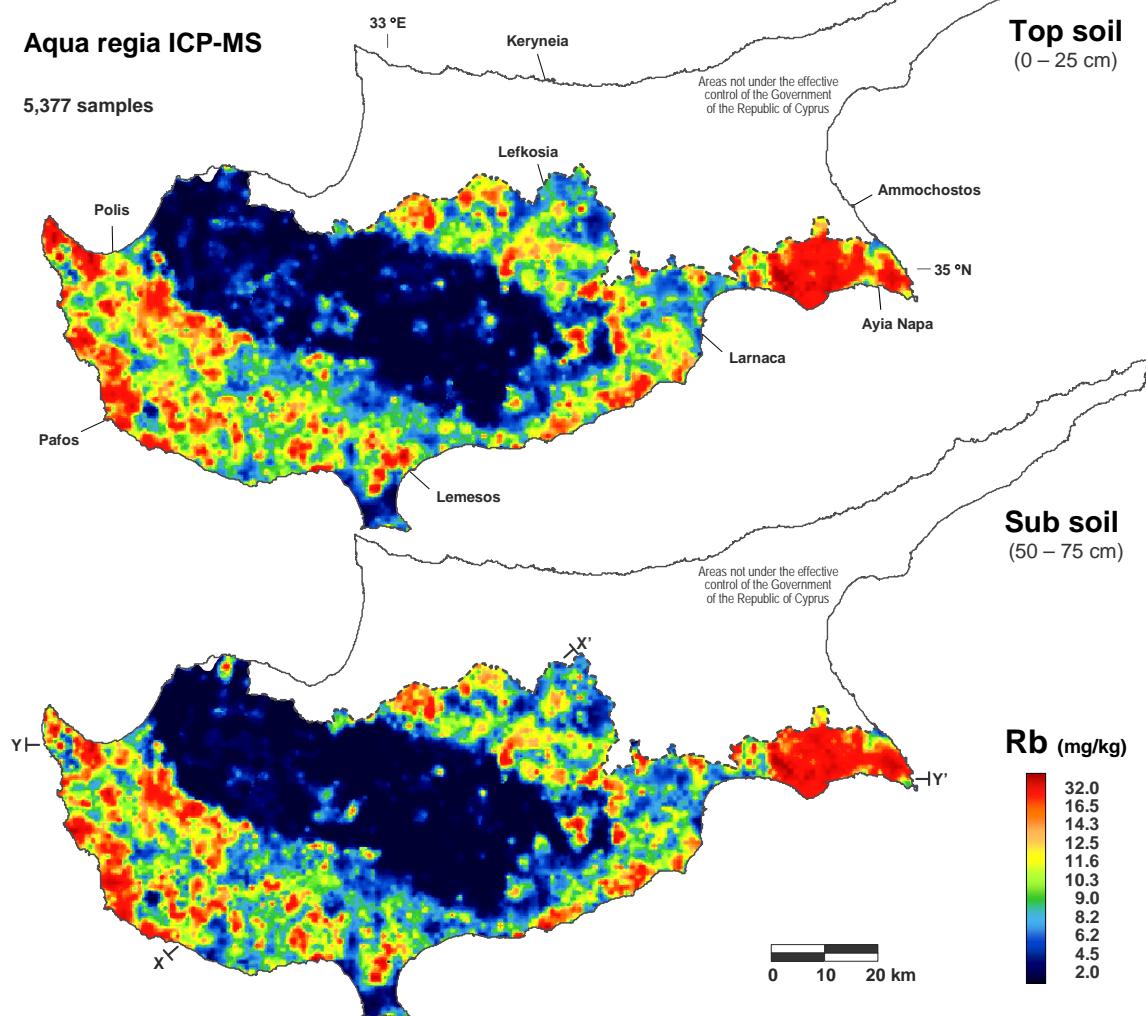
Rb

rubidium

Aqua regia ICP-MS

5,377 samples

Geochemical
Atlas of Cyprus

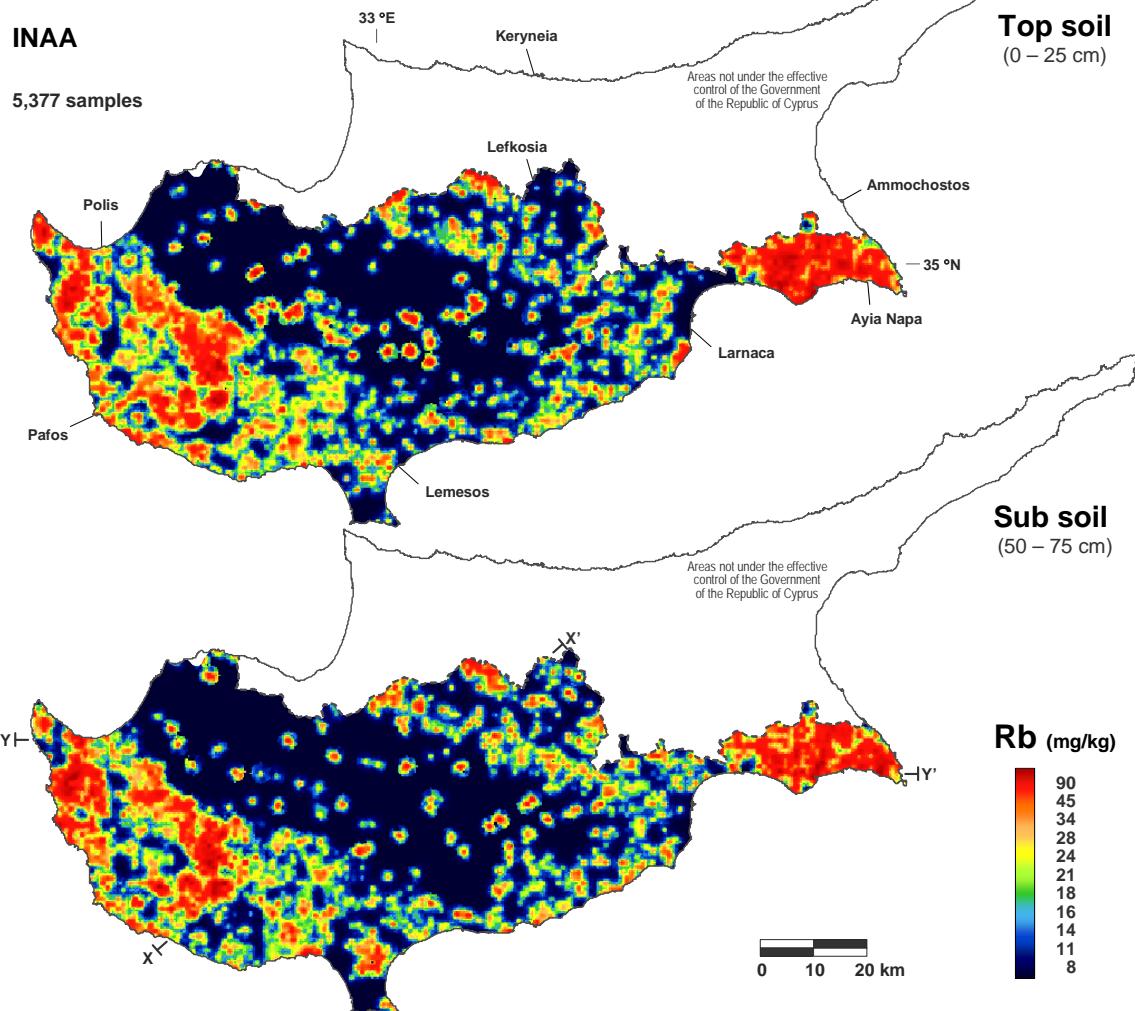


Rb

rubidium

INAA

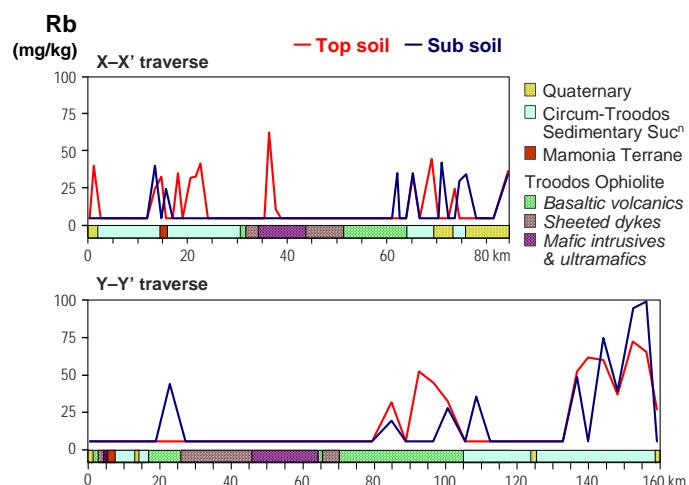
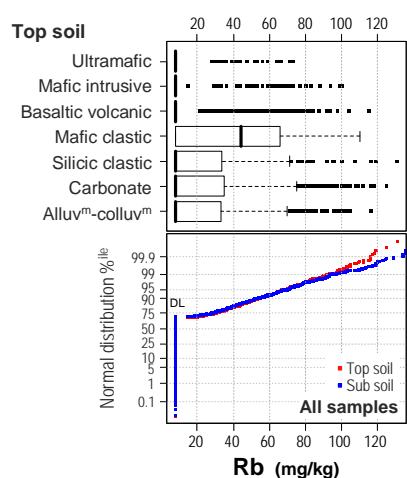
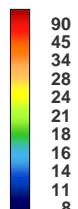
5,377 samples



Top soil
(0 – 25 cm)

Sub soil
(50 – 75 cm)

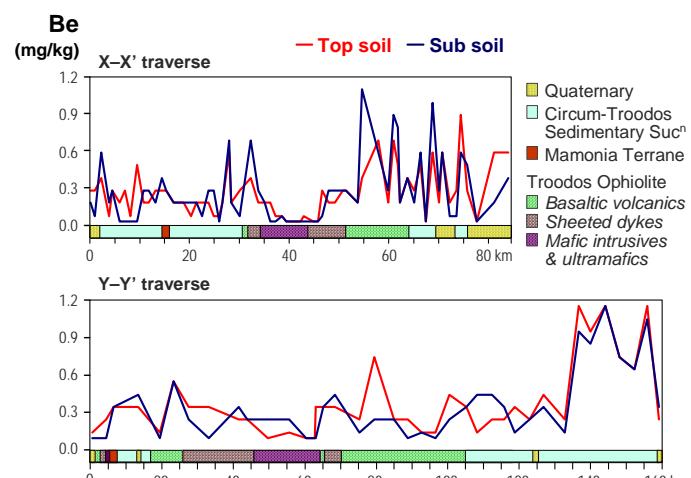
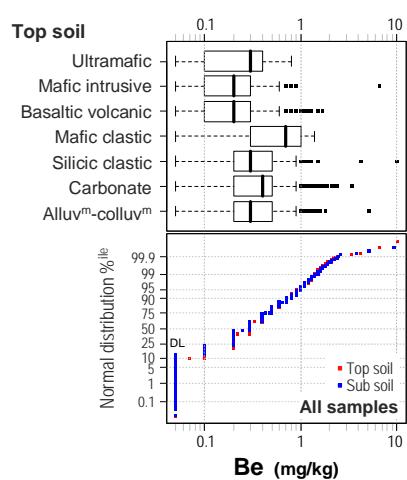
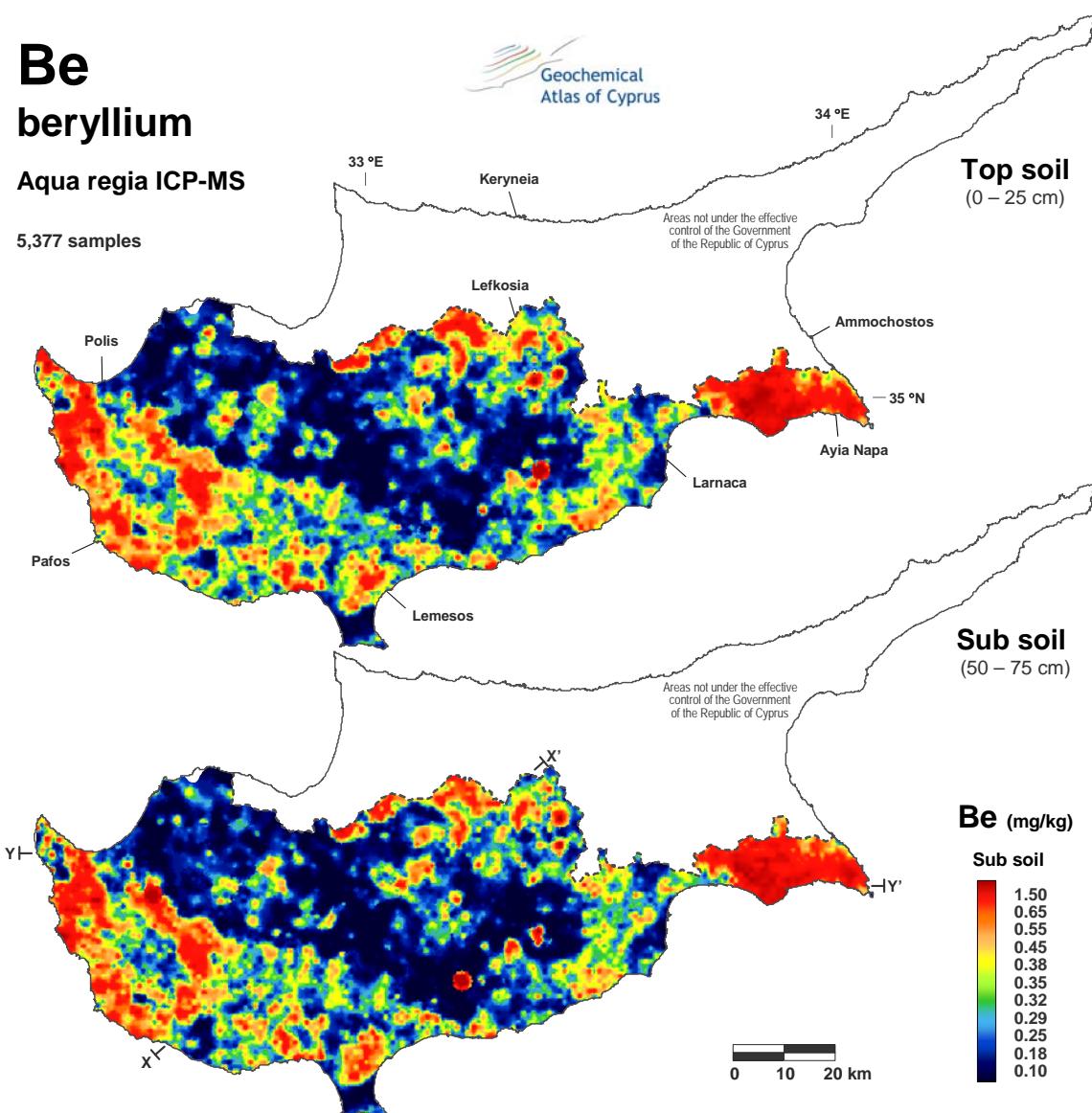
Rb (mg/kg)



Be beryllium

Aqua regia ICP-MS

5,377 samples

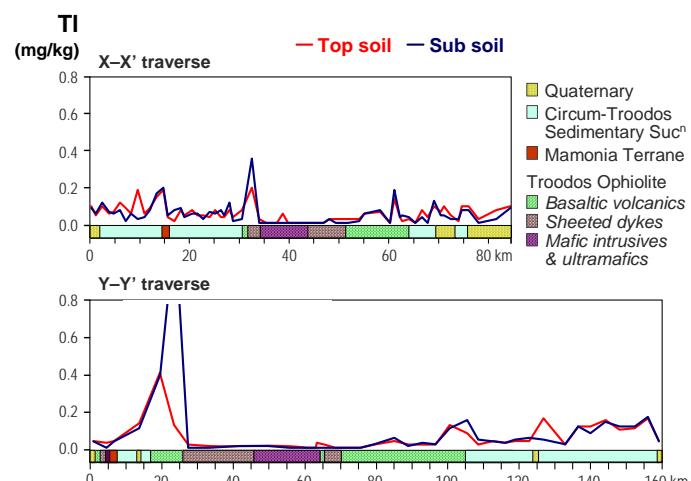
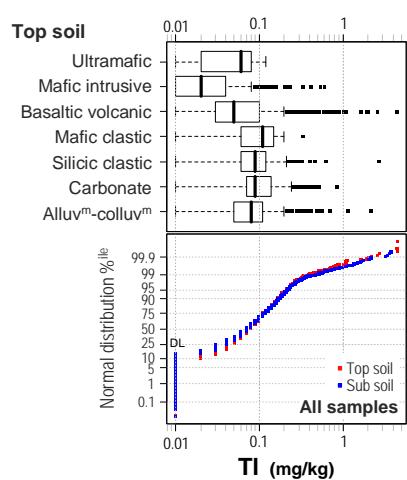
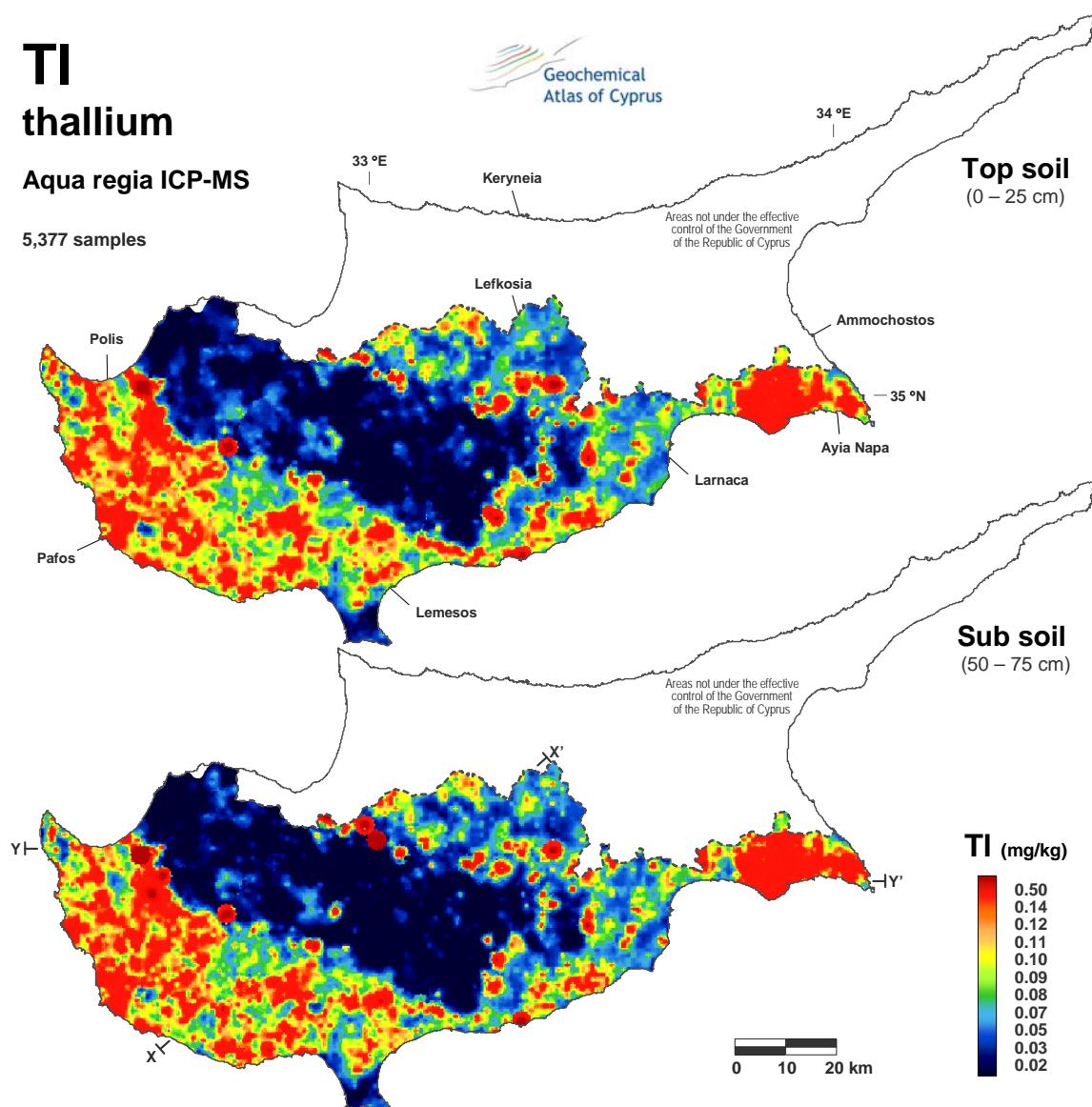


TI thallium

Aqua regia ICP-MS

5,377 samples

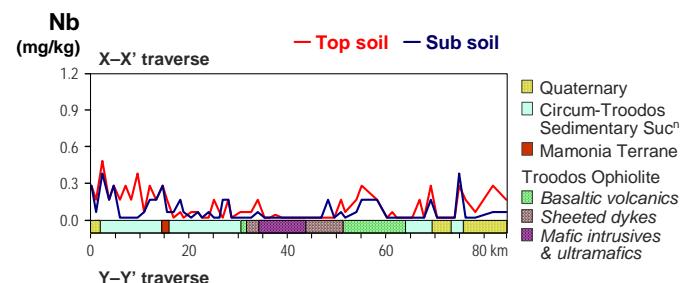
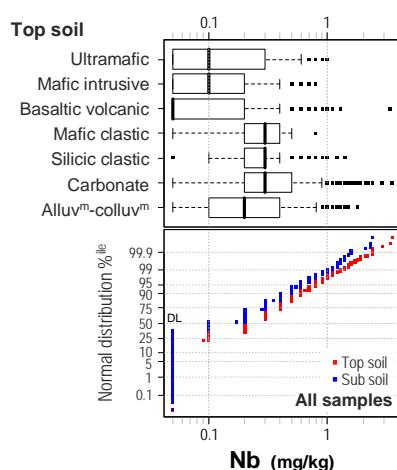
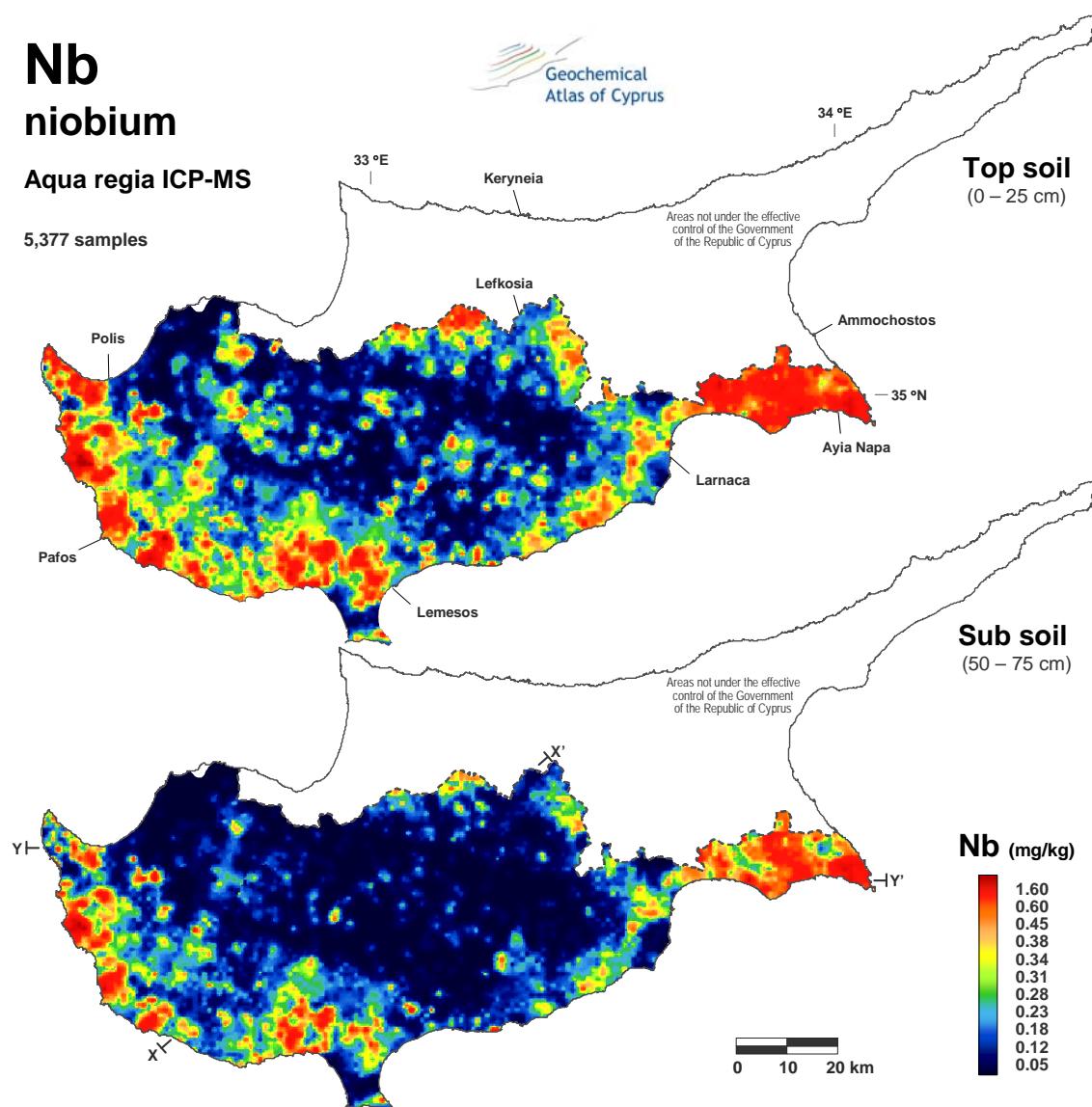
Geochemical
Atlas of Cyprus



Nb niobium

Aqua regia ICP-MS

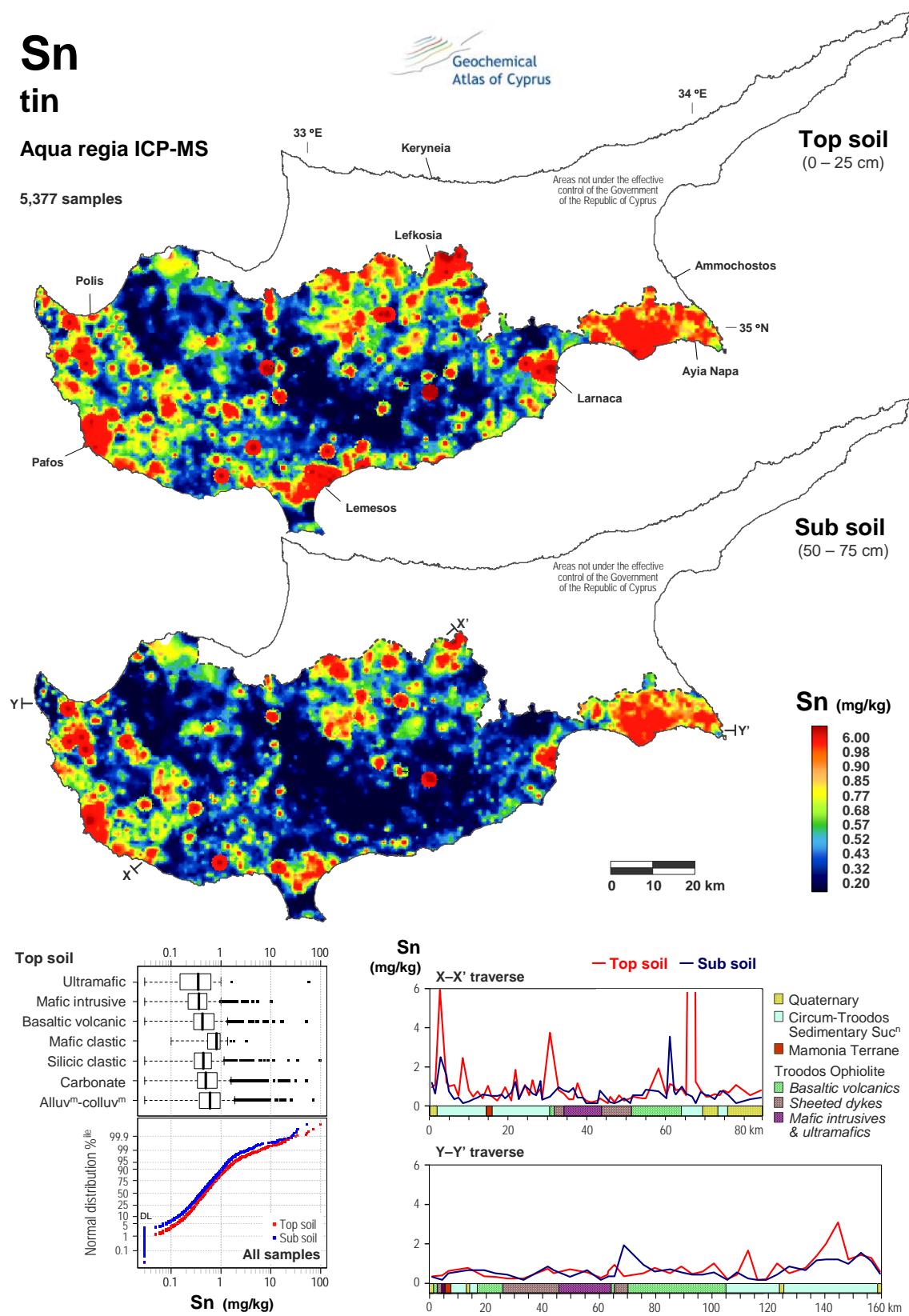
5,377 samples



Sn tin

Aqua regia ICP-MS

5,377 samples

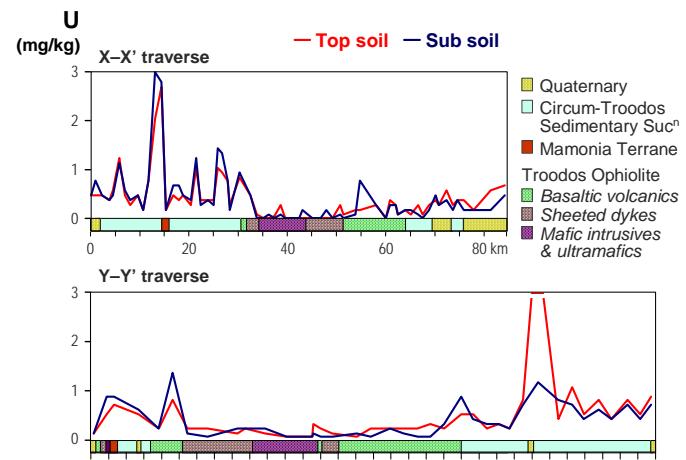
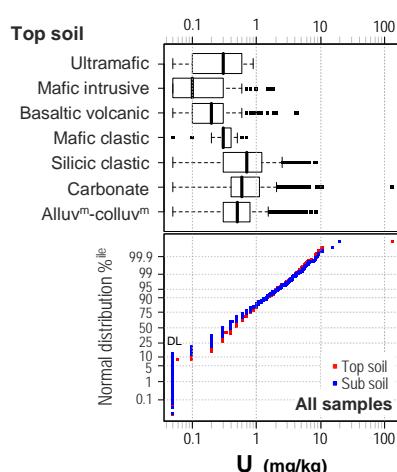
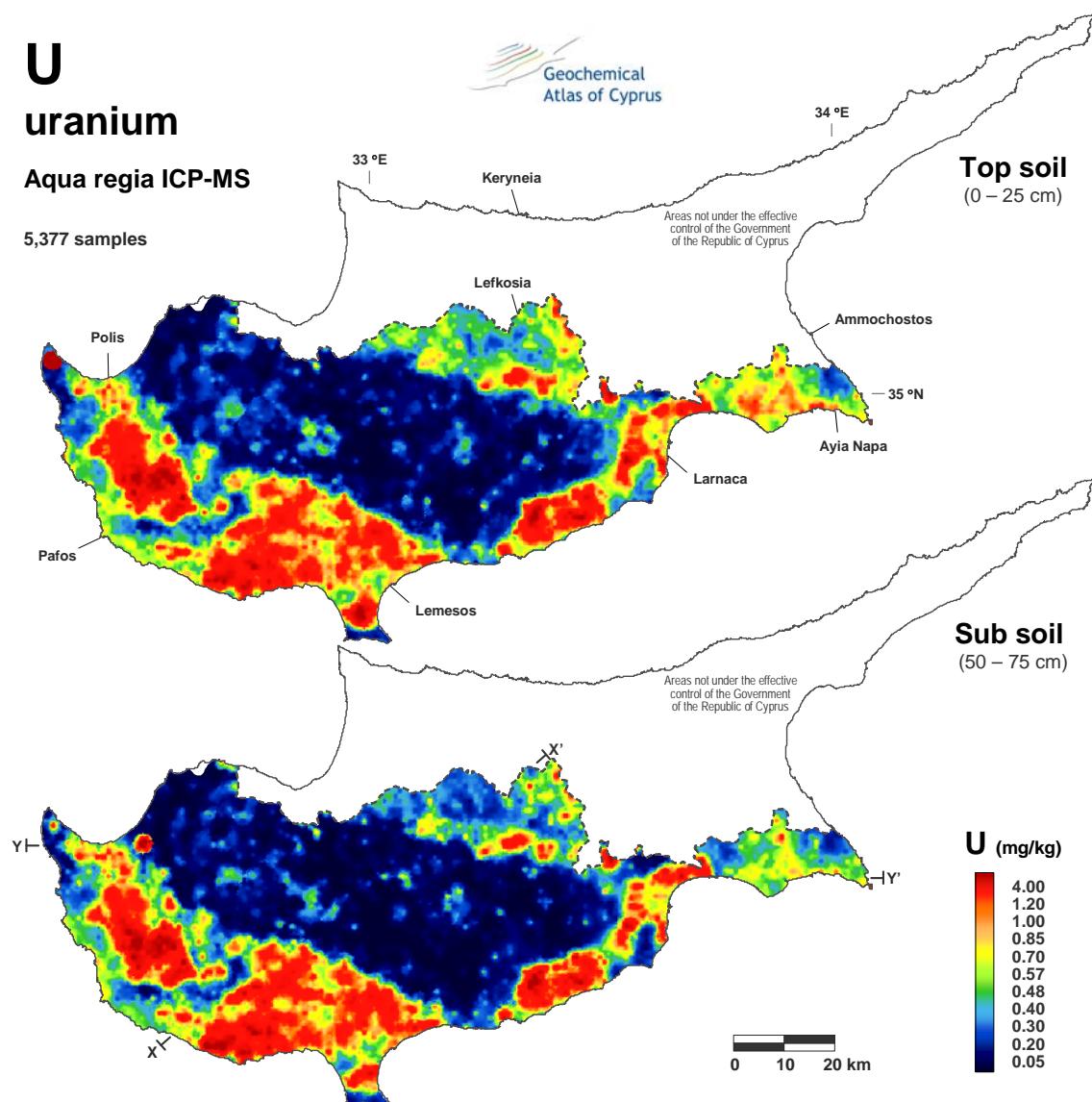


U uranium

Aqua regia ICP-MS

5,377 samples

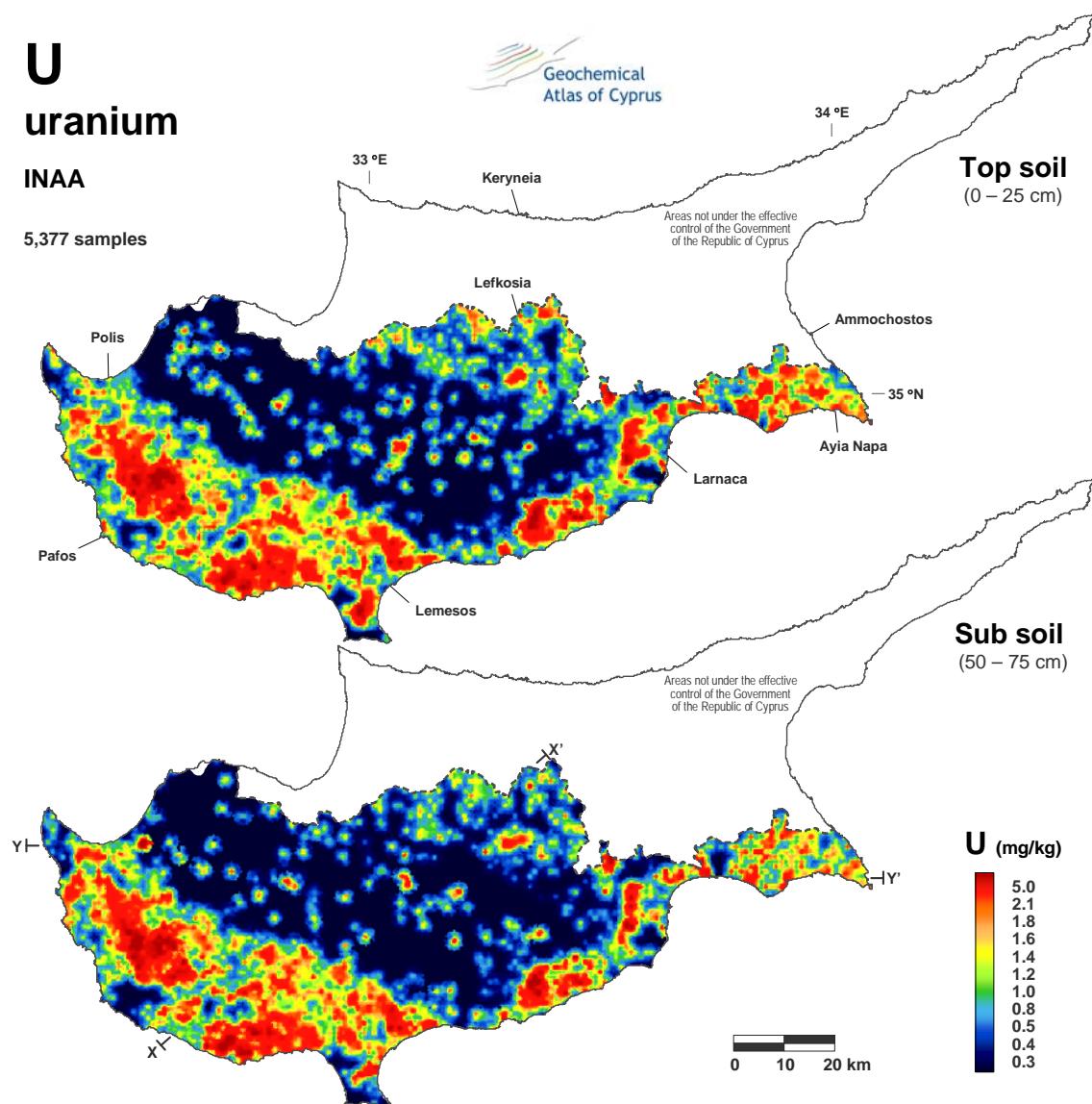
Geochemical
Atlas of Cyprus



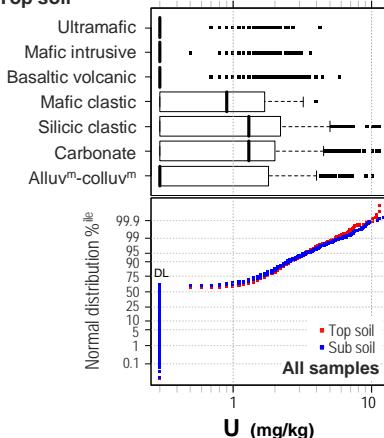
U uranium

INAA

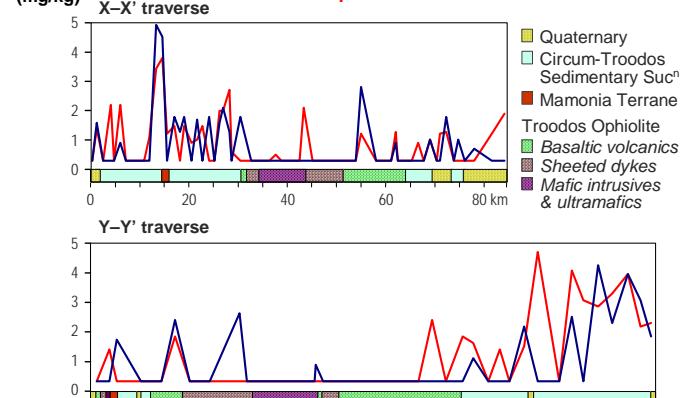
5,377 samples



Top soil



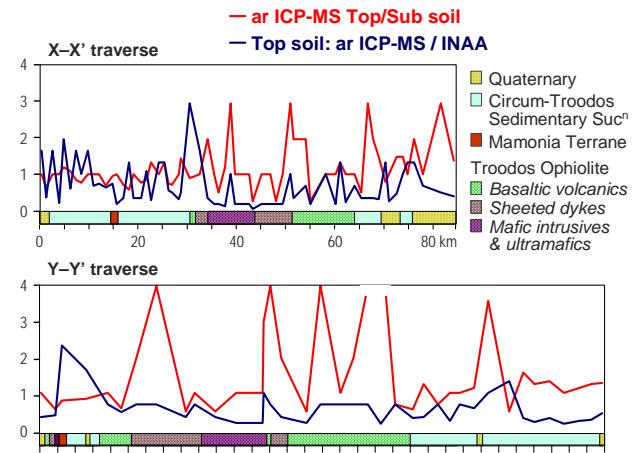
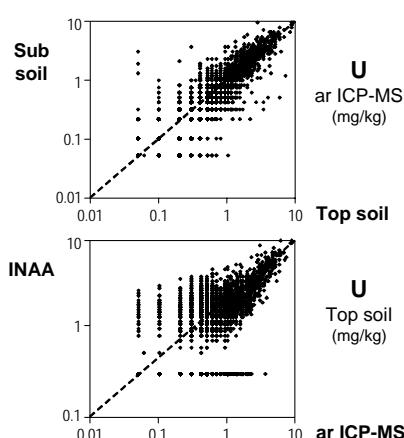
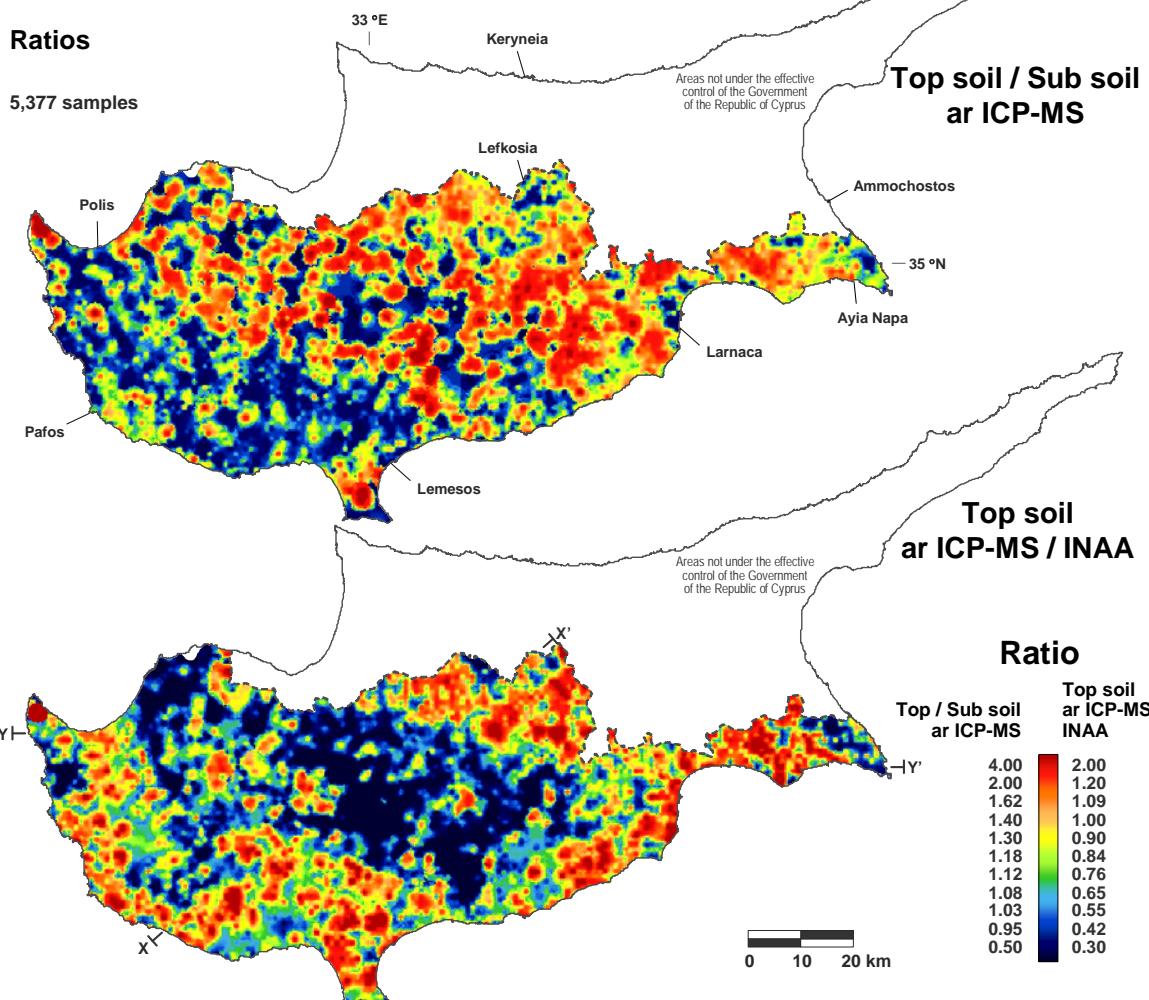
U (mg/kg) — Top soil — Sub soil



U uranium

Ratios

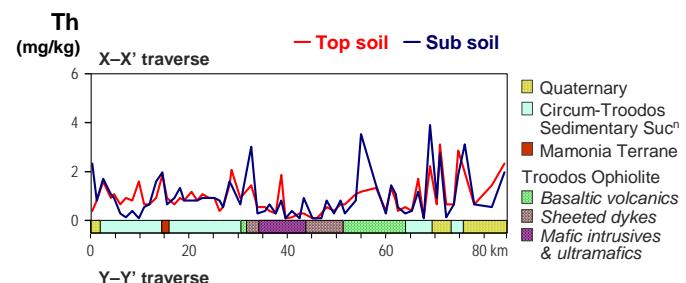
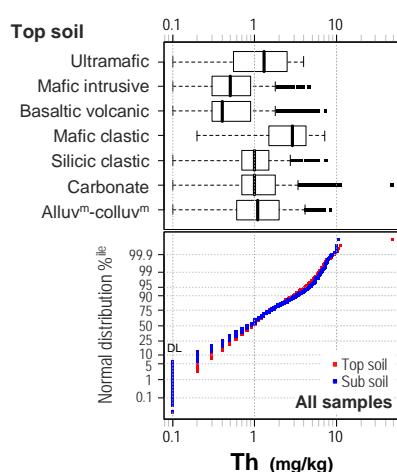
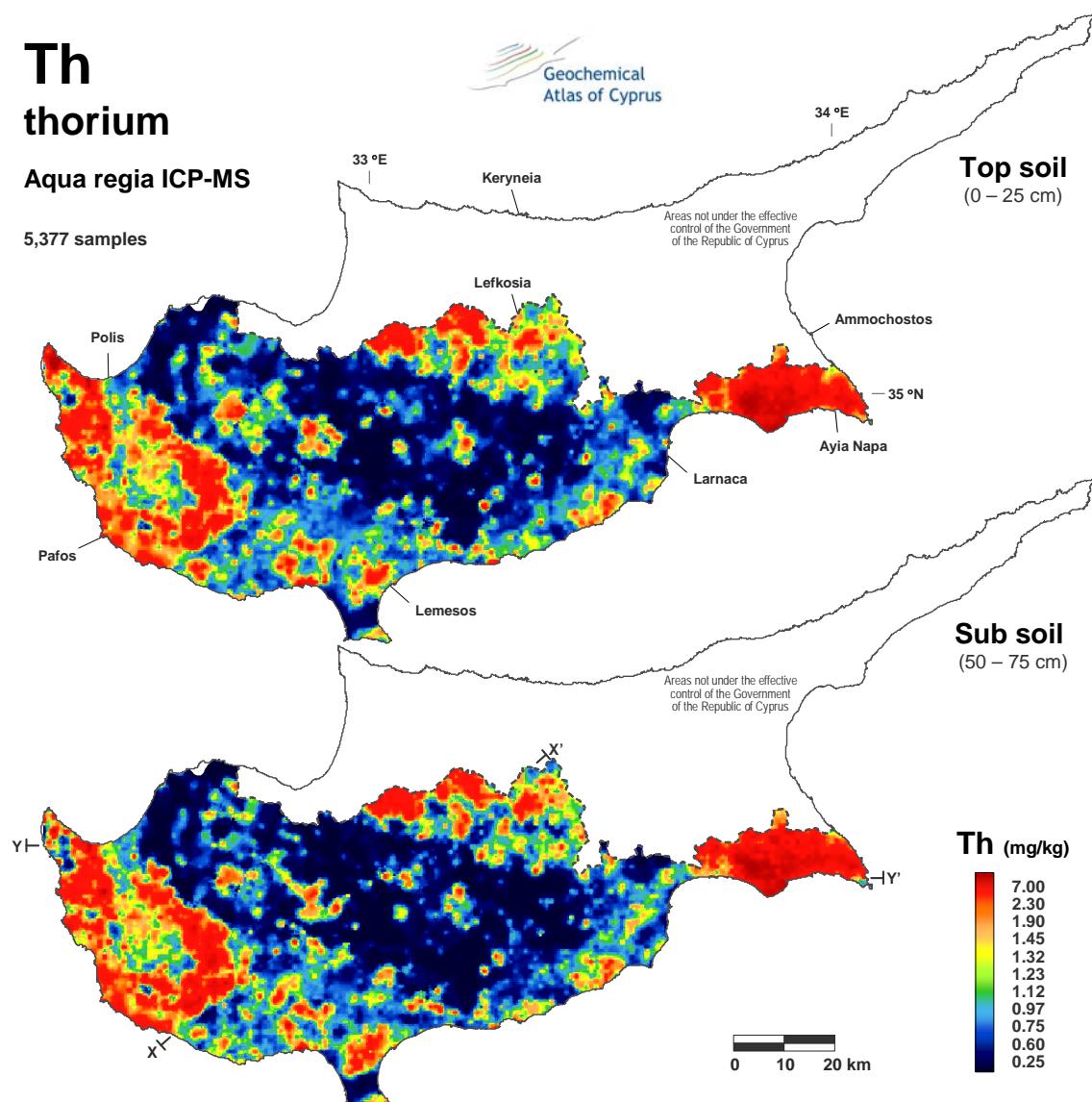
5,377 samples



Th thorium

Aqua regia ICP-MS

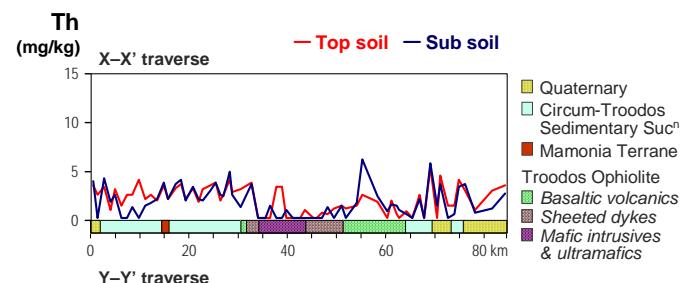
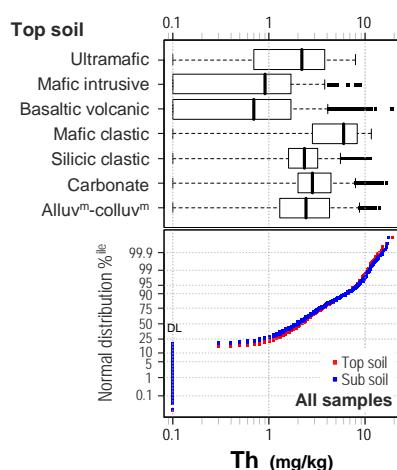
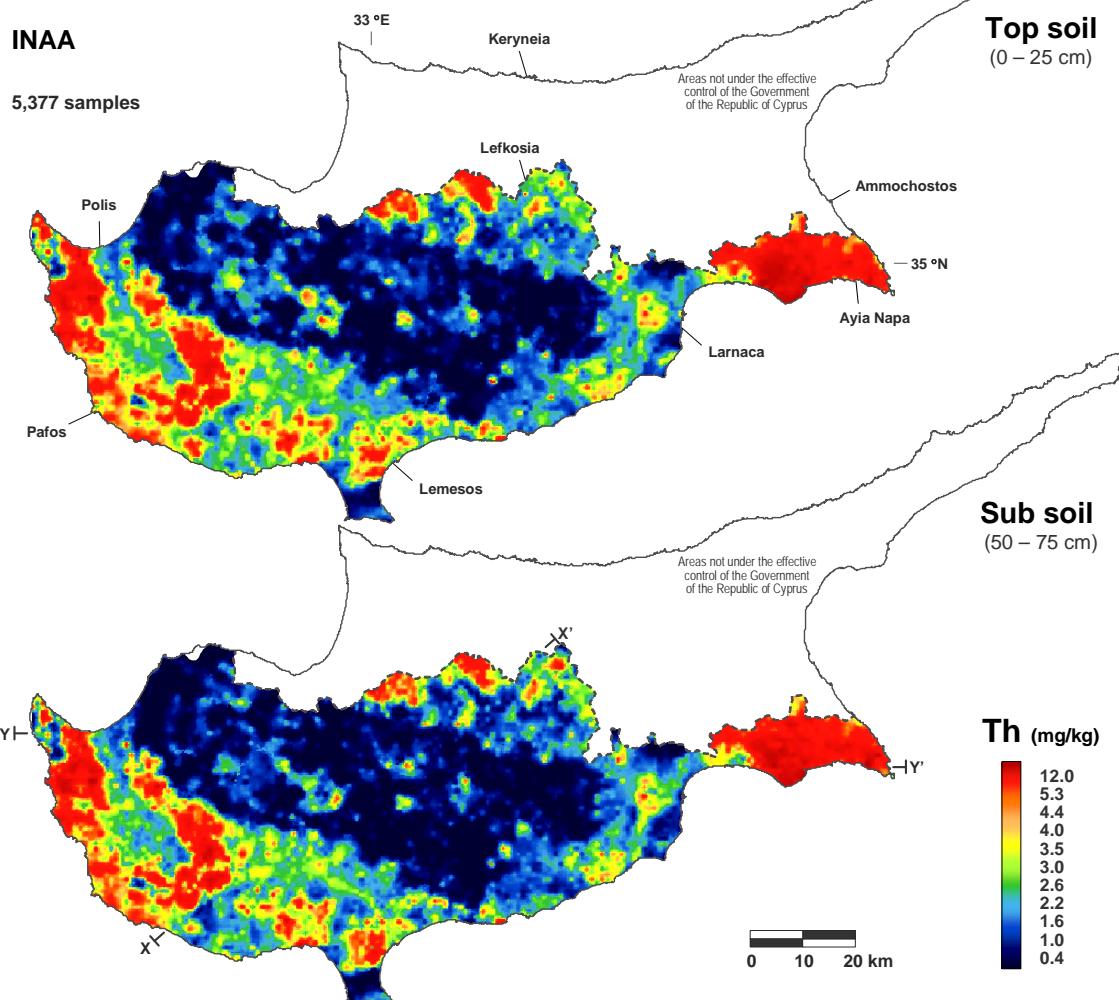
5,377 samples



Th thorium

INAA

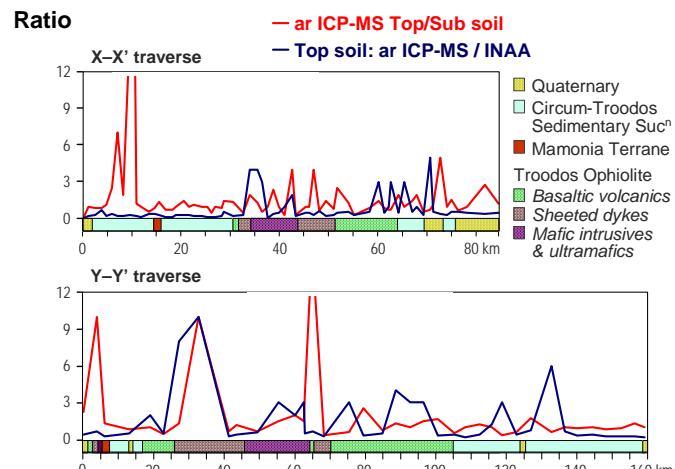
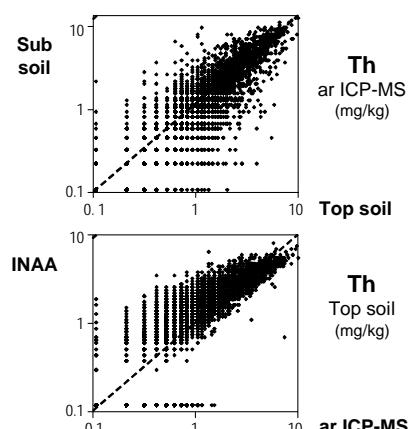
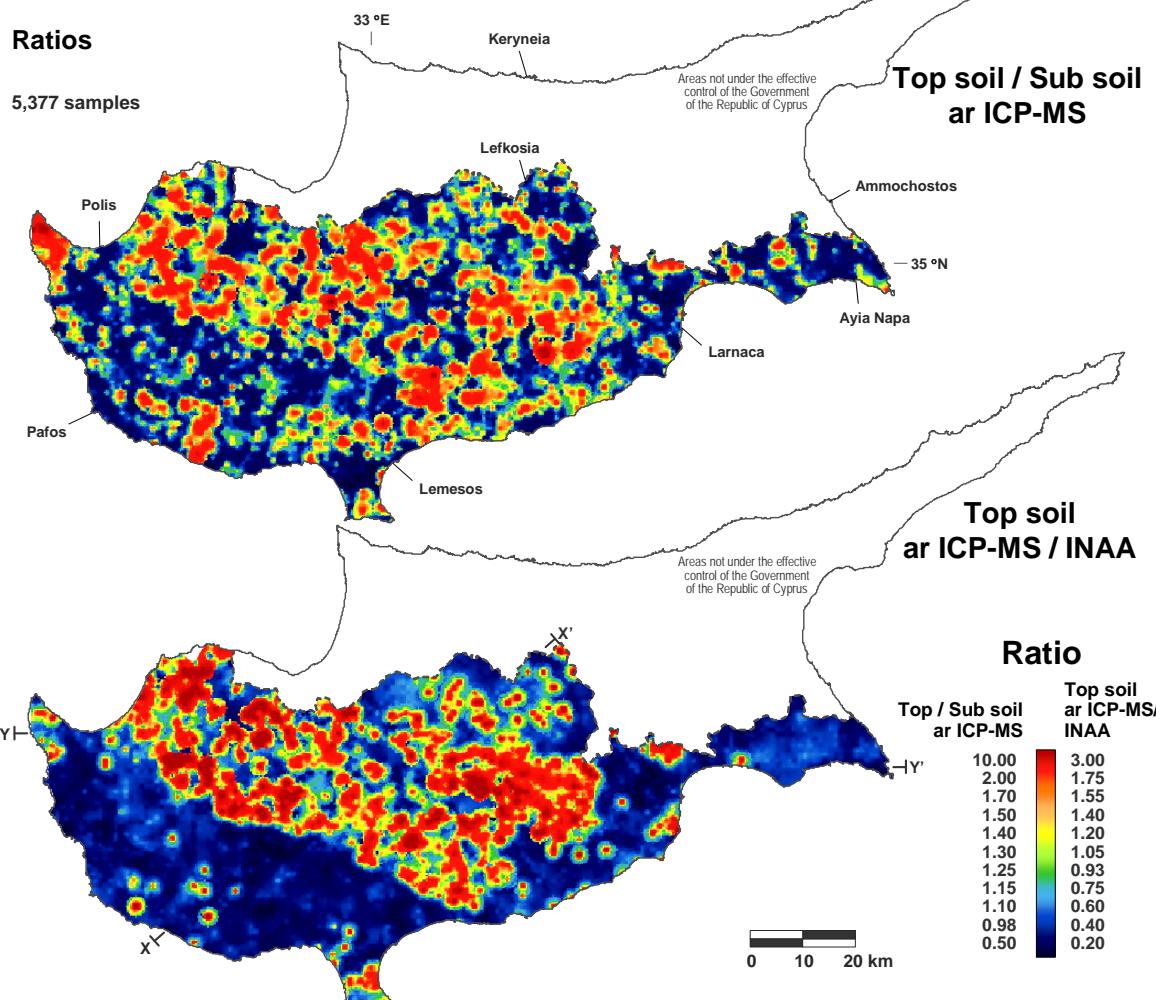
5,377 samples



Th Thorium

Ratios

5,377 samples

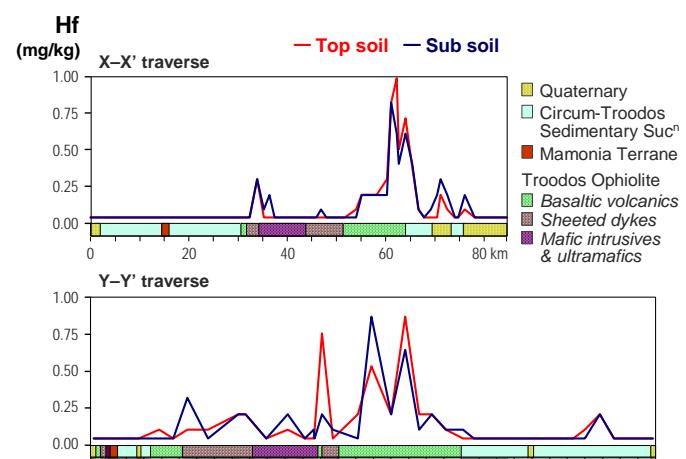
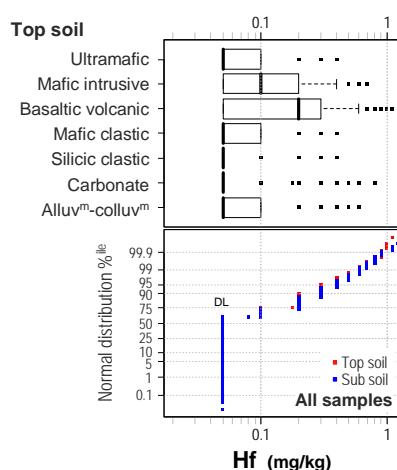
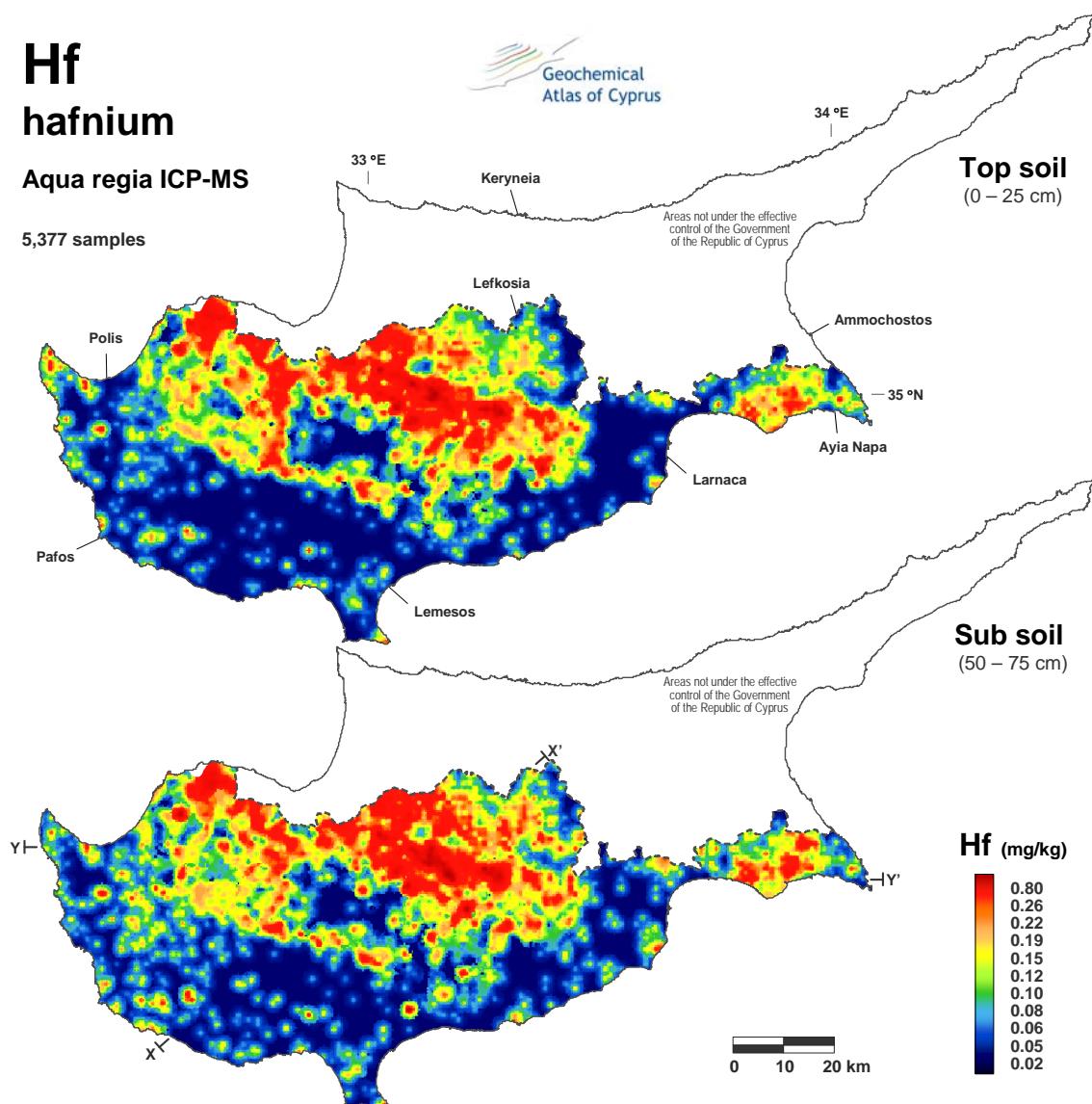


Hf hafnium

Aqua regia ICP-MS

5,377 samples

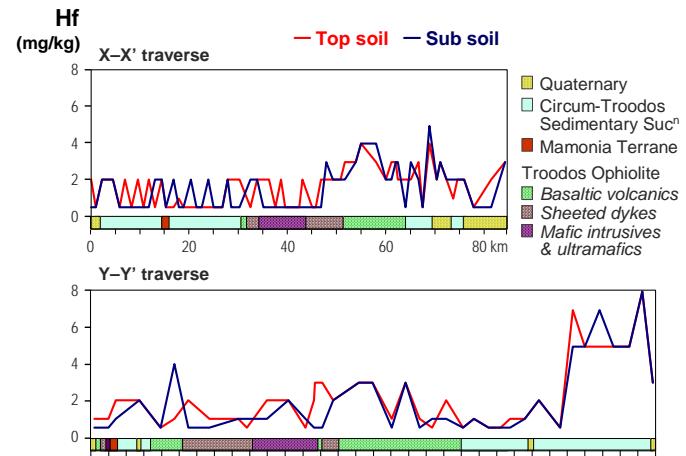
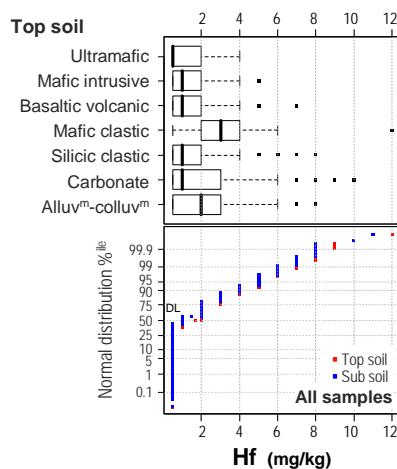
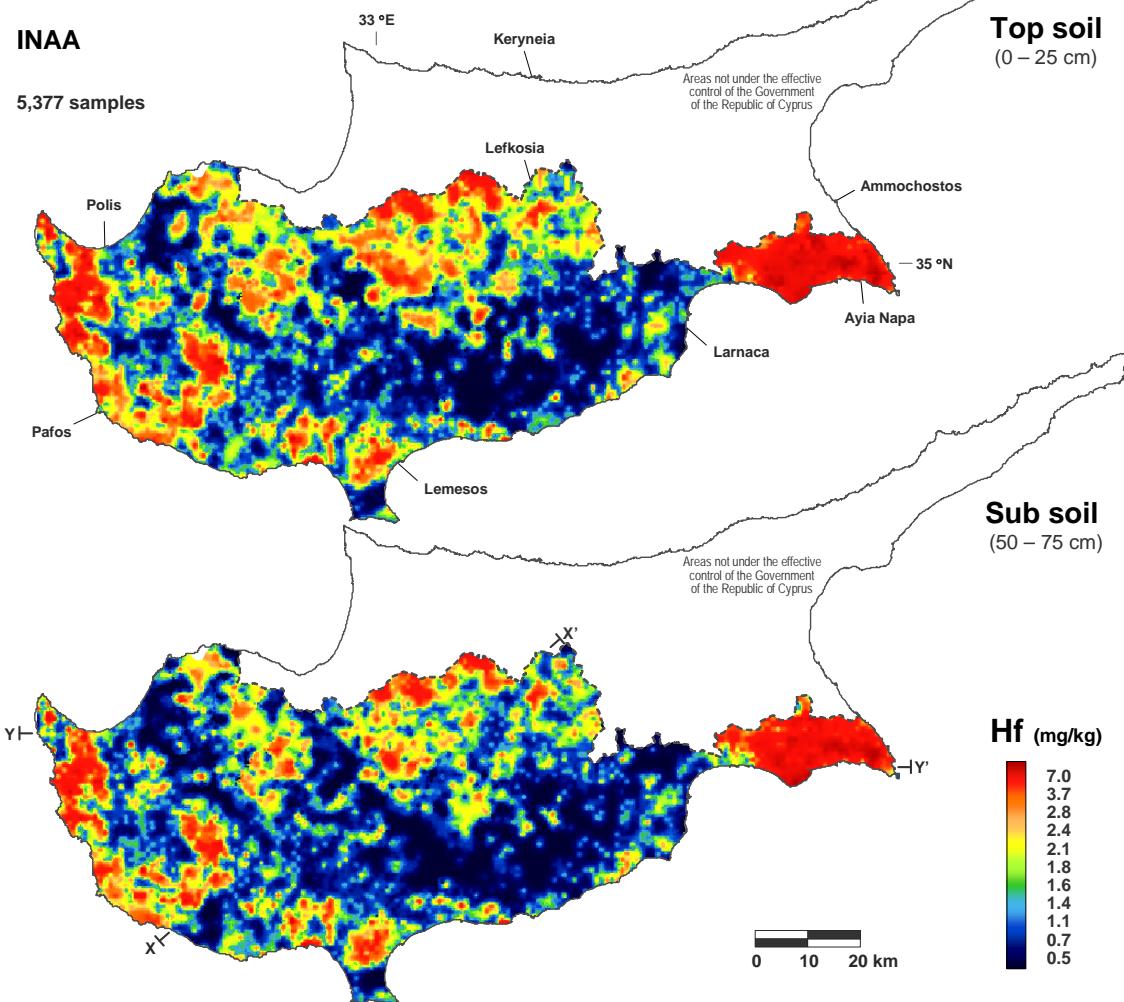
Geochemical
Atlas of Cyprus



Hf hafnium

INAA

5,377 samples

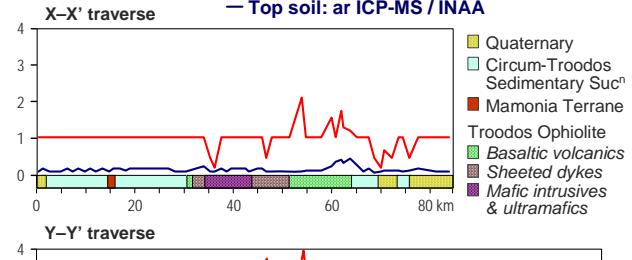
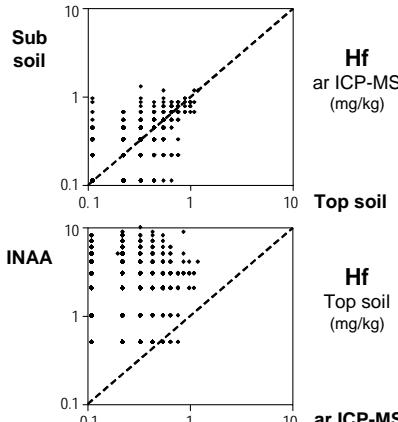
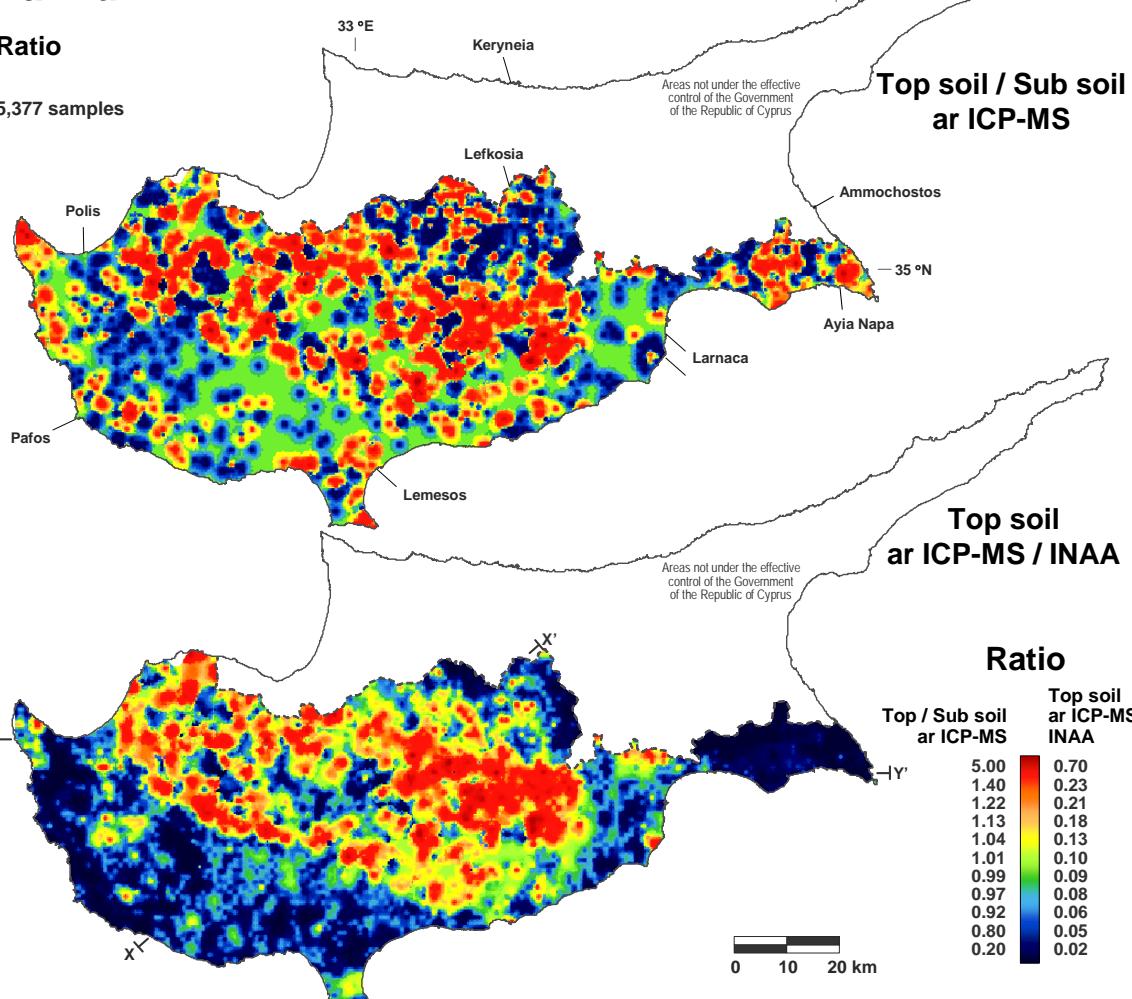


Hf hafnium

Geochemical
Atlas of Cyprus

Ratio

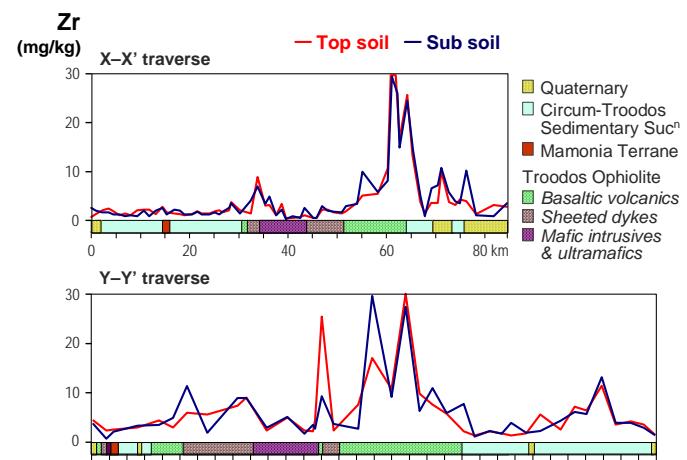
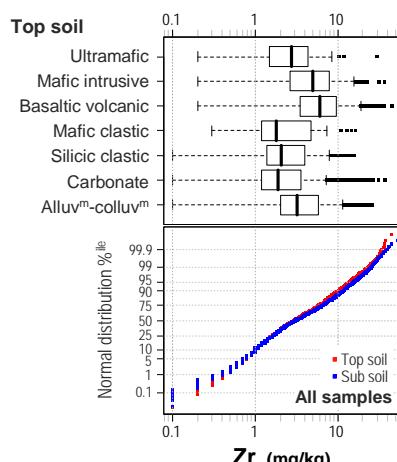
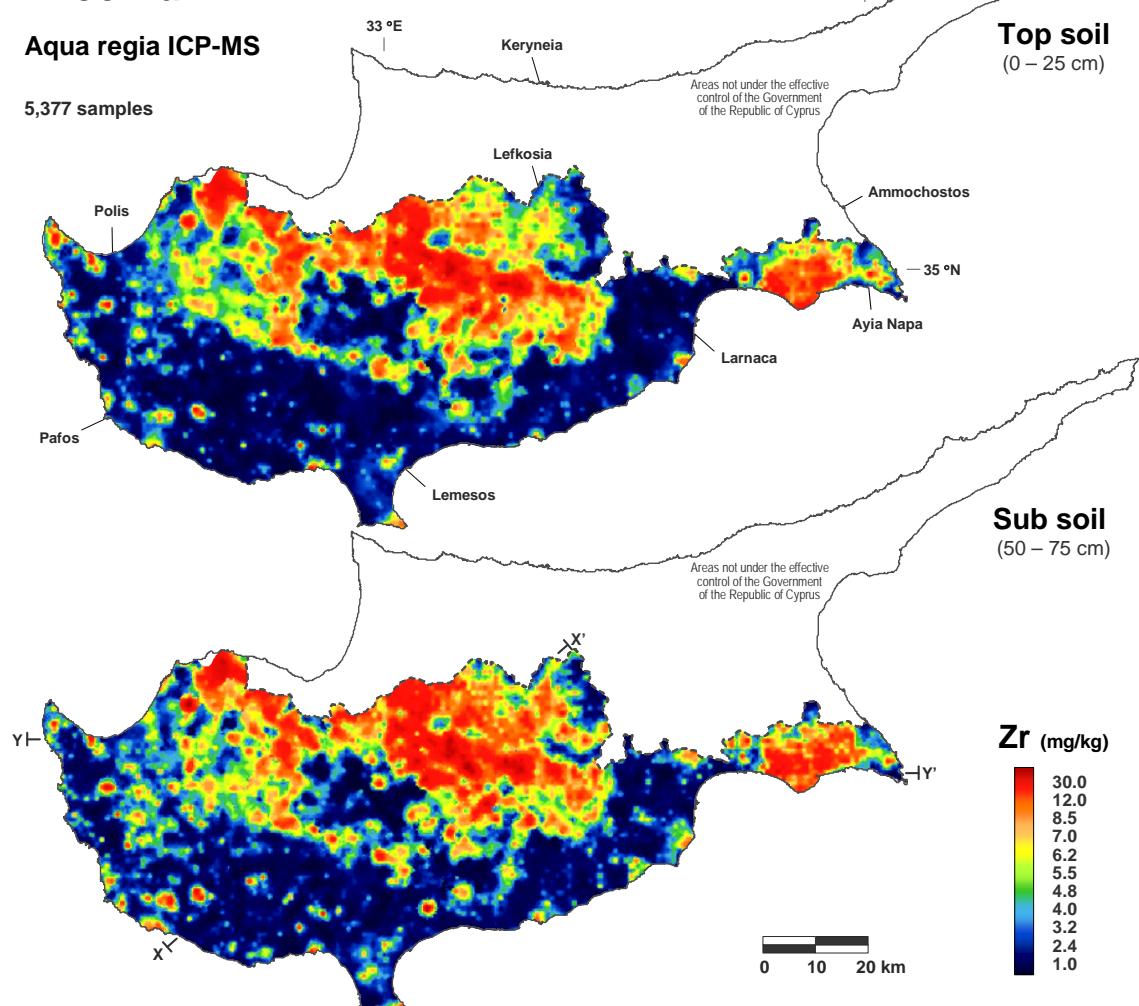
5,377 samples



Zr zirconium

Aqua regia ICP-MS

5,377 samples

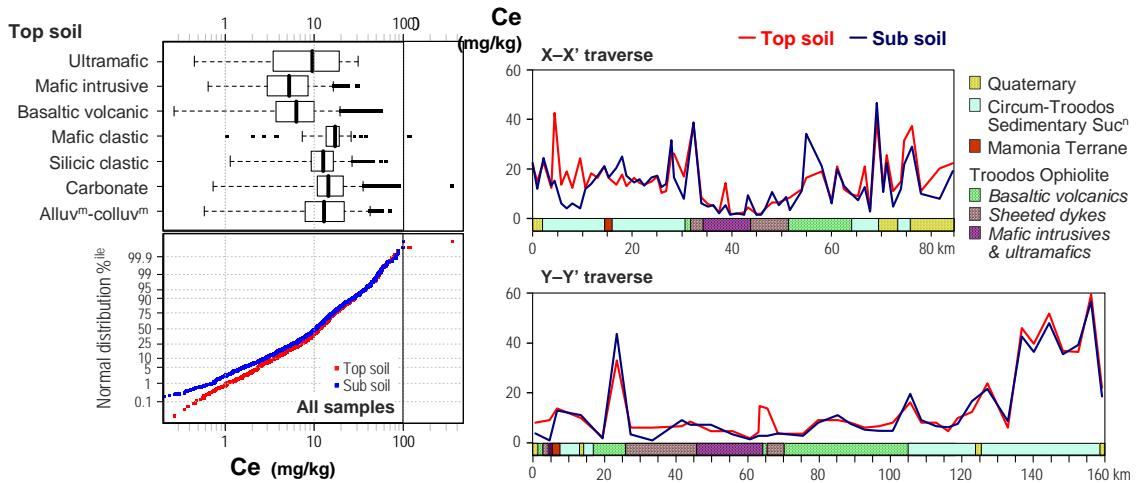
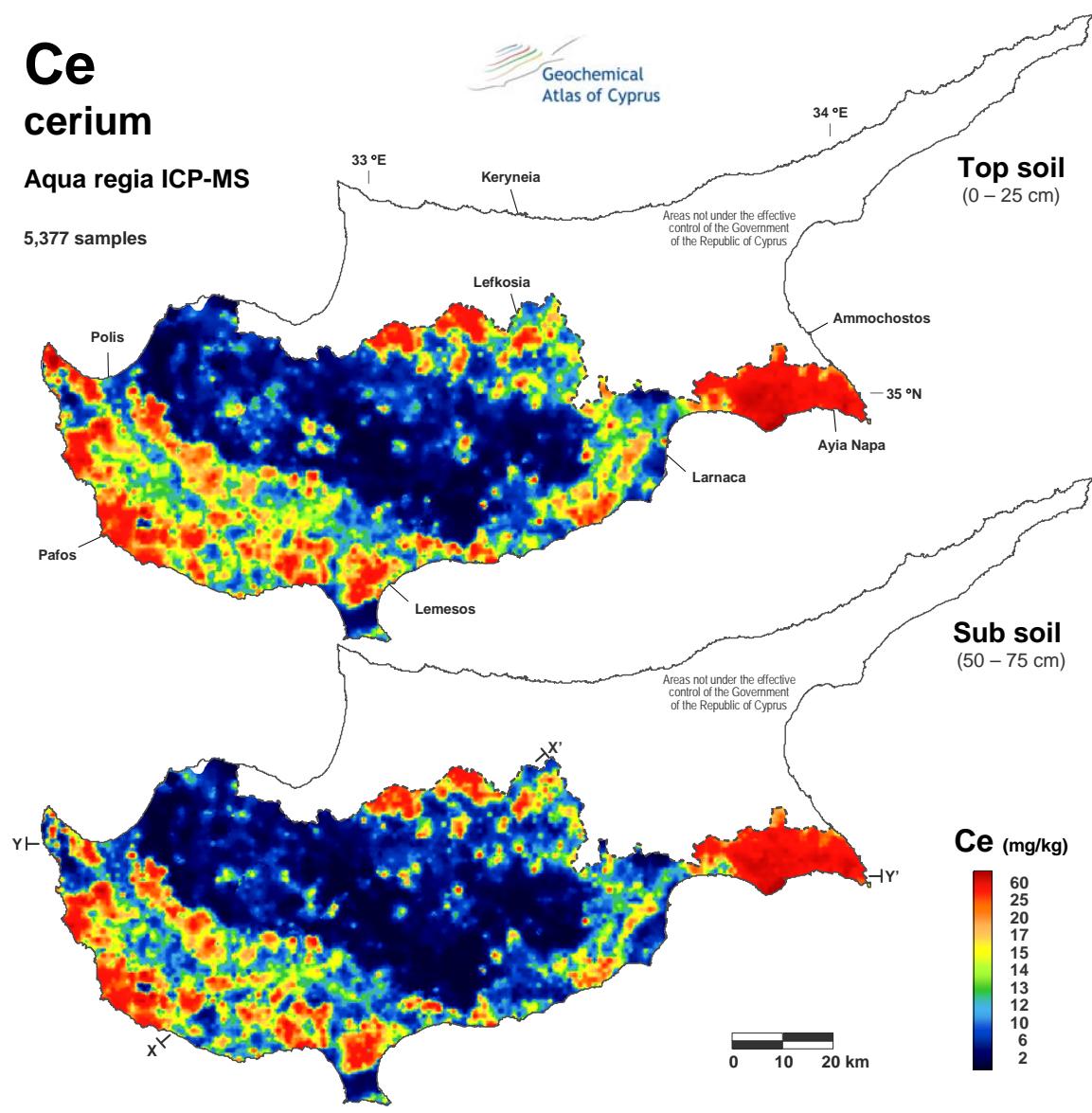


Ce cerium

Aqua regia ICP-MS

5,377 samples

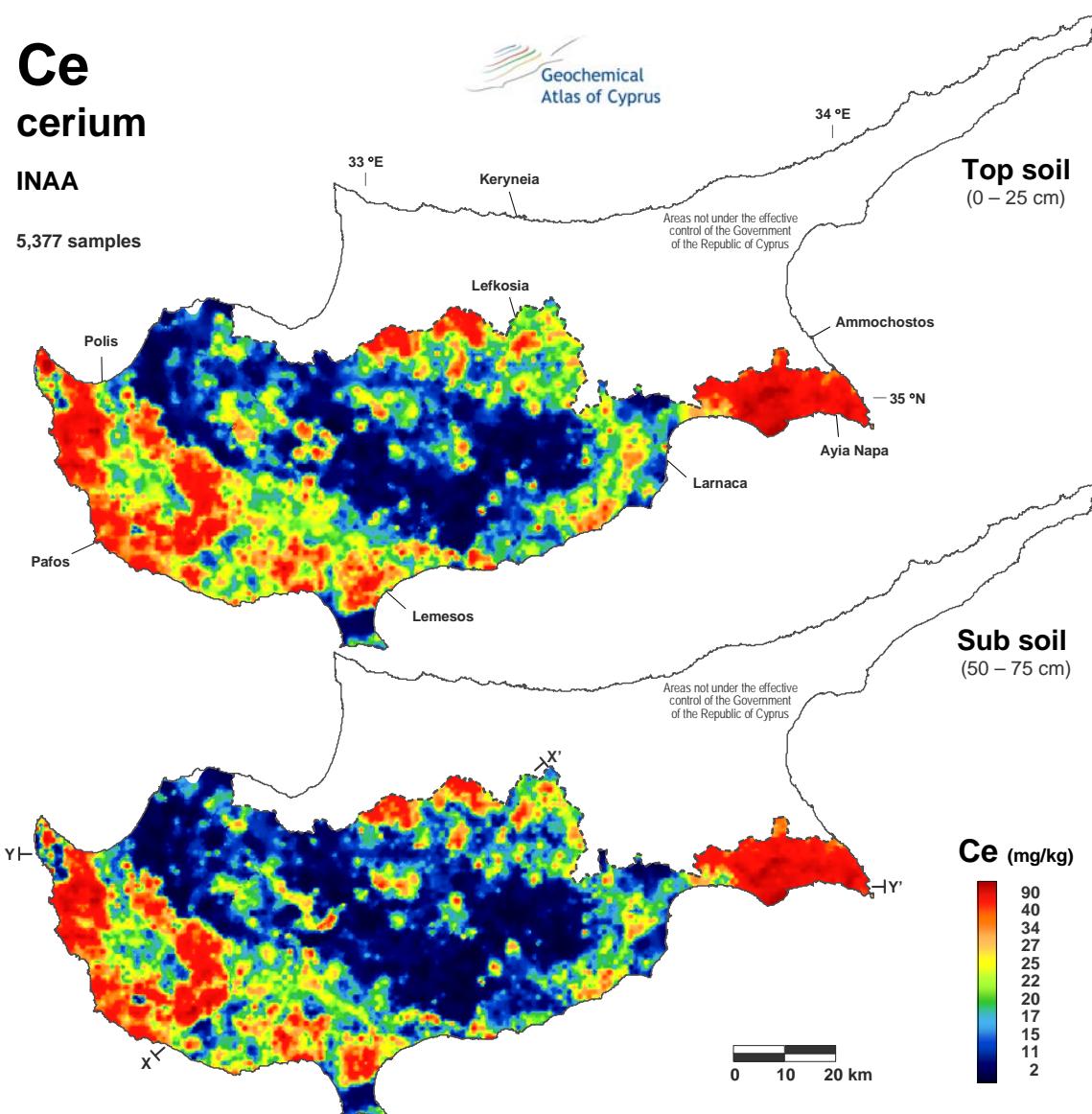
Geochemical
Atlas of Cyprus



Ce cerium

INAA

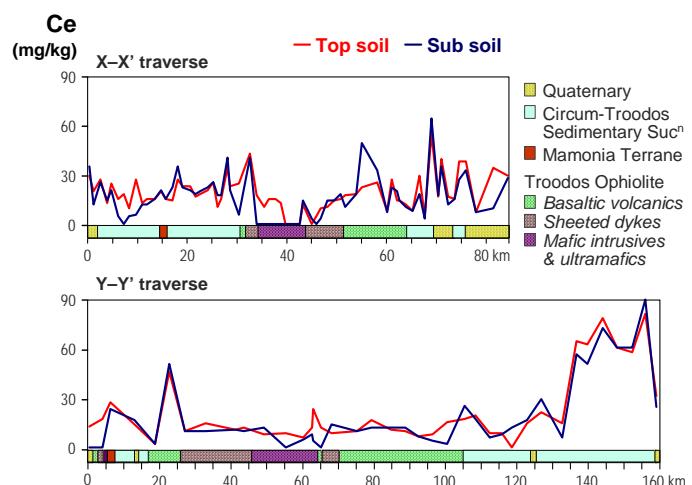
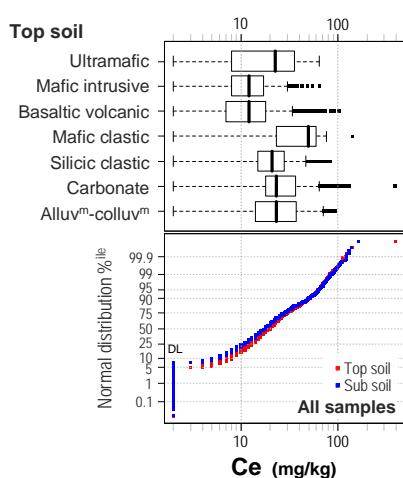
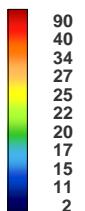
5,377 samples



Top soil
(0 – 25 cm)

Sub soil
(50 – 75 cm)

Ce (mg/kg)

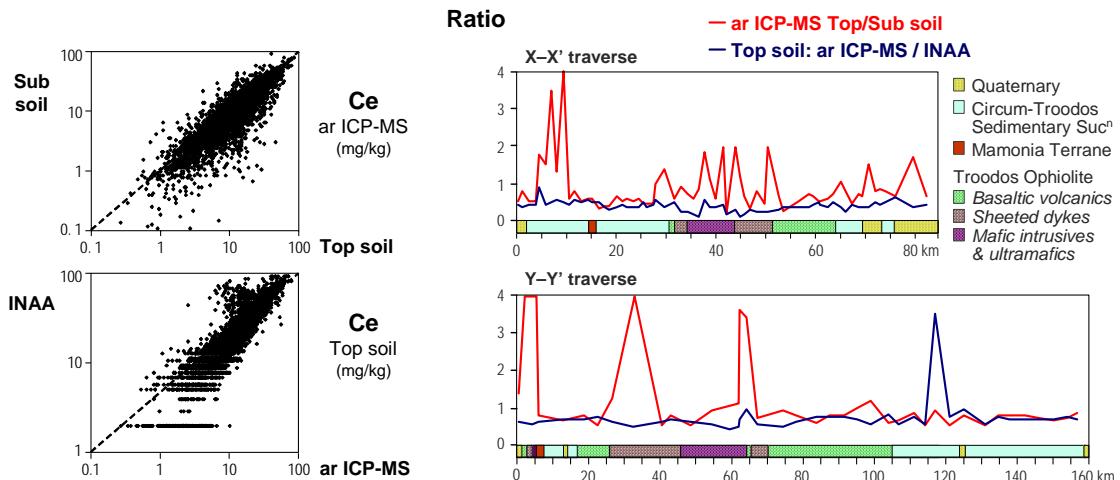
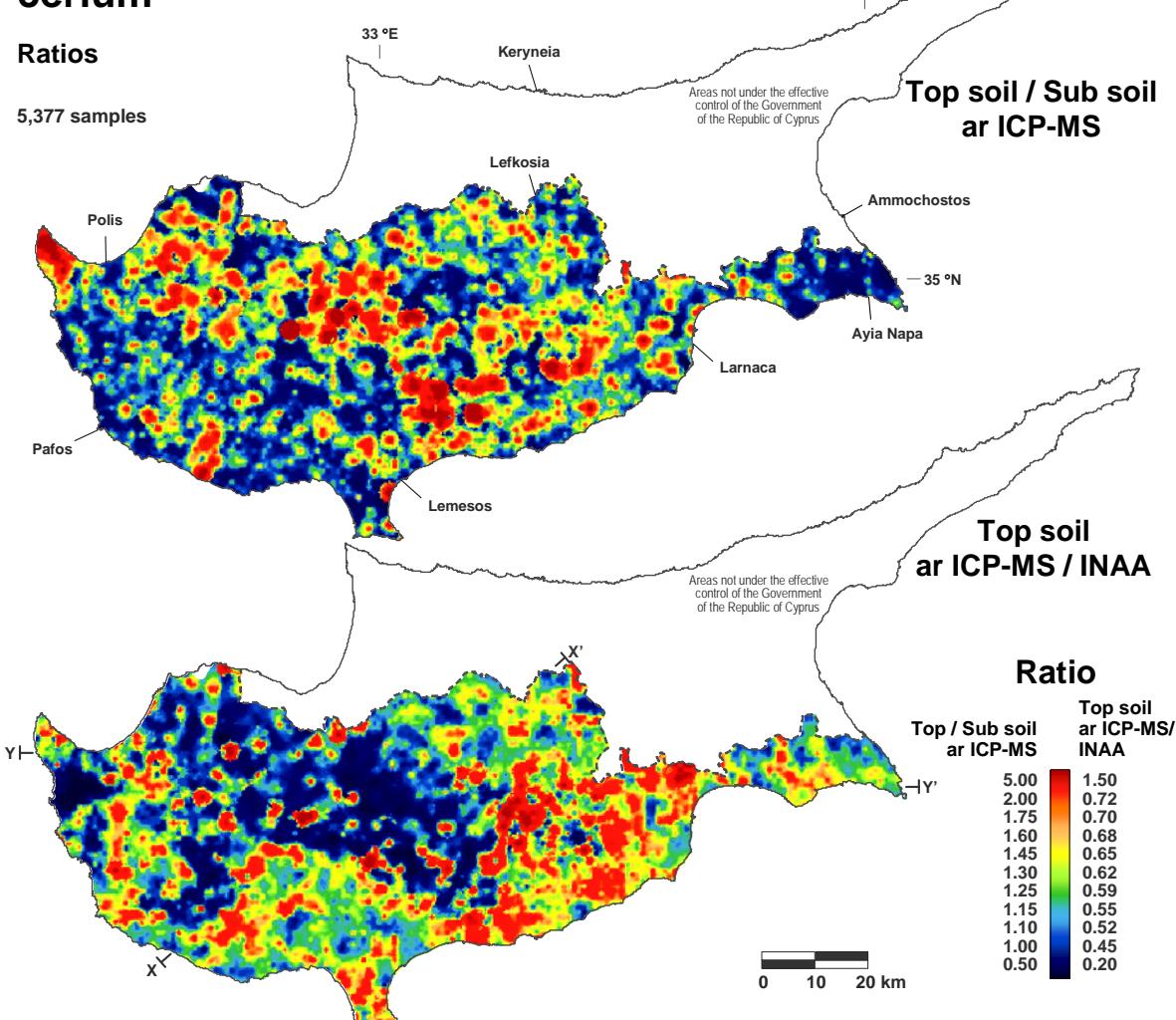


Ce cerium

Geochemical
Atlas of Cyprus

Ratios

5,377 samples

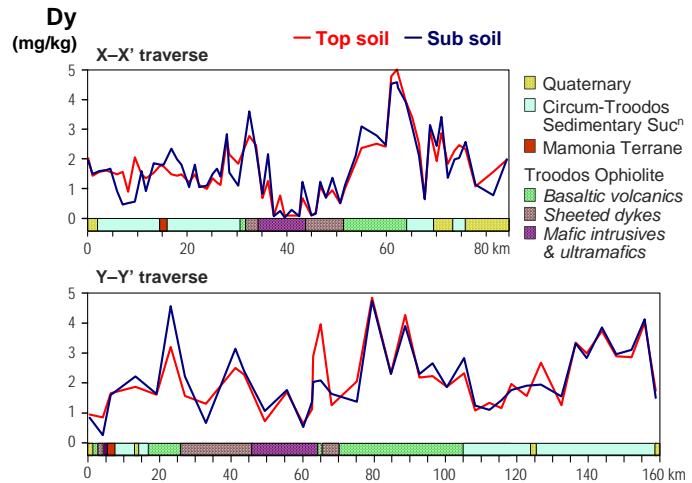
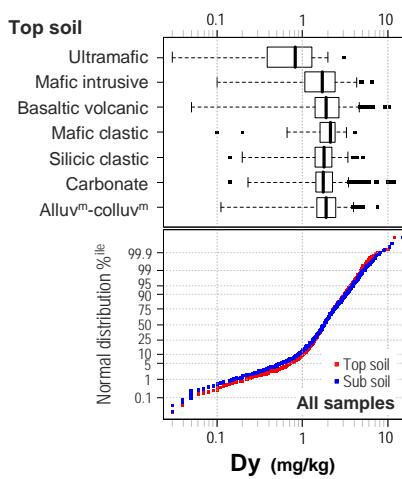
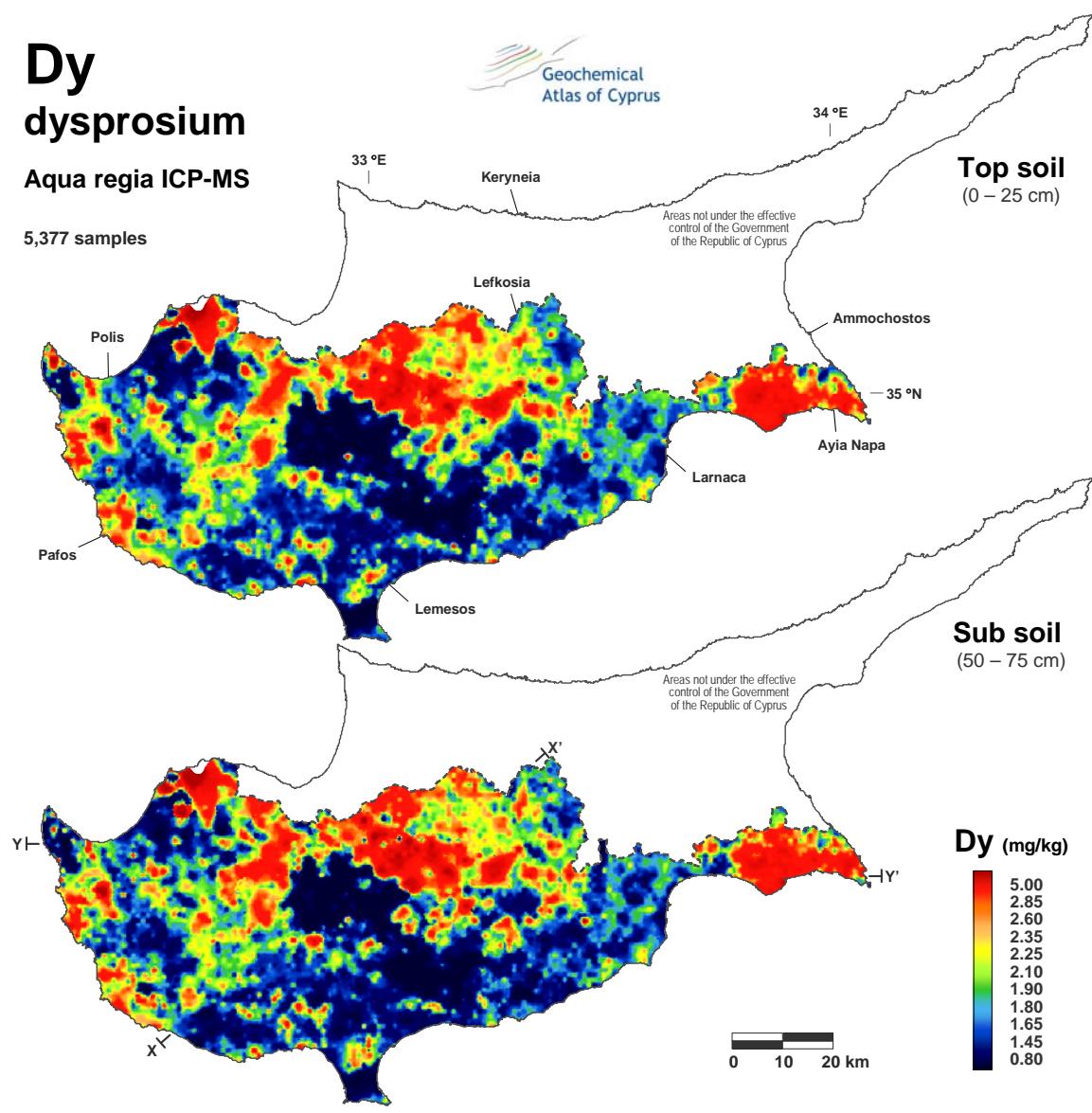


Dy dysprosium

Aqua regia ICP-MS

5,377 samples

Geochemical
Atlas of Cyprus

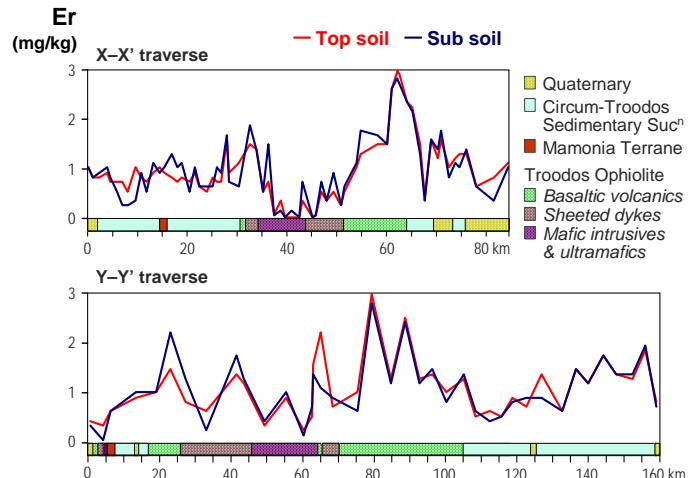
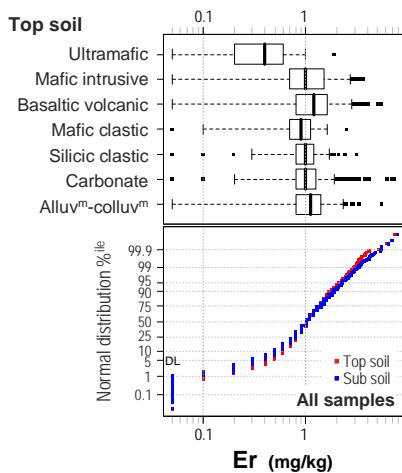
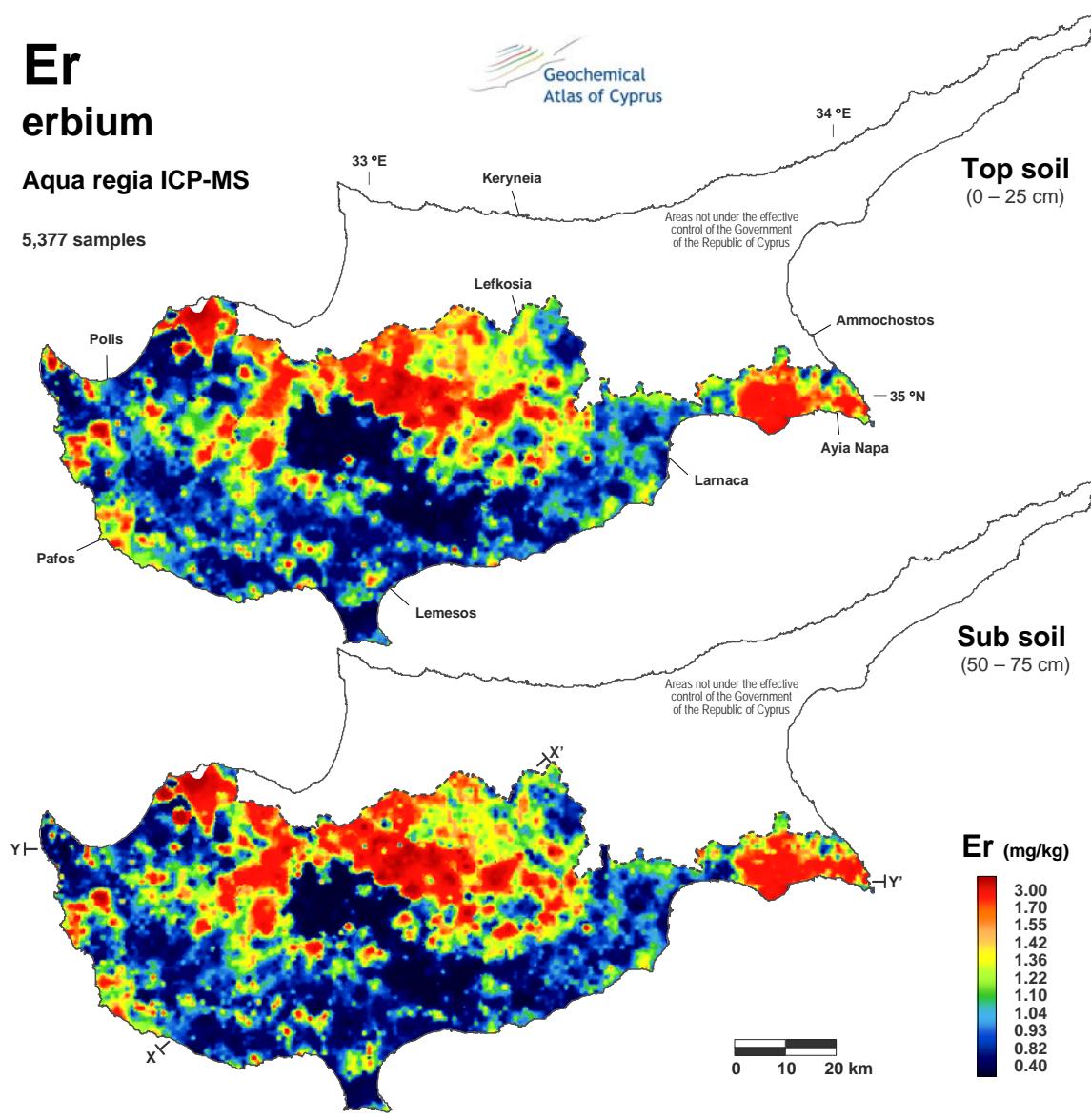


Er erbium

Geochemical
Atlas of Cyprus

Aqua regia ICP-MS

5,377 samples

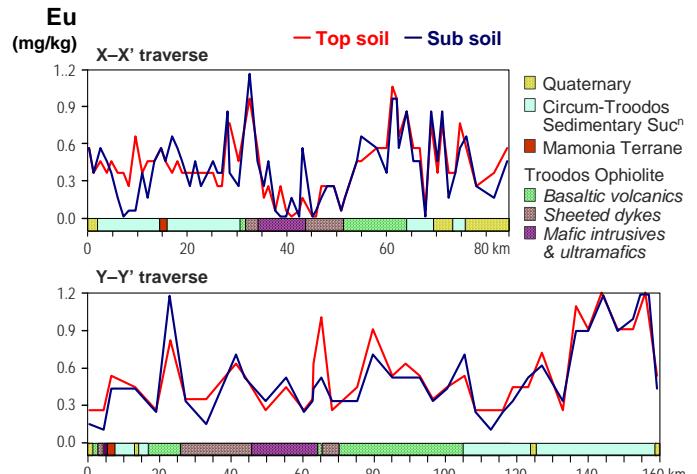
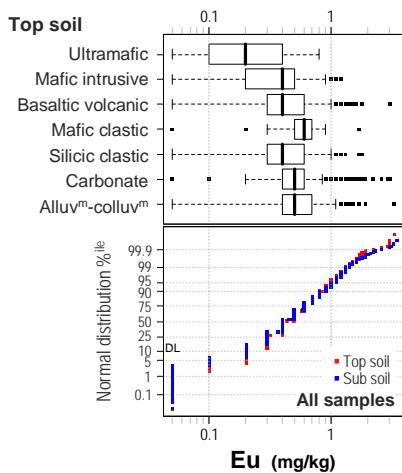
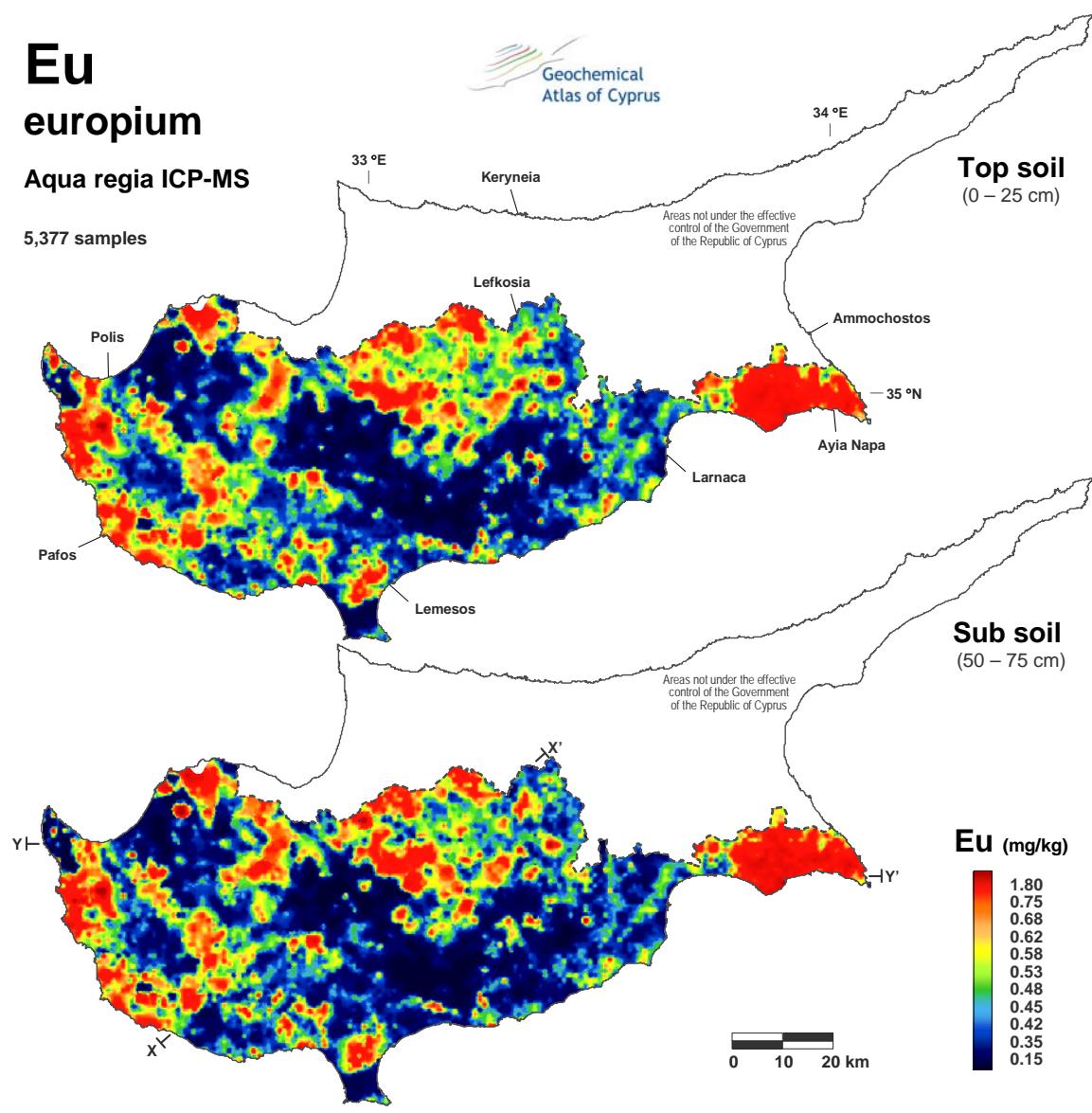


Eu europium

Geochemical
Atlas of Cyprus

Aqua regia ICP-MS

5,377 samples

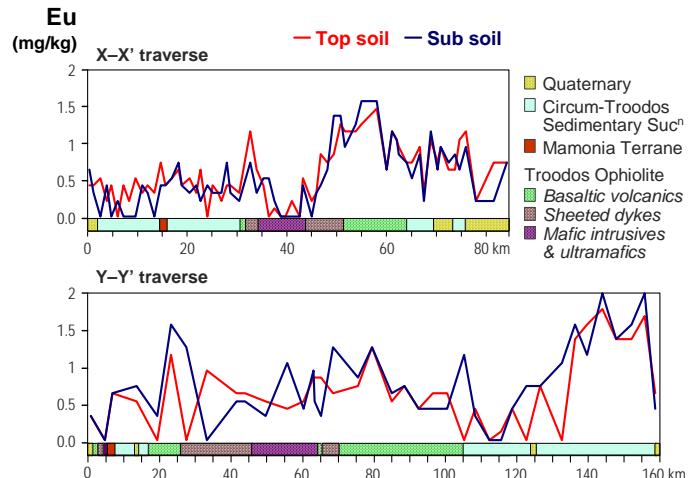
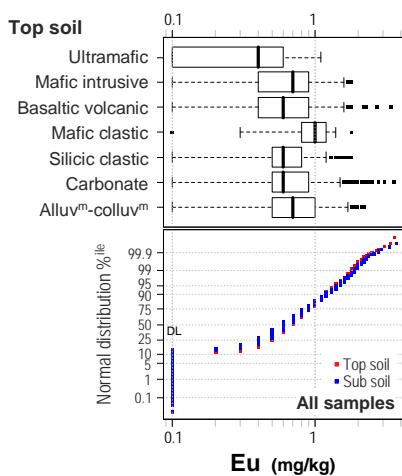
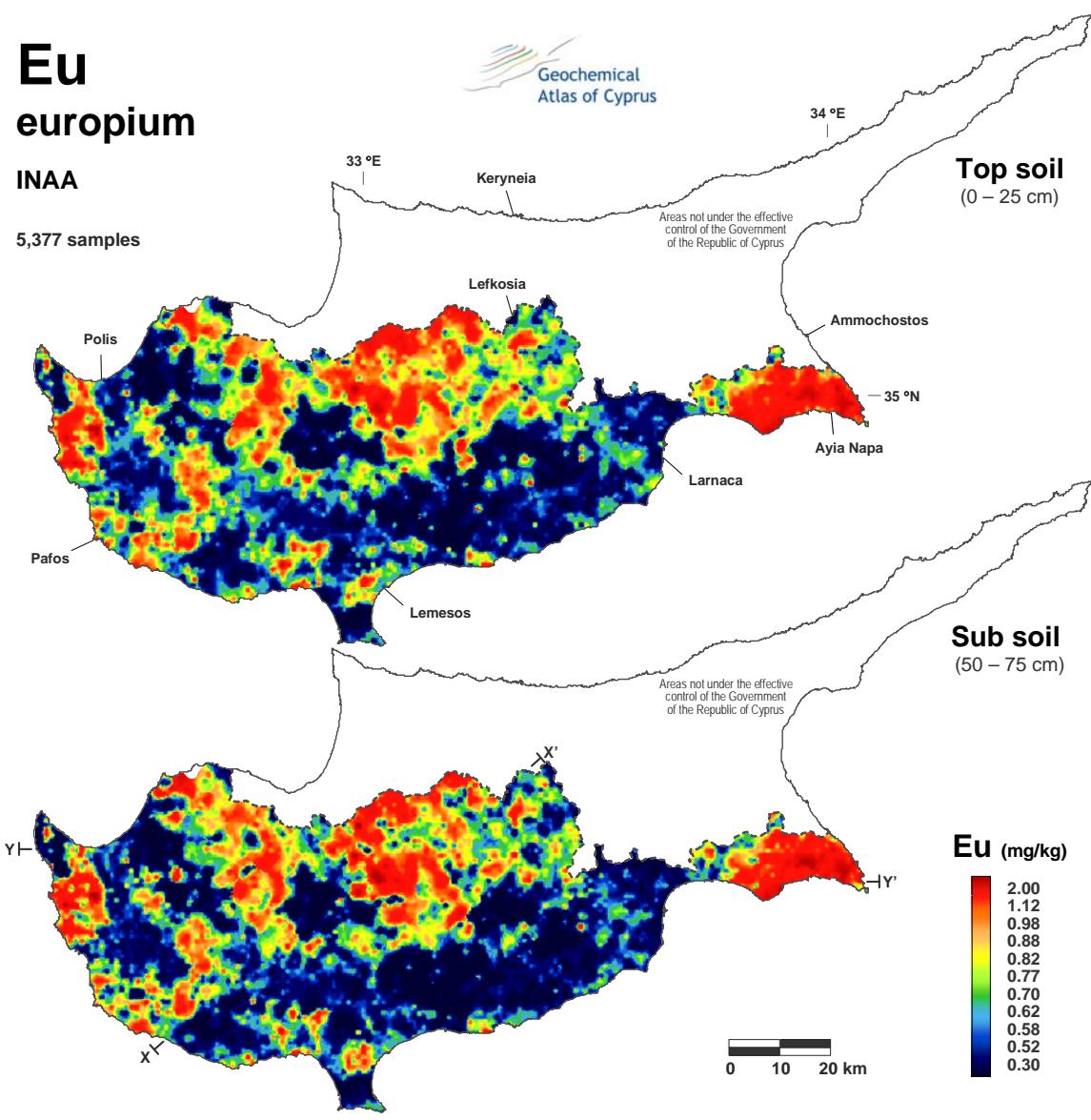


Eu europium

Geochemical
Atlas of Cyprus

INAA

5,377 samples

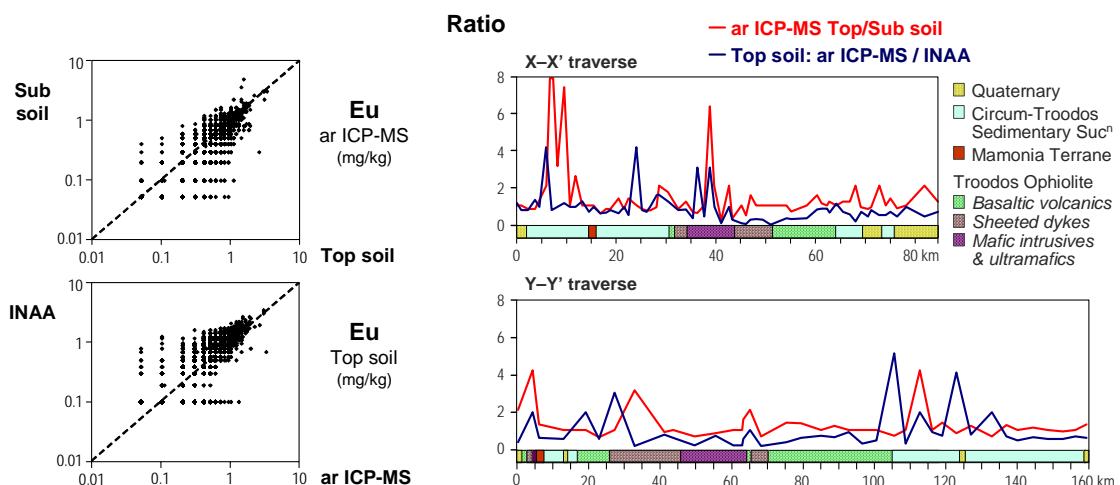
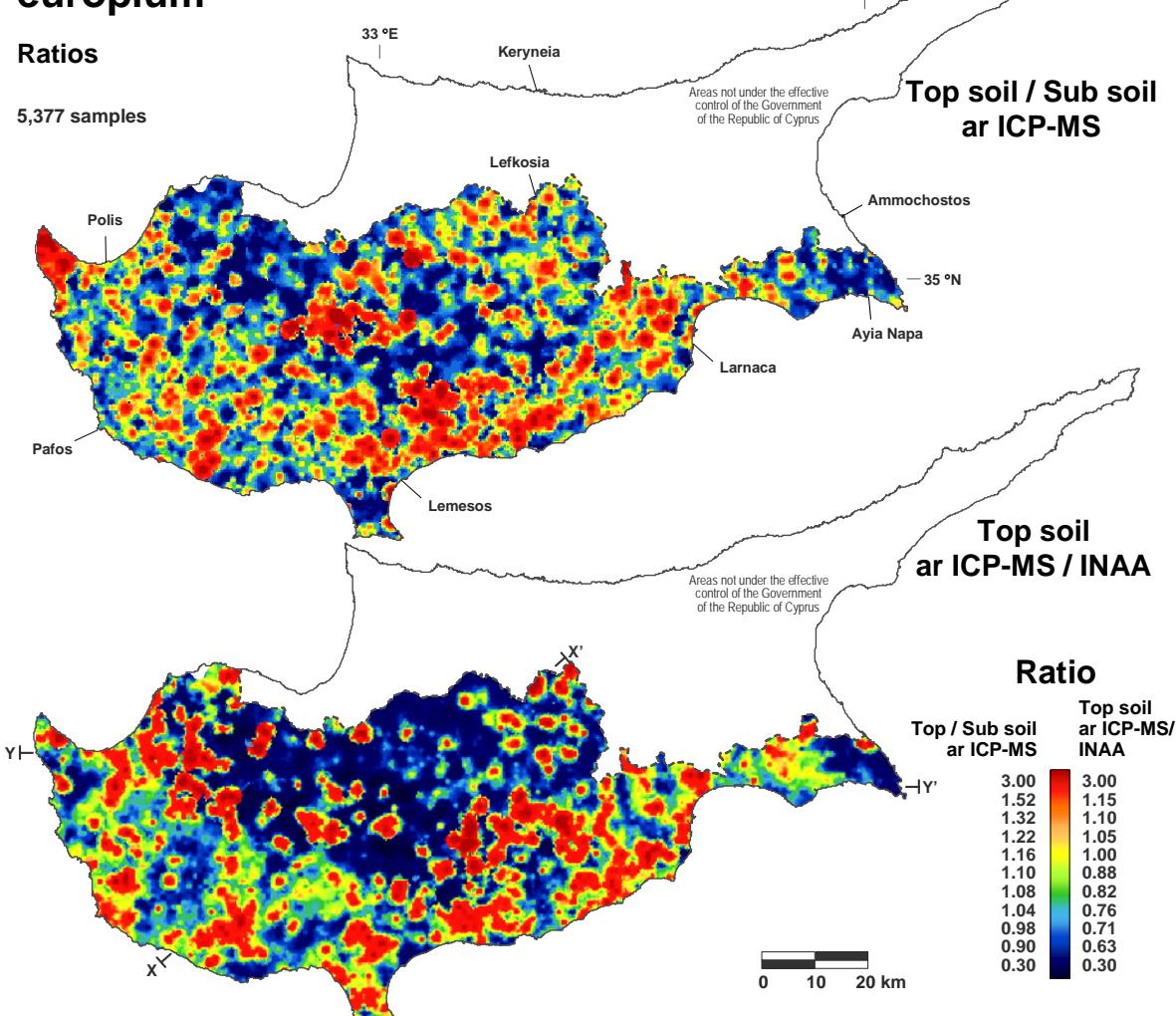


Eu europium

Geochemical
Atlas of Cyprus

Ratios

5,377 samples



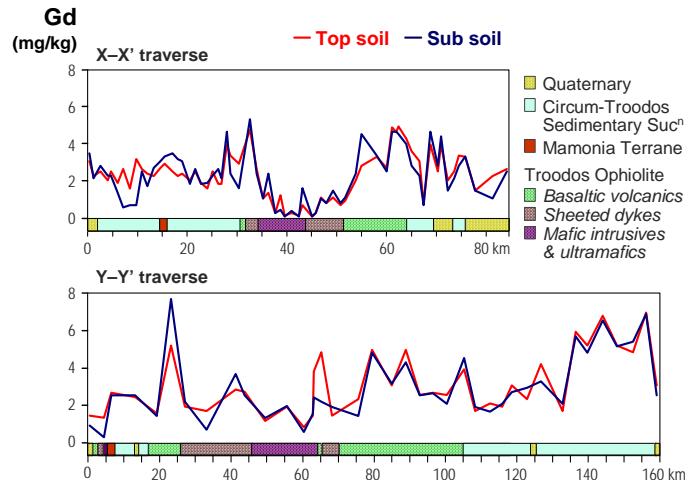
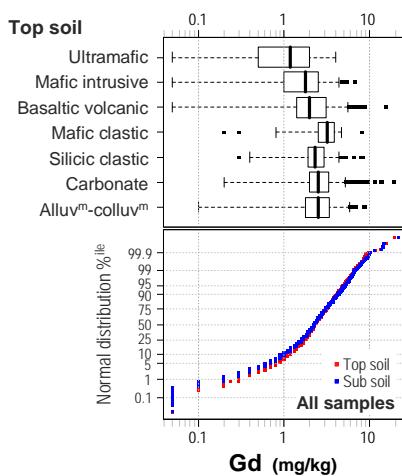
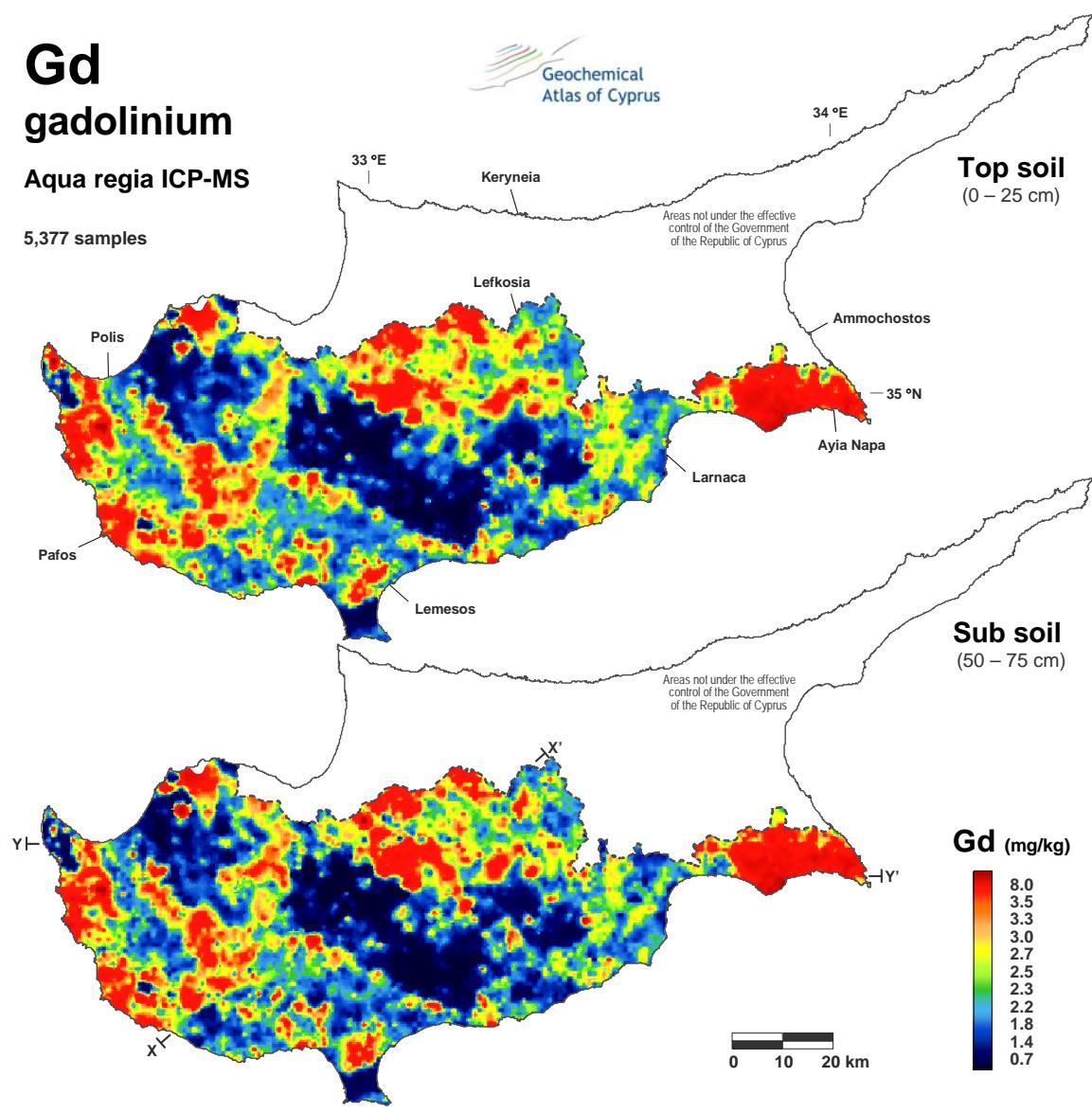
Gd

gadolinium

Aqua regia ICP-MS

5,377 samples

Geochemical
Atlas of Cyprus

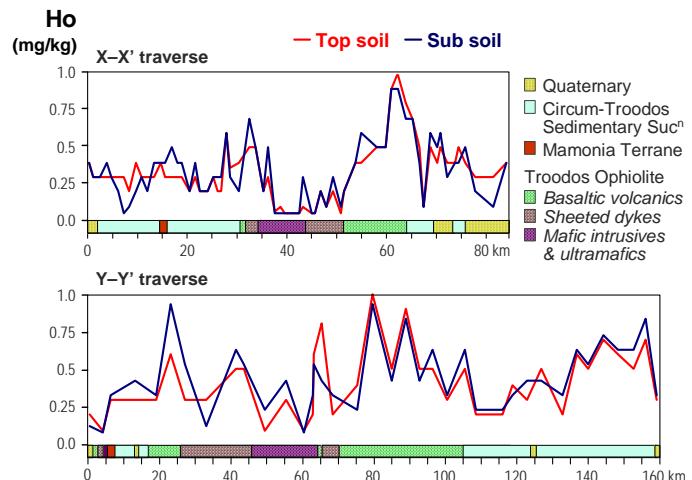
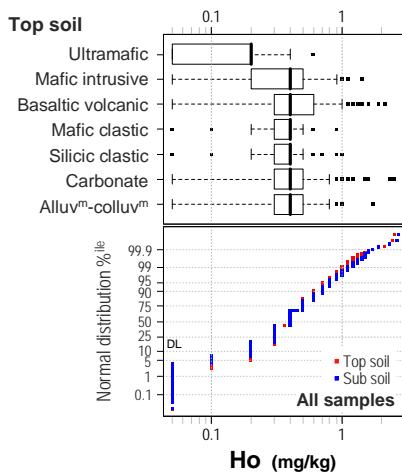
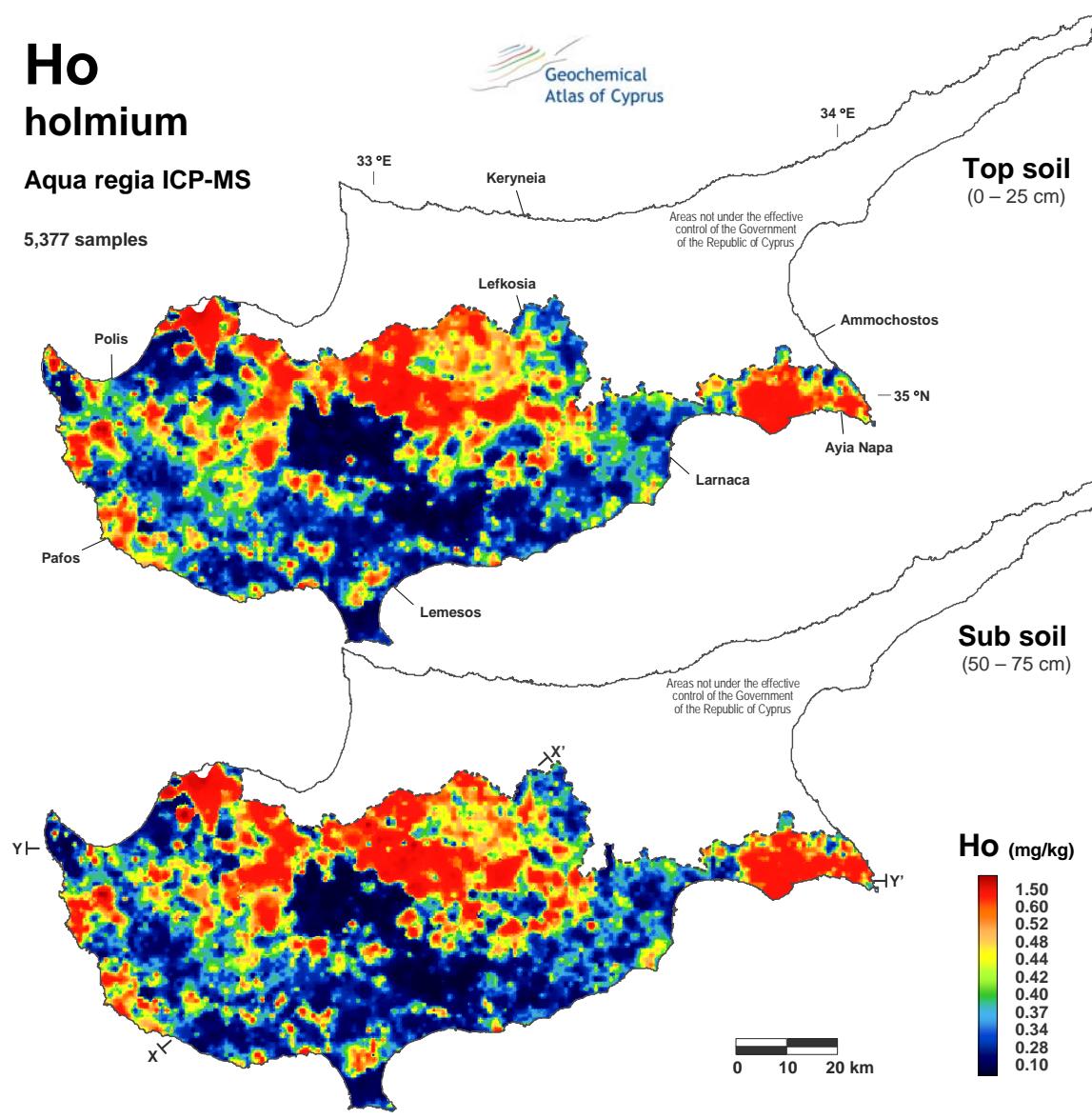


Ho holmium

Geochemical
Atlas of Cyprus

Aqua regia ICP-MS

5,377 samples

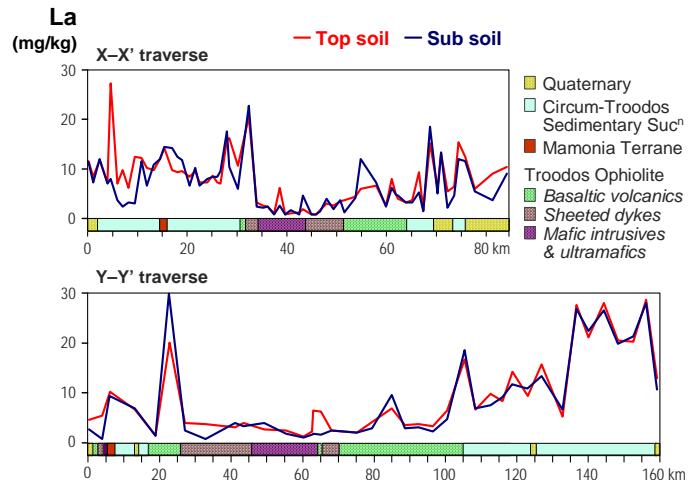
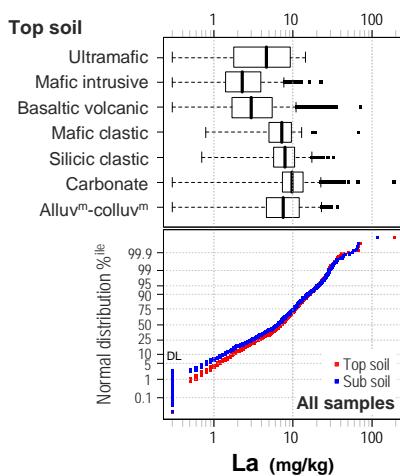
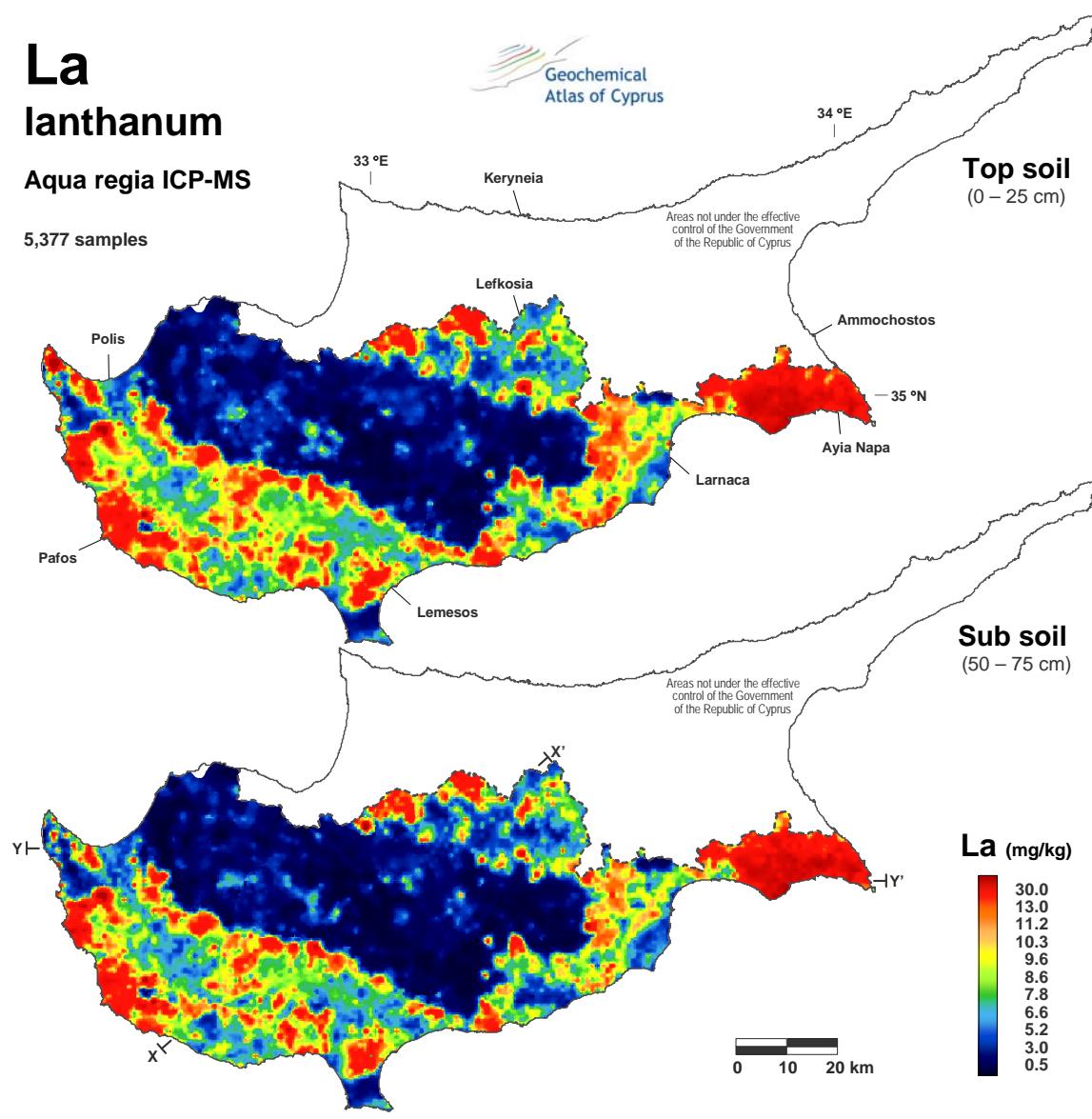


La lanthanum

Geochemical
Atlas of Cyprus

Aqua regia ICP-MS

5,377 samples

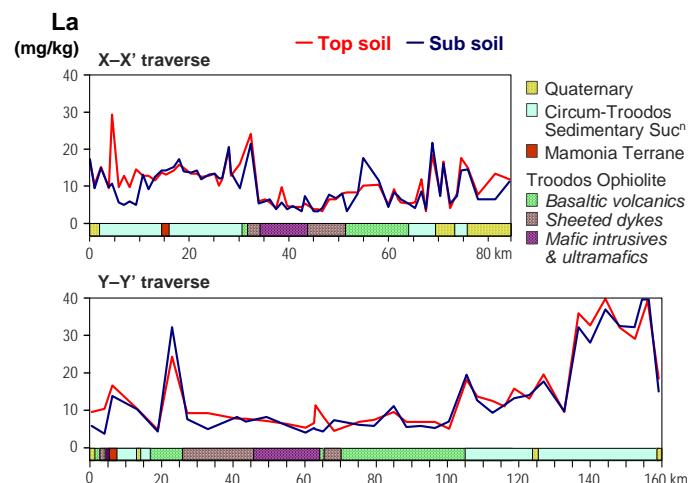
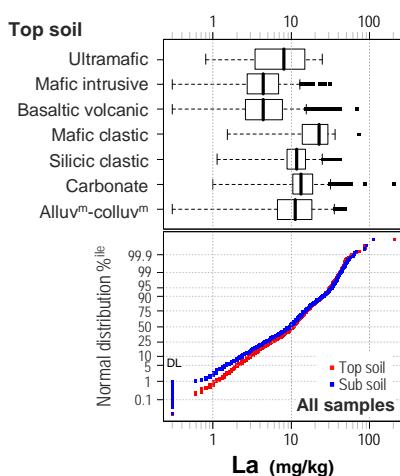
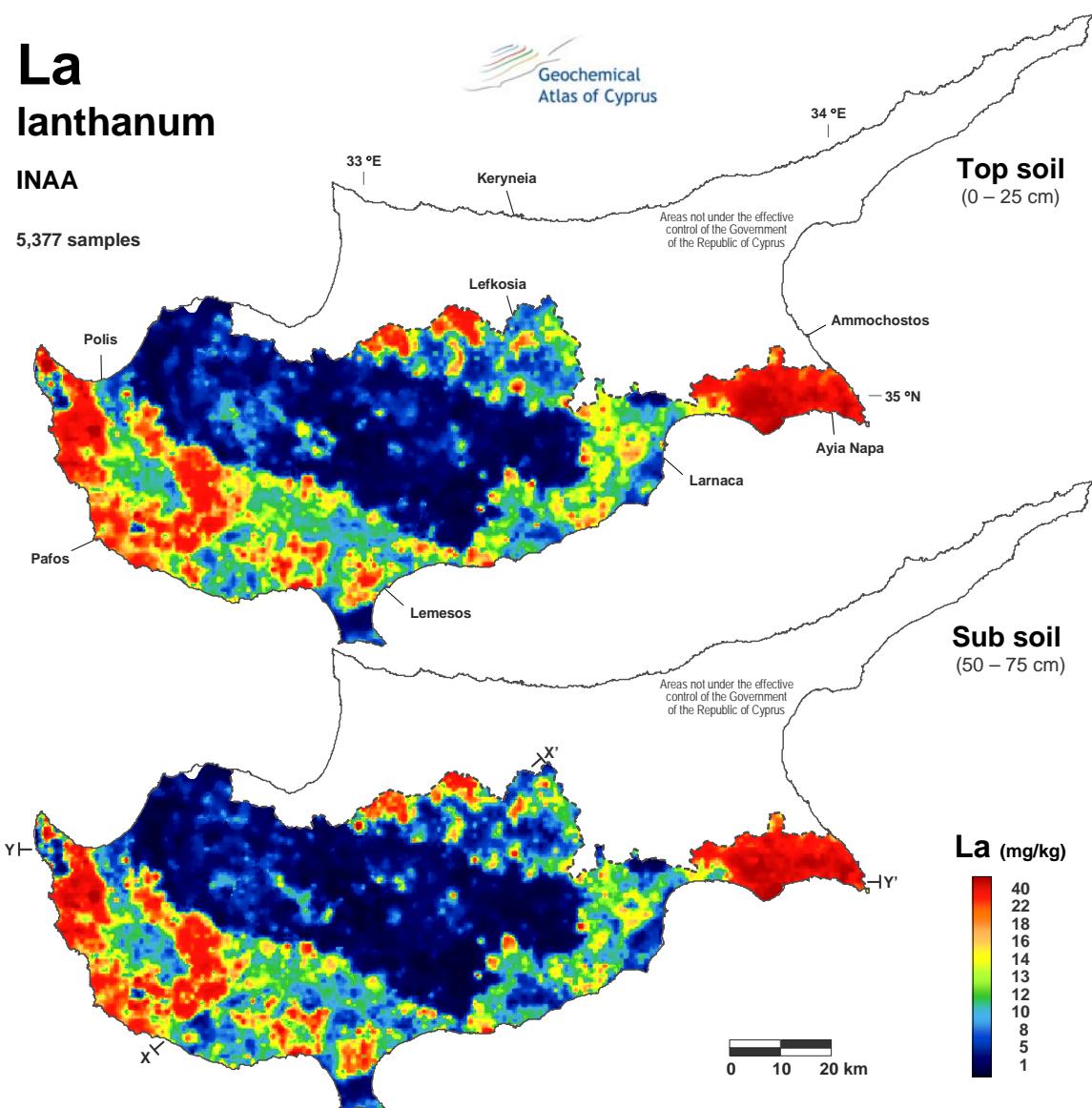


La lanthanum

Geochemical
Atlas of Cyprus

INAA

5,377 samples

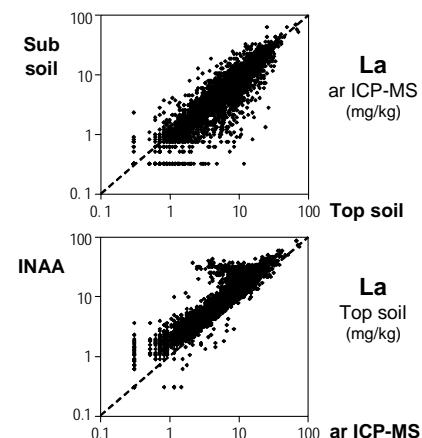
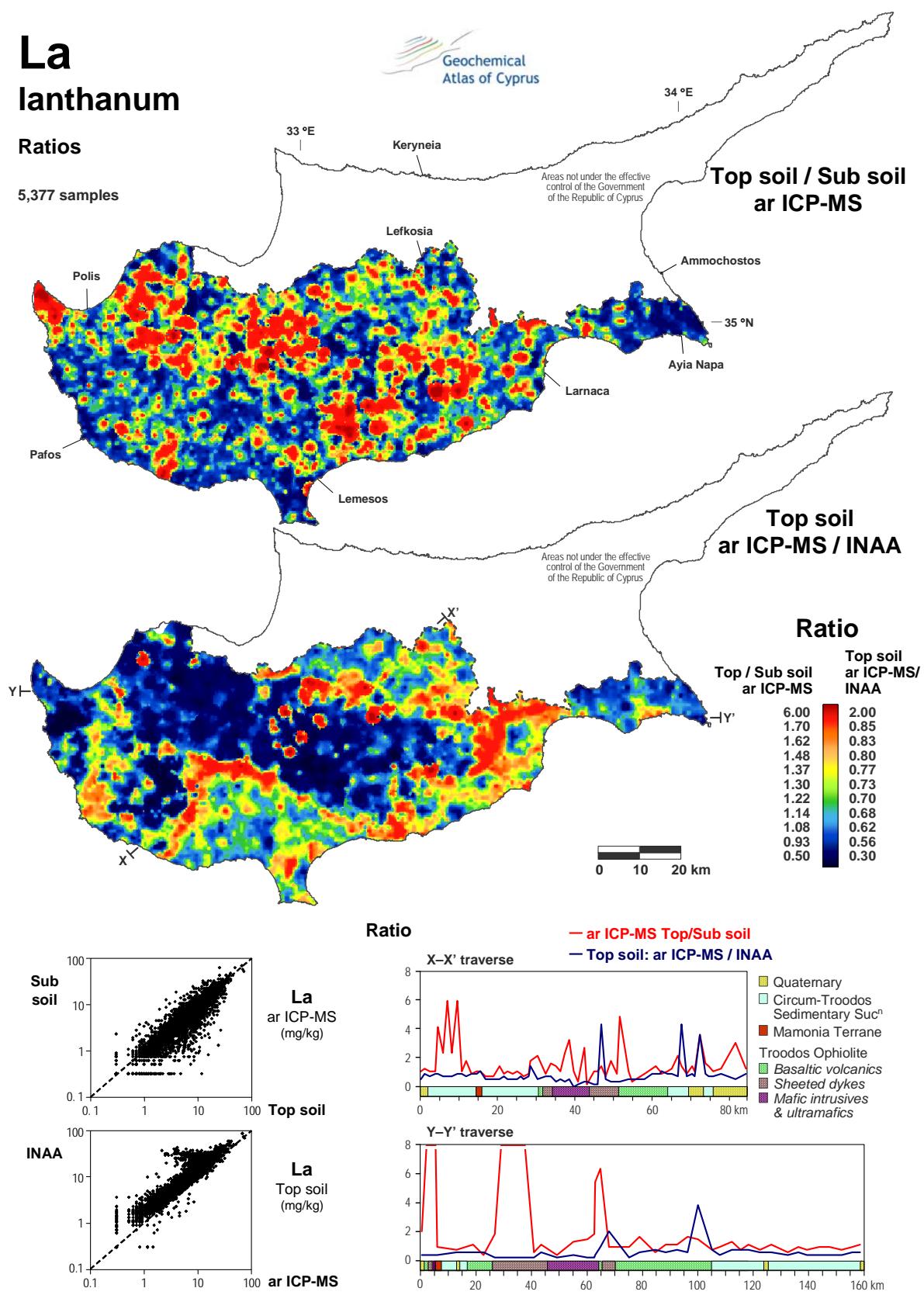


La lanthanum

Geochemical
Atlas of Cyprus

Ratios

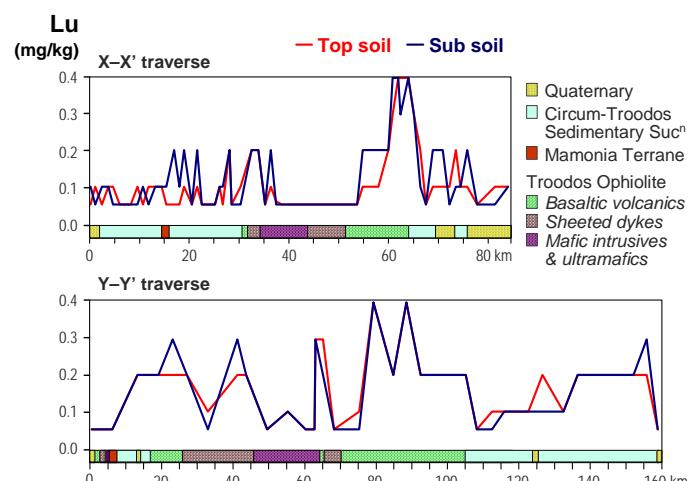
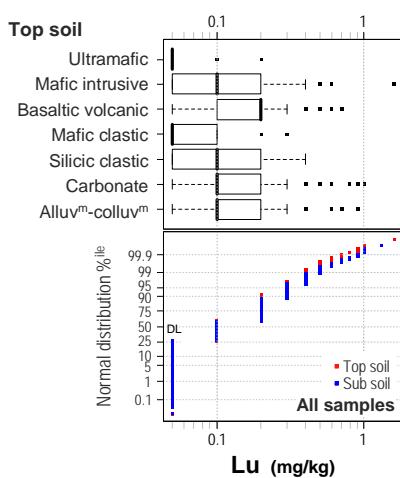
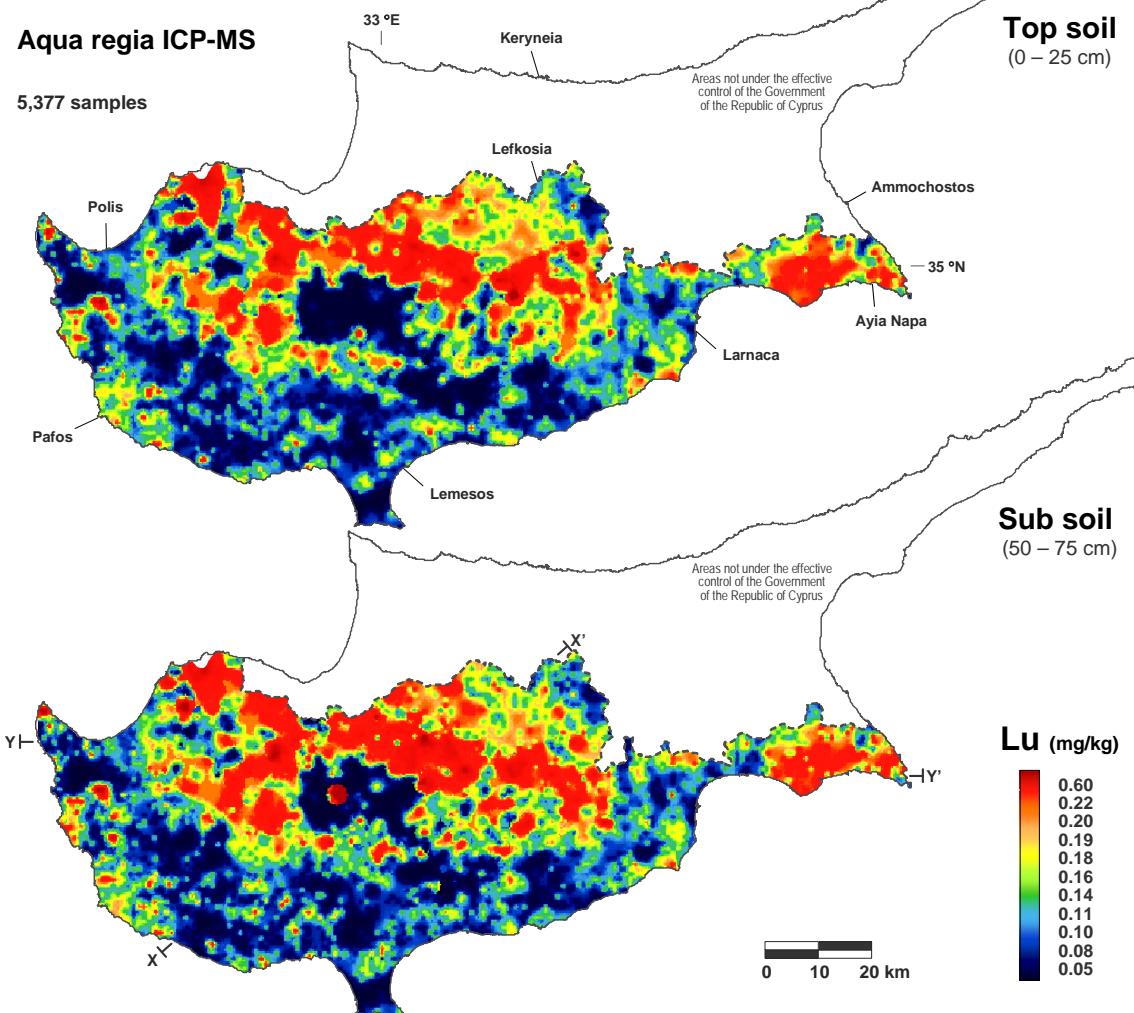
5,377 samples



Lu lutetium

Aqua regia ICP-MS

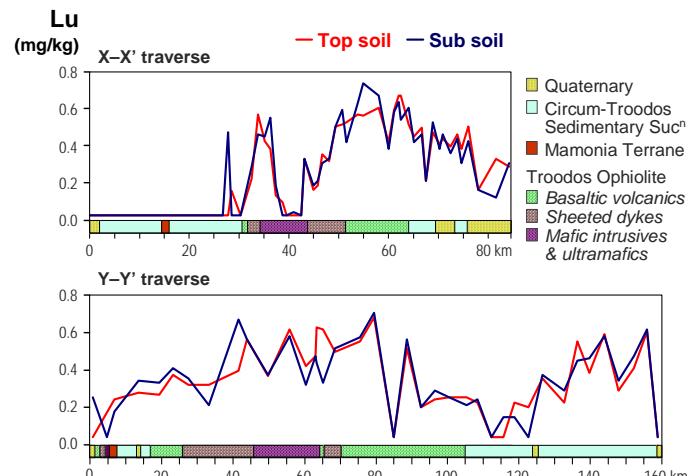
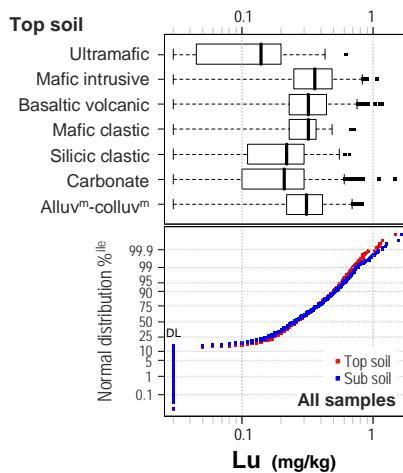
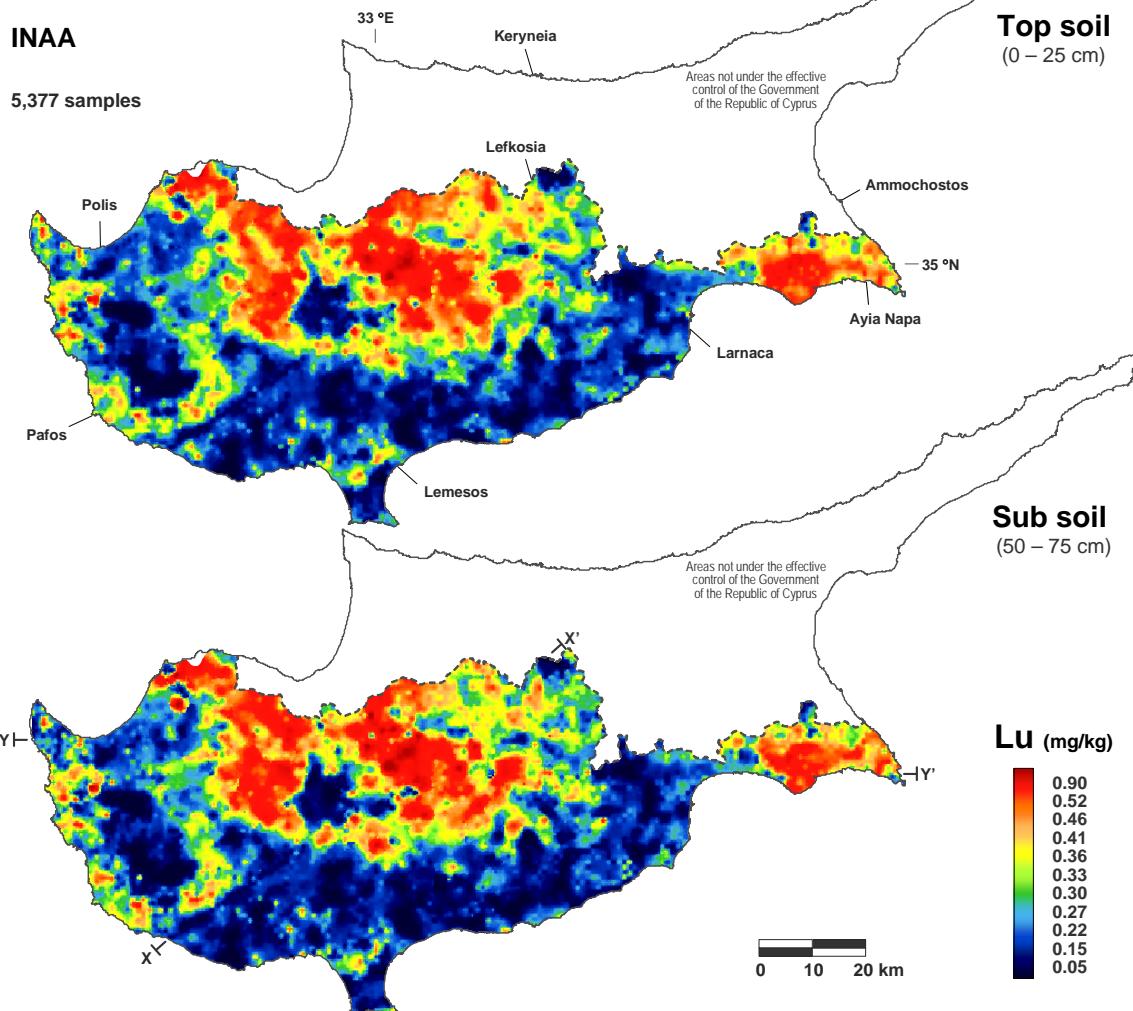
5,377 samples



Lu lutetium

INAA

5,377 samples

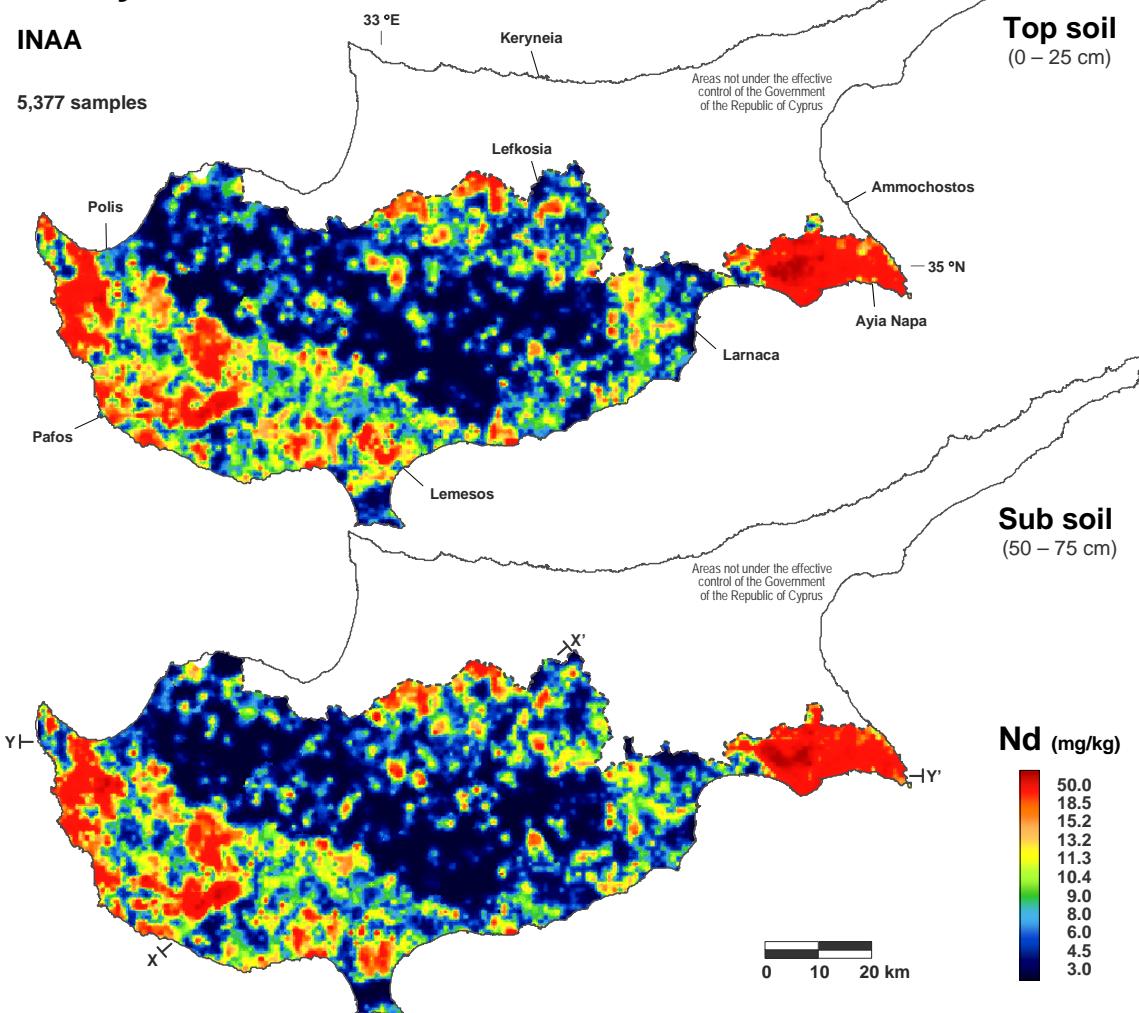


Nd neodymium

Geochemical
Atlas of Cyprus

INAA

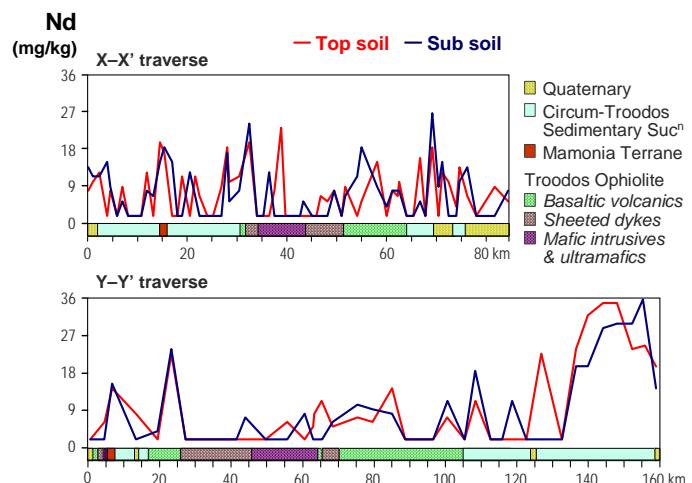
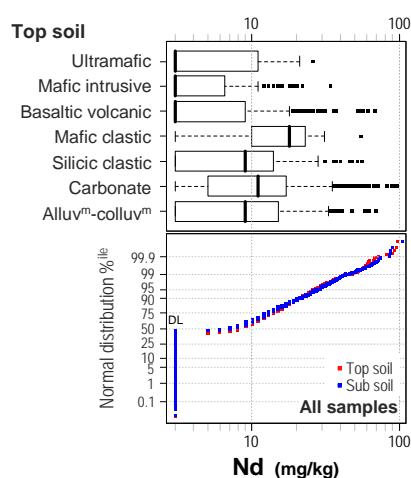
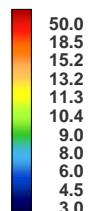
5,377 samples



Top soil
(0 – 25 cm)

Sub soil
(50 – 75 cm)

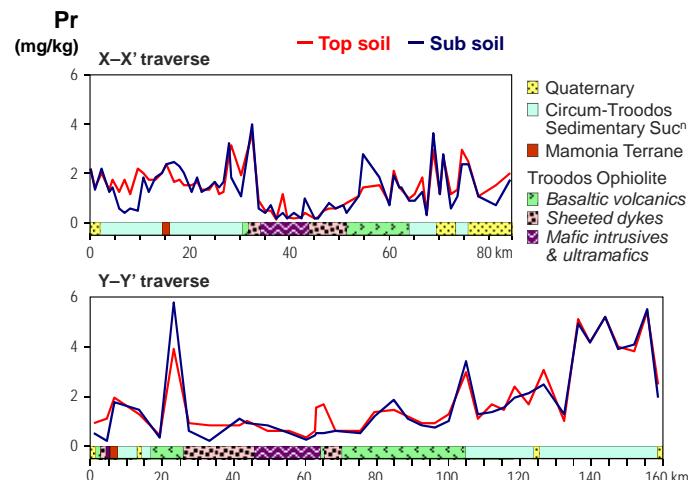
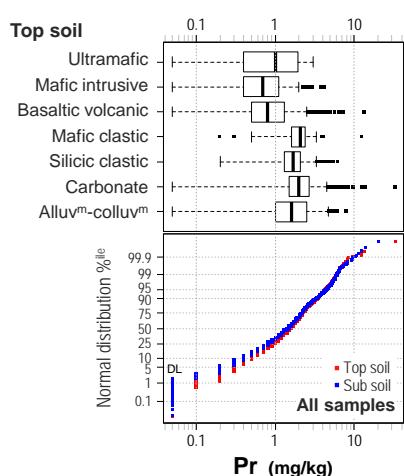
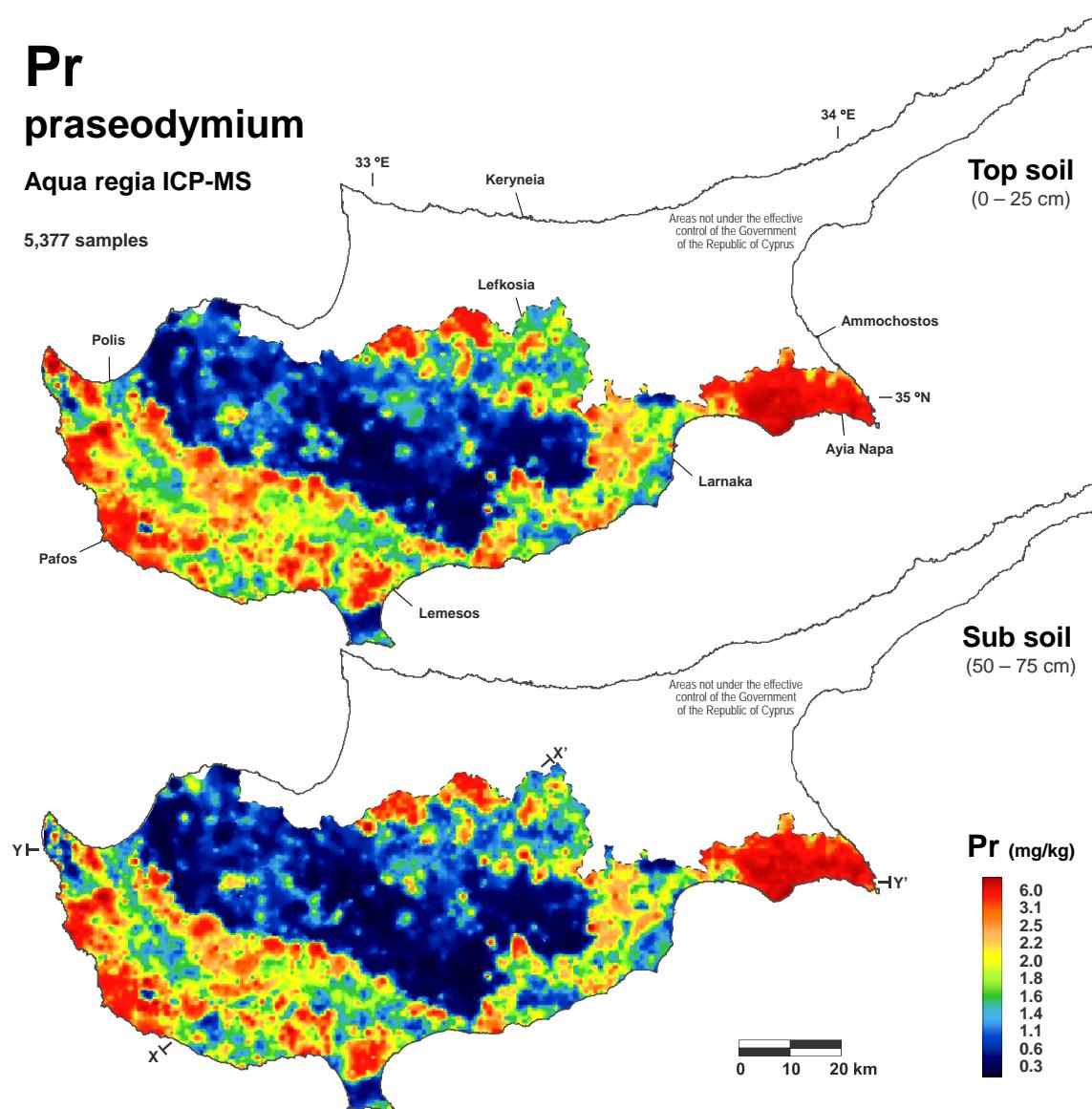
Nd (mg/kg)



Pr praseodymium

Aqua regia ICP-MS

5,377 samples

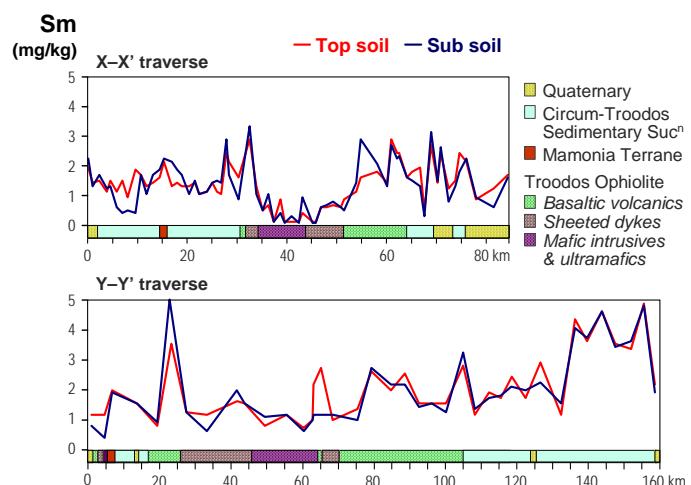
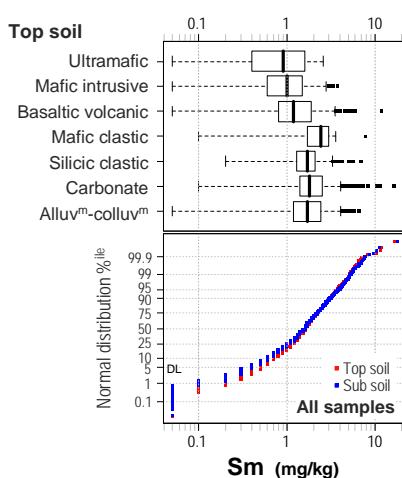
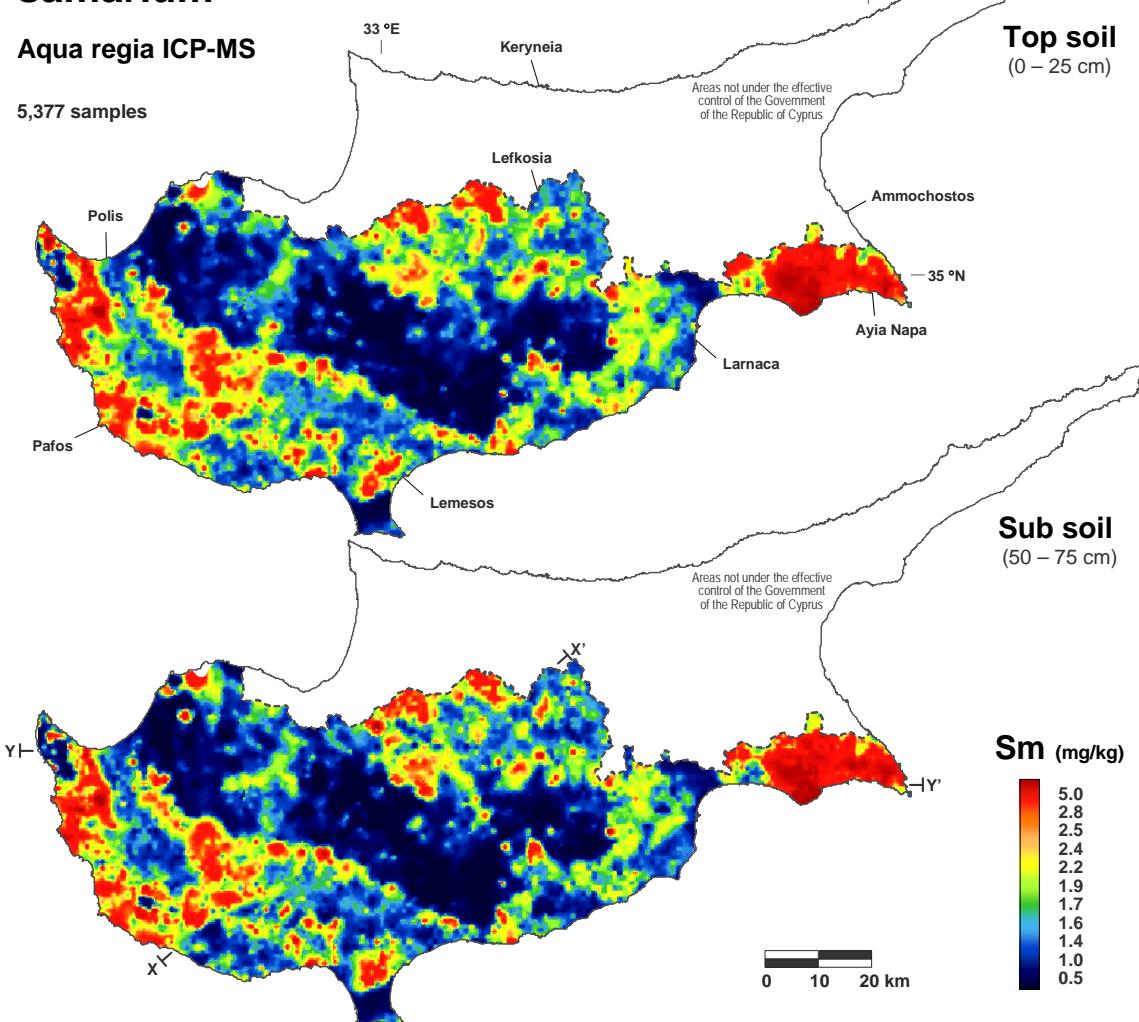


Sm samarium

Geochemical
Atlas of Cyprus

Aqua regia ICP-MS

5,377 samples

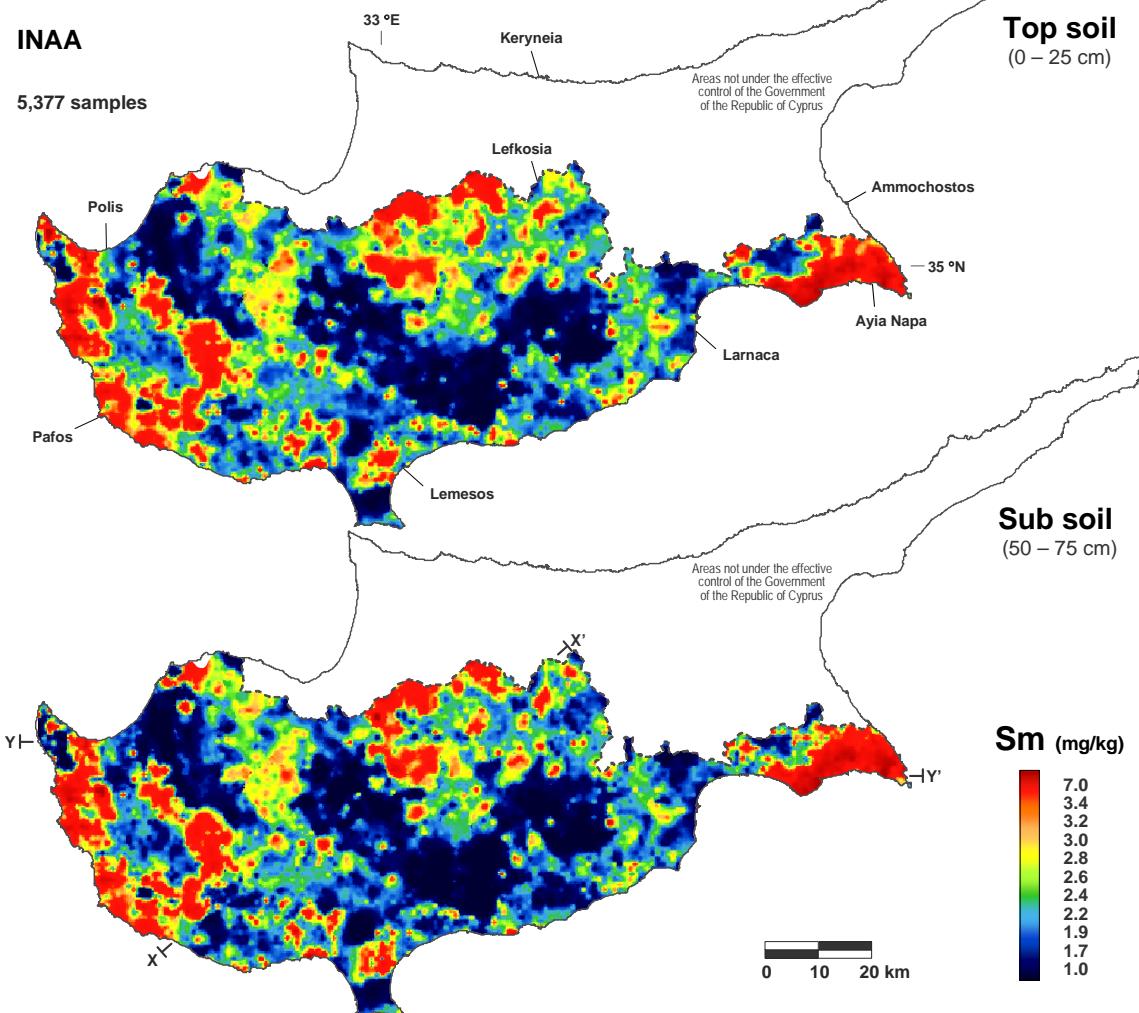


Sm

samarium

INAA

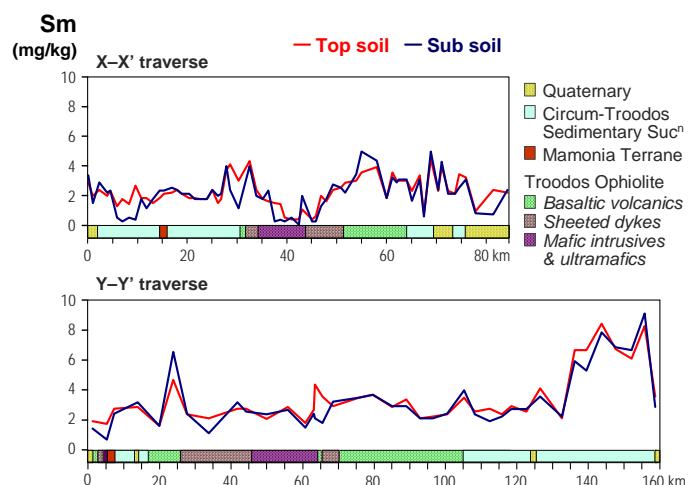
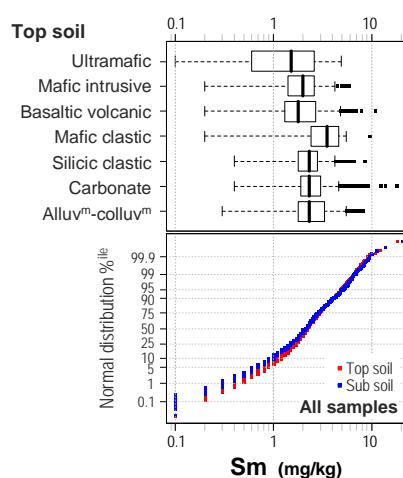
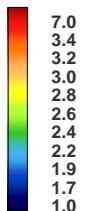
5,377 samples



Top soil
(0 – 25 cm)

Sub soil
(50 – 75 cm)

Sm (mg/kg)

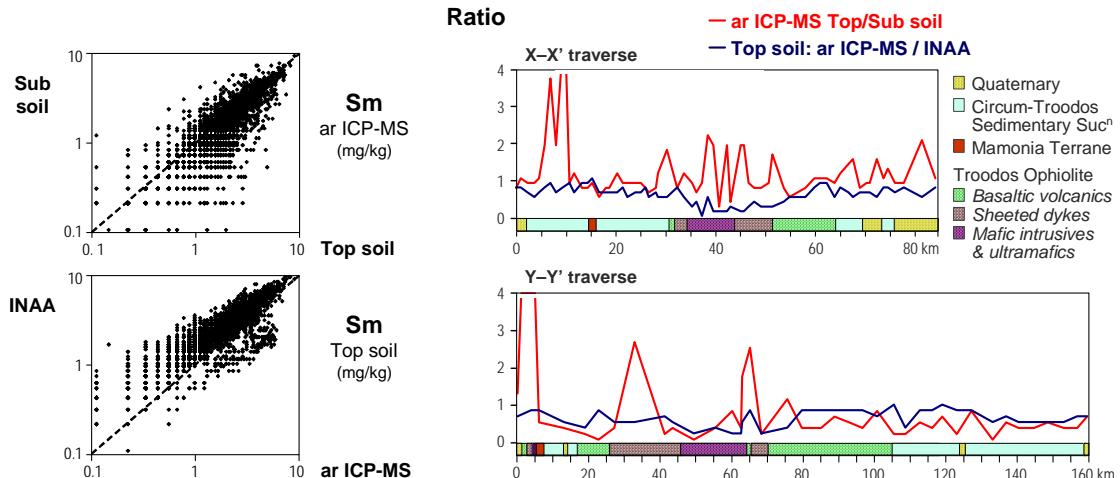
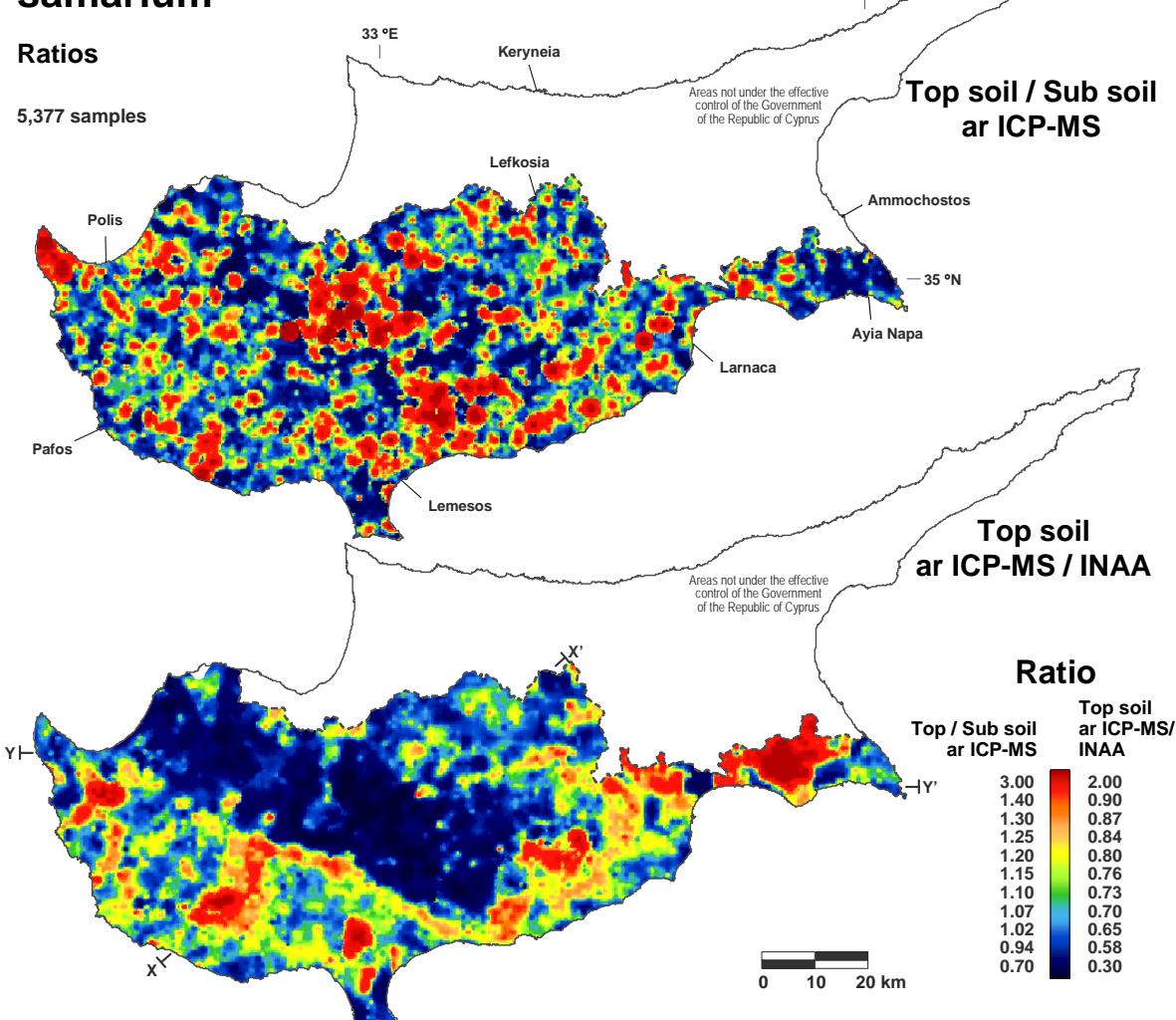


Sm samarium

Geochemical
Atlas of Cyprus

Ratios

5,377 samples

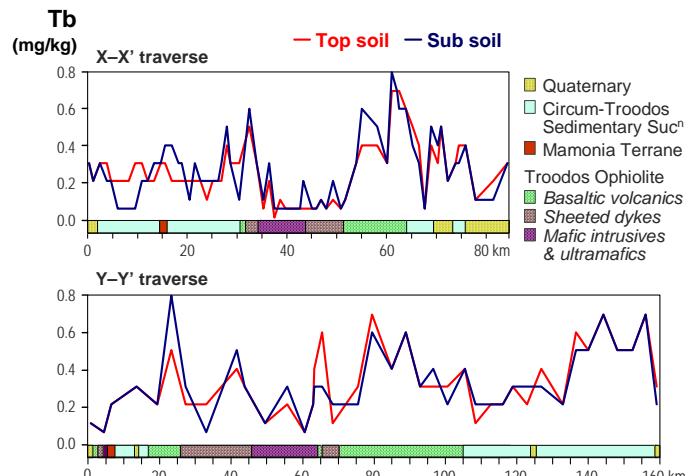
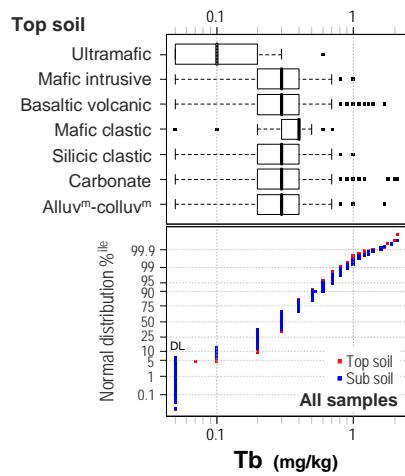
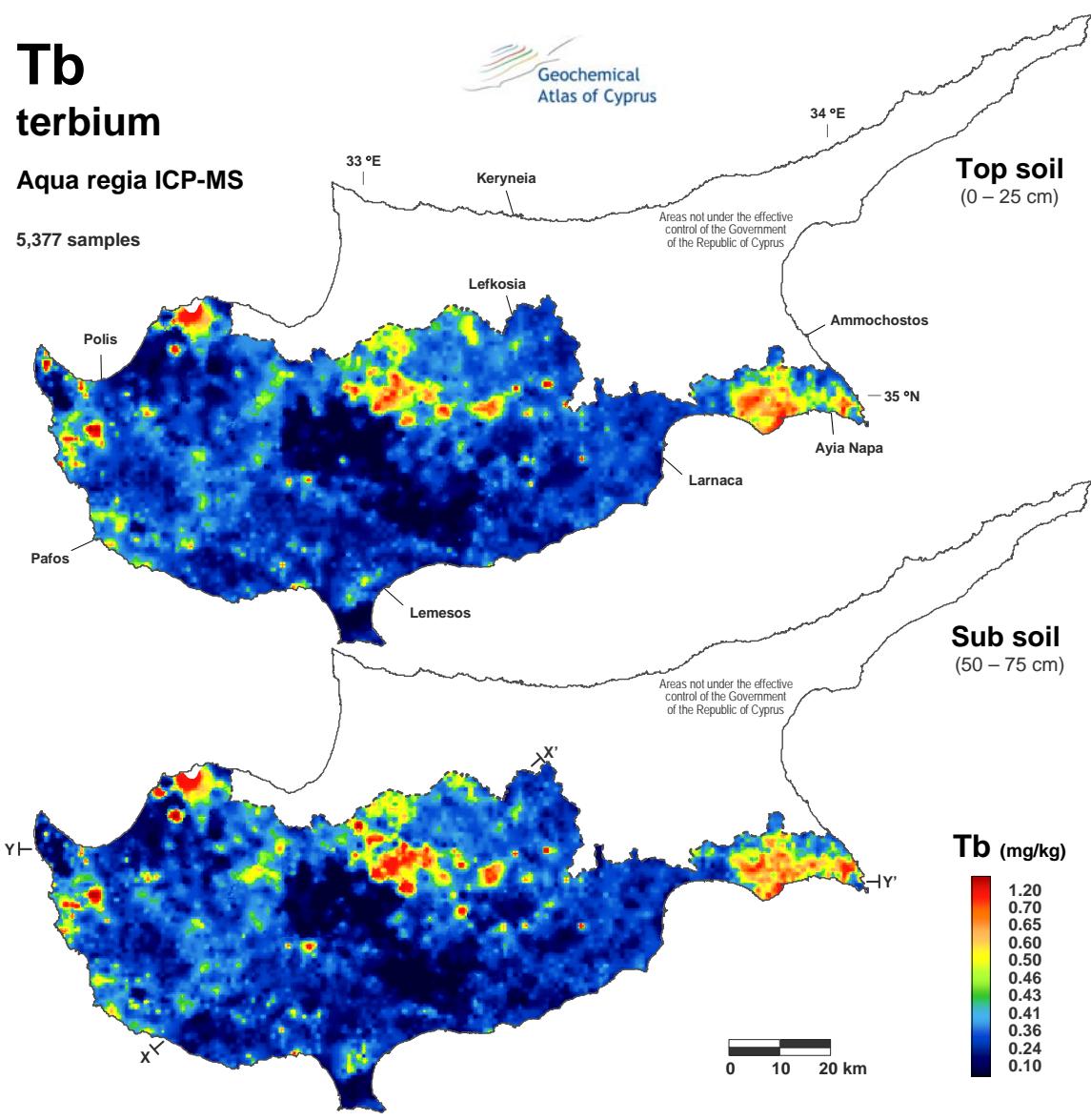


Tb terbium

Geochemical
Atlas of Cyprus

Aqua regia ICP-MS

5,377 samples

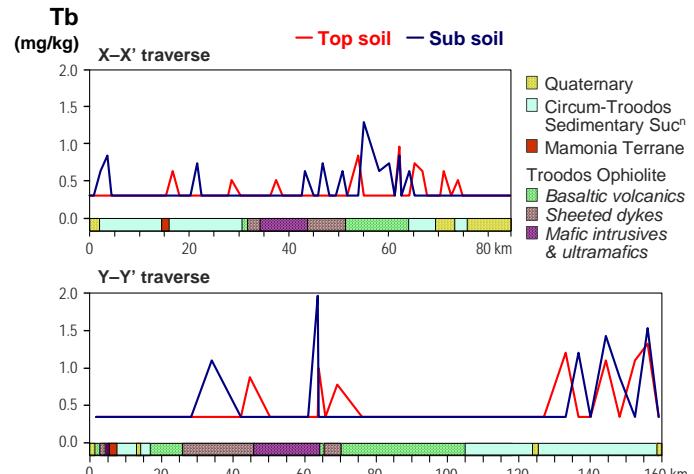
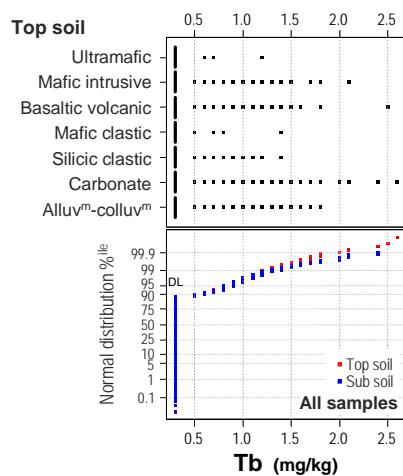
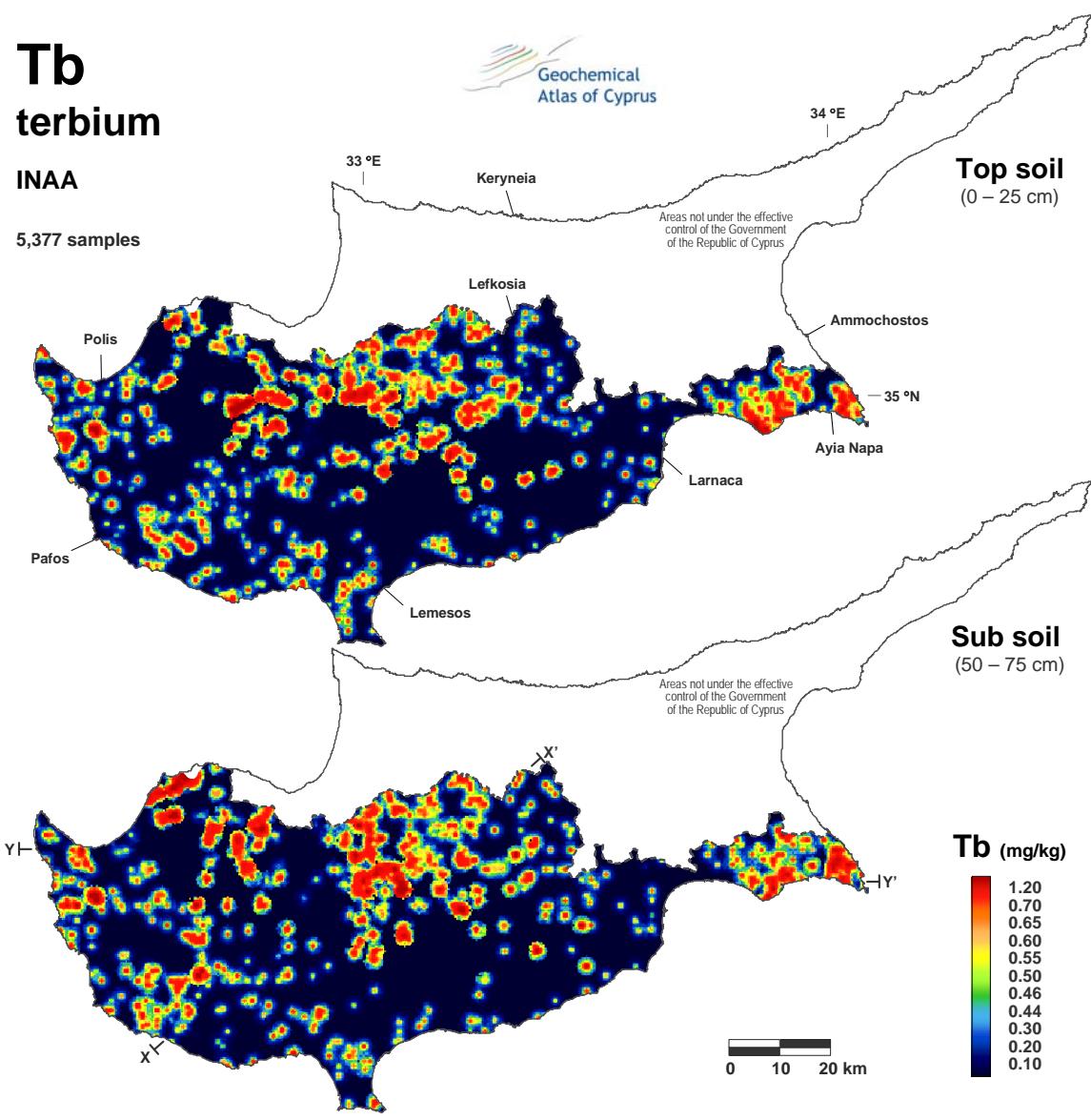


Tb terbium

Geochemical
Atlas of Cyprus

INAA

5,377 samples

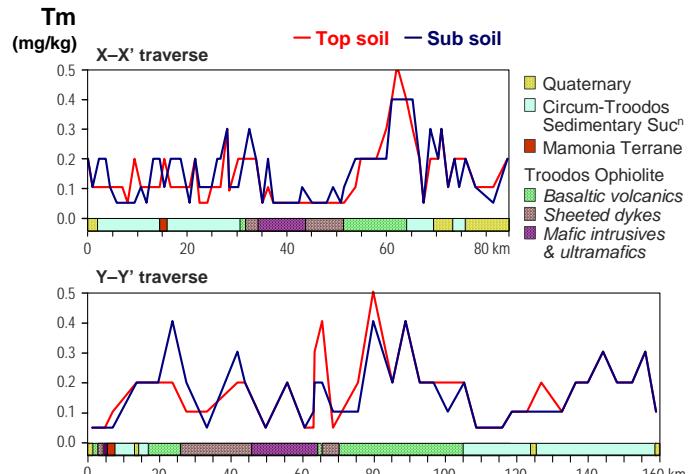
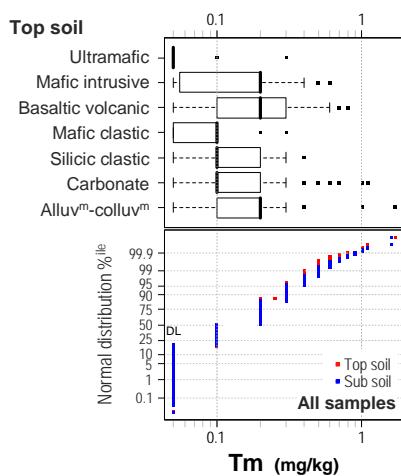
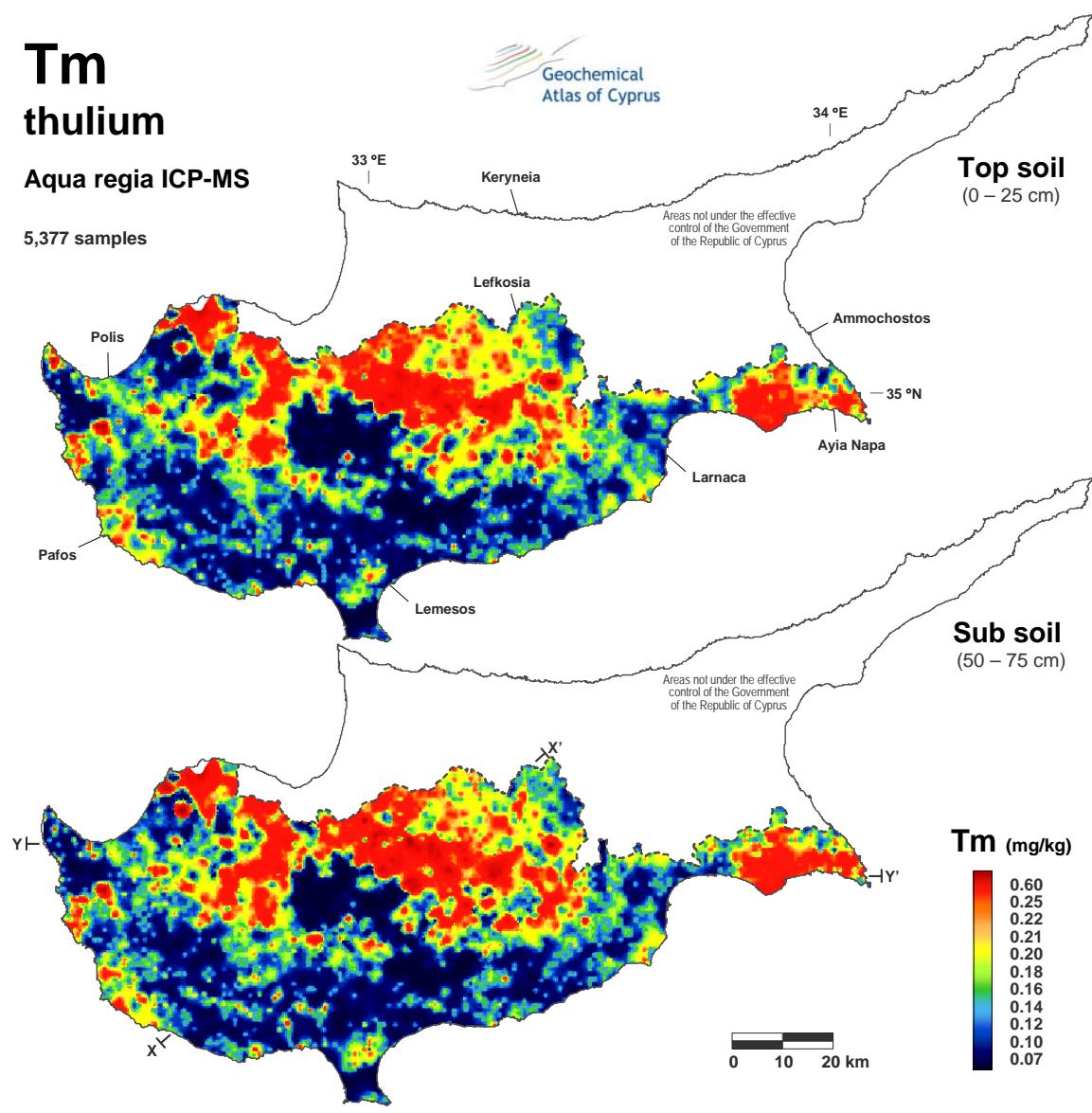


Tm thulium

Aqua regia ICP-MS

5,377 samples

Geochemical
Atlas of Cyprus

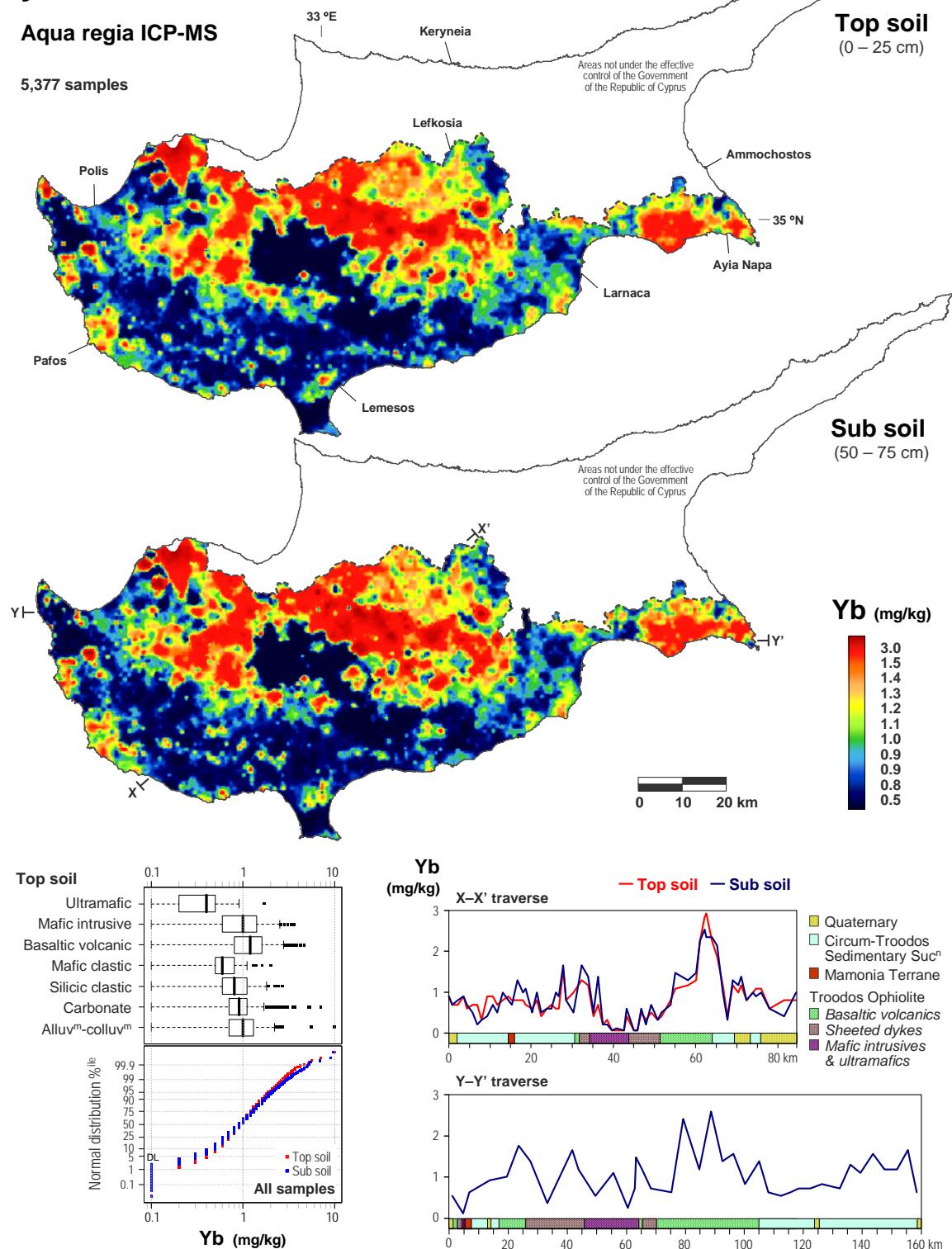


Yb ytterbium

Aqua regia ICP-MS

5,377 samples

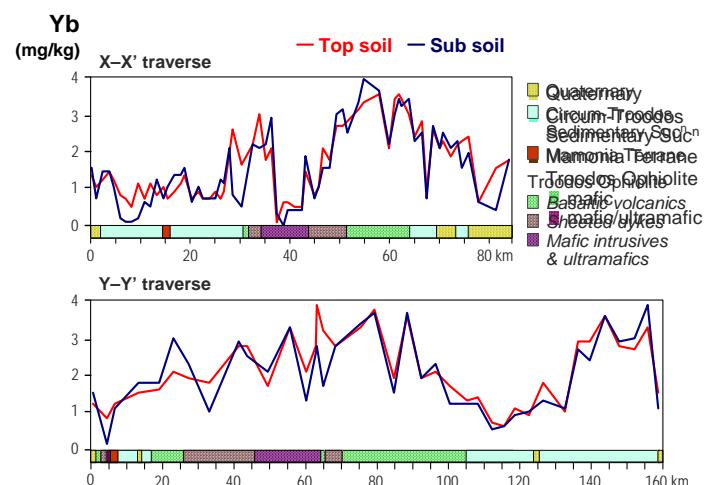
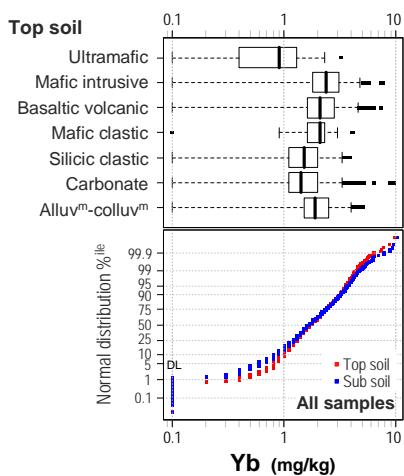
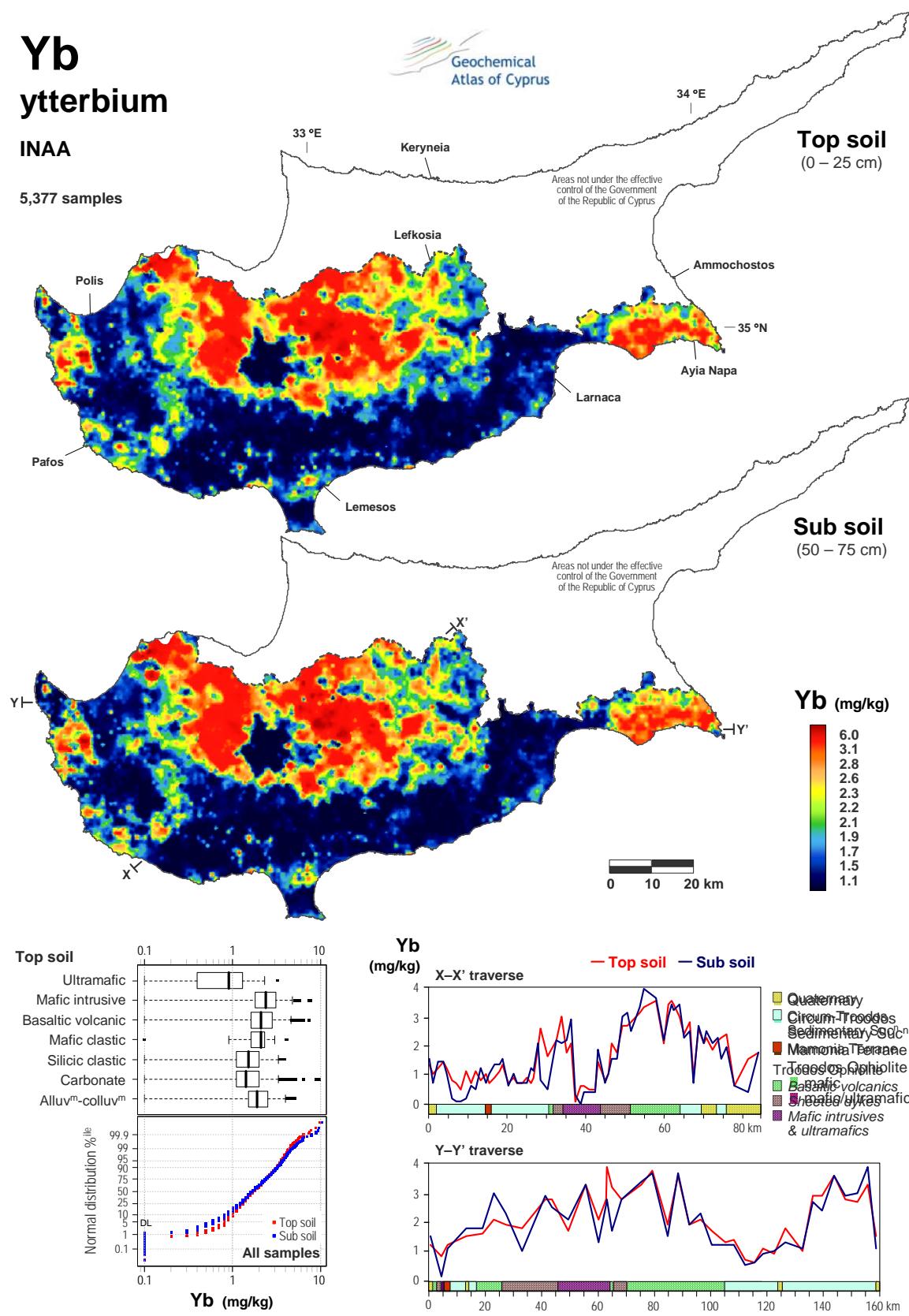
Geochemical
Atlas of Cyprus



Yb ytterbium

INAA

5,377 samples

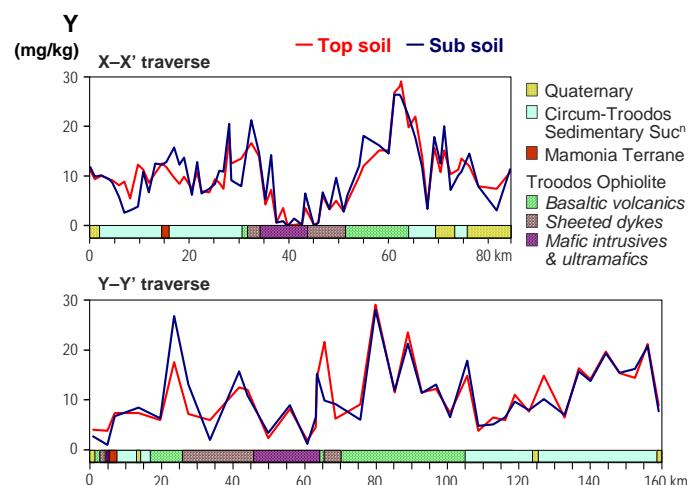
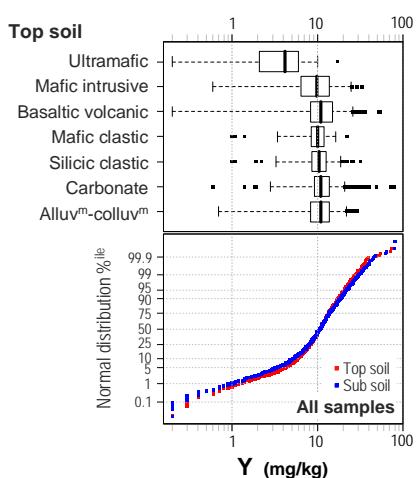
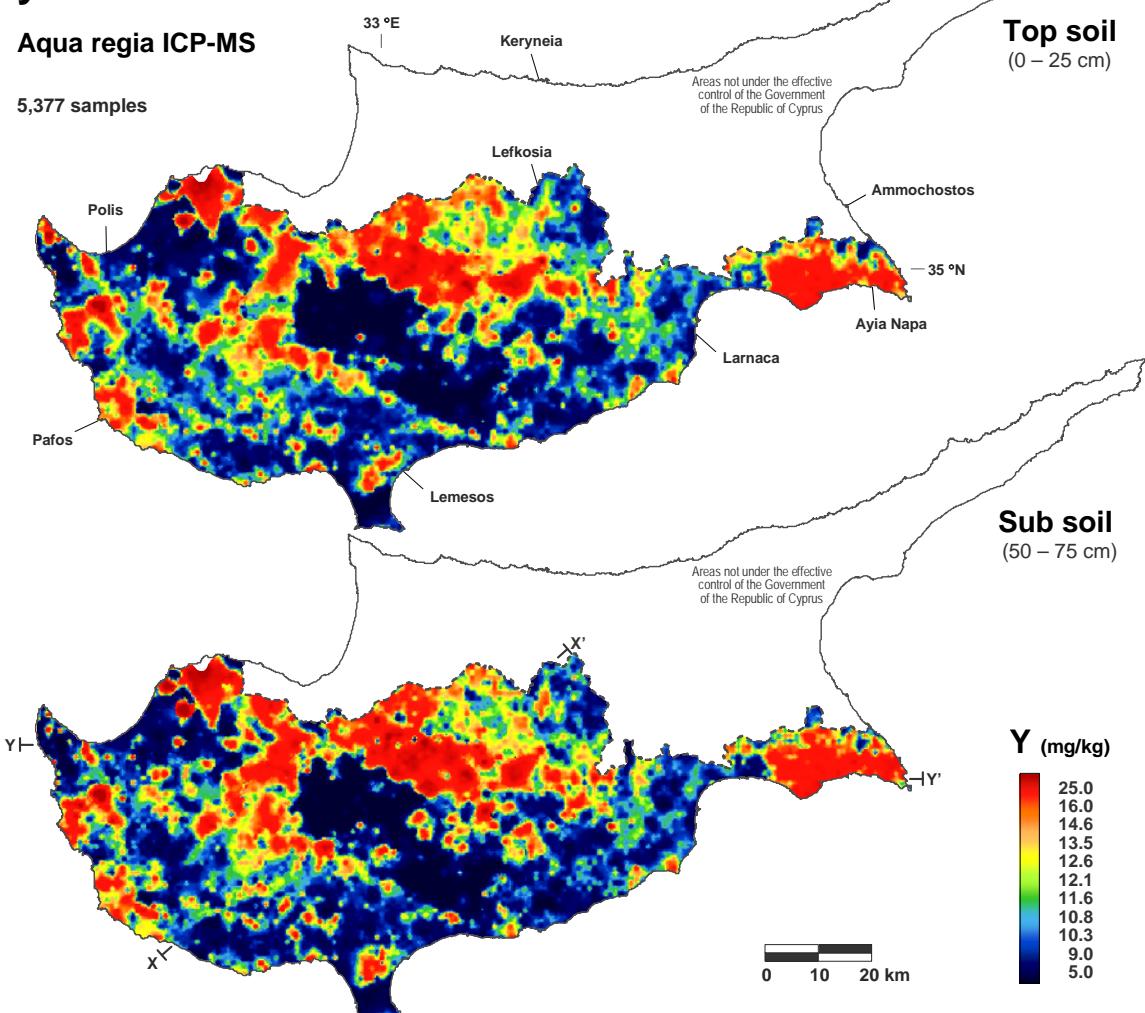


Yttrium

Aqua regia ICP-MS

5,377 samples

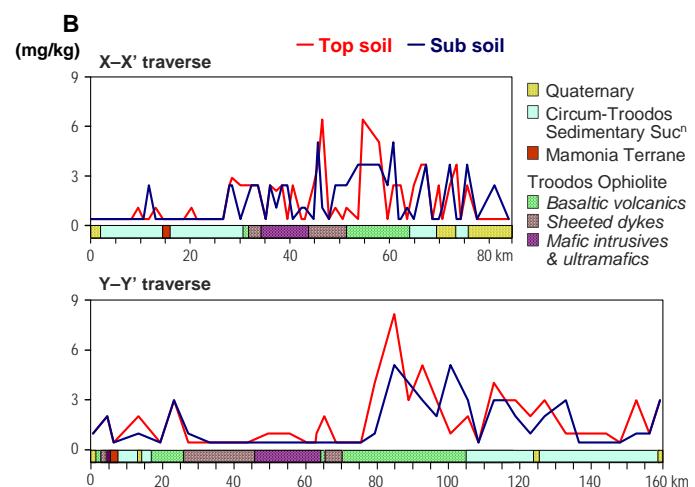
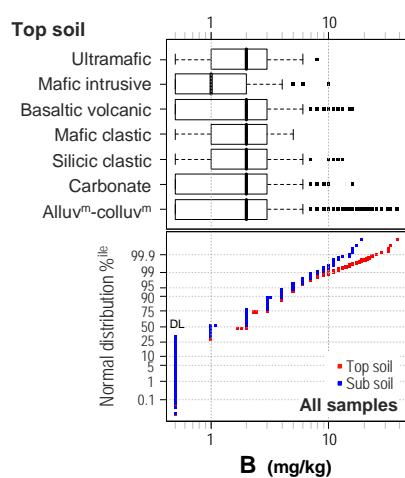
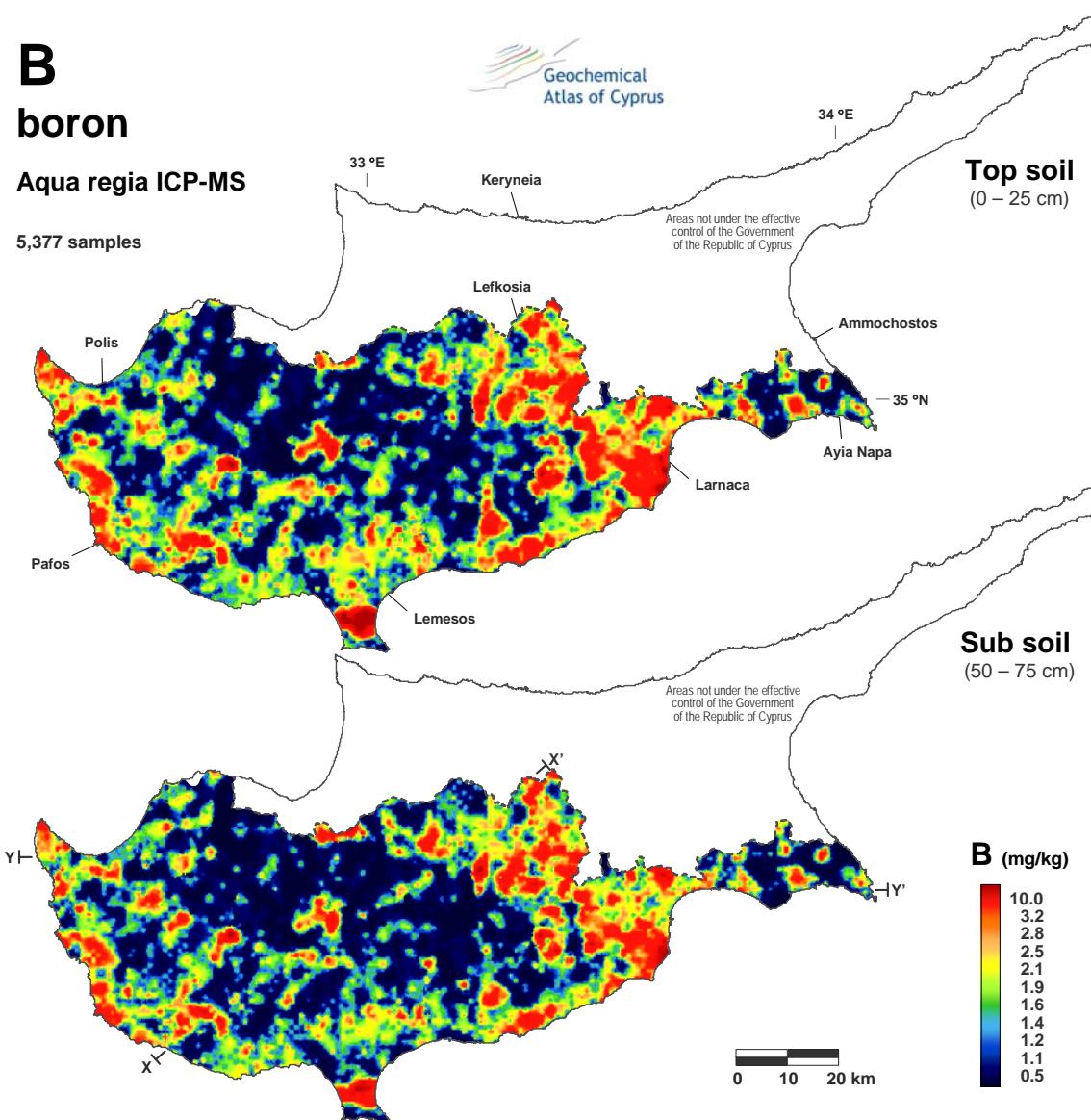
Geochemical
Atlas of Cyprus



B boron

Aqua regia ICP-MS

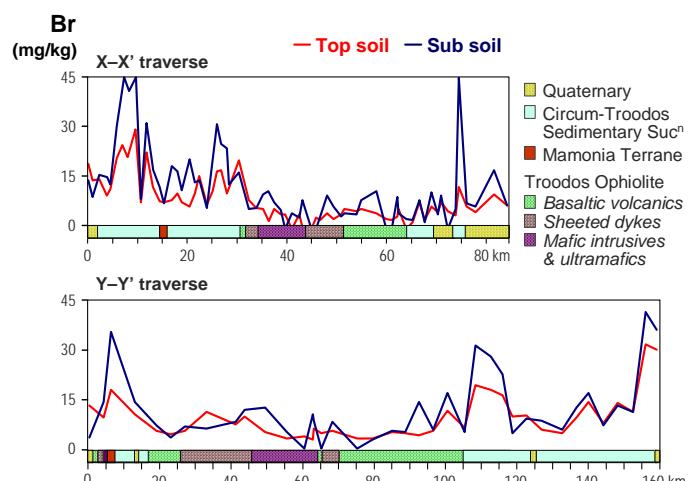
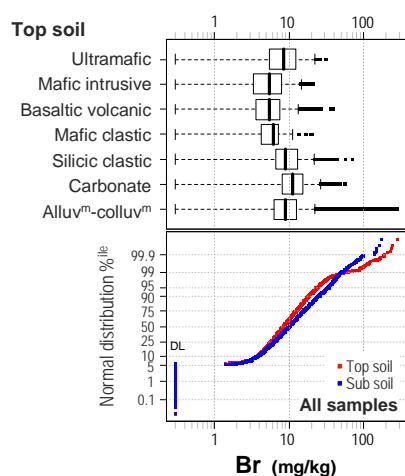
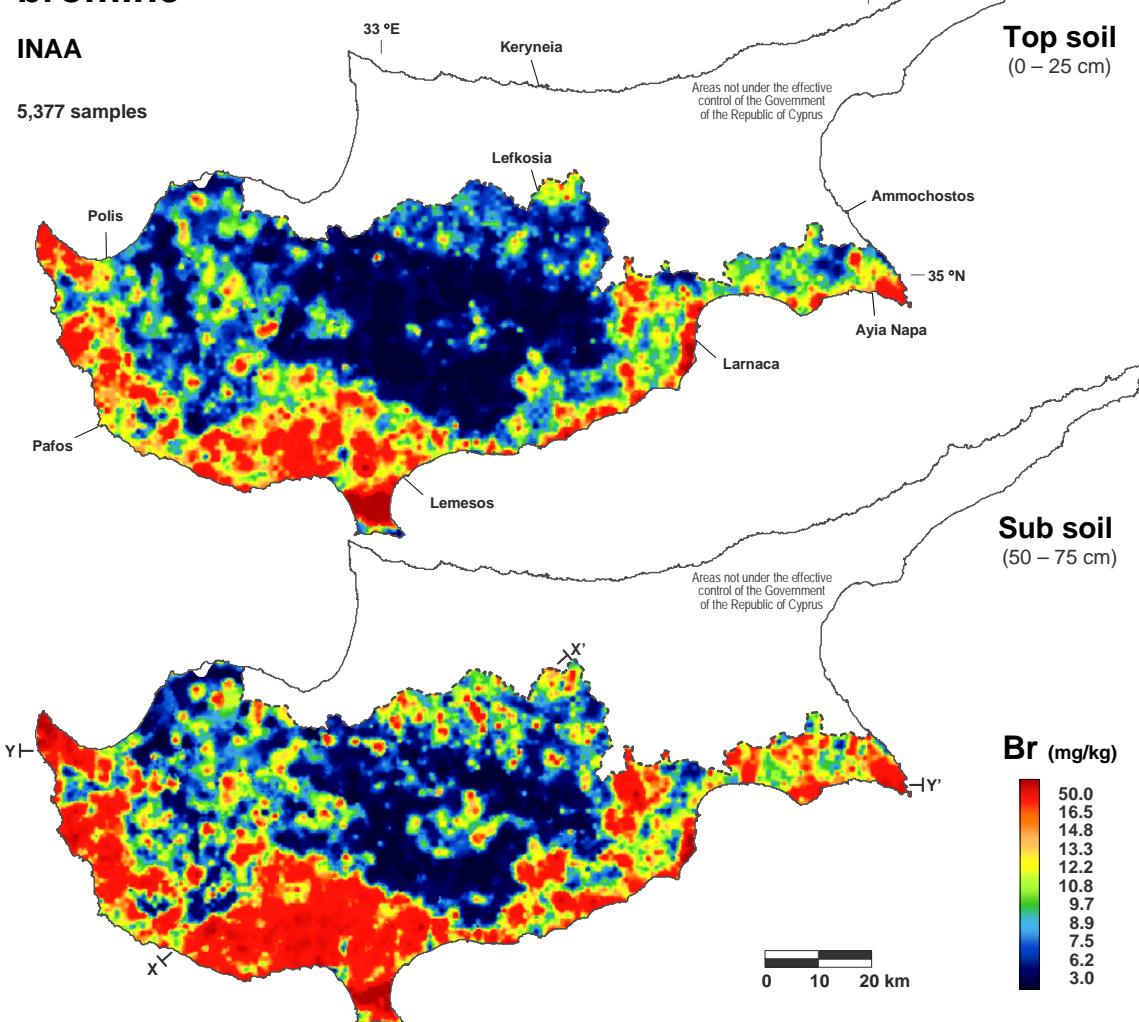
5,377 samples



Br bromine

INAA

5,377 samples

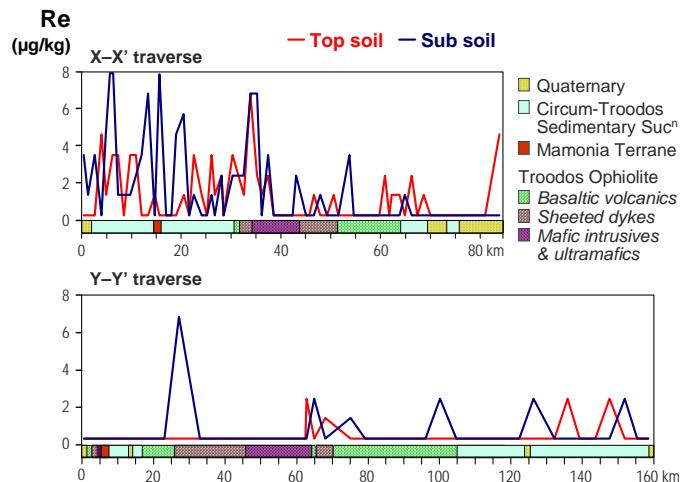
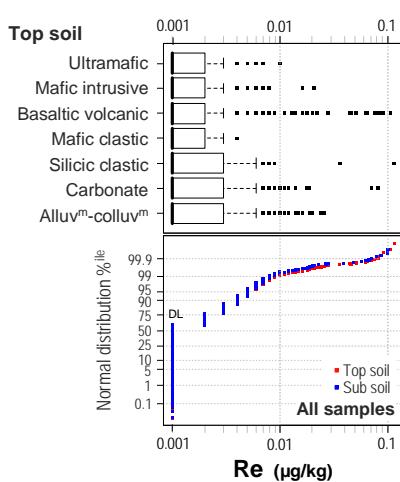
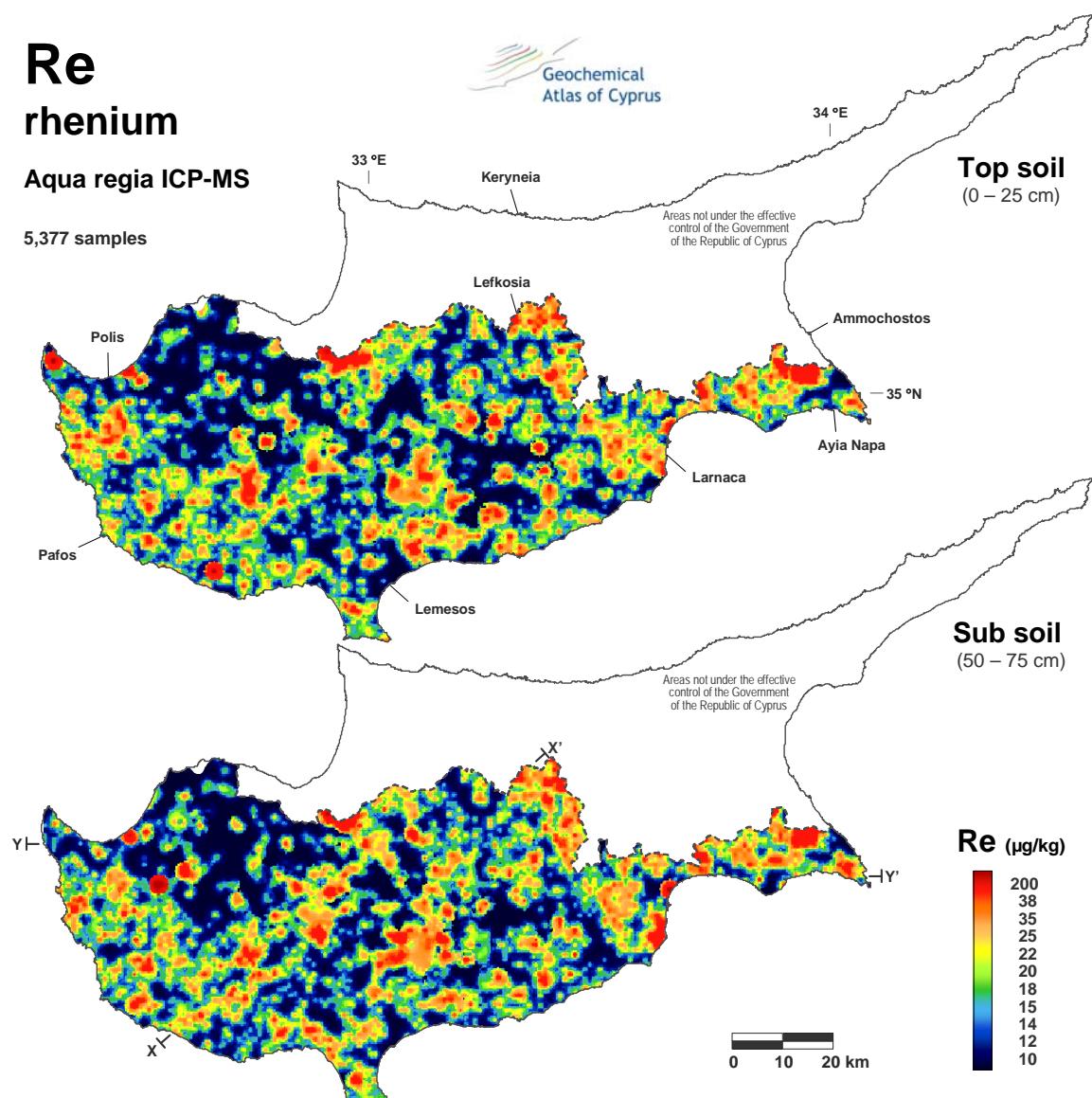


Re rhenium

Aqua regia ICP-MS

5,377 samples

Geochemical
Atlas of Cyprus

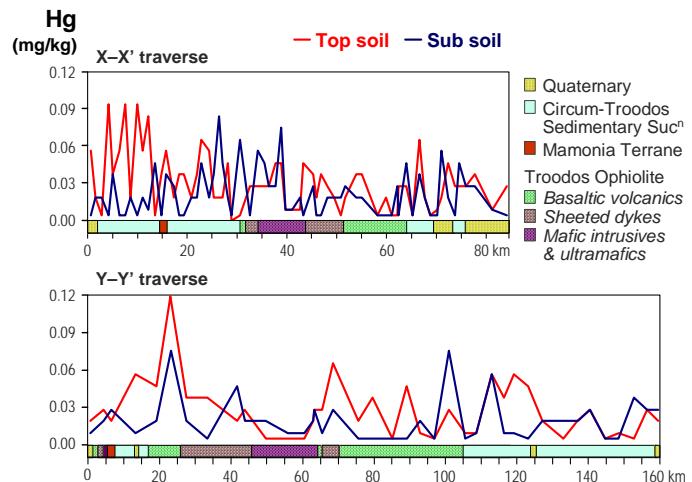
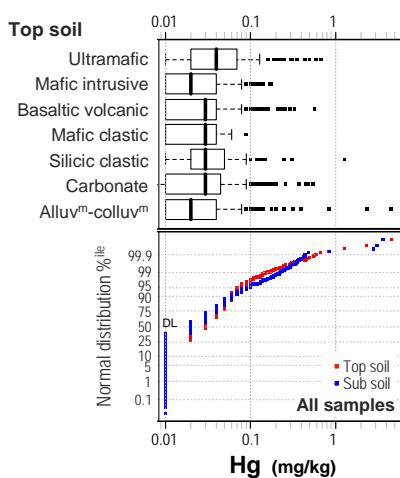
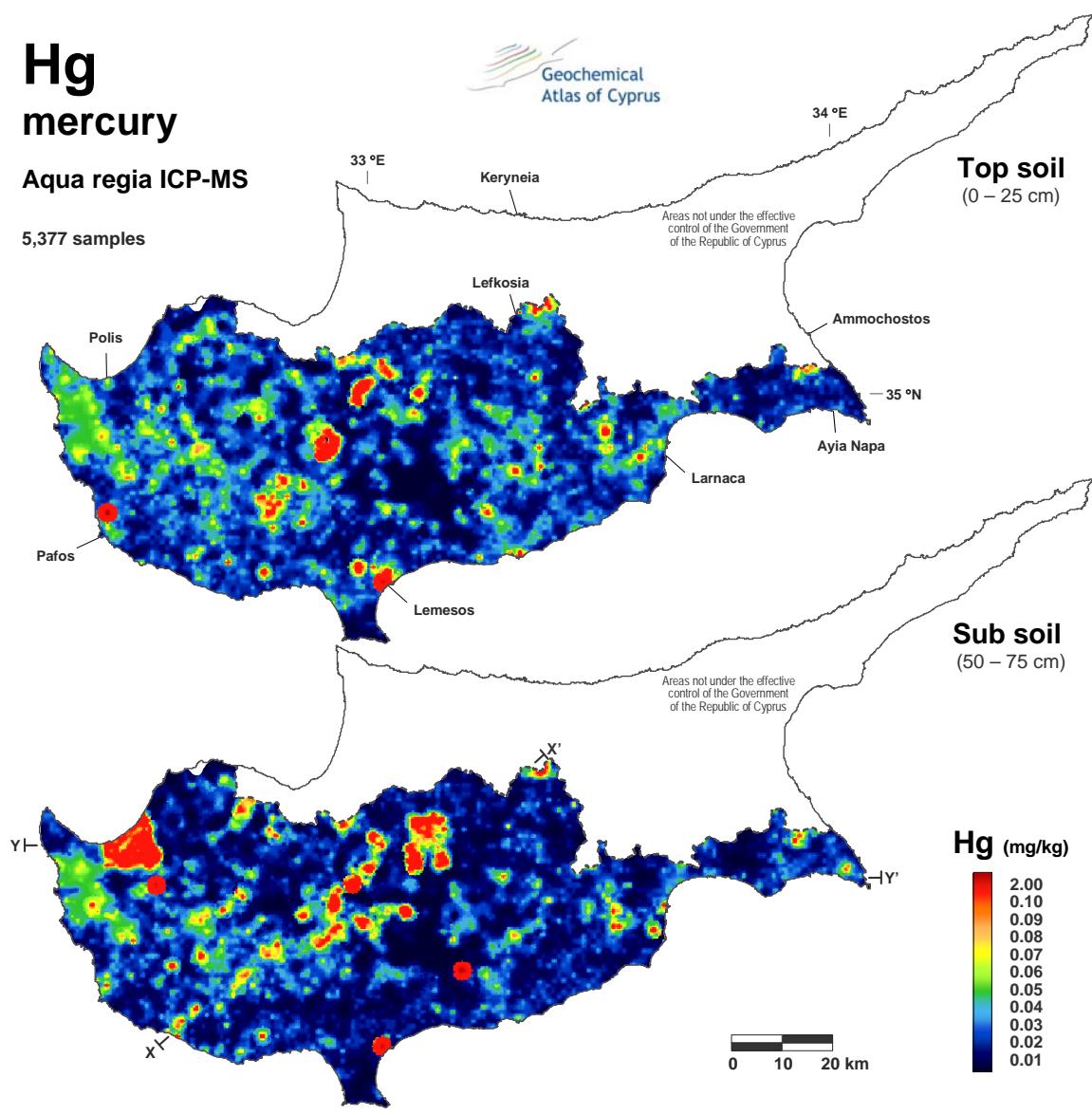


Hg mercury

Aqua regia ICP-MS

5,377 samples

Geochemical
Atlas of Cyprus

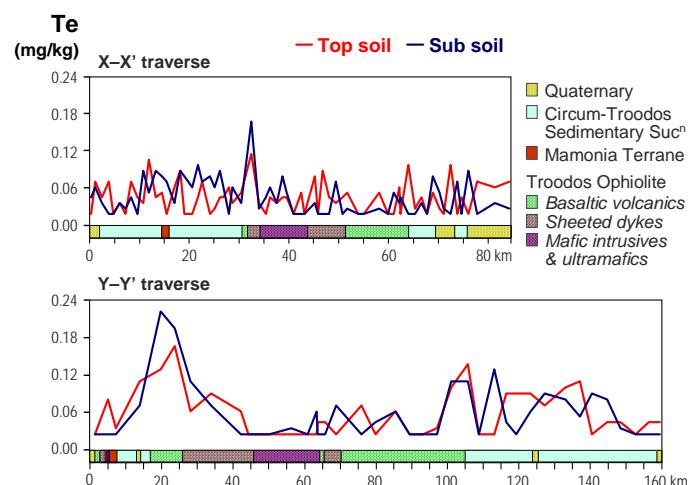
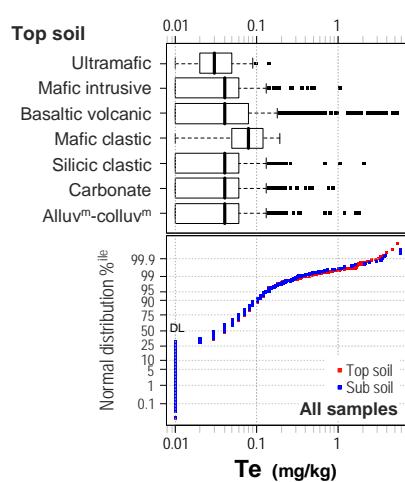
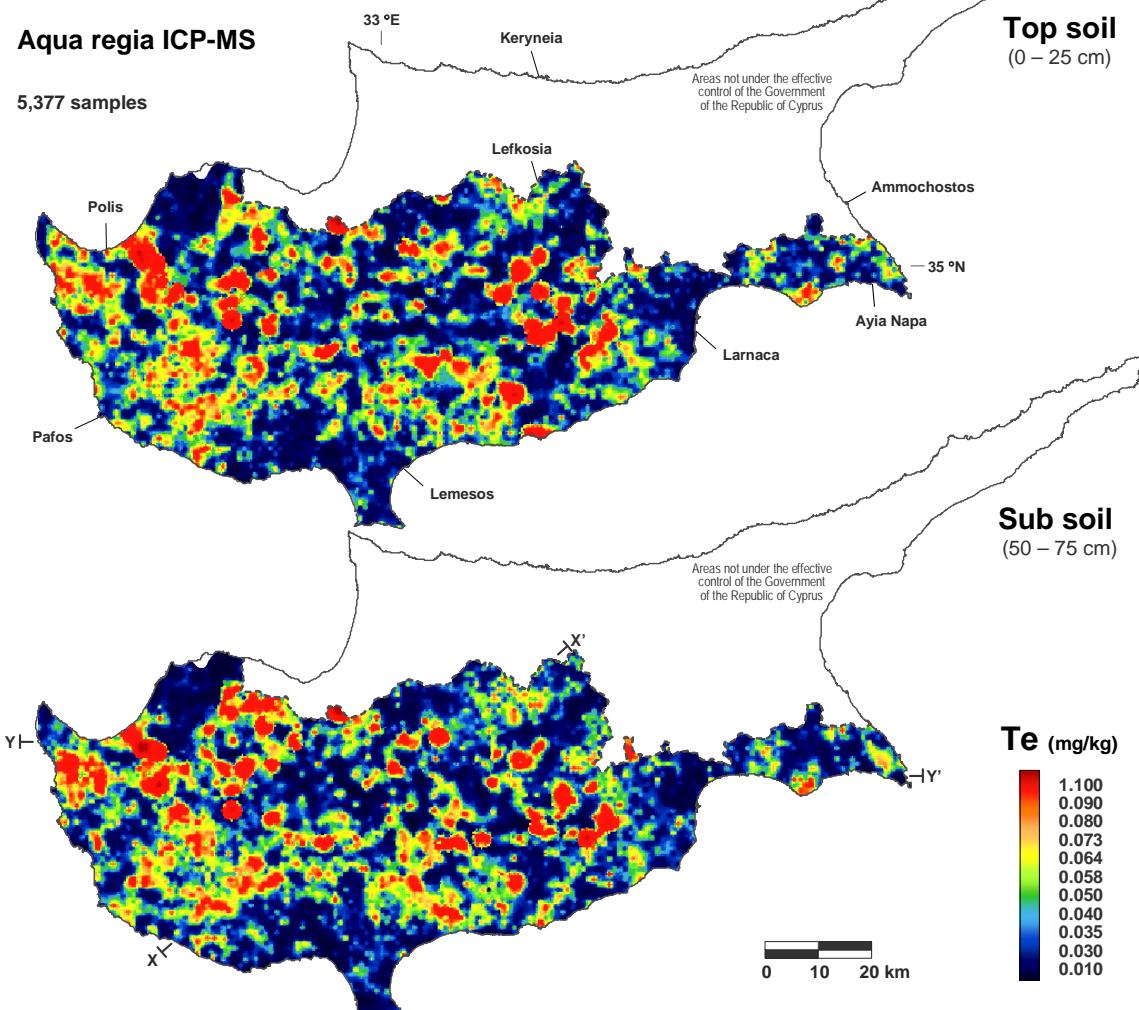


Te tellurium

Geochemical
Atlas of Cyprus

Aqua regia ICP-MS

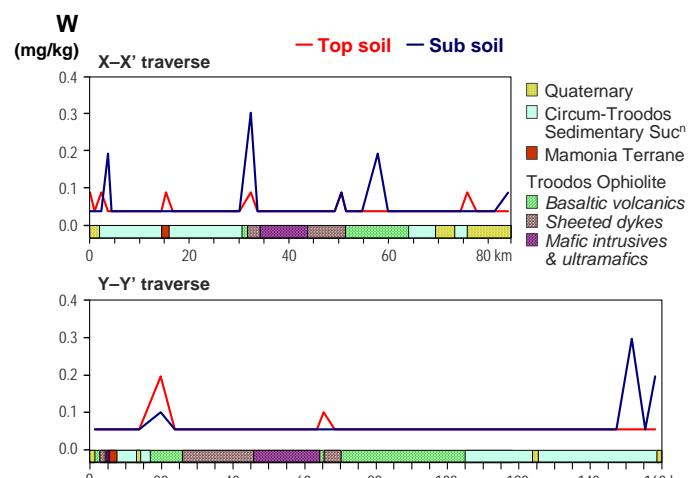
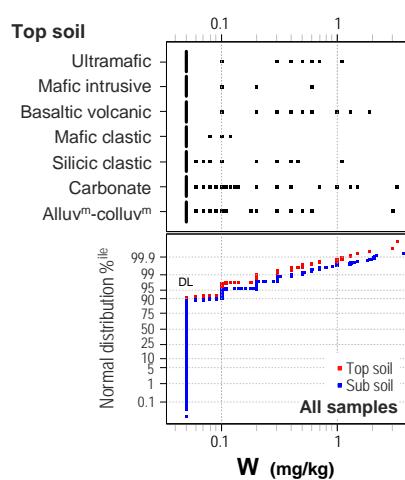
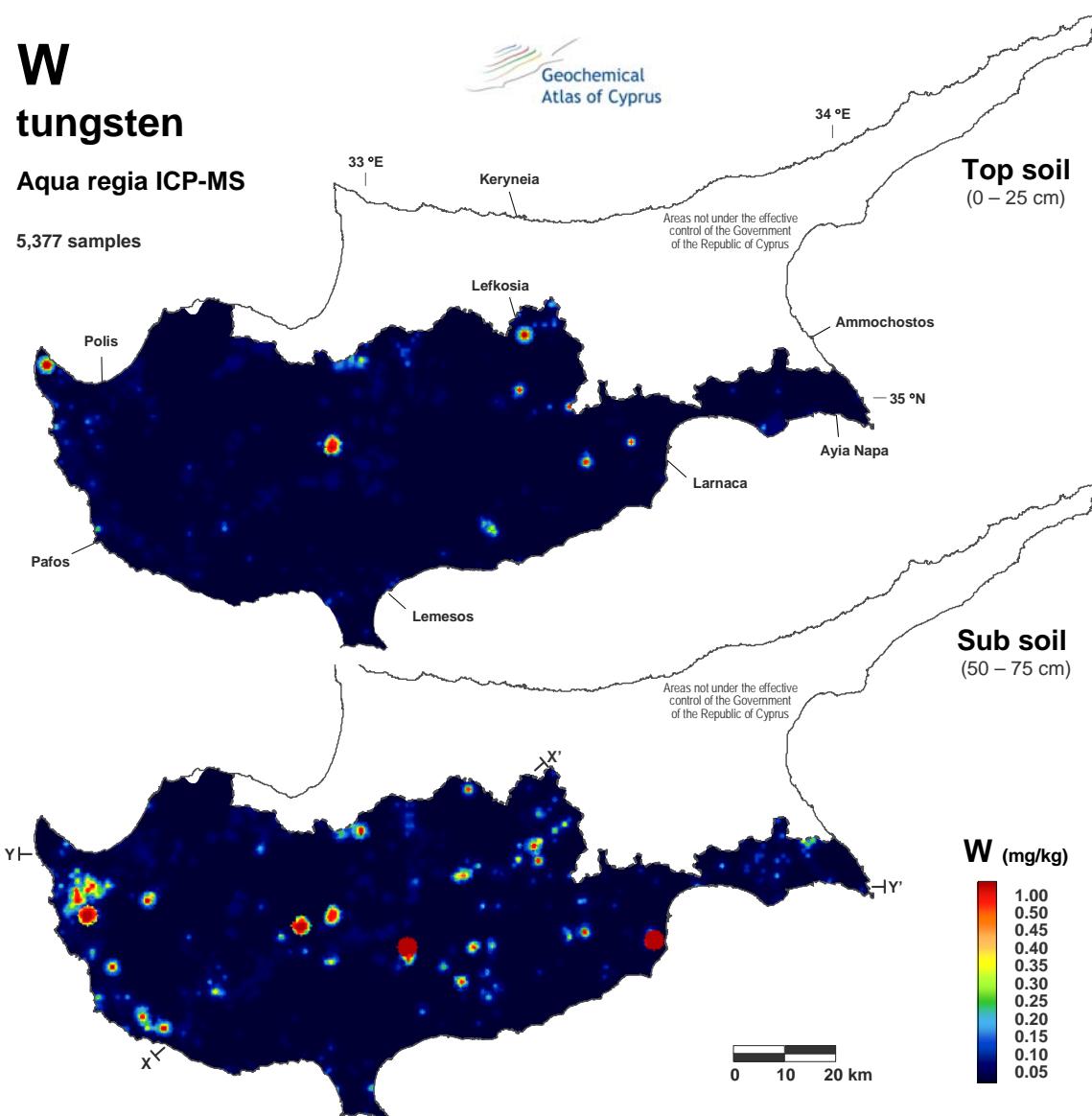
5,377 samples



W tungsten

Aqua regia ICP-MS

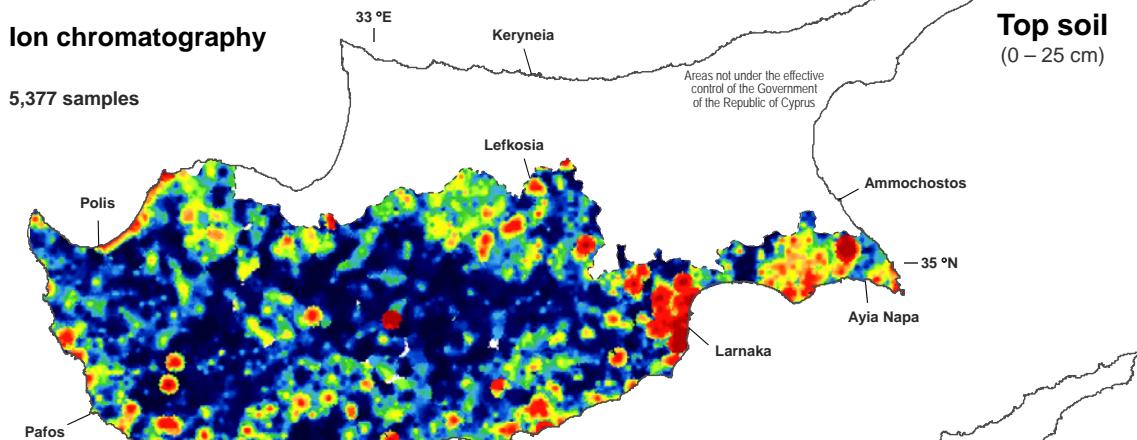
5,377 samples



Cl^- chloride

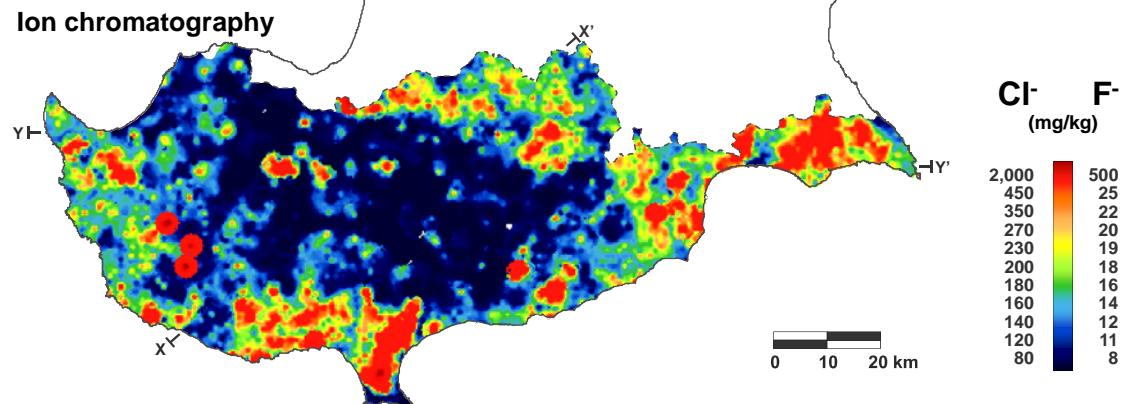
Ion chromatography

5,377 samples

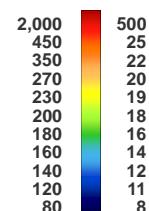


F^- fluoride

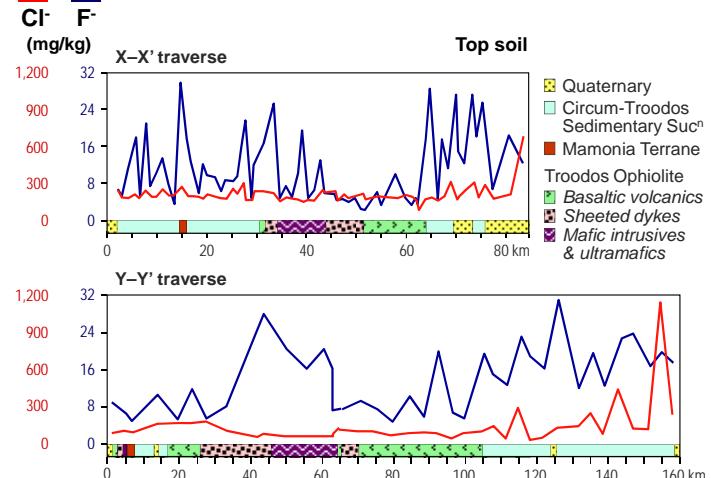
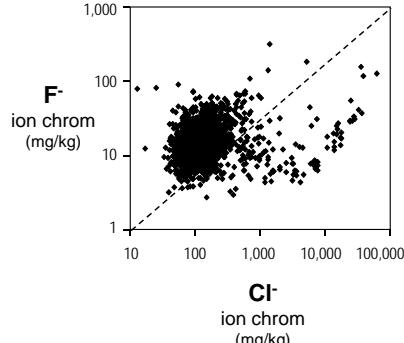
Ion chromatography



$\text{Cl}^- \quad \text{F}^-$
(mg/kg)



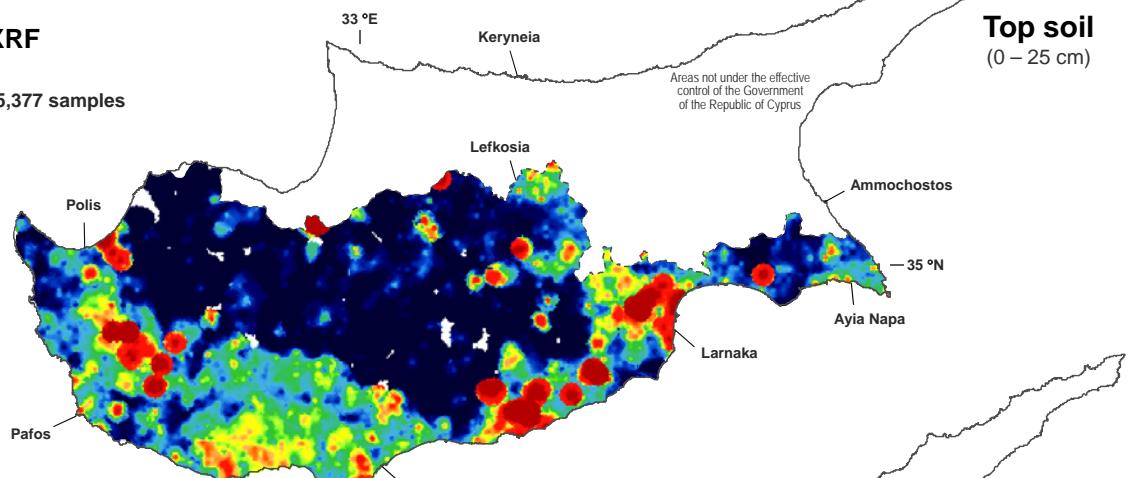
0 10 20 km



S sulfur

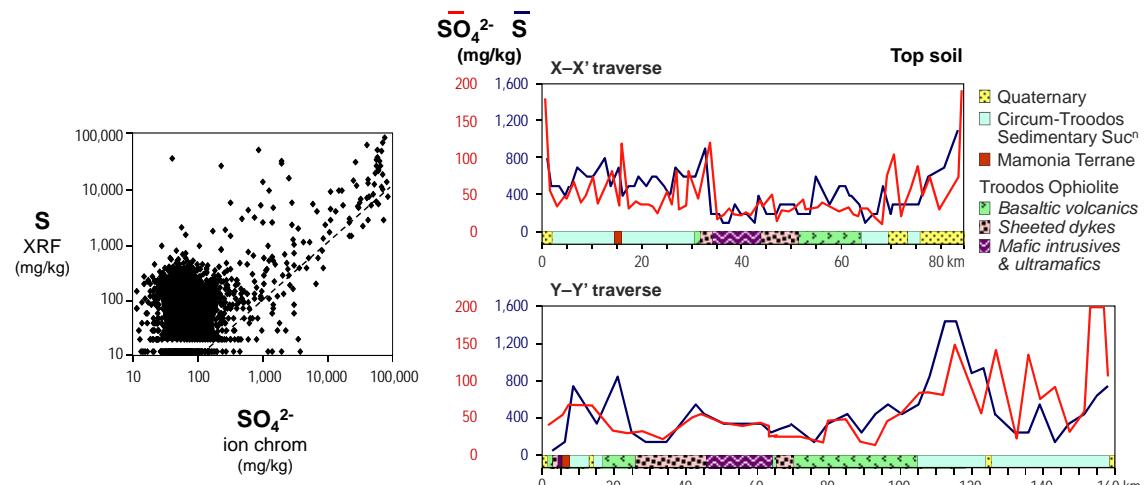
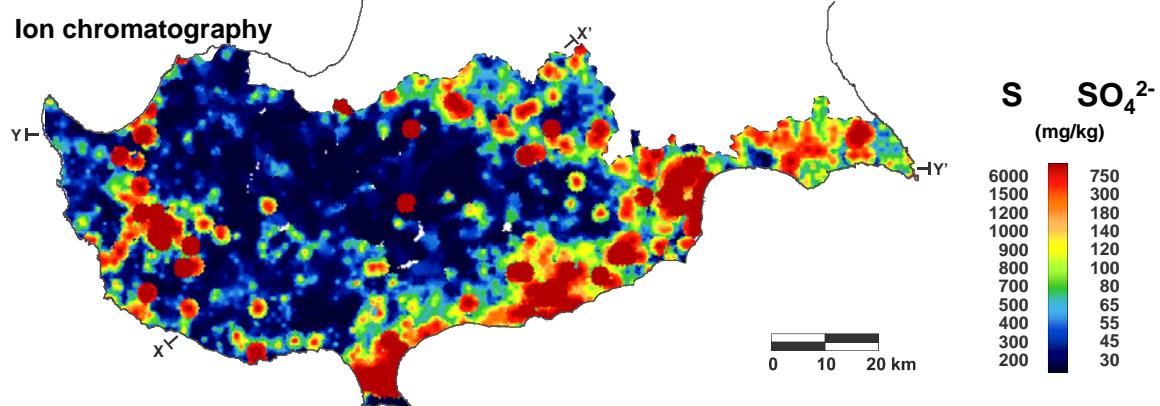
XRF

5,377 samples



SO_4^{2-} sulfate

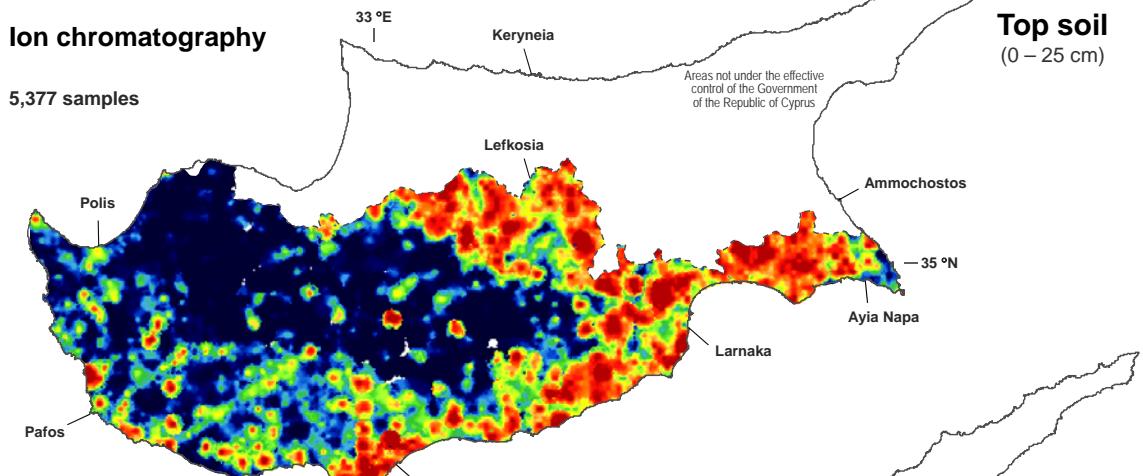
Ion chromatography



NO_3^- nitrate

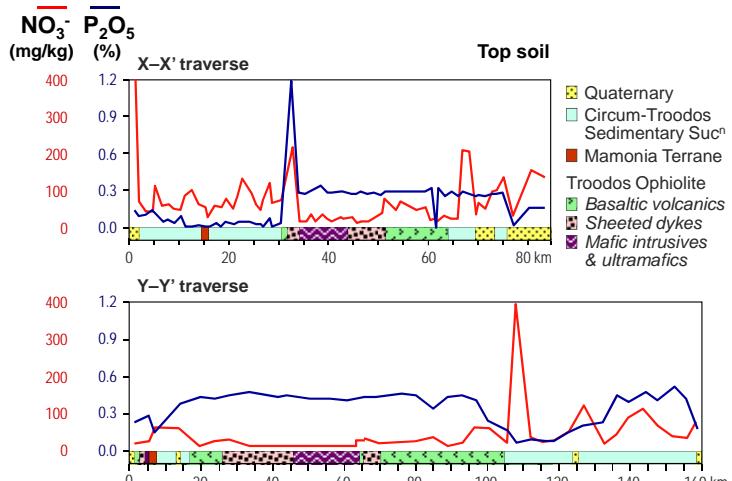
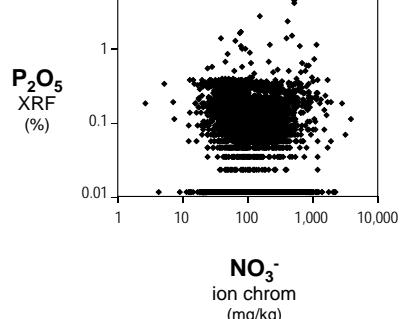
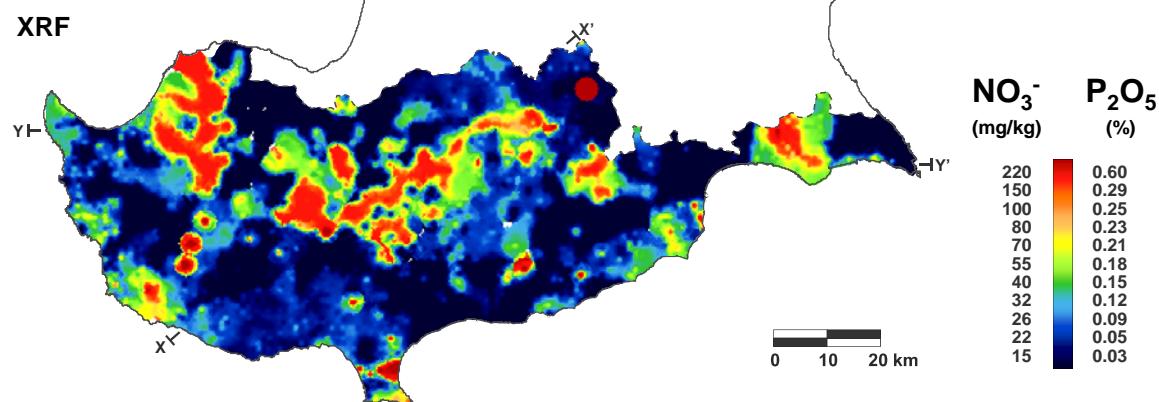
Ion chromatography

5,377 samples



P_2O_5 phosphate

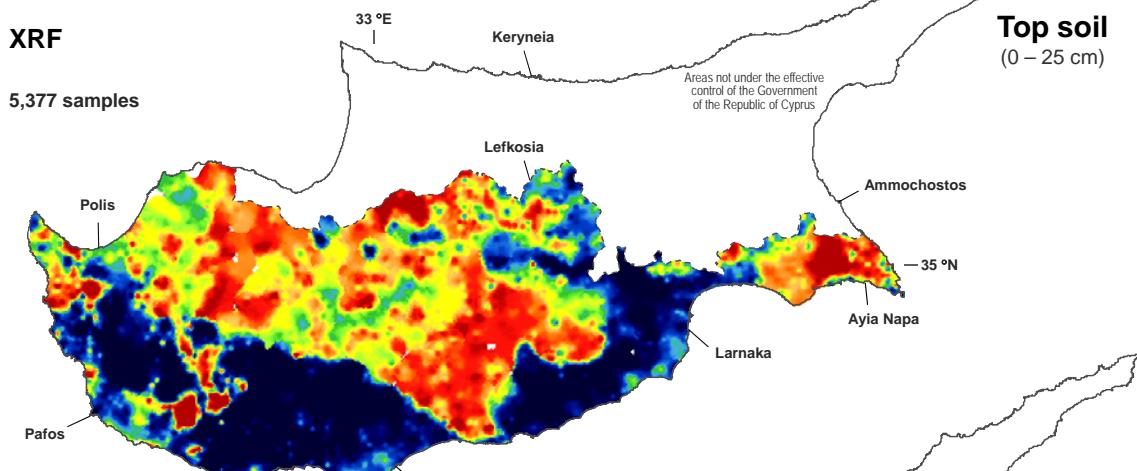
XRF



SiO_2 silica

XRF

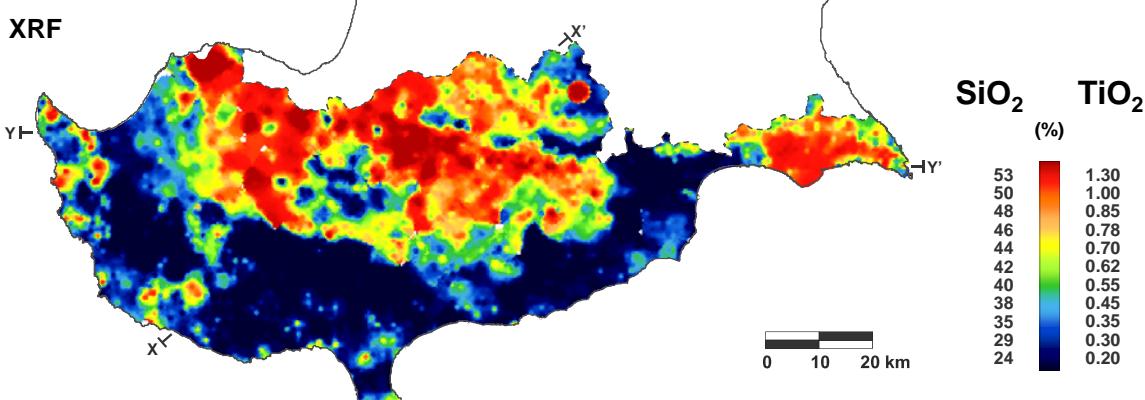
5,377 samples



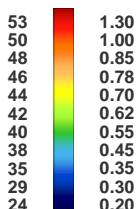
Top soil
(0 – 25 cm)

TiO_2 titanium dioxide

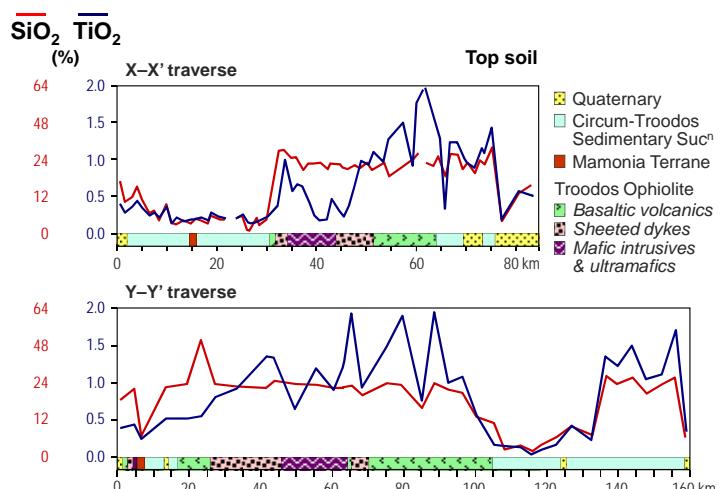
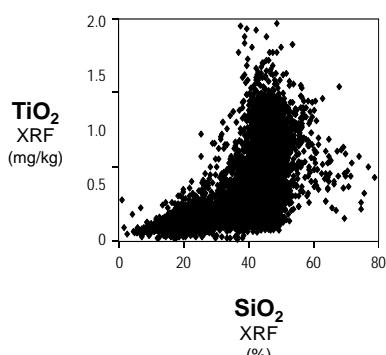
XRF



SiO_2 TiO_2
(%)

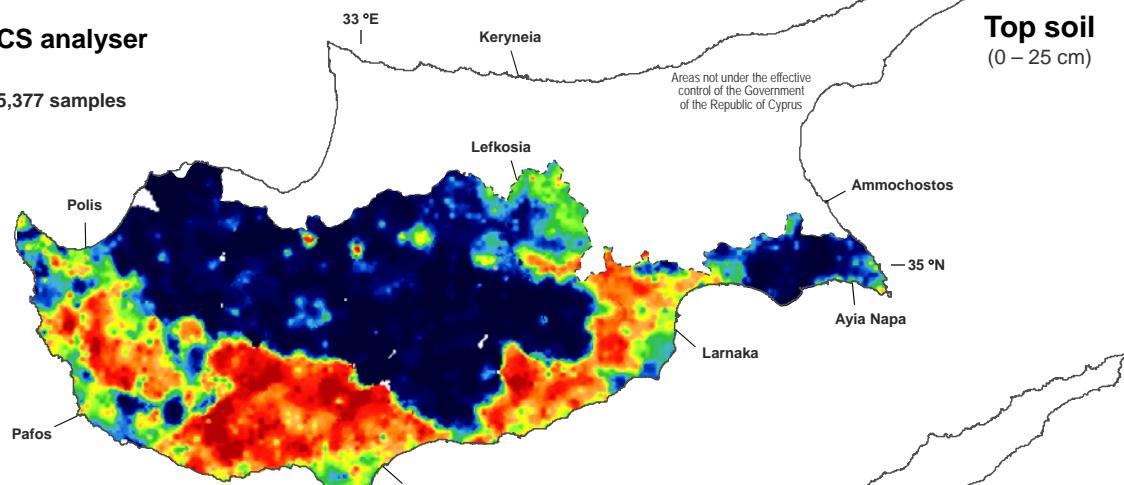
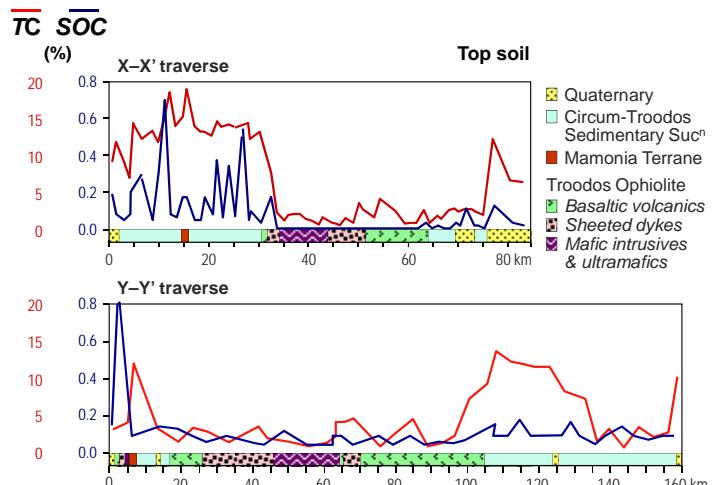
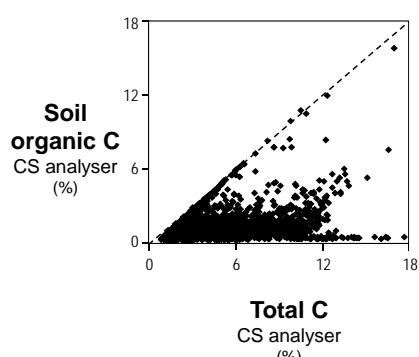
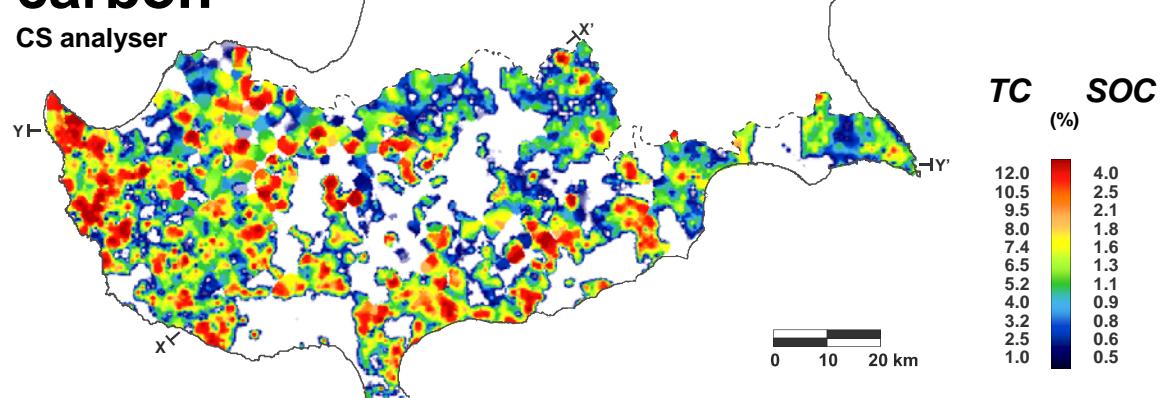


0 10 20 km



C**total carbon****CS analyser**

5,377 samples

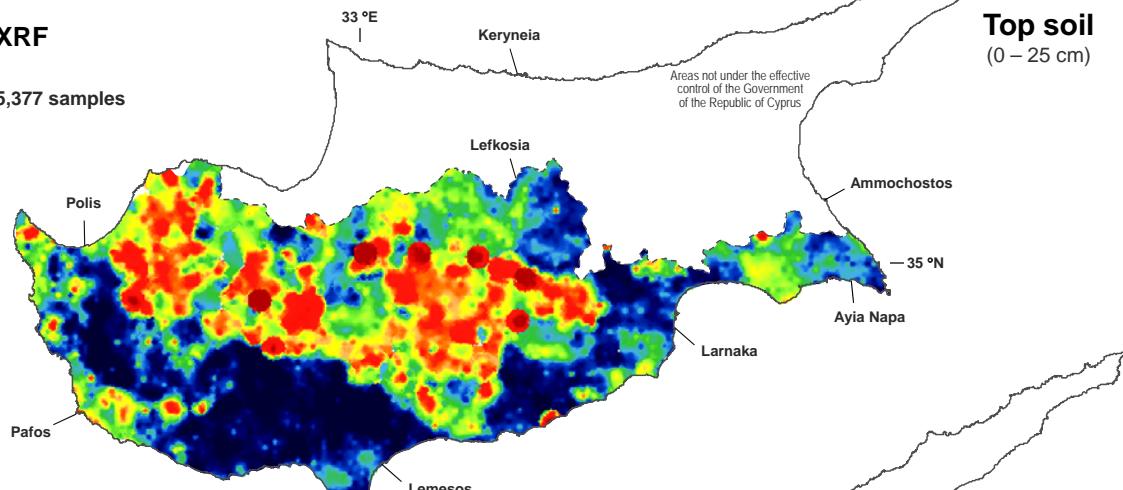
**Soil organic carbon****CS analyser**

MnO

manganese oxide

XRF

5,377 samples

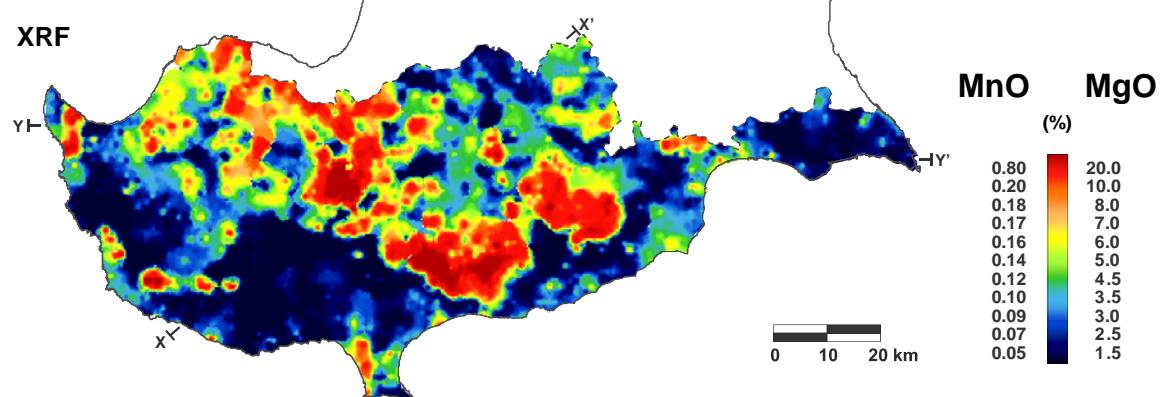


Top soil
(0 – 25 cm)

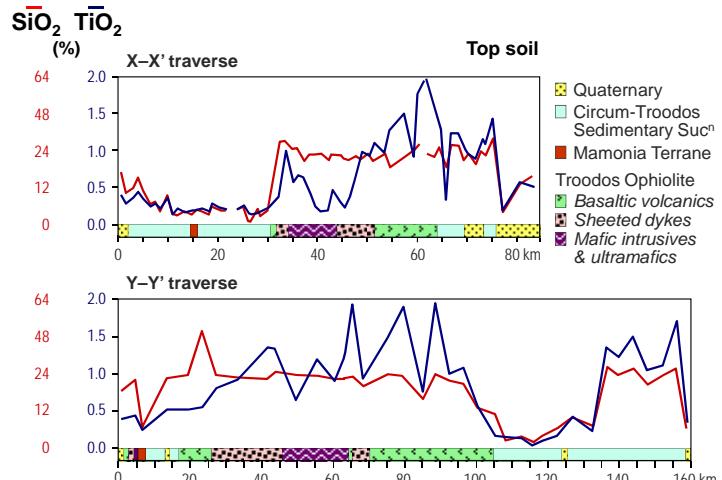
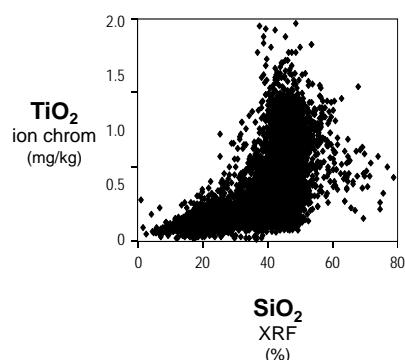
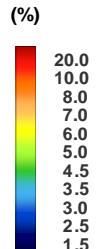
MgO

magnesium oxide

XRF



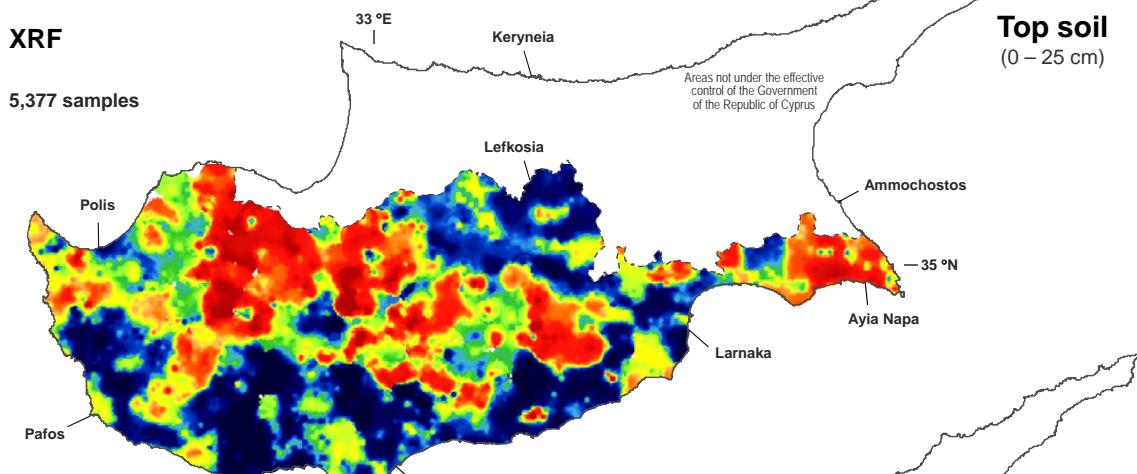
MnO MgO



Al_2O_3 alumina

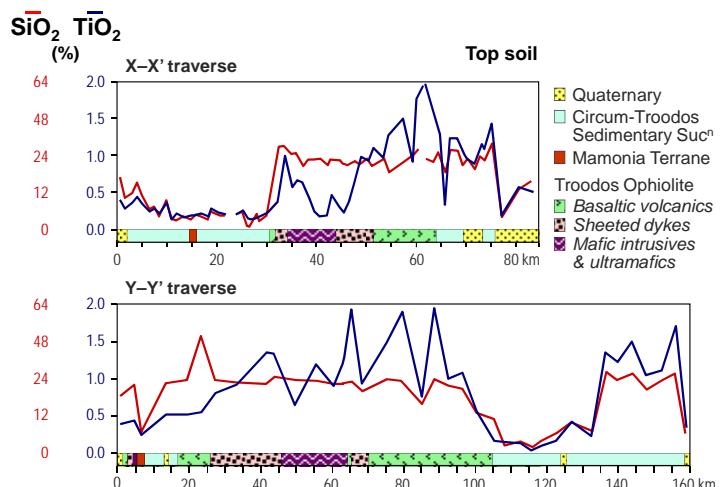
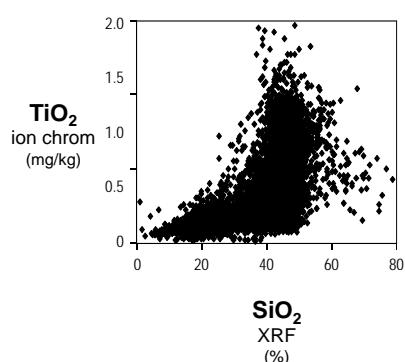
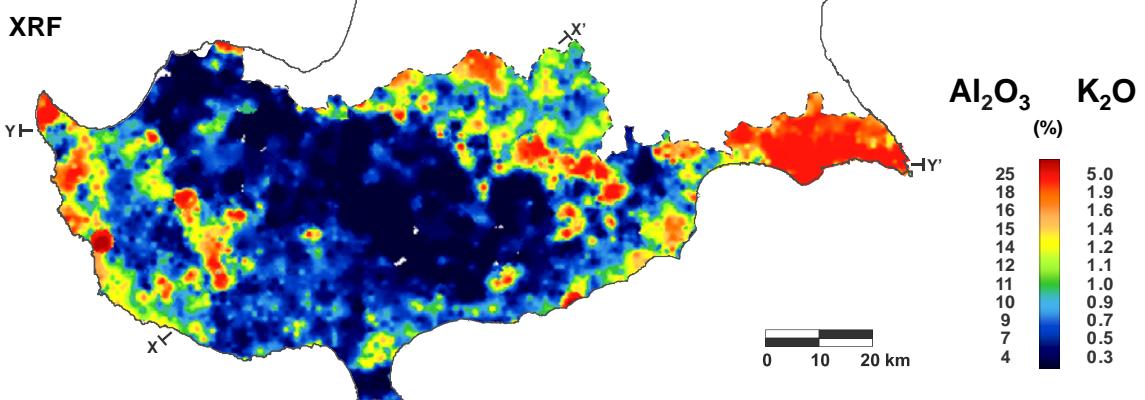
XRF

5,377 samples



K_2O potassium oxide

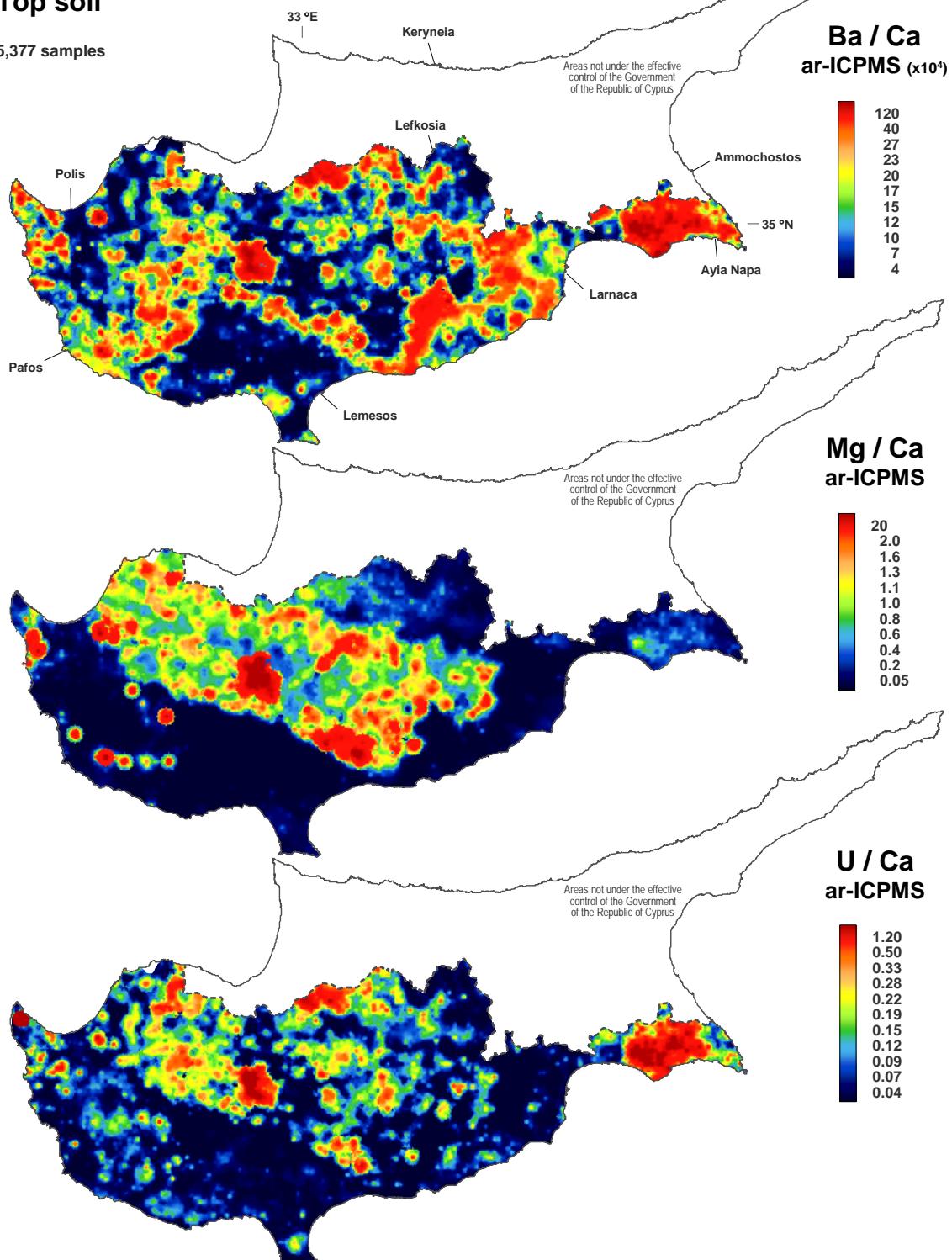
XRF



Ratios

Top soil

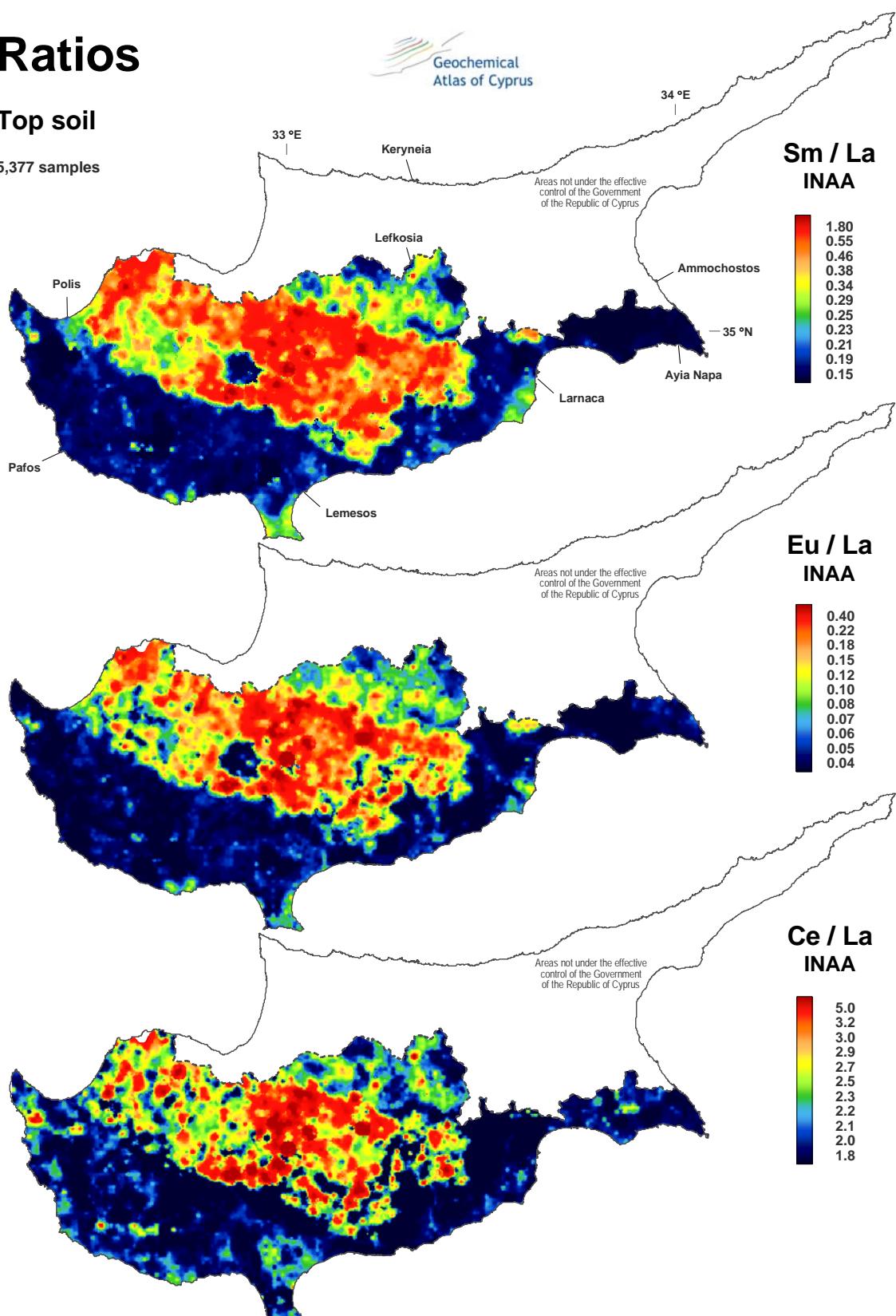
5,377 samples



Ratios

Top soil

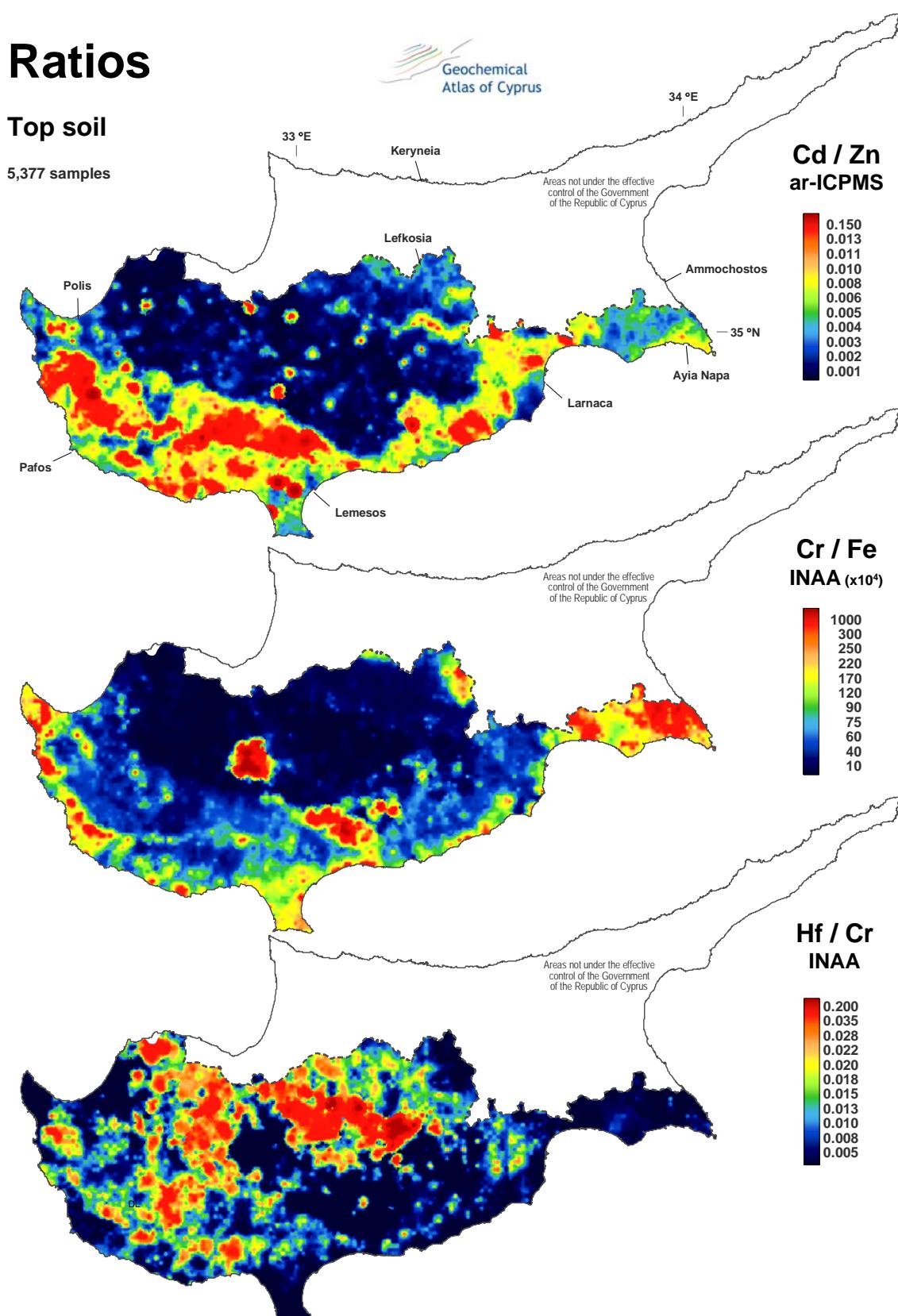
5,377 samples



Ratios

Top soil

5,377 samples

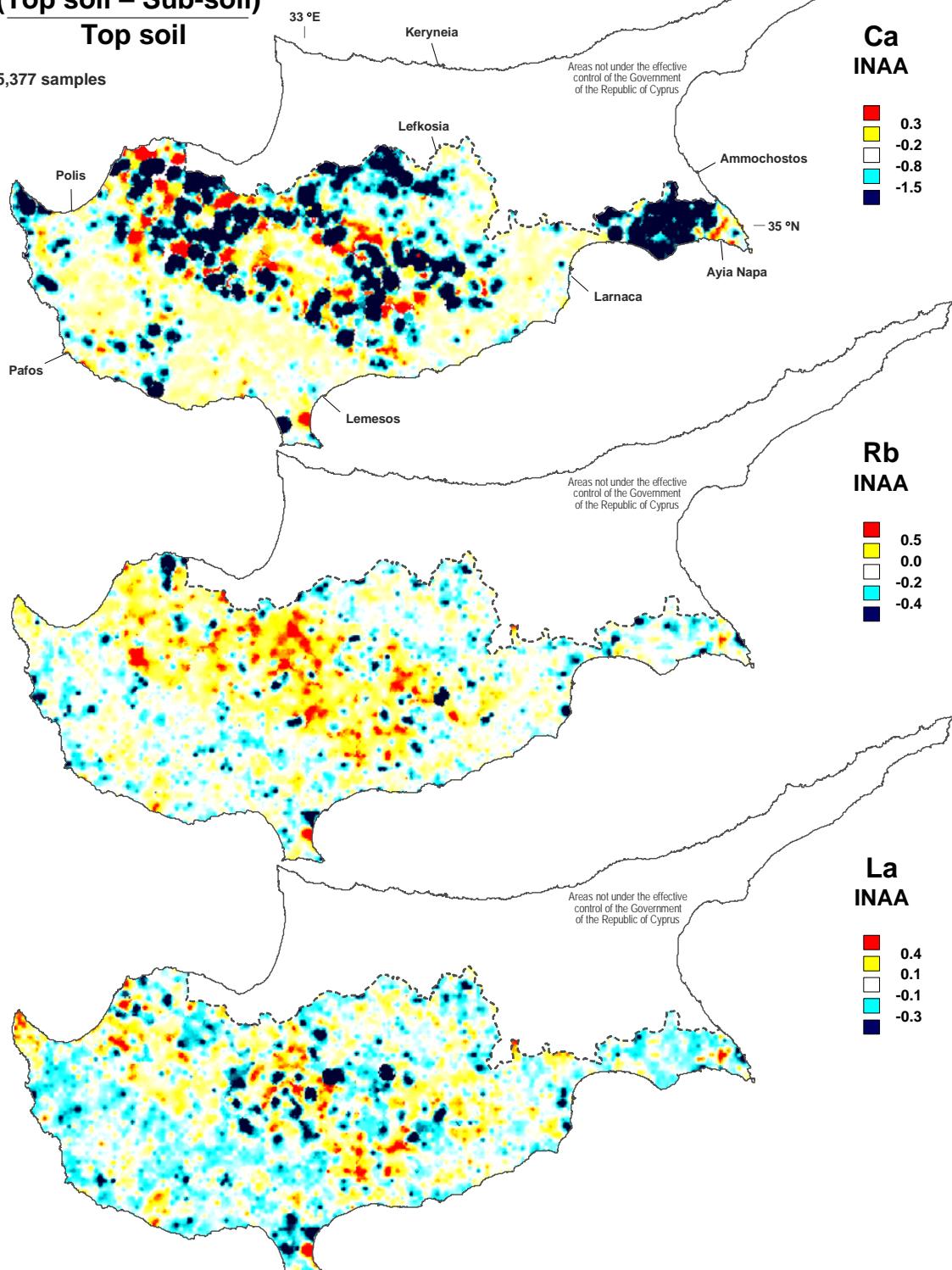


Ratios

(Top soil – Sub-soil)

Top soil

5,377 samples

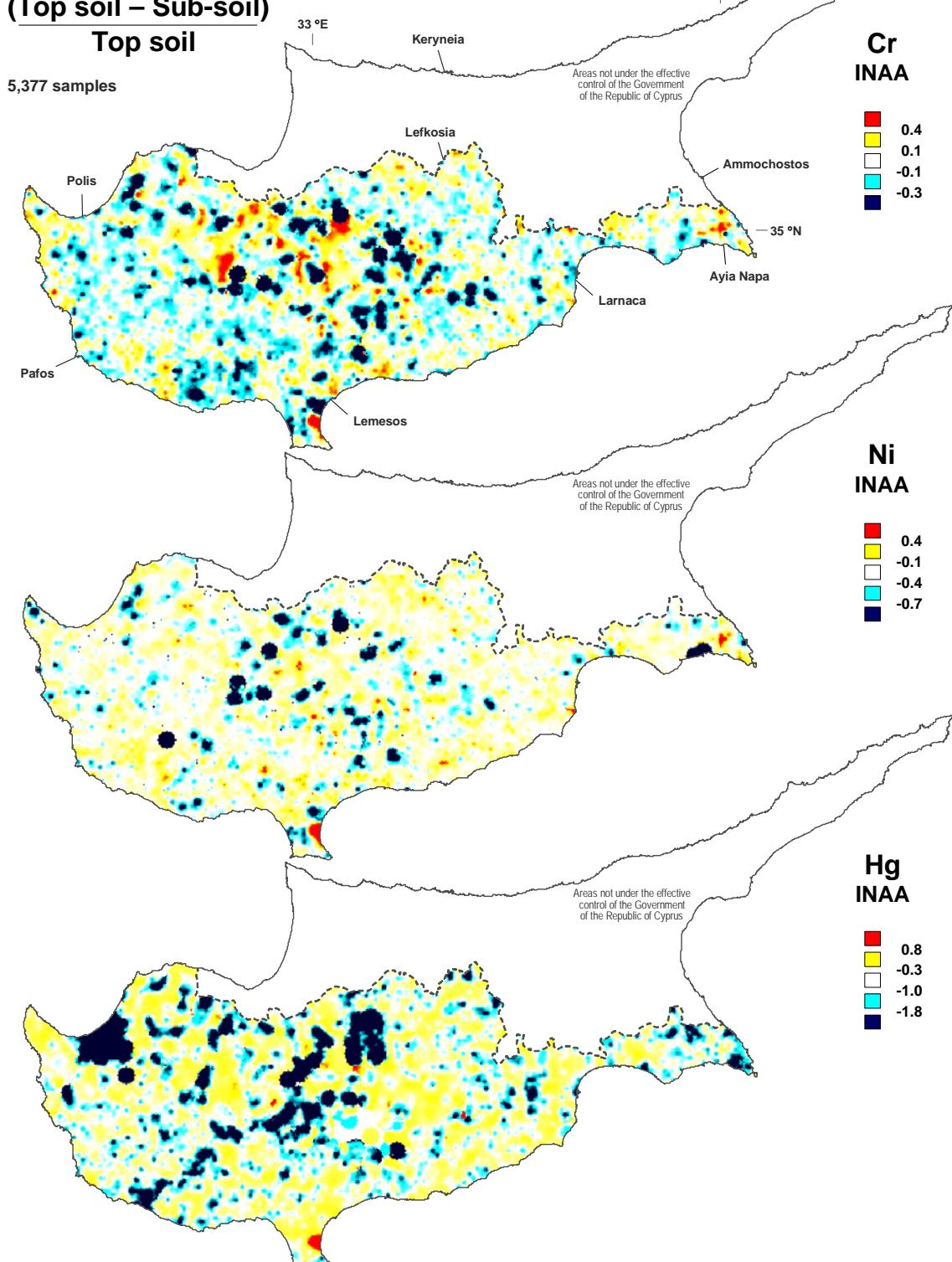


Ratios

(Top soil – Sub-soil)

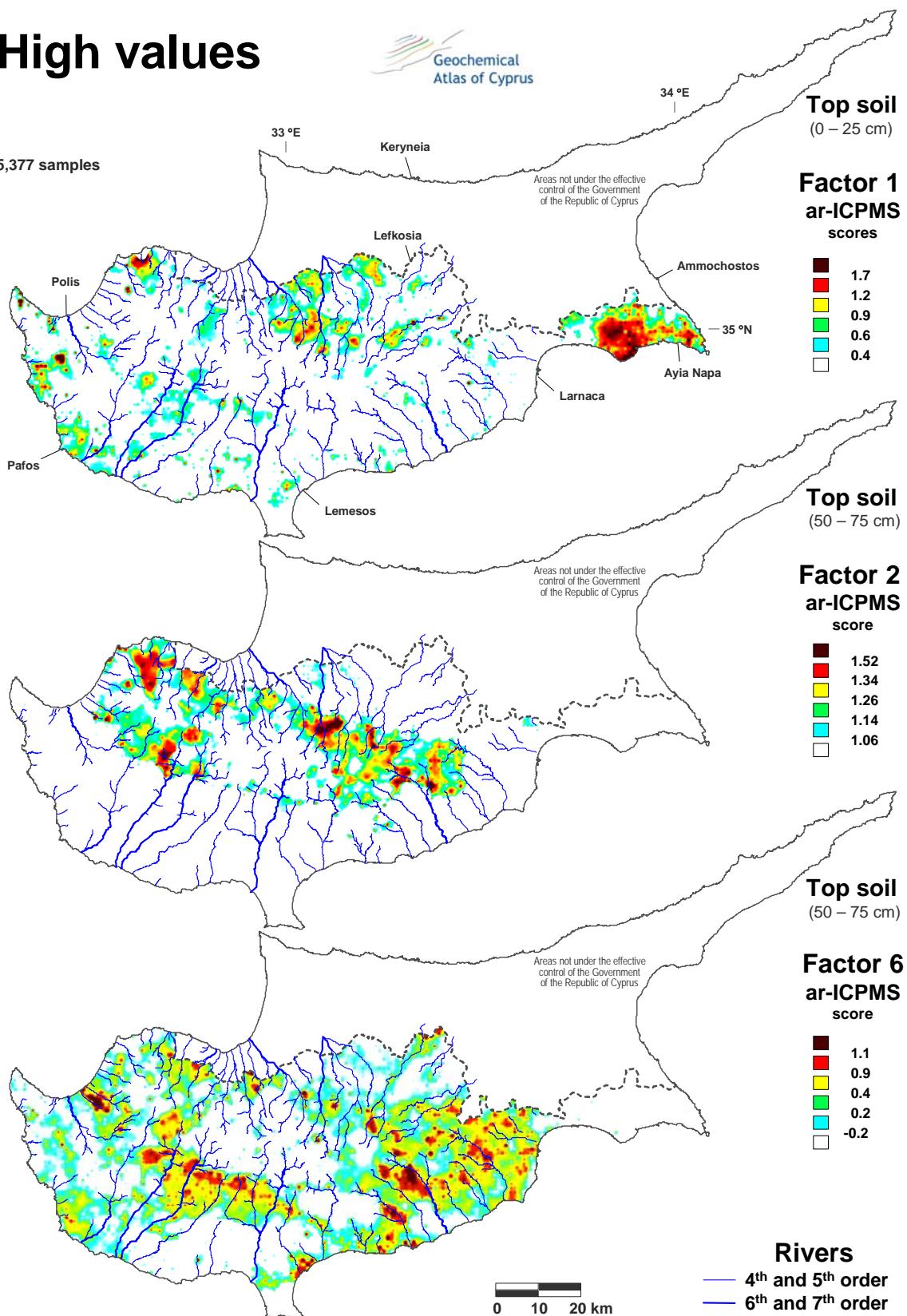
Top soil

5,377 samples

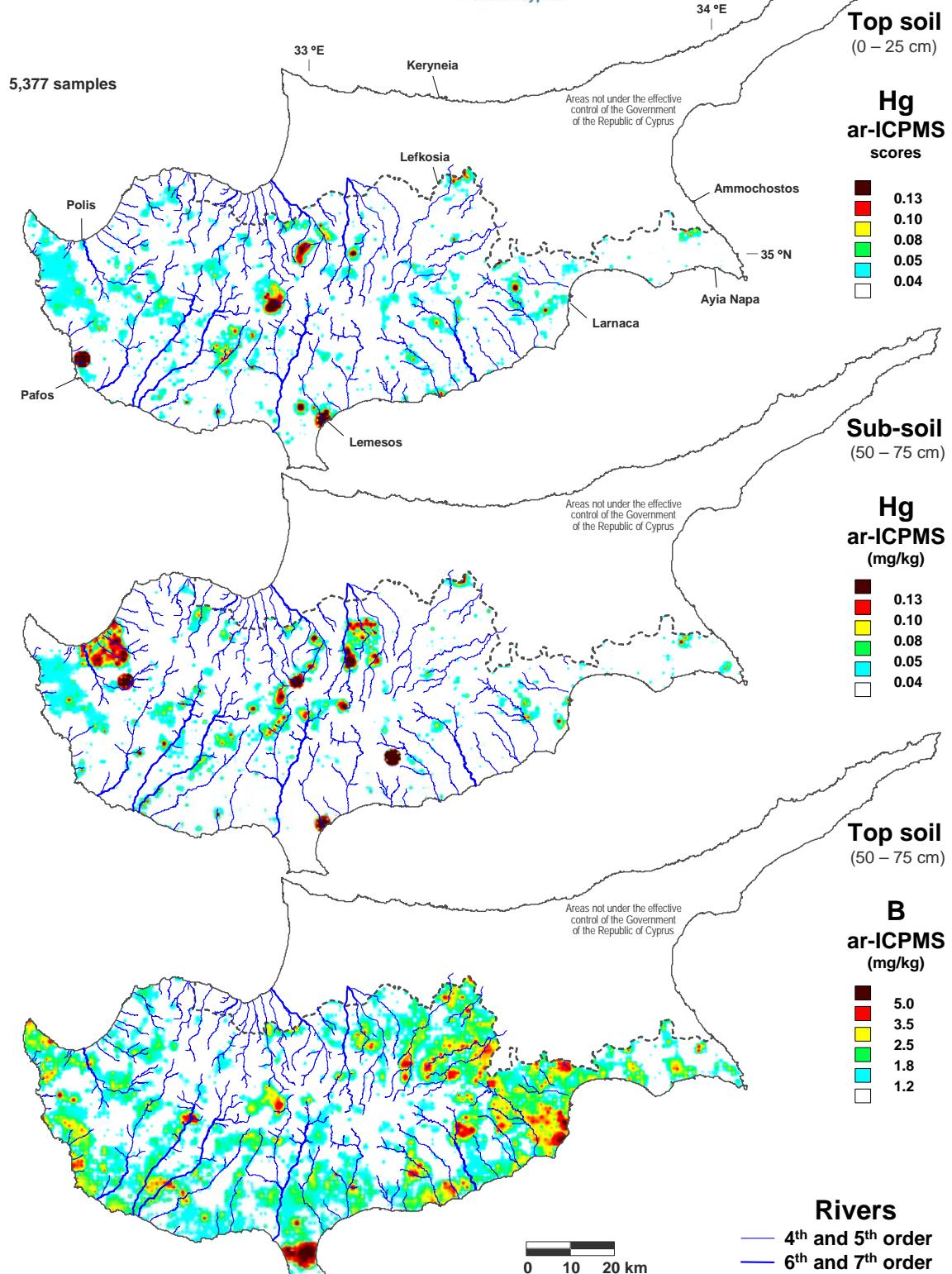


High values

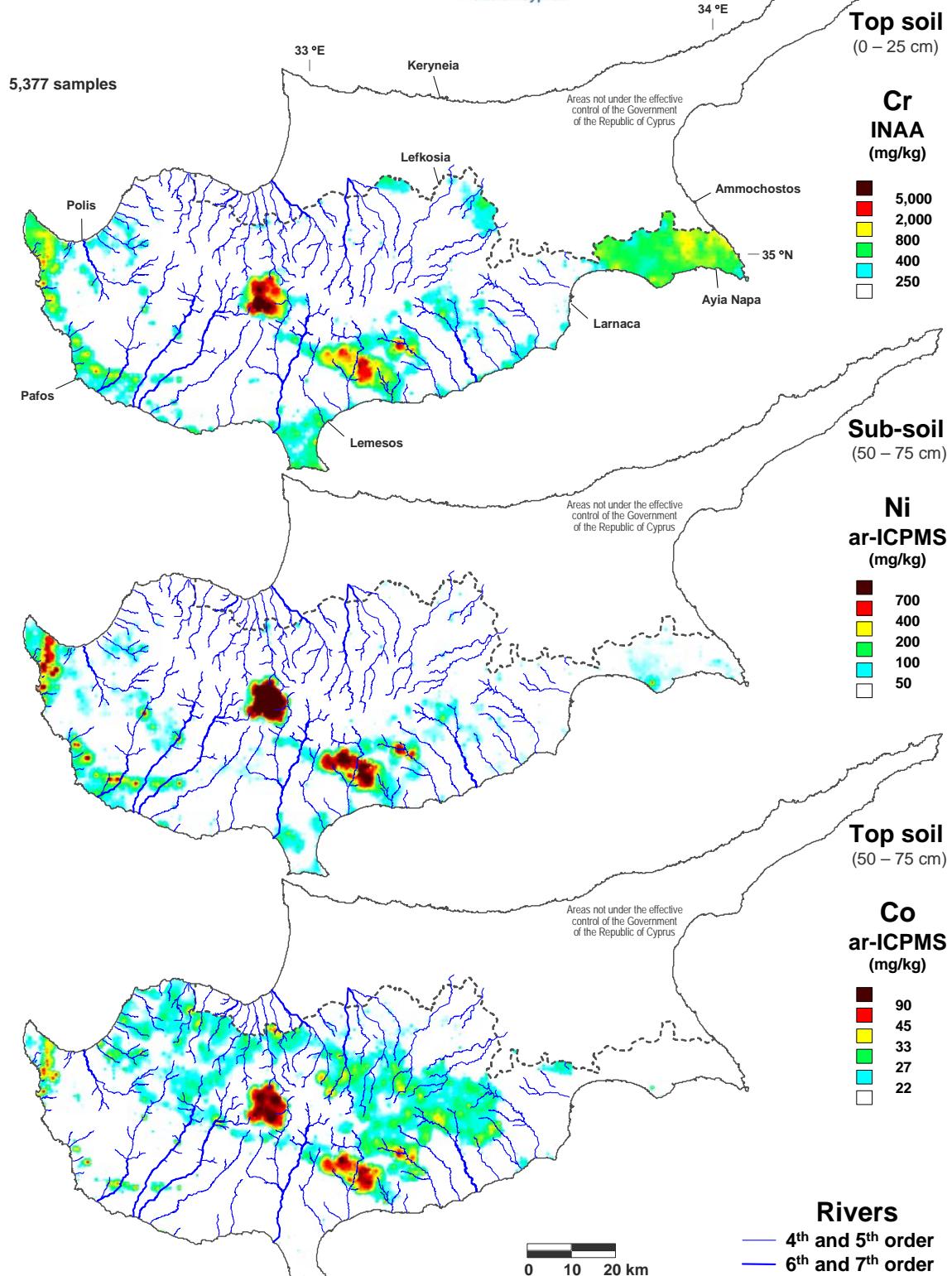
5,377 samples



High values

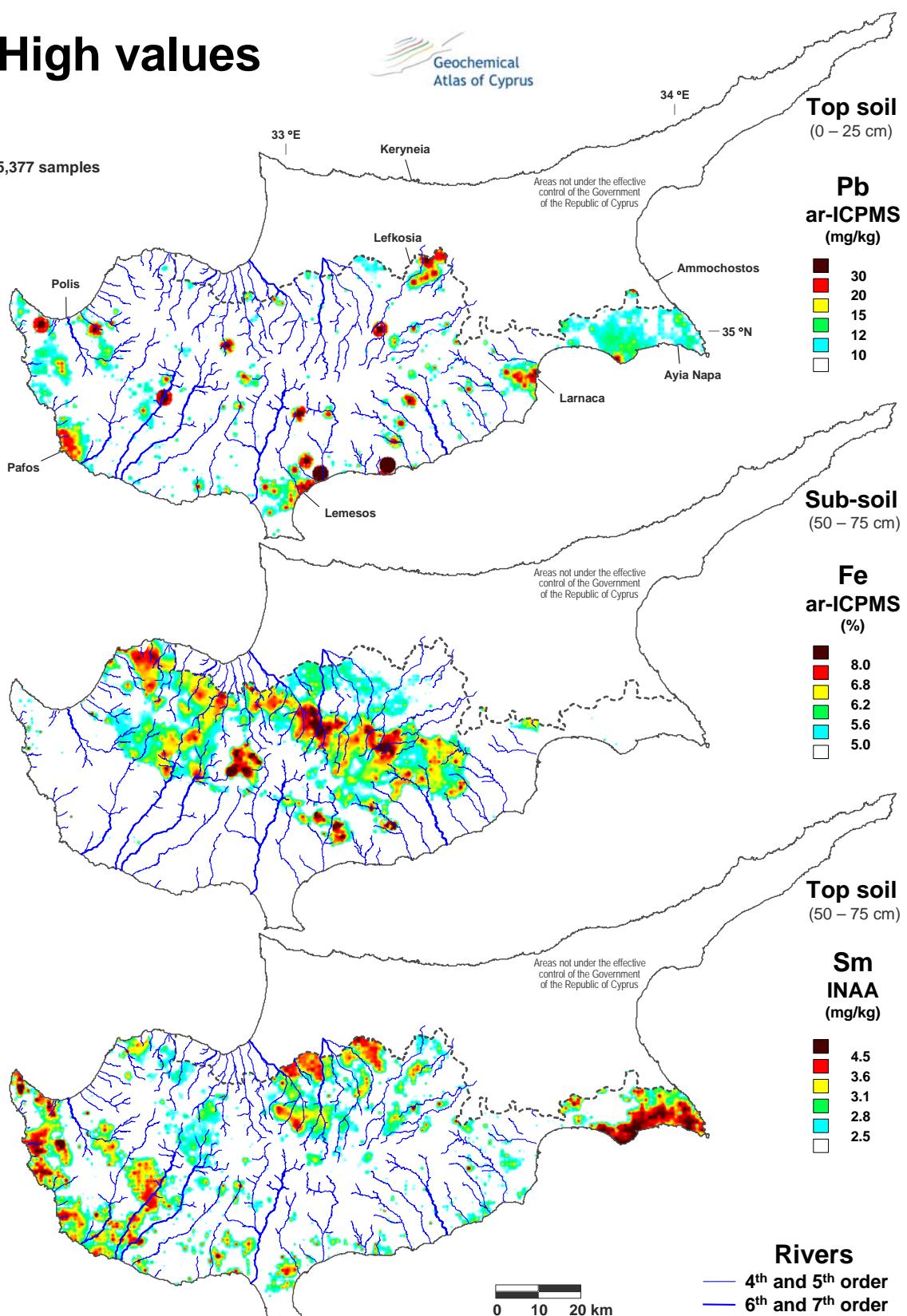


High values



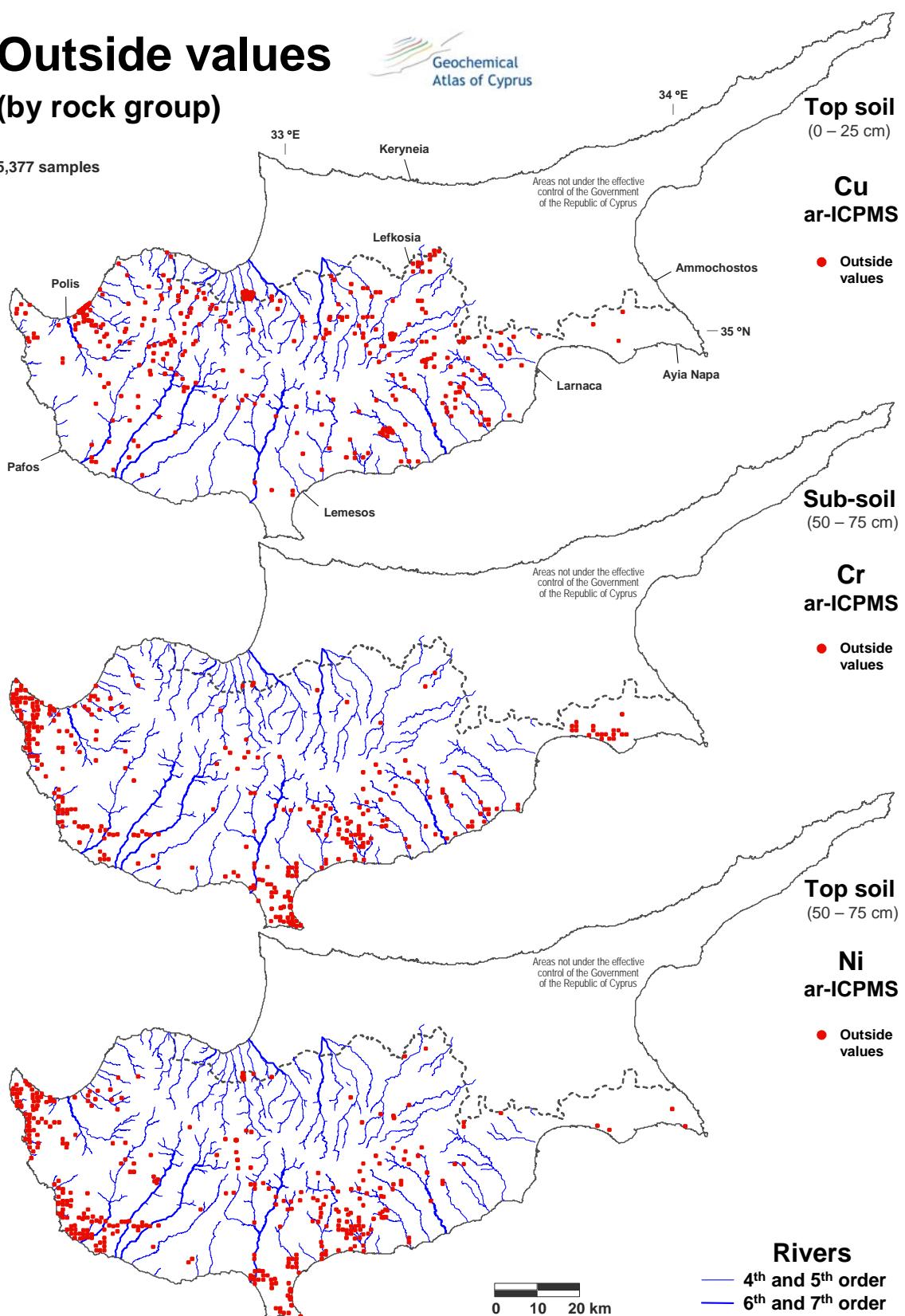
High values

5,377 samples

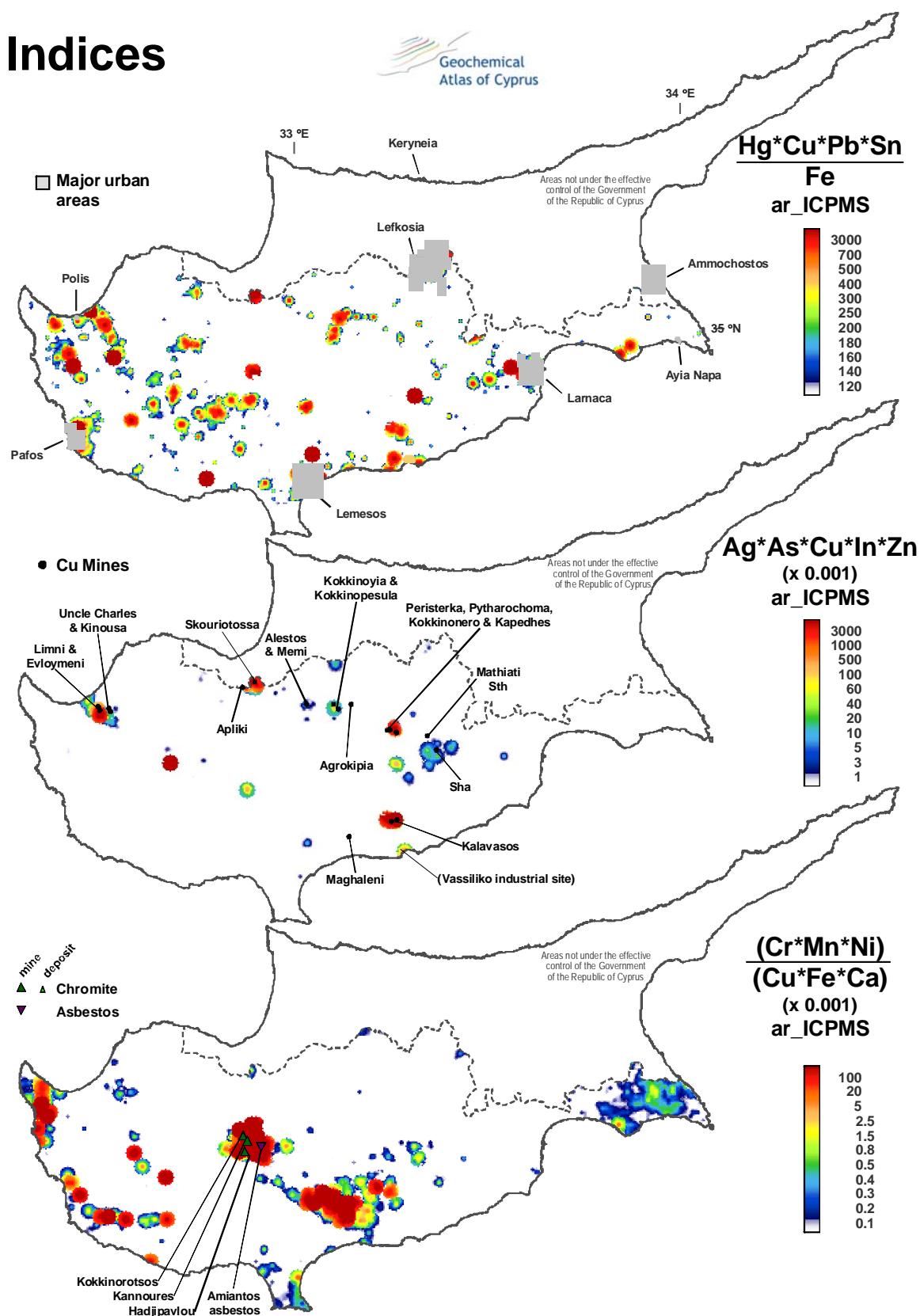


Outside values (by rock group)

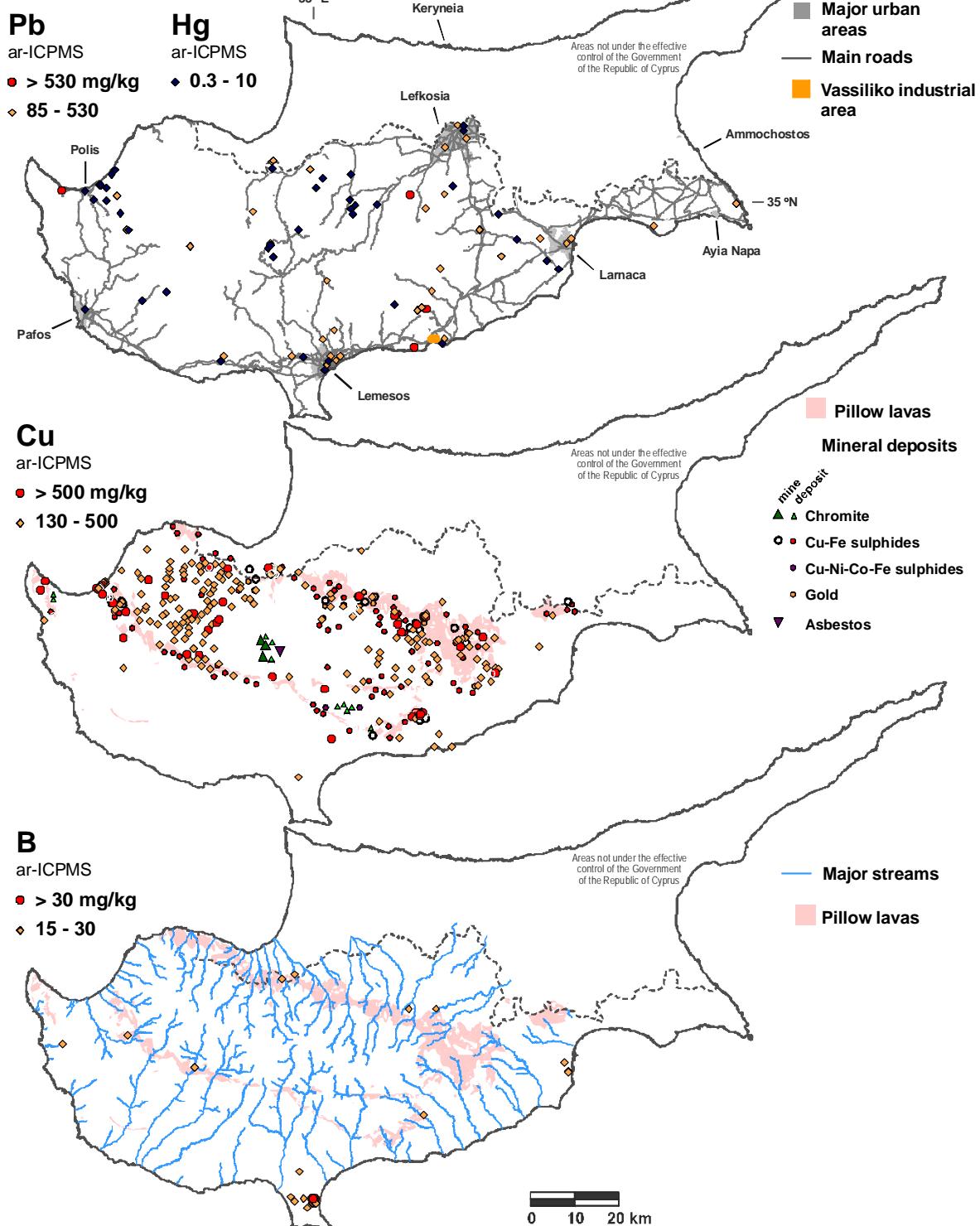
5,377 samples



Indices



Contamination



Contamination

Cr

ar-ICPMS

- > 380 mg/kg
- ◆ 100 - 380

Polis

As

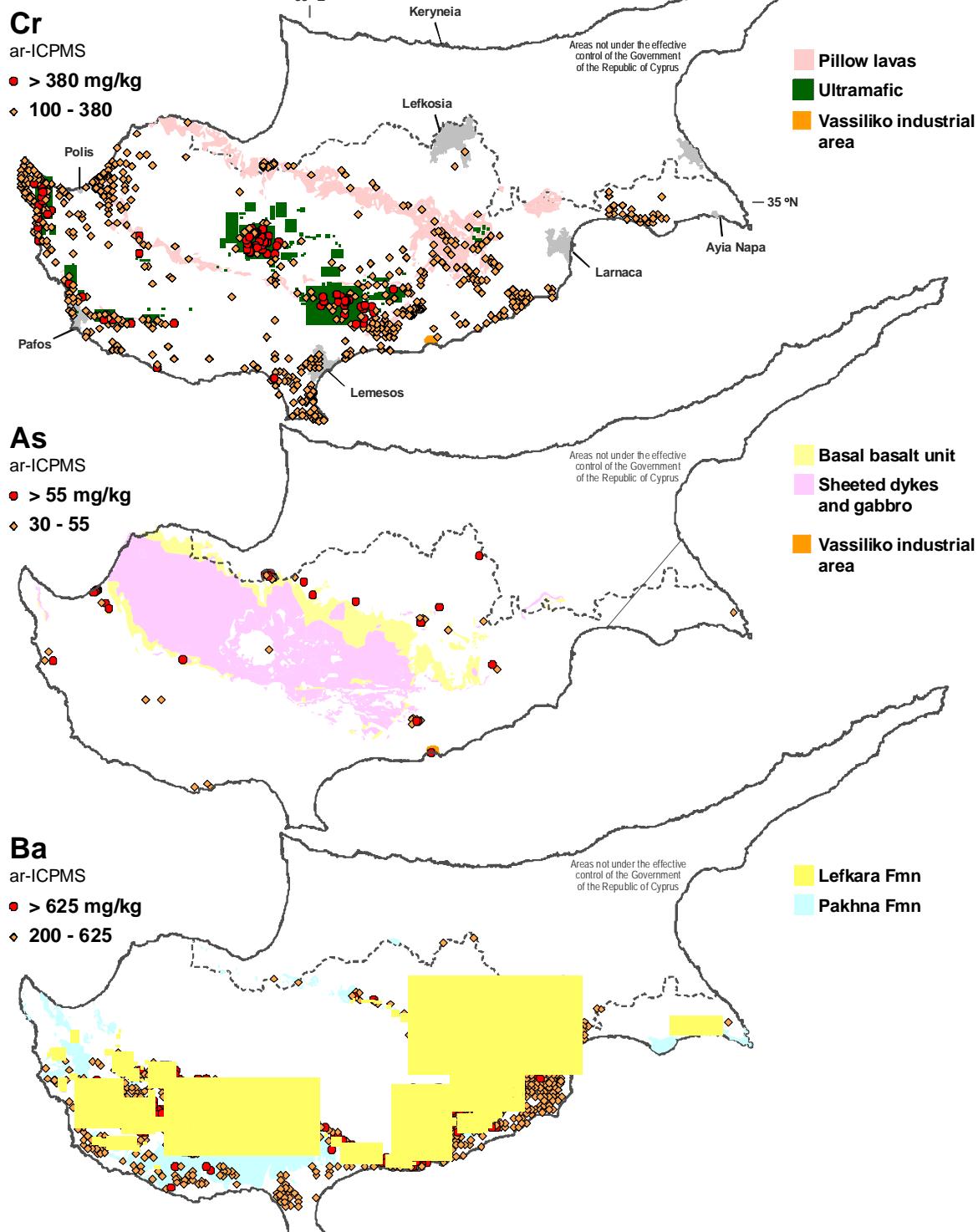
ar-ICPMS

- > 55 mg/kg
- ◆ 30 - 55

Ba

ar-ICPMS

- > 625 mg/kg
- ◆ 200 - 625

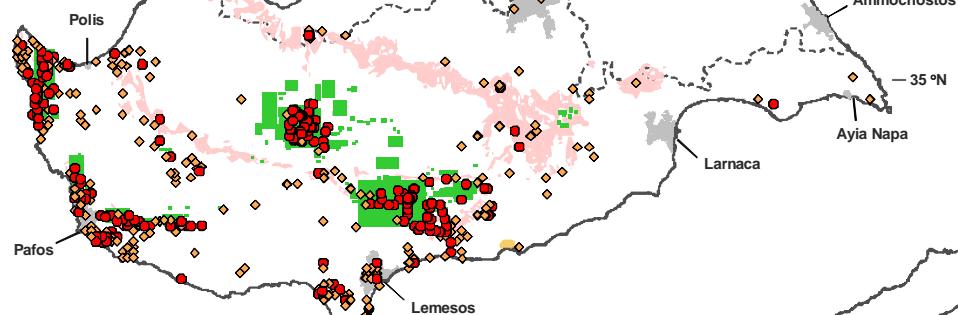


Contamination

Ni

ar-ICPMS

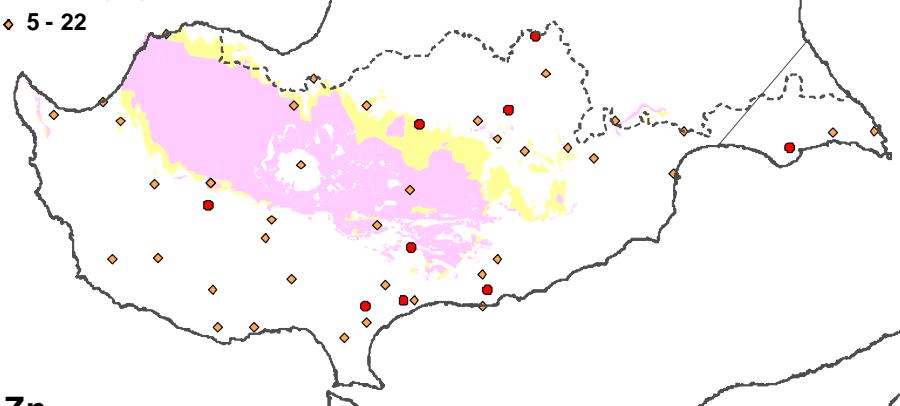
- > 210 mg/kg
- ◆ 100 - 210



Sb

ar-ICPMS

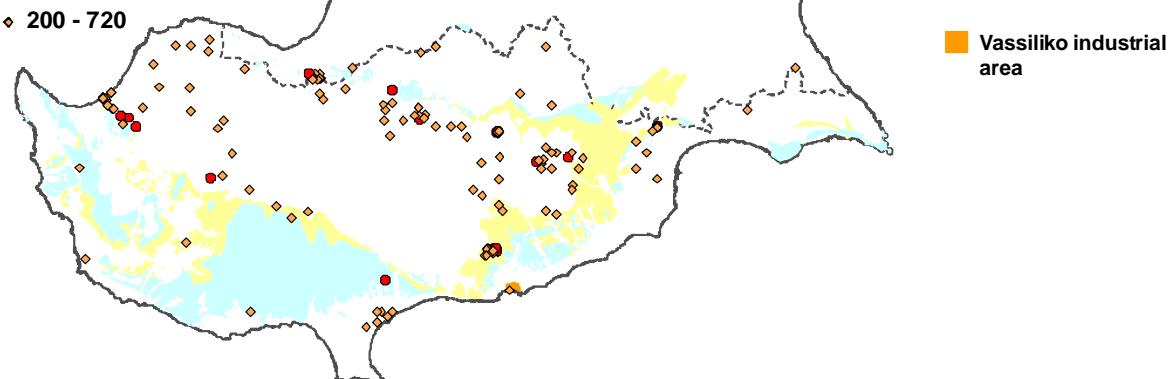
- > 22 mg/kg
- ◆ 5 - 22



Zn

ar-ICPMS

- > 720 mg/kg
- ◆ 200 - 720

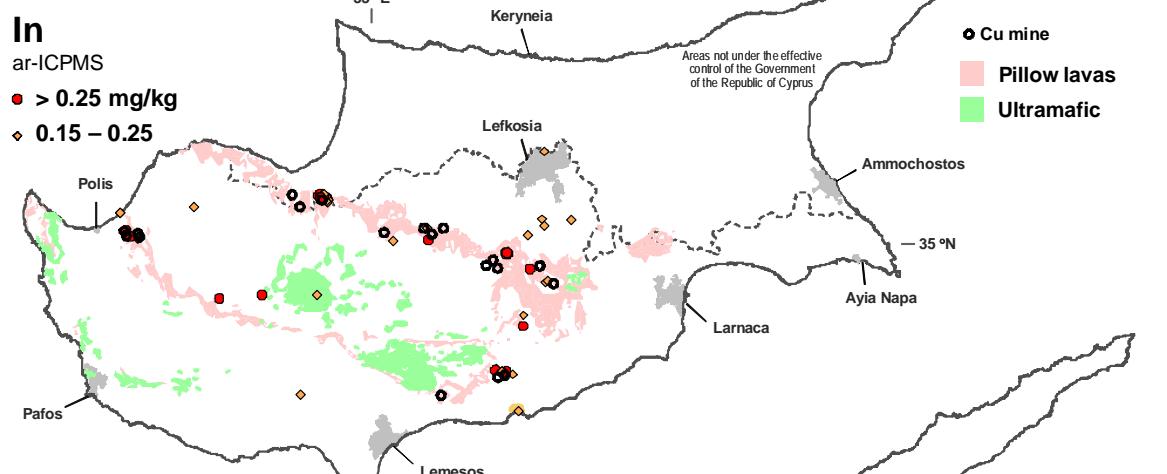


Contamination

In

ar-ICPMS

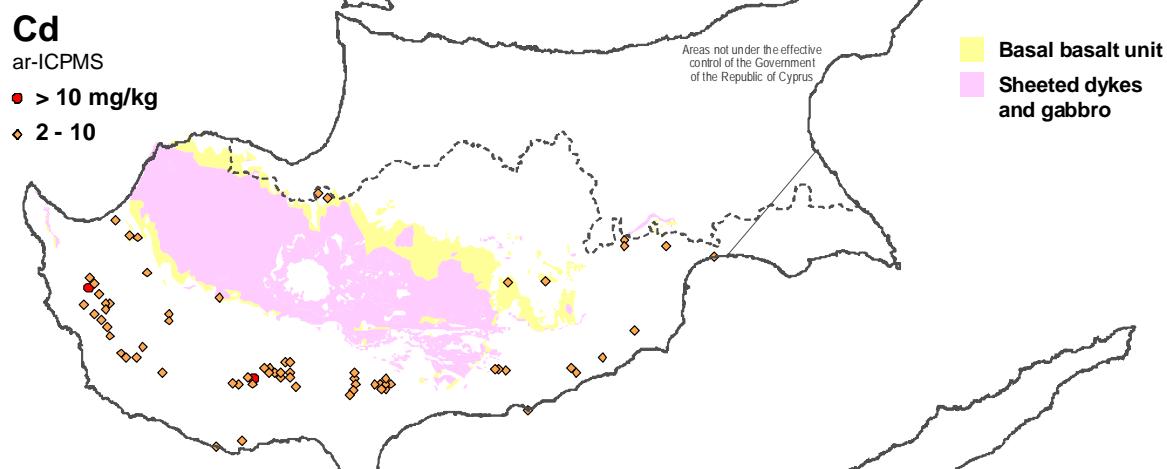
- > 0.25 mg/kg
- ◆ 0.15 – 0.25



Cd

ar-ICPMS

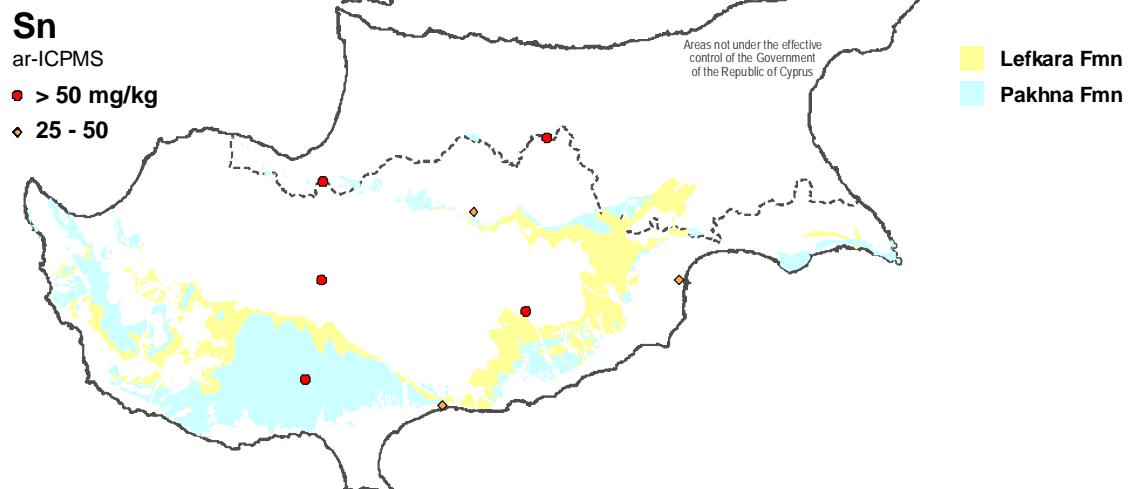
- > 10 mg/kg
- ◆ 2 - 10



Sn

ar-ICPMS

- > 50 mg/kg
- ◆ 25 - 50

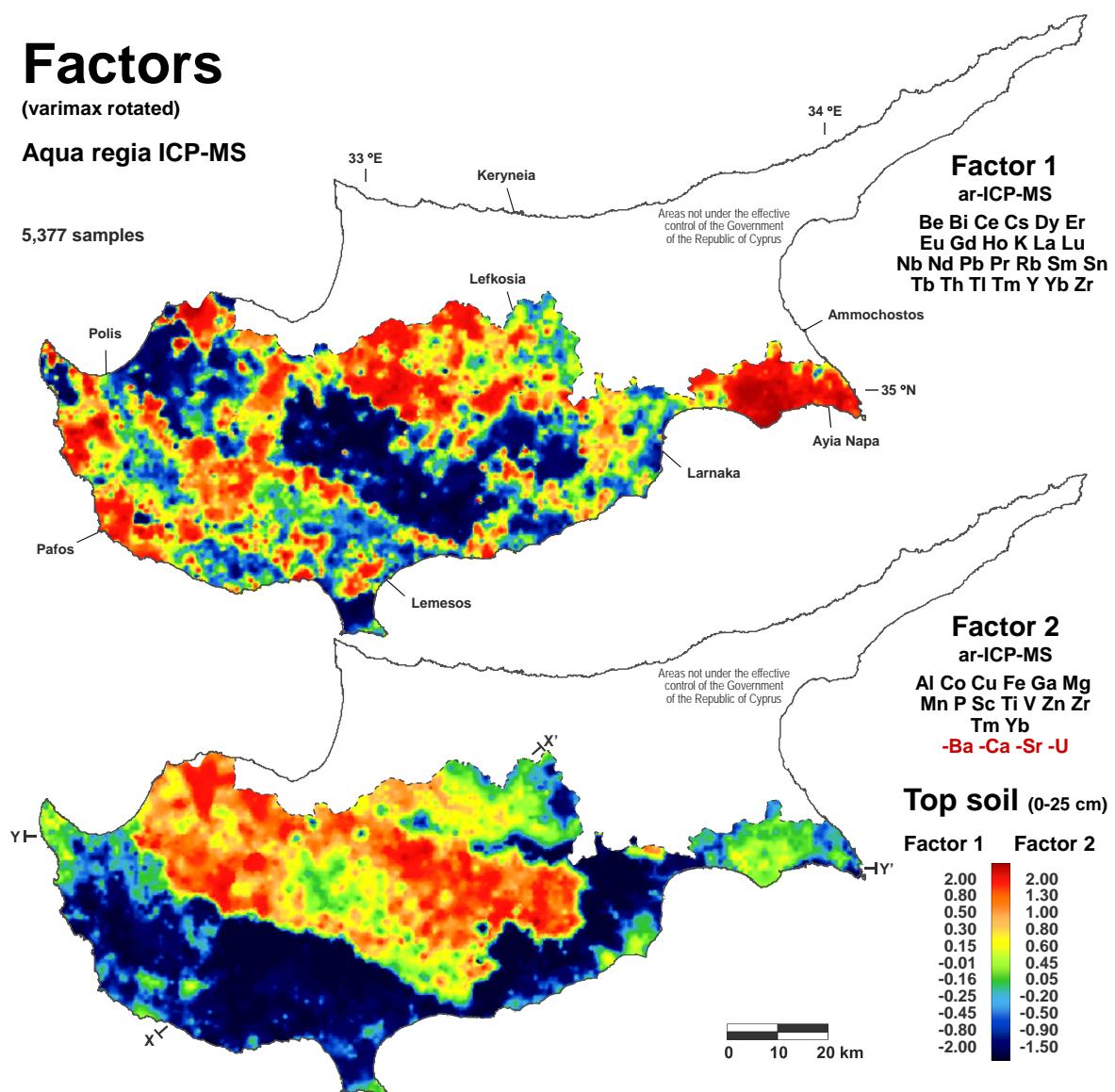


Factors

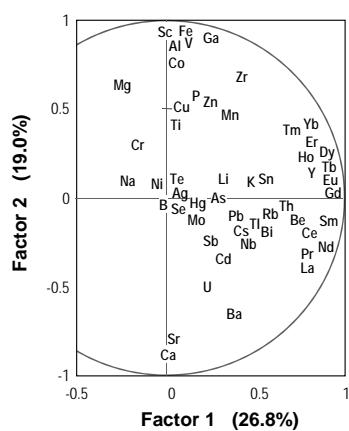
(varimax rotated)

Aqua regia ICP-MS

5,377 samples

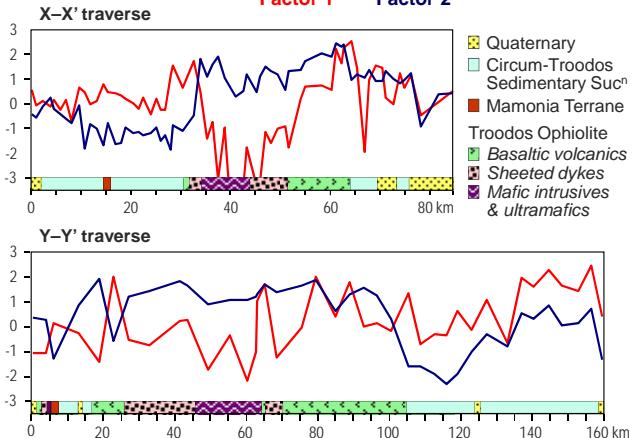


Loadings



Scores

— Factor 1 — Factor 2

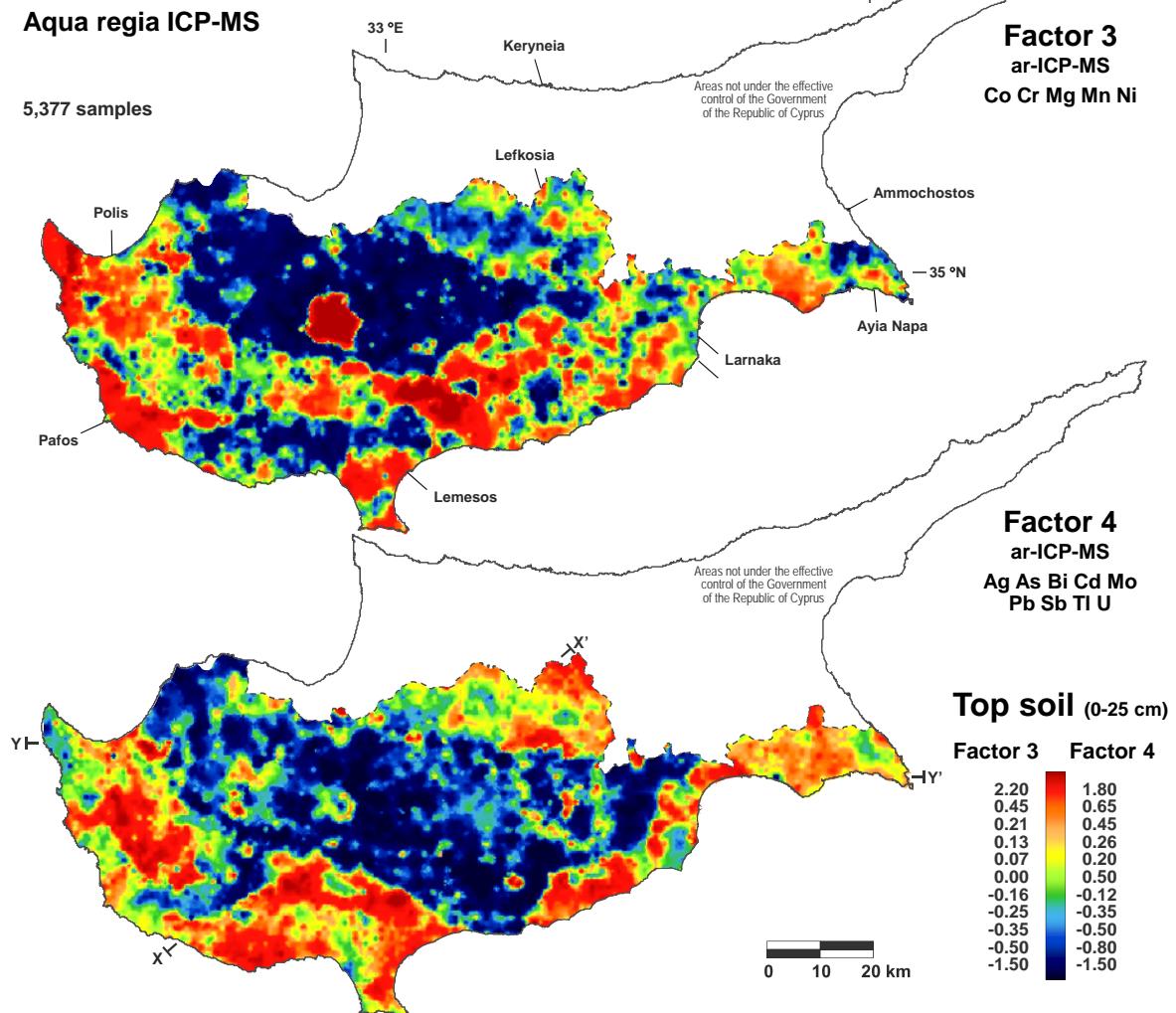


Factors

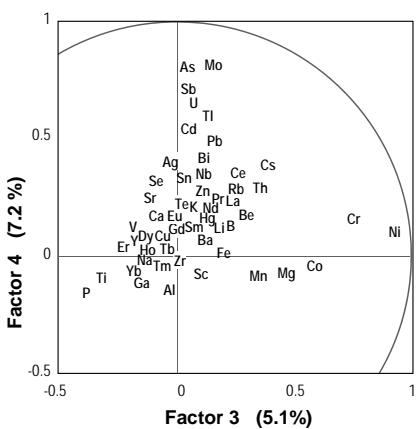
(varimax rotated)

Aqua regia ICP-MS

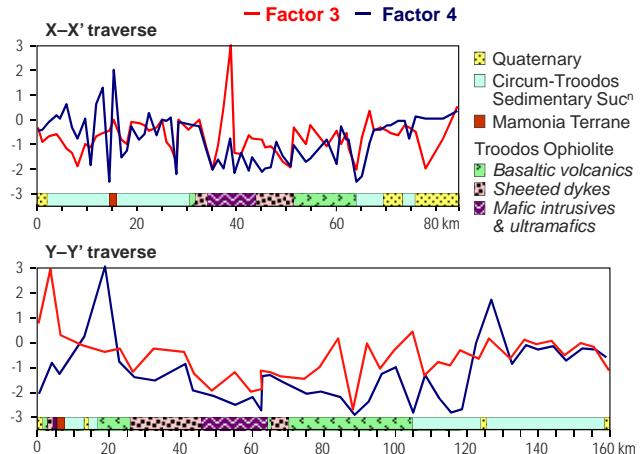
5,377 samples



Loadings



Scores

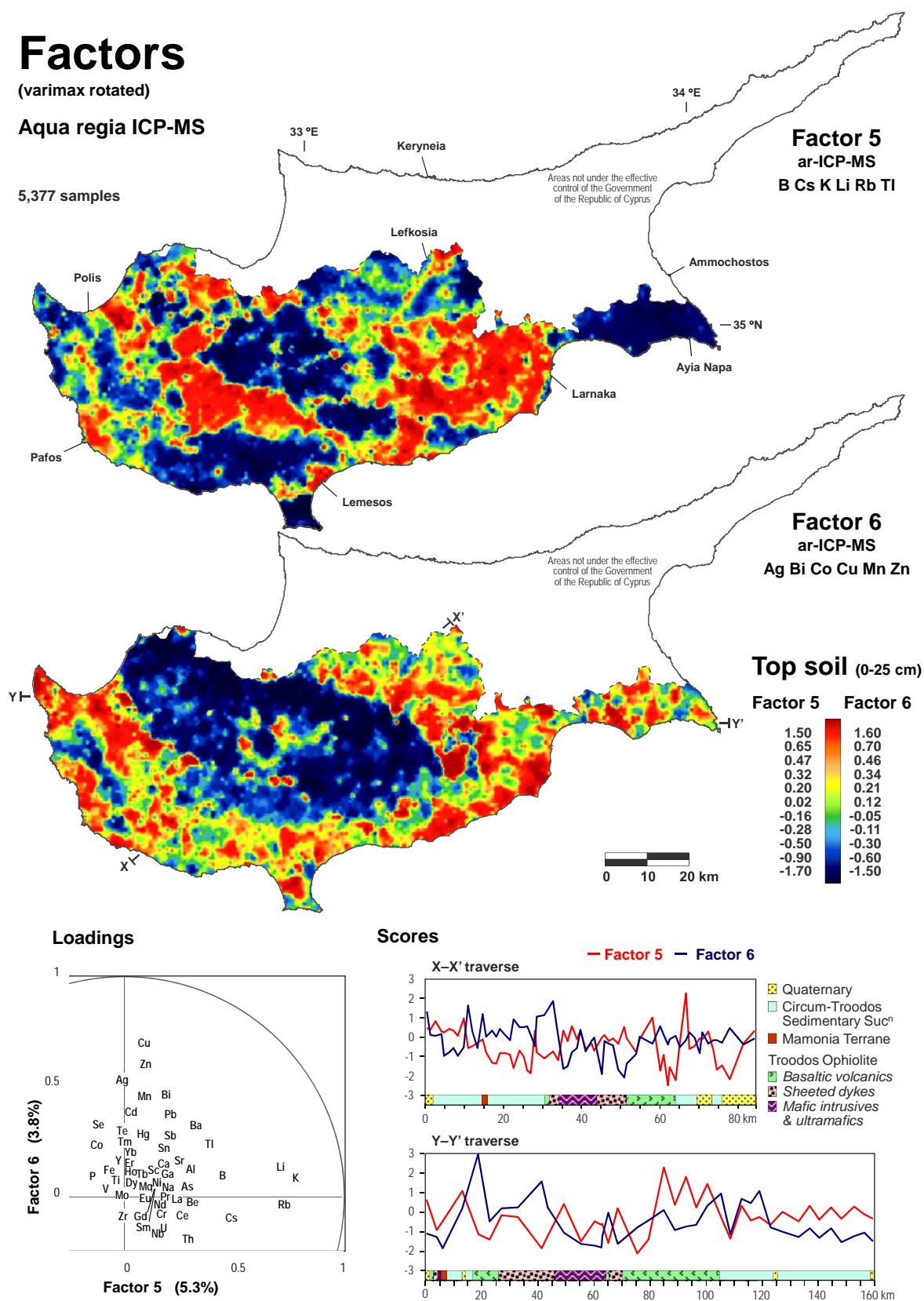


Factors

(varimax rotated)

Aqua regia ICP-MS

5,377 samples

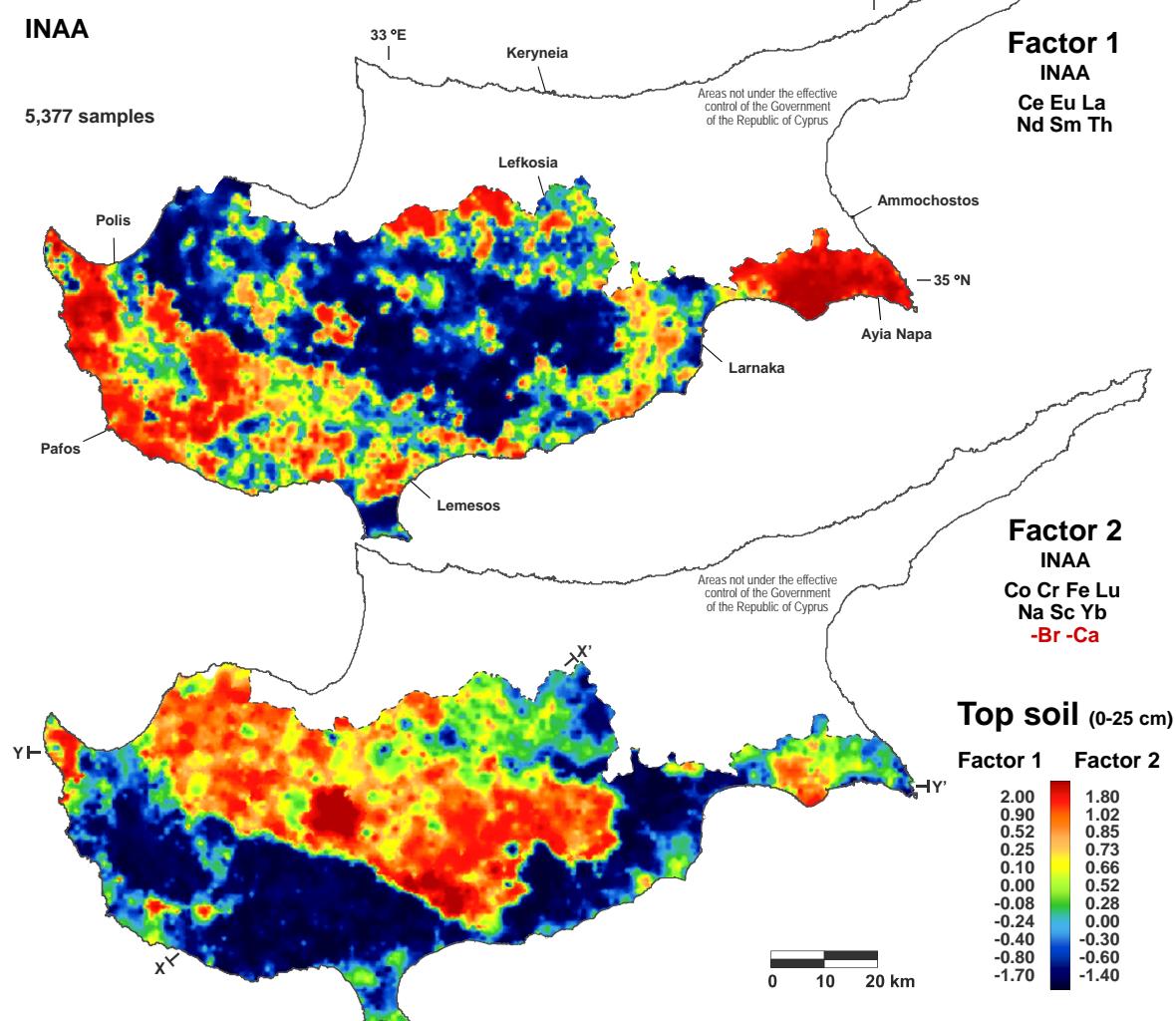


Factors

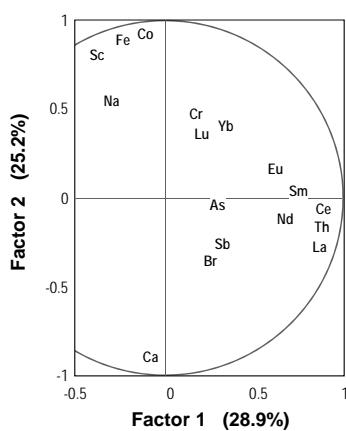
(varimax rotated)

INAA

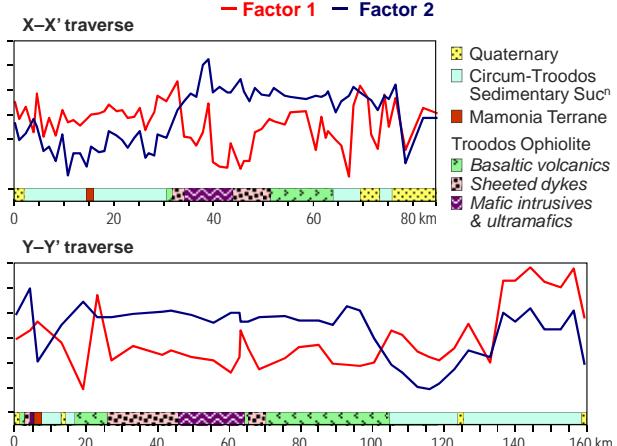
5,377 samples



Loadings



Scores

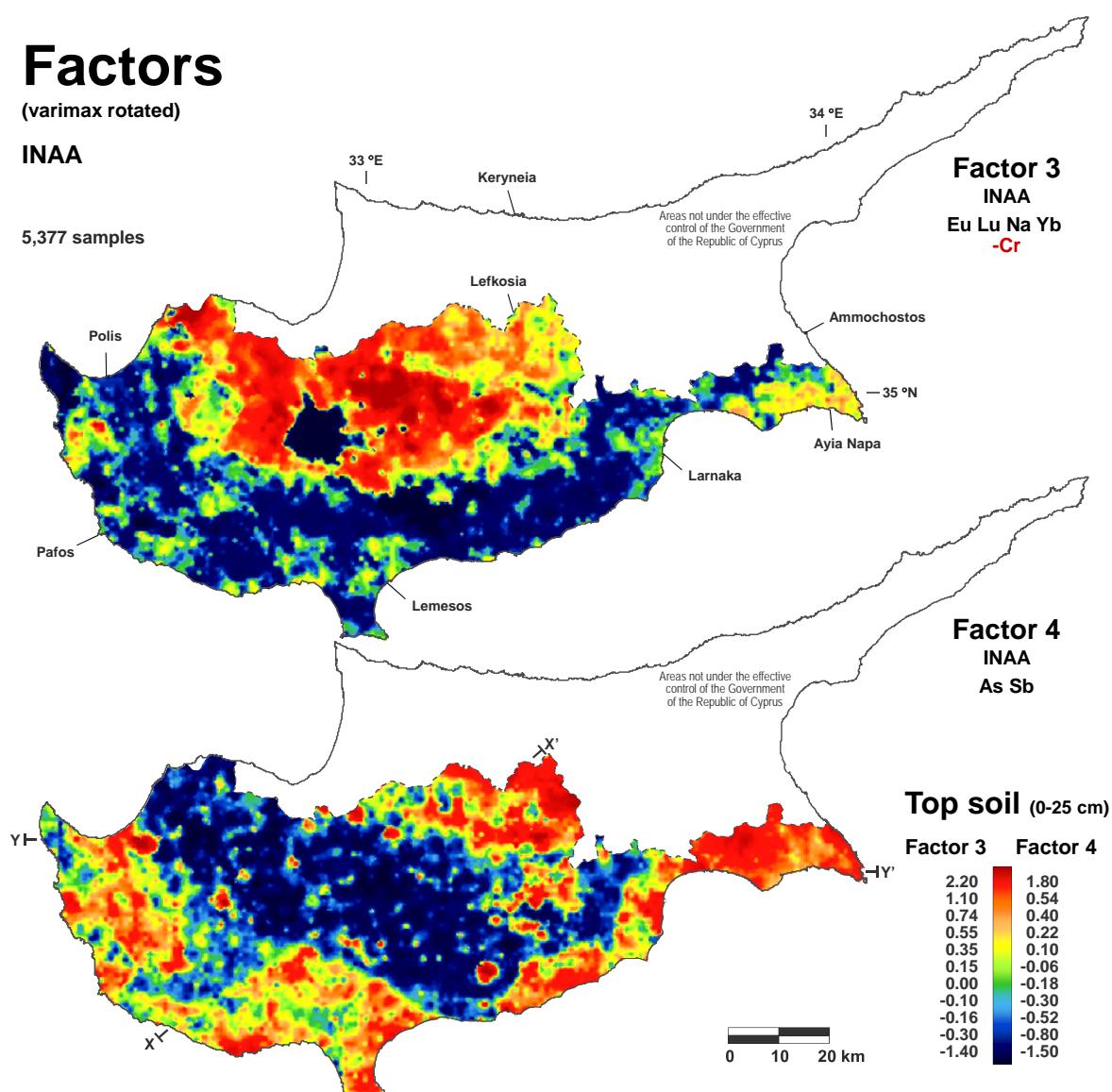


Factors

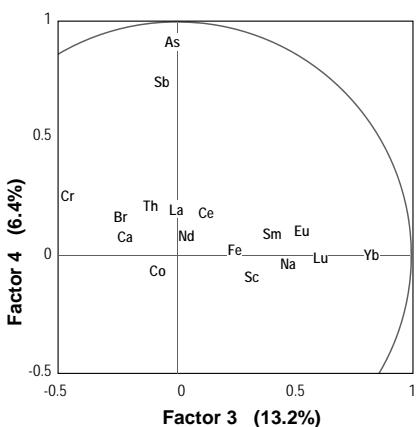
(varimax rotated)

INAA

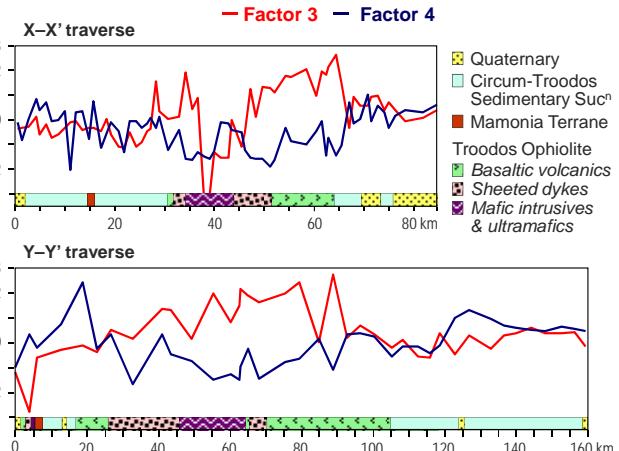
5,377 samples



Loadings



Scores



K-means Clusters

All elements

5,377 samples

