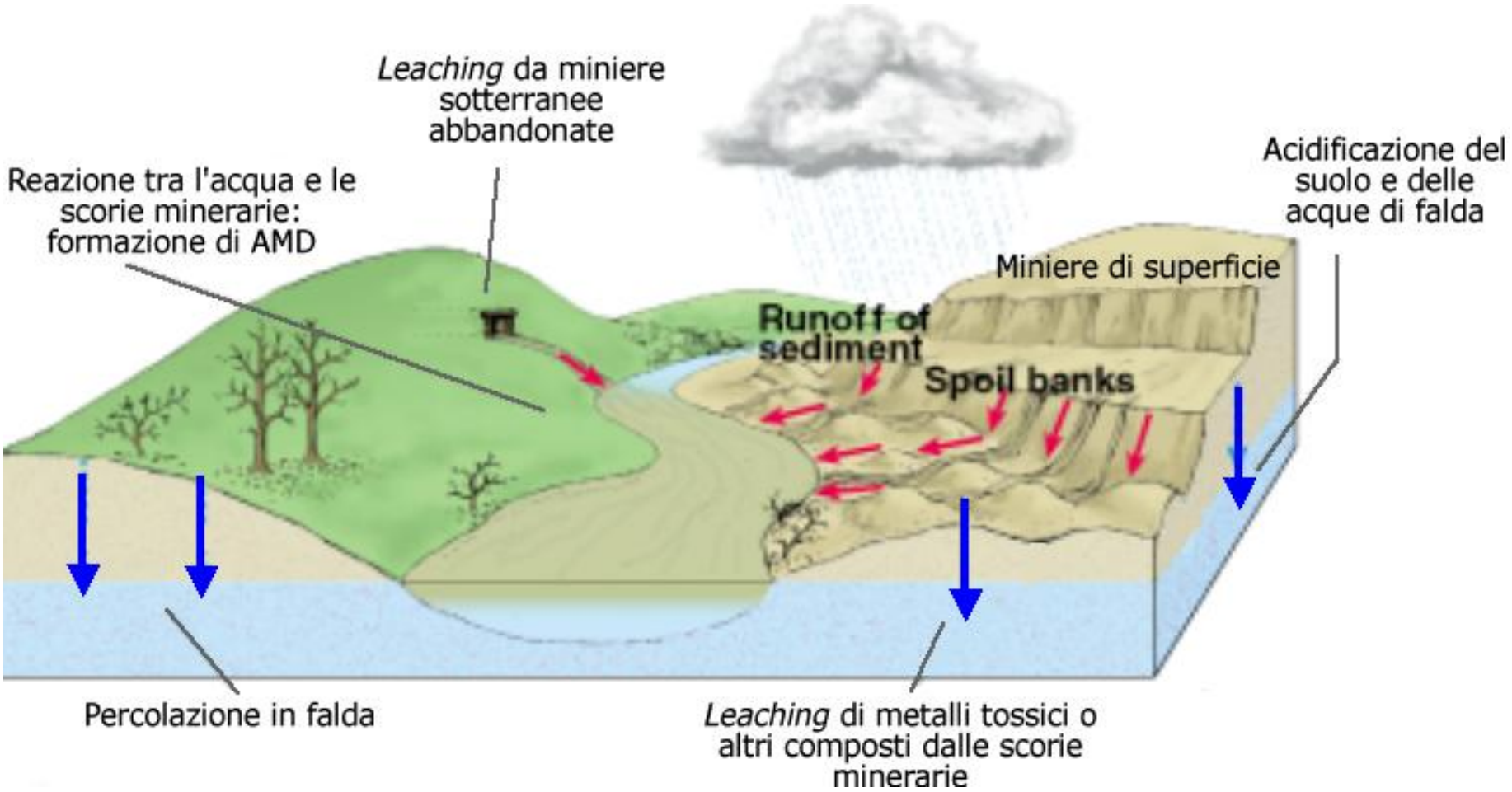
SUMMER SCHOOL 2014
"AGRI-KNOWS"

11 settembre 2014
ISIS Malignani - Cervignano del Friuli

Il problema dell'inquinamento da metalli nel suolo – casi di interesse locale: contaminazione da piombo e zinco nell'area mineraria di Cave del Predil (UD)

Luca Marchiol
Dipartimento Scienze Agrarie e Ambientali
Università di Udine

Impatto delle attività minerarie



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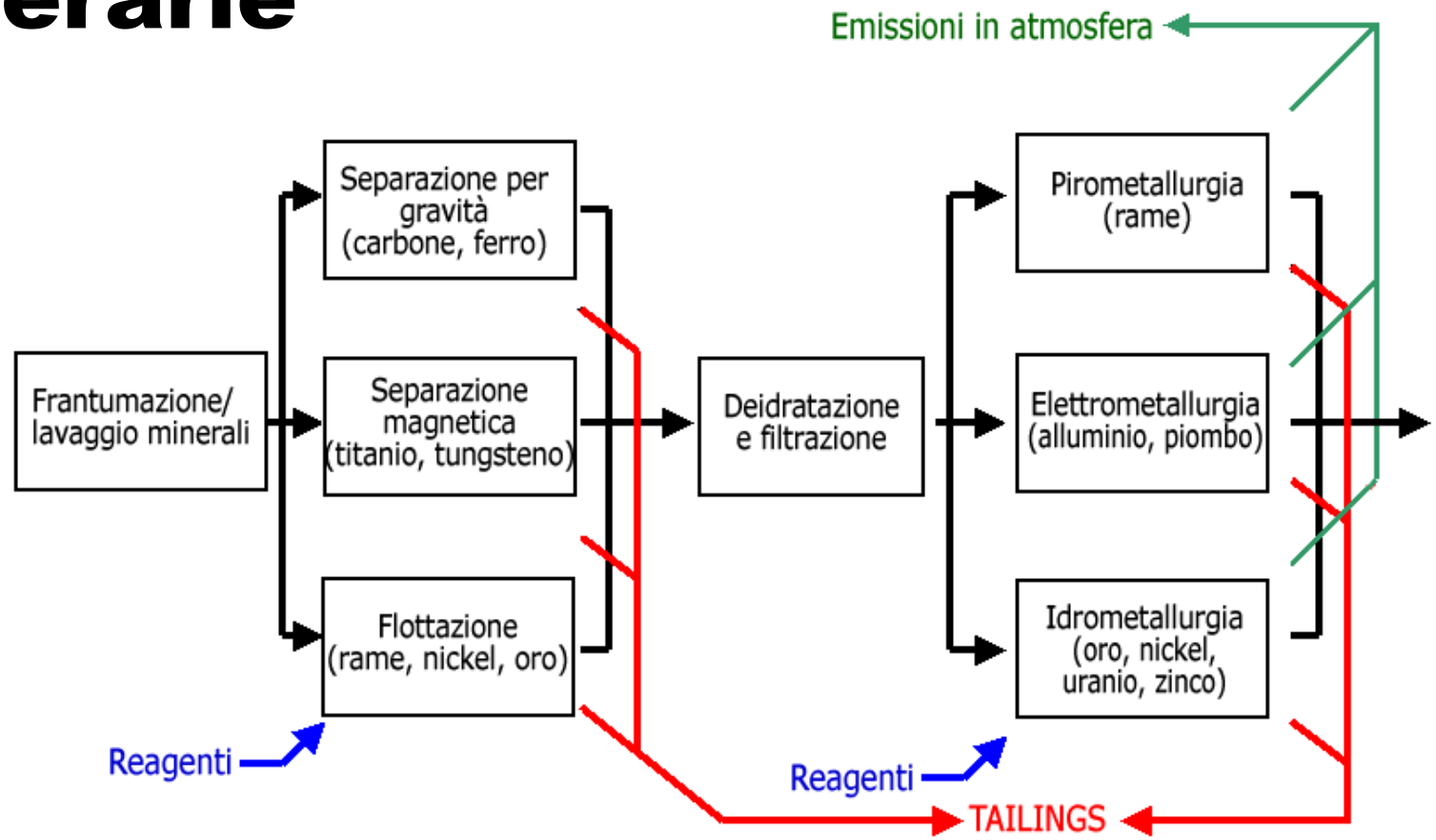
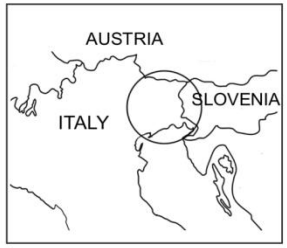


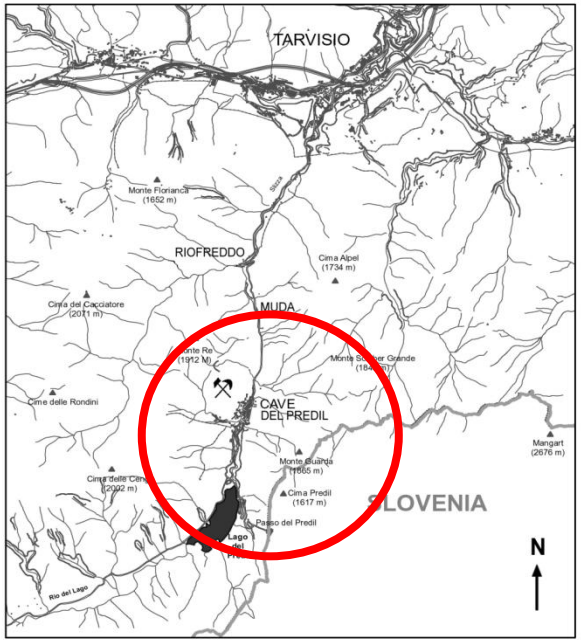
Processi di lavorazione

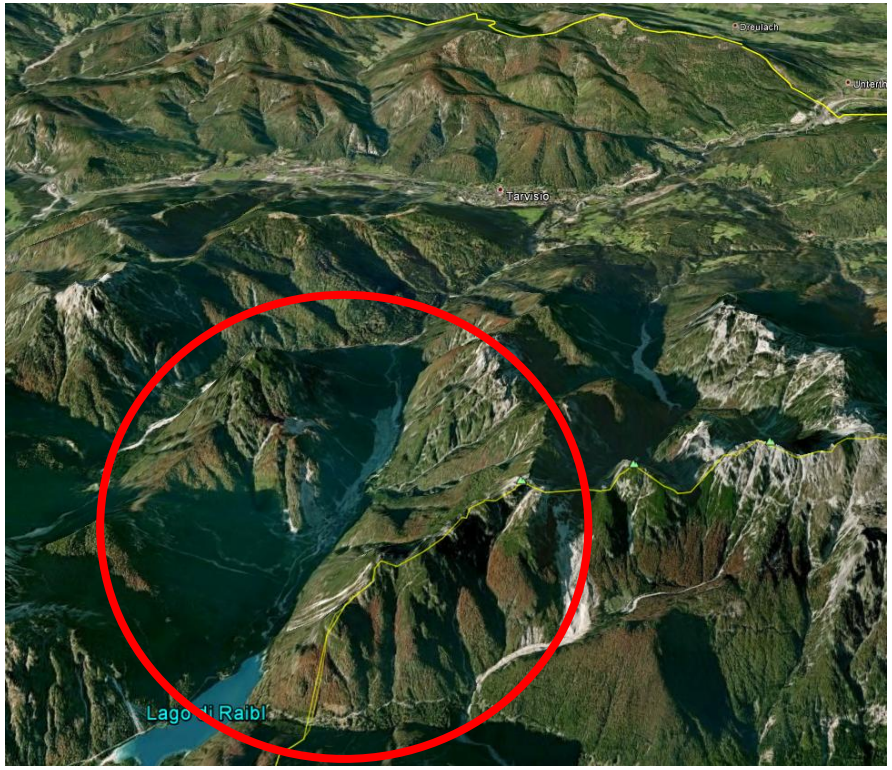
Impatto delle attività minerarie

Acque acide di drenaggio

Miniera di Cave del Predil







Miniera di Cave del Predil

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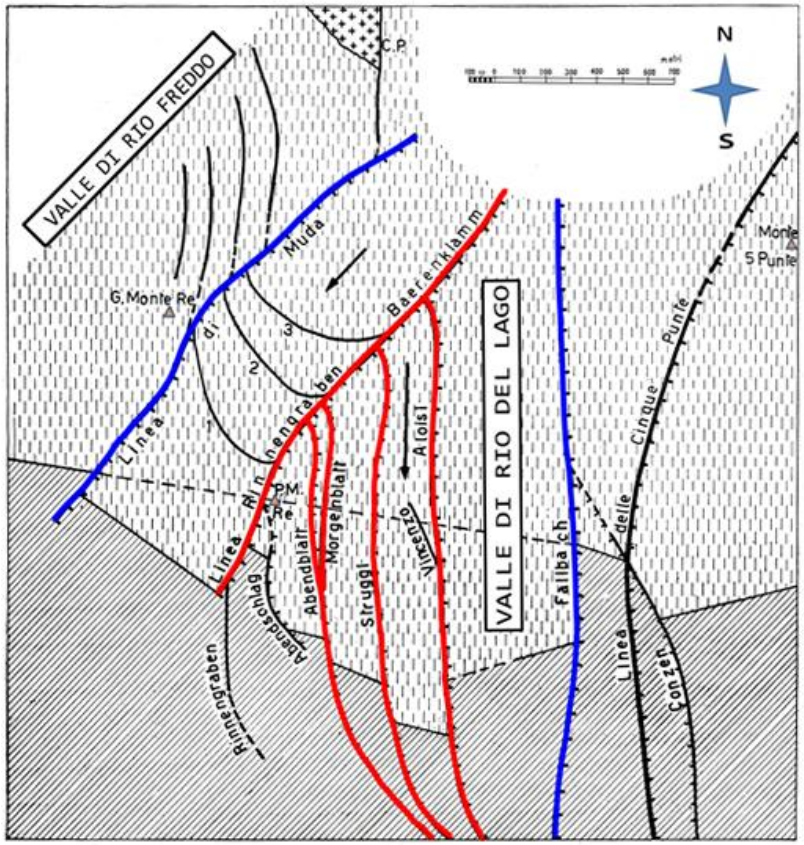
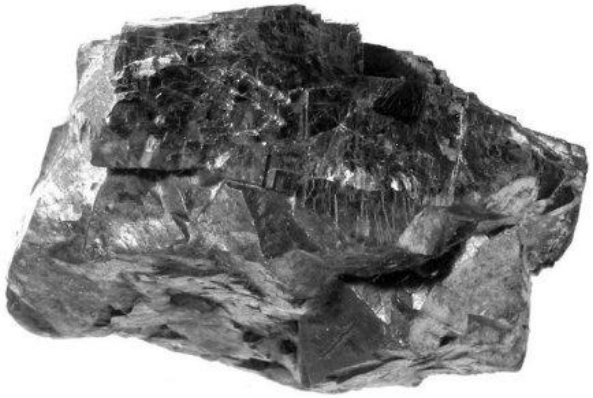


Schema tettonico della regione

faglie con mineralizzazione

faglie prive di mineralizzazione

Blenda (Sfalerite)
ZnS; S = 33%, Zn = 67%



Galena
PbS; S = 13.4%, Pb = 86,6%

Miniera di Cave del Predil

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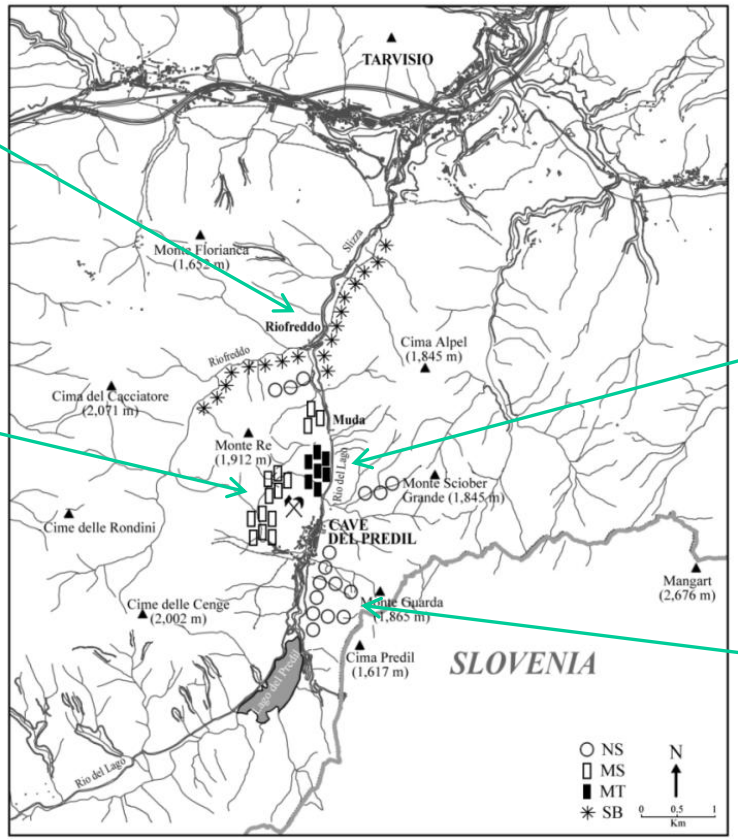


Miniera di Cave del Predil

Characterization with physical and chemical parameters and total Cd, Pb, Tl and Zn in native soils (NS), mining soils (MS), mine tailings (MT) and stream banks sediments (SB).

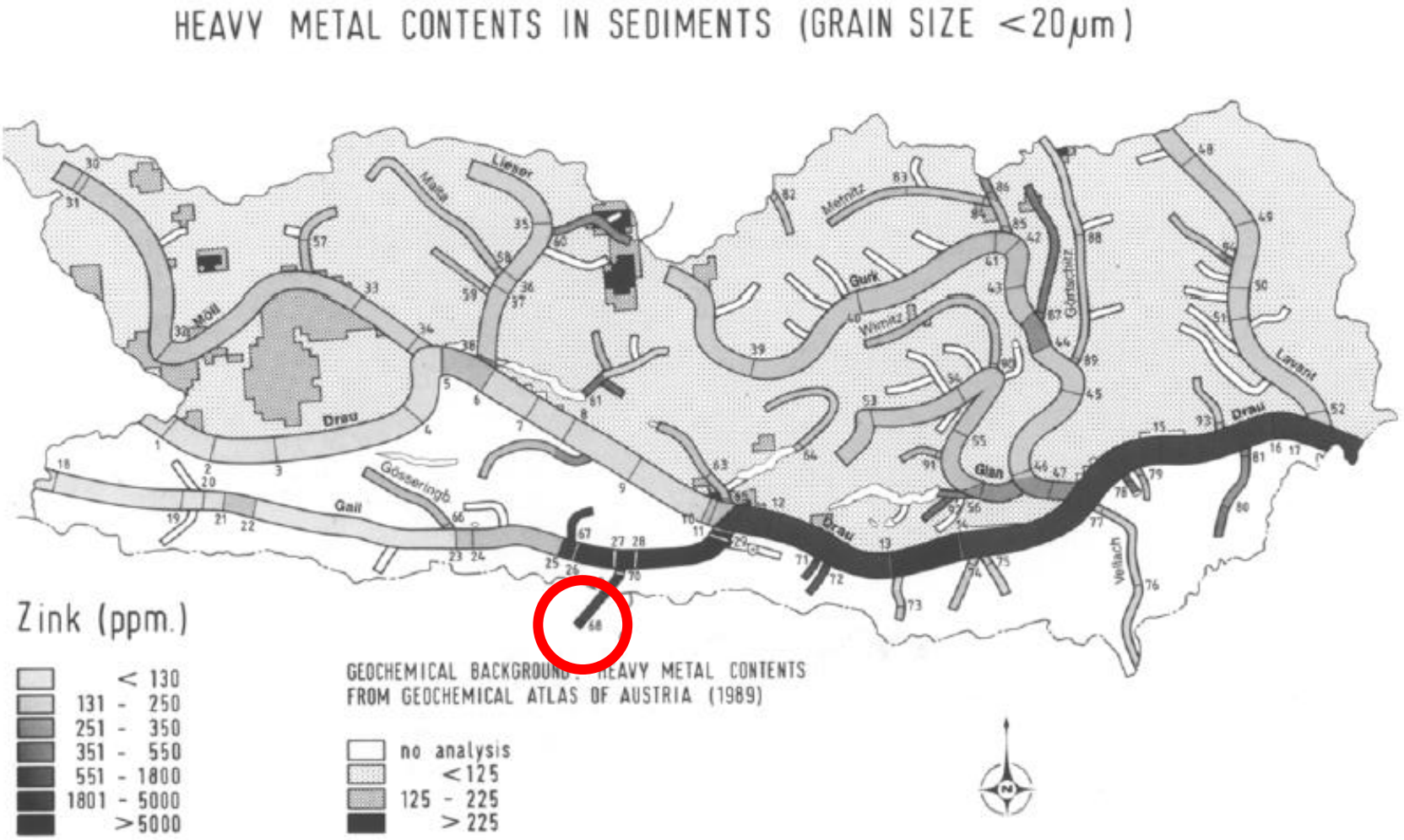
Parameter	NS (n=15)	MS (n=44)	MT (n=36)	SB (n=47)
Sand (%)	73.5(†) 3.1(‡)	72.9 1.2	58.7 0.9	80.8 3.5
Silt (%)	17 1.4	18.3 0.9	28.3 2.3	11.7 0.6
Clay (%)	9.49 2.3	8.69 0.4	13 1.1	7.42 0.4
pH	8.21 0.15	7.84 0.1	8.08 0.1	8.44 0.1
OC (%)	2.81 1.42	0.75 0.15	0.4 0.15	0.46 0.08
Tot N (%)	0.2 0.08	0.07 0.01	0.05 0.02	0.05 0.001
Fe (g kg^{-1})	2.04 0.8	53.2 9.4	44.6 6	14.8 1.7
Cd_{tot} (mg kg^{-1})	0,63( ) (0.37–1.28)(¶)	18.1 (3.64–235)	32.2 (10.4–216)	20.9 (1.74–271)
Pb_{tot} (mg kg^{-1})	33.4 (8,15–176)	4,782 (448–69,386)	7,502 (2,255–59,950)	4,431 (164–36,124)
Tl_{tot} (mg kg^{-1})	161 (120–263)	376 (150–4,549)	424 (164–9,158)	288 (115–862)
Zn_{tot} (mg kg^{-1})	47.6 (10.2–156)	16,930 (2,302–45,513)	18,336 (5,351–66,563)	8,836 (557–33,381)

(†) Mean; (‡) Mean standard error; ( ) Geometric mean; (¶) Range values

Miniera di Cave del Predil

Fellet G., Pošćić F., V. Casolo and L. Marchiol. 2012. Metallophytes and thallium hyperaccumulation at the former lead/zinc mining site in Cave del Predil, Italy. Plant Biosystems. 146, 1023-1036.

Pošćić F., Fellet G., Vischi M., Casolo V., Schat H., Marchiol L. 2014. Variation in heavy metal accumulation and genetic diversity at a regional scale among metallicolous and non-metallicolous populations of the facultative metallophyte *Biscutella laevigata* subsp. *laevigata*. International Journal of Phytoremediation. DOI: 10.1080/15226514.2014.922921.



Muller et al. 1994. Heavy metals contents in river sediments. Water, Air and Soil Pollution, 72, 191-203.

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