OROGENIC METALLOGENY OF THE LATE PALAEOZOIC LAURASIA - GONDWANA JUNCTION IN EUROPE AND CENTRAL ASIA

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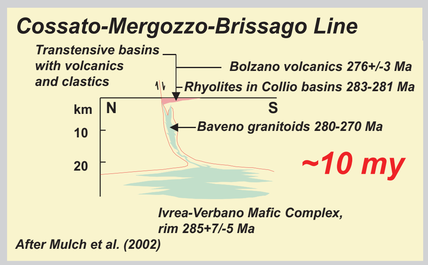
VARISCIDES	TIME	TIEN SHAN
• Sn-Cu, Sn-W, Mo-W-Cu between ~300 and 280 Ma	.....	..... ?
• Au and Au-Sb deposits between ~305 and 290 Ma with a tail to ~265 Ma	.....	• Au mostly between 290 and 280 Ma, with a tail to ~260 Ma
• Hg deposits only constrained by possibly associated lavas, ~290-280 Ma; Idria Hg is Middle Triassic, Nikitovka Hg-Sb is post Carboniferous	.....	• Hg and Hg-Sb deposits assumed to be of Permo-Triassic age
• Translithospheric strike-slip destruction of orogen between ~305 and ~290 Ma	.....	• Major strike-slip between ~300 and ~245 Ma
• Ignimbrite flares attributed to gabbroid mantle melts as in the Variscan Ivrea-Verbano Mafic Complex in the southern Alps	.....	• The Cu-Ni sulphide ores and their (ultra)mafic hosts range from ~300 Ma to ~270 Ma • The Kokshaal A-type granitoids formed between ~290 and 260 Ma



279 - 273
283 - 281
280 - 270
292 - 280
Ma
~ 20 my

'... substantial overlap ... but ...'
- diverse analytical methods
- limited data
- even locally, analytical results suggest periods of some 10 my for processes to run to completion

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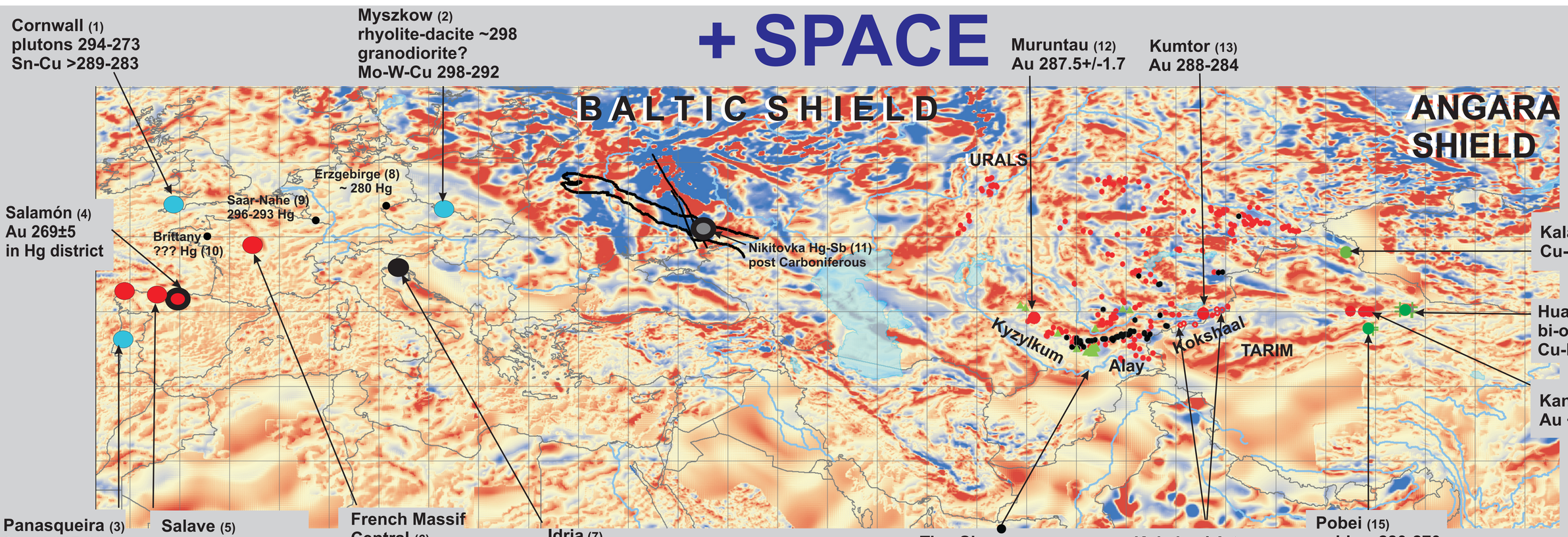

Magnetic Map of the World (Korhonen,J.V. et al., 2007; http//projects.gtk.fi/WDMAM/project/perugia/)
with ore districts (in part after Seltmann, R. et al., 2003 Mineral Deposits Map of Central Asia(1:1500000), CERCAMS-NHM, IGCP 473) , ages of ores and/or hosts, Pripyat-Dniepr-Donets rift hosting Nikitovka, and segments of western Tien Shan

1 From the westernmost Variscides to the easternmost Tien Shan, comparable ore deposits, associated magmas, fluids and volatiles, together with hosting transcrustal and translithospheric strike-slip belts, indicate material and mechanical roots in the sublithospheric mantle.

2 These phenomena extend across at least three different orogenic systems.

3 Do we really look at one coherent geodynamic framework?

4 If so, the formation of ore deposits was not (only) a function of orogenic metamorphism. The framework was powered and fed by sublithospheric processes during translation of lithosphere plates.

5 Upwelling of asthenosphere and its partial melts and volatiles along dilational jogs of a translithospheric strike-slip belt, induced by decompression processes, is compatible with the concept of 'mantle hot fingers' (Wilson and Patterson, 2001; compare Pirajno et al., 2008).

6 This concept was foreshadowed by Watson (1984) and developed in the context of anorogenic magmas and Cu-Ni sulphide metallogeny(5); consequently, the question arises 'How orogenic are [the] Orogenic Ore Deposits?'

For references see Abstract