Re-Os in pyrite as a constraint on the timing of HP metamorphism during the Tianshan orogeny (NW China)

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The Tianshan mountain belt in Central Asia is situated between the Junggar and Tarim basins. Because of its large extension of over 2500 km of length and complex geological history, it is a key piece to understand the tectonic evolution of Eurasia. Paleozoic collision resulted in the closeure of the Paleo-Asia ocean and amalgamation of small continental fragments. Dating of metamorphic units within the Tianshan is important to understand the timing of its tectonic evolution throughout the Phanerozoic.

Collision between the Yili-Central Tianshan and Tarim-Karakum plates in the southwestern Tianshan is recorded by eclogites embedded in greenschist and blueschist-facies metapelites, in the high-pressure, low-temperature belt in the Southern Tianshan, NW China. The majority of ages obtained with Sm-Nd, Ar-Ar, and U-Pb time the peak of metamorphism in the Late Carboniferous around 345 Ma, while younger Ar-Ar and Rb-Sr ages around 310 Ma are interpreted as mica cooling ages or recrystallization due to fluid flow. Younger U-Pb ages of about 225 – 230 Ma suggest later peak metamorphism, and thus a later continental collision, or resetting of the U-Pb system during the Triassic.

New Re-Os data, obtained on pyrite mineral separates from eclogites from the western Tianshan HP-LT belt, confirm the older Carboniferous ages. Sulfides from three eclogite samples yield ages between 310 and 380 Ma, with large uncertainties up to 100 Ma resulting from the few data points per sample available. These ages likely represent sulfide formation or recrystallization during eclogite-facies metamorphism, and provide independent evidence for Carboniferous ages of eclogite formation.

The similar ages yielded by isotope systems hosted in silicates and sulfides from Tianshan eclogite confirm a) Carboniferous ages for the eclogite-facies metamophism during the Tianshan orogeny and b) the potential of the Re-Os system to date sulfide formation in metamorphic rocks. However, ages obtained in this manner may represent ages of sulfide formation by fluid flow or remobilization during later stages of metamorphism, and thus needs to be compared with independent, silicate mineral-hosted isotope chronometers.

Metal pollution assessment in sediment of the Talar River, N. Iran

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In the Ghaemshahr Area the Lenth of the Tallar River Separated to 8 sample site and 112 Samples Collected from Sediment and For the Distingoition of Geogenic Pollution for each sample, 1 gr of sample was digested with the solution of $HF+HC_lO_4+HNO_3$ but in the Antropogenic Pollution the sample was digested with the solution Acetic Acid, hydroxileamine, Hydrocloride and hydrogenproxide and then Analized with Atomic Abasorbtion Method

The Enrichment Ratio and Geo-accumulation Index has been Calculated and Evalutated the Degree of Contamination Metals (Zn, V, Sn, Pb, Ni, Cu, Cr, Co, Cd, Ag, Fe) In the Sediment of the Talar River.

According to the contamination categories, the Ag has been Enriched and show very high absorption and Cd in the 1, 2, 4, 5, 7 Site and Sn in the 2, 4, 6, 7 Site Shows Intense to Very High Absorption.

Degree of Geo-accumolation Index Show that the Ag in the 1, 2, 3, 4, 5, 7, 6 Sites has been Enriched and Show Heavily Contaminated and Cd in the 1 Site and Sn in the 2, 5 Site Shows Heavily Contaminated.

In the Dogol Railway Station to Orim Village the Cd, Ag and Sn Contain of High Level of Antropogenic Contamination and Fe Contain of Low Level of Antropogenic Contamination and in the Babolsar-Bahmanir site Cd, Ag and V Contain of High Level of Antropogenic Contamination and Fe Contain of Low Level of Antropogenic Contamination

Activity Minning (Coal and Fluorite) and Depo of Coal in the Upper part of River Very Affected the Absorption and Contamination but in the Downstream, Realize of Industry and Urban Sewage very Affected the Absorption and Contamination