# Subducted continental crust materials in the SW Tianshan HP-LTMB

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The SW Tianshan HP/UHP-LT metamorphic belt(MB) in NW China occurs along a suture zone between the Yili and the Tarim blocks. It is mainly composed of blueschist, eclogite and greenschist-facies metasediments, metavolcanics, resembling typical mélange lithologies. Chemical compositions of mafic rocks are similar to those of typical oceanic basalts, which formed at a seamount setting in the South Tianshan ocean (Gao & Klemd, 2003). The belt has been interpreted as the typical deeper subduction of the oceanic crust in the world (Zhang *et al*., 2007). Recent 2450-1880Ma age obtained for detrital zircons of metasediments, core of zircons of meta-basalts, implying the SW Tianshan HP/UHP-LTMB may contain subducted continental crust. Here, we therefore performed a geochemical investigation on the intimately associated eclogites and blueschists which may represent continental crust materials.

Both eclogite and blueschist have similar geochemical characteristics: an enrich LREE, flated HREE, weak negative Eu anomalies REE patterns, depleted in Ba, Sr, Nb, Ta, Ti, high Th/Yb, indicating a continental crustal source of the rocks on a Zr/Hf -Nb/Ta diagram (Pfander *et al*., 2007). Sr-Nd isotopic data of both rocks is relatively constant with $\varepsilon Nd(t)$=-7.701 to -4.55, whereas $(^{87}Sr/^{86}Sr)_i$=0.7091 to 0.7107. All $\varepsilon Nd(t)$ values and Sr ratios are different with those reported for meta- N-MORBs, E-MORBs, OIBs in the Tianshan HP MB (Ai *et al*., 2006), but within range of the continental crust. Concerning with tectonic implication for continental crust materials in the HP/UHP-LTMB, two possible mechanisms are proposed here: 1) the fragments of arc basalts derived for a Paleozoic active margin with Precambrian basement have been involved into the subduction process; 2) the continental crust of the Tarim was involved during the collision process. Although present data cannot give a clear explaination to the tectonic background, geochemical and isotopic results demonstrate some continental crust materials have been subducted in formation of HP/UHP-LTMB in the SW Tianshan orogen.

# Biochar determination in soils by applying Pyrolysis GC-MS analysis and Black Carbon (BC) concentration trough dichromate and permanganate oxidation

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Distinguishing pyrogenic and non-pyrogenic SOM components is a difficult task as non-selective pyrolysis products such as MAHs, PAHs and phenols can derive from multiple sources. However, black carbon (BC) may contribute significantly to the MAHs and PAHs in a given pyrolysate, especially if BC is more abundant than alternative sources. In this study, samples from a soil rich in pyrogenic material in NW Spain were subjected to $K_2Cr_2O_7$ and $KMnO_4$ oxidation and the residual SOM was NaOH-extracted and analyzed using analytical Py-GC-MS in order to study the susceptibility of different SOM fractions (fresh, degraded/microbial, aliphatic and specially BC) towards this oxidation agent. Besides solid-state $^{13}C$ CP MAS-NMR was also performed to support theses results. Non-oxidized samples following the same NaOH-extraction procedure were also analyzed. From Py-GC-MS, residual SOM after $K_2Cr_2O_7$ oxidation contained BC, N-containing BC (BN) and aliphatic structures whilst carbohydrate products and lignocellulose were completely oxidized. This was corroborated by a relatively intense resonance of aromatic C and some signal of alkyl C (supporting the presence of a non-pyrogenic fraction mainly consisting of aliphatic structures) in $^{13}C$ NMR spectra. Thus $K_2Cr_2O_7$ effectively concentrates MAHs, PAHs and BN derived from BC. For $KMnO_4$, both techniques indicated that this reagent promotes the oxidation of carbohydrate products, mostly from degraded/microbial SOM but slightly oxidized lignocellulose and aromatic structures (pyrogenic and non-pyrogenic) not providing a good assessment of the BC signal.


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