



South Tien Shan orogenic belt: structure, magmatism and gold mineralization (Uzbekistan)

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The Southern Tien Shan represents one of the key units of the Central Asian orogenic belt in Uzbekistan. Together with the Beltau-Kurama volcano-plutonic arc it formed as a result of subduction of the crust under the Turkistan paleocean and the Kazakhstan continent, followed by collision and post-collisional strike-slip processes.

The Southern Tien Shan is of particular interest due to its gold mineralisation. It hosts the giant Muruntau gold deposit and the large gold deposits of Amantaitau, Daugyztau, Myutenbay (Kyzylkum ore district) and Charmitan, Guzhumay, Urtalik (Nurata ore district).

The Middle Tianshan hosts within the Beltau-Kurama volcano-plutonic arc the Kurama ore district with the giant Kalmakyr Cu-Au porphyry and large epithermal Au-Ag deposits of Kochbulak and Kyzylalma.

Yakubchuk et al. (2005) and others stress that the largest ore clusters are confined by the intersections of volcano-plutonic belts and transform faults in result of sinistral strike slip dislocations during the Permo-Carboniferous. Others believe that the ore giants are in addition controlled by hot spots - a mantle plume, superimposed on the crust architecture shaped by the subduction processes.

Zircon U-Pb geochronology of main intrusive massifs of Uzbekistan (CERCAMS data) showed that granitoid magmatism is predominantly of postcollisional age, manifested in the accretionary units at 270-290 Ma, whereas subduction magmatism prevails as characteristic in the volcano-plutonic arc at 300-320 Ma. Determination of sulphide mineralization ages using Os-Re method (CERCAMS data), are respectively 283-289 Ma and 298-314 Ma.

The studies were performed in the framework of IGCP- 592.

References

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