

**International Symposium on Uranium Raw Material for the Nuclear Fuel
Cycle: Exploration, Mining, Production, Supply and Demand, Economics and
Environmental Issues - IAEA CN-216**

Contribution ID: 10

Type: **Oral**

Sandstone uranium deposits of Eurasia –from genetic concepts to forecasting and new discoveries

Wednesday, 25 June 2014 09:00 (30 minutes)

Along Eurasian continent southern borders lie uranium ore provinces and regions controlling medium-sized and, on rare occasions, large sandstone deposits. Central French, Eastern Rhodope and other regions are known in the west. Large uranium ore provinces were discovered in the south of the Turan Plate and in the depressions of South Kazakhstan, viz. Central Kyzyl Kum, Syr Darya, Chu Sarysu. A common criterion has been established for all objects of the sandstone type, located in oil and gas, coal etc. sedimentary basins –the zone of interlayer or ground- interlayer oxidation, controlling uranium mineralization.

In 2003 we were able to justify the concept that the formation of giant deposits in Chu Sarysu province was caused by the collision between the Indian Plate and the southern part of the Eurasian continent. Within the limits of Pacific ore belt there is a zonal distribution of ore deposits. Ordinary mineralization is drawn towards its eastern fringe: gold, tin, copper, tungsten etc. Volcanic and tectonic structures of central type of Mesozoic age are located further west, from the north to the south, that is large calderas –Streltsovskaya (Russia), Dornot (Mongolia), Sian Shan (China), which control large and unique endogene uranium deposits. In the far west, in the region of subsiding tectonic tensions, there are sandstone deposits of uranium in Transbaikalia, Mongolia and Yunnan, which are spacially connected to young basalts. Infiltration deposits of Vitim region are adjacent to endogene deposits of Streltsovsky region in the southern-easterly direction, and to the east of the deposits of Yunnan at the same latitude lay the Sian Shan caldera with geothermal deposits of uranium and other metals. We combined them into the unified submeridional Baikal-Southern China uranium ore belt.

After examining the southern extremities of the Eurasian continent, the region of the collision of the Indian Plate, a distinct similarity can be perceived between the location of infiltration uranium deposits of the Tien Shan megaprovince and the pattern of development of the Pacific Plate subduction. In both cases young sandstone deposits tend to be situated close to the zone of subsiding geodynamic activity. Endogene uranium bodies can be found near the contact area of collision plates. The size of both endogene and exogene objects in the south and east of the Eurasian Plate differ considerably.

The given material bears evidence of a close spacial connection between part of sandstone uranium deposits and endogene uranium deposits. Both types of uranium deposits belong to the same ore metallogenic zoning which is entirely dependent on the global geodynamic processes taking place in the crust and mantle on the fringes of the Eurasian continent. This makes it possible to increase the prospects for the future of many parts of the World

Primary authors: Prof. MASHKOVZEV, Grigoriy (All-Russian Scientific-Research Institute of Mineral Resources, Moscow, Russia); Dr PECHENKIN, Igor (All-Russian Scientific-Research Institute of Mineral Resources, Moscow, Russia)

Presenter: Dr PECHENKIN, Igor (All-Russian Scientific-Research Institute of Mineral Resources, Moscow, Russia)

Session Classification: The future of uranium - focus on greenfields

Track Classification: The Future of uranium —Focus on development of greenfield sites