Geochronology and significance of the oldest intrusive in Qinling Mountains, China

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Yudongzi complex is the oldest geological mass in the Qinling area, it consists of two parts: one is deterioration that is called Yudongzi group. This part is composed dominantly of Plagioclase amphibolite, Greenschist, Granulite, Quartzite and Magnet Quartzite. It is High-greenschist facies to amphibolite facies metamorphism; another part is Deformation intrusion of different size of Granitoid. The geological body contact each other in Tectonic foliation. Predecessors Determination of age of Yudongzi group in many ways, but the results are quite different, and low in Accuracy. Based on image features of Zircon, combined Genetic Analysis of Zircon and Microdomains U-Pb isotope LA-ICP-MS (Laser ablation ICP-MS) Determination, separately get the Magma crystallization age 2661±17Ma and 2703±26Ma of Mylonite of fine-grained biotite granite and Strong schistosity biotite granite in Yudongzi complex, and get the Metamorphic zircon age 2647 ± 65 Ma in the Mylonite of fine-grained biotite granite. The age 2703±26Ma (Fig. 1) is the oldest Intrusive that had been detected in the Qinling Orogenic Belt from now on, it provide a new data for research Precambrian tectonic-magmatic events and the evolution of early Earth in Qinling Orogenic Belt.

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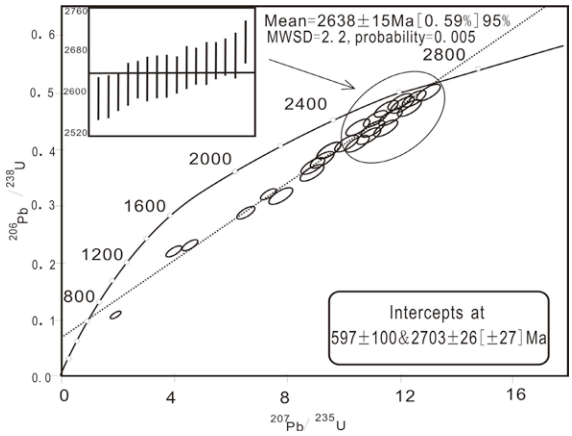

Figure 1: U-Pb concordia diagram of zircons from strong schistosity biotite granite

Chemical compositions of rainwaters from Chengdu city, Sichuan Province, China

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Over the last few decades, China has undergone rapid and extensive industrial growth particularly in the more densely populated. This has inevitable led to dramatic increase in pollutant emissions to the atmosphere and consequently the increases in deposition of these pollutants over wide areas. With a fast economic development, energy consumption has increased significantly in the last two decades in Sichuan Province, China. Acid rain, therefore, has been an atmospheric environment problem especially of several big cities in Sichuan Province. In order to identify and quantify contaminant sources and their fluxes, we have conducted a study on chemistry of the rainwater over Chengdu city, a capital city of Sichuan Province.

Forty-four bulk rainwater samples were collected in 2008, and analyzed for their chemical compositions. NH_4^+, Ca^{2+}, NO_3^- and SO_4^{2-} are the principal ions in the rainwater samples. The sum of NH_4^+ and Ca^{2+} accounts for more than 90% of the total cations, while SO_4^{2-} was the most abundant anions and accounts for 38%-90% of the total anions. The second abundant anion is NO_3^- which account for 22%-56% of the total anions measured. Compared with some sites in China, the ion concentrations of Chengdu rainwater, especially SO_4^{2-}, NO_3^-, consumedly exceed those of big cities in China. However, compared with those acid rain areas in China, the problem of acid rain is not serious in Chengdu. This is because the existence of acid rain depends not only on the presence of acidic ions in the precipitation, but also upon other factors such as the amount of alkaline material available as a neutralizing agent. It is noteworthy that the increase of NOx emission from the automobile exhaust is becoming another important cause of the acid ions in Chengdu city. It should be kept in mind that the contribution of nitrate to acid deposition will be more significant.

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