Geochemical structure of Pb isotopes in Tongbai-Dabie area

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Based on the Pb isotopic data of the core complex, ultrahigh-pressure (UHP) and high-pressure (HP) metamorphic rocks and associated foliated granites, the lower metamorphosed rocks from North Huaiyang tectonic belt, and Cretaceous granites in Tongbai-Dabie area, China, we have determined the Pb isotopic structure of the Tongbai-Dabie orogenic belt. The Pb isotopic map of the Tongbai-Dabie area shows that the Pb isotopic composition is similar within individual lithotectonic unit, but the Pb isotopic compositions of different lithotectonic units show systematic variations. The North Huaiyang tectonic belt contrasts strongly with the Tongbai-Dabie HP and UHP metamorphic belts in Pb isotopic compositions. It is suggested that the line along the Xiaotian-Mozitan fault, the north limit of the Tongbai-Dabie UHP and HP metamorphic belt, represents an important tectonic boundary and possibly marks the suture of Triassic deep continental subduction

Within the Tongbai-Dabie area, the vertical variation of Pb isotopic compositions in different units and the spatial relationship among different major lithotectonic units has been constrained. The tectonic stacking of units within the Tongbai-Dabie UHP-HP metamorphic belt has been established according to the vertical variation of the Pb isotopic compositions in different units.