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An HP-UHP orogenic belt or an extensional zone? In the view from the South Sulu Massif, Eastern China

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Mechanism of the exhumation process of deeply subducted rocks is a hot and difficult issue on the tectonic evolution of collisional belts. Integrated with structural analysis, geochronological, petrological and sedimentological studies on the South Sulu Massif, the largest part of Late Triassic UHP orogenic belt of central China, two stages of exhumation of HP-UHP rocks have been recognized. The early stage: HP-UHP rocks, which correspond to the continental collision between the North China Block and South China Block, were exhumed to different levels of the crust and made “a deep-seated UHP orogen” during the Late Triassic. The emplacement could be considered as a post-collisional extension induced by the delamination of the syn-collisional thickened lithosphere. However, during the early stage of exhumation, there is no evidence indicating that the HP-UHP rocks exhumed to the surface. The late stage: an Early Cretaceous detachment normal fault largely controlled the exhumation of the HP-UHP rocks that were brought to a subaerial environment. This process coincided with regional extensional tectonics on the Eastern Eurasia continent, and resulted from lithosphere thinning or North China Craton Destruction. These two exhumation stages make the South Sulu massif like an “atypical” UHP orogenic belt with a deeply buried UHP slab, which was finally exposed ~100 Myr later.