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End-Permian to mid-Triassic terminal orogeny in the Beishan orogenic collage, NW China

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The Beishan orogenic collage is located in the southernmost part of the Altaids, and connects the Southern Tianshan suture to the west with the Solonker suture to the east. The orogen was previously regarded as early Paleozoic in age in contrast to the surrounding southern Altaid collages, which are Late Paleozoic or even Early Mesozoic. We review the tectonic units of the Beishan orogen, which along a north-south traverse consists of several arcs and ophiolitic mélanges. These tectonic units were thrust imbricated and overprinted by strike-slip faulting during Permian-Triassic times, and the youngest strata involved in the deformation are Permian-Triassic. Peaks of magmatic-metamorphic- tectonic activity, and paleomagnetic and paleogeographic data indicate that the Beishan orogenic collage evolved by development of several, Early to Mid-Paleozoic arcs in different parts of the Paleo-Asian Ocean. The Late Paleozoic collage is characterized by several active continental margins or island arcs that are separated by ophiolitic mélanges. In the Late Carboniferous to Permian the eastern end (promontory) of the Tarim Craton probably collided with the Chinese eastern Tianshan arc, forming a new active continental margin, which interacted with the Beishan Late Paleozoic archipelago, generating a complicated subduction-accretionary orogen in the end-Permian to mid-Triassic; this is suggested to be one of the last phases in the development of the long-lived Altaid accretionary orogenesis. The new model for this orogen bridges the gap between the western and eastern ends of the southern Altaids.

Keywords: Beishan, end-Permian to mid-Triassic, accretion, Altaids