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## Tectonic evolutionary history of the Qinling orogenic belt in Precambrian, Central China

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We present systematic geochemical, geochronological and zircon Lu-Hf isotopic data on the metamorphic rocks in the Qinling orogenic belt (QOB) to constrain its timing of formation and tectonic evolution. We address the tectonic evolution of the QOB during Mesoproterozoic to early Paleozoic involving the following major events: (1) Late Neoproterozoic (Grenvillian) Mesoproterozoic to early northward subduction of the Songshugou Ocean (Fig. 1a); (2) Early-middle Neoproterozoic bidirectional subduction and collision (Fig. 1b, c); (3) Middle Neoproterozoic post-collision extension (Fig. 1d); (4) Middle-late Neoproterozoic withinplate extension (Fig. 1e); (5) Late Neoproterozoic-early Paleozoic opening of the Shangdan ocean (Fig. 1e); and (6) Early Paleozoic subduction-collision. We thus trace at least two distinct Wilson cycles in the QOB (Fig. 1g).



Figure 1: Schematic cartoon showing the tectonic evolutionary history of the QOB.

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