

# **Age and provenance of Fuxingtun Formation from late Paleozoic in Zhangguangcai Range of Northeast China: Implication for regional tectonic evolution**

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LA-ICP-MS U-Pb dating of zircons from the Devonian Fuxingtun Formation in the Zhangguangcai Range, Northeast China, is presented in order to constrain the forming age and provenances. Most of zircons from the Fuxingtun Formation are euhedral-subhedral in shape and display striped absorption or oscillatory zoning in CL images, implying their magmatic origin. The dating results indicate that zircons from tuff in the Fuxingtun Formation yielded age of  $391.6 \pm 3.2$  Ma, and detrital zircons from sandstone in the Fuxingtun Formation yielded age populations of 392.7 Ma, 422 Ma, 510.9 Ma, 789 Ma, 1711 Ma, 1768 Ma, 1833 Ma, 1912 Ma, 1964 Ma and 2422 Ma. According to the above dating results, it can be determined that the Fuxingtun Formation formed in Middle Devonian of the Late Paleozoic. Based on the similarity of age populations of detrital zircons from sandstone in the Fuxingtun Formation, it is suggested that provenances of the Fuxingtun Formation are mainly derived from the early stage of Late Paleozoic geological bodies around the sedimentary basin and the Early Paleozoic granitic rocks in eastern margin of the Songnen-Zhangguangcai Range massif. Additionally, the study of zircons chronology provided a new evidence for the timing of amalgamation of the Songnen-Zhangguangcai Range Massif and Jiamusi Massif has been assigned to the early stage of Late Paleozoic.