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$^{40}Ar/^{39}Ar$ age for the fossil-bearing Tiaojishan Formation in NE China

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Since the 2000s, well-preserved terrestrial fossils, including invertebrates, vertebrates and plants, continue to be discovered from the Jurassic Tiaojishan Formation in Hebei, Inner Mongolia and Liaoning, NE China [1]. Fossils from the Tiaojishan Formation and the underlying Jiulongshan Formation (or Haifanggou Formation) have been identified as the Yanliao Biota. Although the geographic distribution of the Yanliao Biota is similar with the famous Jehol Biota, recent studies have provided evidence that the two biotas are distinct [2]. Documented fossils from these three formations, particularly from the Tiaojishan Formation, have greatly increased our knowledge of Mesozoic terrestrial ecosystems. For example, a wide range of plant fossils from the Tiaojishan Formation provides essential evidence for understanding the vegetation, paleoclimate and environmental evolution. However, previous age data obtained by different methods for these fossil-rich formations are controversial. The classic fossil outcrop at Wubaidingyingzi, Reshuitang Village, Wanyuandian Town, Lingyuan City, Liaoning Province, China yields some well-preserved fossils from the Reshuitang fossil-bearing beds which was considered to belong to the Tiaojishan Formation or the Jiulongshan Formation [3]. In this study, we collected two tuffs from the middle part of the Reshuitang beds and our $^{40}Ar/^{39}Ar$ age results (~161 Ma) indicate that the Reshuitang beds belong to the Tiaojishan Formation.

References:

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