VOLCANIC EVENTS AND THEIR INFLUENCES ON SEDIMENTATION IN THE MESOZOIC TONGHUA BASIN, CHINA

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The Tonghua basin is a Mesozoic volcanic-sedimentary basin, and was controlled by a branch fault of Dunhua-Mishan fault system. It developed during three volcanic-sedimentary cycles from the late Middle Jurassic to Early Cretaceous era. Frequent and intense volcanism produced a variety of volcanic rocks and volcaniclastic rocks via eruption and explosion. Based on petrological and geochemical features, the volcanic rocks within the basin can be divided into two groups: latite series and rhyolite series, which reflect the alternatives of volcanism originated in crust and in mantle.The volcanism had significant influences on the sedimentation within the basin. It controlled the distribution of sedimentary systems. The circular distribution of sedimentary facies within the basin was controlled by the volcanic apparatus. Volcanism also provided large volumes of constituents for sedimentation. Correlation of rare earth elements and trace elements between the mudstone and volcanic rocks suggests that the volcanic rocks were the provenance, and that the volcanic activity simultaneously provided constituents for sedimentation. Meanwhile, volcanic activity also resulted in changes of paleogeography and sedimentary discontinuity In addition, some special sedimentary systems developed, such as volcanic turbidites and pyroclastic flow deposits.