

内蒙古多伦环形影像的成因探讨

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摘要: 多伦环形影像位于内蒙古自治区东南与河北省交界处, 环形影像完整, 直径约70 km。对其成因以往主要有陨石冲击和中生代古火山机构两种认识。系统的1:5万区域地质调查表明, 环形凹槽主要被第四系沉积物覆盖, 局部有上新世玄武岩出露, 其下隐伏有大量白垩纪粗安岩和上新世玄武岩。环边发育不同方向的区域断裂。环内、外由前寒武纪变质岩系、中新元古界、下二叠统和中生代火山-沉积岩系组成, 不同时代的地质体完整、层序清楚。中生代火山岩是一系列中心式或裂隙-中心式火山喷发作用的产物。因此, 笔者认为多伦环是早白垩世以来深部岩浆作用与区域断裂共同作用的结果。

关键词: 多伦环; 陨石冲击; 火山作用; 深部岩浆; 区域断裂

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Origin of the Duolun ring image, Inner Mongolia

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Abstract: The Duolun ring image is found on the border of southeastern Inner Mongolia and Hebei Province. The image is complete, with a diameter of ca. 70 km. There are mainly two views about the genesis of the ring, meteorite impact and Mesozoic paleovolcanic edifice. Through a systematical 1:50000 regional geological survey, the authors found that the trough of the ring is mainly covered by Quaternary deposits, with Pliocene basalts exposed locally. Data of drilling and abnormal magnetic variation show that large amounts of Cretaceous trachyandesite and Pliocene basalt are hidden in the subsurface. Regional faults of all directions are developed at the edges of the ring. Both inside and outside the ring there occur Precambrian metamorphic rocks, Meso- and Neoproterozoic and Lower Permian strata and Mesozoic volcanic-sedimentary rocks. Geologic bodies of different ages are intact with a clear stratigraphic succession. Mesozoic volcanic rocks are the product of a number of eruptions of central or fissure-central types. Therefore, the authors conclude that the Duolun ring may be the result of combined deep-seated magmatism and regional faulting.

Key words: Duolun ring; impact of meteorite; volcanism; deep-seated magma; regional fault