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西藏冈底斯中段孔隆至丁仁勒地区林子宗群火山岩锆石SHRIMP年龄和地球化学特征的区域对比

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摘要：

本文对冈底斯中段孔隆-丁仁勒地区的林子宗群火山岩进行了地球化学和锆石SHRIMP定年测试,在年波组下部的英安质岩屑晶屑熔结凝灰岩(LZ06022-2)中获锆石SHRIMP年龄为59.64±0.72Ma,在典中组下部的安山质晶屑凝灰岩(LZ06017-4)中获锆石SHRIMP年龄为69.97±0.72Ma,这是目前为止林子宗群火山岩底部的最老年龄。结合前人资料,对冈底斯地区林子宗群火山岩的火山活动、地球化学及形成年代等进行了区域对比,结果显示整个冈底斯带林子宗群火山岩以喷溢相和爆发相为主,从早期到晚期爆发强度逐渐减弱,早期典中组以爆发相为主到晚期帕那组以喷溢相为主,且随着时间的演化火山活动强度表现为由强→弱,早期东段比中段和西段火山活动强,中期西段和中段比东段火山活动强,晚期均较弱,年波组火山活动强烈且频繁,持续时间长,从而形成了冈底斯中段林子宗群火山岩的独特性;岩石地球化学特征显示随着时间的演化具有从基性→中性→酸性岩浆演化的规律,全碱含量逐渐升高,岩石系列由钙碱性系列→高钾钙碱性系列→钾玄岩系列逐渐过渡;林子宗群火山岩具有陆缘弧火山岩的特征,是印度-亚洲大陆碰撞的产物,碰撞的起始时限在冈底斯带东、中、西段具有一定的差异,中段略早于东段和西段发生大陆碰撞。

英文摘要：

This study reports the whole-rock geochemical and zircon U-Pb geochronological data of Linzizong Volcanic Succession (LÜS) outcropped in Konglong-Dingrenle region of the middle Gangdese belt. Zircon U-Pb dating results indicate that acidic detritus crystal ignimbrite (LZ06022-2) collected from bottom layer of the Nianbo Formation yields an age of 59.64±0.72Ma, and that andesitic crystal tuff (LZ06017-4) sampled from bottom layer of the Dianzhong Formation was emplaced around 69.97±0.72Ma. This is the oldest age for LVS. Combing with previously reported volcanism, geochemical and chronological date, it is revealed that the volcanic activity characteristics are different from early to late and east to west of the Gangdese. First, the eruptive patterns of volcanism of Linzizong volcanic successions mainly include extrusive and explosive facies. The volcanic explosivity index is getting weaker from early to late, which means the eruptive patterns change from explosion facies-dominated of the early Dianzhong Fromation to extrusion facies of the late Pana Formation. Second, under the time evolution the volcanic activity changes from intensive to weak. In the early, the east area is more intensive than the middle and west area. But, in the interim, the west area is more intensive than the other. To the late stage, the volcanic activity of whole Gangdese is weak. The volcanism of the Nianbo Formation is the most intensive, frequent and long lasting in the middle belt of LVS. The early stage of LVS is mainly basic, middle stage and late stage is prevailed by neutral and acidic rock types. Respectively, the total alkali content is increasing, and the rock series also change from calc-alkaline to high potassic calc-alkali to shoshonite. Third, LVS has the characteristics of epicontinental arc volcanic rocks, and it is the product of India-Asian continent collision. The starting time of collision for the west, middle and east area is different. In the contrast, the middle belt is slightly earlier than that of the eastern and western part.

关键词：锆石SHRIMP定年 地球化学 火山活动 区域对比 林子宗群 冈底斯中段

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