

论文

西藏南部二叠纪和早白垩世构造岩浆作用与特提斯演化:新观点

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摘要:

西藏高原前新生代时期的特提斯演化和新生代时期的高原隆升历史是青藏高原基础地质研究中两个长期被关注的重要科学问题,但迄今对西藏高原自身的物质组成和前新生代演化历史的认知程度仍然较低,直接限制了对新生代时期西藏高原隆升历史的更深入研究。新的地质和地球化学资料显示早—中二叠世时俯冲背景和伸展背景共存于现今的冈底斯带和喜马拉雅带,中二叠世末期(大约263 Ma)侵位的皮康过铝质S型花岗岩以及同期发生的松多榴辉岩的高压变质作用和区域性角度不整合指示现今的冈底斯弧背断隆带在那时经历了同碰撞造山事件。中生代岩浆岩锆石U-Pb年龄和Hf同位素成分表明,冈底斯弧背断隆带和中冈底斯带存在以古元古代甚至太古宙物质为特征的古老基底物质,而北冈底斯带和南冈底斯带则分别以中—新元古代新生地壳和显生宙新生地壳为特征。已有高质量年龄数据和锆石Hf同位素指示冈底斯带中北部地区在大约110 Ma发生了带状岩浆大爆发并伴随着幔源物质显著增加。新的可靠的锆石U-Pb年龄指示喜马拉雅带东部措美(Comei)地区大面积出露的白垩纪火成岩侵位于132 Ma左右,代表了新近在藏南和澳大利亚西南部识别出的经历了强烈变形和深位侵蚀的Comei-Bunbury大火成岩省的残余。以这些新资料为基础,讨论了西藏南部的晚古生代—中生代构造岩浆演化历史和特提斯演化过程。

关键词: [二叠纪](#); [早白垩世](#); [构造岩浆作用](#); [特提斯演化](#); [西藏南部](#)

Permian and Early Cretaceous tectonomagmatism in southern Tibet and Tethyan evolution: New perspective.

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Abstract:

The pre-Cenozoic evolution of the Tethys and the Cenozoic uplift of the Tibetan Plateau have long been considered as two important issues of fundamental geology of this plateau. However, our knowledge on the geological context and pre-Cenozoic history of the Tibetan Plateau remains limited so far, consequently raising uncertainties for further exploring the history of Tibetan uplift during the Cenozoic. New available geological and geochemical data of volcanic rocks indicate the coexistence of an island arc system in the Gangdese and an extensional setting in the Himalayas during the Early to Middle Permian. Peraluminous S-type granites near Pikang (~263 Ma), the Songdo eclogite of the same metamorphic age (~262 Ma), and the regional angular unconformity between the Middle and the Upper Permian from the same geotectonic location suggest that the present-day Gangdese Retroarc Uplift Belt (GRUB) experienced a syncollisional orogeny at the latest Middle Permian (~263 Ma). U-Pb age dates and Hf isotopic compositions of zircons from Mesozoic magmatic rocks reveal that the GRUB and Middle Gangdese are characterized by an ancient basement of Paleoproterozoic (as old as Archean) age, whereas the Northern and Southern Gangdese are dominated by MesoNeoproterozoic and Phanerozoic juvenile crust, respectively. Available good quality age dates and zircon Hf isotopic data suggest that the northern parts of the Gangdese experienced a zonal magmatic flare-up with strong input of mantle derived materials at ~110 Ma. New reliable U-Pb age dates of the extensive Cretaceous igneous rocks in the eastern Himalayas suggest that these rocks were emplaced at about 132 Ma, and may represent the erosional and/or deformational remnants of the newly identified Comei-Bunbury large igneous province. All these new data formed a basis for discussing the tectonomagmatic and Tethyan evolution in present-day southern Tibet during the Late Paleozoic-Mesozoic.

Keywords:

Key words: [Permian](#); [Early Cretaceous](#); [tectonomagmatism](#); [Tethyan evolution](#); [southern Tibet](#)

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