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Mesozoic and Cenozoic Granitoids in the Japanese Islands: A Snap Shot of the Collage-Forming Process of the Asian Supercontinent

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In the Japanese Islands, granitoids with the age of 1-450 Ma are exposed. They form several age clusters; 270-200Ma, 130-100Ma, 100-60Ma, 60-30Ma, 20-18Ma, 15-13Ma and 1-10Ma. Most of them intrude the accretionary complexes and are geochemically designated as arc-type. Paleozoic granitoids (300-450Ma) occur as tectonic blocks in serpentinite melange or fault-bounded small bodies. The oldest granitic province in the Japanese Islands is a 270-200Ma plutonometamorphic terrane at the Hida Highland in back-arc side. Among those granites, the strongly foliated granitoids seem to make 270-240Ma sub-cluster. They are supposed to be related to the South China-North China collision event.100-60Ma granitoids in Southwest Japan have 60-70% exposure area of the whole granitoids in the Japanese Islands. They occur in arc-parallelly extended two zones, the San-yo zone of volcanoplutonic complex in back-arc side and the Ryoke zone of plutonometamorphic belt in fore-arc side. The two zones are not separate suspect terranes but geologically continuous single granitic province. The transect from the San-yo zone to the Ryoke zone represents the crustal cross section of the late Cretaceous Eurasian continental margin. This large-scale granitic magmatism is interpreted to have been related to the collision of Kula-Pacific ridge to the Eurasian plate. The 60-30Ma province is called San-in zone, located just back-arc side of the San-yo zone. Another conspicuous granitic magmatism took place in 15-13Ma in the most fore-arc side of Southwest Japan. It is quite episodic event that was driven by forceful obduction of continental crust overriding the young hot Philippine Sea plate caused by opening of Japan Sea. Thus, the Mesozoic-Cenozoic granitoids in the Japanese Islands reflects various geological settings and tectonic history of their generation. The Asian continent is a geological collage composed of ancient cratons, continental fragments, island- and continental arcs and collision orogen between them. They have granitoids of various ages and characters like the Japanese Islands. On the other hand, there are a number of island arcs and microplates at the north-middle western Pacific rim. The Australian plate is going northward to the Asia and the leading edge of its continental crust has already touched the Sunda arc crust, the southeastern Asian continental front. The Australian continent will proceed further to the north, and finally be collided to the Mainland Asia, sandwiching all between them, closing all the back-arc basins and amalgamating the island arcs in between. Then the Asian Supercontinent will have grown with newly added collage of arcs and microcontinents. Therefore, the present north-middle western Pacific rim and Japanese Islands are a snap shot scene which is going to be a collage front of the Asian Supercontinent in future.