

Initiation of uplift of the mountain ranges in the Himalaya-Tibet and SW Japan-Ryukyu arc at about one million yaers ago

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At about one million years ago, in the vast area of Asian continent, tectonics has changed and uplifting of the mountain range has started. The frontal range of the Himalaya started its uplifting at 1 ± 0.5 Ma, and the total vertical amount of uplift has reached 1500 to 2000 m by present. This tectonic event is recorded in the deep sea sediments in the Bengal fan as a rapid changes of accumulation rate and composition of clay minerals at 0.9 Ma.

During the same period, forearc to outer arc area of SW Japan and Ryukyu islands have undergone rapid uplift, ranging in altitude from 1000 to 2000 m. In the Kinki district, basin (Osaka and Nara basin) and range (Rokkoh and Ikoma range) structure was formed by the Rokkoh movement, and in the Ryukyu islands, the deep-water basin in which the Shimajiri Group was deposited was raised and covered with coral reef limestone, after the Shimajiri movement. The same crustal movement is recorded in the Kyushu district as an unconformity between the Miyazaki Group of forearc sediments and overlying higher-terrace deposits.

The cause of these crustal movements and simultaneous uplift in SW Japan can be attributed to the changes of plate motion of the Philippine sea plate from NNW to WNW at around 1 Ma. It is, however, difficult to clarify the tectonic linkage in between the SW Japan and the Himalaya, though there must be some linkage. I discuss on the probable linkage and origin of the simultaneous uplift in the Himalaya- Tibet and SW Japan.