

## NW-SE Kerama rift valley formed at 3 to 2 Ma and inflow of the Kuroshio warm current, prior to the 1.5 Ma main rifting o

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The basement of Kume-jima is the Aradake Formation, consisting of altered andesite, which represents 1.7 Ma terrestrial eruption at volcanic arc. Eroded surface of the andesite is unconformably covered by the lower part of the Maja Formation, consisting of 7 Ma silty sandstone and talus conglomerate, which represents embayment of sea toward Kume-jima. The upper Maja Formation, 3 Ma, consists of giant cross stratified sandstone, derived from the southeast, probably under effect of the branch of the Kuroshio warm current. The rounded chert gravels in the uppermost conglomerate were derived from southeastern accretionary terrain. The 2 Ma Uegusukudake Formation consisting of the lower unaltered basalt and upper andesite lava formed plateau like volcanic accumulations, indicating NW-SE rifting and sea floor spreading. The 1.5 Ma tectonic event is the NE-SW rifting and opening of the Okinawa trough, and affected Kume-jima to tilt northwestward as a consequence of NE-SW normal faulting, and subsidence as an island. The Kitahara Formation, a member of the so called the Ryukyu limestone, deposited filling this depressions. The base is conglomerate and sandstone, and the main part is calcareous algae limestone. Flat coral limestone of the Dosaki Formation abuts these older strata. The structure of Kume-jima is simple and only tilting of older strata, although some minor active faults cutting the Dosaki Formation are observed. The sea barrier to form endemic species like *Luciola owadai* is expected in 7 Ma embayment event, especially followed by 1.5 Ma isolation to form an island.

Keywords: Kume-jima, 7 and 3 Ma Shimajiri Group, giant cross stratification toward NW, Kuroshio, 2 Ma Plateau basalt, NW-SE rifting and sea floor spreading, prior to 1.5 Ma rifting of NE-SW Okinawa Trough