

Growth history of the northern Sado Ridge inferred by the changes of the spatial distribution of sedimentation rates

Hajime Katayama[1]

[1] Geology and Geoinformation, AIST

The Sado Ridge, which extend NNE-SSW along the eastern margin of the Japan Sea, is presumed to have been formed since the Early to Late Pliocene when the E-W compressional stress was intensified (Watanabe et al, 1994). The details of the growth history of the Sado Ridge, however, are not clear. I examined growth history of the Sado Ridge from the Middle Pleistocene using the changes of the spatial distribution of sedimentation rates.

The northern part of the Sado Ridge is consists of some small hills whose eastern slopes are steep, and western slopes are gentle. Muddy sediments are deposited on the gentle slopes, and many reflectors which are thought to be correspond to tephtras are recognized there in the 3.5 kHz sub-bottom profiler records. The uppermost two reflectors were correlated to AT and Aso-4 tephtras respectively. The ages of the other reflectors were estimated by the Aso-4 age (89ka; Matsumoto et al., 1991) and the depth ratios of the reflectors, since they are not correlated to known tephtras. The historical changes of the spatial distribution of sedimentation rates from approximately 530ka are estimated using the thickness between the 6 clear reflectors of nearly same time intervals (approximately 80-100ka).

The upslope decreases of sedimentation rates were recognized for all period from ca 530ka on the slopes of hills in the eastern Sado Ridge and the western Mogami Trough. Generally, the degree of the upslope decreases of sedimentation rates before ca.360ka is slight, while it intensified remarkably after ca.360ka. It is presumed that the intensification was caused by the growth of the slopes after ca 360ka. These historical changes of the distribution of sedimentation rates indicate that hills in the Sado Ridge were exist already before the Middle Middle Pleistocene but not so high, they grew rapidly in the Middle to Late Middle Pleistocene.

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