

Volcanic landforms and welded volcanoclastic rocks of northern Mariana Trough

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R/V Kairei KR02-01 expedition to the northern Mariana Trough at 19.5N-22N revealed young volcanic activities along the rift axis, which were considered to be magmatically inactive. Previous SeaBeam mapping compiled by Yamazaki shows the presence of flat-topped cones and conical seamounts 1-2 km in diameter along the rift valley. Some flat-topped cones have summit depressions resembling vents and calderas. Dredging on these seamounts confirmed fresh basalt lavas and volcanoclastics. Such axial volcanic edifices are common to slow-spreading ridges such as Mid-Atlantic Ridge and Hawaiian rift zones. Dredged samples are of pillow lava, subaqueous pahoehoe lobes, wrinkled sheet flows and welded volcanic breccia. Heterogeneous welding texture of the volcanic breccia indicates that the breccia flowed rheomorphically after welding.