

## **Legacy cores and modern volcanology; new insights from pumice-rich beds in ODP 126, Izu Bonin arc**

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The Sumisu rift in the Izu Bonin arc was the focus of numerous studies in the late 1980s. During the ODP expedition 126, the upper arc was piston-cored to depths down to ~250 mbsf. Most research was focussed on the forearc, with few investigations based on the enormous volume of volcanoclastic deposits at sites 790 and 791 in the rift basin, and site 788 in shoulders of the rift. At site 790C, the piston cores reached ~275 ka at 180 mbsf, and record numerous units of silicic pumice lapilli developed in beds up to several 10s of m thick, and interbedded with units of silicic and basaltic ash and hemipelagic mud.

From our new logging data from legacy samples stored at the Kochi Core Center, we present a first attempt of new stratigraphic correlations throughout the rift basin, and discuss the origin of the pumice lapilli beds. This ongoing study will be complemented by textural and geochemical analyses on the various pumice lapilli beds, in particular on the grain size distribution, grain shape, vesicularity and glass and mineral compositions.

We consider that our dataset will allow us to correlate strata across the rift basin with high confidence, and this will underpin analysis of the style and environment of eruption, as well as of transport processes, involved in producing the pumice lapilli beds. We expect the pumice lapilli beds to have been derived from caldera-forming eruptions and by post-eruptive resedimentation; the water depth at the vent cannot be constrained with the data currently in hand. This work applies modern textural and geochemical studies to legacy cores, showing the long-term value (already 20 yrs after collection) of samples from coring the shallow crust. In addition, surficial volcanoclastic sediments may allow comparing ultra-deep samples with relics (e.g. xenocrysts, melt inclusions) that reached the surface through volcanic eruptions.