

## Heterogeneity of microbial life on bathyal and abyssal ferromanganese crusts in the Takuyo-Daigo and Takuyo-Daisan seamounts

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Ferromanganese crusts mainly composed of Fe and Mn oxides are commonly observed on outcrops in deep-sea old seamounts. Previous 16S rRNA gene analyses have indicated the presence of diverse microorganisms on the ferromanganese crusts at bathyal zones (1000 m to 3000 m water depths) in the Takuyo-Daigo Seamount, the northwestern Pacific. Although the presence of crusts has been confirmed at abyssal zones (up to 5500 m) in the Takuyo-Daigo Seamount in 2016, little is known about the microbial communities on the abyssal ferromanganese crusts. In 2017, we found ferromanganese crusts at 1500 m to 5500 m water depths in the Takuyo-Daisan Seamount, which is also located in the northwestern Pacific, approx. 350 km away from Japan, and collected some crusts for microbiological analyses. Here, we report the heterogeneity of microbial community structures and metabolic functions of the crusts collected from bathyal and abyssal zones in the two seamounts as revealed by 16S rRNA gene tag analysis and shotgun metagenomics.