

EGU22-3320

<https://doi.org/10.5194/egusphere-egu22-3320>

EGU General Assembly 2022

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What kind of factors do give diversities of benthic foraminiferal fauna at hadal depths ?

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Benthic foraminifers are one of major biota at marine environments. We have long been worked deep sea benthic foraminiferal communities at the Western Pacific since 1990th. We analyzed more than ten localities of the western Pacific deep-sea, in particular to hadal depths. Hadal foraminiferal community consists of monothalamous soft-shelled forms, agglutinated forms, porcelaneous forms, hyaline forms and large xenophyophores. In the shallower deep-sea such as abyssal depths, there are many environmental factors that are limiting distribution of species. They are temperature, salinity, hydraulic pressures, oxygen concentrations and others. Benthic foraminifers are so sensitively adapted to these environmental factors, benthic foraminifers are used as proxy organisms. How about populations of hadal depth?

We compare populations between Challenger deep (10,899m) and Horizon deep (10,811m) of the western Pacific hadal trenches, where differences of the depth show less than 100m each other. Foraminiferal population at the Horizon Deep shows much higher concentrations of agglutinated forms. How can we explain populational differences between two deeps? What kind of factors show differences in hadal environments? Sea water environments are mostly the same in hadal depths.

I propose sediment characters that give hidden diversities of bottom environments at hadal trenches. There are two types of subduction tectonics at hadal trenches, both Mariana-type and Chilean-type. Mariana-type is characterized by sedimentary rocks that are accreted when oceanic plate subducted. Mariana-type trenches are characterized by big earthquakes and tsunamis. In contrast, Chilean-type is characterized by mantle peridotite and related rocks such as serpentinite. There is few earthquakes at Chilean-type subduction area. The differences of foraminiferal faunal composition between Marianas and Tonga Trenches should be related to the sediment characters that are reflecting trench geology.