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背弧拡大に関連した最上部マントル流動；東北日本一の目潟かんらん岩捕獲岩からの制約
Evolution of the uppermost mantle flow due to a back-arc spreading: evidence from Ichinomegata volcano peridotite xenoli

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To understand the uppermost mantle evolution, we studied microstructures and olivine crystallographic preferred orientations (CPOs) in naturally deformed peridotite xenoliths beneath the Ichinomegata volcano, in the back-arc region of northeast Japan arc, that were erupted after the opening of the Japan Sea during the Oligocene-Miocene. The peridotite xenoliths studied are mainly spinel lherzolites with a few harzburgites and have granular textures with sizes from 5 to 10 cm. Most of them have pervasive main foliations defined by compositional banding between pyroxene-rich and pyroxene poor layers and lineations defined by elongations of pyroxene and spinel grains. The olivine CPO data show dominantly (010)[100] and subsequently {0kl}[100] patterns, with [100] axes slightly oblique to the main foliations. We measured the angle between the orientation of the olivine [100] maximum and the lineation in each sample. As a result, the peridotite xenoliths having higher CPO intensities tend to show smaller angles between the olivine [100] maxima and the main foliations. We discuss that these various angles in the peridotite xenoliths could be indicative of the occurrence of a shear strain gradient in the uppermost mantle probably in relation to the back-arc spreading.