In situ benthic foraminifera from below the paleo-ice shelf in the Whales Deep Basin, eastern Ross Sea

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Abstract

The Ross Sea is among the key areas for understanding deglaciation history of Antarctica in attempts to predict future environmental changes. It is hindered, however, by difficulties in precise dating of post-glacial sediments due to widespread reworking. During the NBP15-02B cruise, we recovered several cores from the Whales Deep Basin in the eastern Ross Sea that are rich in foraminifera. Importantly, unlike in the western Ross Sea, no apparently reworked foraminiferal specimens were encountered, providing a rare opportunity to study *in situ* foraminiferal assemblages in a well understood paleoenvironmental context provided by a regional core transect integrated with seismic and geomorphologic data. During the present-like open-water conditions, benthic foraminiferal communities are strongly dominated by agglutinated species, however in sub-ice shelf facies, we found assemblages composed of calcareous forms. They are periodically quite abundant, allowing radiocarbon dating. Among numerous foraminiferal taxa, two new morhotypes of *Globocassidulina biora* and *Trifarina earlandi* are especially intriguing as they seem to be restricted to conditions associated with presence of ice-shelf and/or a proximity of calving front.

Keywords: Ross Sea, post-LGM, foraminifera.