

# Changes in dinoflagellate cyst production in the North Water (NOW) polynya during the past ca. 3500 years

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The purpose of this thesis is to provide an improved image of the structure of the Mohorovičić discontinuity (MOHO) at the East Pacific Rise (EPR) using 3D multichannel seismic data collected between 9°37.5'N and 9°57'N. To test the existing models of crustal accretion, the gabbro glacier and sheeted sill models, the MOHO was interpreted throughout the study area to identify its structure in a Mid Ocean Ridge (MOR) environment. Early seismic interpretations of the MOHO at the EPR indicated the MOHO is almost completely impulsive with only the occasional shingled reflectors that have a slight overlap. But interpretation of the 3D multichannel seismic data used in this thesis by Amid Aghaei indicated that shingled and diffusive MOHO reflectors comprised 29% and 17% of the survey area, respectively, with a larger percentage of shingled and diffusive MOHO present in the northern portion of the dataset. The present study shows that the MOHO shingles under the ridge axis are actually ridge-parallel, ridge-symmetric terraces. This thesis will provide a more detailed analysis of the structure of the MOHO, with a focus on the continuity of the MOHO reflectors. By providing a more detailed image of the structure of the MOHO, it is hoped that a better understanding of the accretion of the oceanic crust at MOR will be gained. This thesis will attempt to identify the continuity and structural shape of the MOHO by interpreting each reflector separately, then interpreting them collectively. The primary interpretation is that the MOHO is laterally continuous along the ridge axis between 9°37.5'N and 9°57'N, forming distinct terraces with little overlap. Due to the quantity of diffusive and shingled MOHO interpreted in the dataset and variation between the different types of reflectors in the southern and northern parts of the survey area, it is predicted that there will be a large variability in the structure and number of MOHO reflectors present across the survey area.