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**A Review of Seismic Surveys on the Lomonosov Ridge and Conclusions on Arctic Ocean Paleoceanography**

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The Lomonosov Ridge and Fram Strait represent prominent morphologic features in the Arctic Ocean. Their tectonic evolution control ocean circulation, sedimentation environment, glacial processes and ecosystem through time.

The poster presents an overview on a set of seismic surveys across the Lomonosov Ridge, and into the adjacent Amundsen and Makarov/Podvodnikov Basins. The data image up to 2300 m thick sedimentary sequences that provide constraints on the Paleoceanography of the Arctic Ocean. Prominent reflectors, reflector configuration, as well as the reflection pattern of seismic units were correlated with coring information and magnetic anomalies to establish a seismostratigraphic model.

In the early Cenozoic the LR still was above or close to sea level and experienced erosion of its Mesozoic core strata. Its crest, faulted flanks and the initial Amundsen Basin were covered with syn-rift sediments of Paleocene to early Eocene age likely eroded off the Barents-Kara and Laptev Sea shelves. The connection to North Atlantic waters via the Fram Strait was not yet established, and anoxic conditions prevailed in the young, still isolated Eurasian Basin. Also, the LR was above or close to sea level and posed an obstacle for water exchange between the Eurasian and Amerasian basins.

The time between early Eocene and late Oligocene, as indicated by a regional and prominent high-amplitude-reflector sequence (HARS) was an era of widespread changes in depositional conditions, likely controlled by the ongoing subsidence of the LR and gradual opening of the Fram Strait. Episodic incursions of water masses from the North Atlantic and erosion of the ridge’s crest probably were the consequences, and led to the deposition of sediments of strongly different lithology.

The seismic units above the HARS show reflection characteristics and thicknesses similar all over the southeastern Arctic Ocean indicating that basin-wide pelagic sedimentation prevailed at least since late Oligocene. Drift bodies, sediment waves, and erosional structures indicate the onset of a modern ocean circulation system and paleo-bottom current activity in the early Miocene in the Arctic Ocean. At that time, the LR no longer posed an obstacle between the Amerasia and Eurasia Basins. Finally, a drape of high-amplitude reflectors is associated with the onset of glacio-marine deposition since the Pliocene.