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Amerasia Basin: new data and new geological model

Anatoly Nikishin[1], Eugene Petrov[2], Elizaveta Rodina[1], Ksenia Startseva[1], Andrey Chernykh[3], Sierd Cloetingh[4], Gillian Foulger[5], and Henry Posamentier[6]

[1]Geological Faculty, Moscow State University, Moscow, Russia
[2]The Federal Subsoil Resources Management Agency, Moscow, Russia
[3]Gramberg All-Russia Scientific Research Institute for Geology and Mineral Resources of the Ocean (VNIIOkeangeologia), Saint Petersburg, Russia
[4]Utrecht University, Utrecht, the Netherlands
[5]Department of Earth Sciences, Durham University, Science Laboratories, South Rd. DH1 3LE, UK
[6]Consultant, 25 Topside Row Drive, the Woodlands, TX 77380, USA

We present an interpretation of the regional seismic lines for the Amerasia Basin, and new data from analyses of rocks from the Alpha-Mendeleev Rise. This report is based primarily on interpretation of 2D seismic lines and analysis of magnetic and gravity field anomalies, from data acquired through the Russian Arktika-2011, Arktika-2012, Arktika -2014, and Arktika-2020 projects. We use also open Canadian seismic data (Shimeld et al., 2021) and published data. We propose that the Alpha-Mendeleev Rise is a Eurasian aborted double-sided volcanic passive continental margin with stretched and hyper-extended continental crust intruded by basalts. This rise has a number of SDR-like seismic units. The age of volcanism is ~125-100 Ma. The Podvodnikov, Toll, Mendeleev, Nautilus, Stefansson basins have SDR-like seismic units. The top of SDR-like units has a similar age in all basins. The Alpha-Mendeleev Rise has an axis of symmetry. The East North Chukchi, Toll, Mendeleev, Nautilus, Stefansson basins are coeval basins with very stretched continental crust. They are connected by a long united axial line of hyperextension, subsidence and volcanism. The Makarov, Podvodnikov, West North Chukchi basins are coeval basins with very stretched continental crust. They are connected by a long united axial line of hyperextension, subsidence and volcanism. The Alpha-Mendeleev Rise and all mentioned basins originated simultaneously in the same geodynamic environment during the HALIP magmatic epoch at nearly 125-100 Ma. This study was supported by the Russian Science Foundation (Grant 22-27-00160).