

EGU21-9428

<https://doi.org/10.5194/egusphere-egu21-9428>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



A volcanic passive continental margin between the Laptev Sea Shelf and the Eurasia Basin?

Anatoly Nikishin¹, Vasily Savin², Sierd Cloetingh³, Carmen Gaina⁴, Nikolay Malyshev⁵, Eugene Petrov⁶, Viktor Poselov², Elizaveta Rodina¹, Ksenia Startseva¹, and Vladimir Verzhbitsky⁵

¹Geological Faculty, Moscow State University, Moscow, Russia, amnikishin@gmail.com

²VNIIOkeangeologia, Saint Petersburg, Russia

³Utrecht University, Utrecht, the Netherlands

⁴Department of Geosciences, University of Oslo, Oslo, Norway

⁵Rosneft Oil Company, Moscow, Russia

⁶The Federal Subsoil Resources Management Agency, Moscow, Russia

New seismic, magnetic and gravity data of the continental margin of the Laptev Sea shelf indicate: **(1)** Absence of the Lomonosov-Khatanga transform fault between the Eurasia Basin and Laptev Sea shelf. On a number of new seismic lines we do not observe evidence for transtension or transpressional deformation along this lineament whereas some typical deformation for the continental slopes is recognized. Recent seismicity is absent along the lineament. **(2)** The pull-apart Laptev-Gakkel continental basin along the Laptev Sea continental slope is in an orthogonal position to the Gakkel Ridge axial rift. This pull-apart basin was tectonically active during Eocene-Oligocene times. **(3)** Evidence exists for number possible intrusions just below the rift/postrift (break-up) unconformity (56 Ma) on some seismic lines in the area between the Taimyr Shelf and the continental slope of the Eurasia Basin. Evidence is also found for the existence of possible volcanics just below the break-up unconformity in this area. **(4)** Intrusions might also be present just below the 56 Ma break-up unconformity recognized on some seismic lines in the area between the Lomonosov Ridge and the continental slope of the Eurasia Basin. Buried volcanoes are likely present as well. These two magmatic provinces are symmetric to each other on both sides of the Eurasia Basin and well expressed on the new magnetic anomaly map. **(5)** The Eurasia Basin has a conical shape in its Southern near-Laptev domain. Opening of the basin appears to be controlled by propagation of oceanic crust spreading to the south. **(6)** We assume that the continental margin between the Laptev Sea Shelf and the Eurasian Basin could be a passive volcanic margin. This margin is characterized by a structure that is very similar to the North Atlantic margin of almost the same age. This study was supported by RFBR grant (18-05-70011).