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New data on the Ordovician stratigraphy of the Taimyr Peninsula (S-48-I,II map sheet)

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This abstract provides new data on the Ordovician stratigraphy of the Taimyr Peninsula obtained in 2012 during the state geological mapping field works (scale 1:200 000) within S-48-I,II map sheet (Central Taimyr, Zaozernaya River).

Ordovician sediments are widespread in the Taimyr Peninsula and traced from the western part (Khutudabigay River) to the eastern part (Faddeya Bay) in the form of broken almost latitudinal lines. The first data on these sediments was obtained in 1843 by A.F. Middendorf. In 1929 N.N. Urvantsev discovered Paleozoic fauna in the Eastern Taimyr, and thus he identified Cambrian-Ordovician sediments. The next research of Paleozoic sediments was linked with M.N. Zlobin from NIIGA (Research Institute of Arctic Geology) who provided special stratigraphic field works during 1950-1954 in the Eastern Taimyr. He investigated Ordovician and Silurian sediments particularly and for the first time ever established that these sediments are belong to different facies and represented by two types of deposits – terrigenous and carbonate. Zlobin determined terrigenous sediments as the Northern structural-facies zone (SFZ), and carbonate sediments as the Southern SFZ. The Perekhodnaya SFZ is characterized by mixed terrigenous-carbonate type of sediments, and thus, are located in the "transition" zone between the Northern and the Southern structural-facies zones, and was established by R.F.Sobolevskaya during the state geological mapping works in 1961. It is worth noting that the further geological mapping works till the end of 20's century were made in accordance with M.N. Zlobin's stratification of Lower Paleozoic sediments. However, in 1997 The State Regional Stratigraphic Legend (Scale 1:200 000, the Taimyr Peninsula) were created and included the latest views on the Ordovician stratigraphy of the Taimyr Peninsula. In this work the lithostratigraphic subdivision of Ordovician sediments was made in accordance with the latest and updated correlation scheme (Sobolevskaya, 2011). At this scheme the structural-facies zones that correspond to geological areas in the Legend are shown: the Lenivensko-Shirokinskaya (the Northern – "black shales", terrigenous), the Tareysko-Pregradninskaya (Perekhodnaya – terrigenous and carbonate) and the Tareysko-Faddeyevskaya (the Southern – carbonate).

During the state geological mapping field works (scale 1:200 000) within S-48-I,II map sheet (Central Taimyr, Zaozernaya River) terrigenous-carbonate sediments were mapped at the right bank of Leningradskaya River and classified as the Veseninskaya slice and the Barkovskaya suite of the Tareysko-Pregradninskaya) SFZ. In black shales Middle Ordovician graptolites (Caradocian, zone Nemagraptus gracilis) were found (identifications by Sobolevskaya R.F., VNIIOkeangeologia).

Thuswise, this researching allows clarifying northern boundary of the Tareysko-Pregradninskaya SFZ. This data raises a point about the structural-facies zonation of Ordovician sediments of the study area and their correlation with coeval sediments represented on adjacent map sheets. In this case, because of the different principles of stratigraphical zonation there is a problem of correlation between the northern boundary of S-48-I,II map sheet and the southern boundary of T-48-XXXI-XXXIII map sheet. In fact, Ordovician terrigenous-carbonate sediments (the Veseninskaya slice and the Barkovskaya suite) that were recognized by authors at S-48-I,II map sheet (Leningradskaya River) belong to the Perekhodnaya SFZ, but their along the strike continuation at T-48-XXXI-XXXIII map sheet belongs to the Northern (terrigenous) SFZ (Paderin et al., 2005).