

EGU22-2950

<https://doi.org/10.5194/egusphere-egu22-2950>

EGU General Assembly 2022

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Preliminary report on $\delta^{13}\text{C}_{\text{carb}}$ isotope excursion through the Silurian of Kurtuvėnai - 161 borehole, Northwest Lithuania

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Lithuania is located in the eastern part of the Silurian Baltic Basin which was located near the equator during the Silurian. Kurtuvėnai -161 borehole is located in the Northwest Lithuania. The Silurian geological section of investigated interval is composed of siliciclastic and carbonate deposits and represents deep marine environments.

Samples for stable carbon isotope analysis were collected from 1441 – 1316 m depth interval. The sampling intervals range from 0.2 up to 1m. The stable carbon isotope values from carbonates were measured using Thermo Gasbench II coupled with a Thermo Delta V isotope ratio mass spectrometer.

In the investigated interval 10 graptolites biozones were distinguished: *Lapworthi* Biozone is distinguished in the lowest part of the section and linked to the Adavere Regional Stage (uppermost Telychian); the *centrifugus - belophorus* biozones mark the Jaani Regional Stage; *perneri - lundgreni* biozones correspond to the Jaagarahu; and *parvus - nassa* biozones marks the Gėluva Regional Stage of the Wenlock.

According to the $\delta^{13}\text{C}_{\text{carb}}$ isotope analysis results, a positive excursion was detected in the lower part of the studied interval from 1422.8 m up to 1390.8 m depth. There, the $\delta^{13}\text{C}_{\text{carb}}$ maximum value is 3.87 ‰. This positive $\delta^{13}\text{C}_{\text{carb}}$ anomaly can be linked to the Ireviken positive stable carbon isotopes excursion and the *centrifugus - belophorus* biozones interval of the lower Wenlock. We can also observe a positive $\delta^{13}\text{C}_{\text{carb}}$ excursion in the upper part of Homerian (from 1327 m depth) which potentially can be the lower part of the Mulde positive stable carbon isotopic event.

In summary, the $\delta^{13}\text{C}_{\text{carb}}$ values varied from -1.35 ‰ up to 3.92 ‰ in studied interval of Kurtuvėnai-161 borehole. A more detailed biostratigraphic and lithological study is needed for a better understanding of the integrated stratigraphy of the Silurian geological section in the Kurtuvėnai-161 borehole in the future.