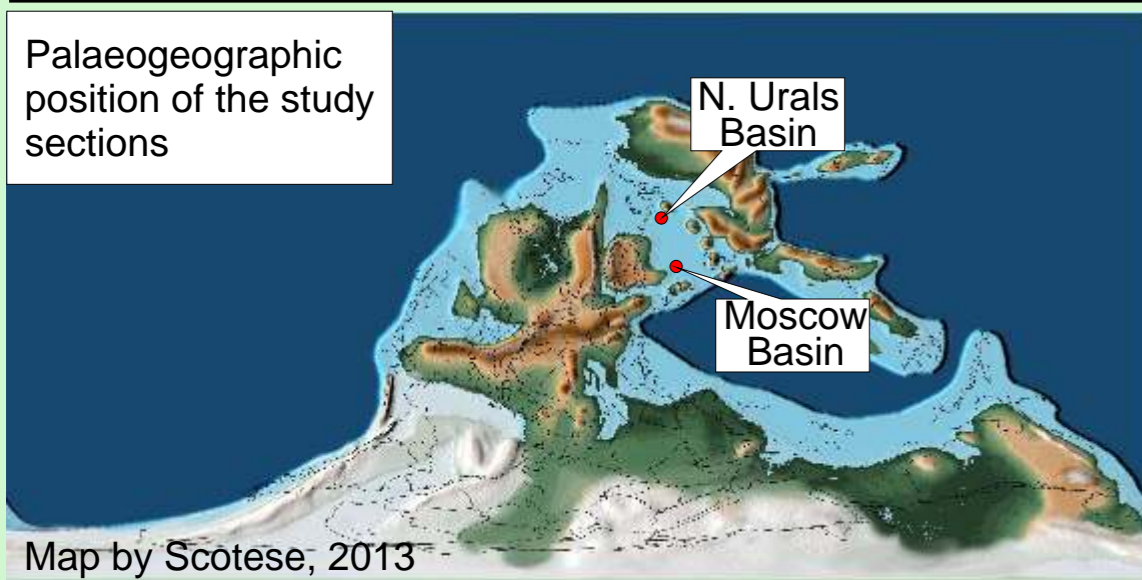


Carbon isotope composition of Late Viséan - Serpukhovian conodonts from the Polotnyanyi Zavod section (Moscow Basin)



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The Polotnyanyi Zavod section represents a key section of the upper Viséan-Serpukhovian interval of the Moscow Basin. The section was situated within a limestone quarry and encompassed the upper Aleksian-Steshevian stratigraphic interval. The quarry has since been recultivated, resulting in the loss of the section. This study is based on material collected by the author in 2005 as part of the geological mapping project.



The stratigraphic framework is composed of data on conodonts, foraminifers, and main unconformities. The base of the Mikhailovian is marked by the signs of the Malinovka Unconformity, which occurs just below the first occurrence of foraminifers *Eostaffella ikensis*. The base of the Venevian corresponds to the surface of the Kholm Unconformity. The base of the Tarusian is marked by the first occurrence of conodonts *Gnathodus girtyi intermedius*, which occurs just above the level of the Barsuki Unconformity. The first occurrence of conodonts *Lochriea ziegleri* is documented in the middle part of the Tarusian in this section. The Steshevian is characterised by the predominance of clayey deposits.

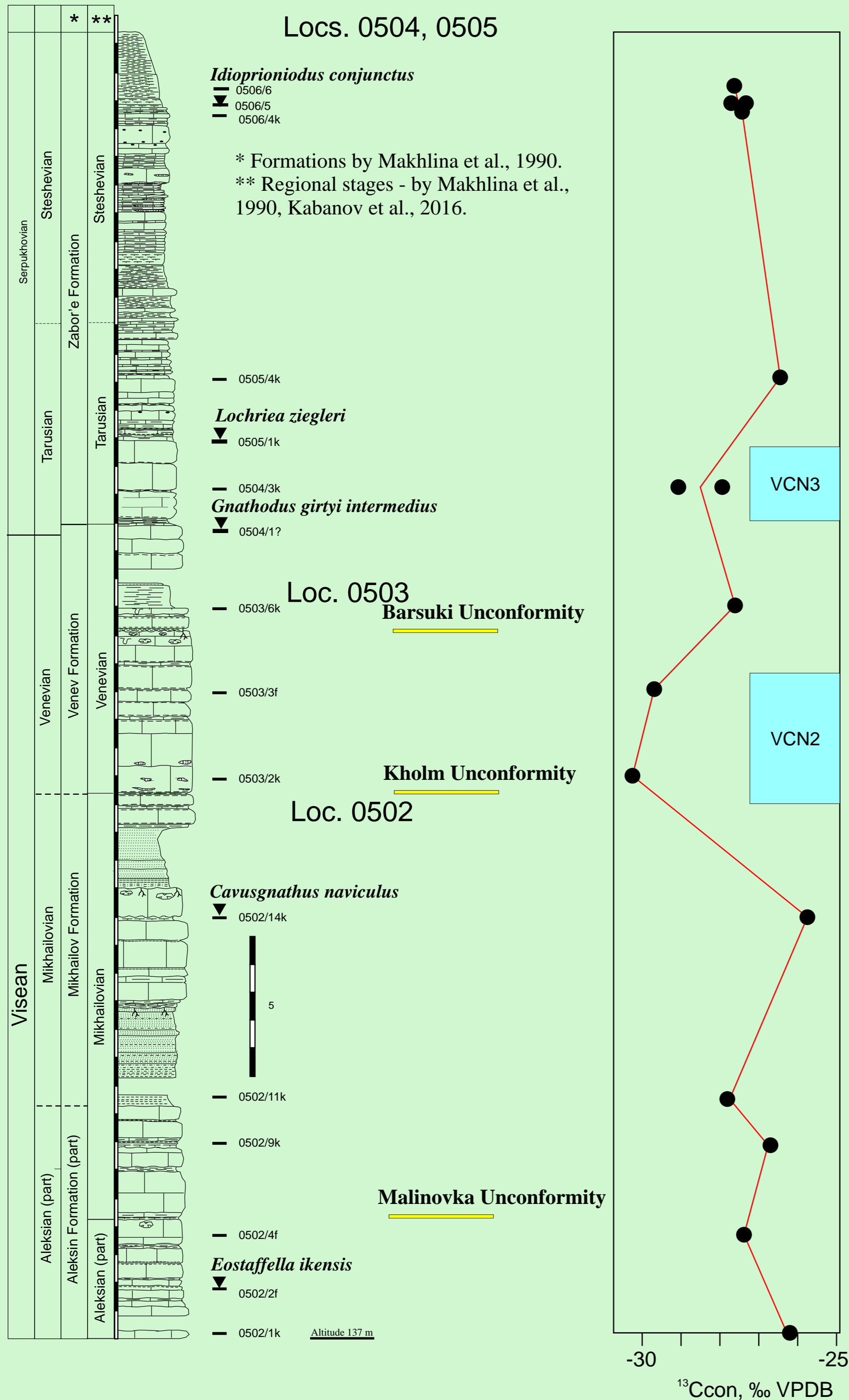
The prevalence of shallow-water facies with numerous unconformities presents a challenge to the biostratigraphic correlation of the Viséan-Serpukhovian deposits of the Moscow Basin with the offshore successions of the Urals and the Tethys Ocean realm. The variations in the carbon isotope composition of conodonts ($^{13}\text{C}_{\text{con}}$) represent a promising tool for the regional and inter-regional correlation.

The $^{13}\text{C}_{\text{con}}$ was examined in the 13 samples (15 conodont elements). The precision of the $^{13}\text{C}_{\text{con}}$ value is $\pm 0.15\text{‰}$. The measured values are reported relative to the VPDB (Vienna Pee Dee Belemnite) standard.

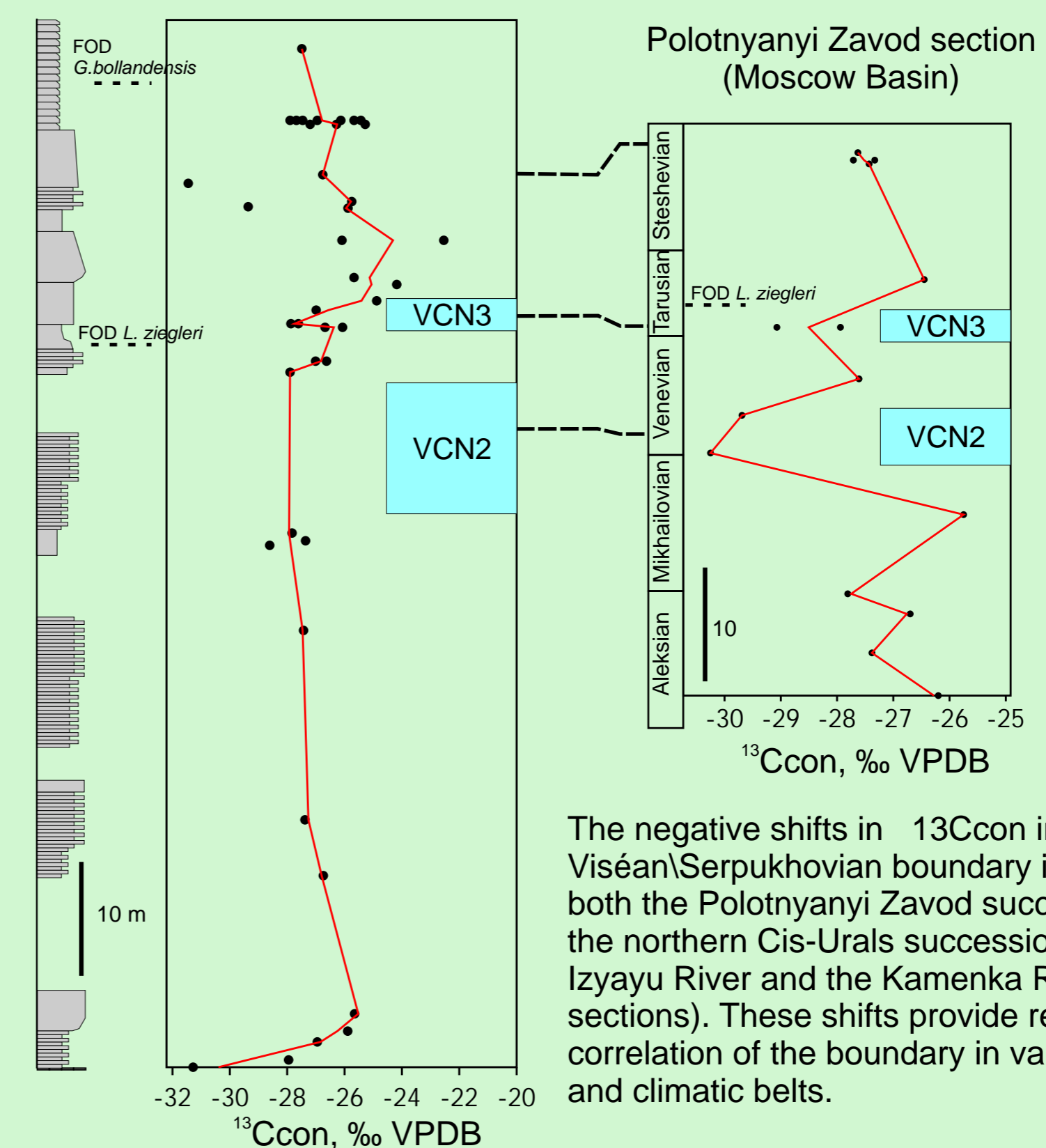
The lowest values in the Venevian (VCN2) and Tarusian (VCN3) indicate the Viséan/Serpukhovian boundary interval and can be used for the correlation.

Polotnyanyi Zavod section

Locs. 0504, 0505



Izyayu River section (Tchernyshev Uplift, N. Cis-Urals)



The negative shifts in $^{13}\text{C}_{\text{con}}$ indicate the Viséan/Serpukhovian boundary interval in both the Polotnyanyi Zavod succession and the northern Cis-Urals successions (the Izyayu River and the Kamenka River sections). These shifts provide reliable correlation of the boundary in various facies and climatic belts.

These shifts may be attributed to a decline in primary bioproductivity and onset of global crisis in the marine ecosystems (Serpukhovian Biocrisis). In general, variations in $^{13}\text{C}_{\text{con}}$ were controlled by a lot of factors, mainly by the concentration of CO_2 in atmosphere. This dependence allows reconstructing regional variations of CO_2 concentration.

