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河北宽城地区中元古代高于庄组碳酸盐岩碳氧同位素特征 [点此下载全文](#)

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摘要:

对河北宽城地区中元古代高于庄组碳酸盐岩的碳氧同位素进行了测定和原始性验证, 表明其原始组分保有平均值分别为 $-5.03\%$ ~ $0.07\%$ 、 $-9.92\%$ ~ $-4.12\%$ 和 $-0.90\%$ 、 $-6.58\%$ , 整体上稍低于前人测定的天津蓟分析认为: 研究区 $\delta^{13}\text{C}$ 值主要受有机碳氧化与有机碳的埋藏速率因素影响, 有机碳的埋藏速率与蓝绿藻等生物类群都具有较高的 $\delta^{13}\text{C}$ 值, 藻类稀少的时期则具有较低的 $\delta^{13}\text{C}$ 值。在浅水潮坪环境中,  $\delta^{13}\text{C}$ 值与海平面的变化呈正受海平面变化影响, 与之呈负相关关系; 研究区Z值主要介于120~125之间, 相关性分析表明Z值不仅反映氧同位素,  $\delta^{18}\text{O}$ 和 $\delta^{13}\text{C}$ 均与沉积介质的盐度有关, 其变化趋势是盐度越大, 其 $\delta$ 值越高。

关键词: [中元古代](#) [高于庄组](#) [碳酸盐岩](#) [碳氧同位素](#)

Carbon and Oxygen Isotope Composition of Carbonate of the Mesoproterozoic Gaoyuzhuai Area, Hebei Province [Download Fulltext](#)

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Abstract:

The carbonate samples studied in this paper were collected from the Mesoproterozoic Gaoyuzhuai Area, Hebei Province. An analysis of carbon and oxygen isotopes compositions of carbonate demonstrate that the components of the carbonate have been well preserved. The variation range and average of  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  are  $-5.03\%$ ~ $0.07\%$ ,  $-9.92\%$ ~ $-4.12\%$  and  $-0.90\%$ ,  $-6.58\%$ . It's all lower than that of Jixian section in Beijing. The results show that, the variation of  $\delta^{13}\text{C}$  value is mainly influenced by the buried rate of organic carbon. There is a close relationship between the buried rate of organic carbon and the blue green microalgae, and there is a strong positive correlation between the  $\delta^{13}\text{C}$  profile and the sea level change. The  $\delta^{18}\text{O}$  values are chiefly relevant to sea level change. and there is a negative correlation between the Z value and  $\delta^{13}\text{C}$ . The Z value is calculated in this study to trace quantitatively the changes of paleosalinity, its maximum is 125. The correlation coefficient is 0.68 between the Z value and  $\delta^{18}\text{O}$ , and it is 0.88 between the Z value and  $\delta^{13}\text{C}$ . The Z value reflects changes both of carbon and oxygen isotopes compositions.  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  are related to salinity, and it is same with up and down variation of salinity.

Keywords: [Mesoproterozoic](#) [Gaoyuzhuai Formation](#) [carbonate](#) [carbon and oxygen isotopes](#)