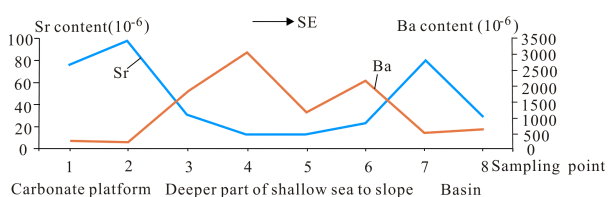


## Application of trace elements in the analyses of sedimentary environment of Wuling Series, South China

YU PEI<sup>1</sup> AND YOU-BIN HE<sup>1</sup>

<sup>1</sup>School of Geosciences, Yangtze University, 111 College Road, Caidian, Wuhan, China, (peiyu920621@163.com, heyoubin@yangtzeu.edu.cn)

Based on sedimentary research, from north-west to south-east, sedimentary facies of Wuling Series, South China are carbonate platform, carbonate platform edge, shallow sea, continental slope, basin in sequence and water becomes deeper. The depositional environment of it is analyzed through trace elements characteristics of rocks, mainly the lateral variation of Sr, Ba content and REE patterns.



**Figure 1:** The lateral variation of Sr , Ba content in Wuling Series, South China

Sr content has a tendency to display bimodal distribution in different facies. The average Sr content is 87.05 $\mu\text{g/g}$  in A Region (Sampling point 1,2), 20.1 $\mu\text{g/g}$  in B Region (3,4,5), and 55 $\mu\text{g/g}$  in C Region (6,7,8) (Fig.1). As its content changes obviously, Sr is sensitive to deposition environment and can be a good indicator of it. In B Region, Sr content is low, which can be deeper part of shallow sea to slope. Transited to A or C Region, Sr content increases, which can be carbonate platform or basin. In short, from north-west to south-east, water depth increases. That Sr content appears by bimodal distribution and Ba content is high in deeper part of shallow sea to slope and low in carbonate platform or basin may be related to rock types, clay minerals contents and diagenetic environment.

Besides, based on the degree of differentiation of REE, from A Region to B Region then to C Region, the  $\text{La}_n/\text{Yb}_n$  mean ratios are 1.26, 1.76, 1.68 in order. It nearly increases gradually, which signifies decreased deposition rate, reflecting a longer distance to the provenance, and source area lying to the north-west. The  $\text{La}_n/\text{Yb}_n$  mean ratio in B Region is slightly higher than that of C Region, which may be caused by several slate samples, the slopes of whose are big. Meanwhile, Ce enrichment ( $\text{Ce}_{\text{anom}} > -0.1$ ) in the marine environment shows non-oxidizable environment, where water has certain depth. As there are samples whose  $\text{Ce}_{\text{anom}} < -0.1$  in A Region, water in it may be the shallowest.