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Carboniferous upper-slope succession of the Yangtze Carbonate Platform, South China

Yusaku Hoshiki^{1*}, Katsumi Ueno³, Yue Wang³, Yuping Qi³, Xiangdong Wang³

¹Doctoral Program, Fukuoka Univ., ²Fukuoka Univ., ³NIGPAS, P. R. China

During the Late Paleozoic, a large carbonate platform called the Yangtze Carbonate Platform had been developed on the South China Craton. In this platform, shallow-marine facies were dominated with a number of small, deeper basins in some places. In southern Guizhou Province, Carboniferous deposits of this platform are widely distributed with good exposure conditions. We recently studied a new, Carboniferous section showing upper-slope deposition.

The study section is located at Luokun of Luodian County, about 140km south of Guiyang, in Guizhou Province of China. The Luokun section, exposed along continuous road-cuts, is about 210 m thick and consists mainly of well-bedded, fine-grained limestone. Graded bedding is common in this limestone. Lime-mudstone and fine bioclastic wackestone, with some packstone, are the major microfacies. Siliceous (chert) bands and/or nodules are also commonly observed. This portion of the section is considered as representing limestone turbidites. Moreover, conglomeratic beds of more than 2 m in thickness in some cases, consisting of lithoclasts and bioclasts of shallow platform origin, are intercalated intermittently in this section. These beds are interpreted as being formed probably by debris flows, induced by platform shedding. The overall lithostratigraphic features of this section suggest upper-slope deposition within a carbonate platform-basin transect.

We made a provisional study of foraminifers in samples collected mainly from coarse-grained sediments. The following genera were identified from them. They are *Tetrataxis*, *Palaeotextularia*, *Climacammina*, *Archaediscus*, *Endothyranopsis*, *Nevillea*, *Pohlia*?, *Paraarchaediscus*?, *Omphalotis*, *Endothyra*, *Bradyina*, *Pseudostaffella*, *Neostaffella*, *Eostaffella*, *Ozawainella*, *Profusulinella*, *Fusulinella*, *Eofusulina* and *Beedeina*. These foraminifers suggest that the base of the section is broadly Visean (Middle Mississippian) and the top is probably Moscovian (Middle Pennsylvanian). Moreover, there is no evidence of large sedimentary gap in this section based on the foraminiferal contents.

In southern Guizhou Province, detailed Carboniferous stratigraphy and biostratigraphy has been studied since the 1970's. Most previous studies, however, dealt with shallow platform facies sections (e.g. the Yashui and Zongdi sections) or deeper-slope sections (e.g. the Nashui section). In the shallow platform sections, foraminifers, particularly fusulines, are abundant but conodonts are very scarce. In contrast, deeper-slope sections generally contain rich conodonts but less foraminifers. In the Luokun section, fine-grained limestone yields abundant conodonts and coarse-grained beds, such as debris-flow conglomerates contain foraminifers derived from shallow platform areas. Thus, this section is considered to be important because it has potentials to connect fusuline biostratigraphy mainly developed in the shallow platform sections with conodont biostratigraphy established in the deeper-slope sections within the Yangtze Carbonate Platform.

Keywords: Carboniferous, upper slope facies, Yangtze Carbonate Platform, South China, foraminifer, conodont