

Sedimentary Facies Analyses of the Miocene Momonoki Subgroup in the Koma Mountains, Yamanashi Prefecture

Junichirou Kuroda[1], Mohiuddin Mia Mohammad[2], Ken-ichiro Hisada[3]

[1] Earth and Planetary Sci. U-Tokyo, [2] Marine geogogy, GSJ, [3] Inst. Geosci., Univ. Tsukuba

The Momonoki Subgroup exposed in the western Koma Mountains, South Fossa Magna, consists mainly of siliciclastic rocks regarded as trough-fill deposits. The purpose of this study is to clarify the depositional history through sedimentary facies analysis. In the study area, four sedimentary facies, i.e., Facies I (submarine fan facies), Facies II (shelf facies), Facies III (fan delta slope facies) and Facies IV (fan delta prodelta facies), are identified based on lithofacies. The distribution of sedimentary facies is Facies I, Facies II, Facies IV and Facies III in ascending order. Thus, the Momonoki Subgroup represents a significant shallowing-upward sequence. It is likely that the shallowing-upward sequence of the Momonoki Subgroup reflects tectonic history in the South Fossa Magna.

The Momonoki Subgroup exposed in the western Koma Mountains, South Fossa Magna, consists mainly of siliciclastic rocks regarded as trough-fill deposits. The purpose of this study is to clarify the depositional history through field observations, establishment of stratigraphy and sedimentary facies analyses.

The thickness of the Momonoki Subgroup in the study area reaches ~2,500m. The Momonoki Subgroup is divided into the Lower, Middle, and Upper Formations in ascending order. Siliciclastics are divided into massive conglomerate, normal-graded conglomerate, reverse-graded conglomerate, massive sandstone, thickly-bedded sandstone-mudstone, thinly-bedded sandstone-mudstone, pebbly mudstone and massive mudstone based on lithofacies such as grain size and sedimentary structures. Based on associations of these lithologies, four sedimentary facies are identified.

Facies I consists mainly of thickly bedded sandstone-mudstone, massive conglomerate, pebbly mudstone and massive mudstone. Facies I is interpreted as upper submarine fan and lower submarine slope facies. Facies II is made up mainly of thinly bedded sandstone-mudstone and massive mudstone. Some sandstone horizons contain shallow water biota such as larger foraminifers. Facies II is interpreted as outer shelf facies. Facies III consists of massive conglomerate and normal-graded conglomerate. Facies III is interpreted as fan delta slope facies. Facies IV, made up predominantly of thickly-bedded sandstone-mudstone and thinly-bedded sandstone-mudstone, is interpreted as fan delta prodelta facies.

In this area, the distribution of sedimentary facies is: Facies I (Lower Formation), Facies II (lower half of Middle Formation), Facies IV (upper half of Middle Formation) and Facies III (Upper Formation) in ascending order. Thus, The Momonoki Subgroup in this area represents a significant shallowing-upward sequence. It is likely that the shallowing-upward sequence of the Momonoki Subgroup reflects tectonic events in the South Fossa Magna. In this case, it is due to arc-arc collision.