Sedimentary facies and depositional system of the Shimanohoshi Formation in the Plio-Pleistocene Gotsu Group, Shimane Prefecture

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The Plio-Pleistocene Gotsu Group is distributed in the western part of Shimane Prefecture, west Japan (Uno, 1978). The depositional environment of the Shimanohoshi Formation in the middle part of Gotsu Group has been interpreted as the downriver sediment (Mizuno et al., 1994). However, detailed sedimentary facies of the Shimanohoshi Formation have been uncleared, because of the difficulty of lateral correlation of lithofacies in the formation (Mizuno et al., 1994). In this study, we clarified the depositional system of Shimanohoshi Formation in the type locality around the Mt. Murogamiyama located at the right bank of the Gonokawa River, on the basis of sedimentary facies, their distributions and palaeocurrent directions.

Sedimentary faces of the Shimanohoshi Formation are classified into as follows; (i) Facies Gmm (Debris flow deposits) composed of unsorted, massive, matrix-supported conglomerates; (ii) Facies Gh (Sieve deposits) composed of unsorted, crust-supported conglomerates; (iii) Facies Gb (Mass movement deposits) composed of unsorted, crust-supported angular conglomerates directly covering basement rocks; (iv) Facies St (Braided river deposits) composed of conglomeratic very coarse to coarse grained sandstone with trough-cross bedding, showing Northeast direction of palaleocurrents; (v) Facies Sm (Subaqueous gravity flow deposits) composed of massive silty sandstone or very coarse to fine grained pebbly sandstone with cross bedding; (vi) Facies Fsm (Lake deposits) composed of mudstone with fine laminae. The succession in this area is composed of alternated debris flow deposits (Gmm and Gh) and braided river deposits (St) with some lake deposits (Fsm). The depositional system of the Shimanohoshi Formation is construed as the debris-flow dominated alluvial fan with a northwestward braided river, on the basis of domination of debris flow deposits (Gmm and Gh) and braided river deposits (St), and their distributions.