

## Preliminary report on the effect of density-ratio on the bedform existence fields

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Hyperconcentrated-flow deposits, which is the volcanoclastic hydrological remobilized deposits, has characteristic features, such as crude horizontal stratification, out-sized clast, and absence of cross-stratification and truncation. The deposits sometimes exhibit very thick (more than 10 m) bed sets without clear erosional surfaces. Hyperconcentrated-flow deposits are interpreted to be deposited rapidly from highly concentrated (40-80 wt%) sediment-laden flow. However, there still remains vagueness about the mechanism to form the characteristic features described above. Here we performed flume experiments focused on the density ratio of sediments and fluid since it is inferred that the density ratio is smaller in hyperconcentrated-flow because fluid has the high concentration of fine-grained particles, and/or coarser grains sometimes consist of pumice.

We performed flume experiments using low-density grains, because it is much easier than making high-density fluid. The material is fragments of melamine resin, whose specific gravity is 1.5, and three kinds of diameters, i.e., 0.2 - 0.27 mm, 0.5 - 0.55 mm, and 1.18 - 1.4 mm in diameter. Small recirculating-flume, 4 m in length, 0.3 m in depth and 0.08 m in width, in Kyoto University is used. The flume floor was laid with the material, and unidirectional flow was operated. The flow discharge was increased gradually, and bedform formation was observed. Flow discharge, flow depth, water-surface slope, and water temperature were measured for each run.

As a result, the boundaries of bedform existence fields show lower values of stream power compare with those for quartz grains. Moreover, the dune field is diminished and plane-bed field is expanded compare with those for quartz grains. Even when dunes are formed, they have smaller wave heights. This might relate to the reason for the absence of cross-stratification in hyperconcentrated-flow deposits.