Meandering river experiment system for school laboratory application using high salinity water

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In science curriculum of the fifth grade of elementary school in Japan, it is conducted to teach about “flowing water has ability to erode the surface of the land and to make sedimentation of mad or pebbles” in the teaching unit of “behavior of flowing water.” It is recommended to do experiment and verify them (2008 official curriculum guidelines by MEXT). Many rivers in nature represents meandering around downstream basin, however it seems to be difficult to show them through indoor experiment (Nishimori and Konishi, 2017). Lots of papers about meandering experiment have been reviewed by the author, however, the only fresh water was taken into account. There is simple question that “Are there any difference in meandering shape, if saline water was utilized?” To resolve it, I used saline water in experiment of meandering. Self made experiment stage of 0.9 x 1.5 m in size is filled with natural beach sand and water way is initially trenched by special wooden shape. Experiment conditions of inclination pitch and water salinity are about 1/200 and C.A. 20 wt%, respectively. As a result, the angle between meandering center and dip direction of slope are about 40˚ and about 85˚ in conditions of fresh water and saline water, respectively, which are evidently showing difference of the shape of water way.

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