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Predicting the state of scouring or deposition by a model of the sediment transport on a river network RUI HAO, JIN-FENG ZHANG, JIE HUO, XU-MING WANG, NingXia University — We constructed a model to describe the sediment transportation on the river network, which can indicate what state, scouring or deposition, will appear when the system, under certain conditions, evolves after a long time period and finally becomes stable. In the model a river segment, say the ith segment, can be classified into three types. The first one is actively- modulation type where the so-called impact factor of ith segment is larger than that of (i-1)th. The second one is passively- modulation type where the impact factor of ith segment is smaller. The third one is freely-modulation type where the two impact factors are equivalent. For the first type, the states, scouring or depositing, of the segments of the upriver are qualitatively the same as that the river source, while the states of the downriver change and distribute disorderly. For the second type, the states along a lone part of the river can qualitatively keep the same state as that of the source. A simpler case will appear in the third type: the state of the scouring or depositing on each segment equals, and are same as that of the source.

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