

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Important relationships in the sediment-transporting network

JIN-FENG ZHANG, RUI HAO, JIE HUO, XU-MING WANG, NingXia University
— Recently we have suggested a model for understanding the process of the sediment transportation and the sediment scouring- depositing behaviors. Some interesting and important properties are revealed. The so-called schlepping-sediment coefficient k of a segment of the river is modulated by the just undergone state of scouring or depositing of its upriver segment and itself. The numerical result suggests a power relation between the schlepping-sediment coefficient $k(i)$ and the segments number i , which indicates that the schlepping-sediment ability of the segments reduce rapidly from the upriver to the downriver. Different from that, the relationship between the property and the quantity of the sediment scouring or depositing is exponential. If the property of scouring or deposition keeps the same along all segments the quantity of scouring or deposition increases, while if the property of scouring or deposition changes, the quantity decreases. These two important relationships can quantitatively interpret the deposition that usually occurs in the downriver.

Da-Ren He
Yangzhou University

Date submitted: 05 Nov 2006

Electronic form version 1.4