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Corresponding Author : Prof. Zhongyuan Chen (Z.Chen@ecnu.edu.cn)

Organization: East China Normal University, Shanghai, China

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Title: Estimating sediment flux from river basin to sea: a case study of big flood in the Yangtze (Changjiang) catchment, China

Abstract:

On the basis of statistical correlation between discharge and sedime recorded daily during 1987 and 1988 at a series of major hydrologica gauging stations located in the Yangtze drainage basin, annual sedim of the major 1998 flood year is simulated. The result indicates that ar enormous quantity of sediment was delivered downstream and to the estuary during that year. The annual sediment flux was estimated at 0.93 billion tonnes in the upper drainage basin, about 0.45 billion ton the middle catchment and 0.72 billion tonnes in the lower drainage ba These loads approximate almost 1.9, 1.2 to 1.8 times those of the av annual sediment flux corresponding the upper, middle and lower Yang catchments for the past decades of years. The result also indicates a pattern of sediment disperse downstream through the drainage syste during the high flow season (early July to mid-September). While the Yangtze tributaries delivered about 0.58 billion-tonnes of sediment downstream, the Three-Gorges reach had added additional 0.27 billio tonnes. This totals about 0.85 billion tonnes that supplied the middle lower Yangtze valley, of which about 0.40 billion tonnes were silted in middle reach, downstream of the exit of the Three-Gorges. This amou more than 6.5 times the normal flood season averaged over the last 5 years. Sediment load was also high in the river mouth area during the season, where 0.46 billion-tonnes were delivered to the estuary and E China Sea, about 3.8 times that of the normal flood season (Table 1, These results indicate that sediment transport in the Yangtze River is increasing in magnitude during the major flood season, largely due to intensifying human activity during recent decades.

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Co-Authors

No.	Title	First Name	Family Name	Organization