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Assessment of Resources of Error in River Sediment Load Estimation (A Case Study on Hydrometric Stations in Glestan Province, Iran)

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Sediment transportation is subjected to study during recent centuries by scientists and river morphologists. Various methods have been applied in order to solve the river engineering problems. Obtained results from various methods often have considerable difference with each other and field observations too. In recent years, some foundation meanings and countermeasure affects of most of parameters and also their utilization limits are clarified for us. In this research, in order to recognition of error resources in river sediment load estimation, flow discharge and suspended sediment discharge in 6 hydrometer stations were assessed quantitatively and qualitatively . The above mentioned hydrometer stations are as follows: Tamar, Gonbad, Ghazaghli, Sad, Agh ghala and Basir abad which are located on the main reach of Gorganrood. With consideration to the fact that, majority of sediment load is transported in flood event, flow discharge hydrograph has been separated in 3 conditions in all hydrometer stations: base flow, rising limb and falling limb. Then, the flow discharge conditions in sampling time were assigned. Assessments in studied hydrometer stations showed that most of samples were related to base flow and low flow, as an example 84% of samples in Ghazaghli hydrometer station were taken in base flow condition. In next step, possible error resources in river sediment load estimation were assessed. The results showed that error of sampling method, error in estimation of hydrograph mean in daily mean discharge method, error in calculation of flow discharge mean in flow discharge

rating curve and error in extrapolation in high flow discharges, are the most significant resources of error in sediment load estimation in above mentioned hydrometer stations. Also, in this paper some applied methods for reduction of the errors have been suggested.