

**Assessment of Suspended Sediment Concentration and Load from  
a Large Himalayan Glacier**

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**ABSTRACT**

An assessment of suspended sediment concentration (SSC), load, yield and erosion rate has been undertaken for the Gangotri Glacier drainage basin (nearly 50% glaciated) located in the Garhwal Himalayas. Data were collected for four ablation seasons (2008-2011). Mean monthly SSCs, for May, June, July, August and September during the study period was 1,011, 1,384, 1,916, 1,675 and 567 ppm, respectively, indicating highest SSC in July, followed by August. For the entire melt season, the mean daily SSC was computed to be 1,320 ppm. Similar trends were also found for the sediment load and about 67% of the total suspended sediment load of the melt period was transported during the months of July and August. Sediment yield for the study basin was computed to be about 2,863 tonnes km<sup>-2</sup> yr<sup>-1</sup>. For the entire ablation period, the erosion from the Gangotri Glacier basin is estimated to be about 1.0 mm. There was a poor relationship between SSC and discharge and hysteresis effect was prominent in the melt stream. The average percentages of clay, silt and sand were found to be 3, 67 and 30%, respectively, which suggest maximum content of silt followed by sand.