Discharge and Suspended Sediment of Thelu Glacier, Garhwal Himalaya, India

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Snowmelt discharge and concentration of suspended sediment of Thelu glacier (N-30 ⁰ 57' 29.1" and E-79⁰ 05' 43.5"), Garhwal Himalaya was monitored during the ablation periods (June-September) of 2005, 2006 and 2007. During these observation periods the average discharge volume from Thelu glacier was estimated to be 5.07 $X10^6$ m³ and the average suspended sediment (SS) load was $0.16X10^4$ t. Large variations in discharge and SS load are observed in different years. In 2005, discharge volume and suspended sediment load is the lowest possibly in response to the lower snow and glacier ice melt. Marked variations are noticed in the mean daily discharge and suspended sediment concentrations in different months under the influence of seasonal flushing events. The rate of decline of suspended sediment is much greater than that of the discharge from its peak value indicating exhaustion effect even with apparently unlimited sources of sediments. However, the mean daily discharge and suspended sediment concentration are good correlated on the seasonal scale. Log transformed sediment-rating curves for the season and rising and falling limbs of hydrographs are developed for each year. Poor correlation in rating curves for rising and falling limb of hydrographs is due to larger variations in sediment in comparison to corresponding discharge.

Keywords: Thelu glacier; Meltwater discharge; Suspended sediment, Sediment Rating Curve.