



Factors controlling the snow chemistry in Chhota Shigri Himalayan glacier, HP, India

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Snow chemistry were recovered from surface snow samples collected from different altitude across the Chhota Shigri glacier during monsoon and post monsoon from 2003 to 2007. Snow samples were also collected from snow pits each from eastern flank and western flank during September to October in 2007. The major ion concentrations were higher in western flank is than the eastern flank showing the influence of atmospheric input contributed by monsoon.

The snow is generally slightly acidic to alkaline (6.2-7.8) each year. pH and EC of snow were decreasing with respect to the altitude. There is no significant variation in the mean pH for each year of snow sample. All samples show that dominance among anions as Cl⁻ and the ratio of Na⁺/Cl⁻ in snow is 0.6 ,the excess Cl⁻ can be explained by assuming that the enrichment of Cl⁻ in the snow is due to scavenging of HCl from monsoonal atmospheric fallout. The values of nitrate/sulphate concentration ratio are also high in post monsoon and it is low in monsoon. Post monsoon experienced the western disturbances that bring snow and rain usually loaded with high concentration of NO₃⁻ from Central Asia and Europe. During monsoon excess sulphate (of secondary origin) over nitrate is probably due to atmospheric pollution.