

The analysis of wind speed values for the Western Nepal

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ABSTRACT:

Wind speed is one of the most important parameter for estimating evapotranspiration (ET_o). ET_o is applied in various applications such as crop water requirements and water management studies. In Nepal, wind speeds required for such analysis are very scanty. However, wind speeds are measured at 24 meteorological stations in Western Nepal. Wind speed values are recorded at different heights and these values are converted into standard 2 m height. When this study was undertaken, there were altogether 148 daily rainfall stations in Western Nepal. Out of that total 110 rainfall stations having sufficient data were selected for the hydrological studies. Thus, these values of wind speed at standard height are necessary parameters to estimate ET_o for all the 110 rainfall stations.

All the available statistical approaches were tested for this study. Polynomial relation was found to be appropriate to estimate the wind speed values for all twelve months at all rainfall stations below altitudes of 2566 m. At the higher altitude from 2567 to 3863 m, a tentative wind speed values were assumed for all the twelve months. At the same time, the observed and simulated wind values were used to prepare the spatial variations of wind at each month. These mean monthly maps of wind speeds will give the general pattern of wind at the study area.

Key words: western Nepal, evapotranspiration, wind estimation
