RECENT VARIATION IN TEMPERATURE TRENDS IN KASHMIR VALLEY (INDIA)

Sumira Nazir Zaz and Shakil Ahmad Romshoo

Deptt. of Earth sciences, University of Kashmir, Hazratbal, Srinagar, 190006

Corresponding authors: Email: zaz.sumira@gmail.com; Shakilrom@yahoo.com

ABSTRACT

Climate change and global warming are widely recognized as the most significant environmental dilemma today. Studies have shown that Himalayan region as a whole has warmed by about 1.8°F since 1970's, which has alerted scientists to lead several studies on climate trend detection at different scales. This paper examines the recent variation in air temperature in Kashmir valley (India). Time series of near surface air temperature data for the period ranging from 1980 to 2010 of five weather observatories were collected from the Indian Meteorological Department (Pune) on which Mann-Kendall Rank Statistic and Regression tests were performed for examination of temperature trends and its significance. Both the tests showed significant increase in the mean Annual, mean Minimum as well as in mean Maximum temperature at a confidence level of 90% -99% at all the five stations. Seasonally very significant increase was recorded in Spring and Winter temperature (90-99%) at all stations. The analysis reveals that such increase in the temperature particularly in spring can occur due to decrease in winter snowfall and its early melting as less snow cover/depth melts within short period of time there by leaving more period of time for warming the surface of earth. Thus, such variation in temperature can lead to water scarcity throughout the valley.

Key words: Nonparametric, parametric; mankendall test, linear regression test, western disturbances

INTRODUCTION

Prevalence of varied climatic conditions that are similar to those of widely separated latitudinal belt, within a limited area, make the high mountain areas such as the Himalaya, the Alps, the Andes, the Rockies etc. the ideal sites for the study of temperature change (Singh *et al.*, 2010). The high mountains of South Asia covering the Hindu-Kush, Karakoram Himalaya (HKKH) belt have reported warming trend in the past few decades (Viviroli *et al.,* 2007; Immerzeel *et al.,* 2010).The Himalayas exhibit a stronger warming trend for every season (Immerzeel *et al.,* 2010). Snow cover is one of the important climatic elements which interact