Abstract

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Analysis of Summer Temperature Anomalies in Egypt during the 20th Century

Summer surface air temperature anomalies over Egypt have been studied using data obtained from 13 different monitoring stations during different periods of time starting from 1870’s till 2007. Three groups are constructed. The groups are North Group (NG), South Group (SG), Desert Group (DG), in addition to Cairo station. Two phase analysis are applied to all monitoring stations. One deals with each station separately and the other with stations groups. Trend analysis is performed using both data segmentation as well as whole record concept. Our results show that, the temperature at North of Egypt is raised with a value of 1.05oC during summer season in the last century. Meanwhile, at South a nonsignificant, very low warming trend is observed during the same period. Cross-correlation analysis is applied between sunspot number and temperature anomalies for each group. Negative correlations are found and the effect of 11 year cycle appears in all correlation panels. Power spectral analysis is performed to the anomalies. This analysis declares short and long period oscillations as well as Gleissberg period.