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Investigation of sultry phenomenon by Statistical and Synoptic methods at the Northern provinces Of Iran(Gilan,Mazandaran and Golestan)

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Abstract

In order to carry out statistical and synoptic analysis of the sultry at the northern provinces of Iran, temperature, relative humidity, and saturated water vapor pressure obtained from Meteorological Organization of Iran in (1992-2007) period.The intensity sultry index and the partial water vapor pressure were calculated for each day. According to the defined threshold, the sultry days were divided into four groups. Statistical analysis proved that the August is the sultriest month with the average of 83% sultry. The Noshahr, with 149 sultry days, has the highest frequency of sultry days. Totally, west coast areas have more intensity of sultry than east coast areas.

In order to synoptic analysis, 63 days of high sultry lasting two days or more, were selected The daily data of sea level pressure and 500 geopotential height were extracted from NCEP/NCAR database with spatial resolution of 2.5 x2.5 degree and then a hierarchical cluster analysis was applied using ward linkage method. Finally,

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the most important synoptic patterns were extracted which related to high sultry days.On the surface map was observed that Pakistan low pressure at the southern part of the country, and occasionally this low pressure penetrate into the study area. In addition it had been observed that high pressure tongue of Black sea and high pressure of north and west Europe in the area. Moreover on the base of synoptic patterns at the 500 hp level indicated that STHP was dominated.

Kaywords: Sultry, Factor Analysis, Cluster Analysis, Synoptic Pattern, Northern provinces of Iran.

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