

Interaction of Spatial and Temporal Integration of Climate Characteristics by GIS

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SUMMARY

Climate is the average weather conditions experienced in a particular place over a long period on the earth. Various parameters are composed of the climate. The basic climatic parameters are temperature, pressure, wind rainfall and humidity. These elements display seasonal and annual variation somewhat different from normally expected climatic conditions. In order to generate the climate maps, meteorological regime, geographical location and its characteristics are significant parameters as well as statistical approaches are adopted in recent years. Geographic Information Systems (GIS) provide integration between meteorological data and spatial data, as well as analysis and visualization environment. This study aims to import meteorological data, coming from 8 stations (Bahcekoy, Florya, Goztepe, Kandilli, Kartal, Kirecburnu, Kumkoy, Sile) located in Istanbul, Turkey, into GIS environment, to create distribution maps using interpolation techniques, and to examine relationship to each other and between spatial information. The meteorological data were obtained from both General Directorate of Meteorology and Meteorology Laboratory of Kandilli Observatory and Earthquake Research Institute at Bogazici University. In this study, the meteorological parameters in Istanbul such as relative humidity, cumulative precipitation, monthly mean temperature, monthly maximum temperature, and monthly minimum temperature for the period of 1976-2016 are investigated. The obtained data are analyzed for that period in order to determine the spatial distribution of climatic data. In this process, inverse distance weighted interpolation algorithm is used. Furthermore, total annual precipitation changes are represented in the long run.

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