

Human climates of Egypt

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Abstract

The clo index values for different wear have been estimated for daytime and nighttime for different months of the year in order to investigate human climates in Egypt. The clo values may also be used as a good guide to gauge the thermal human comfort under different atmospheric conditions and also express the resistance to heat transfer by clothing, and are expressed relative to the units of thermal insulation. A complete set of measurements for air temperature and cloud amount in addition to wind speed for the daytime (1200 GMT) and nighttime (0000 GMT) hours for the period 1991–2002 at 40 meteorological stations in Egypt have been used. The percentage area (%) requiring different weather wear during daytime and nighttime for all the months of the year have been determined. The study revealed that the whole country is characterized by the requirement of very cold weather wear during winter nighttime while 72% of the area of the country requires tropical weather wear during summer daytime. Only 71% of the area of the country requires comfortable weather wear during summer nighttime while there is no area requiring comfortable weather wear during winter nighttime. Latitudinal gradient of clo values was observed during all months of the year. Maximum latitudinal gradients of clo values during the daytime were found for the months of April and May. The clo classification in relation to climate has been done for Egypt.

Keywords: *human climates;clo index;weather clothing ensemble;thermal insulation;urbanization;Egypt*

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