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CLIMATOLOGICAL CONDITIONS OF THE BLACK SEA-EFFECT SNOWFALL EVENTS IN ISTANBUL, TURKEY**Hakki Baltaci***Gebze Technical University, Turkey*

A climatological analysis and overlying synoptic conditions of Black Sea-effect snowfall events were investigated for Istanbul, Turkey, during the 1971–2006 winter (DJF) periods. Using the synoptic climatological approach, the Lamb Weather Type (LWT) method was applied to NCEP/NCAR daily mean sea level pressure data. Basically, northwesterly (NW), northerly (N), and northeasterly (NE) circulation types (CTs), which blow from the Black Sea (BS), were thought to be important for sea-effect snowfall events to occur. Wind speeds and flows at 850-hPa, directional shear, and temperature difference between sea surface and 850-hPa level (SST-T850) thresholds were applied to these three CTs in order to find suitable snowfall cases originating from the Black Sea. The results showed that 4, 14, and 111 snowfall episodes occurred during NW, N, and NE circulation types over Istanbul with the 2.8, 4.1, and 3.5 cm daily mean snow cover depths (DMSCD), respectively. In particular, it was found that interaction between a surface high located over continental Europe and a low pressure located over the central Black Sea, and a relatively warm sea surface temperature (SST), and cold temperature anomaly at the low level of the atmosphere (SST-T850 > 17°C) are a favourable environment for the development of intense Black Sea-effect snowstorms (DMSCD > 10 cm) sourced by NE cases. A statistically significant positive relation between snow cover depths and SST-Tmax (daily maximum temperature) under NE cases ($r = 0.28$, $p < .05$) indicated that we observe intense daily snow accumulation when land-sea temperature contrast increases (> 7°C) in the region.

Biography

Dr. Hakki Baltaci has completed his PhD at the age of 35 years from Istanbul Technical University, Turkey and postdoctoral studies from Turkish State Meteorological Service. He is the Assoc. Prof. and Head of Gebze Technical University, Institute of Earth and Marine Sciences after 2020. He has published more than 23 SCI papers, numerous presentations/proceedings, and invited talks about climate sciences.