المركز الإقليمي للعواصف الغبارية والرملية
Sand and Dust Storm Regional Center

المركز الوطني للأرصاد
National Center for Meteorology

Dust and Sandstorms Events in February 2025

Executive Summary:

This report presents an in-depth analysis of dust and sandstorm (SDS) events across Saudi Arabia during February 2025, benchmarked against the 21-year climatological average (2003–2024). A total of 212 dust hours distributed over 17 days were recorded, reflecting a 40% decrease in dust hours and a 10% decrease in dust storm days compared to the long-term mean of 358 hours and 19 days. Regional variations were pronounced. The Eastern and Central regions (notably Al-Ahsa, Dammam, and Dawadmi) exhibited the highest activity, with anomalies reaching 47, 30, and 25 hours over 5, 4, and 8 days respectively. Conversely, Northern stations (Turaif, Rafha, Arar) and Central stations such as Riyadh and Wadi Al-Dawaser reported sharp declines, with anomalies ranging from –7 to –20 hours and –2 to –4 days, in some cases exceeding 90% reductions. Western and Southern stations (e.g., Jeddah, Madinah, Najran) were largely inactive, with Madinah registering nearly –100% anomalies compared to historical norms. On the event scale, blowing dust dominated with 208 cases (98%), though below the historical average of 311 cases (93%). Sandstorms were reduced to 4 cases (vs. 15 historically), while dust storms were absent entirely (vs. 8 historically). This distribution underscores a marked suppression of storm-scale events, with SDS activity primarily limited to lower-intensity blowing dust. Spatial mapping indicates concentrated SDS activity across the Eastern and Central belts, while the Northern, Western, and Southern regions showed widespread deficits. These anomalies highlight the influence of synoptic drivers such as weakened pressure gradients, diminished wind strengths, and localized environmental factors. These results emphasize that February 2025 was characterized by below-average SDS frequency and intensity, with strong spatial contrasts and a collapse of higher-intensity storm types, signaling possible shifts in seasonal SDS dynamics across the Kingdom.