



Dust and Sandstorms Events in January 2025

Executive Summary:

This report provides a comprehensive analysis of dust and sandstorm (SDS) events across Saudi Arabia during January 2025, benchmarked against the 21-year climatological average (2003–2024). A total of 41 dust hours distributed over 6 days were recorded, representing an 80% decrease in dust hours and a 70% decrease in dust days compared to the long-term mean of 206 hours and 18 days. Regional variations were evident. The Eastern Region (notably Dammam, Al-Ahsa, and Dhahran) registered the highest activity, with 11, 9, and 9 dust hours, and up to 2 dusty days per station. In contrast, Northern and Central stations (such as Rafha, Arar, Riyadh, and Wadi Al-Dawaser) recorded near-zero events, reflecting anomalies of –8 to –26 hours and –2 to –7 days. The Western region (e.g., Jeddah and Tabuk) reported minimal activity, with 4–5 hours and 1–2 dusty days, while southern stations were largely inactive. On the event scale, blowing dust dominated exclusively, with 41 cases (100%), though far below the historical average of 179 cases (87%). Notably, no dust storms or sandstorms were recorded, compared to long-term averages of 6 and 3 cases, respectively. This marks a significant departure from climatological norms, underscoring a sharp decline in SDS severity during January 2025. A case study from 17 January 2025 highlighted a synoptic setup over the Eastern Region (Al-Ahsa, Dammam, Dhahran), where high pressure over northern Saudi Arabia combined with strong upper-level winds (500 and 850 hPa) generated dust uplift. This event reduced visibility below 1500 meters, disrupting transport and daily activities. These findings emphasize a marked reduction in SDS activity across the Kingdom during January 2025, with strong spatial contrasts. The absence of storm-scale events underscores the influence of prevailing synoptic patterns, including anomalous stability, weakened pressure gradients, and reduced wind intensities compared to the historical baseline.