



## Dust and Sandstorms Events in October 2025

### Executive Summary:

This report presents a comprehensive assessment of dust and sandstorm (SDS) activity across Saudi Arabia during October 2025, benchmarked against the 21-year climatological average (2003–2024). Dust activity during the month was exceptionally low, with only 21 dust hours recorded across 5 dusty days, representing a significant decline of approximately 80% in dust duration and 64% in dust frequency compared to the long-term mean of 107 hours over 14 days.

Spatial analysis reveals a near-complete suppression of SDS activity across the Central, Eastern, and Northern regions, where historically active stations such as Riyadh, Al-Ahsa, Dammam, Dhahran, Arar, and Al-Jouf exhibited zero events. Only a few localized pockets—particularly Arar, Gizan, Wadi Al-Dawasir, and Sharorah—showed light activity ranging from 1 to 3 hours. The most notable activity was observed in Arar, which recorded 11 hours across 4 days, indicating localized northerly dust transport. The distribution of SDS event types further shows a marked decline in Blowing Dust (BLDU) with an 83% reduction, while Sandstorms (SS) displayed isolated occurrences (2 cases) despite being virtually absent in the climatological record. No dust storms (DS) were observed.

A detailed case study of the 11 October 2025 Jazan thunderstorm-induced sandstorm demonstrates how convective outflows, strong easterly winds, and thermal low development contributed to localized yet intense dust lifting. October 2025 stands out as one of the calmest Octobers on record, reflecting weakened Shamal winds, higher atmospheric stability, increased soil moisture, and the reduced activation of major dust source regions such as An-Nafud and Ad-Dahna. These findings provide critical insight into evolving SDS climatology and emphasize the importance of synoptic and mesoscale monitoring for early warning systems.