المركز الإقليمي للعواصف الغبارية والرملية
Sand and Dust Storm Regional Center

المركز الوطني للأرصاد
National Center for Meteorology

Dust and Sandstorms Events in December 2024

Executive Summary:

This report presents an in-depth analysis of dust and sandstorm (SDS) events across Saudi Arabia during December 2024, benchmarked against the 21-year climatological average (2003–2023). A total of 75 dust hours distributed over 16 days were recorded, reflecting a 45% decrease in dust days and a 15% decrease in dust hours compared to the long-term mean (29 days; 148 hours). Regional variations: Eastern Province showed contrasting signals. Al-Ahsa (6 d; 32 h) recorded strong increases (+2 d; +7 h, +50% and +28%), while Dammam (3 d; 11 h) showed mixed anomalies (+1 d; –5 h), and Dhahran (3 d; 17 h) had positive increases (+1 d; +4 h). In contrast, Hafar Al-Batin dropped to (1 d; 7 h), slightly below normal. The Central Region was mostly below climatology, with Riyadh, Al-Qassim, Al-Kharj, and Dawadmi all recording deficits. In the Northern Region, most stations were inactive, except Yanbu (1 d; 4 h), which showed a clear surplus (+100% in hours), while Rafha, Turaif, Qurayyat, and Arar recorded sharp declines. The Western Region remained largely inactive, though Jeddah (1 d; 1 h) saw a localized event. The Southern Region was almost inactive, with no events in Najran, Jizan, Khamis Mushait, or Wadi Al-Dawasir. On the event scale, blowing dust (BLDU) dominated, with minor duststorm (1 DS) activity reported. These results emphasize that December 2024 was characterized by scattered but locally significant dust activity in Al-Ahsa, Dhahran, and Yanbu, contrasting with widespread suppression across the Central, Northern, and Southern regions.