المركز الإقليمي للعواصف الغبارية والرملية
Sand and Dust Storm Regional Center

المركز الوطني للأرصاد
National Center for Meteorology

Dust and Sandstorms Events in February 2024

Executive Summary:

This report presents an in-depth analysis of dust and sandstorm (SDS) events across Saudi Arabia during February 2024, benchmarked against the 21-year climatological average (2003–2023). A total of 99 dust hours distributed over 26 days were recorded across the network, reflecting a 76% decrease in dust days and an 84% decrease in dust hours compared to the long-term mean (108 days; 608 hours). Regional variations were pronounced: the Eastern Province (notably Al-Ahsa, Dammam, and Dhahran) exhibited the highest activity, with Al-Ahsa (3 days; 23 h) leading but still showing sharp deficits of –7 days and –51 hours, followed by Dammam (3 days; 15 h; –4 d; –29 h) and Dhahran (2 days; 15 h; –5 d; –29 h). In the Central Region, Riyadh (3 d; 5 h), Al-Kharj (4 d; 13 h), and Al-Qassim (1 d; 1 h) showed limited events, yet all fell well below climatology (deficits of –25 to –29 hours and –3 to –6 days). Wadi Al-Dawasir recorded (2 d; 5 h) versus a mean of 8 d; 48 h (–6 d; –43 h). Across the Northern Region, Rafha (1 d; 2 h) was the only station with events, while Arar, Al-Jawf, Qurayyat, Turaif, and Tabuk dropped to zero (deficits ranging –30 to –46 h and –6 to –8 d). The Western Region saw minimal activity: Taif (2 d; 6 h; –5 h) was the sole contributor, while Jeddah, Yanbu, Al-Madinah, and Al-Wajh reported none despite historical means. In the Southern Regions, Bisha (1 d; 2 h; –2 d; –7 h) was marginally active, while Sharurah (5 d; 12 h; –3 d; –25 h) saw partial reduction. The Al-Baha station stood out with a positive anomaly (+1 day; +2 h above climatology). On the event scale, blowing dust dominated (93 hours), alongside blowing sand (6 hours) and two brief dust storm (DS) cases observed at Al-Kharj and Wadi Al-Dawasir. These results emphasize the exceptionally suppressed SDS activity across the Kingdom in February 2024, with declines of more than three-quarters in both dust days and dust hours. Only Al-Baha recorded a positive anomaly, underscoring sharp regional contrasts in dust activity during the month.