Assessment of the correlation between different dust events and rainfall rates in Iraq, 1980-2015

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Dust events are frequent in Mesopotamia due to the neighboring arid or semi-arid regions; therefore a climatological analysis of dust events represents a significant issue in this study area. The objective of this study is to analyse the variability of dust events and their correlation with rainfall in Iraq, especially in the southern region (Nasiriya city), and their relationship to the annual mean rainfall and air temperature trends during 1980 – 2015 using the climate data from the Iraqi Meteorological Organization (IMO). According to horizontal visibility, dust events have been divided into three types: floating/suspended dust event (visibility more than 10 km), blowing/ rising dust event (visibility 1 - 10 km), and dust storms (visibility below 1 km). The results showed that there were three obvious trends for total dust events. There was a negative relationship between total annual dust events and rainfall. The correlation between both suspended dust and rising dust and rainfall was higher in the southern region (Nasiriya city). In this southern region, the correlation coefficients between annual rainfall and suspended or rising dust events were -0.13 and -0.39, respectively. In addition, the findings revealed the correlation between annual total rainfall and suspended dust in Iraq was -0.298. There was also an increasing trend in air temperatures and decreasing trend in rainfall during 1980 – 2015 over Iraq. Any changes in rainfall rates and temperatures over a long period (35 years) are considered to be a measure of climate change in a given area. Therefore, the climate parameters analysed are essential to gain knowledge of the past, present and future climate of this specific area.

Keywords: Dust events, dust storms, rising dust, suspended dust, rainfall, air temperature.

Biography
Ali is a Ph.D. student at School of Earth and Environmental Sciences, University of Wollongong, NSW 2522, Australia. He is doing Ph.D. research at the University of Wollongong. He has published an article in Springer, participated in the ISCA 2017 conference.