



**Zabol University**

**Graduate Management  
Faculty of Water and Soil  
Range and watershed management group  
Dissertation for obtaining a master's degree in desert management**

**Investigation the Impact of Dust Storms on Transportation  
(Road and Airline) in the Sistan Region**

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## **Abstract**

Dust storms have environmental and social-economic impacts. Because the impacts of dust storms on transportation system in the Sistan region has not been investigated, this research has been carried out to study the impacts of dust storms on road transportation system including; road accident and damage to roads and airline transportation system including; flight cancellation and delayed and damages to the tools and instrument of Zabol airport for the period 2017-2019. To analysis the diurnal, monthly and yearly variations of wind speed and visibility, wind speed and visibility data that collected at the Zabol meteorological station were obtained from the Iran Meteorological Organization for the period 2017-2019. Subsequently, to assess the impacts of dust storms on each part of the transportation system and to quantify the damage costs, a series of tables were prepared and completed by the related organizations including police road station, local transportation system organizations and Zabol airport. The results show that the maximum and minimum intensity and frequency of dust storms occurred in the morning and evening respectively. The minimum frequency of dust storms occurred in June and July and in 2019. Positive correlations were observed between dust storms and road accident, flight cancelation and delayed and damage to roads. The maximum number of road accident and flight cancelation and the maximum amount of the shifted sediment from the road surface were observed in summer and June and July and in 2019. The total damage costs from dust storm during 2017-2019 in Zabol region were estimated at 40.5 Milliard tomans (1,600,000 US\$) which was greater in road than flight system.

**Keywords:** Dust Storms, Transportation System, Road Accident, Flight Cancellation, Sistan Region