

Abstract:

Dust phenomenon is produced by a variety of natural and anthropogenic activities, and is distributed in the atmosphere. Anthropogenic activities that reduce vegetation cover and activate wind erosion cause dust emission to atmosphere. Since 1970, dust outbreaks have worsened due to increasing agricultural and industrial activities all over the world. Dust is the most significant factors affecting air quality and it is also a critical factor affecting the quality of other environmental resources. Distribution of aerosols indicates a high degree of variability and changes in the atmosphere. A limited ground observation network can provide continuous observation, but cannot provide good spatial coverage reflect pollutant sources or the macroscopic distribution of variation. Remote sensing data can resolve such limitation of under-sampling and has made the environmental measurements for monitoring of dust pollution available at regional and even global scales. East of Khorasan affecting by the sever 120-day winds of Sistan, and causing this region sources of dust emission. This work aims to analyze the spatial and temporal variability of aerosol optical depth (AOD) and the impact of land-use using satellite imagery and ground based data from 2004 to 2013 in East Khorasan. Therefore meteorological observation data was obtained from Iranian meteorological organization. AOD products were provided from three sensors MISR, MODIS and OMI, from 2004-2013. Then illustrated the spatial and temporal variations in the three years of 2004, 2008 and 2013 for all stations and correlations between meteorological and remote sensing data was calculated. Also, In order to evaluate the effect of land use changes with dust indices, they classified to eight classes. The results showed that the MISR and MODIS sensors data have the highest correlation with meteorological data. As well as investigation of the effect of land use changes on dust indices, did not showed significant correlation

Key words: Aerosol, dust indices, AOD, land use



Ferdowsi University of Mashhad
Faculty of Natural Resources and Environment

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Spatio-Temporal Variability of Aerosol Indices Over the East of Khorasan, Iran and the Impacts of Land Use Changes

Parvin Miri Mamarabadi

Supervisor(s)
Dr. Alireza Rashki

Advisor(s)
Dr. Adel Sepehr

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