

عنوان مقاله:

How coupled human and climate change affect dust storms; Case study Lower Helmand Basin

محل انتشار:

کنفرانس بین المللی گرد و غبار در جنوب غرب آسیا (سال: 1398)

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خلاصه مقاله:

Climate change is the most important challenge which its effects on ecosystems are increasing throughout the world. Human activities are strongly coupled with the mitigation and the intensification of climate impacts. In this paper, we assess the impacts of these activities in a semi-arid and water limited ecosystem undergoing droughts and severe climate variability. Our analysis can show how sustainable or unsustainable development in the study region can impede or intensify the effects of climate change. Climate variables and trends of land use activities from Landsat time series images acquired over the lower Helmand Basin from 1977-2014. The Man-Kendall test were applied to investigate the climate variability over the study region. Landsat images were classified by Super Vector Machine (SVM) to create land-use/Land-cover maps. The changes in the number of dusty days were investigated by Present weather (WW) data. This index was applied to determine the relationship between human and climate change and dust storms. The results show that despite the sever and prolonged drought in the region, agricultural practices and crop management activities have continued in the region, increasing the water consumption and exacerbating the water stress on the ecosystems. Furthermore, the number of dusty days was increased during the study period. This increase is the synergic effect of human and climate change. Therefore, unsustainable land use policies have caused synergistic effects of coupled human and climate impacts. We conclude that mitigation of drought effects requires .changing of the cropping patterns, and optimizing the irrigation and land use planning

کلمات کلیدی:

Climate change, Dust storm, Land- use/land-cover change, Agriculture

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