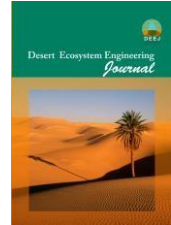




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Study of landforms sedimentation based on changes in land use (Case Study: Damghan)

Sholeh Shahverdi¹, Shima Nikoo^{2*}, Naser Mashhadi³, Hamed Joneidi Jafari⁴, Mohammad Kia Kianian⁵

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Abstract

The presence of Damghan Erg in West of Damghan Playa indicates high wind activity in this desert region. Due to technological advances and population growth in recent decades, large parts of past land uses have changed. These changes can exacerbate wind erosion and affect lands sedimentation. In this study, first, the land use maps of years 1974 and 2003 were prepared. The comparison of these maps shows that a significant area of rangelands has been converted to agricultural lands. Also, part of the agricultural lands has been converted to residential and industrial lands and a small area of agricultural lands has been dilapidated. The soil or surface sediment were sampled in three treatment as old agricultural lands (that they have preserved their use), new agricultural lands (that they were formerly rangelands) and rangelands (with five replications). Soil particles grading have been studied by sieves of 2000, 1180, 600, 250, 150, 75 and less than 75 microns based on the weight and frequency percent of each particle size class and indicators of particle (diameter mean, skewness, sorting and elongation) were specified using software GRADISTATE. At last, land sedimentation assessment was identified based on the abundance of particles with a diameter less than 2000 micron (susceptible to erosion). The results have been prepared as 7 maps that they express region sedimentation in each particle size class. Particles dispersion map with diameter larger than 2000 micron indicates stable particle dispersion against wind erosion and other maps show unstable particles dispersion. Comparing the land use map with particles dispersion maps show that the most unstable particles dispersion is in rangelands, the least dispersion of them is in agricultural land and rangelands have more sedimentation than the other treatments.

Keywords: particle stability, Damghan, sedimentation, wind erosion, land use.

1. MSc graduated of Combat desertification, Semnan University

2. Assistant prof. Desert Studies Faculty, Semnan University, Email: shimanikoo@profs.semnan.ac.ir

3. Assistant prof, International Desert Research Centre, Tehran University

4. Assistant prof., Natural Resources Faculty, Kurdistan University

5. Educator, Desert Studies Faculty, Semnan University