INVESTIGATION OF SAND DRIFT POTENTIAL BY WIND (CASE STUDY: KASHAN PLAIN)

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Abstract:
Sand dunes mobility is one of the serious problems in arid regions. Since wind regime is one of the important factors in sand dunes formation, its frequency, direction and magnitude can be effective. Amount of wind energy and its directional variability (wind regime) have significant control on the morphology and maintenance of aeolian landforms. By recognizing of morphometric and morphodynamic characteristics, it is possible to control soil erosion. Thus, statistical analysis of wind data using Tsoar index (sand dunes mobility index) in the study area was considered to understand wind regime role in volume and direction of transported sediments. Sand drift potential amount of the study area is 100.8 v.u. and sand flux is 2.358 m$^3$/m. year resulted from Lettau – Lettau equation. Considering wind erosion power, the study area is in low class based on Fryberger & Dyne (1979) classification. In spring the wind blowing pattern has west direction and is different from other seasons. Also, the most frequency of blowing wind higher than threshold velocity occurs in this season. Unidirectional index value is 0.64 for this region that results formation of transverse dunes (barkhanoid).

Keyword(s): WIND REGIME, SAND DRIFTS POTENTIAL, SAND DUNE, WIND EROSION, RESULTANT DRIFT DIRECTION