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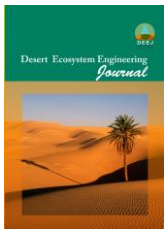

# Performance comparison of aerial photographs and IRS-P6 and ETM+ panchromatic bands in determining sand dune morphology

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**Abstract**

In this survey, the performance of aerial photographs and satellite imagery in determining sand dunes morphology was studied in the Erg of Gavkhouni international wetland located in the southeast part of Isfahan province. Aerial photographs (scale: 1:20000) and the panchromatic bands of ETM+ and IRS-P6 sensor were acquired and geometrically corrected using topographic map of the region (scale:1: 25000) with RMS error less than one pixel. After this stage, the morphology of sand dunes was extracted from the mosaic of aerial photographs and also panchromatic bands using vector format in ArcGIS environment. According to the results, five sand dune morphologies were determined including transverse dunes, star dunes, silk, seif and reversing dunes. The morphology and area comparisons of dunes extracted from the aerial photographs and IRS_P6 panchromatic band showed that they were mostly similar and this means that satellite panchromatic bands due to their repeatability, cost effectiveness, broad coverage and high spatial resolution can be used as an alternative or complement to aerial photographs for studying sand dune morphology.

**Keywords**: Satellite imagery, Aerial photographs, Sand dune morphology, Isfahan

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