



Aeolian sand incursion into the north western Negev during the Upper Quaternary

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The sand dunes in the north western Negev which were active in the past are stabilized today by biogenic crusts and vegetation. According to the difference in the color and in the morphology of the sands we assume that there were several incursions of sand into the area. Previous studies in this area have shown that the activity cycles of the sand dunes occurred during the Upper Pleistocene and during the Holocene. The cycles of the activity can be reconstructed according to climatic fluctuations. In this work, the different sand units were mapped according to their color, morphology and time of sedimentation (TL dating). The mapping of the sand dunes in the north western Negev was made by remote sensing and GIS. The data was collocated from a Landsat TM image, digital aerial photographs and from sand samples collected in the field. The color was determined by the spectrometric signatures of the sand samples and from the spectrometric data that was extracted from the image and the aerial photos. In order to understand the activity cycles of the sand dunes, the correlation of the sand properties were analyzed (color, iron content and age) between the field and remotely sensed data. The results show that there are at least three sand units according to their color. It seems that there were several sand incursions in different periods during the Upper Quaternary. The different sand units have been deposited one on the other with areas of mixed sand units. Probably, there were three major sand incursions that were reactivated during the Holocene. TL dating will determine the timing of the different sand incursions into the north western Negev.