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INLAND-SEBKHAS IN DER OSTPROVINZ SAUDI-ARABIENS: RÄUMLICHE VERÄNDERUNGEN DURCH ZUNEHMENDE LANDSCHAFTSDEGRADATION

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SUMMARY

Inland sabkhas in the Eastern Province of Saudi-Arabia – spatial changes caused by a decreasing vegetation cover.

Exploitation of natural grazing resources during the last decades leads to a continuous decrease in vegetation cover in the Eastern Province of Saudi Arabia. In an area of unidirectional high energy-winds this development inevitably results in soil erosion and reactivation of fossil dunes. Inland-sabkhas seem to be one of the consequences of ongoing sand erosion. Sedimentological studies proved that inland-sabkhas in the central coastal lowlands of Saudi-Arabia are not residuals of former coastal-sabkhas which originated in the Pleistocene with a higher sea water level than today. Measurements along permanent transect lines showed that inland-sabkhas in degraded areas grow up to 5,4 m in one year in southeasterly directions. The analysis of two Landsat-TM images confirms the expansion of inland-sabkhas within the main wind direction (which is NNW to SSE) as well as sedimentation usually confined to the northern and northwestern sekbha edges. On the other hand inland-sabkhas surrounded by a higher vegetation cover are stabilized. In this case no movement of sabkha edges was observed. For that eason it is concluded that the dynamics of an inland-sabkha are to a high degree influenced by the geo-ecological conditions (ground water, vegetation, sand supply and climatic conditions) of the surrounding area. The origin of inland-sabkhas has to be related to the recent geomorphological history and seems to be a result of a negative sand budget in a subregional wind action system much intensified by overgrazing.

ZUSAMMENFASSUNG

Verstärkter Viehbesatz, der die Tragfähigkeit der Ökosysteme um ein Vielfaches überschreitet, hat bereits seit mehreren Jahrzehnten einen kontinuierlichen Rückgang der Vegetationsdichten in den Ostarabischen Küstentiefländern zur Folge. Dies führt, in Kombination mit einem unimodalen Windsystem und hohen Windgeschwindigkeiten, zur Erosion der äolischen Lockersedimente und zur Reaktivierung ehemals stabiler, fossiler Längsdünenfelder. Die zahlreichen Inland-Sebkhas scheinen ebenfalls das Resultat des verstärkten Materialabtrags zu sein. Sedimentologische Unter-

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