

## Origin of Aeolian Mega Ripples

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Origin of aeolian mega ripples were surveyed with wind-duct experiments and field surveys at the Tottori Sand Dunes in Tottori, Japan and the Great Sand Dunes in CO, USA. Wind duct experiments on mega ripple formation processes were conducted with a hint from Tottori Sand Dunes, where mega ripples appeared between 2013 and 2015 on the way of enlargement of volcanic ash layer outcrops that supply coarser particles to sand surface. The experiments showed that mega ripples were formed by degradation processes by wind action. Mega ripples in the field are often observed in restricted areas, because of availability of coarse particles and sand bed stability by increase of blown sand downwards from degradation area. To check this point, longitudinal profiles of mega ripples were surveyed in the Great Sand Dunes National Park and Preserve in CO, USA. The result showed that the maximum wave length and height occurred in the middle part of mega ripple zones in 50-75 m long and gradually decreased in size towards ends of the zone. Mega ripples always appear in very restricted areas because of their formation processes of degradation of sand bed.

Keywords: mega ripple, degradation of sand bed by wind action, process of blown sand, restricted appearance, the Tottori Sand Dunes, the Great Sand Dunes National Park and Preserve