

Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

©2011. Japan Geoscience Union. All Rights Reserved.



SCG064-P06

Room:Convention Hall

Time:May 24 10:30-13:00

Flume experiments about formative processes of rhomboid rills

Takashi Murakami^{1*}, Noritaka Endo¹

¹Kanazawa University

It can be observed that several centimeters sized rhomboid microtopographies called rhomboid rills are formed by backwash on sandy beaches, which were reported from field researches. The formative processes of rhomboid rills, however, has not been well understand. This study aims at formative processes of rhomboid rills through laboratory experiments using sand (median diameter of 154 micrometer) taken from the site where actually rhomboid rills were generated on the beach. Each experimental was begun with flat sand slope with a give gradient (6-12 degree). Water was stored offshore at the depth of 2 cm. In each run, only one wave was generated with a flat wood board by hand and reached to the top of the slope.

Results are as follows (1) rhomboid rills were developed best at gradient 8 degree rather than those gentler and steeper. The gradient of beach slope at the sampling point where rhomboid rills were actually formed was also 8 degree. (2) According to high-speed movie, it is found that the transported sand particles that initially run in the direction of the maximum gradient were deposited on the midway and following stream branched into two directions avoiding the deposit. This is why rills were stretched in oblique directions to that of the maximum gradient of the slope.