



LES simulation of wind field over an artificial straight dune

Keiko Udo (1) and Tsukasa Kuribayashi (2)

(1) Tohoku University, Sendai, Japan (udo@irides.tohoku.ac.jp), (2) Tohoku University, Sendai, Japan (tsukasa.kuribayashi.p1@dc.tohoku.ac.jp)

Backshore and dune development affect disaster prevention systems, ecosystems, tourism, and recreation. Especially an artificial straight dune functions as a coastal dike; however, it is demonstrated by Udo et al. (2003) that transverse winds separated artificial longshore dunes into smaller dunes with a length of 100 m in decades at several beaches in Japan, which suggests that the inland area of the separated dune is exposed to the higher risk of coastal hazards. Therefore, the dune has been redeveloped to be the continuous straight dune several times until present. This study reproduced the wind field around the dune by large eddy simulation (LES) to investigate the mechanisms of the dune separation. The wind fields simulated by LES show reasonable wind field; however, there are several issues to be considered.