

## Ripple Formation and Grain Sorting with Multiple-sized Sand: a Report of the Preliminary Wave-flume Experimentation

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### Synopsis

Three series of wave-flume experiments were performed for the purposes of assessing capability of a wave-flume and investigating an effect of multiple-sized sand on ripple formation. The first series of experiments were performed under fixed-bed condition, indicating that the measured performance of wave height-to-stroke ratio was only slightly smaller than theoretically expected. The other two series with multiple-sized sand beds facilitated the following: (1) the critical value of the mobility number for ripple formation with multi-sized sands may be larger than the critical value with uniform sands; and (2) as more asymmetrical oscillatory flow, the difference of grain size between onshore-slope and offshore-slope appeared more prominently.

**Keywords:** wave ripple, wave-flume experiments, multiple-sized sand, asymmetrical oscillatory flow, grain sorting

### 混合粒径砂を用いたリップルの形成と分級過程：造波水槽による予備実験

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### 要 旨

造波水槽の性能と、混合粒径砂がリップル形成に与える影響を調べるために、3組の実験を行った。最初の一連の実験では、固定床を用いて造波水槽の性能評価を行った。その結果、波高/造波板ストロークの比が予想値よりやや小さいことがわかった。その他の2組の実験では、混合粒径砂の砂床を設置して実験を行い、次の二つのことが明らかになった。(1) 混合粒径砂では、均一粒径砂の時よりもリップルが形成する mobility number が大きい。(2) 流速の岸沖方向での非対称性に応じて、リップルの岸側斜面と沖側斜面の粒径が異なる。

**キーワード：**ウェーブリップル，造波水槽実験，混合粒径砂，非対称振動流，粒度分級