


## Relationships between beach profile changes and sediment density distributions under wave actions using medical X-ray CT scanner

Fumihiko YAMADA<sup>1)</sup>, Seiya SUENAGA<sup>2)</sup>, Gozo TUJIMOTO<sup>3)</sup>, Hajime SHIROUZU<sup>4)</sup>, Sota NAKAJO<sup>5)</sup>, Takaomi HOKAMURA<sup>6)</sup>, Bernard LONG<sup>7)</sup>, Constant PILOTE<sup>8)</sup>

1) Kumamoto University 2) Kajima Co. Ltd. 3) Kobe City College of Technology 4) Kumamoto University 5) Kumamoto University 6) Kumamoto University 7) University of Quebec 8) University of Quebec

 Released on J-STAGE 2013/11/12

Keywords: X-ray CT, beach profile changes, sediment transport, Dynamic monitoring

 Full Text PDF [1208K]

Abstracts

References(12)

A medical X-ray computed tomography (CT) scanner was applied to dynamic measurements of beach profile changes, internal sediment structures, and sediment transport processes during wave actions in the laboratory experiments. An acrylic flume 7 m long and with an inner rectangular cross-section of 0.3 m × 0.3 m passes through the mobile gantry of a medical X-ray CT-scanner. Reconstructing three-dimensional images using Hounsfield Units (HU), the relationships between beach profile changes and sediment density distributions within the depth of disturbance (DOD) are examined. The DOD is located within 9 mm below the bottom surface and sixty times larger than mean sand diameter ( $d_{50}$ ). A negative correlation is found to be existed between them.