

Effect of landforms on tsunami flow in the Banda Aceh coastal plain, Indonesia

Masatomo Umitsu[1]

[1] Nagoya Univ.

<http://geog.lit.nagoya-u.ac.jp/umitsu/umitsu.html>

Effect of landforms of a coastal plain to the characteristics of tsunami flow generated by the giant earthquake on December 26, 2004 was discussed in the Banda Aceh coastal plain based on the field work and mapping of high-resolution satellite images.

The landforms of the Banda Aceh coastal plain are characterized as deltaic lowland with tidal plains in the western and central parts, and strand plain with beach ridges in the eastern part.

The run-up tsunami flow invaded into the areas about 3-4 km from the coast. Strong tsunami flow severely damaged the area of tidal plains and covered low and flat deltaic area. Most of the landforms except sand dunes along the coast had almost no effect on the protection against the tsunami, but the higher micro-landforms such as beach ridges and natural levees prevented the flow of the tsunami from its invasion into the inland near the end of tsunami inundation. Tidal flat and paleo river channels on the deltaic plain caused easy intrusion of tsunami flow towards the inland.