

The relationship between tsunami damage by the 2011 off the Pacific Coast of Tohoku Earthquake and geographical condition such as landform classification and land use on Sanriku Coast.

Kazuki Sugawara¹, *Mamoru Koarai¹

1. Earth Science course, College of Science, Ibaraki University

This study summarized the relationship between tsunami damages caused by the 2011 off the Pacific Coast of Tohoku Earthquake and geographic condition such as landform classification, elevation and land use in Sanriku Coast area. In this study, GIS based overlay analyses were done at 16 small bays in Sanriku Coast. Tsunami damage levels were classified into three category such as building lost area (Rank1), destroyed area (Rank2) and inundation area (Rank3) by aerial photo interpretation. The authors tried to overlay between tsunami damage levels and other geographic data such as inundation depth, landform classification, elevation and land use using QGIS.

In the bays where all inundated area are completely destroyed (Rikuzen-Takata City and Ohtsuchi Town), the tsunami depths at coastline were over 10 meter. In the bay where tsunami damage degree decrease in inner land area (Ohfunato City, Kamaishi City and Miyako City), the tsunami depths at coastline were under 10 meter. The tsunami damage levels are closely related to inundation depths. Tsunami depths were about 4m at a boundary of building lost area (Rank1) and destroyed area (Rank2). Tsunami depths were about 1.5m at a boundary of destroyed area (Rank2) and inundated area (Rank3). The difference in landform of coastal areas influence the damage level of the hinterland area. And the tsunami damage degree was suddenly decrease at micro high lands of artificial structures and artificial cannels.

Keywords: Tsunami damage, landform classification, land use