

Significance and Course of Damage Maps of the Area hit by the Tsunami of 2011, North-east Japan 1:25,000-scale

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The huge tsunami associated with the 2011 Tohoku earthquake, which struck the Pacific coast areas, killed about 20,000 people and swept up numerous constructions. During the following several weeks, it was difficult to understand the whole conditions of damaged areas, because they were too vast and most of the roads were closed.

We interpreted air-photos taken immediately after the tsunami by Geospatial Information Authority of Japan, and mapped limits of tsunami inundation as well as catastrophically damaged areas. No-photo areas were also mapped using Google Earth and so on. Finally, we compiled our mapping results on topographic maps with a scale of 1:25,000. During mapping, all maps were cross-checked by several geomorphologist.

The purpose of this mapping is to promptly provide basic information about extent of tsunami inundation and distribution of devastated area for all people conducting countermeasures against the disaster.

Our map is characterized by the following four points. (1) The limit lines of tsunami inundation were identified with taking into account the topography and the flowing routes on the stereoscopic view. (2) Most of the air-photos we used were taken within a few days, before loss of the trail after the tsunami. (3) Since the accuracy depends on the scale of air-photos, our interpretation criteria is consistent in the whole mapped area. (4) Inaccessible areas were able to be interpreted by air-photos. The weak points of our map are that (1) the limit lines are possibly different from the true inundation edges because we judged mainly based on drifted deposits, and (2) most of the lines are not confirmed at the actual fields.

Because it is difficult to judge the limit lines of tsunami inundation on the field survey without measuring the salt level at each site, there is no perfect inundation map. We have to conduct multi-discipline approaches including air-photo interpretation, to reveal the actual tsunami-inundation areas.

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