

## A method to determine the area of tsunami inundation level 1 and level 2 for pre- and post-disaster situation

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After the 2011 tsunami, a new approach in the land use planning is introduced and starting to be applied in some areas in Japan. An area that is likely to be affected by the high frequency, but low impact tsunamis -calling as Level 1. It will be used in a separated function in an area that is likely to be affected by low frequency but high impact tsunamis -calling as Level 2. The countermeasures adopted in both areas are different as well. The physical structures will be improved to minimize the effects of the medium-to-low tsunamis to human as well as prosperies in the area of tsunami Level 1. In the area of tsunami Level 2, the coverage of flooded area is much wider. Thus, evacuation facilities and education are the major efforts to save lives. This study aims to address the process on how we can distinguish the boundary between area Level 1 and Level 2. We firstly exercise the use of numerical simulations to establish the framework in assigning area Level 1 and Level 2 at a post-disaster area. Next, we examine the possibility to apply similar techniques in a pre-disaster area. We demonstrate that distinguishing areas of tsunami inundation Level 1 and Level 2 is not only important for the reconstruction in the post-disaster areas, but also necessary to mitigate the future tsunamis in pre-disaster areas.

Keywords: Tsunami inundation area Level1, Tsunami inundation area Level2, numerical simulation, GIS modeling