Storm Surge Disaster in the Philippines by TY Haiyan (1330)

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**Abstract**

Typhoon Haiyan generated large storm surges in many islands in the Philippines. Especially, quite high storm surge occurred in Leyte Island around at 00UTC on 08 November, although it was in low tide time. Tacloban City of Leyte Island, located in inner part of Leyte Gulf, had devastating damage: high death toll and many broken buildings.

According to field survey and simulation results, storm surge more than 3 meters occurred in wide area of the Leyte Gulf, surge height would be 4-5m around Tacloban City, even over 7m trace heights were observed in some points. Many buildings were inundated to the second floor level, which indicates inundation depth would be 2-3 m. Almost whole beach zone and the peninsula were deeply inundated, most houses were destroyed and many remained residents were killed.

People saw that sea water moved to off-shore at first, and then huge water quickly rushed into beaches as if tsunami. Several people testified that water level rise had three phases in the surge event. Our simulation result explained these characteristic behaviors by stage of the typhoon passage.

The reason of severe disaster in Tacloban is mainly because extraordinary intensity of Ty Haiyan and preferable condition for storm surges in the Leyte Gulf where the typhoon hit. Besides, people in Tacloban City could not adequately recognize the risk of storm surge although PAGASA issued reasonable warnings. It turned out that it was difficult to understand (inundation) risk from storm surge information and the residents had not much knowledge on storm surges, because they have less experience with storm surges.