

Details about the data and experiments, and answers to your questions

Dear Professor Lynnet,

We conducted two kinds of experiments; tsunami inundation experiments and debris experiments. We can share not only the results of debris experiments but also that of inundation experiments. The following is a list of each experimental condition and the data we can provide.

- Common conditions,
 - 2D bathymetry/topography data
 - wave making method
 - We used the pump wave generator which has two outlets for discharging flow installed at the flume bed. However, the flow rate for wave generation was different.
 - location of WG1 and WG2
 - other boundary condition
 - The North and south side boundary is a wall boundary with a slip condition, and the east side boundary is an open boundary.
- inundation experiments
 - The flow rate of inundation experiments: 0.025m³/s
 - the additional data available on the time series of wave height measured in the physical model(WG3~WG12, please refer Fig1), inundation extents estimated by the image analysis(Fig2), and the flow velocity at the water surface estimated by the PIV analysis(Fig2).
- debris experiments

- The flow rate of debris experiments: 0.035m³/s
- No data on the wave height except for WG1 and WG2, the inundation extent, and the flow velocity.
- Ten experiments were conducted to check the repeatability, so we have ten WG data for FD case and for LD case.

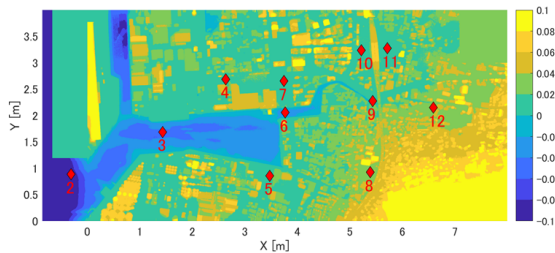


Fig1 Topography height in the physical model and the location of WGs.

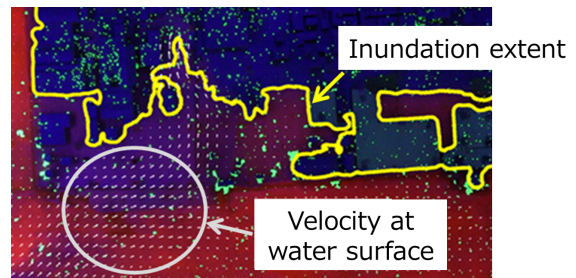


Fig2 Example of estimated inundation extent and velocity at the water surface

The followings are the answers to your queries.

- 1. The 2D bathy/topo surface you used for your model and as shown in Figure 2 (top subplot). Any format that I can load in Matlab is fine.**
→ I send Matlab data.
- 2. Inflow data: For the wave generation, I assume you use a pump only? Do you have a time series of the inflow/outflow flow rates or velocities? Or a flow time series that you used to force your numerical model?**
→ I send the time series of wave height at WG1 used in my numerical simulations as wave input conditions at the west side boundary.
- 3. Boundary info: In the physical model, where and what is the onshore (East) boundary? I know in the paper you say this is a free (radiation) boundary, but the actual geometry of the boundary should be important for the free surface gradient through the city. It is just an overflow pit starting at some X location?**
→ Water passing through the city model flows over the steel plate, which is 0.8065 m above the bottom of the tank, and the area of the steel plate is slightly behind the city model (exact length unknown, but likely 20~30 cm) and the water

tank is behind the area of the steel plate(Please refer Fig3). The overflow starts at $X=8.0$ where the end of the physical model is.

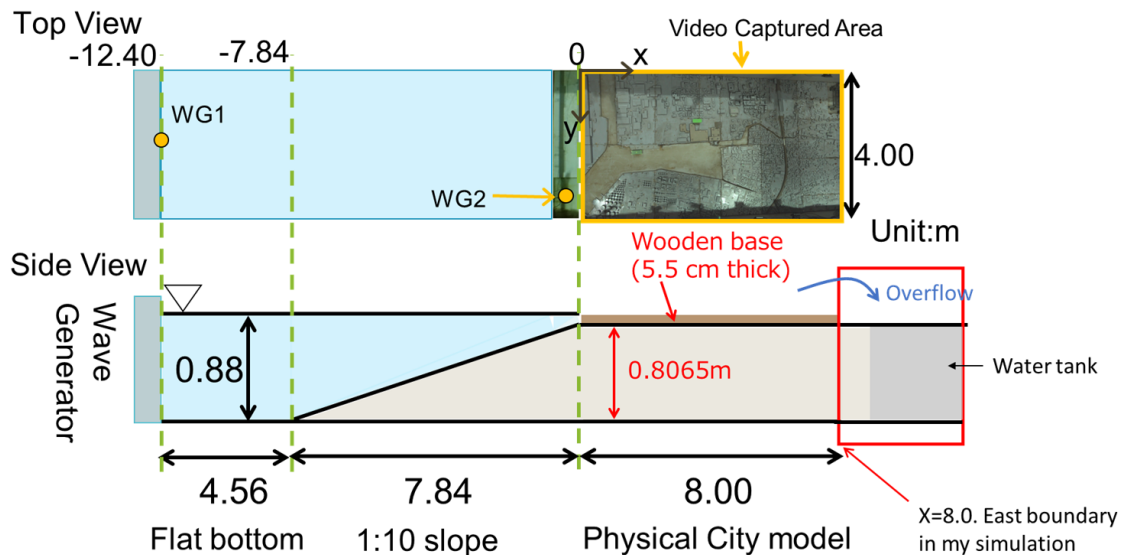


Fig3 the detail of the physical model. No Wooden base inside the red-boxed area.

4. **Wave gage data at WG1 and WG2, and any other wave gages you might have had inside the model itself (harbor area) – I know the paper says there isn't any**

→ I send wave gauge data at WG1 and WG2. As described above, we can share the wave height data in the physical model in another wave condition.

5. **Any velocity data (OK if there is none)**

→ As described above, we can share the velocity data estimated by the PIV analysis in the case of inundation experiments. (not debris experiments)

6. **Time series of debris location and orientation (if available) for the two initial debris location cases (FD and LD)**

→ I send the debris data for the initial location, the orientation, and the time series of debris.

7. **Any information about the material properties of the debris objects (beyond what is in the paper – info for some modelers whose material models allow them to capture the elasticity of the collisions based on the material of the debris).**

→ The debris objects were made by using 3D printer and its raw material is PLA resin. The physical model was made of wood.

I think some of my explanations may not be clear. Please contact me if you have any questions.