The authors simulated the solitary wave propagations and its interaction with vertical wall using SPH and nonlinear shallow water model. The paper needs significant improvements in its content in order to consider for the publications.
Suggestion: Reconsider after major revision.

Major comments: These are some of the suggestion to improve the quality of the paper,

1. The authors simulated the solitary wave generation and propagation, wherein its magnitude and length scale are not comparable with the real Tsunami. For example, in nature, if one assumes 15min wave period and 0.5m wave height in deep water, allowing it to propagate in water depth of 50m and scaling it to 1:66, leads to 0.76m water depth, 0.043m wave height and wave period of 110s. Hence, the use of term Tsunami for solitary wave may not be appropriate. I would prefer to change the title of the paper as 'Tsunami**-like** wave' instead of 'Tsunami' or simply 'solitary wave'.

2. The reference given by the authors for experimental data (Case A,B, C) is incorrect (Ward, 1995). Proper reference should be given:
   Briggs, M. J., Synolakis, C.E., Harkins, G., and Green, D.R. 1996. "Benchmark Problem #3: Runup of Solitary Waves on a Vertical Wall," Long-Wave Runup Models, International Workshop on Long Wave Modeling of Tsunami Runup, Friday Harbor, San Juan Island, WA, September 12-17,1995.

3. The authors quoted that they have used 1.1 million number of nodes with dx = 0.002m. It would be better to quote also the time step used as well as the computational aspects for the three cases. Whether same number of nodes used for all the cases?. The specific reason for using more nodes in their model should be explained. Further, increasing the number of nodes does not necessarily leads to accurate results.

4. The difference in wave gauge 4 for the test cases **may be** due to following reasons:
   1. It was quoted that the target for small steep wave is 0.05, whereas in experiments the measured wave height is less; however as the steepness increases, the target and experiments are closer. I feel this is due to leakage of water through side walls of the paddle in the experiments (more details about this can be referred in Grilli et al, ISOPE, 2004, 306-312. Sriram et al., 2010, Int. J. of Num. in fluids, 62, 1381-1410). So one need to do some trial and error in order to generate the correct profile in numerical modelling. Hence, I would suggest the authors to modify the input stroke to correctly reproduce the time series at wave gauge 4, i.e. Fig. 4. For this use Goring's theory for solitary wave generation by suitably choosing the parameter to match the wave gauge record.
   2. Boundary treatments to improve the accuracy of SPH code to handle the water waves (Particularly, Case A). I feel increasing the number of nodes is not the only solution, but rather enhancing the estimating velocity, pressure gradient and so on. How the wall particles on the wavemaker are treated?. Is

it moving (i.e. slip) or fixed wall particle?. It plays an important role to generate small waves. The authors can refer Sriram and Ma (Journal of Computational Physics 231 (2012) 7650–7670), Hu et al. (J. Marine Sci. Appl. (2011) 10: 399-412) for modelling small waves in particle method with proper boundary treatment. I would say it is good attempt by the authors to model small amplitude wave in particle method, wherein very few literatures are present.

5. If Tsunami N2 model gives good results at Gauge 4 (for Case A), one can use the surface and velocity profile from this model as an input to SPH, this may slightly improve the accuracy of SPH in modeling small amplitude cases. A kind of weak coupling. By doing so, your SPH method may work even for small wave steepness (avoiding the wave paddle b.c. exp. and num. errors) and pointing out the error in experimental paddle motion (due to difficulties) rather than numerical model.

6. Fig. 5, can be improved by using the suggestion in point 4.1 or point 5, further, whether the SPH simulation breaks down after 24s, or is it purposefully stopped?. It will be better to run the simulation for complete experimental simulation like Tsunami N2 results. This also holds good for Fig. 7 and Fig. 9.

7. Fig. 6, Fig. 8 and Fig. 10, it would be better to give the spatial pressure profile to show your model capability (in order to be consistent with your conclusion), rather than only particle configurations.

8. Fig.11, it would be better to provide the Tsunami N2 pressure time history also along with SPH results for the three cases, as the paper wants to project the capability of this model. The reason for higher peak pressure for Case B, after initial impact should be explained (i.e. after 18s). Is it physical or numerical oscillations?. Please provide the location of the pressure timehistory in the figure caption also. The authors quoted the numerical results for pressure are consistent with the observation in experiments. If so, it would be better to provide the experimental pressure measurements.

Minor comments:

1. Whether the present SPH simulation contains any turbulence closure?. Two phase or single phase modelling should be mentioned explicitly, as it has breaking cases.
2. Is it possible to use a fine resolution only at some location and coarser resolution at the other locations in your code or variable node spacing (i.e. finer at the free surface and coarser at the bottom)? This may reduce the computation time.
3. Simulation time for the spatial configuration in Fig. 6, 8 and 10 should be given.
4. Zero correction needs to be made for experimental time history in Gauge 7, Fig. 5.