

## **ABSTRACT**

Tsunami wave is not only caused by an earthquake or underwater volcanic eruption but can also be caused by an underwater landslide. This paper focuses on the numerical simulation of tsunami waves triggered by an underwater landslide. The equation of motion for water waves is represented by shallow water equations. Meanwhile, underwater landslide is modeled by deriving the equation of motion of a solid object that slide down on the sloping bottom. Solution of shallow water equations is numerically determined by implementing finite volume method with staggered grid scheme. The solution of shallow water equation which is solved by the staggered grid method is validated with experimental results for run-up case that have been performed by (Synolakis, 1986). Numerical results of tsunami simulation show a good agreement with the simulation results presented by (Lynet & Liu, 2002) which used the boundary integral equation model (BIEM) method.

**Keywords:** numerical simulation, shallow water equation, staggered grid, tsunami, underwater landslide