

Abstract—Mangrove forest is a tropical and subtropical coastal vegetation community dominated by several species of mangrove trees. This tree can grow and develop in muddy tidal areas. Mangrove forests are useful as medicinal plants, and identical wave dampers reduce the impact of tsunami waves. This study aims to determine the comparison of results from tsunami wave simulations that are influenced by mangrove and non-mangrove effects. Simulations performed five times with different beach slopes, namely at a slope of 6, 7, 8, 9, and 10 degrees. This study uses a half linear swe model and uses a staggered grid scheme to help simulate it after testing the results obtained. The population of this research activity is the beach, with the sample is the beach planted with mangroves. Based on the simulation results, there are differences in tsunami wave runup and this simulation is run at the same time. The highest runup is at an angle of 8 degrees, for the coefficient of friction ( $cf$ ) = 0 with a value of 6.9944 as a non-mangrove beach, and at an angle of 10 degrees with  $cf = 10$  with a value of 1.0254 as a mangrove beach. This data shows that the slope of the mangrove coast angle contributes to resisting waves during a tsunami, and proves that the water waves that occur during a tsunami are affected by friction and angle of the mangrove beach, and because this simulation is done with the same time duration ie at time  $t = 8$ , This is what causes the waves will have a different time when touching land.