ABSTRACT

Early warning systems for natural disasters, such as tsunamis, require systematic and good data collection and analysis. In Indonesia itself, there is still a lack of information that people receive related to data on ocean wave activity. One example is that data retrieval is only able to present acceleration data from the accelerometer sensor without any height data buoy. With the right numerical process and suitable simulation algorithms, it can help data processing and monitoring the early warning system to present data on ocean wave activity. One form of wave simulation to determine the movement of ocean waves is the system buoy. Therefore, in writing this final project, the calculation of the acceleration of the movement is carried out buoy as a function of the height of the water wavefront by analytical and simulation with the position of the buoy as the independent variable to determine the acceleration that can be obtained by the movement of the buoy due to the movement of the waves that occur. The movement factor is buoy influenced by the acceleration of gravity, wind speed, mass, height and width of the buoy (volume), and the result of wave acceleration. The results of the data obtained show that the height of the buoy for waves is regular on average 0.5 to 1 meter with a wave height of 4.8 meters. As for the source of waves, the irregular smallest difference is 1.3 meters between the height of the buoy and the wave.

Keywords: *irregular, Matlab, regular, tsunami, wave*