

Abstract

The threat of a natural disaster is one of the problems in every country. One is the tsunami phenomenon. To reduce the number of casualties caused by a tsunami requires a simulation to reduce the level of loss. In doing a simulation, it takes a variety of important data one of them is sea topography data. Some topographic data sources are topex.ucsd.edu [4] and The National Map [7]. The purpose of this research is to process topographic data [4] so as to produce good quality that is in reproduce data or refinement. Refinement techniques using topographic data can be useful in many cases other than tsunamis. Refinement can be done by searching for average between grid coordinate points so as to generate new coordinate points. The time complexity of the refinement algorithm is $T(NxNy) = 8NxNy + 8Nx + 8Ny + 8$ and the value of *Big - O* $\mathcal{O}(NxNy)$, so the refinement algorithm falls into the quadratic group.

Keywords: Refinement, Topography, Asimptotic Time Complexity.