Wave Tank Module #6 – Tsunami

1) Is a tsunami a deep water or shallow water wave?

2) Estimate the speed of a tsunami in miles per hour?

3) How long will it take a tsunami to cross the Atlantic ocean (assuming a width of 1800 miles and depth of 3 miles)?

4) A tsunami struck an small island in the Pacific ocean about 5 hours after an earthquake. Assuming a water depth of 3 miles, estimate how far the island is from where the tsunami was generated.

Ask the students to go to the wave tank and generate a tsunami using the plastic slope and wooden block.

Ask the students to describe what they see and what the effect is on the beach. Compare how far the waves move landward compared to the waves they have been generating using the paddle.

Although difficult, ask the students to try to measure the wave velocity (C). Compare that velocity with the shallow water theory.

If possible, repeat the experiment for different depths in the wave tank and determine the effect on the wave and the beach.

If possible, repeat the experiment for different slopes of the plastic ramp in the wave tank and determine the effect on the wave and the beach.