I. Not felt.

II. Scarcely felt.

a. Felt by few people onboard small vessels. Not observed on the coast.
b. No effect.
c. No damage.

III. Weak.

a. Felt by most people onboard small vessels. Observed by a few people on the coast.
b. No effect.
c. No damage.

IV. Largely observed.

a. Felt by all onboard small vessels and by few people onboard large vessels. Observed by most people on the coast.
1washed away, many partially damaged.
c. Damage of grade 3 in many masonry buildings, few reinforced-concrete buildings suffer from damage grade 2.
b. Few small vessels move slightly onshore.
c. No damage.

V. Strong. (wave height 1 meter)

a. Felt by all onboard large vessels and observed by all on the coast. Few people are fright ened and run to higher ground.
b. Many small vessels move strongly onshore, few of them crash into each other or overturn. Traces of sand layer are left behind on ground with favorable circumstances. Limited flooding of cultivated land.
c. Limited flooding of outdoor facilities (such as gardens) of near-shore structures.

VI. Slightly damaging. (2 m)

a. Many people are frightened and run to higher ground.
b. Most small vessels move violently onshore, crash strongly into each other, or overturn.
c. Damage and flooding in a few wooden structures. Most masonry buildings withstand.

VII. Damaging. (4 m)

a. Many people are frightened and try to run to higher ground.
b. Many small vessels damaged. Few large vessels oscillate violently. Objects of variable size and stability overturn and drift. Sand layer and accumulations of pebbles are left behind. Few aquaculture rafts washed away.
c. Many wooden structures damaged, few are demolished or washed away. Damage of grade 1 and flooding in a few masonry buildings.

VIII. Heavily damaging. (4 m)

a. All people escape to higher ground, a few are washed away.
b. Most of the small vessels are damaged, many are washed away. Few large vessels are moved ashore or crash into each other. Big objects are drifted away. Erosion and littering of the beach. Extensive flooding. Slight damage in tsunami-control forests and stop drifts. Many aquaculture rafts washed away, few partially damaged.
c. Most wooden structures are washed away or demolished. Damage of grade 2 in a few ma sonry buildings. Most reinforced-concrete buildings sustain damage, in a few damage of grade 1 and flooding is observed.

IX. Destructive. (8 m)

a. Many people are washed away.
b. Most small vessels are destroyed or washed away. Many large vessels are moved violently ashore, few are destroyed. Extensive erosion and littering of the beach. Local ground subsid ence. Partial destruction in tsunami-control forests and stop drifts. Most aquaculture rafts

X. Very destructive. (8 m)

a. General panic. Most people are washed away.
b. Most large vessels are moved violently ashore, many are destroyed or collide with build ings. Small boulders from the sea bottom are moved inland. Cars overturned and drifted. Oil spills, fires start. Extensive ground subsidence.
c. Damage of grade 4 in many masonry buildings, few reinforced-concrete buildings suffer from damage grade 3. Artificial embankments collapse, port breakwaters damaged.

XI. Devastating. (16 m)

a. Lifelines interrupted. Extensive fires. Water backwash drifts cars and other objects into the sea. Big boulders from sea bottom are moved inland.
b. Damage of grade 5 in many masonry buildings. Few reinforced-concrete buildings suffer

from damage grade 4, many suffer from damage grade 3.

XII. Completely devastating. (32 m)

a. Practically all masonry buildings demolished. Most reinforced-concrete buildings suffer from at least damage grade 3.

Summary:

- Tsunamis are originated by earthquakes, volcanoes, landslides.
- Tsunami may be divided into four stages: generation, propagation to the coast, run-up and run-in into the coastal fringe and finally the backwash.
- Tsunamis waves are barely noticed at the surface in deep ocean areas but as tsunami travel into shallower water its speed diminishes and its height grows.
- Tsunami run-up is the maximum height reached at the coast.
- Tsunamis can be classified using magnitude and intensity scales.