

Numerical simulation of the 2004 Indian Ocean tsunami at the southeast of Sri Lanka

Jun Takahashi[1]; Takayuki Oie[2]; Kazuhisa Goto[3]; Fumihiko Imamura[4]

[1] Civil engineering, Tohoku Univ.; [2] none; [3] DCRC, Tohoku Univ.; [4] Disaster Cntr. Res. Cntr., Tohoku Univ.

On 26 December 2004, the boundary between the Indo-Australian and Eurasian plates off the coast of northern Sumatra was ruptured and great earthquake was generated. The earthquake generated a huge tsunami (2004 Indian ocean tsunami), which propagated the Indian ocean and attacked to the coastal countries, including the east coast of Africa.

The tsunami also attacked to the coast of Sri Lanka, located 1700 km west from the epicenter, approximately two hours after the quake, and yield extensive damage especially from east to south coast.

There are some papers about tsunami numerical simulation at Sri Lanka Tomita et al., 2006, Kimura et al., 2006. However, previous studies targeted one city, or evaluated the validity of their results only by using tide record at Colombo. There is no study that compares the numerical result with observed arrival time, inundation area, and height in a wide region.

Many observed results were obtained at the southern part of Sri Lanka. Therefore, we can validate numerical results at the region. Thus, we conducted numerical simulation at the southeast of Sri Lanka, and improved existing fault parameter model. Since then, we compared the result with the measured data.

The result indicated that the faults that are located from N4 to N10 degrees mainly affected the tsunami inundation at Sri Lanka. Inundation area and height of the tsunami that was generated by using our fault parameters are well consistent with those observed at Yala to Hambantota district.