

# **Disasters in eastern Japan by the 2011 off the Pacific coast of Tohoku earthquake and ensuing tsunami**

**Mohiharu Shilba\*, Junichi Yoshitani\*\***

.....  
**Abstract**

On March 11 in 2011, off the Pacific coast of Tohoku a huge earthquake of Magnitude 9.0 occurred. This presentation reports the earthquake, the ensuing tsunami and the devastating damages caused by them.

The epicenter was approximately 72 km east of the Oshika Peninsula of Tohoku, with the hypo-center at an underwater depth of approximately 32 km. Owing to this earthquake, strong quakes were observed in eastern Japan with the levels 6 and 7 on the Japanese scale. The earthquake triggered extremely destructive tsunami wave, which attacked the very wide range of eastern Japan coast.

The earthquake and ensuing tsunami caused severe damage to levees and embankment along the coasts and rivers. Those water-related damages are reported in this presentation.

The Fukushima No. 1 Nuclear Power Plant was also damaged by the earthquake and ensuing tsunami. From the crippled nuclear power plant, appreciable quantities of radioactive material were emitted to the surrounding environment. Those substances which emitted to air may fall on the ground together with raindrops and runoff to rivers. Elucidation of those processes is the task which our hydrological society should undertake.

---

\* Prof., Dept. of Civil and Earth Resources Eng., Kyoto University, Kyoto, Japan

\*\* Research Coordinator for Environmental Affairs, National Institute for Land and Infrastructure Management, Japanese Ministry of Land, Infrastructure, Transport and Tourism, Tsukuba, Ibaraki, Japan