KIYOTA LAB.

[Geo-disaster on the 2011 Tohoku earthquake]

Department of Fundamental Engineering

http://shake.iis.u-tokyo.ac.jp/GDM

Geo-disaster Mitigation Engineering

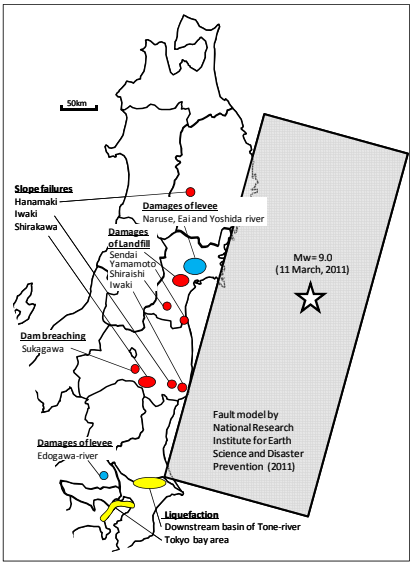
Department of Civil Engineering

Earthquake-induced Geo-disaster

Geo-disaster in wide-ranging areas of eastern Japan

The Tohoku earthquake measuring Mw of 9.0 hit the east Japan on March 11, 2011. The fault rupture extending about 500 km in length caused massive tsunami which destroyed many coastal areas along Pacific Ocean. Meanwhile, a large number of geo-disasters (liquefaction of sandy soils and instability of slope and embankment) was caused by the earthquake over a huge area in the eastern Japan.

There are still many geotechnical problems for reconstruction and rehabilitation work remaining. It is necessary to further watch the slope behaviour during aftershocks to come and the rainy season.



Map showing damaged areas investigated by Konagai/Kiyota laboratories after the EQ

Liquefaction occurred at many places in recent artificial islands. (Urayasu city)

Coastal levee damaged by tsunami. (Ishinomaki city)

Damage of artificial earth fill for housing estate. (Sendai city)

Road damaged by liquefaction followed by tsunami attack (Kamisu city)

Liquefaction-induced damage of river levee. (Eai River in Miyagi Pref.)

Distortion of road by aftershock-induced natural slope failure (Iwaki city)

Dam-breaching at Fujinuma reservor. The discharged water inundated downstream village (Sukagawa city)