

Re-evaluation of liquefaction associated with the 1948 Fukui Earthquake

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The Fukui earthquake ($M_j=7.1$) of 1948 associated intensive liquefaction in the Fukui basin, central part of Japan. Distribution of the liquefaction was mapped mostly based on the interpretation of the air-photos taken immediately after the earthquake. However, the air-photos did not cover the entire Fukui basin where liquefaction seemed to occur. Also, a part of the air-photos had been taken one month after the earthquake to survey the effects of the flood along the Kuzuryu River. Thus, previous liquefaction distribution maps based on the air-photo interpretation represent only a part of liquefaction associated with the earthquake.

A comprehensive distribution map of the liquefaction associated with the Fukui earthquake is compiled based on the description of the earthquake disaster in various reports of the earthquake, together with re-interpretation of the air-photos after the earthquake. This map reveals intensive liquefaction occurred out of the air-photo coverage and not shown on the previous liquefaction maps.

Also, a geomorphological map is compiled to analyze the relation between the distribution of the liquefaction and geomorphologic environment. Based on the comparison of these maps, three major regions are depicted as liquefaction prone regions, such as 1) Kuzuryu and Takeda River courses, 2) former river courses and levees in the basin, and 3) central part of the Fukui city and Maruoka town.

The liquefaction in the Fukui city and Maruoka town show unique zigzag shapes. Judging from historical maps of the Fukui and Maruoka Castles, liquefaction distribution corresponds to the shape of the reclaimed parts of the moat of the Fukui and Maruoka castles.