

## **Earthquake Damage Affected by Fault-Related Basin Structure Developed in a Graben, Yunnan, China**

1 AKAMATSU, J., 2 KOMAZAWA, M., 1 NAKAMURA, K., 3 JIANG, L., 4 LI, K., 5 NISHIMURA, K., 6 MORIKAWA, H., 7 SETO, N. and 1 ONOUE, K. 1 DPRI, Kyoto Univ., Uji, Jpn; 2 Geol. Survey of Japan, Tsukuba, Jpn; 3 Yunan Seism. Bureau, Yunnan, China; 4 Lijiang Seism. Bureau, Lijiang, China; 5 Dep. Informatics, Okayama Univ. of Sci., Okayama, Jpn; 6 Dep. Civil Eng., Tottori Univ., Tottori, Jpn; 7 ERI, Univ. of Tokyo, Wakayama, Jpn

The Lijiang basin of Yunnan (20km long and 5-10km wide) is a typical intramountain basin developed in a N-S trending large graben in the southeastern Tibetan plateau. The basin is left-laterally shifted by about 5km along Lijiang-Jianchuan fault (NE-SW strike) in its southern part. In 20th century, 4 destructive earthquakes, including the 1996 Lijiang Earthquake of M7.0, brought serious damage to the basin, and their distributions were very anomalous: (1) belt-like severely-damaged zones near along basin edges and (2) remarkable change in damage degree along Lijiang-Jianchuan fault zone. Moreover, it should be noted that, in spite of the different source regions of those events, the similar anomalous distributions have been repeatedly observed.

As an issue of microzoning of a sedimentary basin, we conducted extensive studies mainly for 3D configuration of bedrock related to the faults, on the basis of array observations of microseisms, large- and small-scale seismic refraction surveys and gravity survey. The revealed 3D configuration of bedrock well reflects the multi-phased tectonic movements proposed by geological and geographical studies.

We suggest out of these results that the irregular configuration of bedrock related to the faults and the block boundaries characteristic of the fault zone have played an important role in amplification of ground motions, and consequently the anomalous distribution of damage. It is very important to know not only the geological structure but also its historical development for earthquake disaster mitigation.