

Quantitative Detection of Damage in an Earthquake from Low Resolution Satellite Images

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SUMMARY

In the emergence situation after a large earthquake, fast evaluation of the damage is really necessary for rescue team and recovery plan, even if it is quite rough. Remote sensing image provides a new information source for rapid estimation of earthquake damage. In the recent years, achievements on identifying seriously damaged area by remote sensing are reported, some of them are from high resolution images. A case study is presented in this paper, to see if a quantitative estimation of isoseismals can be drawn out from low resolution satellite images.

The Bachu earthquake ($M=6.8$) occurred on February 24, 2003 in Xinjiang, China, and destroyed large number of houses. Satellite images with low resolution (10m), pre- and post-Bachu earthquake, were adopted in this study. They are matched by a new method to reveal the gray scale change from the earthquake. Change detection is carried out. A probabilistic model for earthquake damage evaluation is preliminarily developed, by comparing the results of image process with the detail information from the post earthquake ground survey.