

Pro-Info system for acquiring real-time earthquake damage information

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Various real-time systems estimating the strong ground motions and the earthquake damage have developed after the 1995 Hyogoken-Nanbu earthquake. But, it should be careful that the actual earthquake damage can be very different from the estimated damage. If we rely on only the estimated information, an appropriate emergency response may not be accomplished. On the other hand, the estimated information can be useful to locate the actual damage areas at the beginning of initial investigations. Thus, volunteers (or professionals) can efficiently acquire the information of the actual damage from the damaged areas. Therefore, on the basis of those ideas, we proposed the real-time system for acquiring earthquake damage information (the Pro-info system; Shibayama, et. al, 2001). In this paper, further developments and on-site experiments of the Pro-info system are reported.

The Pro-info system is software consisting of various mobile equipments (a notebook PC, GPS, cellular phone or PHS, a digital camera, and so on). The software is open to the public use, and is written in Visual Basic. Therefore, it is also easy to modify for various purposes and situations. In this study, two experiments on streets were conducted using the Pro-info system to check the usefulness of the system. The investigated areas consist of highly dense low-rise buildings with narrow roads less than 4m. A group of two persons investigated the structural classifications and the stories of buildings using the Pro-info system (Group 1), and the other group of two persons wrote down the same data on the map of paper (Group 2). The experiments were conducted twice, and compared the efficiencies acquiring the data between the two groups. The total numbers of the investigated buildings were 105 houses in the 1st experiment, and 130 in the 2nd. The results between the two groups showed subtle differences in the classification of structure type, but the numbers of building stories showed mostly in good agreement. The required time by the Pro-info system was an average of 18 seconds per building, and the handwriting took an average of 20 seconds. Although the latter showed more flexibility, the Pro-info system had an advantage for generating automatically digital maps.