



#### [Volume XL-2](#)

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-2, 121-125, 2014  
www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-2/121/2014/  
doi: 10.5194/isprsarchives-XL-2-121-2014

## A ground moving target emergency tracking method for catastrophe rescue

X. Zhou, D. Li, and G. Li

School of Geosciences and Info-Physics, Central South University, Changsha, China

**Keywords:** Catastrophe, Volunteer, Ground Moving Target, Emergency Tracking, Android

**Abstract.** In recent years, great disasters happen now and then. Disaster management test the emergency operation ability of the government and society all over the world. Immediately after the occurrence of a great disaster (e.g., earthquake), a massive nationwide rescue and relief operation need to be kicked off instantly. In order to improve the organizations efficiency of the emergency rescue, the organizers need to take charge of the information of the rescuer teams, including the real time location, the equipment with the team, the technical skills of the rescuers, and so on. One of the key factors for the success of emergency operations is the real time location of the rescuers dynamically. Real time tracking methods are used to track the professional rescuer teams now. But volunteers' participation play more and more important roles in great disasters. However, real time tracking of the volunteers will cause many problems, e.g., privacy leakage, expensive data consumption, etc. These problems may reduce the enthusiasm of volunteers' participation for catastrophe rescue. In fact, the great disaster is just small probability event, it is not necessary to track the volunteers (even rescuer teams) every time every day. In order to solve this problem, a ground moving target emergency tracking method for catastrophe rescue is presented in this paper. In this method, the handheld devices using GPS technology to provide the location of the users, e.g., smart phone, is used as the positioning equipment; an emergency tracking information database including the ID of the ground moving target (including the rescuer teams and volunteers), the communication number of the handheld devices with the moving target, and the usually living region, etc., is built in advance by registration; when catastrophe happens, the ground moving targets that living close to the disaster area will be filtered by the usually living region; then the activation short message will be sent to the selected ground moving target through the communication number of the handheld devices. The handheld devices receive and identify the activation short message, and send the current location information to the server. Therefore, the emergency tracking mode is triggered. The real time location of the filtered target can be shown on the organizer' s screen, and the organizer can assign the rescue tasks to the rescuer teams and volunteers based on their real time location. The ground moving target emergency tracking prototype system is implemented using Oracle 11g, Visual Studio 2010 C#, Android, SMS Modem, and Google Maps API.

Citation: Zhou, X., Li, D., and Li, G.: A ground moving target emergency tracking method for catastrophe rescue, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-2, 121-125, doi:10.5194/isprsarchives-XL-2-121-2014, 2014.

[Bibtex](#) [EndNote](#) [Reference Manager](#) [XML](#)