DISTRIBUTED GIS FOR FLOOD MONITORING SYSTEM

Pornpen Somkuantad[1], Pipat Reungsang[1,2,*]

[1]*Department of Computer Science, Faculty of Science, Khon Kaen University, A. Muang, Khon Kaen 40002, Thailand, p.somkuantad@kkumail.com*
[2]*Geo-Informatics Centre for Development of Northeast Thailand, Khon Kaen University, A. Muang, Khon Kaen, 40002, Thailand, reungsang@kku.ac.th*

Abstract: Recently, Thailand faced several natural disasters including floods resulting in immense losses of human lives and properties. To provide relief and rehabilitation to disaster areas quickly, decision makes need to know current situation in order to make their decision properly. For this reason, several agencies have been attempted to develop real-time or near real-time monitoring systems for providing data from gauging stations through the Internet. However, with those monitoring systems, decision makers cannot see geographic region of the disaster area. For this study, a flood monitoring system using Remote Sensing and Geographic Information Systems technologies was developed to provide geographic areas of floods. The system was designed and implemented based on a distributed GIS concept to provide flexibility for incorporating geocollaborative applications later in the future. Flood area map and other maps such as satellite images, administrative boundary, land use maps can be visualized as GIS layers with respect to space and time through the Web browser and other mobile-based applications. More advantages with the system, future GIS analysis tools such as flood damage estimation can be incorporated and accessible through the Internet, allowing mitigation and relief disaster team to evaluate damage on site more efficiently.

Keyword : Remote sensing, distributed GIS, flood, monitoring, disaster