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System Development of generation and transmission of customized severe weather information for Emergency responses in South Korea

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In recent years, natural disasters such as typhoons, torrential rains, and wildfires have increased due to climate change. Such a phenomenon is an unpredictable meteorological phenomenon. In this kinds of disasters, warning and alert information rapid transition should be made through disaster prevention-related agencies and regional warning systems. Recently, there has been an increasing demand for such rapid transition information. From the point of view of the current transition system for disaster warning and alert system, the severe weather information from the Meteorological Agency in South Korea is transmitted to broadcasting stations and related media using fax, e-mail, and the like. However, these manual transmission of information is not as much fast as it should be required. To make matters worse, there were cases where it did not delivered. In terms of management and operation of this warning system, related agencies have different independent operation systems depending on the type of disaster. For this reason, when multiple disasters occur at the same time or in stages, it is difficult to respond immediately because the systems are not well coordinated. In addition, for the same meteorological phenomenon, the damage that occurs in the area will differ depending on the disaster prevention capacity of the area, the degree of urbanization and industrialization, and the different shape of watershed of the area. In this study, we analyzed existing severe weather information transmission systems. The new novel system shows a prototype that reflects being rapid, being accurate and being integrated. Then, the study presents a methodology for considering the characteristics of the region. Prototypes planned in this way are evaluated whether functional performance is implemented. The proposed system lets the urgency of weather events make a decision from a meteorological point of view. This will automatically and quickly categorize the level of need you have to be notified of. Depending on the grade, it will promptly and automatically generated and deliver customized information to the public and the government immediately right after any concerned situation occurs. The system has reflected the construction of a standardized information transmission system. Then, the proposed system will enable operation and management by integrating forecasting systems operated independently by each agency into one system. System integration increases the efficiency of generating and transmitting the necessary information, enabling effective response to the complex disasters. Even in the same weather, if the degree of disaster impact varies by region, the customized information level will be differentiated

according to vulnerability, exposure, hazardous, and disaster prevention capacity.

This study will enable the rapid transmission of necessary information to the public and related organizations for efficient response to unpredictable and complex natural disasters through the improved severe weather information transmission system. Finally, It is expected to contribute to minimizing human and material damage due to natural and social disasters by providing alert and warning with customized information for each region that reflects the degree of disaster impact.