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## Heat Wave Impact Forecast by Analysis of Vulnerability and Exposure over Daegu Metropolitan City and Gyeongsangbuk-do Province

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It is gradually increasing that the scale of economical and social damage caused by recent risk meteorological phenomena. The aspect of damage due to heat wave and cold wave as well as heavy rain, typhoon, heavy snow are getting complicated. So the demand for customized information to protect the lives and property of the people has also been increasing constantly. Daegu Metropolitan City and Gyeongsangbuk-do Province are especially the area where heat wave occurs most frequently in south Korea. In addition, as global warming has been accelerated recently, there are growing concerns that heat-related patients and livestock mortality increase. Therefore, Daegu Regional Office of KMA(Korea Meteorological Administration) developed heat wave impact forecast services from 2016 to prevent and minimize damages from heat wave in our area and has been improving and operating the service as of 2019.

Daegu Regional Office of KMA's Impact heat wave impact forecast is for reducing the damage caused by heat wave in our area in 2019. It is carried in 4 steps: Attention, Caution, Warning, Danger and in 7 field: Health, Stock Raising, Fish culture, Agriculture, Industry, Traffic and Electricity. We used the objective value such as the highest temperature and the number of days to last as the criteria for each stage of the health sector. Other sectors except health, we considered the risk level in the health sector basically and the level of risk was determined taking into account the vulnerability and exposure of each region. We analysed them of each region in detail in order to provide the correct contents. Finally, we were able to obtain a number of analysis results that linked to heat wave and various types of damage. Our services have been conveying to public by facsimile, E-mail as a document and is provided by KMA website(<http://www.weather.go.kr>). And we announced the information that we made about heat wave on YouTube.

As a result, our services seem to have positive impacts. The number of heat-related patients decreased by 47% from the previous year. After the service was provided, a questionnaire survey was conducted for recipient, and 84% of respondent gave positive outcome about our services.

Based on the studies and services, Daegu Regional Office of KMA is going to calculate a more objective risk level for other sector except health in order to play a role in future regional customization services. And we are going to reform the document of heat wave impact forecast to

contain more information focused on our region.