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Analysis of natural disaster vulnerability by region through the use of big data of emergency disaster message history

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Between 2020 and 2022, when South Korea experienced Covid-19, it suffered from multiple natural disasters, including typhoons, forest fires, and earthquakes, as well as infectious diseases. Recently, not only in Korea but also worldwide due to climate change, the number and scale of natural disasters are increasing every year, and the damage caused by them is becoming more and more serious. We analyzed big data on disasters in South Korea to identify trends in disasters caused by climate change. So, between 2012 and 2022, we downloaded over 100,000 open data on emergency disaster alert messages (by mobile network Cell Broadcasting Service) provided by the central government and local governments to the general public through Public data portal (https://www.data.go.kr/) open API(Application Programming Interface). And we visualized the collected raw big data based on GIS after refinement, classification((Natural and social disasters, disaster type, disaster level, CBS msg type, emergency disaster message sending agency, etc.), and subdivision by city (we call it Si, Gun, Gu) unit area. Then, it was displayed based on GIS according to the type of disaster. We performed visualization work to derive the results of climate change trends in South Korea by disaster type and by region(Si, Gun, Gu).
Through this, it was possible to identify the types of disasters that are becoming more severe in South Korea according to climate change. Also, based on these results, we were able to identify which disasters each region would be vulnerable to. In addition, based on these results, we were able to identify which disasters are particularly vulnerable according to the characteristics of each region and which disasters it is best to strengthen preparation for in the future.
The results of analyzing the past history big data of our emergency disaster messages can be usefully used to present preventive and prepared plans for future disasters by central and local governments.
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