

Development of a highway climate change prediction tool according to RCP scenarios

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- (a)** In order to predict future climate, RCP (Representative Concentration Pathways) scenarios is used. Based on this, it is necessary to develop a climate change impact analysis program to prevent damage from heat waves, heavy rain, snow, and fog that may occur on Korea expressway. In particular, through this program, it will be useful to prevent road damage (slope collapse, road flooding) caused by heavy rain.
- (b)** The United Nations Framework Convention on Climate Change (UNFCCC) in 2015 will adopt the Paris Convention and enter the global climate response system from 2022. The Intergovernmental Panel on Climate Change (IPCC) is calling on the international community to make a stronger effort to reach the 1.5 degrees Celsius target recommended by the Paris Agreement. Despite international efforts to reduce GHG(green house gas) emissions, future climate forecasts are extremely difficult.
- (c)** In order to predict future climate change vulnerable areas and expected damage period, climate change RCP scenario and yearly analysis results of major climate factors(heat wave, cold wave, heavy rain, heavy snow, fog) are derived, and based on GIS climate change impact analysis tool was developed. For the performance of the project, ?collect RCP climate scenario and meteorological data from the Korea Meteorological Administration's Climate Information Portal and Meteorological Data Open Portal, ?perform Gis based analysis, future (2020-2100) climate change (heat wave, cold wave, heavy rain, heavy snow), in the fog the weak areas centered on the highway route and the expected period of damage were derived.
- (d)** In case of heavy rain, the Seoul Yangyang Expressway, Yeongdong Expressway, Donghae expressway, and some routes of Tongyeong Daejeon expressway in Jeonnam-Gyeongbuk region, Namhae expresswy, Honam expressway, and Gwangju Daegu expressway were analyzed as possible risk areas.
- (e)** A climate change prediction tool could be used to prevent climate damage to highway facilities.

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