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Climate Change Impact and Vulnerability Assessment for Air Quality over Korea

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Vulnerability assessment plays a vital role in setting up climate change adaptation polices, although vulnerability itself is conceptually difficult to be objectively quantified due to its wide-range of variations by many variables such as climate exposure, biophysical variables, socioeconomic ones and so on. This study focused on assessing current and future vulnerability of air quality by climate change over Korean territory. The Vulnerability-Resilience Indicator (VRI) values for air quality, especially for Ozone, were calculated and analyzed for every 16 provinces and major cities of Korea. VRI was assumed to be as function of climate exposure, sensitivity and adaptive capacity by using 11 proxy-variables which were selected to account for climate change intensity and socio-economic situation of Korea. As results, we were able to find the vulnerability on the IPCC Special Report on Emissions Scenarios (SRES) in 2020 and 2050 years would become worse in all area of Korea in case of A2 scenario. This study can provide the quantified vulnerability as the scientifically sound basis for climate change adaptation policy over Korea.