

A relationship between surface oxidant concentration and daily maximum temperature, and its long-term variability

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The climate penalty factor (CPF) for each prefecture and each month in last 42 years in Japan were estimated from mean 8 hours maximum surface oxidant and daily maximum temperature observations, and compared with CPF calculated by chemical transport model CMAQ. Opposite to general tendency of positive CPF all over Japan, negative CPF was confirmed in western part of Japan during winter. Large positive CPF was found during June and August around urbanized areas (Kanto and Kinki). Sporadic perturbations were dominant in several years/months. Horizontal variations of CPF calculated by CMAQ were dependent on the horizontal grid scale.

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