Urban sprawl is reducing June gloom in coastal Southern California

By Louis Sahagun

In a meteorological twist, heat rising off urban sprawl is driving a trend toward fewer annual summer invasions of dense overcast known as June gloom in coastal Southern California areas, a new climate study says.

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The study led by bioclimatologist A. Park Williams of the Lamont-Doherty Earth Observatory at Columbia University shows, for example, that the Los Angeles Basin has seen a 63% reduction in the frequency of fog and low clouds during summer months since 1948.

Rising temperatures are amplifying drought effects, study finds

Then there's the city of Ontario, about 40 miles east of Los Angeles, "where we noted an 87% decline in fog," Williams said in an interview. "Dense fog just doesn't happen there anymore."

The study's results are based on an evaluation of the annual records of fog and cloud frequency from May through September over the last 67 years at 24 airfields in Southern California, a region that is home to tens of millions of people and famous for its mild Mediterranean climate.

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The study found that nighttime warming due to the release of energy absorbed by buildings, concrete surfaces and blacktops is causing the altitude of condensation of moist marine air to rise, increasing heights of fog and clouds that pile up against Southern California's coastal slopes.

Rates of nighttime warming, cloud-base lifting and fog reductions are all strongly correlated with the amount of surrounding area that has been urbanized, according to the study, which is expected to be published next week in the journal Geophysical Research Letters.

Without fog and clouds heat waves will be hotter and last longer. - A. Park Williams, bioclimatologist, Lamont-Doherty Earth Observatory, Columbia University

"Many people would be happy to hear that fog and clouds are disappearing from summer skies," Williams said in an interview. "But fog and overcast are hugely important to the mountains surrounding the Los Angeles Basin. For one thing, they shade and dampen highly flammable chaparral ecosystems. They also moderate temperatures in densely populated areas."

"Without fog and clouds," he added, "heat waves will be hotter and last longer."

The study also discovered an opposite trend unfolding in the Channel Islands, off the coast of Southern California, where wet, thick fog and low clouds have been descending with increasing regularity since 1948.

"Future research is needed to determine why cloud bases are descending over the islands and whether those trends would also have occurred on the mainland in the absence of urbanization," the study says.

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