Investigating the impacts of climate extremes through multiple lenses

interdisciplinary

SUMMER SCHOOL

on impacts of climate extremes

climes
Swedish centre for impacts of climate extremes

UPPSALA UNIVERSITET
LUNDS UNIVERSITET
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Vetenskapsrådet

CORE EXERCISE

Scientific papers

Wikipedia articles

CORE EXERCISE

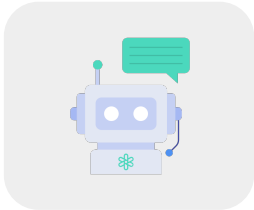
Hazard	Location	Date	Source	Title	Text

RETRIEVAL-AUGMENTED GENERATION

What are the impacts of climate hazard events?

Retriever

Knowledge base



Large language model

Source-informed answer

EXTRA TASK

TOPIC MODELING

India's heat waves have recently led to huge losses to the natural ecosystem and human society, and are projected to occur earlier and more frequently in the future. Frequent heat waves around the world in recent years highlight the emerging need for heat mitigation in sustainable urban development. Urban greening has been widely recognized as an effective nature-based solution to mitigate thermal stress. However, knowledge of how recent early heat anomalies affect the growth of urban trees and their cooling efficiency (CE) remains unclear. To inform this issue, here we compared the trees' growth status and CE in 2022 spring heatwave period to that of the same period in 2019–2021 in New Delhi and Haryana, India as a natural experiment, to investigate the relationship between early heat anomalies and urban trees' CE. Results showed that (1) the 2022 warm spring increased the greenness (reflected by Normalized Difference Vegetation Index-NDVI) of urban trees and advanced urban trees' growing stage, but more warming effects of urban trees with higher coverage were observed, which is related to the water use.

Impact Response Method

EXTRA TASK

TOPIC MODELING

Impact	90%
Response	5%
Method	5%

TOPIC MODELING