



# The urban heat island effect during heatwaves in Melbourne, Australia

## The Problem

Australian heatwaves are getting hotter and more frequent

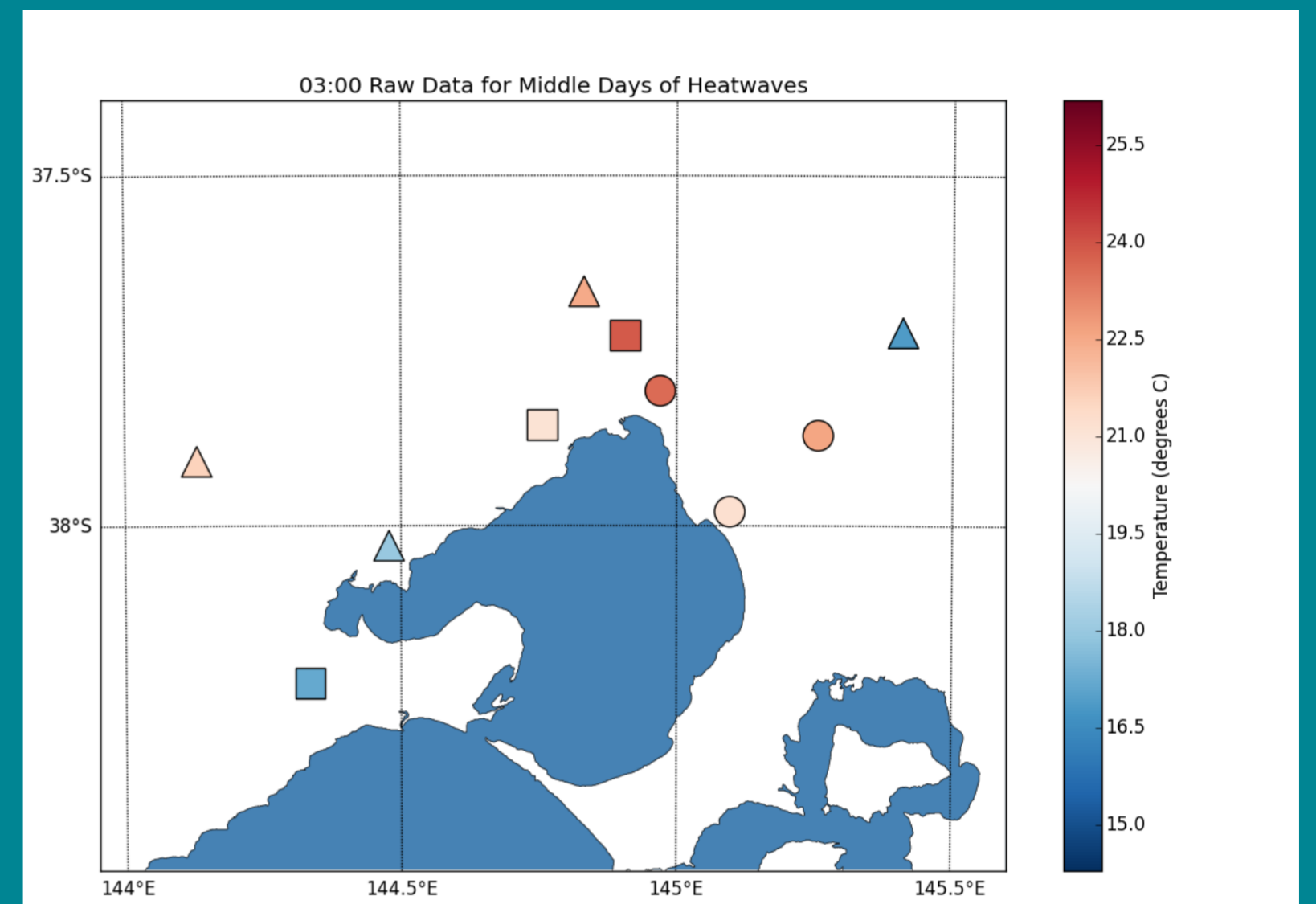
Largest impacts of heatwaves are in cities

## Research Question

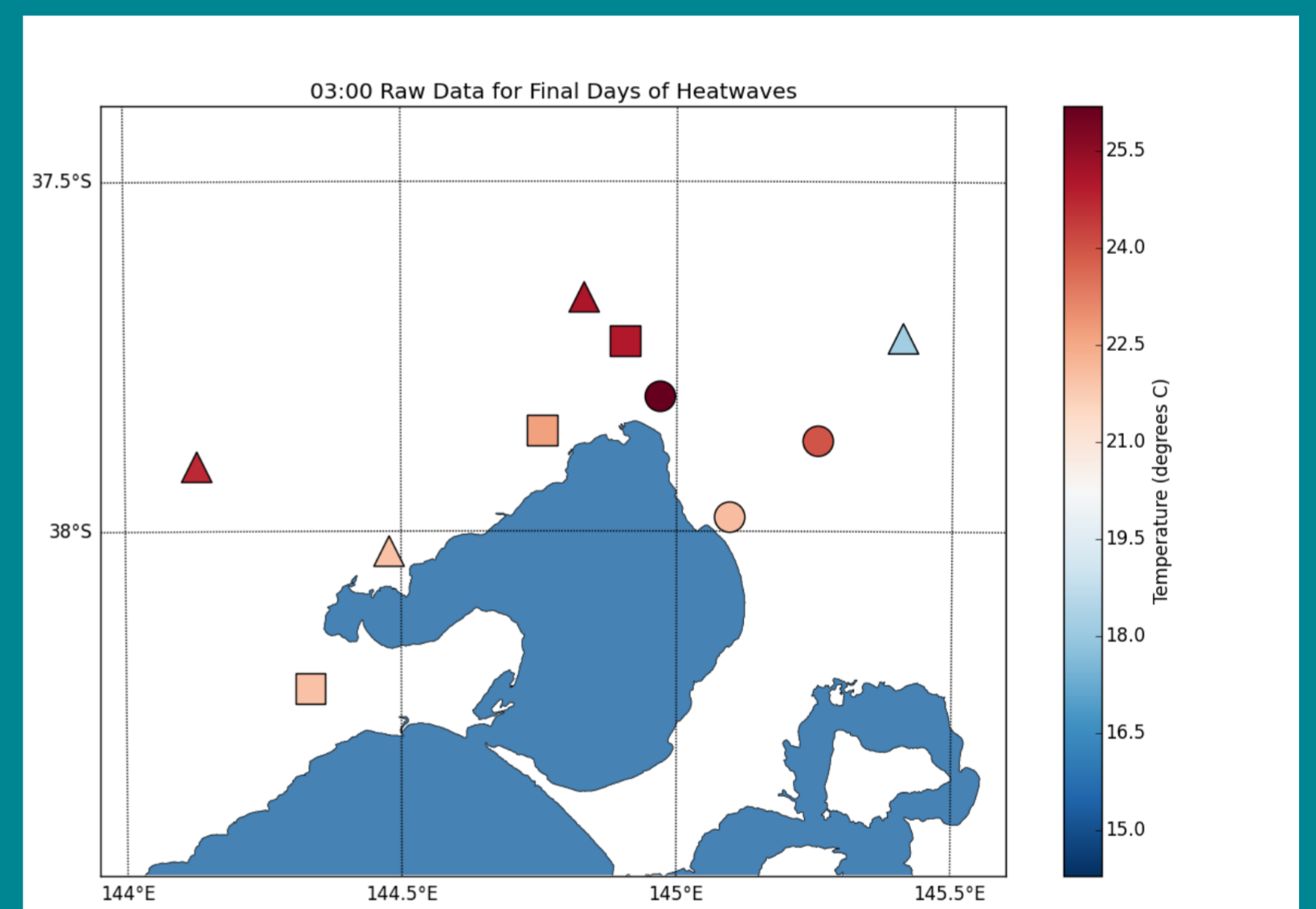
Is the urban heat island (UHI) intensified by heatwaves in Australian cities?

Water sensitive urban design could mitigate the potential enhancement of the UHI during heatwaves, thus reducing heatwave temperatures in cities

Heatwaves appear to be hotter at urban (circle) and urban fringe (square) stations than at rural stations (triangle) at nighttime  
See figures at right

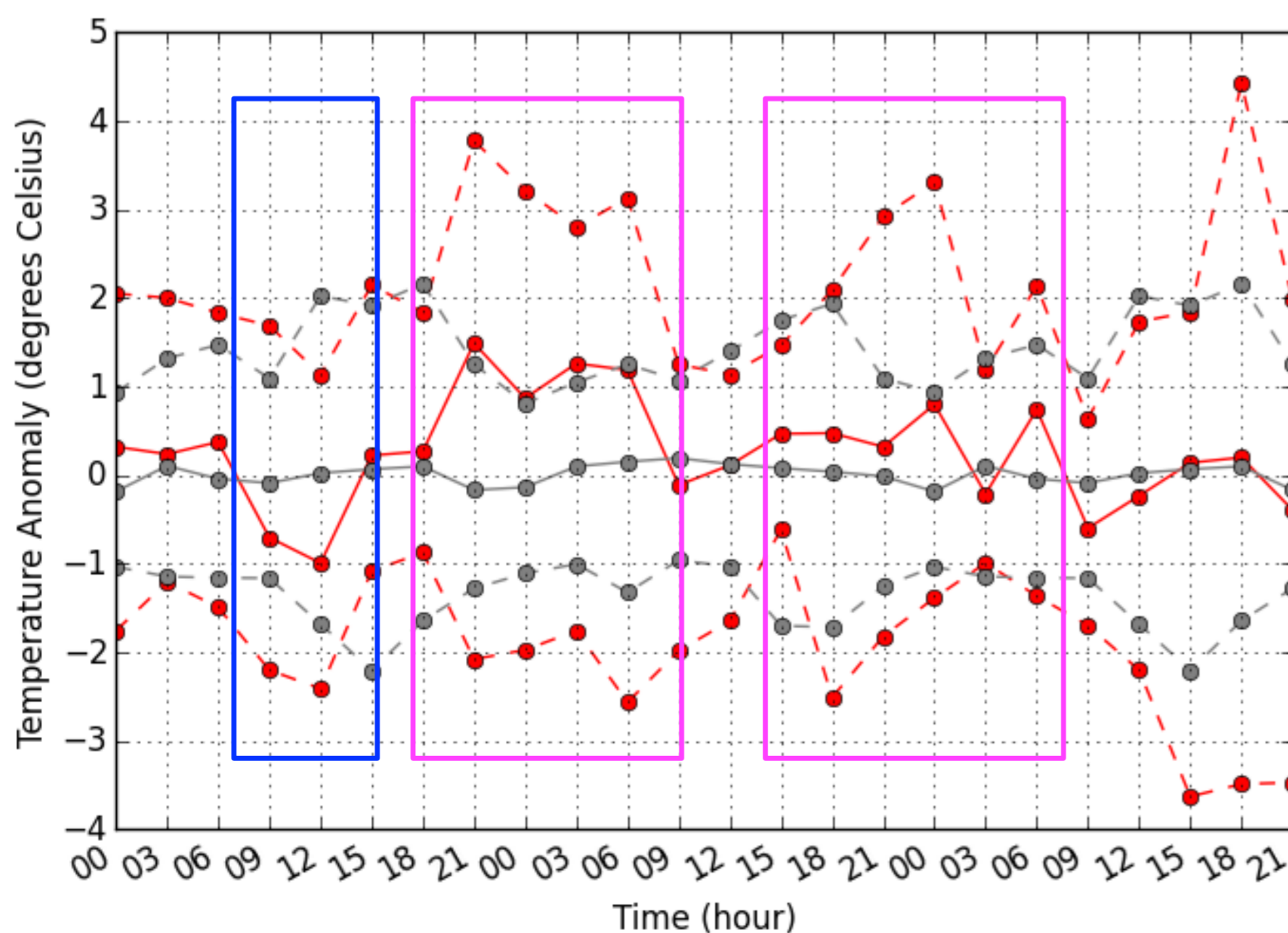


First Night of heatwave – 3 am



Second Night of heatwave – 3 am

## Temperature anomaly progression during heatwaves



- Urban UHI HW Median
- Urban UHI HW 95th Percentile
- Urban UHI HW 5th Percentile
- Urban UHI Non-HW Median
- Urban UHI Non-HW 95th Percentile
- Urban UHI Non-HW 5th Percentile

The figure to the left shows the median UHI temperature anomaly of 19 heatwave events (red) compared to non-heatwaves (grey)

Pink (blue) areas show where the urban heat island appears to be exacerbated (diminished)

## The Verdict

The urban heat island in Melbourne appears to be exacerbated at nighttime during heatwaves