UNSW SYDNEY

Citizen Science
Urban Microclimate Project

RMIT UNIVERSITY | Sustainable Building Innovation Laboratory

UNSW SYDNEY Built Environment
High Performance Architecture

Citizen Science project - CSG55969

Scientists work with communities to improve urban microclimate

https://citizenscienceproject.org.au/

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Citizen Science Grants

Australian Government
Department of Industry, Innovation and Science | Business

Objectives of the Citizen Science grants scheme

- To involve the community in scientific research
- To increase scientific literacy and understanding of the scientific method

Project specific objectives

The project aims to enable citizens to discover:

- The impact of the design of the built environment on the local climate
- The impact of materials on the local climate
- How to mitigate local climate
- The limits of existing technologies

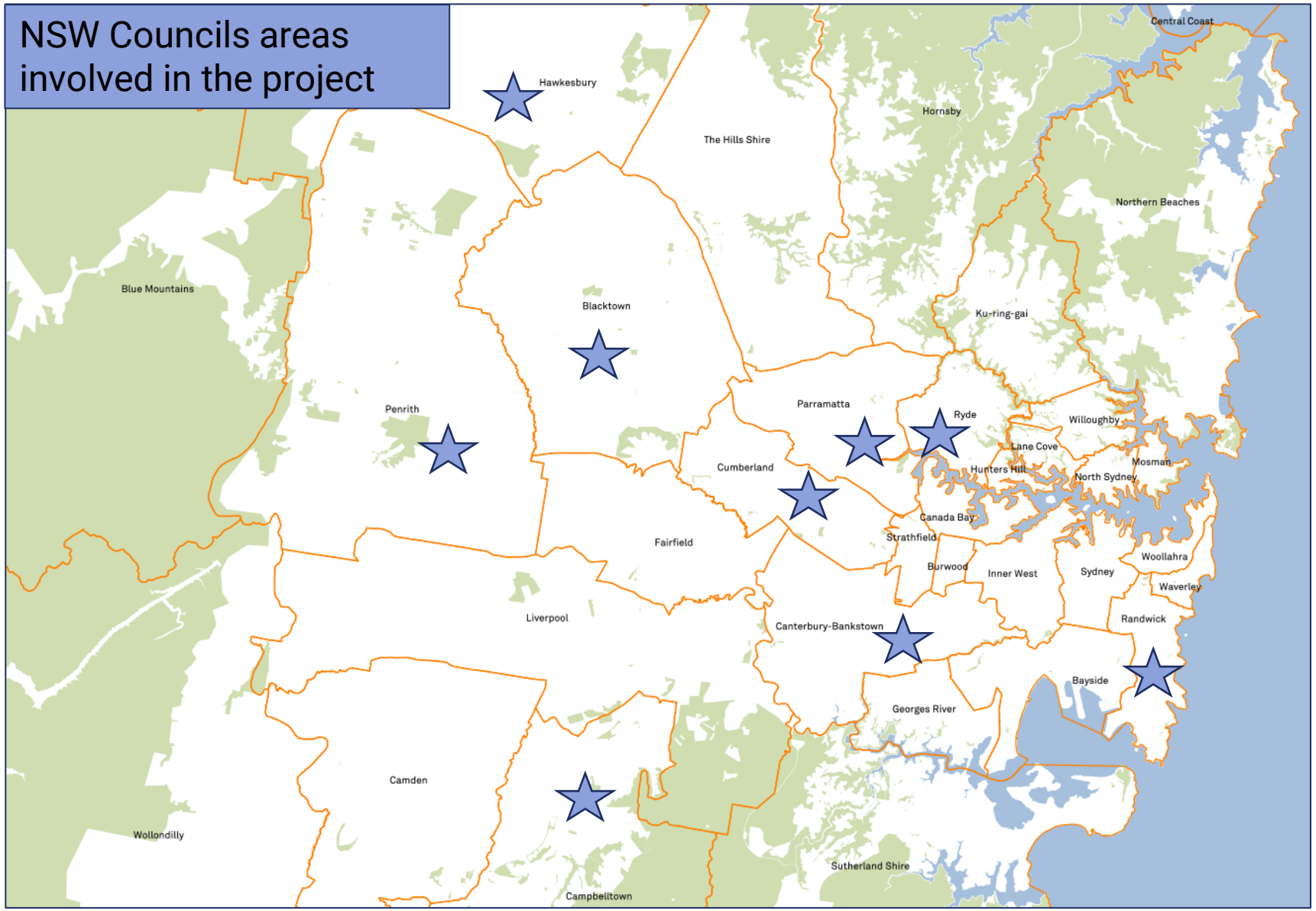
Our project is more on the empowerment, engagement and dissemination rather than on the pure data collection side of the citizen science projects spectrum.

Project activities

Main project activities and deliverables

- Workshops with citizens and researchers to map the local climate (local climate maps)
- BLE temperature & humidity sensors & app
- Outdoor thermal comfort calculator
- Heat mitigation tool
- Weather stations

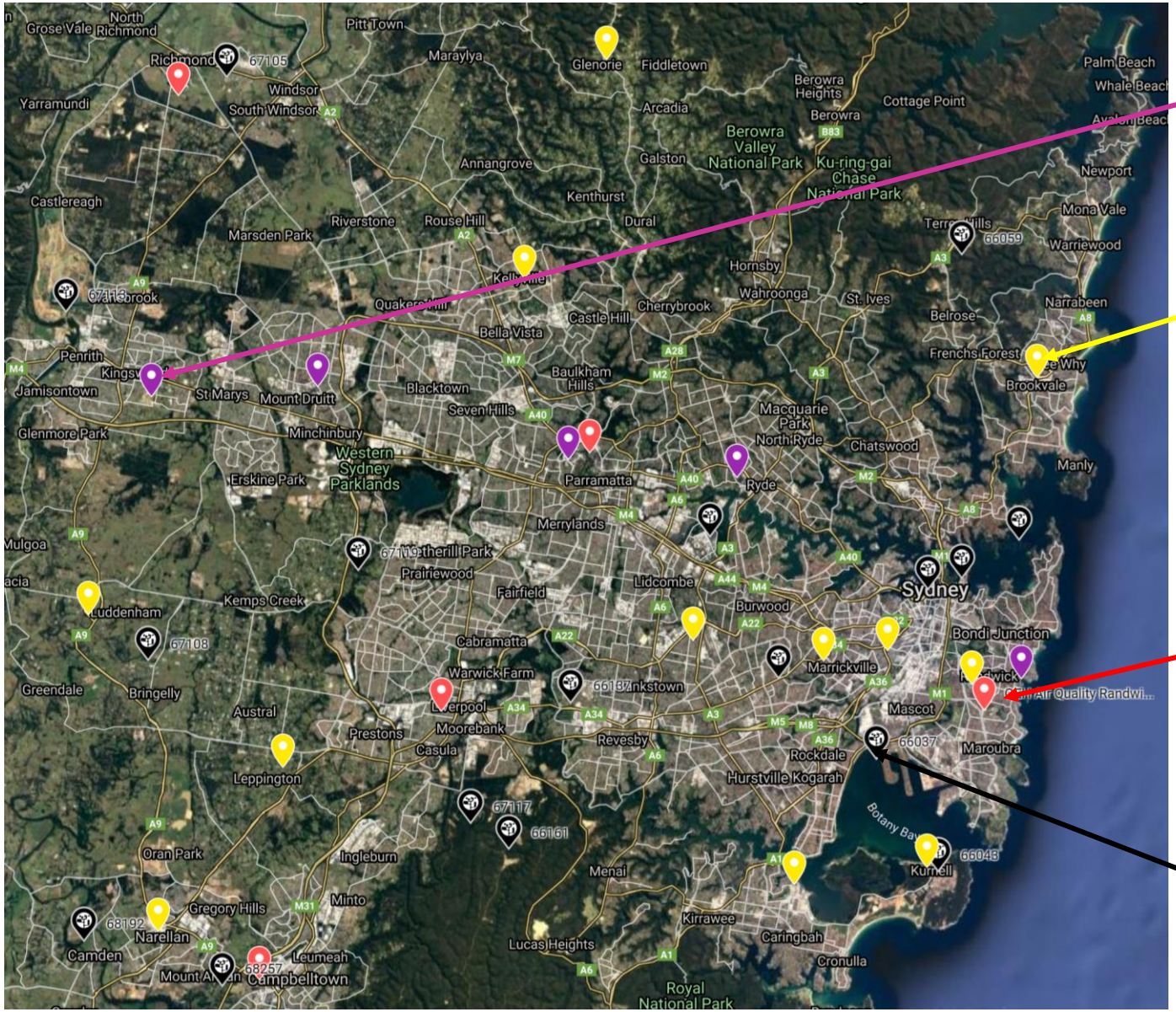
Activity in NSW



Distribution of participating Councils across Australia

Climate data in Sydney

Open data for UNSW stations



Urban Microclimate Citizen Science stations (UNSW BE)

SWAQ Citizen Science stations (UNSW CCRC)

https://www.swaq.org.au

DPIE (OEH) AQ stations

BoM stations

Weather stations - Ryde to be deployed

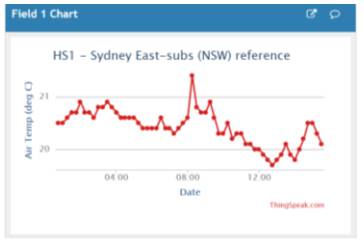
Kingswood (Penrith) at WSU
https://thingspeak.com/channels/379380

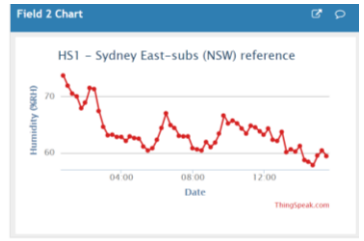
Clovelly (Coogee) at UNSW Cliffbrook
https://thingspeak.com/channels/373725

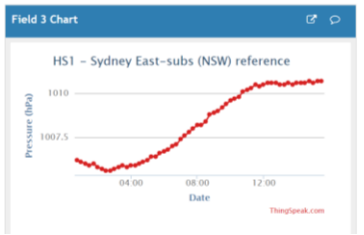
Parramatta Westmead Hospital

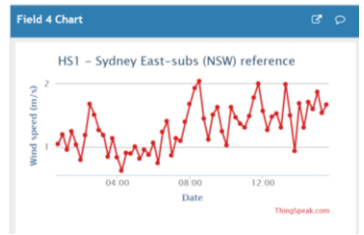
Mt Druitt Blacktown

https://public.eagle.io/public/dash/6ar87c8zrthqrs9









Note: we are working on bringing all station on one dashboard (it will take some time)

Equipment for the climate mapping workshops

Data sheets

Location	Experiment	Date	Team
	Layout		

#	Time hh:mm	sidewalk							grass			street			Notes
		Tg (°C)	Tair (°C)	RH (%)	Wind (m/s)	Tpav (°C)	Metadata		Tgrass (°C)	Metadata		Tpav (°C)	Metadata		
							Sun/ shade	Light /dark mat.		Sun/ shade	Dry/ wet		Sun/ shade	Light /dark mat.	
1															
2															
3															
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7															
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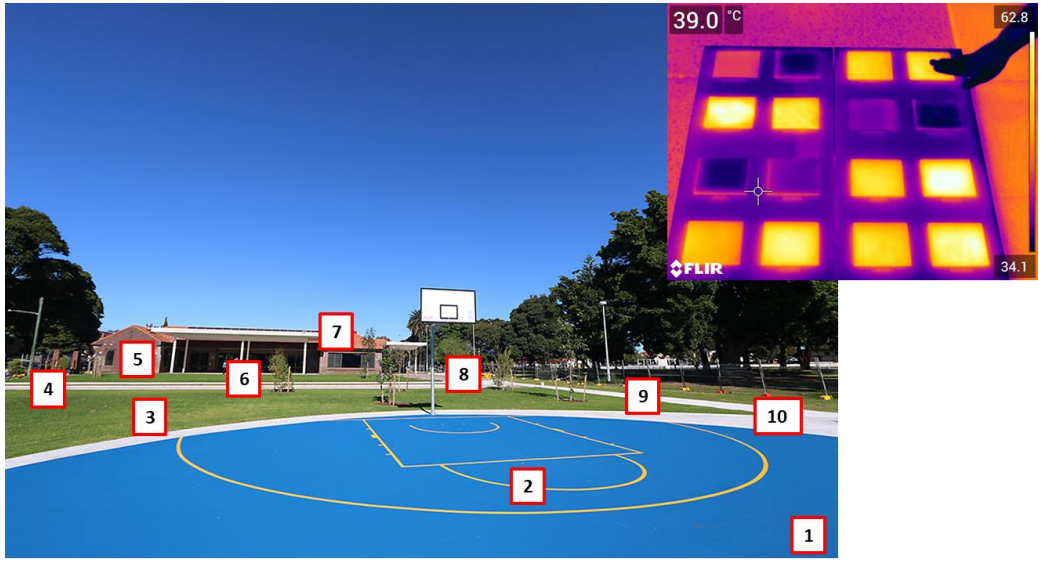
9															
10															

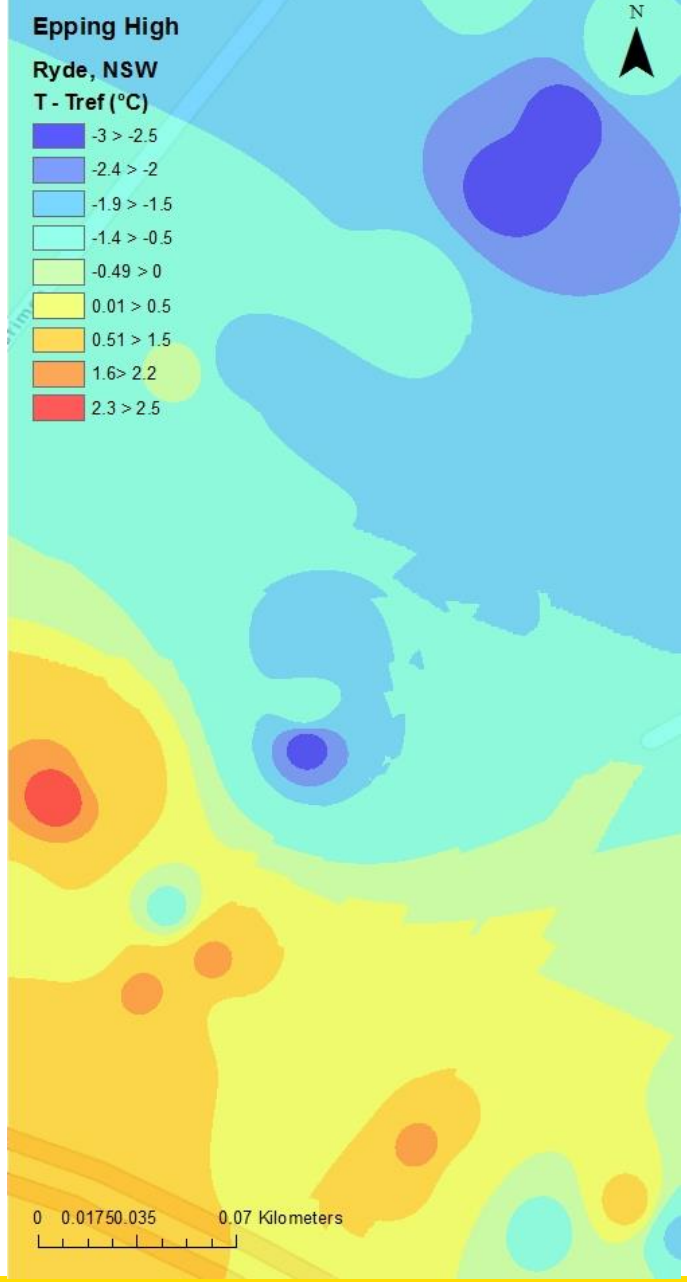
Experiments



Experiments in Ryde

Example at Epping Boys High

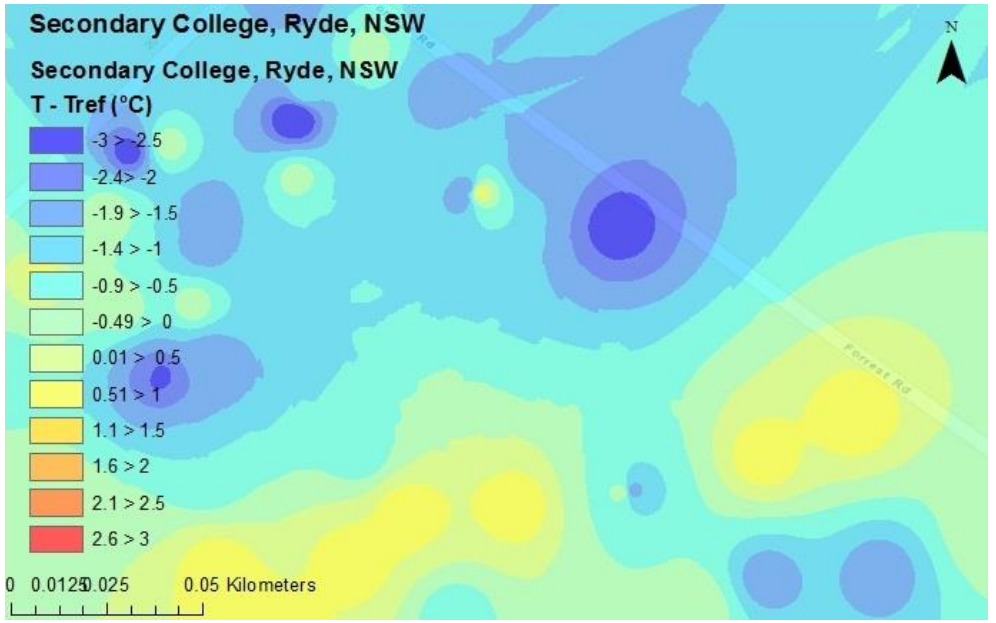
Science Teacher: Sylvia Lane



Experiments in Ryde

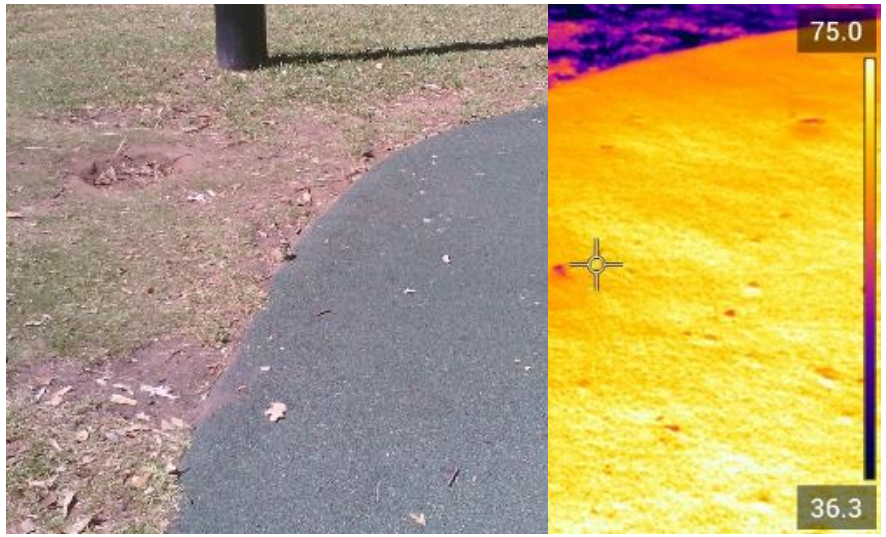
Example at Ryde Secondary College

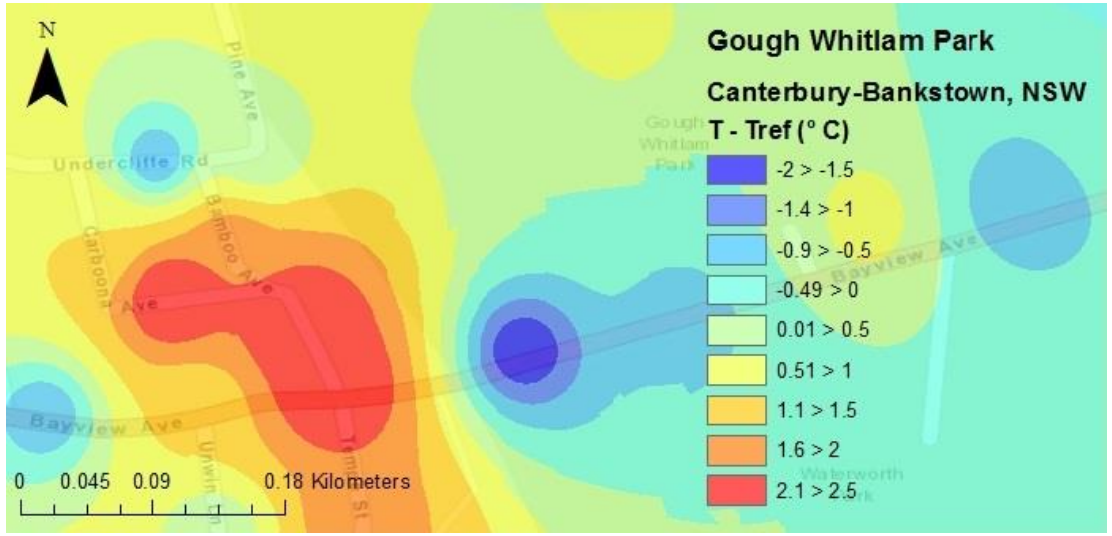
Science Teacher: Christopher Yates

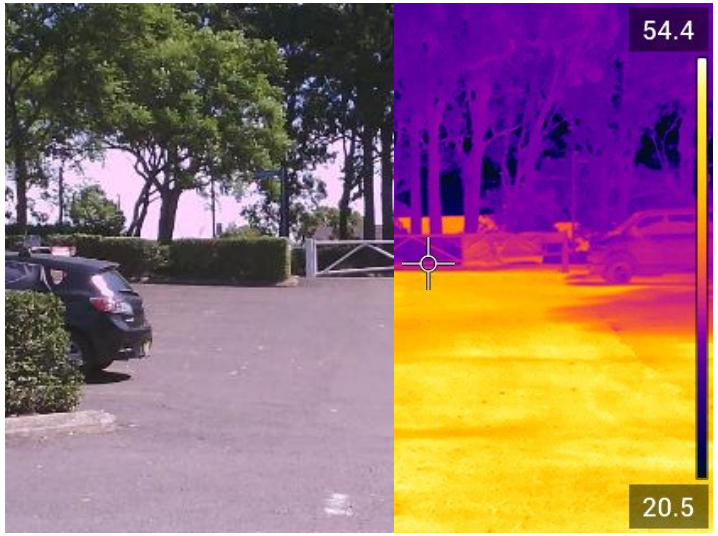


Mapping surface temperatures of different materials

Visible and infrared view of the playground and car park at Gough Whitlam Park (Canterbury-Bankstown)

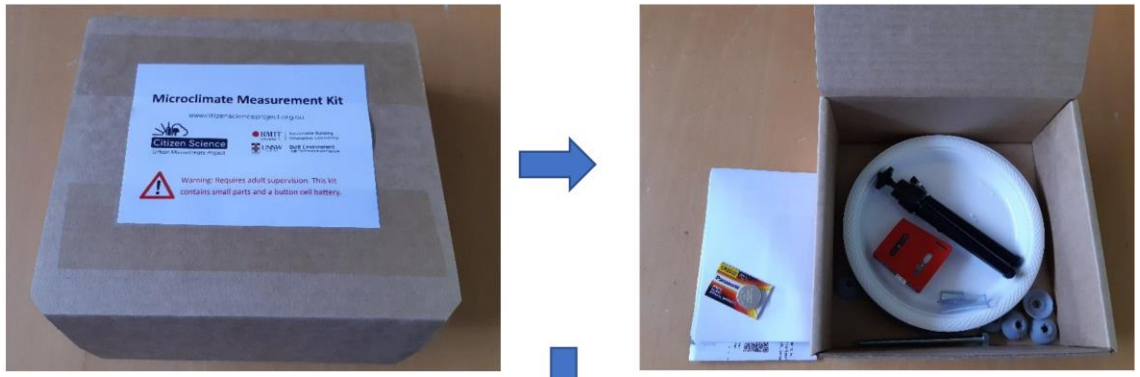






Portable BLE sensors

24 h experiments recording temperature and humidity



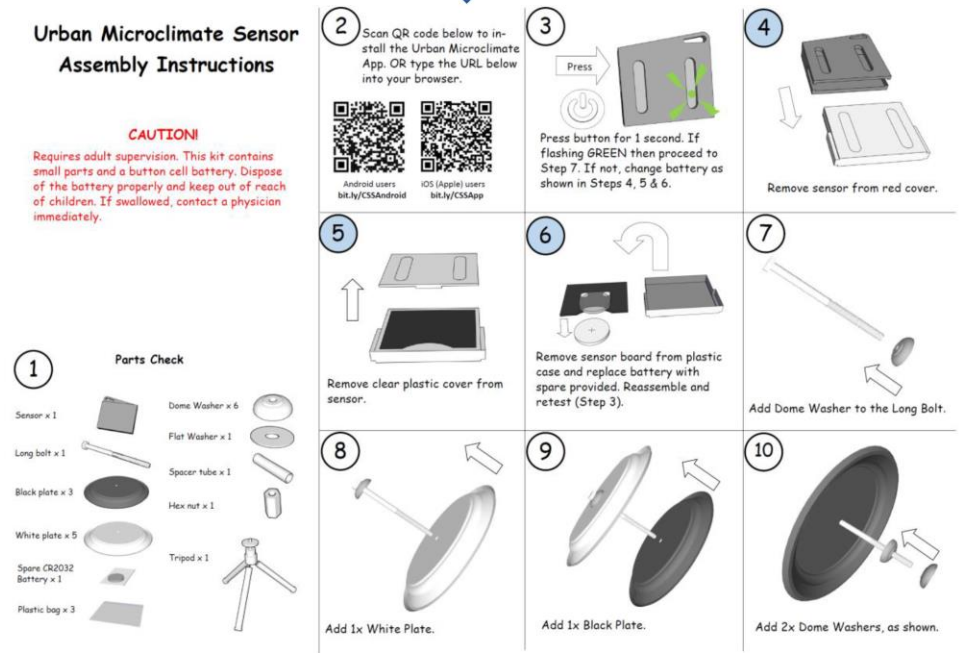
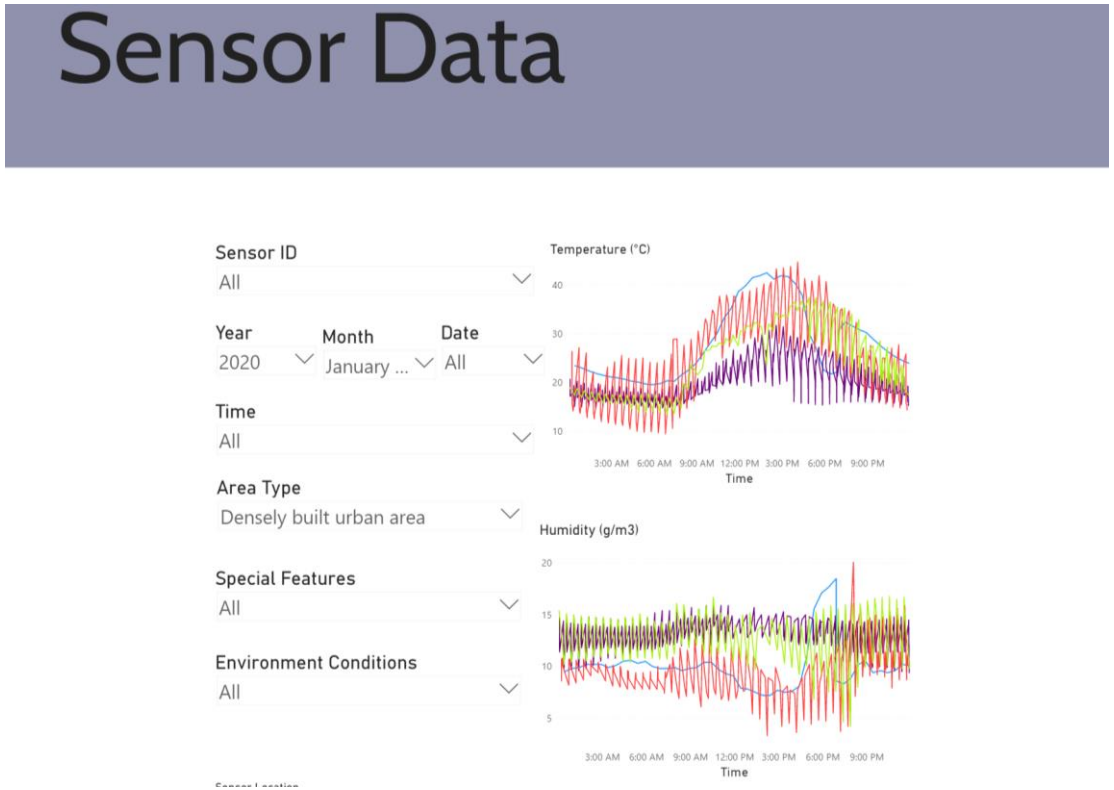
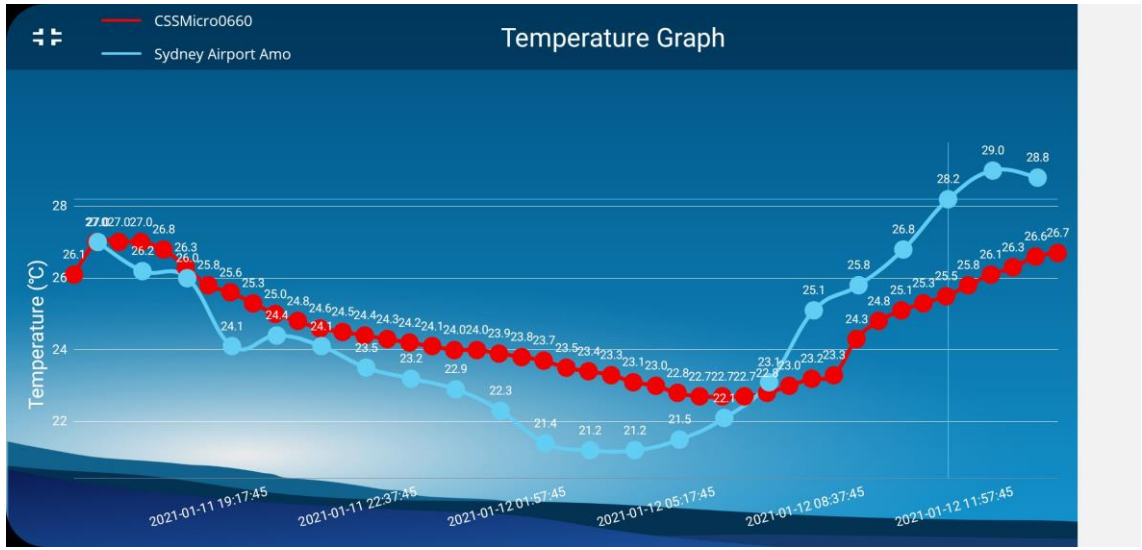


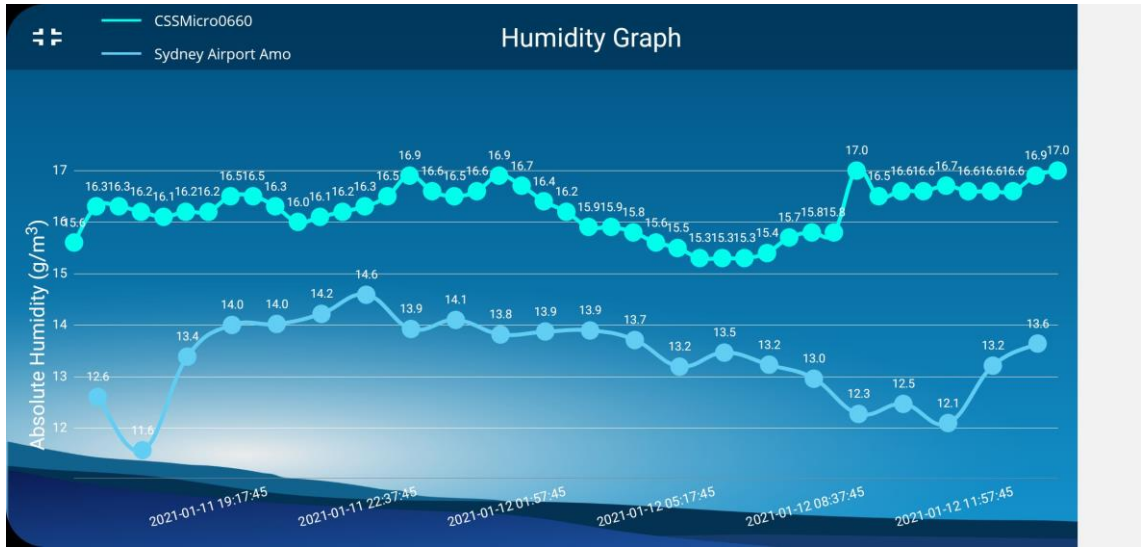
Photo by Sylvia Lane (Epping Boys High)

Portable BLE sensors

24 h experiments recording temperature and humidity





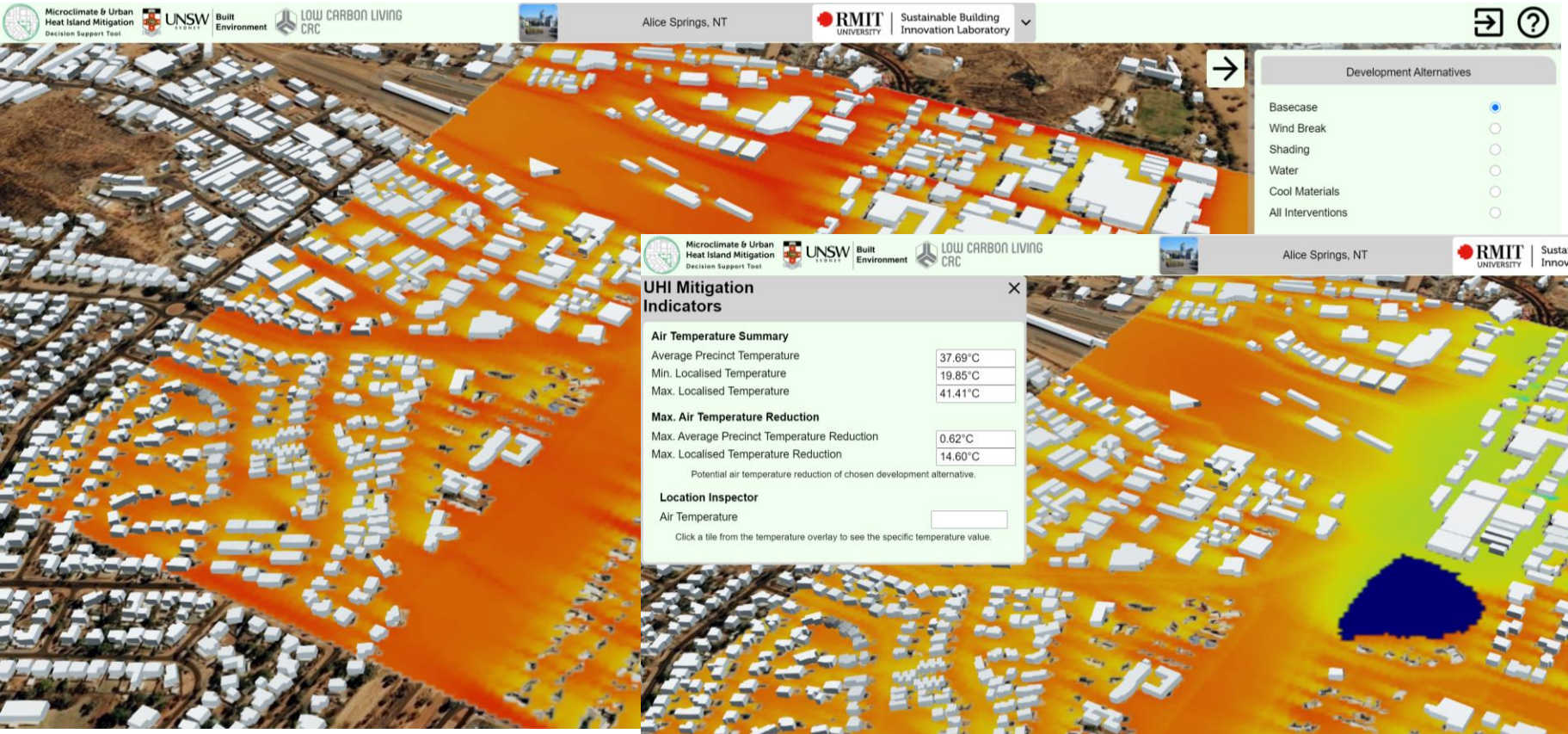


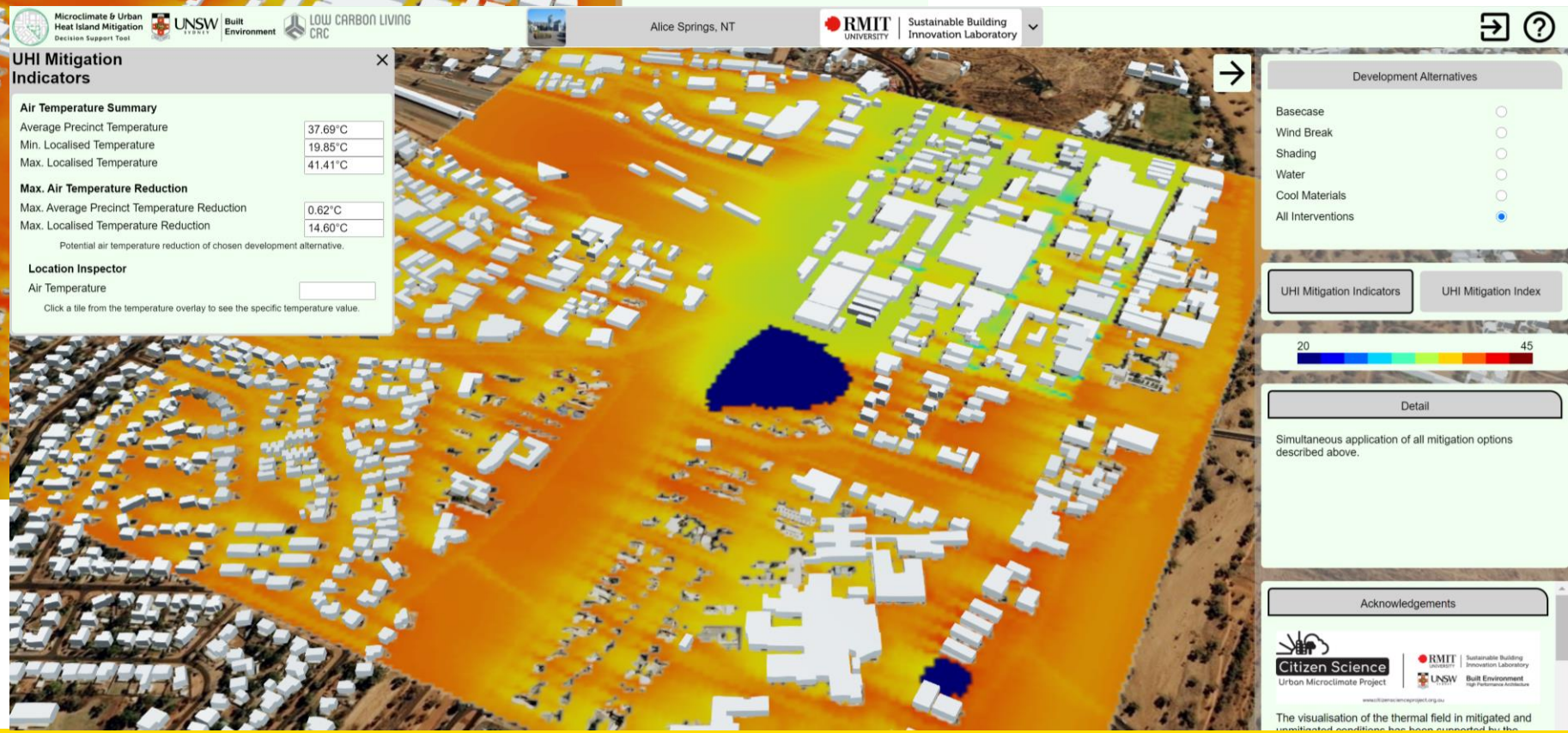
https://citizenscienceproject.org.au/mobile-app/local-climate/

Heat mitigation tool

Online visualization tool

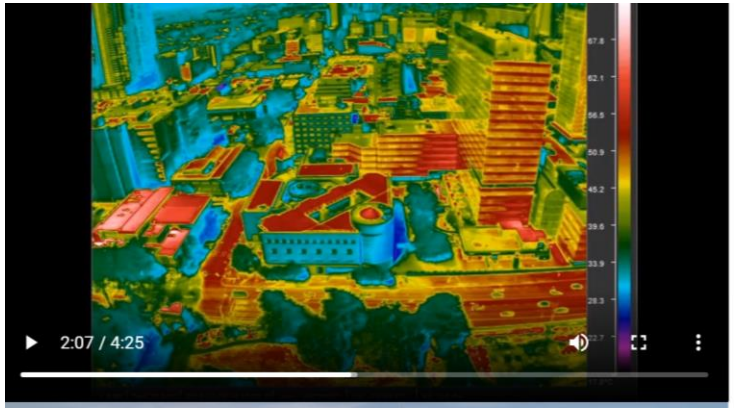
https://citizenscienceproject.org.au/mitigation-tool/





Videos, training material, and other resources available on the project website

https://citizenscienceproject.org.au/resources-for-citizens/videos/



Urban Heat Islands: An Introduction

Field Measurement: Instructions

Mobile App: Device set up Instructions

Project conclusion

All deliverables available on the website

From project to process…

… possible use in science curricula

Thank you for your attention!

Questions?