



**climate extremes**

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ARC centre of excellence

# **Researcher Development Program + Urban Climate**

**Melissa Hart**



# CLEX ECRs

Postdocs 19

Students

PhD 56  
(+ 31 ARCCSS)

MSc 8

Hons 12

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76  
(107 with remaining  
ARCCSS students)





# Researcher Development Program model (from proposal)

## Researcher Development Program

### GRADUATE PROGRAM

*Entrance*  
Training  
needs  
analysis

#### Science Fundamentals

- Winter schools
- Online lectures
- Tools training
- Coding methods
- Research methods
- Statistics
- Data management
- Research integrity
- Virtual seminars
- CST support
- Workshops
- Internships
- Teaching

#### Communication

- Writing skills
- Presentation skills
- Presentation experience
- Peer review
- Profile building
- Media training

#### Professional Development

- Graduate Director
- Individualised development plan
- Research Collaboration
- Mentoring Circles
- ECR committee
- ECR days
- Grant writing
- Supervisory training

*Exit*  
Alumni  
network

# Researcher Development Program (in practice)

## Science Fundamentals

- Winter schools
  - Climate Extremes and High Impact Weather (2018)
  - Modelling the Climate System (2019)
- Technical training
  - Models, tools, visualization, NCI
- Statistics
- Data management
- Virtual seminars
- Technical support
- Grant writing - DECRA

## Communication

- Scientific paper writing workshops
- Presentation experience
- The peer review process
- Insight from journal editors
- Publishing in The Conversation
- Media training
- Science communication
- Researcher communication
- How to prepare a scientific poster
- Centre inductions

## Professional Development

- Research collaboration
- Mentoring
- Early Career Researcher workshops
- Productivity and organization
- Kindness in Science
- Job search skills
  - Jobs in data sciences, academia, government
  - Responding to selection criteria
- Leadership opportunities
  - ECR committee
  - Student led Advanced Ocean Modelling school

### Training needs analysis

In development in collaboration with CMS team:  
Self assessment of skills/knowledge – links to training resources & opportunities

### Alumni network

Many ARCCSS alumni now part of CLEX

Still to explore- other opportunities to engage alumni



# Winter school 2019

## Modelling the Climate System

### Modelling the climate system CLEX Winter School 2019

The ARC Centre of Excellence for Climate Extremes will host its annual graduate level winter school on June 24 - 28 at the School of Earth Sciences, University of Melbourne.

The theme of the Winter School is Modelling the climate system

#### About the Winter School

The winter school will introduce the philosophy of climate models, and cover model hierarchy, evaluation, data assimilation, and experimental design. Fundamentals of atmosphere, land, and ocean modelling will be introduced, including discussions on the state of the science, parameterization, different types of models, resolution, coupling, etc. We will also provide an overview of the Australian Community Climate and Earth System Simulator (ACCESS) and the CMIP experiments.

This is a high-level education program for honours and graduate students interested in climate science. It will be of relevance to those working in atmospheric sciences, oceanography and land processes.

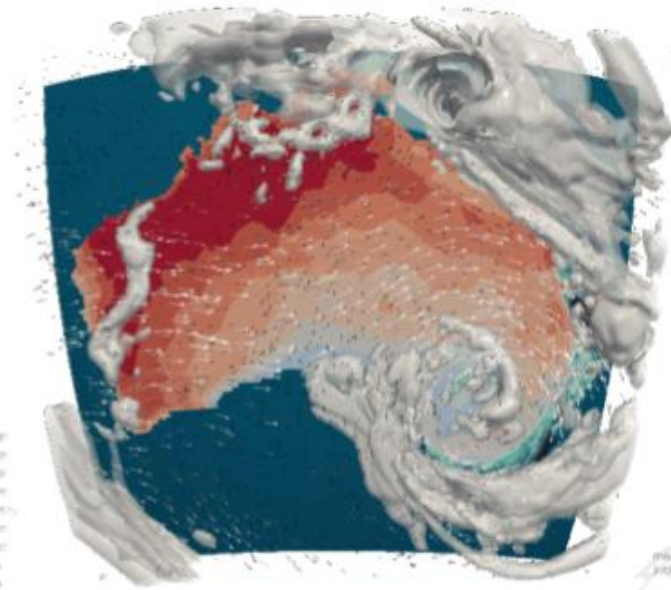
The winter school will consist of a series of lectures and practical sessions delivered by Centre of Excellence researchers from our five universities and partner organisations.

Some funding is available to support attendance. Priority will be given to honours and graduate students working on climate science problems.

**Dates:** Monday 24 June to Friday 28 June 2019  
**Location:** University of Melbourne, Melbourne  
**More information:** <https://climateextremes.org.au/winter-school-2019/>

Applications Close Friday, March 16

To apply, go to <https://climateextremes.org.au/winter-school-2019/>



June 24-28  
School of Earth Sciences  
University of Melbourne

# Opportunities with Partner Orgs

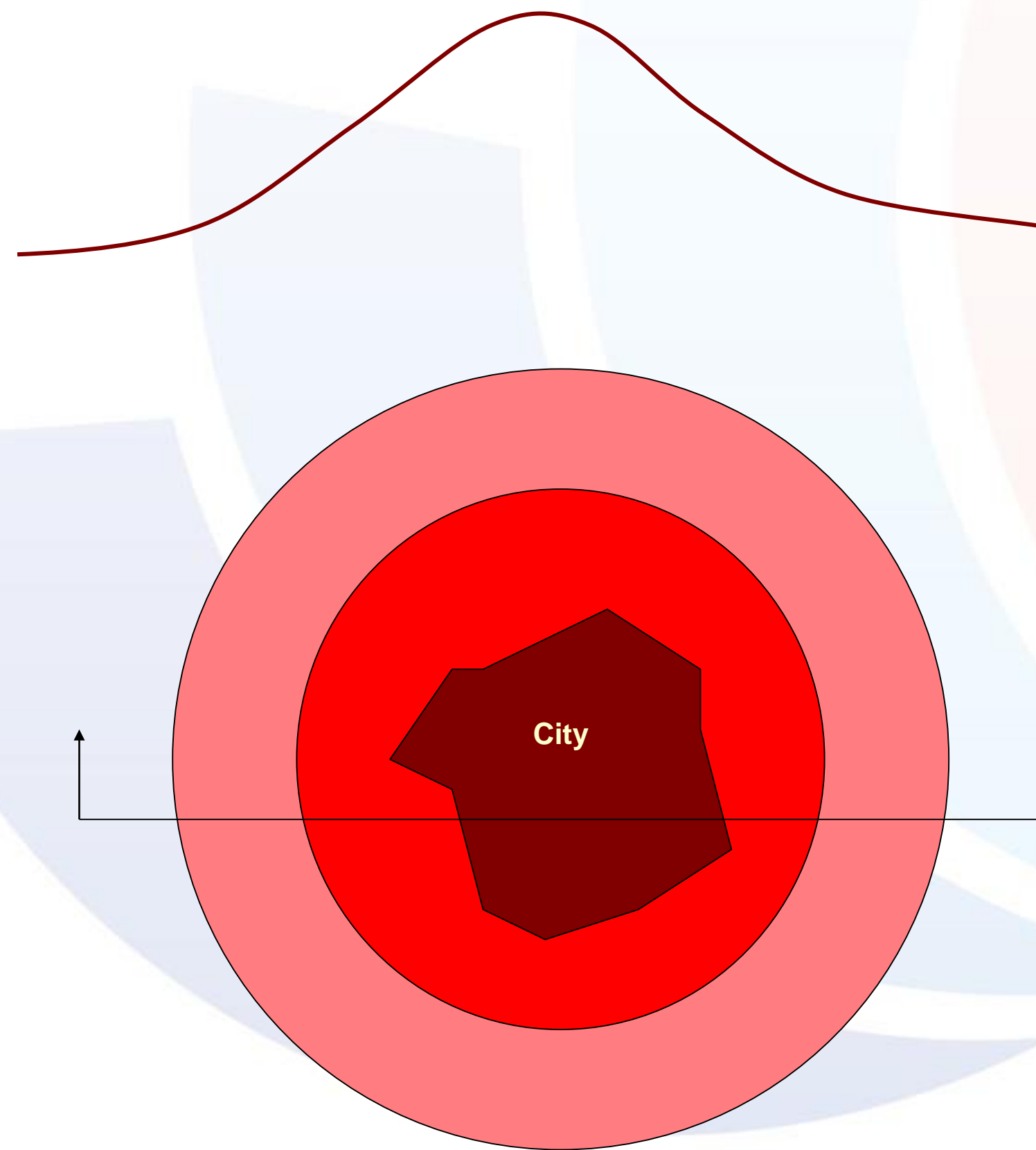
- Co-supervision
  - Undergraduate scholars
  - Grad students
- Partner Org engagement with Researcher Development Program
  - Seminars/ workshops- Science, development, training
  - Winter schools- lecturing/presenting, attending for ECRs
- Student/ECR engagement with Partner Orgs
  - Research visits/ seminars
  - Internships



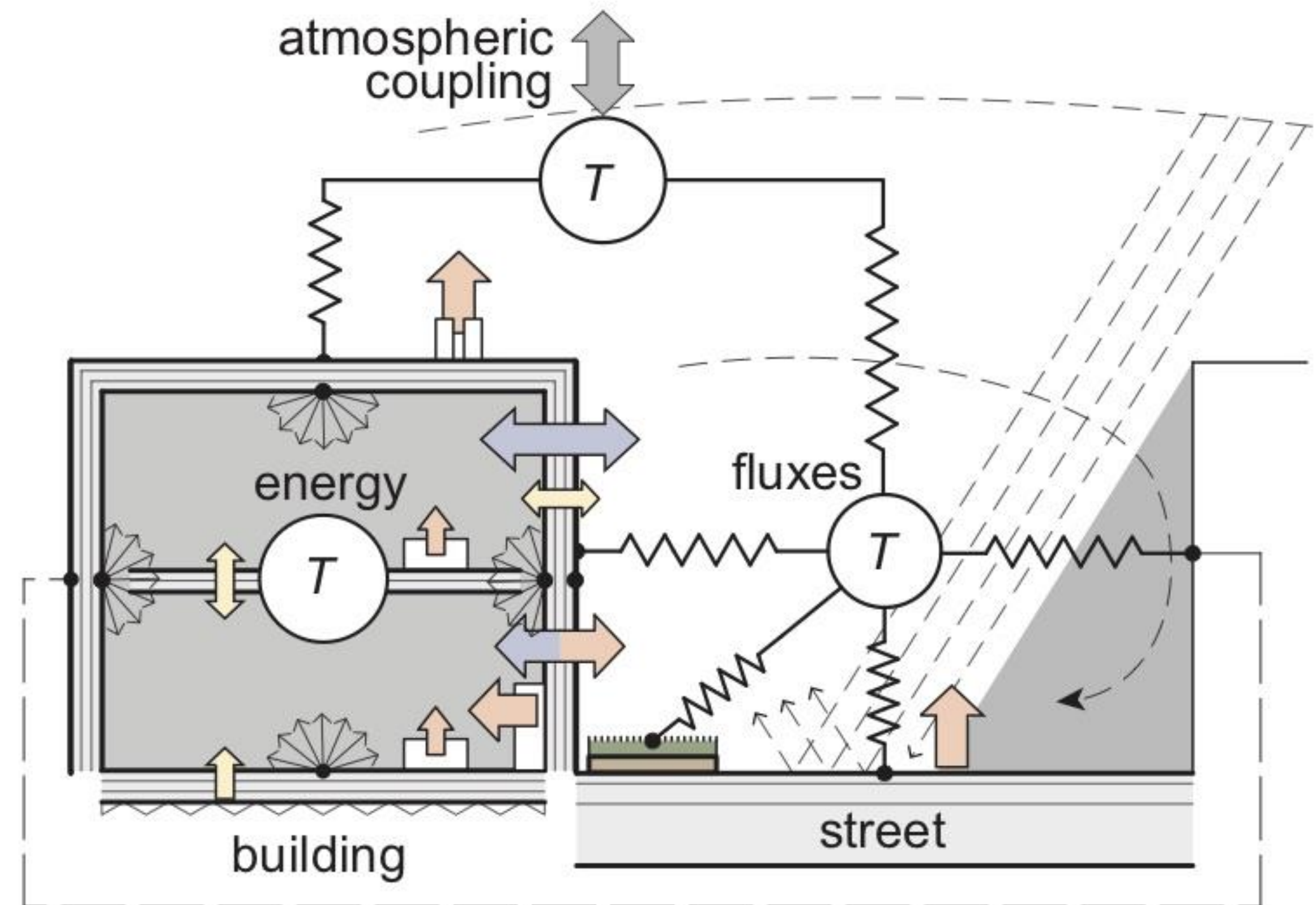
# Climate in cities

Impacts of urbanization, energy use, and global climate change

Temp.

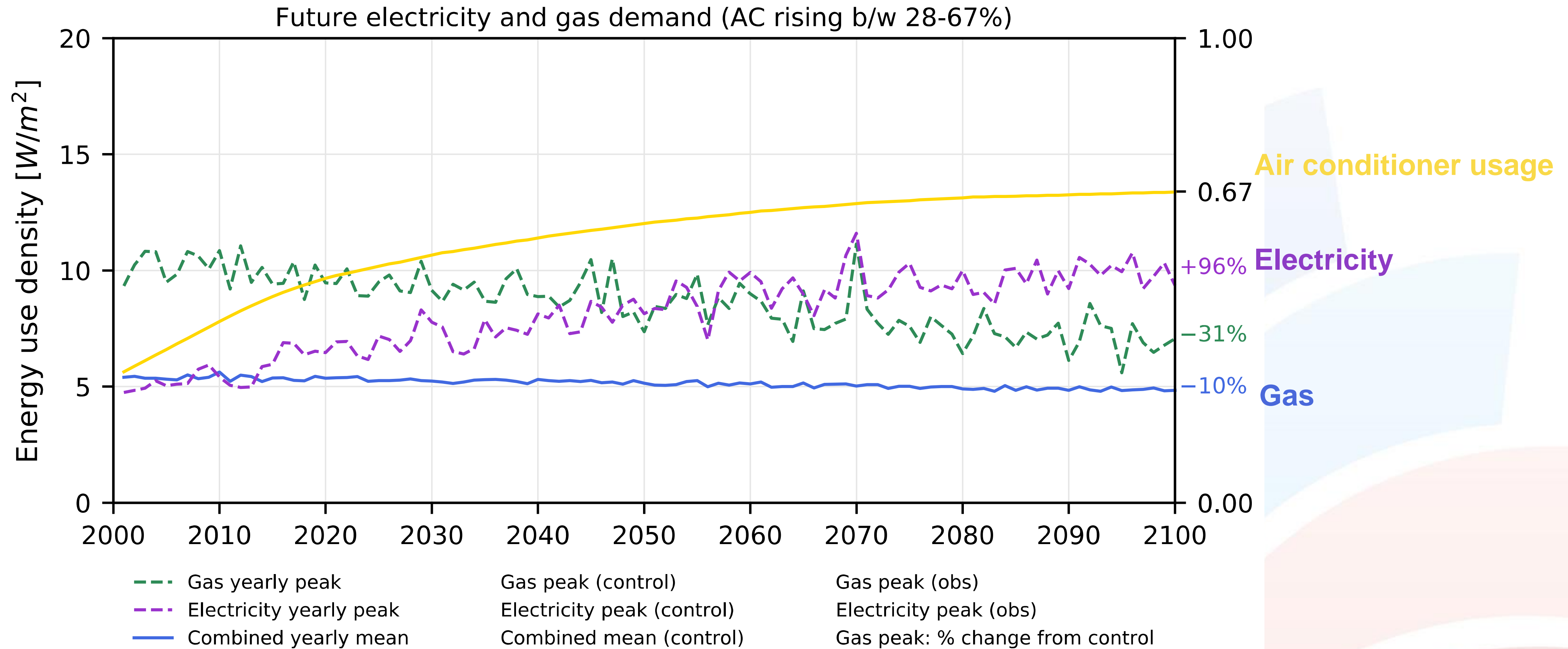


$$\text{UHI} = T_{\text{urban}} - T_{\text{rural}}$$



# Climate in cities

## Impacts of urbanization, energy use, and global climate change





# When citizen science meets urban climate



## Schools Weather and Air Quality

- ▶ Meteorology and air quality sensors in Sydney schools
- ▶ Research quality obs for urban climate research
- ▶ Engagement of students in STEM research
- ▶ Students will use the data in curriculum-aligned classroom activities
- ▶ Data visualized in real time online

[www.swaq.org.au](http://www.swaq.org.au)



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