



Environmental Services Training Group

LOCAL AUTHORITY ENVIRONMENT CONFERENCE 2017

Protecting the Environment for Future Generations

Minella Hotel, Clonmel Wednesday 24th. May 2017.

Protecting the Environment for Future Generations

UrbAdapt – A look at Climate Change impacts within the Urban Environment

Session 1 Climate Change 11:15-11:35

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Environmental Research Institute (ERI) / Marine and Renewable Energy Institute (MaREI), University College Cork





Outline

- The Context: Global Urbanisation
- Overview of urban climate effects
- Evidence of urban climate effects Ireland (Dublin and Clonmel)
- Climate Action and the urban environment: Co-benefits

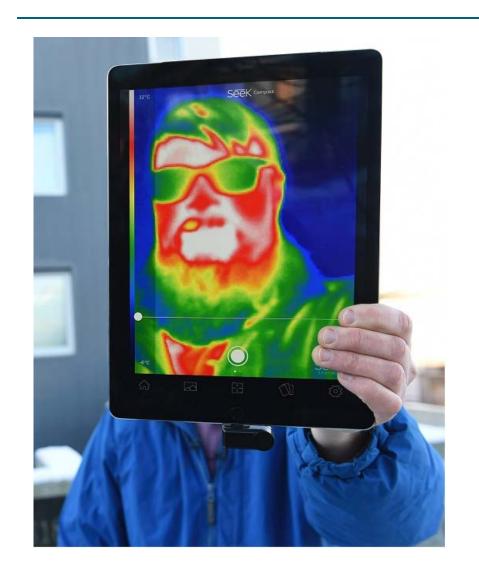
The Context: Global Urbanisation

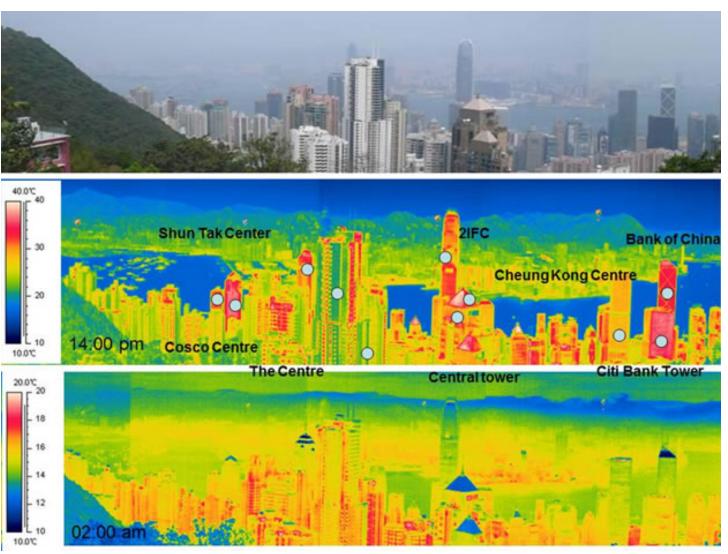
- 2007: UN Reports > 50% of global population now resides in Urban Areas
- 2017: 57.84% (4.3 billion) of the global population is defined as "urban"
 - Projected to reach 66% by 2050
- Trend is expected to continue (but slow after 2030)
- Driven by natural increase and 'drawingin' of rural population
- 2016: Urban Environment occupies 2-5% of global land depending on definition
- Accounts for 75% of energy demand and subsequent GHG emissions
- The urban environment is the dominant feature of the **Anthropocene**



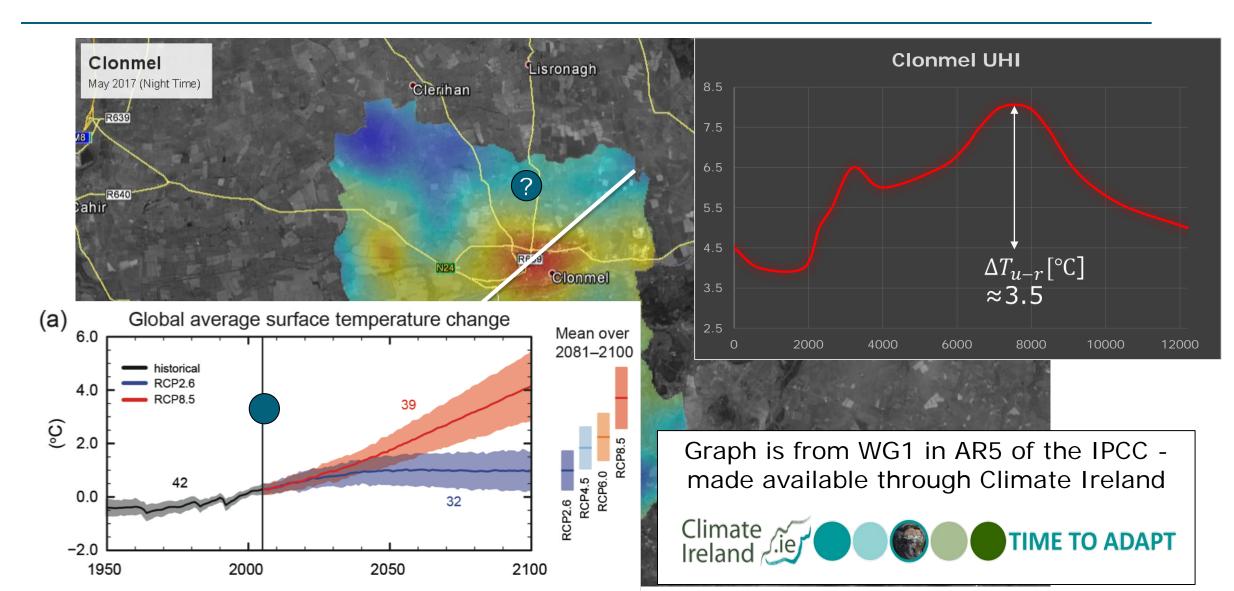
The Context: Global Urbanisation

Urban Climate Effects

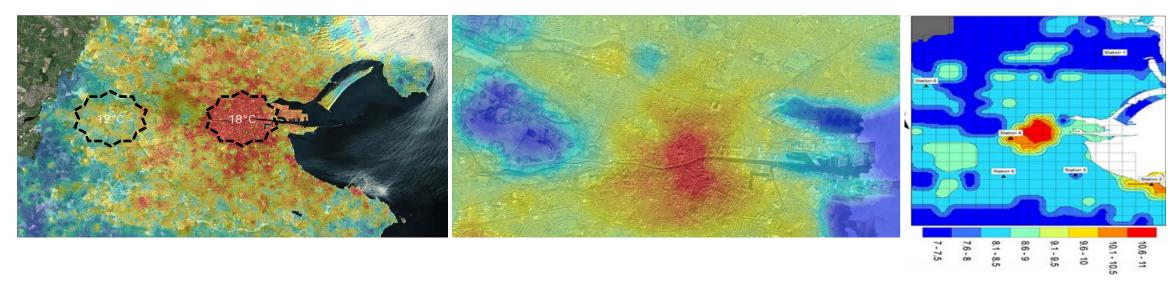




Evidence for urban climate effects - Ireland



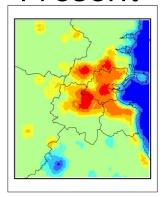
Evidence for urban climate effects - Ireland



- The Urban Heat Island phenomenon has been studied in Ireland before, almost exclusively in Dublin
- Published papers include Sweeny (1987), Graham (1993) and Alexander and Mills (2015)
- "Urban Heat" is currently not seen as a potential hazard but this may change under CC - EPA funded Urb-Adapt Project: www.urbadapt.com/

Evidence for urban climate effects - Ireland

Present

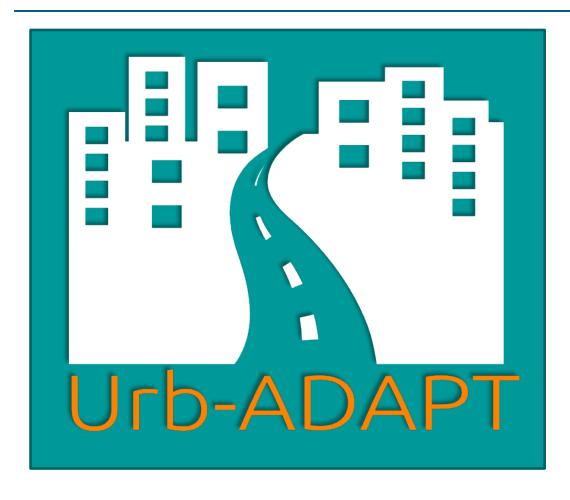


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P.J. Alexander, R. Fealy, G.M. Mills, **Simulating the impact of urban development pathways on the local climate: A scenario-based analysis in the greater Dublin region**, **Ireland**, Landscape and Urban Planning, Volume 152, August 2016, Pages 72-

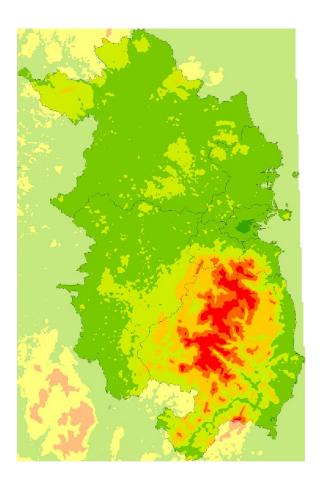
Climate Action and Cities: Co-benefits



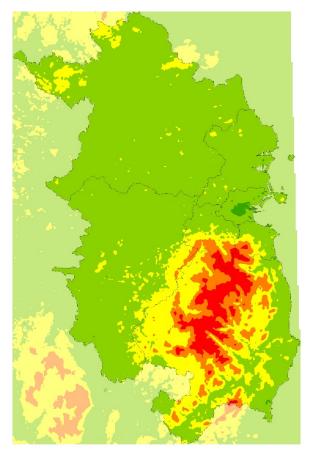
www.urbadapt.com

- Urb-ADAPT is working towards quantifying the potential impacts of:
 - Increased Air Temperatures on public health and Energy Use
 - Sea Level rise and Erosion on Coastal Inundation
 - Precipitation exposure due to urbanisation
- Covering the EMRA up to 2060, and will provide adaptation options and implementation guidelines

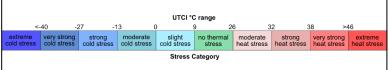
RCP 4.5 2020s

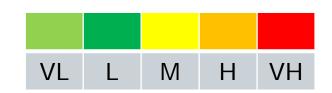


RCP 8.5 2020s

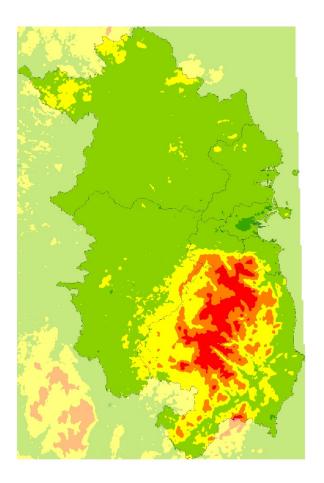


Risk Map for all thermal Stress Categories

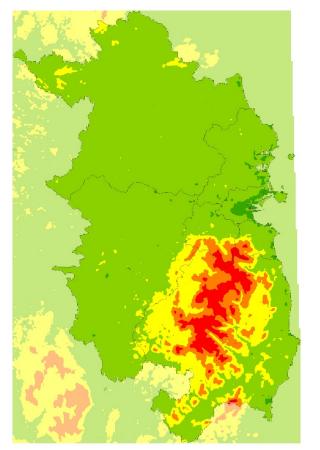




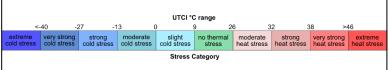
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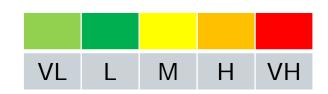


RCP 8.5 2050s

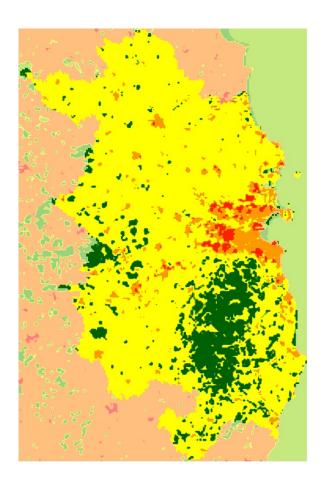


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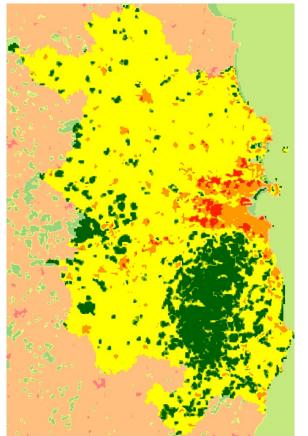




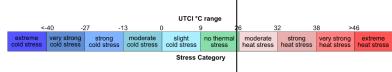
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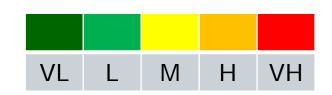


RCP 8.5 2020s

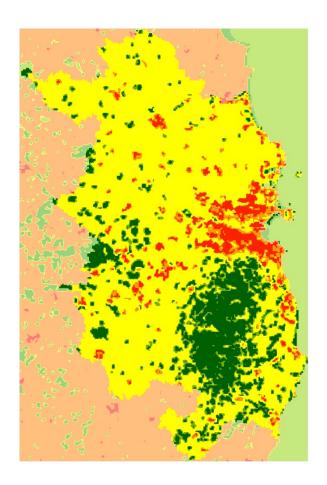


Risk Map for excess thermal Stress Categories

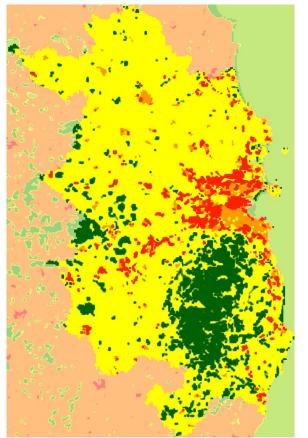




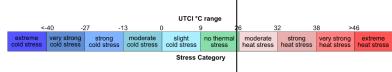
RCP 4.5 2050s

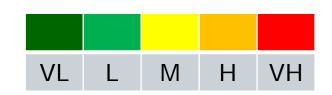


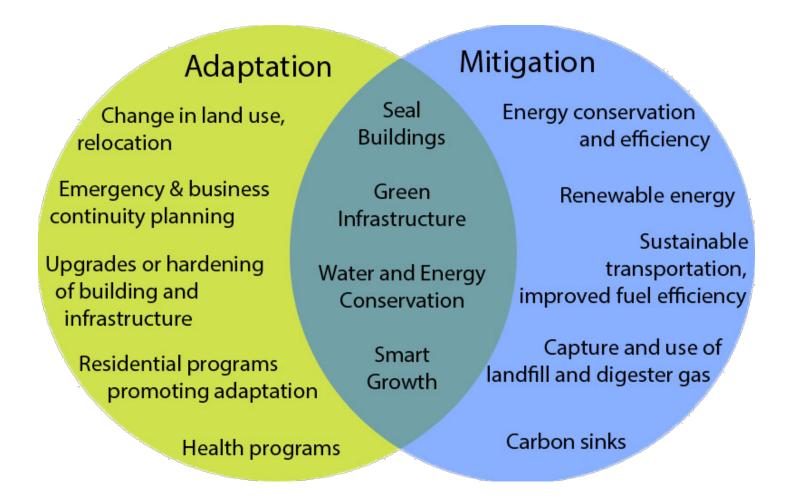
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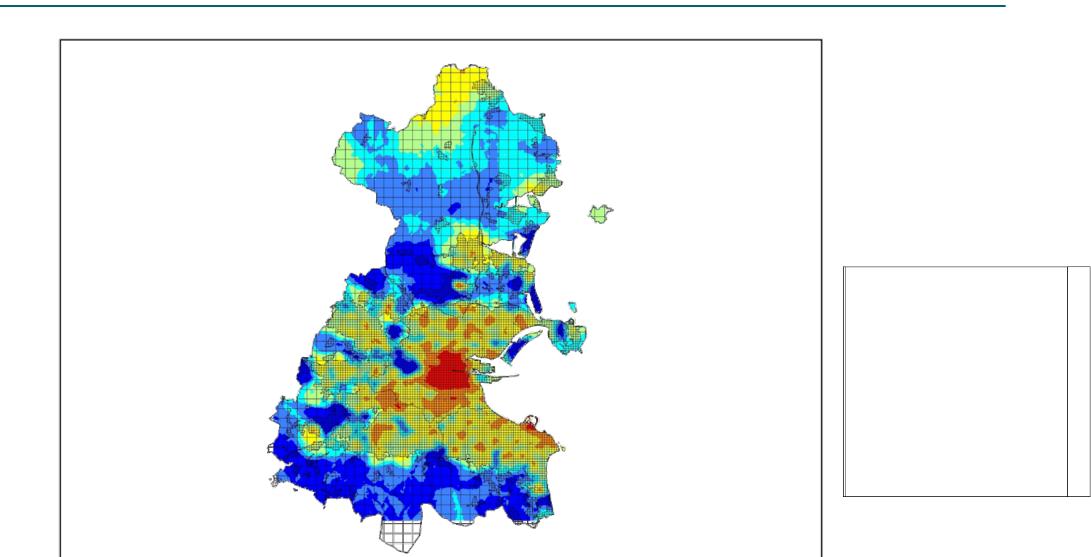
Risk Map for excess thermal Stress Categories



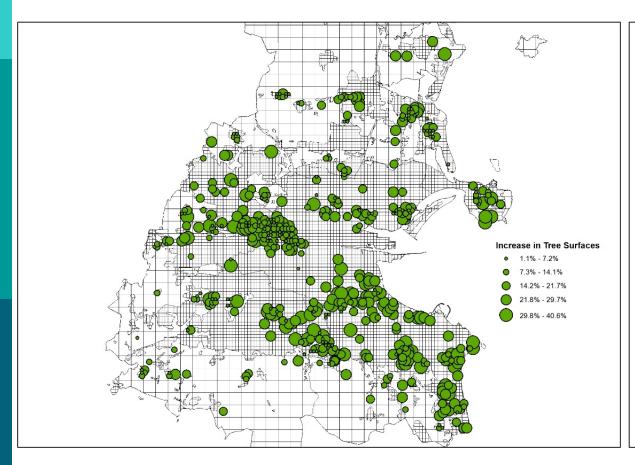


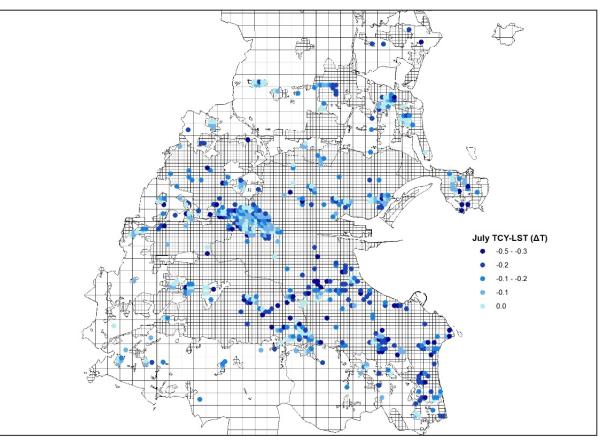


Climate Action and Cities: Co-benefits



Climate Action and Cities: Co-benefits





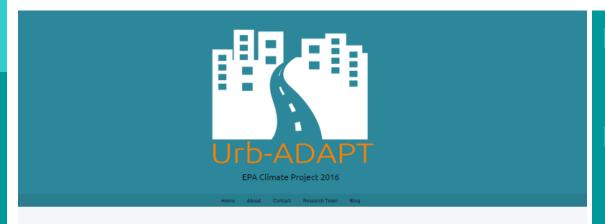
Summary

Protecting the (Urban) Environment for Future Generations

- Urban population will continue to grow, meaning Urbanisation will continue...
- The urban environment is (or will shortly become) our primary habitat during the Anthropocene
- Therefore, future urban development must take future climate into account (not just flooding!) so as to avoid inadvertent consequences
- Adapting the urban environment to climate change can exploit co-benefits



Thank you



Home

Welcome to the large <u>urb</u>an area <u>adapt</u>ation (URB-ADAPT) project page. The URB-ADAPT project seeks to identify the impact of climate change on Dublin city and surrounding towns within the Greater Dublin Region.

The project aims to identify possible risks to the population living in the Greater Dublin Region and future risks posed under a changing climate for future populations. We have divided the project into two key strands 1) Water and 2) Heat.

You can find out more about the project through this site, we also encourage you to visit our project partners for more information.



Funded by the Environmental Protection Agency Climate Change Research Program 2014-2020 #2015-CCRP-MS.25



Project run in partnership with the Eastern and Midlands Regional Assembly

SEARCH

LATEST NEWS

Update (February 2017) What data do we need to start planning for adaptation in urban areas?

Read More

Update (August 2016) The Urb-ADAPT modelling approach How do we assess heat risk in Urb-ADAPT?

lead More

Update from Work-package 2 -Assessing data suitability for describing urban and non-urban areas in the Urb-ADAPT project

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Noaa confirms June 2016 was hottest since records began in 1880 and is 14th consecutive month that global heat records were broken

Read More

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Contact:

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For more information and updates on progress, please visit the project website:

www.urbadapt.com

For information on climate impacts, climate actions and adaptation in Ireland please visit:

www.climateireland.ie

Acknowledgments

<u>Urb-ADAPT is funded under the</u> <u>EPA Research Programme 2014–2020</u>



The EPA's current Research Programme 2014–2020 is built around three pillars - Sustainability, Climate and Water.

More information about the EPA Research Programme can be found by visiting the <u>EPA</u> <u>Website</u> where you can sign up for the quarterly Research Newsletter.

This provides news and updates about research calls, events and publications that are of relevance to researchers and other interested parties.

You can also follow EPA Research on Twitter @eparesearchnews for the very latest information and developments about the Research Programme and its projects.