# Title NSW Urban Heat Island to Modified Mesh Block 2016

#### 1100

The Urban Heat Island (UHI) dataset measures the effects of urbanisation on land surface temperatures across Sydney Greater Metropolitan Area for the Summer of 2015-2016

UHI shows the variation of temperature to a non-urban vegetated reference, such as heavily wooded areas or national parks around Sydney.

Derived from the analysis of thermal and infrared data from Landsat satellite, the dataset has been combined with the Australian Bureau of Statistics (ABS) Mesh Block polygon dataset to provide a mean UHI temperature that enables multi-scale spatial analysis of the relationship of heat to green cover.

### Resource locator

Data Quality Statement

**Abstract** 

Name: Data Quality Statement

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data quality statement for NSW Urban Heat Island to Modified Mesh Block 2016

Function: download

Estimation of Land Surface Temperature and Urban Heat Island effect for Australian urban centres. CSIRO Report EP173542.

Name: Estimation of Land Surface Temperature and Urban Heat Island effect for Australian urban centres. CSIRO Report EP173542.

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

This report describes the generation of land surface temperature (LST) and urban heat island (UHI) estimates for major Australian urban centres. The research that led to this report was undertaken as part of Horticulture Innovation Australia (HIA) project NY16005 "Where Should All The Trees Go?", in collaboration with RMIT, CSIRO Data61 and the University of Western Australia. A similar methodology was used for this dataset. Citation: Devereux D and Caccetta PA (2017) Estimation of Land Surface Temperature and Urban Heat Island effect for Australian urban centres. Report CSIRO Data61. Australia.

Function: download

User guide for OEH urban heat and green cover datasets

Name: User guide for OEH urban heat and green cover datasets

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Guidance and data description for use by NSW Local Government Areas for local environmental planning. This document contains detailed guiding information on the use conditions and descriptions for the NSW Office of Environment and Heritage (OEH) urban heat and vegetation cover datasets, especially for use in support of multi-scale analysis (i.e., local government areas and regional).

Function: download

Download Package Name: Download Package

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Data (Shapefile & Esri Database)

Function: download

ArcGIS Layer files for mapping Urban Heat Island and Heat Vulnerability Index

Name: ArcGIS Layer files for mapping Urban Heat Island and Heat Vulnerability Index

Protocol: WWW:DOWNLOAD-1.0-http--download

Description:

Layer files for symbology when using ArcGIS/ArcMap v. 10.x for displaying the dataset. The compressed file (zip) contains two layer files, one for each Urban Heat Island (manual classification of temperature ranges) and Heat Vulnerability Index (discrete attribute classes 0 to 5). Temperature ranges for UHI map degrees Celsius deviation from the reference, and include less than 0 (i.e., cooler than reference), 0 to 3 degrees

warmer, 3 to 6 degrees warmer, 6 to 9 degrees warmer and warmer than 9 degrees from the reference. Two colour variations of the layer file are included. Function: download Name: ArcGIS REST Service - Urban Heat Island **ArcGIS REST** Service - Urban Protocol: WWW:DOWNLOAD-1.0-http--download **Heat Island** Description: An ArcGIS Server web service represents a GIS resource—such as a map, locator, or image—that is located on an ArcGIS Server site and is made available to client applications. Depending on the layers enabled, this web service allows a user to query its features and/or visualise the dataset. This service is aimed at advanced geographical information users, and will require access to geographical information system (GIS) software such as ArcGIS/ArcMap. Function: download Name: WMS - Urban Heat Island WMS - Urban Heat Island Protocol: WWW:DOWNLOAD-1.0-http--download Description: Web Map Service (WMS) is a standard protocol for serving georeferenced map images over the internet that are generated by a map server using data from a GIS Database (NSW Government - Spatial Web Services Register June 2015). WMS allows a user to spatially visualise the dataset, but not query its features. This service is aimed at advanced geographical information users, and will require access to geographical information system (GIS) software such as QGIS and ArcGIS/ArcMap Function: download Name: Land surface temperature and urban heat island estimates for Australian urban Land surface centres 2015/16 temperature and urban heat Protocol: WWW:DOWNLOAD-1.0-http--download island estimates for Description: Australian imagery data source for NSW/Metropolitan Urban Heat Island data. Land surface urban centres temperature (LST) maps, and urban heat island (UHI) maps, for Australian urban 2015/16 centres, calculated over summer 2015/16. Generated as part of an investigation into changes in urban greenspace. Function: download Unique resource identifier Code b07a128b-00bf-4f07-b767-a5b27ae283f9 Presentation Map digital form Edition 1 Dataset **English** language Metadata standard Name ISO 19115 Edition 2016 https://www.planningportal.nsw.gov.au/opendata/dataset/b07a128b-00bf-4f07-b767-Dataset URI a5b27ae283f9 Purpose urban environmental planning, green infrastructure Status Completed

Spatial representation		
Туре	vector	
Geometric Object Type	surface	
Spatial reference system		
Code identifying the spatial reference system	4283	
Spatial resolution	3 m	
Additional information source	The UHI attribute value is based on the average difference in Land Surface Temperature (LST) to baseline LST (non-urban vegetated reference). The COType (cluster/outlier type) was generated by Anselin Local Moran's using ArcGIS.	
Topic category	environment	

Keyword set			
keyword value	HUMAN-ENVIRONMENT-Urban-Design		
	HUMAN-ENVIRONMENT-Livability		
	HUMAN-ENVIRONMENT-Planning		
	CLIMATE-AND-WEATHER-Extreme-weather-events		
	CLIMATE-AND-WEATHER-Temperature		
	CLIMATE-AND-WEATHER-Climate-change		
	HUMAN-ENVIRONMENT-Structures-and-Facilities		
Originating controlled vocabulary			
Title	ANZLIC Search Words		
Reference date	2008-05-16		
Geographic location			
NSW Place Name	Sydney Greater Metropolitan Area, Greater Sydney Region		
Vertical extent information			
Minimum value	-100		
Maximum value	2228		
Coordinate reference system			
Authority code	urn:ogc:def:cs:EPSG::		
Code identifying the coordinate reference system	5711		
Temporal extent			
Begin position	2015-10-01		
End position	N/A		
Dataset reference date			
Resource maintenance			
Maintenance and update frequency	Not planned		
Contact info			
Contact position	Data Broker		
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Responsible party role	pointOfContact		

# Lineage

The dataset was developed through a contract with the Royal Melbourne Institute of Technology (RMIT). Data was developed following the methodology for "Estimation of Land Surface Temperature and Urban Heat Island effect for Australian urban centres", from Commonwealth Science and Research Organisation (CSIRO) (Report EP173542). The processed Landsat 8 imagery was integrated with the modified Mesh Block polygon dataset with the assistance of Western Australia University. The modified Mesh Block consists of the ABS Mesh Block polygons modified with road and rail features from the NSW Digital Cadastral Database to add infrastructure.

### Constraint set

Use constraints

This data is provided under a Creative Commons Attribution 4.0 licence <a href="http://creativecommons.org/licenses/by/4.0">http://creativecommons.org/licenses/by/4.0</a>. Attribute 'NSW Department of Climate Change, Energy, the Environment and Water' in publications using this data.

Limitations on public access

Scope dataset

**DQ Completeness Commission** 

Effective date

2019-03-12

Explanation

The dataset has complete coverage for the Significant Urban Area of Sydney Greater Metropolitan Area. This includes the major urban, urban, peri-urban and other urban areas of the included Local Government Areas. The dataset has complete coverage for the SUA in the Greater Sydney Region and the Local Government Areas within it.

## **DQ Completeness Omission**

Effective date

2019-03-12

Explanation

There is no obvious completeness omissions with the dataset. An explanation of potential

omissions is explained in the attached CSIRO Report.

### **DQ** Conceptual Consistency

Effective date

2019-03-12

Explanation Local Government Area users of the data will need to double check that their known

boundaries are correctly identified. In the dataset, the LGA name that is given to a Modified Mesh Block may be inaccurate, due to the modified Mesh Blocks boundaries not nesting within the LGA boundaries completely. The LGA boundaries were overlaid with the Modified Mesh Blocks polygons and the LGA names were assigned to the Mesh Block with the greatest area within it. Note 2017 LGA boundaries were used. The knock on effect is that the Mesh Block may not correspond to the correct District. This issue most likely occurs with more rural Mesh Blocks at the boundaries, such as near Campbelltown, Wollondilly or Sutherland. It may also occur where roads form a boundary between LGAs. As adequate data validation was performed, this issue is likely minor and not affecting every LGA. Other possible conceptual consistency matters may be addressed in the

attached CSIRO Report.

#### DQ Topological Consistency

Effective date

2019-03-12

Explanation There are no obvious topological inconsistencies in the dataset. An explanation of

potential inconsistencies is explained in the attached CSIRO Report.

## DQ Absolute External Positional Accuracy

Effective

date

2019-03-12

Explanation Positional accuracy is described in the attached methodology report.

### **DQ Non Quantitative Attribute Correctness**

Effective

date

2019-03-12

Explanation Attribute accuracy is described in the attached methodology report. Responsible party

Contact position Data Broker

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Responsible party role pointOfContact

Metadata date 2024-02-26T15:29:08.208633

Metadata language