

IE GSI LiDAR Digital Surface Model (DSM) Office of Public Works (OPW) National Aerial
Survey Contract (NASC) 2m Ireland (ROI) ITM MH GRID
Enterprise Geodatabase Raster Dataset



Tags

Ireland, IE/GSI, LiDAR, Topographic, Elevation, DSM, Digital Surface Model, Malin Head Vertical Datum, OPW

Summary

LiDAR is important as it generates accurate measurements instantaneously. Knowing the height of the Earth's surface is important for a number of reasons.

Landslides, small fault scarps, and other geologic features that are difficult to spot visually in the field or on aerial photographs can often be clearly shown on LiDAR images.

LiDAR data helps detect where flooding might occur. The risk of rivers flooding is linked to factors such as: climate, the material that makes up the banks of the stream, the channel slope and the topography. The LiDAR (topography) data enables more accurate mapping of where the water will flow.

LiDAR data helps planners to assess where to place new buildings; knowing the height of buildings, LiDAR can determine where shade will occur and where best to place solar systems.

LiDAR data helps foresters to measure the height of trees in a forest and hence estimate the volume of timber.

LiDAR data helps archaeologists to find archaeological sites. Remains of buildings and other sites can be almost impossible to spot with the naked eye. LiDAR can pinpoint tiny surface differences that reveal small sites like graves or big ones like sunken cities.

Description

LiDAR (Light Detection and Ranging) is a remote sensing technology, i.e. the technology is not in direct contact with what is being measured. From satellite, aeroplane or helicopter, a LiDAR system sends a light pulse to the ground. This pulse hits the ground and returns back to a sensor on the system. The time is recorded to measure how long it takes for this light to return.

Knowing this time measurement scientists are able to create topography maps.

LiDAR data are collected as points (X,Y,Z (x & y coordinates) and z (height)). The data is then converted into gridded (GeoTIFF) data to create a Digital Terrain Model and Digital Surface Model of the earth. This LiDAR data was collected in 2011.

An ordnance datum (OD) is a vertical datum used as the basis for deriving heights on maps. This data is referenced to the Malin Head Vertical Datum which is the mean sea level of the tide gauge at Malin Head, County Donegal. It was adopted as the national datum in 1970 from readings taken between 1960 and 1969 and all heights on national grid maps are measured above this datum.

Digital Terrain Models (DTM) are bare earth models (no trees or buildings) of the Earth's surface.

Digital Surface Models (DSM) are earth models in its current state. For example, a DSM includes elevations from buildings, tree canopy, electrical power lines and other features.

This data shows the DSM.

This data was collected by the Office of Public Works. All data formats are provided as GeoTIFF rasters.

Raster data is another name for gridded data. Raster data stores information in pixels (grid cells). Each raster grid makes up a matrix of cells (or pixels) organised into rows and columns. OPW data has a grid cell size of 2 meter by 2 meter. This means that each cell (pixel) represents an area of 2 meter squared.

Credits

Geological Survey Ireland & the Office of Public Works

Use limitations

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Extent

West -10.614257	East -5.874927
North 55.323838	South 51.795201

Scale Range

Maximum (zoomed in)	1:5,000
Minimum (zoomed out)	1:500,000

ArcGIS Metadata ►

Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE environment, geoscientificInformation, elevation, imageryBaseMapsEarthCover, location

CONTENT TYPE Downloadable Data

EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION No

PLACE KEYWORDS Ireland

THESAURUS ►

TITLE Metadata Registry of the Publications Office of the EU Named Authority Lists - Country
 ALTERNATE TITLES MDR-COUNTRIES
 PUBLICATION DATE 2015-03-18 00:00:00

EDITION 20200624-0

RESOURCE LOCATION ONLINE

LOCATION <https://op.europa.eu/en/web/eu-vocabularies/concept/-/resource?uri=http://publications.europa.eu/resource/authority/country/IRL>
 ACCESS PROTOCOL [text/html](#)
 NAME Name authority list
 DESCRIPTION Name authority list
 FUNCTION PERFORMED information

Hide Thesaurus ▲

THEME KEYWORDS Elevation

THESAURUS ►

TITLE GEMET - INSPIRE themes, version 1.0
 ALTERNATE TITLES GEMET INSPIRE
 PUBLICATION DATE 2008-06-01 00:00:00

RESOURCE LOCATION ONLINE

LOCATION <https://inspire.ec.europa.eu/theme/el>
 ACCESS PROTOCOL [text/html](#)
 NAME INSPIRE theme register
 DESCRIPTION INSPIRE theme register
 FUNCTION PERFORMED information

Hide Thesaurus ▲

OTHER KEYWORDS IE/GSI

THESAURUS ►

TITLE Global Change Master Directory (GCMD) Data Center Keywords 9.1.5
 ALTERNATE TITLES GCMD Data Center Keywords
 PUBLICATION DATE 2016-08-04 00:00:00

EDITION 9.1.5

RESOURCE LOCATION ONLINE

LOCATION <https://vocabs.ardc.edu.au/repository/api/lda/ardc-curved/gcmd-providers/9-1-5-2020-02-06/resource?uri=https://gcmdservices.gsfc.nasa.gov/kms/concept/4bdbb012-4aed-485b-8ee8-16519985681e>
 ACCESS PROTOCOL [text/html](#)
 NAME GCMD Data Center Keywords
 DESCRIPTION GCMD Data Center Keywords
 FUNCTION PERFORMED information

Hide Thesaurus ▲

OTHER KEYWORDS Regional

THESAURUS ►

TITLE Spatial scope
 PUBLICATION DATE 2019-05-22 00:00:00

RESOURCE LOCATION ONLINE

LOCATION <https://inspire.ec.europa.eu/metadata-codelist/SpatialScope>
 ACCESS PROTOCOL [text/html](#)
 NAME Spatial scope
 DESCRIPTION Spatial scope
 FUNCTION PERFORMED information

Hide Thesaurus ▲

Hide Topics and Keywords ▲

Citation ►

TITLE IE GSI LiDAR Digital Surface Model (DSM) Office of Public Works (OPW) National Aerial Survey Contract (NASC) 2m Ireland (ROI) ITM MH GRID
 PUBLICATION DATE 2018-02-14 00:00:00 REVISION DATE 2018-05-01 00:00:00

PRESENTATION FORMATS digital map

FGDC GEOSPATIAL PRESENTATION FORMAT raster digital data

RESOURCE IDENTIFIER

VALUE EL_ElevationGridCoverage_IE_GeologicalSurveyIreland_LiDAR_DSM_OPW_NASC_2m_Ireland_ITM_MH_GRID

REFERENCE THAT DEFINES THE VALUE ►

TITLE geodata.gov.ie
 PUBLICATION DATE 2018-02-14 00:00:00 REVISION DATE 2018-05-01 00:00:00

Hide Reference that defines the value ▲

Hide Citation ▲

Citation Contacts ►

RESPONSIBLE PARTY

INDIVIDUAL'S NAME Groundwater

ORGANIZATION'S NAME Geological Survey Ireland

CONTACT'S POSITION Head of Groundwater CONTACT'S ROLE point of contact

CONTACT INFORMATION ►

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TYPE both

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CITY Dublin

POSTAL CODE A94 N2R6

COUNTRY IE

E-MAIL ADDRESS support@geodata.gov.ie

ONLINE RESOURCE LOCATION

https://www.gsi.ie

ACCESS PROTOCOL text/html

NAME GSI Website

DESCRIPTION GSI Website

FUNCTION PERFORMED information

Hide Contact information ▲

Hide Citation Contacts ▲

Resource Details ►

DATASET LANGUAGES English (IRELAND)

DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

STATUS on-going

SPATIAL REPRESENTATION TYPE grid

SPATIAL RESOLUTION

GROUND SAMPLE DISTANCE

PRECISION OF SPATIAL DATA 2 m (meter)

PROCESSING ENVIRONMENT Esri ArcGIS 12.6.3.24783

CREDITS

Geological Survey Ireland & the Office of Public Works

ARCGIS ITEM PROPERTIES

NAME LiDAR_DSM_HS_OPW_NASC_IE26_2m_ITM_MH_TIFF

Hide Resource Details ▲

Extents ►

EXTENT

TEMPORAL EXTENT

BEGINNING DATE 2011-01-01 00:00:00

ENDING DATE 2011-12-31 00:00:00

EXTENT

GEOGRAPHIC EXTENT

BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

*WEST LONGITUDE -10.614257

*EAST LONGITUDE -5.874927

*NORTH LATITUDE 55.323838

*SOUTH LATITUDE 51.795201

*EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM

*WEST LONGITUDE 433986.292599

*EAST LONGITUDE 734922.292599 *SOUTH LATITUDE 563065.656650

*NORTH LATITUDE 952979.656650

*EXTENT CONTAINS THE RESOURCE Yes

Hide Extents ▲

Resource Points of Contact ►

POINT OF CONTACT

INDIVIDUAL'S NAME Groundwater

ORGANIZATION'S NAME Geological Survey Ireland

CONTACT'S POSITION Head of Groundwater

CONTACT'S ROLE point of contact

CONTACT INFORMATION ►

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DELIVERY POINT Block 1, Booterstown Hall, Booterstown, Blackrock
 CITY Dublin
 POSTAL CODE A94 N2R6
 COUNTRY IE
 E-MAIL ADDRESS support@geodata.gov.ie

ONLINE RESOURCE

LOCATION <https://www.gsi.ie>
 ACCESS PROTOCOL [text/html](#)
 NAME GSI Website
 DESCRIPTION GSI Website
 FUNCTION PERFORMED information

[Hide Contact information ▲](#)

[Hide Resource Points of Contact ▲](#)

Resource Maintenance ►

RESOURCE MAINTENANCE

UPDATE FREQUENCY **as needed**

[Hide Resource Maintenance ▲](#)

Resource Constraints ►

SECURITY CONSTRAINTS

CLASSIFICATION **unclassified**

CONSTRAINTS

LIMITATIONS OF USE

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LEGAL CONSTRAINTS

LEGAL CONSTRAINTS [Hide](#)
[Resource Constraints ▲](#)

Spatial Reference ►

ARCGIS COORDINATE SYSTEM

*TYPE **Projected**

*GEOGRAPHIC COORDINATE REFERENCE [GCS_IRENET95](#)

*PROJECTION [IRENET95_Irish_Transverse_Mercator](#)

*COORDINATE REFERENCE DETAILS

PROJECTED COORDINATE SYSTEM

WELL-KNOWN IDENTIFIER 2157

X ORIGIN -5022200

Y ORIGIN -15179500

XY SCALE 450346452.34347922

Z ORIGIN -100000

Z SCALE 10000

M ORIGIN -100000

M SCALE 10000

XY TOLERANCE 0.001

Z TOLERANCE 0.00020000000000000001

M TOLERANCE 0.00020000000000000001

HIGH PRECISION **true**

LATEST WELL-KNOWN IDENTIFIER 2157

WELL-KNOWN TEXT PROJCS["IRENET95_Irish_Transverse_Mercator",GEOGCS["GCS_IRENET95",DATUM["D_IRENET95",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],PROJECTION["Transverse_Mercator"],PARAMETER["False_Easting",600000.0],PARAMETER["False_Northing",750000.0],PARAMETER["Central_Meridian",8.0],PARAMETER["Scale_Factor",0.99982],PARAMETER["Latitude_Of_Origin",53.5],UNIT["Meter",1.0],AUTHORITY["EPSG",2157]]

REFERENCE SYSTEM IDENTIFIER VALUE

2157

*CODESPACE [EPSG](#)

*VERSION 6.5.1(8.1.2)

REFERENCE THAT DEFINES THE VALUE ►

TITLE European Petroleum Survey Group (EPSG) Geodetic Parameter Dataset

ALTERNATE TITLES EPSG

PUBLICATION DATE 2004-04-07 00:00:00

EDITION 9.8.12

RESOURCE LOCATION ONLINE

LOCATION <http://www.opengis.net/def/crs/EPSG/0/2157>

ACCESS PROTOCOL [text/html](#)

NAME EPSG

DESCRIPTION EPSG

FUNCTION PERFORMED information

[Hide Reference that defines the value ▲](#)

REFERENCE SYSTEM IDENTIFIER

VALUE 5731

CODESPACE EPSG

VERSION 6.5.1(8.1.2)

REFERENCE THAT DEFINES THE VALUE ►

TITLE European Petroleum Survey Group (EPSG) Geodetic Parameter Dataset

ALTERNATE TITLES EPSG

PUBLICATION DATE 2004-04-07 00:00:00

RESOURCE LOCATION ONLINE

LOCATION <http://www.opengis.net/def/crs/EPSSG/0/5731>ACCESS PROTOCOL [text/html](#)

NAME EPSG

DESCRIPTION EPSG

FUNCTION PERFORMED **information**[Hide Reference that defines the value ▲](#)[Hide Spatial Reference ▲](#)

Data Quality ►

SCOPE OF QUALITY INFORMATION ► RESOURCE LEVEL

dataset[Hide Scope of quality information ▲](#)

DATA QUALITY REPORT - DOMAIN CONSISTENCY ►

CONFORMANCE TEST RESULTS

TEST PASSED **No**

RESULT EXPLANATION

The INSPIRE Directive or INSPIRE lays down a general framework for a Spatial Data Infrastructure (SDI) for the purposes of European Community environmental policies and policies or activities which may have an impact on the environment.

PRODUCT SPECIFICATION ►

TITLE D2.8.II.1 Data Specification on Elevation – Technical Guidelines

ALTERNATE TITLES INSPIRE Data Specifications v3.0 PUBLICATION DATE 2013-12-10 00:00:00

[Hide Product specification ▲](#)[Hide Data quality report - Domain consistency ▲](#)

DATA QUALITY REPORT - DOMAIN CONSISTENCY ►

CONFORMANCE TEST RESULTS

TEST PASSED **No**

RESULT EXPLANATION

See the reference specification

PRODUCT SPECIFICATION ►

TITLE COMMISSION REGULATION (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services PUBLICATION DATE 2010-12-08 00:00:00

[Hide Product specification ▲](#)[Hide Data quality report - Domain consistency ▲](#)

DATA QUALITY REPORT - DOMAIN CONSISTENCY ►

CONFORMANCE TEST RESULTS

TEST PASSED **Yes**

RESULT EXPLANATION

See the reference specification

PRODUCT SPECIFICATION ►

TITLE COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata PUBLICATION DATE 2008-12-04 00:00:00

[Hide Product specification ▲](#)[Hide Data quality report - Domain consistency ▲](#)[Hide Data Quality ▲](#)

Lineage ►

LINEAGE STATEMENT

1. An area is identified for a topographic survey in an office.
2. Each organisation then commissions a LiDAR survey.
3. On survey completion, a point cloud dataset is delivered in a file called a LAS file. This file contains data in the form of Easting, Northing and Elevation.
4. This data is then quality checked for:

- scan angle (angle from the bottom of the airplane)
- point density (points collected per square meter)
- flight overlap (data overlap)
- elevation accuracy (LiDAR measurement in comparison to actual measurement)

PDAL (Point Data Abstraction Library), GDAL (Geospatial Data Abstraction Library) and PKtools (Image processing for remote sensing) software are used to undertake the data quality checks.

5. A set of GeoTIFF data are created from the Point Cloud Data – minimum value per square meter for DTM and maximum value per square meter for DSM.
6. The data are clipped to a national index grid to allow for distributing the data to the public.
7. The GeoTIFF can then be imported into a Geographical Information System such as QGIS or ArcGIS.
8. GSI also receive data from other organisations as raster grids (GRIDS).
9. Each dataset received is clipped to the national index grid to allow for distributing the data to the public.
10. Clipped GeoTIFFs were packaged as .ZIPs and made available on the GSIDownload server
11. A hillshade version of the DTM is produced. This was imported into an ArcGIS Enterprise geodatabase using the TIF to Geodatabase geoprocessing tool in ArcGIS PRO. This was then published as an Image Service and added to ArcGIS Portal to be included in the Open Topographic Viewer.
12. The index was cleaned using SAFE FME software and imported into an ArcGIS Enterprise geodatabase using ArcGIS PRO. Links to GeoTIFF packages were included as URLs. This was then published as a Map Service and added to ArcGIS Portal to be included in the Open Topographic Viewer.
13. Metadata was added to the data using Catalog and conforms to GSI Standards based on ISO and INSPIRE.[Hide Linage](#) ▲

Distribution ►

DISTRIBUTOR ►

CONTACT INFORMATION

INDIVIDUAL'S NAME Information Management
ORGANIZATION'S NAME Geological Survey Ireland
CONTACT'S POSITION Head of Information Management
CONTACT'S ROLE publisher

CONTACT INFORMATION ►

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CITY Dublin
POSTAL CODE A94 N2R6
COUNTRY IE
E-MAIL ADDRESS support@geodata.gov.ie

ONLINE RESOURCE

LOCATION <https://www.gsi.ie>
ACCESS PROTOCOL text/html
NAME GSI Website
DESCRIPTION GSI Website
FUNCTION PERFORMED information

[Hide Contact information](#) ▲

[Hide Distributor](#) ▲

DISTRIBUTION FORMAT

VERSION 10.7
*NAME Enterprise Geodatabase Raster Dataset

TRANSFER OPTIONS

ONLINE SOURCE

LOCATION <https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b7c4b0e763964070ad69bf8c1572c9f5>
ACCESS PROTOCOL application/html
NAME Webmapping Viewer & Data Download
DESCRIPTION Webmapping Viewer & Data Download
FUNCTION PERFORMED download

ONLINE SOURCE

LOCATION https://gsi.geodata.gov.ie/imagehost/rest/services/Lidar/IE_GSI_LiDAR_DSM_HS_OPW_NASC_IE26_2m_ITM_MH_TIFF/ImageServer
ACCESS PROTOCOL text/html
NAME Image Service
DESCRIPTION Image Service
FUNCTION PERFORMED information

ONLINE SOURCE LOCATION [https://gsi.geodata.gov.ie/imagehost/rest/services/Lidar/IE_GSI_LiDAR_DSM_HS_OPW_NASC_IE26_2m_ITM_MH_TIFF/ImageServer/WMSServer?](https://gsi.geodata.gov.ie/imagehost/rest/services/Lidar/IE_GSI_LiDAR_DSM_HS_OPW_NASC_IE26_2m_ITM_MH_TIFF/ImageServer/WMSServer?request=GetCapabilities&service=WMS)
request=GetCapabilities&service=WMS
ACCESS PROTOCOL text/xml
NAME WMS
DESCRIPTION WMS
FUNCTION PERFORMED information

[Hide Distribution](#) ▲

Metadata Details ►

METADATA LANGUAGE English (IRELAND)
METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

METADATA IDENTIFIER MD_EL_ElevationGridCoverage_IE_GeologicalSurveyIreland_LiDAR_DSM_OPW_NASC_2m_Ireland_ITM_MH_GRID

SCOPE OF THE DATA DESCRIBED BY THE METADATA dataset
SCOPE NAME *dataset *LAST UPDATE

2024-09-04

ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0
STANDARD OR PROFILE USED TO EDIT METADATA INSPIRE

CREATED IN ARCGIS FOR THE ITEM 2021-06-11 16:21:20
LAST MODIFIED IN ARCGIS FOR THE ITEM 2024-09-04 11:36:07

AUTOMATIC UPDATES
HAVE BEEN PERFORMED No
LAST UPDATE 2022-01-13 09:59:58

[Hide Metadata Details ▲](#)

Metadata Contacts ►

METADATA CONTACT
INDIVIDUAL'S NAME Information Management
ORGANIZATION'S NAME Geological Survey Ireland
CONTACT'S POSITION Head of Information Management CONTACT'S ROLE point of contact

CONTACT INFORMATION ►

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POSTAL CODE A94 N2R6
COUNTRY IE
E-MAIL ADDRESS support@geodata.gov.ie

ONLINE RESOURCE

LOCATION <https://www.gsi.ie>
ACCESS PROTOCOL text/html
NAME GSI Website
DESCRIPTION GSI Website
FUNCTION PERFORMED information

[Hide Contact information ▲](#)

[Hide Metadata Contacts ▲](#)

Metadata Maintenance ►

MAINTENANCE
UPDATE FREQUENCY as needed

[Hide Metadata Maintenance ▲](#)

Metadata Constraints ►

SECURITY CONSTRAINTS
CLASSIFICATION unclassified

CONSTRAINTS

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Thumbnail and Enclosures ►

THUMBNAIL
THUMBNAIL TYPE JPG

[Hide Thumbnail and Enclosures ▲](#)

FGDC Metadata (read-only) ▼