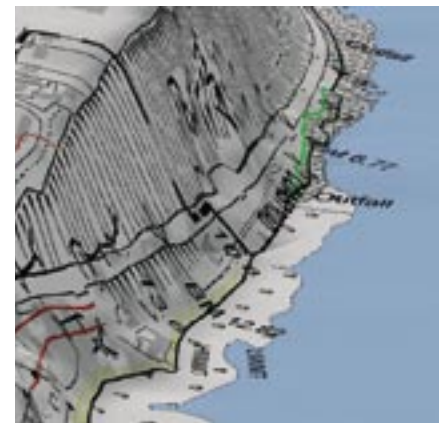


## What is a Digital Terrain Model?

A Digital Terrain Model (DTM) is a digital file providing a highly detailed representation of the topographical (i.e. relief) variations in the Earth's surface. Combined with other digital data, such as maps or orthophotographs, it can provide a 3D image of the land surface. Consisting of terrain elevations for ground positions at regularly spaced horizontal intervals, the added dimension and visualisation offered by a DTM can help in many decision-making processes.



1:10 000 Scale Raster draped on 3D TIN created from a DTM

## Key Features

Available in 10m grid intervals.

Can be used in the electronic process of representing topography in 3 dimensions, including slope and aspect maps.

Using Geographical Information System (GIS) software, orthophotographs and maps can be draped over a Triangular Irregular Network (TIN) derived from a DTM to create a 3D view of the land surface.

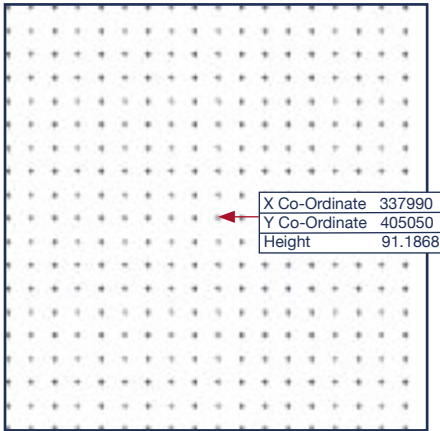
DTM data can also be used in a GIS to create thematic maps, grids and contours.

## Technical Information

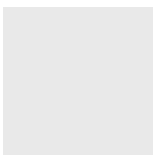
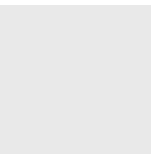
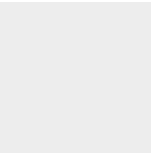
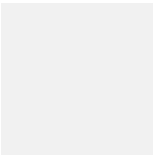
- ◆ The DTM is derived from OSNI's Orthophotography dataset.
- ◆ All height measurements refer to elevation in metres above mean sea level at Belfast Lough.
- ◆ DTMs can be used to generate 3D TINs.
- ◆ 95% of the data is within +/-1.0m accuracy.



# Digital Terrain Model



DTM Data



## Applications

- ◆ Planning
- ◆ Engineering
- ◆ Visualisation
- ◆ Height Analysis
- ◆ Environmental Impact Analysis
- ◆ Sight Lines
- ◆ Wind flow and pollution dispersion
- ◆ Soil erosion modelling
- ◆ Flow direction and accumulation
- ◆ Watershed delineation

## DTMs in Action

DTMs are used by a number of organisations and businesses such as the construction industry, where they are used for the creation of elevation models. Digital data, for example, maps or photographs are draped over the elevation models to provide a 3D view of the land surface. Architectural 3D models can be added to the data to envisage future developments. The resulting 3D models can then be used for planning and environmental impact assessments.

OSNI in partnership with European Air Surveys created a 3D 'fly through' of the Mourne Mountains and Silent Valley. By combining DTM with orthophotography the fly through accurately represents land and height variations.

DTMs are also used for analytical applications. For example telecommunication companies use a DTM for watershed analysis when planning sites of new masts. Insurance companies also use a DTM to carry out floodplain analysis, to identify areas at high and low risk of flooding, when setting premiums.

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