Delivering Terabytes Of Irish Geophysical And Geological Data Free Over The Internet

Ray Scanlon, Archie Donovan

Geological Survey of Ireland, Beggars Bush, Haddington Road, Dublin 4, Ireland
ray.scanlon@gsi.ie, archie.donovan@gsi.ie

A policy change to release large quantities of geophysical and geological data freely over the internet led to the creation of an Interactive Web Data Delivery System (IWDDS) in Ireland. The Minister for the Department of Communications, Energy and Natural Resources (DCENR) of the Irish Government announced that all non-confidential data within the department was to be made freely available over the internet. The policy change for releasing data freely was initiated to stimulate the economy and allow open and free access to data collected by DCENR on behalf of Irish citizens. The Geological Survey of Ireland (GSI) and the Marine Institute (MI) have built this data portal, containing nearly 7Tb of georeferenced marine and terrestrial data, to deliver on the Department' policy.

The bulk of the data is high-resolution multibeam bathymetry data and associated gravity and magnetic data derived from GSI and MI joint marine survey project INFOMAR, and its predecessor the Irish National Seabed Survey. These projects combine as one of the most extensive marine surveying projects in the world. In addition to offshore data, the GSI uses this repository to deliver extensive bedrock geology, groundwater, quaternary, minerals and geotechnical datasets. These range from 1:10,560 scale geological maps (geotiff format) to high-resolution low altitude airborne geophysical surveys (Geosoft .gdb format). The majority of the onshore data is in GIS format (ESRI shapefile).

The IWDDS, built in conjunction with Intrepid Geophysics Ltd, Australia, is a simple, fast data delivery system built around a thematic data catalogue, stored in a flat file structure. Data is stored and delivered in their native georeferenced formats. The IWDDS cuts the datasets to a user's required spatial extent and bundles them together for download. Using a simple GIS interface (UNM MapServer) to define a rectangular spatial extent, user's requests for data are passed to the catalogue using an OPenDAP request. The catalogue returns the dataset list back to the user, who can then preview a thumbnail, select or deselect attributes, order a resample of gridded datasets, or order a re-projection of the dataset to another datum than the data is stored in. Only once these choices have been made does the IWDDS interrogate the data repository itself thus speeding up the data delivery process. A user registration is required, and then an email is sent with a link to an ftp site where a zipped data package is situated.

The IWDDS is located on the Irish HEAnet, the fast fibre backbone of the Irish University sector, which allows easy access to the datasets for geoscience researchers. The HEAnet also has the largest internet bandwidth available both within Ireland and for users accessing from outside the country.

The next phases in development are to integrate the data delivery engine within the GSI's and MI's web mapping applications (largely ArcIMS or ArcIMS/Moxi Media's IMF) to allow users of the web mapping sites to easily access the datasets within their field of view and layer selections. As the catalogue request is an adaptation of OPenDAP, the possibility exists to use the IWDDS as part of a distributed data delivery system spanning a number of government agencies or departments. The GSI and MI are also looking to serve the metadata files stored with the datasets in XML format to the Irish multi-agency distributed metadata project ISDE (Irish Spatial Data Exchange) so that it becomes the Irish marine and geosciences data node in any Irish INSPIRE SDI network.

The IWDDS is located at; https://jetstream.gsi.ie/iwdds/index.html