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Tellus Border project

Communications Programme Report

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Geological Survey of Ireland and Geological Survey of Northern
Ireland joint report
2014

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The Geological Survey of Ireland is responsible for providing geological advice and information, and for the acquisition of data for this purpose. GSI produces a range of products including maps, reports and databases and acts as a knowledge centre and project partner in all aspects of Irish geology. GSI is a division of the Department of Communications, Energy & Natural Resources (DCENR).

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of Northern Ireland**

The Tellus Border project

Tellus Border (2010-2013) was a geo-environmental mapping project that provided data on soils, waters and rocks across the border region of Ireland and integrated these with existing data for Northern Ireland. This cross-border collaboration between the Geological Survey of Ireland, the Geological Survey of Northern Ireland and research partners supports the assessment of natural resources, sustainable environmental management and improvement of geological mapping on the island of Ireland. For more information on Tellus Border please see www.tellusborder.eu.

Tellus Border was funded by the INTERREG IVA development programme of the European Regional Development Fund, which is managed by the Special EU Programmes Body (SEUPB). The SEUPB is a North/South Implementation Body sponsored by the Department of Finance and Personnel in Northern Ireland and the Department of Finance in Ireland. It is responsible for managing two EU structural funds programmes PEACE III and INTERREG IV designed to enhance cross-border co-operation, promote reconciliation and create a more peaceful and prosperous society. For more information on the SEUPB please visit www.seupb.eu.

Tellus Border was additionally part-funded by the Department of Environment, Community and Local Government in Ireland and the Department of the Environment in Northern Ireland.

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Executive Summary

This report summarises the objectives, activities and outcomes of the Communications Programme which was undertaken as part of the Tellus Border project between 2011 and 2013. Public outreach activities in support of the geophysical and geochemical survey operations in the border region of Ireland are described, along with activities supporting wider stakeholder engagement and project publicity.

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1 Introduction

1.1 Communications programme objectives and deliverables

The communications programme aimed to support the activities of the Tellus Border project, to promote the project to a range of stakeholders and to demonstrate the proactive role of the EU in funding environmental projects. The communications programme was developed on the basis of that implemented in support of the Tellus project in Northern Ireland, completed by the Geological Survey of Northern Ireland in 2007.

Specifically, the objectives of the communications campaign were to:

- Plan and execute a programme of activities that satisfied the needs of the stakeholder groups;
- Maximise public interest in the work and ultimately heighten awareness of environmental protection issues and management;
- Warn landowners, farmers and local interests in the survey area of the survey operations, which some might regard as intrusive, and explain the need for the work;
- Inform relevant regional and national organisations of the value of the work, particularly to encourage collaboration with organisations that have an environmental or technical interest;
- Inform government, academia and industry of the value and availability of the information and encourage these sectors to use the new data to improve environmental management in the project area;
- Inform the public of the pro-active role played by the EU and government in promoting an environmental survey of such national importance.

The specific requirements of the communications programme given in the Tellus Border Project Plan¹ are summarised in Table 1.

¹ Young, M.E. and Scanlon, R.P. (2010) *Project Plan. Tellus Border Project.*

Specific requirement	Description
Communications Lead	<ul style="list-style-type: none"> • Person with responsibility for communications programme to be appointed. • Communications Lead to attend all Communications Network meetings. • Communications Lead to record and evaluate all publicity undertaken on a quarterly basis.
Press releases	On three occasions over life of project.
Web pages	At least one regularly updated web page.
Media events	To mark commencement and closure of project.
Newsletter	To be issued twice yearly.

Table 1. Specific requirements of the communications programme as per the Project Plan.

To ensure that the project and its outputs were widely recognised, understood and appreciated across all defined stakeholder groups as well as among the wider public, the following specific measures were agreed in the project plan and undertaken:

- Eight publications in peer-reviewed journals, including two produced at project level and six from research projects;
- Annual technical seminars;
- One end-project conference;
- Six presentations to councils;
- One roadshow/exhibition.

This report describes how the requirements were fulfilled and the publicity measures undertaken. Communications activities were recorded and evaluated by the Communications Lead and reported to the SEUPB on a quarterly basis.

1.2 Personnel

1.2.1 Project partners

The Communications Lead had responsibility for publicity and information activities for Tellus Border, in consultation with the Project Managers in GSNI (Mike Young, November 2012 – September 2011, and Marie Cowan, September 2011 – present) and in GSI (Ray Scanlon). The Communications Lead role was fulfilled by Enda Gallagher (November 2010 – September 2011) and Mairéad Glennon (September 2011 – December 2013) in close consultation with the project managers in GSI and GSNI. SEUPB Communications Network meetings were attended in 2011 by Enda Gallagher and in 2012 by Mairéad Glennon.

1.2.2 Public relations support

The *Request for Tender (RFT) for the provision of Public Relations support in connection with the Tellus Border Project* was issued on 15th February 2011 and was advertised on the Government of Ireland procurement website www.etenders.gov.ie until 8th March 2011. The RFT stipulated the task description, target audience, event schedule and reporting arrangements for the provision of services until December 2013. Specifications (Appendix A) were largely based on those developed for the Tellus survey in Northern Ireland.

Eight qualifying tenders were received. Morrow Communications, of Holywood, County Down, were appointed as public relations consultants to the Tellus Border project by GSI on 5th May 2011. The Morrow Communications team consisted of Kelly Maguire (Account Manager), Claire Bonner (Director) and Seona McGrath (Account Support). Morrow Communications reported to GSI on publicity activities and media coverage on a monthly and quarterly basis in order to feed into SEUPB communications reporting requirements.

1.2.3 Media monitoring

Kantar Media provided a media monitoring service to Tellus Border from July 2011 to December 2013, monitoring national and regional press, radio and television for Tellus Border coverage. This service was provided via Morrow Communications until October 2012. A further procurement exercise by GSI awarded a new media monitoring contract directly to Kantar Media in November 2012. The contract specifications were as follows:

- Northern Ireland print and radio broadcast monitoring;
- Republic of Ireland print and radio broadcast monitoring;
- Provision of newspaper clippings in electronic format;
- Provision of radio broadcast recordings and transcripts.

For the monitoring service, Kantar Media provided access to media and broadcast clippings via an online portal for a flat monthly and per-clip fee. Broadcast mp3 recordings and transcripts were available on request at an additional cost.

1.3 Stakeholders

The project plan identified key groups of stakeholders and outlined a communications strategy for engaging with them. This was implemented as follows:

1.3.1 Internal

Wider staff in partner organisations (GSNI, GSI, QUB and DkIT) were kept up-to-date throughout the project in order to increase awareness of the project and to promote increased internal cooperation. Newsletters were circulated within the partner organisations and internal briefings were given to GSI staff on 21st January 2013 prior to the Data Launch event and on 21st October 2013 prior to the Results and Research Conference.

1.3.2 Partnership level

Project staff in the partner organisations were kept up-to-date on the progress of the project via a regular series of weekly, monthly and quarterly meetings. The GSNI and GSI teams held a weekly videoconference on Wednesday mornings. Marie Cowan, as Project Manager, held a meeting with postdoctoral research project staff from QUB and DkIT on a monthly basis. All partners had the opportunity to meet and discuss project progress in depth at the quarterly Partners Committee meeting.

1.3.3 Regional level

Regional level stakeholders within the survey area include Local Authorities, the Border Regional Authority, local councillors, politicians, media, emergency services, community groups, farmers, landowners and the general public. The objective of contact with these groups was to communicate the benefits of the project and to advise of the airborne survey and geochemical survey activities.

1.3.4 National level

At a national level, central government and government agencies were engaged in order to make high-level policy- and decision-makers aware of the benefits of the project and to leverage interest for further surveys. Media organisations were also targeted on a national level to promote the benefits of the survey to the public interest.

1.3.5 EU level

Throughout the project's lifetime, the project was represented at EU level at SEUPB workshops, meetings and consultations. The project was also promoted across the EU at several international scientific conferences, helping to place Tellus Border in an EU context and to promote the benefits of EU funding.

1.3.6 Science sector

To ensure the uptake of the Tellus Border data by the scientific community, close contact was established and maintained throughout the project with relevant government departments, state agencies, research organisations, universities and industry. This engagement sought to foster technical collaboration, to tailor project outputs for maximum uptake and to gather feedback on the methodologies employed in the project for future reference. Ultimately, engagement with the science sector aimed to improve environmental management and increase investment in natural resources assessment.

2 Preparing for surveying

The Tellus Border surveys consisted of a low-level airborne geophysical survey and a soil, water and sediment geochemical survey. The areas covered by each survey are indicated in Figure 1. The airborne survey covered an area of 10,426 km² over all of counties Sligo, Leitrim and Louth and large parts of Donegal, Cavan and Monaghan. Smaller areas on the periphery of the survey were flown in counties Mayo, Roscommon, Longford, Westmeath and Meath. The geochemical survey covered 12,339 km² in counties Donegal, Sligo, Leitrim, Cavan, Monaghan and Louth. The geochemical survey area has a population of 468,000 people⁽²⁾ and contains approximately 29,000 farms, most engaged in small-scale beef production.

Flying at a low altitude of 56m above ground level, the survey aircraft had the potential to cause alarm to people and animals on the ground. It was necessary to alert the general public to the low-flying activities and reassure them that the work was being carried out safely in accordance with an Irish Aviation Authority permit. In the case of livestock, horses, pedigree cattle, deer,

² Central Statistics Office (2012) *Census of Agriculture 2010- Preliminary Results*. The Stationery Office, Dublin, Ireland.

poultry and pregnant sheep were considered to be at high risk of taking fright due to low flying with potential to cause economic loss to farmers. Particular consideration of the risk to horses was undertaken in relation to horse riding, with many private and commercial riding, livery and breeding stables in the survey area. In addition, those involved in local air sports, which typically operate outside of controlled airspace, had to be engaged and continually informed about our aircraft movements.

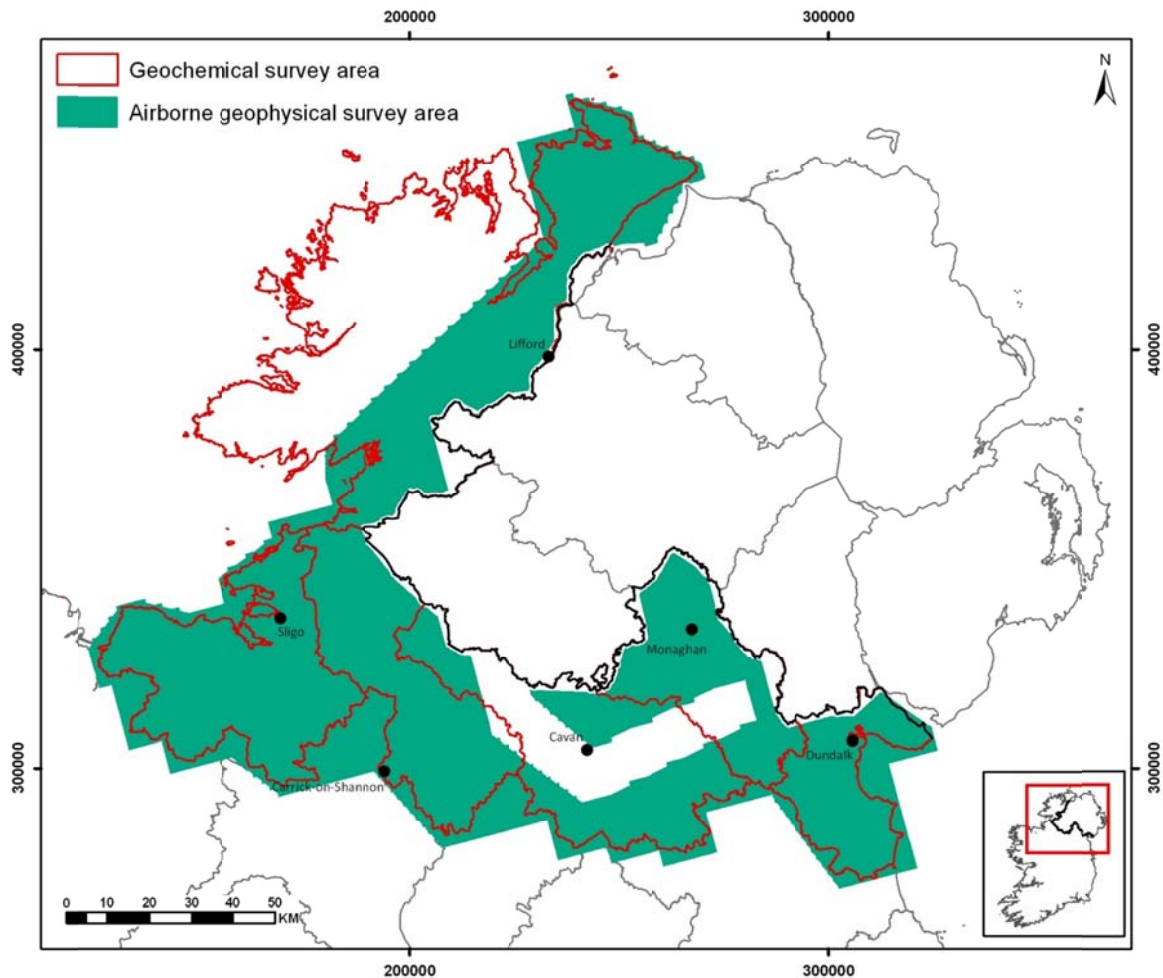


Figure 1. Airborne and geochemical survey areas

The geochemical survey was undertaken by teams of samplers working in pairs. Permission to enter land and take samples was sought on the day of sampling. Publicity and information measures were put in place to alert the rural community to the presence of Tellus Border samplers in the field. Ground-based geophysical work was carried out at two test line sites in north County Leitrim and at Sliabh Beagh in Counties Monaghan and Armagh, in support of the airborne

geophysical survey and the soil carbon research project. Focused local outreach was carried out on a door-to-door basis for these and other research project sites, with the support of community groups where possible.

2.1 Reaching the general public

2.1.1 Flyer and poster

To alert the general public to the surveys in advance of survey operations beginning in autumn 2011, a double-sided information flyer was designed, with content given in both English and Irish (Figure 2). Fliers were delivered (by An Post) to 240,000 homes in the survey region. An A3 poster version of the flyer was put up in Garda stations, Post Offices and local shops by Tellus Border team members in 20 regional towns.



Figure 2. Tellus Border flyer/poster

2.1.2 Information line

A Tellus Border freephone information line was opened on 10th August 2011 (1800 303 516 from Ireland or 028 9039 3851 from Northern Ireland). The line was manned by Morrow Communications during office hours and the line was routed to voicemail in evenings and to the GSI or GSNI on-call mobile phone at weekends. The calls were logged by Morrows in a database and those requiring an urgent response were immediately referred to the Communications Lead or Project Manager. The information line closed on 31st July 2011, after the completion of the airborne survey on 15th July 2011. In total 143 calls were received on the information line.

2.1.3 Website, email address and web information pack

The Tellus Border website www.tellusborder.eu, developed by the Department of Communications, Energy and Natural Resources, went live on 24th June 2011. Over the duration of the project, the website received 75,536 page views from 15,160 people over 21,489 visits. Most hits were from Ireland (65%), followed by the United Kingdom (19.5%) and the United States (2.5%), with visitors spending an average of 3 minutes 31 seconds on 3.5 pages per visit. A huge spike in interest in the project, particularly the gold in stream sediments map, followed the release and promotion of the final project outputs on 24th October 2013, with a spike of nearly 4,000 visits. Further website metrics are given in Appendix B (Google Analytics report).

A dedicated Tellus Border email address, tellusborder@gsi.ie, was opened on 1st July 2011. Tellus Border team members in GSI had access to the account and a weekly rota was established for responding to incoming emails. The “Contact Us” box on the website linked directly to the tellusborder@gsi.ie mailbox. In total, 172 email enquiries were received and answered over the duration of the project.

A web information pack was prepared for Local Authorities to enable them to update their websites with Tellus Border information, consisting of Tellus Border logos, FAQs and newsletter. Several Local Authorities used and updated the material on their websites.

2.1.4 Frequently asked questions

A “frequently asked questions” (FAQ) document was developed, uploaded to the website and updated periodically to reflect new enquiries. The 3-page FAQs (Appendix C), with a colour image of the airborne survey plane and full contact details, were a useful resource for journalists and the general public.

2.1.5 Letters

In September 2011, in advance of the airborne survey, 3,178 personalised letters were sent to identifiable equine, poultry, hunting and air sports concerns as well as schools, hospitals, nursing homes and community groups. Morrow Communications compiled an address database through contact with relevant umbrella organisations such as the Irish Countrywomen’s Association, Macra na Feirme, the Pony Club of Ireland, Horse Sport Ireland, the Irish Thoroughbred Association, dairy processors, speciality cattle breeders and the main egg/poultry processing plants. Morrow Communications also briefed these organisations on the project and encouraged them to disseminate information on our behalf. The letter explained the purpose of the airborne survey and invited recipients to contact us with questions or concerns, particularly about livestock.

2.1.6 Public Information Notices

A Public Information Notice was published between 26th and 29th October 2011 in eight regional newspapers (Donegal Democrat, Donegal News, The Argus, Leitrim Observer, Northern Standard, Sligo Champion, Drogheda Leader, Anglo Celt) and two national newspapers (Irish Farmers Journal and The Irish Field), reaching a readership of 187,645 (Figure 3). Notices were placed via the Irish government-appointed agency Brindley Advertising.

THE IRISH FIELD, Saturday, October 29, 2011
 Red numbers after classified advertisements can be used on www.theirishfield.ie to access further details **A63**

SPECIAL NOTICES

**Tellus Border Project:
 Airborne Survey of Border Region
 2011**

A low flying aircraft will be surveying over the border counties in the coming months collecting scientific data on the rocks, soils and waters of this region. Animal owners, equestrian centres and air sports participants may be affected.

The survey is part of the Tellus Border Project, an EU-funded mapping project which will provide a comprehensive and current picture of the environment in the border region. This project is a joint initiative between the Geological Survey of Ireland and the Geological Survey of Northern Ireland.

It involves a small, fixed wing, twin propeller plane flying approximately 60m/200ft above the ground. The sound of the plane overhead is similar to that of a passing lorry, which may be enough to disturb sensitive livestock, in particular horses, poultry, deer and pedigree cattle.

If you are concerned about this survey please contact us for further information.
Tellus Border Information Line: 1800 303 516
Email: tellusborder@gsi.ie
Project Website at: www.tellusborder.eu

This project is supported by the European Union's INTERREG IVA Cross-Border Programme, managed by the Special EU Programmes Body.



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AUCTIONS

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AUCTIONEERS
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Coolatore House, Moate, Co. Westmeath

**Viewing Times: Friday (4th Nov) 11am - 6pm; Saturday (5th Nov) 11am - 5pm;
 Sunday (6th Nov) 10am - 12 Noon.**

Amongst the 600 lots to be sold in the auction: Regency Gothic Four Door Rosewood Bookcase, Set of 12 William IV Dining Chairs, Antique Oriental Natsumi Tea Service, William IV Centre Table, Unusual Art Nouveau Copper Fuel Box, 18ct Rolex Cocktail Wristwatch, Carved Mahogany American Federal Style Four Poster Bed, Antique Gilded Buddha, Oriental Day Bed, Pair of Victorian Cast Iron Urns on Matching Plinth Bases, George II Irish Mahogany Bottle holder on Stand, Regency Inlaid Chest on Chest, Large Pair of Antique Engraved Islamic Salvers, Various Georgian & Victorian Ancestral Portraits, Fine Circular Three Tier Deadwater on Tripod Support, Solid Silver Photograph Frames, Numerous Antique Cut Crystal Decanters & Goblets, 2oz weight 18ct Gold Watch Chain, Arts & Crafts Hallstand with Fine Engraved Brass Fittings, Various Antique Hunting Prints, Ancient Cut Granite Troughs & Planters, Antique Lead Door Steps, Victorian Rosewood Brass Inlaid Double Bed, Antique Fine 18ct Gold Early Victorian Swiss Fob Watch, Large Pair of Antique Brass Cannons, Regency Mahogany Cellar, Various Chests of Drawers and Lockers (Victorian, Georgian & Edwardian), Various Gilded Wall Mirrors, Heavy Solid Silver Victorian Tankard (engraved with ancestral family crest), Various Volumes of Old Books, Unusual Brass Mounted Circular Mahogany Occasional Table, Pair of Blue & White Oriental Table Lamps, Various Old Pairs of Hunting Boots, Victorian Solid Silver Repousse Work Cup, Monumental Profusely Carved Two Door Victorian Cabinet, Pair of Gilded Victorian Wall Brackets, Fine Pair of Ornate Mounted Table Lamps with Cheneb Mosaic decoration.

This Good will be available on view and auction from 10.00am until 10.00pm on Saturday and Sunday.

Figure 3. Public Information Notice – Irish Field, 29th October 2011

2.2 Reaching animal owners

2.2.1 IFA text messages

Three regional officers from the Irish Farmers Association (IFA) were briefed on the project by the Tellus Border team on 17th June 2011 – Davie Keith (Donegal), Adrian Leddy (Sligo/Leitrim) and Anthony Clinton (Cavan/Monaghan/Louth). The IFA was happy to lend its support to the project and offered to send out text messages to its members at key milestones in the project, e.g. at the start of the airborne survey and for geochemistry survey mobilisations into new areas. Text messages were sent on 21st October 2011, 26th October 2011, 5th December 2011, 21st December 2011, 6th March 2012, 13th March 2012, 12th April 2012 and 3rd May 2012; reaching approximately 160,000 members in total.

2.2.2 Phone calls to horse owners

Few enquiries were received from horse owners in response to the flyer and letter mail-outs and it was decided to actively contact horse owners to ask them if they had concerns about the airborne survey which needed to be addressed in advance of the survey commencement. In total 111 horse owners including riding stables, trainers, breeders and livery stables were contacted by phone in

October 2011. This resulted in 64 people requesting notification the day before flying, and 27 people requesting that the plane fly higher over their property.

3 Survey operations

3.1 Communications database and on-call rota

A Microsoft Access database was developed to log enquiries, recording the contact details, location and nature of each enquiry, based on a similar database used by GSNI for the Tellus survey (Figure 4).

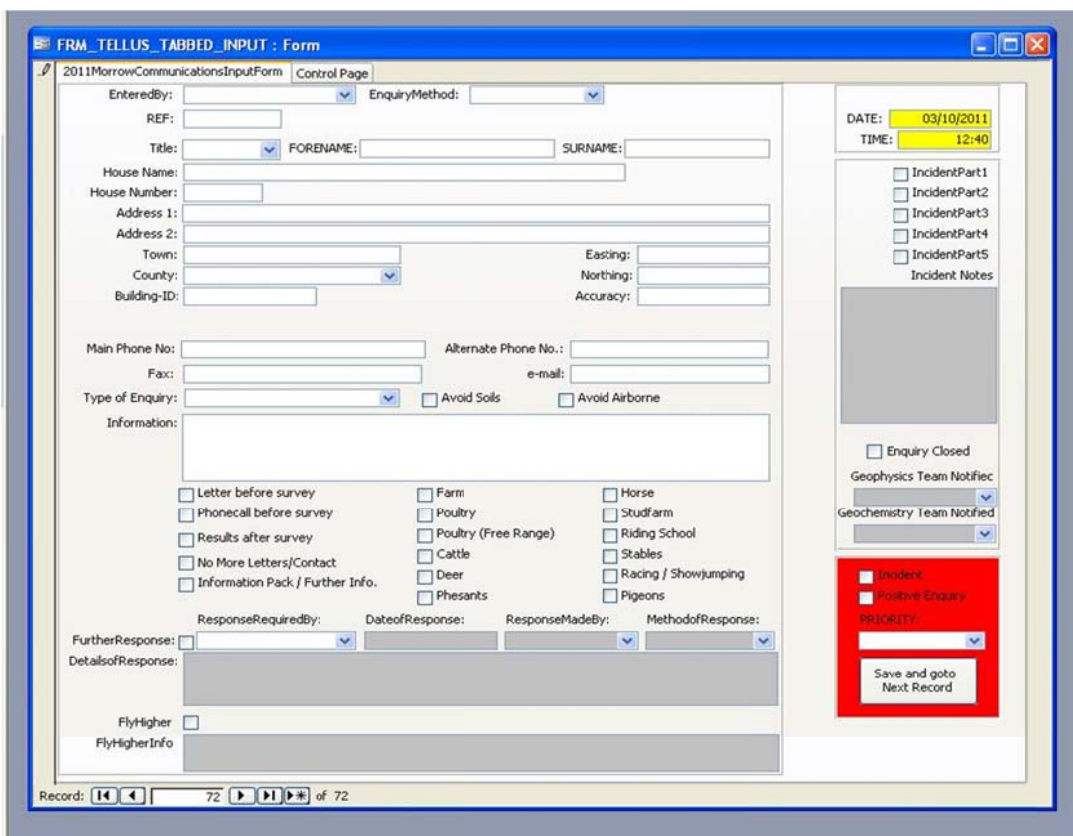


Figure 4. Communications database for recording enquiries about the airborne survey.

Following active outreach activities beginning in August 2011, enquiries began to reach the project team via email and phone. These were logged and flagged for follow-up action as appropriate. If the enquirer expressed concerns about risks to livestock or people on the ground, their location was digitised in a Geographic Information System by the Data Manager and marked as a “notify” (notify of intention to fly over property the day before flying) or “avoid” (fly higher over property) as appropriate. Due to the lack of postcodes it was often difficult to pinpoint an address. In cases

where an individual field was to be digitised, detailed directions were taken over the phone from the enquirer. Using a customised application developed by DCENR, incorporating the An Post Geodirectory, OSI aerial photography and Google Street View, the Data Manager pinpointed the location and updated the database of “notify” and “avoid” properties accordingly.

During survey activities, an “on-call rota” was established to make sure that there was one person on duty at all times to deal with urgent enquiries relating to the airborne survey (Communications Rep). The rota included five members of the project team in GSI and GSNI, with one person typically on duty for either weekdays or a weekend. Duties while on call included:

- Receiving flight lines from the Sander Geophysics flight crew (SGL) on the evening before flying;
- Checking the communications database for landowners who were to be notified or whose land was to be avoided for the given flight lines (Figure 5);
- Phoning “notify” landowners and verifying the “avoid” lands with SGL the evening before flying;
- Maintaining contact with animal owners who were keeping animals indoors due to the aircraft;
- Taking calls from the information line which was routed to the on-call mobile at weekends.

The Communications Rep also occasionally had to check the landowner database and notify landowners at very short notice if SGL changed its flight plan while in flight (e.g. due to deteriorating weather conditions). At the start of the airborne survey the Communications Rep was stationed with SGL in St. Angelo Airport, Enniskillen. In early 2012 it was decided that the Communications Rep could operate remotely from Dublin or Belfast, maintaining contact with SGL by phone and email.

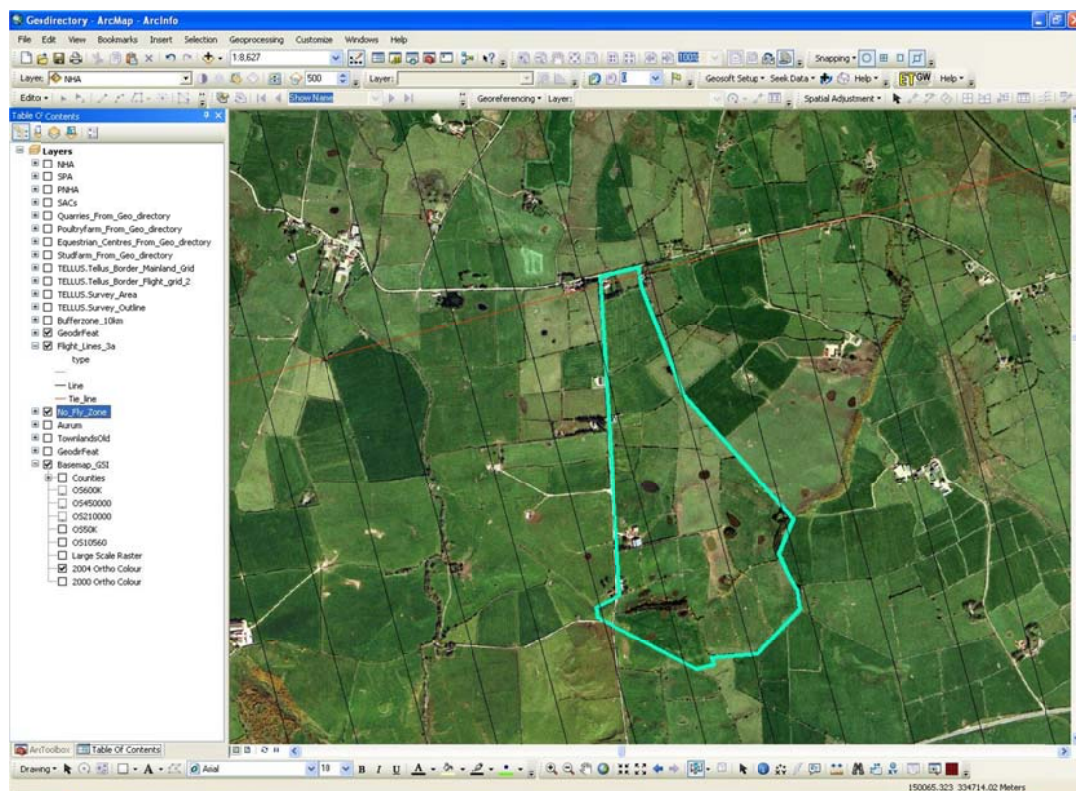


Figure 5. Geographic Information System showing the location of individual farms in relation to survey flight lines.

3.2 Community contact

Throughout the geochemical survey and the field work associated with the postdoctoral research projects in Dundalk IT and QUB, farmers, landowners and local residents were made aware of survey operations on a door-to-door basis. OCAE Consultants Ltd. sampling staff carried DCENR identification cards and information flyers while seeking permission to enter land and displayed magnetic “Tellus Border” signs on vehicles. At two of the soil carbon research project sites, community groups greatly assisted in providing access and information for case study sites – Truagh Development Association at Sliabh Beagh (counties Monaghan and Armagh) and Ballynahone Management Committee/An Carn Community group at Ballynahone Bog, County Derry. Towards the end of the airborne survey, SGL arranged for “survey” sign-writing to be displayed on the side of the plane so that bystanders on the ground could immediately identify the plane as a survey aircraft.

3.3 Traffic alerts

Flight lines in County Louth ran parallel to the main Dublin-Belfast M1 motorway. Considering the high traffic volumes on the road, the orientation of flight lines and the low altitude of the survey, it was decided to put in place additional measures to avoid alarming motorists during the survey operations. SGL was instructed to fly high (>180 m) on flight lines directly over the motorway. The National Roads Authority was approached in relation to Digital Message Signs which are permanently in place along the M1 and they agreed to display the message “Warning Low Flying Survey in Progress” during survey operations. The road signage was in use for 10 days from 19th January 2012 and the message reached up to 300,000 road users. Morrow Communications liaised with AA Roadwatch to broadcast a message about the survey on national radio traffic bulletins and Twitter on 19th January 2012, reaching up to 500,000 listeners each day. There were no complaints in relation to flying over the M1 area.

3.4 Flight plan notifications

Flight plan notifications, consisting of a map showing planned lines for the week ahead, were sent to 56 interested parties (stakeholders, air sports clubs and equestrian clubs) and were uploaded into an interactive map on the website at the start of every week (Figure 6).

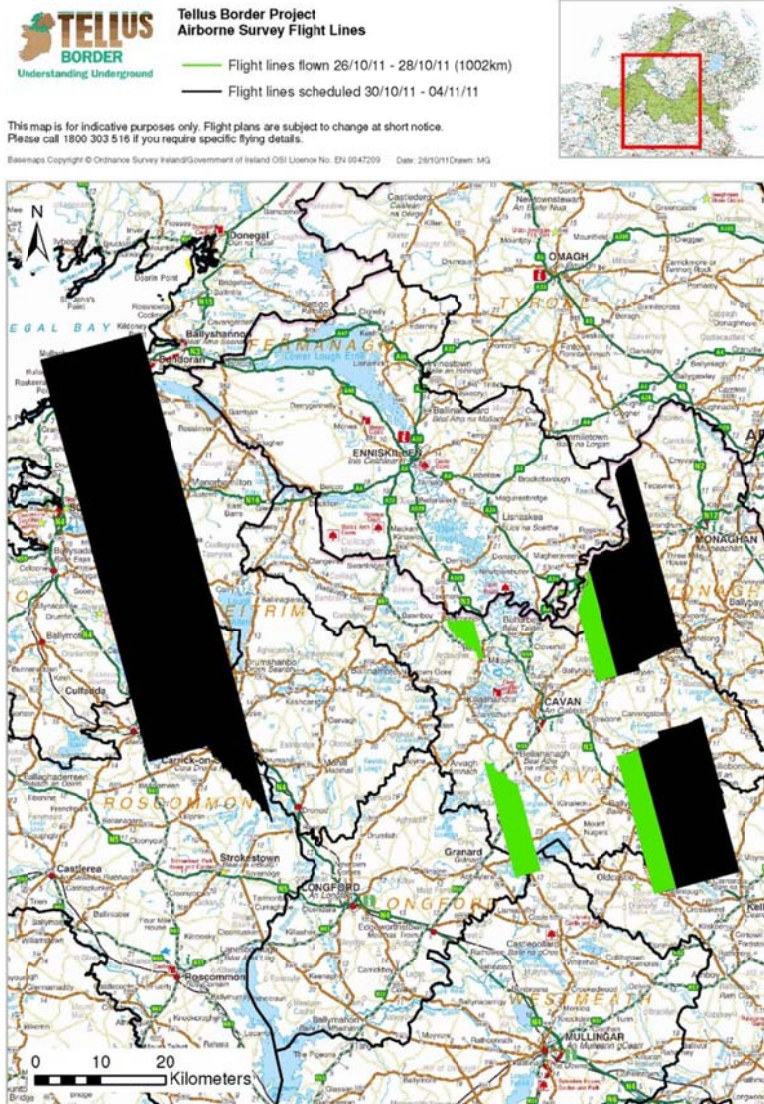


Figure 6. Weekly flight plan notification

3.5 Complaints

A complaint reporting procedure was put in place in advance of the airborne survey to provide for an immediate response to complaints, including a visit by a risk assessor or vet if necessary.

Complaints were categorised into four categories depending on the nature of the complaint:

- (i) Low flying causing alarm;
- (ii) Alleged damage to property;
- (iii) Alleged injury to animal; and
- (iv) Alleged injury to person.

In total 30 complaints were received. There were 25 complaints in relation to noise or low flying causing alarm. There were five complaints which alleged injury to animals. There were no complaints in relation to damage to property or injury to a person. Most Category 1 complaints were mitigated with a phone call to the complainant to explain the nature of the work and to assure them of the safe operation of the survey aircraft. In cases where livestock was involved the complaint was fully investigated according to set procedures which included seeking a Garda record of the complaint and the engagement of an independent vet or loss adjuster to assess injury or damage where necessary.

Although complaints were reported through the freephone information line, several were reported via the Irish Aviation Authority and the Garda Síochána. It was necessary to renew contact with regional Garda stations to ensure that all staff were aware of the survey and were in a position to assure members of the public about the safe operation of the aircraft. The IAA agreed to post a message on their website about Tellus Border with the aim of reducing the number of phone enquiries to the IAA about the aircraft.

Analysis of the complaints revealed the following:

- One complaint about low flying was received on average for every 2,500 line kilometres flown (equating to the distance between Dublin and Cairo). One alleged injury to an animal was reported on average for every 13,000 line kilometres flown (equating to the distance between London and Western Australia).
- The number of complaints per county was higher in western counties. Possible reasons for this include publicity materials having lost their effect by the time the survey moved west and the fracking controversy in Lough Allen Basin (see section 5).
- On a seasonal basis complaints peaked in March 2012, during the animal reproductive season and a spell of fine weather when continuous long lines were flown.
- On a weekly basis complaints were higher in relation to weekend flying when people were at home and outside taking part in recreational activities.

4 Continuous stakeholder engagement

In order to progress the objectives of informing stakeholders of the value and availability of the data and to encourage collaboration with relevant organisations, a programme of continuous stakeholder engagement accompanied and followed the surveying phases. Events, briefings, newsletters, data release notifications and media engagement ensured that the Tellus Border project was well recognised amongst identified stakeholders and that interest in project outputs was considerable.

4.1 Stakeholder meetings

A total of 45 briefing meetings were held with stakeholders between April 2011 and December 2013, reaching approximately 602 people (Table 2). The objectives of the briefings were to inform interested groups of the survey activities, which in turn supported the survey operations, and to communicate the benefit and potential uses of the data to prospective data users in a variety of sectors.

Date	Meeting	Attendees
26-Jan-11	Irish Geological Association	NA
12-Apr-11	Leitrim County Council	2
12-Apr-11	Sligo County Council	6
15-Apr-11	Donegal County Council	2
11-May-11	Louth County Council	2
16-May-11	Cavan County Council	4
17-Jun-11	Irish Farmers Association	3
20-Jun-11	Louth Council Chamber	30
28-Jun-11	Monaghan County Council	3
11-Jul-11	Cavan Council Chamber	20
25-Aug-11	Truagh Community Development Association (Monaghan)	30
21-Sep-11	Border Regional Planning Authority Planning Group	12
22-Sep-11	Donegal Museum	10
26-Oct-11	Border Regional Authority	37
26-Oct-11	Irish Mining and Quarrying Society/ Irish Association for Economic Geology	27
28-Nov-11	Louth County Council	1
28-Nov-11	Monaghan County Council	1
08-Dec-11	Radiological Protection Institute of Ireland	3
01-Feb-12	Office of Public Works Flood Risk Group	15
02-Mar-12	North South Ministerial Council	NA
02-Mar-12	Geothermal Association of Ireland	25
22-Mar-13	Radiological Protection Institute of Ireland	20

02-May-12	Teagasc - Agricultural Catchments Programme	6
02-May-12	Northern Ireland Environment Agency	40
16-Oct-12	Engineers Ireland North West Branch	40
18-Oct-12	Ballynahone Bog Management Committee	10
26-Oct-12	Dublin Institute of Technology	10
10-Dec-12	University College Cork	NA
17-Dec-12	University College Dublin	1
11-Jan-13	Teagasc - Environment Knowledge Transfer section	3
21-Jan-13	Geological Survey of Ireland staff	25
15-Feb-13	Radiological Protection Institute of Ireland	2
19-Feb-13	Irish Association of Economic Geologists	50
25-Mar-13	Louth Council Chamber	30
26-27-Mar-13	SEUPB Communications Workshop, Belfast & Enniskillen	40
15-Apr-13	Belfast Geologists' Society	NA
30-May-13	Environmental Protection Agency & Teagasc	2
17-Jul-13	Radiological Protection Institute of Ireland	3
03-Sep-13	Environmental Protection Agency	8
11-Nov-13	Monaghan County Council, Environmental Protection Agency, Border Regional Authority, Inland Fisheries	17
22-Nov-13	Health Service Executive	NA
12-Dec-13	Sligo County Council	28
16-Dec-13	Cavan County Council	6
16-Dec-13	Leitrim County Council	12
17-Dec-13	Louth County Council	16
	Total meetings	45
	Total attendees	602

Table 2. Stakeholder briefings summary

4.2 Newsletters

Six project newsletters were produced by the Tellus Border team on a biannual basis (Spring/Summer and Autumn/Winter editions). The Communications Lead compiled articles from team members and circulated the newsletters in pdf format by email to c. 70 key contacts in stakeholder organisations. Hard copies were also posted to Local Authorities for their public information areas. Newsletters were released on 4th July 2011 (No.1), 23rd December 2011 (No. 2), 20th June 2012 (No. 3), 18th December 2012 (No. 4), 31st May 2013 (No. 5) and 8th January 2014 (No. 6). The newsletters were typically 8 to 12 pages in length and featured updates from programme areas and postdoctoral projects as well as case studies on the application of Tellus Border data. The newsletters were made available online at www.tellusborder.eu/News.htm.

4.3 Tellus Border map viewer and data downloads

The Tellus Border viewer, a bespoke online map and data viewer, went live on 5th February 2013 to coincide with the launch of the geophysical data. The viewer was hosted and developed by DCENR to display the project’s spatial data outputs in a Geographic Information System environment. Between 5th February and 31st December 2013, the Tellus Border online map viewer received 28,974 page views from 2,918 people over 5,994 visits. Most visits were from Ireland (80%), followed by the United Kingdom (15%) and Canada (1.5%), with visitors spending an average of 8 minutes 57 seconds on 4.8 pages per visit. Interest in the data following the release and promotion of the final project outputs on 24th October 2013 saw a spike of nearly 1,500 visits. Further metrics are given in Appendix D.

Data was made available for download via a link to the Tellus Border website and was provided in several formats including ESRI grid, KML files for Google Earth and zipped Excel files. Datasets were also available as Web Mapping Services. Datasets were downloaded 2,016 times over the project duration; the airborne geophysics datasets was downloaded 1,713 times since publication on 5th February 2013 to 31st December 2013 (Figure 7). The geochemical data were downloaded 303 times since publication on 2nd December 2013 to 31st December 2013. Data was made available free of charge and no licence conditions were imposed on data users.

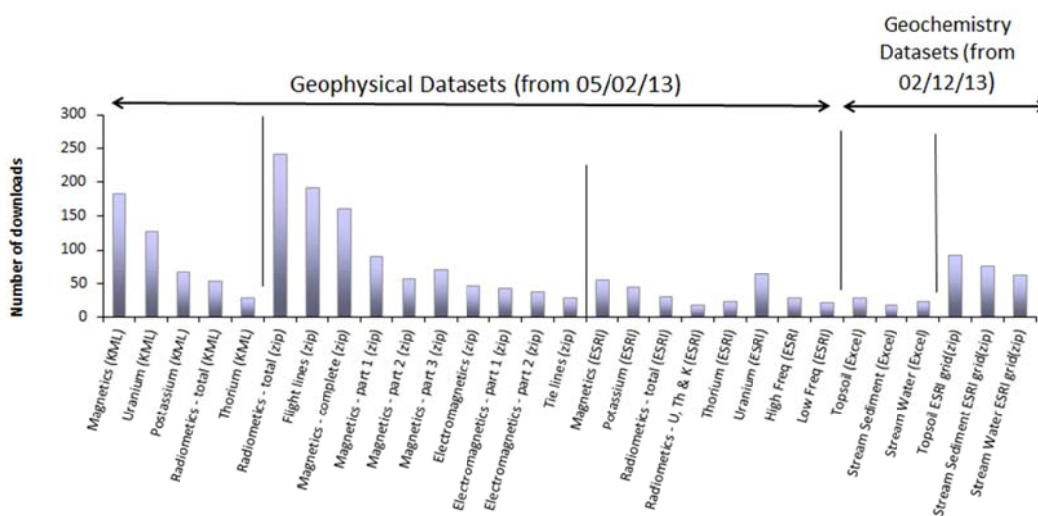


Figure 7. Data download statistics

4.4 Data release notifications

Data release notifications were circulated by email to a wider list of over 800 stakeholders five times in 2013. Geophysical data was released in stages (5th February, 1st March and 10th May) according to availability, followed by geochemical data (23rd October and 2nd December).

4.5 Publications

Tellus Border regularly provided articles for publications including Inshore Ireland, Earth Science Ireland, Science Spin magazines as well as the newsletters of the Geological Survey of Ireland and the Institute of Geologists of Ireland.

4.6 Stakeholder Events

4.6.1 Project announcement

The Tellus Border project was announced on 1st February 2011 at photocalls in Stormont (Belfast) and on 16th February 2011 in Leinster House (Dublin).



Figure 8. Project announcement at Stormont, Belfast, 1st February 2011, attended by Minister for Enterprise, Trade and Investment Arlene Foster.



Figure 9. Project announcement at Leinster House, Dublin, 16th February 2011, attended by Minister for Natural Resources Conor Linehan.

4.6.2 Project launch

Tellus Border survey operations were formally launched on 4th July 2011 by Minister for Communications, Energy and Natural Resources Pat Rabbitte at the Cavan Crystal Hotel, Cavan. The afternoon event attracted 78 stakeholders from local authorities, government departments, the agricultural sector, universities, community groups and the private sector. The aim of the event was to inform stakeholders about the commencement of the survey operations and to raise interest in the benefits of the data to be collected.



Figure 10. Tellus Border project launch event, Cavan, 4th July 2011.

4.6.3 Airborne survey Open Day

Tellus Border hosted a Family Fun Open Day at St Angelo Airport, Enniskillen, on Saturday 31st March 2012, which aimed to raise awareness and understanding of geoscience and Tellus Border for families living in Fermanagh, Cavan and throughout the neighbouring border counties. The

event attracted over 700 local people who had the opportunity to see the survey plane, meet the pilots and take part in educational geoscience activities. Marble Arch Caves Global Geopark, the Ulster Museum, Methodist College Belfast, Sander Geophysics Ltd., OCAE Consultants Ltd. and artist Geraldine Tighe contributed to the event activities, which included “make your own volcano”, fossil moulds and gold panning.



Figure 11. Airborne survey Open Day, Enniskillen airport, 31st March 2012.

4.6.4 Last sample field visit

On 15th June 2012 Minister of State for Natural Resources Fergus O’Dowd, along with pupils from St. Mary’s National School, Drogheda, took the last sediment sample of the geochemical surveys near Ardee, Co. Louth.



Figure 12. Last geochemical sample photocall, Ardee, 15th June 2012.

4.6.5 Data launch

An event to coincide with the release of the Tellus Border airborne geophysical survey data and soil geochemical maps was held at the Davenport Hotel, Dublin, on 5th February 2013. The event

featured presentations on Tellus benefits, the new geophysical data, a geochemical data preview, data availability and a preview of the future of Tellus Border. The event was hosted by the Minister of State for Natural Resources Fergus O’Dowd and welcoming statements were given by GSI Director Koen Verbruggen and SEUPB Chief Executive Officer Pat Colgan. The morning event attracted 86 stakeholders and feedback from the event was positive, with 37 questionnaire respondents rating the speakers and content of presentations as good or excellent.



Figure 13. Data Launch event, Davenport Hotel, Dublin, 5th February 2012.

4.6.6 Project closure conference

The outputs of Tellus Border were presented to 134 delegates at the Tellus Border Results and Research Conference held at the Hillgrove Hotel, Co. Monaghan, on 24th October 2013. The conference presented results, interpretations and primary research on the survey data collected as part of Tellus and Tellus Border. Opening speeches were given by Mike Young (Director, GSNI), Dr Deirdre Lewis (SLR Consulting), Dr Dave Foster (Northern Ireland Environment Agency), Pat Colgan (CEO, SEUPB), Alastair Ross MLA (Assembly Private Secretary to the Minister for Enterprise, Trade and Investment) and Michael Manley (Assistant Secretary, Department of Communications, Energy and Natural Resources).



Figure 14. Results and Research Conference.

(L-R) Koen Verbruggen, GSI; Dr Marie Cowan, GSNI; Pat Colgan, SEUPB; Alastair Ross MLA, Department of Enterprise, Trade and Investment; Michael Manley, Department of Communications, Energy and Natural Resources; Mike Young, GSNI, and Ray Scanlon, GSI.

Following a session presented by the core Tellus Border team on the programme areas of the project, a “rapid research” poster session was presented by 13 researchers. More detailed case study presentations were given by Mark Patton (GSNI) on mineral exploration, David O’Connell (OCEA Consultants Ltd.) on agriculture, Dr Valerie McCarthy (Dundalk IT) on the environment and Dr Jenny McKinley (Queen’s University Belfast) on public health. A delegate survey yielded 52 responses (39%) with useful, mainly positive feedback on the organisation of the event and quality of presentations and a breakdown of stakeholder interests (Figure 15). Extensive media coverage, including 39 newspaper articles and three national television news features, was secured.



Figure 15. Word cloud showing the relative significance of different stakeholder sectors as represented by attendees at the Results and Research Conference.

4.7 Engagement with the media

4.7.1 Press releases

Press releases (Table 3) were issued to border-region and national (Ireland and Northern Ireland) press for events and at major project milestones. Press releases were drafted by Morrow Communications and the Communications Lead before review by the Project Managers in GSNI and GSI, Press Offices in DCENR and DETI and the SEUPB Communications Office. On approval from all parties, the release was issued by Morrow Communications. If the press release related to a Ministerial event, it was issued by the respective Press Office of the Minister. In the days following the press release Morrow Communications followed up with regional news desks to ensure good uptake of the news, which resulted in requests for interviews and regional newspaper coverage.

PR.no	Date	Press release title
1	15-Feb-11	Minister Lenihan launches €5 million geological project in Border Counties
2	04-Jul-11	Geological Surveys Launched in Border Counties
3	18-Aug-11	Further Boost for Local Environmental Sector
4	19-Oct-11	Major Geological Airborne Survey takes off across the Border Region
5	26-Oct-11	Soil Sampling Scientists Now Active in the Border Region Agricultural Heartland of Cavan, Monaghan and Louth
6	02-Dec-11	Major Scientific Survey Now on the Ground in Counties Leitrim and Sligo
7	21-Dec-11	Airborne Survey Grounds for Christmas Period
8	13-Jan-12	Minister O'Dowd announces 20 new high-end Marine Research jobs at BT Young Scientist Exhibition
9	14-Jan-12	Photographs from Young Scientist Exhibition
10	06-Mar-12	Major Geological Airborne Survey takes to Skies across Sligo, Leitrim and Donegal
11	09-Mar-12	Focus on Water as Third Phase of Tellus Border Gets Underway
12	13-Mar-12	Geoscientists Map Out Career Opportunities for Newry & Mourne Pupils
13	21-Mar-12	Tellus Border Project Brings Geoscience to Life!
14	01-Apr-12	Open day captioned photographs
15	13-Apr-12	Major Scientific Survey Moves into County Leitrim
16	19-Apr-12	Minister O Dowd opens a two day Geoscience conference
17	03-May-12	Airborne survey captioned photographs
18	15-Jun-12	Minister O'Dowd collects last soil sample and completes world-class environmental survey of border region.
19	23-Jul-12	Tellus Border Airborne Survey Touches Down for Final Time
20	09-Oct-12	Tellus Border strikes gold for communications excellence
21	22-Jan-13	Schools and Science event encourages pupils to choose STEM subjects
22	05-Feb-13	Initial Findings of Significant Geological Mapping Project Revealed
23	24-Oct-13	Minister O'Dowd announces exciting new geological research revealing new gold occurrences
24	24-Oct-13	Tellus Border project reveals rare earth elements and precious metals in Northern Ireland

Table 3. List of press releases

4.7.2 Coverage summary

Press releases were consistently well reported by regional newspapers and radio stations, resulting in 192 newspaper articles and 60 radio items over the project duration. On average, there were eight print articles and three radio interviews or reported items per press release. The “opportunity to see” figure for print media coverage was over 7.5 million people and the listenership for radio coverage was over 2.3 million. The Tellus Border team featured in five television programmes reaching 2.3 million viewers (Table 4). The total number of individual opportunities to see or hear about the project in the media amounted to 12.2 million (Table 5).

Date	Channel	Programme	PR no.	Viewers
24-Apr-2013	Cavan Community TV		16	2,000
25-Jul-2012	RTE 1	Nationwide	19	500,000
24-Oct-2013	RTE 1	1pm, 6pm & 9 pm News	23	1,370,500
24-Oct-2013	TV3	12.45 & 5.30 News	23	340,400
28-Oct-2013	UTV	6pm News	24	100,000
				2,312,900

Table 4. TV coverage summary

Press releases	24
Print media	
Print articles	192
Average print articles per press release	8
Average print readership per press release	125,813
Publications	63
Circulation	3,019,519
Opportunity to see (x2.5)	7,548,798
Broadcast coverage	
Radio items/interviews	60
Listenership	2,300,786
Average radio items per press release	3
Average listenership per press release	48,537
Television coverage	
Television features	5
Viewers	2,310,900
Total opportunity to see	12,160,484

Table 5. Media coverage summary

Press releases were regularly published in online articles and following the data launch in February 2013, some 22 commodities/investment websites reported on the benefits of Tellus Border in

response to a press release from Galantas Gold, a mineral exploration company based in Omagh, reaching a worldwide mineral exploration audience.

4.7.3 Advertising Value Equivalent

Coverage of the Project Closure conference was significant, with considerable interest nationally in the project outputs, particularly in the gold in stream sediments map. The Advertising Value Equivalent (AVE) of coverage of the Project Closure conference was estimated by Morrow Communications to amount to €155,459. Table 6 shows the AVEs for print, radio and television coverage associated with the conference.

	No. of items of coverage	AVE
Print articles	39	€82,085
Radio items	21	€29,624
Television features	3	€43,750
Total Advertising Value Equivalent		€155,459

Table 6. Advertising Value Equivalents for media coverage of Project Closure conference

4.8 Presentations at scientific conferences

In order to continually engage with the scientific community and to promote the data availability and benefits, the project was represented at key scientific conferences. Poster or oral presentations were made on relevant aspects of the project at 28 conferences (Table 7), reaching an estimated 2,500 scientific delegates. Representation at these events was important to maintain the high profile of the project and to keep apprised of scientific developments.

Date	Conference	Presentation	Delegates
14-16 Sep 11	Teagasc Catchment Science 2011, Dublin	Poster	200
17-18 Nov 11	5th Irish Earth Observation Symposium, Cork	Poster	40
15-Feb-12	Geophysical Association of Ireland seminar, Dublin	Oral	50
19-Feb-12	Irish Geological Research Meeting, Cork	Oral	200
28-Jun-12	EPA STRIVE research conference, Dublin	Poster	200
18-Jul-12	9th International Symposium on Environmental Geochemistry, Aveiro, Portugal	Oral	200
03-Sep-12	EAGE Remote Sensing Workshop, Paris	Oral	250
19-Sep-12	GeoEnv conference, Valencia	Oral	105
15-Oct-12	International Peat Society conference, Mayo	Oral	60
01-Nov-12	Irish Earth Observation Symposium, Dublin	Oral	60
21-Jan-13	Impact of Research Workshop, Belfast	Oral	
23-Jan-13	Ireland Brownfield Network conference, Belfast	Oral	60
1-3 Mar 13	Irish Geological Research Meeting, Derry	Oral	120
26-27-Mar-13	SEUPB Communications Workshop, Belfast & Enniskillen	Oral	40

7-12 Apr-13	European Geosciences Union general assembly, Vienna	Poster	
22-26-Apr-13	Erasmus conference, Slovakia	Oral	50
23-24-Apr-13	International Assoc. of Hydrogeologists (Irish Group), Tullamore	Oral	200
14-17May-13	Assoc. of Geographic Information Laboratories for Europe conference, Belgium	Poster	
26-Jun-13	Peatland Passport event, Kildare	Oral	30
9-10-Jun-13	29th International Conference of the Society for Environmental Geochemistry and Health, Toulouse	Oral	170
31-Jul-13	British Geophysical Association Aeromagnetic Interpretation Meeting, London	Oral	40
4-9-Aug-13	International Society of Limnology 2013 Conference, Budapest	Oral	
9-11-Aug-13	Open University Geological Society Symposium, Dublin	Oral	102
25-30-Aug-13	Goldschmidt 2013 conference, Florence	Poster	30
2-6-Sep-13	International Assoc. of Mathematical Geosciences conference, Madrid	Oral	
21-22-Oct-13	GeoSoc/Australian IMM mineral exploration conference	Oral	
24-Oct-13	Irish Earth Observation Symposium	Oral	
26-Nov-13	Geoscience 2013	Oral & posters	200
05-Dec-13	UNFAO World Soil Day, Rome	Oral	150
	Number of conferences		28
	Total number of delegates		2,507

Table 7. Presentations at scientific conference, with number of attendees.

4.9 Representation at other events

In addition to presentations at scientific events, the project was represented at approximately 30 events over the lifetime of the project through attendance of a Tellus Border team member. Major events at which the project exhibited included the Prospectors and Developers Association of Canada convention, Toronto in 2013 (30,000 delegates), BT Young Scientist Exhibition, Dublin in 2012 and 2013 (5,000 visitors), Balmoral Show, Lisburn (70,000 visitors) and the National Ploughing Championships, Co. Laois (220,000 visitors).

5 Public relations challenges

5.1 Low-altitude airborne surveying

The altitude of the airborne survey meant that it was potentially an intrusive presence in the border region for the duration of the survey and the communications campaign aimed to minimise annoyance and alarm to people on the ground during this time. The airborne survey was originally scheduled to commence in July 2011 but mobilisation was delayed until October that year, meaning that the aircraft was surveying during winter weather and short daylight hours. This

meant that the survey was prolonged to 10 months duration, with flight plans cancelled and flights aborted on many days due to poor visibility and rain. The prolonged winter surveying presented a number of challenges.

- **Renewing the message.** The long duration of the survey meant that communications activities potentially lost their effect over time. It was necessary to continually renew communications messages throughout the duration of the survey.
- **Repeated notification of flights.** Flights postponed or aborted due to bad weather meant that in some cases landowners were notified multiple times of the intention to fly over their area before the flight actually took place. This inconvenienced animal owners who were keeping in or supervising animals on account of the survey. During the short winter days the aircraft was unable to complete prolonged flights meaning that survey areas often had to be revisited more than once to complete all lines in the area. This also contributed to the problem of animal owners being notified multiple times. A more refined approach was taken to reduce the amount of times landowners were being unnecessarily notified. If the weather forecast was poor for the proposed day of flying, the notifications were delayed to that morning rather than the evening before. If the weather was as predicted there was no need to notify. If agreeable with the animal owner, text messages were sent in the evenings instead of a phonecall which required immediate attention.

5.2 Fracking

Licence options for shale gas exploration were granted in the Lough Allen Basin area of Co. Leitrim in February 2011 to two petroleum exploration companies. Initial shale gas exploration activities in the area attracted a great deal of media attention due to the concern over negative impacts of hydraulic fracturing (“fracking”). Tellus Border’s visible surveying presence in the same area meant that there was speculation over whether Tellus Border was working with the petroleum exploration companies. The subject of fracking was frequently and sometimes confrontationally raised with the Communications Lead and project managers during stakeholder meetings and media interviews and with the geochemical samplers in the field. In order to dispel speculation on links between Tellus Border and fracking a number of actions were taken:

- A message was added to the Tellus Border information poster *“Tellus Border is not a commercial mineral exploration programme nor is it related to fracking”*.
- A statement was added to the FAQs document: *“Tellus Border isn’t related to fracking and isn’t involved with the current shale gas exploration licensing in the border region”*.
- Questions on links with fracking were addressed openly in the media, while stating that Tellus Border did not advocate for or against fracking.

6 Outcomes of the communications programme

The communications programme facilitated the success of the survey operations, which were completed with seamless coverage. Although there were no major public relations incidents, there were a small number of complaints involving disturbance or injury to animals. The communications team won two awards for excellence in communications at the Northern Ireland Chartered Institute of Public Relations in October 2012 - gold in the Community Relations category and silver in the Public Sector category (Figure 16). Communications work continues in 2014 to support the application and promotion of the geochemical and geophysical data to a wide range of sectors in order to realise project impacts.



Figure 16. Chartered Institute of Public Relations awards.

Pictured at the event in the Titanic Belfast on 5th October 2012 are Seona McGrath, Morrow Communications; Kelly McKee, Morrow Communications; Marie Cowan, Project Manager, Tellus Border; Richard Gaston, Category Sponsor The Lyric Theatre; Mairead Glennon, Assistant Project Manager, Tellus Border; Claire Bonner, Morrow Communications; and host Marc Mallet, UTV.

Appendix A – Public relations contract specifications

Excerpt from the Request for Tender (RFT) for the provision of Public Relations support in connection with the Tellus Border Project

TASK DESCRIPTION

A Communications Plan has been agreed between the project partners. In this context, the appointed PR consultant will prepare and implement a communications strategy and public relations campaign to alert, inform and reassure key interest groups within the project area to the activity of Tellus Border by:

- Raising awareness and understanding of Tellus Border with the general public before the project commences and throughout its duration.
- Raising awareness and understanding of Tellus Border with specific interest groups, addressing their specific needs and concerns, before the launch of the project and throughout its duration.
- Handling public relations and complaints relating to the survey process. This will involve establishing a hotline and responding to questions and possibly complaints. (By way of illustration, publicity in advance of the Tellus Project in NI generated some 200 questions or observations from the general public; the survey operations generated 20 complaints requiring investigation).
- Providing advice as requested on the presentation of public interest stories to the press. The PR services provider will be required to assist with planning and assisting the Tellus Border management and communications staff and must be able to react to developments at short notice.

The tenderer should detail in their submissions a communications strategy involving the following elements:

- Awareness-raising activities aimed at the general public, prior to and during the roll out of the contract (outlining & costing appropriate media).
- Details of groups/parties, which require specific information and the means by which to target them. This should include recommendations for seminars/awareness raising events/ attendance at third party conferences.
- Details of complaints handling procedures and out of hours capabilities.
- Evaluation procedures against objectives set for each element of the project.

Objectives

- To publicise the Tellus Border project to relevant stakeholders.
- To use a range of media tools including TV, radio and press and printed material to inform the public of the initiation of Tellus Border, its means of operation and benefits to the whole community. Print and Design of materials will not form part of this contract.

- Provide up to date information to local communities on the locations where the aircraft and survey teams will be working as the project progresses.
- Provide liaison services to act as initial contact point for complaints and queries.
- To support project staff in their communications with stakeholders.

Target audience

Over the life of the project it will be necessary to inform the general public in the border counties of Republic of Ireland (RoI) and the border region of Northern Ireland, as the project moves across the country.

Specific groups have been identified as requiring information including: Elected representatives, councils, farmers (especially stud farms and poultry farms), riding schools, schools, nursing homes, care homes and hospitals. The successful tenderer will be expected to draw up a complete list of special interest groups, in conjunction with Tellus Border staff, and to outline and cost the most appropriate means of targeting them.

Schedule and key event (provisional)

- Late March 2011: engagement of contractor.
- Early April 2011: agreement of PR strategy, action plan and stakeholder engagement programme (in detail for 2011; outline for 2012-3).
- 1 May 2011: completion of publicity in advance of airborne survey, and preparation for airborne survey launch event.
- May 2011 – Nov 2011: management of public liaison during airborne survey.
- 1 June 2011: completion of publicity in advance of geochemical field surveys.
- June 2011 – Dec 2013: management of action plan and stakeholder engagement programme, as agreed.

Reporting arrangements

The successful tenderer will report monthly on activity and financial expenditure to the Project Manager at GSNI.

The successful tenderer will produce annual reports by 15 December of 2011 and 2012 and by 30 November of 2013.

The successful tenderer will liaise and collaborate closely with the project communications staff. All communications activities will be agreed with the Communications Lead at GSI and the Project Manager at GSNI.

Additional Information

Earth science surveys commissioned by Government departments differ fundamentally from surveys commissioned by commercial organizations. The latter are designed to inform a small interest group, usually confidentially, about a narrow range of target types for a restricted use (e.g., mineral exploration). In contrast, Tellus Border is to be carried out in the public interest and must be readily available to the whole community. Experience of surveys of this type elsewhere in

the world has shown that a very wide range of end-users, many of whom cannot be identified in advance, will take advantage of the Tellus Border output data. It is essential therefore, as many people as possible and certainly all of the possible end-users, are aware of Tellus Border.

Local communities in certain areas of Ireland may require more re-assurance than others about the objectives and local impact of the survey on their community. In addition those engaged in certain kinds of industrial and agricultural activities may need to be consulted in advance. Examples include stud farms, horse-riding establishments and poultry farms. The need for a considerable public relations effort can be anticipated in these areas and locations. The environmental and resource benefits, capabilities and objectives of the survey will need to be highlighted.

It is essential that field work progresses with as little interruption as possible. Therefore it will be necessary to ensure that all reasonable measures to elicit local support are taken at local Council level, ahead of the arrival of field parties. Field parties on the ground will seek permission from landowners wherever possible within the time constraints of the survey. In addition, the Public Outreach function of Tellus Border should involve activity in provincial weekly newspapers and inform local divisions of the Gardaí, PSNI and other public services.

Two-person geochemical sampling crews will collect samples in streams and fields throughout the six border counties and a geophysical survey aircraft will be flying at low altitudes along close-spaced flight lines. The survey phase of Tellus Border will be very visible to the general public and may be viewed as intrusive. Tellus Border is expensive and its funding is closely time-constrained. Geophysical and geochemical surveys require consultation in advance with landowners, business interests and Residents in the survey area. It will be essential that Tellus Border attempt to minimise the impact of potentially delaying actions of third parties by consulting proactively in advance.

Essential work carried out by the Public Outreach function of Tellus Border at all stages of the programme will include:

- Local level advance publicity - in advance of the arrival of aircraft and field crews.
- Large-scale publicity in national newspapers, in magazines, on TV and Radio.
- Presentations to Government departments and companies in advance and results as they are received.

In addition, the Tellus Border products will have considerable scientific interest to education and research establishments and to the general public. Outreach activities should therefore include:

- Presentations to community groups and other local and national organizations explaining the benefits of Tellus Border in advance and results as they are received;
- Presentations to the media;
- Staff coaching in the above.

Appendix B – Google analytics report on Tellus Border website

Audience Overview

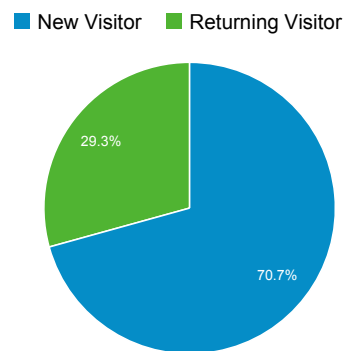
Jun 24, 2011 - Dec 31, 2013

All Visits
100.00%

Overview



Visits 21,489	Unique Visitors 15,160	Pageviews 75,536
Pages / Visit 3.52	Avg. Visit Duration 00:03:31	Bounce Rate 42.01%
% New Visits 70.54%		



Language	Visits	% Visits
1. en-us	15,625	72.71%
2. en-gb	4,226	19.67%
3. en	528	2.46%
4. en-ie	364	1.69%
5. fr	83	0.39%
6. de-de	66	0.31%
7. es	51	0.24%
8. pl	48	0.22%
9. zh-cn	45	0.21%
10. it	37	0.17%

All Traffic Jun 24, 2011 - Dec 31, 2013

 All Visits
100.00%

Explorer

Summary



Source / Medium	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	21,489 <small>% of Total: 100.00% (21,489)</small>	70.70% <small>Site Avg: 70.54% (0.22%)</small>	15,192 <small>% of Total: 100.22% (15,159)</small>	42.01% <small>Site Avg: 42.01% (0.00%)</small>	3.52 <small>Site Avg: 3.52 (0.00%)</small>	00:03:31 <small>Site Avg: 00:03:31 (0.00%)</small>	0.00% <small>Site Avg: 0.00% (0.00%)</small>	0 <small>% of Total: 0.00% (0)</small>	\$0.00 <small>% of Total: 0.00% (\$0.00)</small>
1. google / organic	10,989 (51.14%)	69.38%	7,624 (50.18%)	38.46%	3.74	00:03:50	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. (direct) / (none)	4,731 (22.02%)	72.65%	3,437 (22.62%)	45.23%	3.16	00:03:21	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. gsi.ie / referral	1,735 (8.07%)	67.67%	1,174 (7.73%)	40.58%	3.84	00:03:15	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. bgs.ac.uk / referral	884 (4.11%)	74.89%	662 (4.36%)	40.50%	3.88	00:02:40	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. bing / organic	318 (1.48%)	68.55%	218 (1.43%)	29.87%	4.43	00:05:04	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. boards.ie / referral	248 (1.15%)	92.34%	229 (1.51%)	64.11%	1.90	00:01:02	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. facebook.com / referral	230 (1.07%)	85.22%	196 (1.29%)	63.91%	2.00	00:01:25	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. sligoairport.com / referral	222 (1.03%)	94.14%	209 (1.38%)	72.07%	1.89	00:01:17	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. yahoo / organic	160 (0.74%)	76.88%	123 (0.81%)	45.62%	3.68	00:04:05	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. inishowennews.com / referral	126 (0.59%)	76.19%	96 (0.63%)	69.05%	2.52	00:01:58	0.00%	0 (0.00%)	\$0.00 (0.00%)

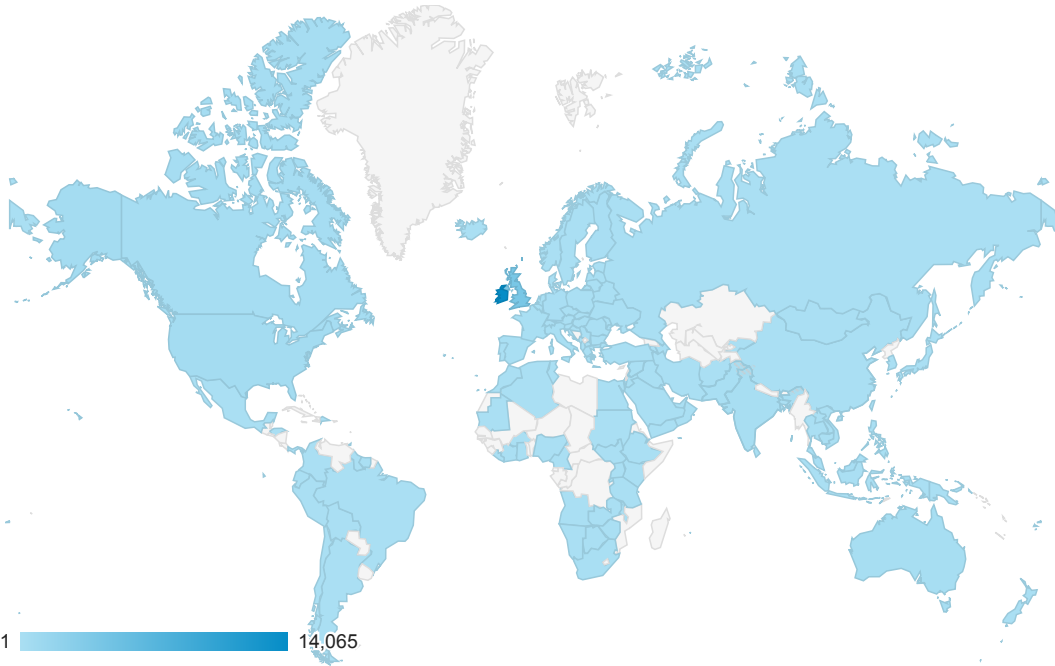
Jun 24, 2011 - Dec 31, 2013

Location

All Visits
100.00%

Map Overlay

Summary



Country / Territory	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	21,489 <small>% of Total: 100.00% (21,489)</small>	70.70% <small>Site Avg: 70.54% (0.22%)</small>	15,192 <small>% of Total: 100.22% (15,159)</small>	42.01% <small>Site Avg: 42.01% (0.00%)</small>	3.52 <small>Site Avg: 3.52 (0.00%)</small>	00:03:31 <small>Site Avg: 00:03:31 (0.00%)</small>	0.00% <small>Site Avg: 0.00% (0.00%)</small>	0 <small>% of Total: 0.00% (0)</small>	\$0.00 <small>% of Total: 0.00% (\$0.00)</small>
1. Ireland	14,065 (65.45%)	69.04%	9,711 (63.92%)	37.21%	3.79	00:04:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. United Kingdom	4,198 (19.54%)	65.03%	2,730 (17.97%)	39.92%	3.61	00:03:04	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. United States	548 (2.55%)	83.94%	460 (3.03%)	62.23%	2.34	00:02:58	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. Canada	361 (1.68%)	81.72%	295 (1.94%)	44.04%	3.16	00:02:53	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. (not set)	236 (1.10%)	87.71%	207 (1.36%)	82.20%	1.41	00:00:44	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. Australia	228 (1.06%)	91.23%	208 (1.37%)	61.84%	2.31	00:01:46	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. India	190 (0.88%)	94.21%	179 (1.18%)	83.16%	1.29	00:00:49	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. Malaysia	137 (0.64%)	78.83%	108 (0.71%)	89.78%	1.15	00:00:36	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. Germany	96 (0.45%)	90.62%	87 (0.57%)	56.25%	3.01	00:02:35	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. Finland	94 (0.44%)	71.28%	67 (0.44%)	43.62%	3.29	00:02:08	0.00%	0 (0.00%)	\$0.00 (0.00%)

Jun 24, 2011 - Dec 31, 2013

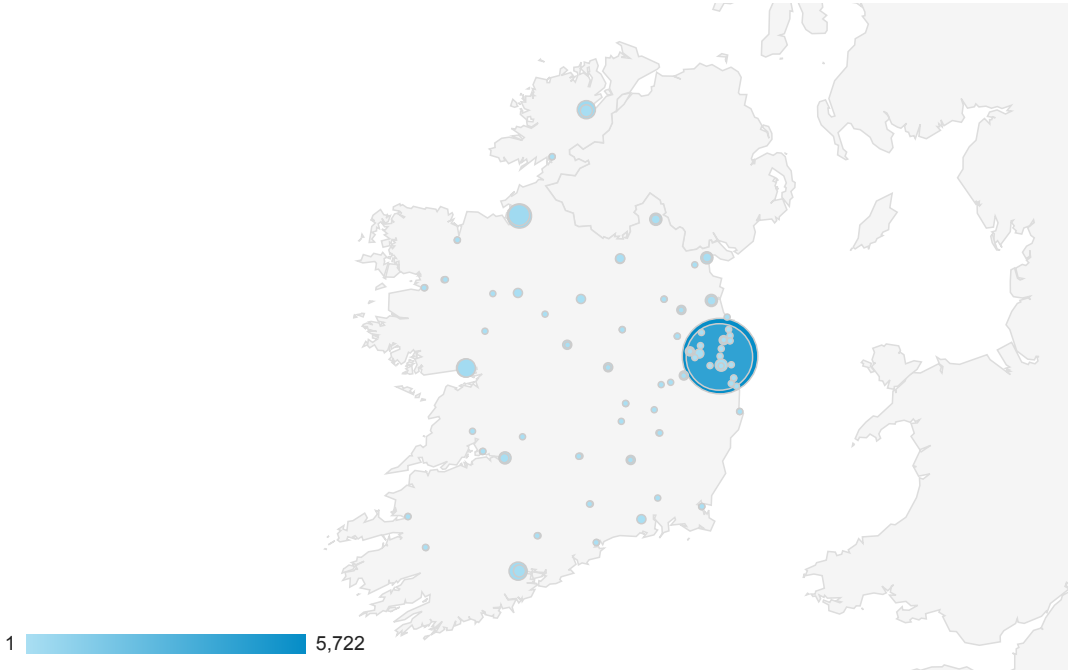
Location

ALL » COUNTRY / TERRITORY: Ireland



Map Overlay

Summary



City	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	14,065 <small>% of Total: 65.45% (21,489)</small>	69.04% <small>Site Avg: 70.54% (-2.13%)</small>	9,711 <small>% of Total: 64.06% (15,159)</small>	37.21% <small>Site Avg: 42.01% (-11.44%)</small>	3.79 <small>Site Avg: 3.52 (7.74%)</small>	00:04:00 <small>Site Avg: 00:03:31 (13.79%)</small>	0.00% <small>Site Avg: 0.00% (0.00%)</small>	0 <small>% of Total: 0.00% (0)</small>	\$0.00 <small>% of Total: 0.00% (\$0.00)</small>
1. Dublin	9,948 (70.73%)	67.65%	6,730 (69.30%)	37.54%	3.76	00:04:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. Sligo	856 (6.09%)	73.83%	632 (6.51%)	33.41%	4.10	00:04:42	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. Galway	567 (4.03%)	54.50%	309 (3.18%)	41.62%	3.21	00:02:39	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. Letterkenny	449 (3.19%)	74.83%	336 (3.46%)	34.97%	4.45	00:04:50	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. Cork	390 (2.77%)	82.31%	321 (3.31%)	41.03%	3.26	00:03:07	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. (not set)	202 (1.44%)	80.20%	162 (1.67%)	35.64%	4.15	00:05:02	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. Dundalk	185 (1.32%)	57.84%	107 (1.10%)	31.89%	4.23	00:04:03	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. Limerick	165 (1.17%)	85.45%	141 (1.45%)	44.85%	3.13	00:02:23	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. Monaghan	152 (1.08%)	50.00%	76 (0.78%)	19.08%	4.55	00:05:22	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. Drogheda	134 (0.95%)	86.57%	116 (1.19%)	31.34%	4.73	00:04:53	0.00%	0 (0.00%)	\$0.00 (0.00%)

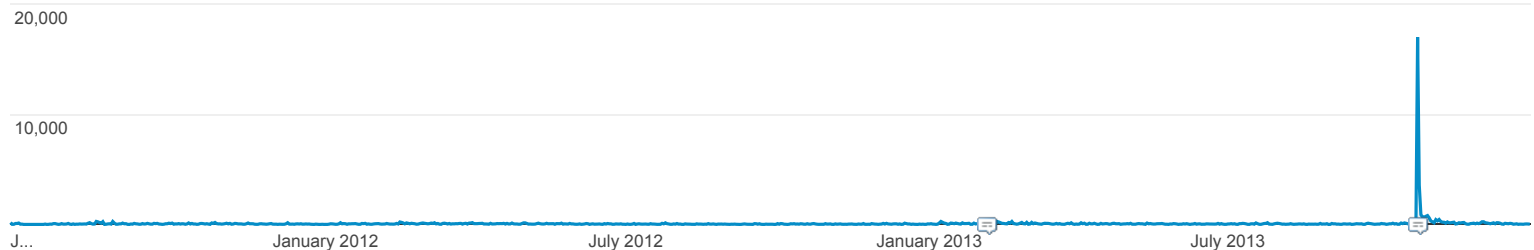
Content Drilldown

Jun 24, 2011 - Dec 31, 2013

All Visits
100.00%

Explorer

Pageviews



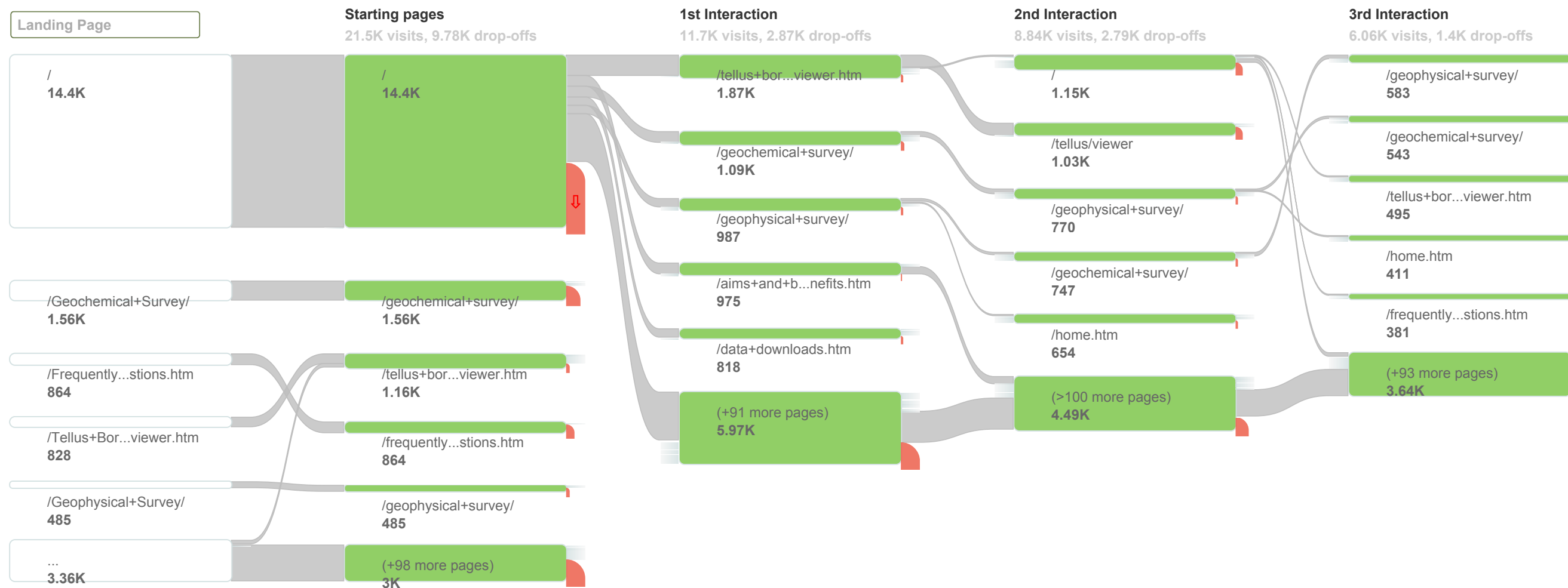
Page path level 1	Pageviews	Unique Pageviews	Avg. Time on Page	Bounce Rate	% Exit
	75,536 % of Total: 100.00% (75,536)	59,176 % of Total: 100.00% (59,176)	00:01:24 Site Avg: 00:01:24 (0.00%)	42.01% Site Avg: 42.01% (0.00%)	28.45% Site Avg: 28.45% (0.00%)
1. /	18,955 (25.09%)	15,097 (25.51%)	00:01:28	34.93%	36.80%
2. /Geochemical+Survey/	6,019 (7.97%)	4,722 (7.98%)	00:01:28	72.71%	34.46%
3. /Geophysical+Survey/	4,898 (6.48%)	3,786 (6.40%)	00:01:13	57.53%	25.81%
4. /Tellus/	4,480 (5.93%)	2,994 (5.06%)	00:03:40	51.56%	38.42%
5. /News/	4,003 (5.30%)	3,097 (5.23%)	00:00:47	50.37%	21.83%
6. /Events/	3,651 (4.83%)	2,932 (4.95%)	00:00:54	58.75%	19.94%
7. /Tellus+Border+Viewer.htm	3,499 (4.63%)	2,814 (4.76%)	00:00:57	33.64%	13.49%
8. /Home.htm	3,467 (4.59%)	2,652 (4.48%)	00:01:16	58.53%	29.07%
9. /Frequently+Asked+Questions.htm	3,436 (4.55%)	2,933 (4.96%)	00:01:57	71.41%	38.47%
10. /Data+Downloads/	3,428 (4.54%)	2,637 (4.46%)	00:01:09	52.02%	21.91%

Rows 1 - 10 of 64

Behavior Flow

Jun 24, 2011 - Dec 31, 2013

All Visits
100.00%

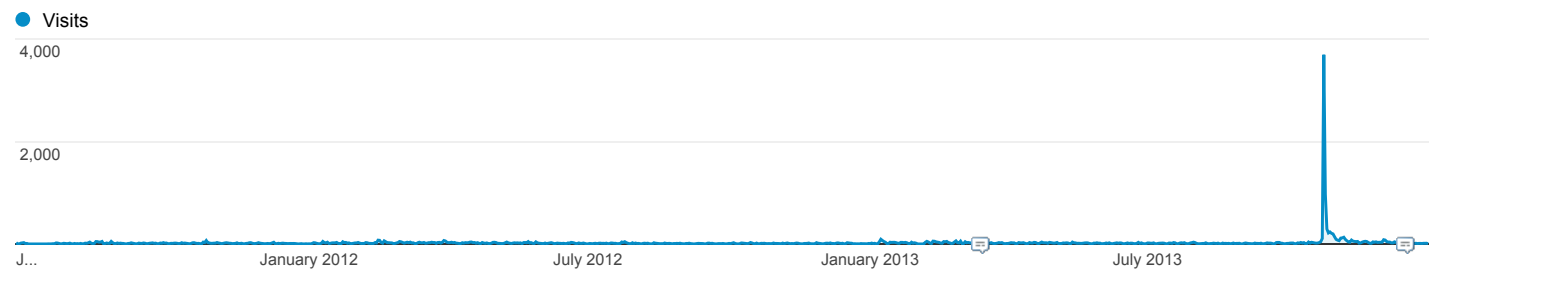


All Traffic Jun 24, 2011 - Dec 31, 2013



Explorer

Summary



Source / Medium	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	21,489 <small>% of Total: 100.00% (21,489)</small>	70.70% <small>Site Avg: 70.54% (0.22%)</small>	15,192 <small>% of Total: 100.22% (15,159)</small>	42.01% <small>Site Avg: 42.01% (0.00%)</small>	3.52 <small>Site Avg: 3.52 (0.00%)</small>	00:03:31 <small>Site Avg: 00:03:31 (0.00%)</small>	0.00% <small>Site Avg: 0.00% (0.00%)</small>	0 <small>% of Total: 0.00% (0)</small>	\$0.00 <small>% of Total: 0.00% (\$0.00)</small>
1. google / organic	10,989 (51.14%)	69.38%	7,624 (50.18%)	38.46%	3.74	00:03:50	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. (direct) / (none)	4,731 (22.02%)	72.65%	3,437 (22.62%)	45.23%	3.16	00:03:21	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. gsi.ie / referral	1,735 (8.07%)	67.67%	1,174 (7.73%)	40.58%	3.84	00:03:15	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. bgs.ac.uk / referral	884 (4.11%)	74.89%	662 (4.36%)	40.50%	3.88	00:02:40	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. bing / organic	318 (1.48%)	68.55%	218 (1.43%)	29.87%	4.43	00:05:04	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. boards.ie / referral	248 (1.15%)	92.34%	229 (1.51%)	64.11%	1.90	00:01:02	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. facebook.com / referral	230 (1.07%)	85.22%	196 (1.29%)	63.91%	2.00	00:01:25	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. sligoairport.com / referral	222 (1.03%)	94.14%	209 (1.38%)	72.07%	1.89	00:01:17	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. yahoo / organic	160 (0.74%)	76.88%	123 (0.81%)	45.62%	3.68	00:04:05	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. inishowennews.com / referral	126 (0.59%)	76.19%	96 (0.63%)	69.05%	2.52	00:01:58	0.00%	0 (0.00%)	\$0.00 (0.00%)
11. spatial.dcenr.gov.ie / referral	111 (0.52%)	32.43%	36 (0.24%)	45.95%	2.98	00:03:55	0.00%	0 (0.00%)	\$0.00 (0.00%)
12. tellusb.ac.uk / referral	91 (0.42%)	31.87%	29 (0.19%)	27.47%	3.80	00:03:27	0.00%	0 (0.00%)	\$0.00 (0.00%)
13. linkedin.com / referral	84 (0.39%)	48.81%	41 (0.27%)	55.95%	2.88	00:01:04	0.00%	0 (0.00%)	\$0.00 (0.00%)
14. leitrimcoco.ie / referral	75 (0.35%)	82.67%	62 (0.41%)	49.33%	2.77	00:02:53	0.00%	0 (0.00%)	\$0.00 (0.00%)
15. avg / organic	68 (0.32%)	52.94%	36 (0.24%)	35.29%	3.40	00:08:50	0.00%	0 (0.00%)	\$0.00 (0.00%)
16. m.facebook.com / referral	67 (0.31%)	91.04%	61 (0.40%)	82.09%	1.33	00:00:38	0.00%	0 (0.00%)	\$0.00 (0.00%)
17. google.ie / referral	62 (0.29%)	45.16%	28 (0.18%)	41.94%	3.16	00:03:41	0.00%	0 (0.00%)	\$0.00 (0.00%)
18. anglocelt.ie / referral	54 (0.25%)	87.04%	47 (0.31%)	35.19%	3.70	00:04:44	0.00%	0 (0.00%)	\$0.00 (0.00%)
19. dcenr.gov.ie / referral	43 (0.20%)	74.42%	32 (0.21%)	25.58%	3.35	00:05:32	0.00%	0 (0.00%)	\$0.00 (0.00%)
20. flyinginireland.com / referral	42 (0.20%)	90.48%	38 (0.25%)	76.19%	1.88	00:01:30	0.00%	0 (0.00%)	\$0.00 (0.00%)
21. gov.ie / referral	41 (0.19%)	87.80%	36 (0.24%)	65.85%	2.17	00:01:40	0.00%	0 (0.00%)	\$0.00 (0.00%)
22. detini.gov.uk / referral	40 (0.19%)	30.00%	12 (0.08%)	30.00%	2.95	00:04:16	0.00%	0 (0.00%)	\$0.00 (0.00%)
23. t.co / referral	38 (0.18%)	89.47%	34 (0.22%)	89.47%	1.32	00:00:15	0.00%	0 (0.00%)	\$0.00 (0.00%)

24. ask / organic	35 (0.16%)	71.43%	25 (0.16%)	37.14%	3.31	00:03:29	0.00%	0 (0.00%)	\$0.00 (0.00%)
25. irishponyclub.ie / referral	33 (0.15%)	93.94%	31 (0.20%)	87.88%	1.15	00:00:08	0.00%	0 (0.00%)	\$0.00 (0.00%)

Browser & OS

Jun 24, 2011 - Dec 31, 2013

All Visits
100.00%

Explorer

Summary



Browser	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	21,489 <small>% of Total: 100.00% (21,489)</small>	70.70% <small>Site Avg: 70.54% (0.22%)</small>	15,192 <small>% of Total: 100.22% (15,159)</small>	42.01% <small>Site Avg: 42.01% (0.00%)</small>	3.52 <small>Site Avg: 3.52 (0.00%)</small>	00:03:31 <small>Site Avg: 00:03:31 (0.00%)</small>	0.00% <small>Site Avg: 0.00% (0.00%)</small>	0 <small>% of Total: 0.00% (0)</small>	\$0.00 <small>% of Total: 0.00% (\$0.00)</small>
1. Internet Explorer	7,978 (37.13%)	67.26%	5,366 (35.32%)	37.16%	3.93	00:03:54	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. Chrome	5,616 (26.13%)	72.17%	4,053 (26.68%)	40.05%	3.51	00:03:48	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. Firefox	3,473 (16.16%)	76.33%	2,651 (17.45%)	41.89%	3.50	00:03:13	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. Safari	2,895 (13.47%)	66.87%	1,936 (12.74%)	51.92%	2.84	00:02:39	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. Android Browser	798 (3.71%)	69.92%	558 (3.67%)	53.26%	2.73	00:03:07	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. Safari (in-app)	220 (1.02%)	90.91%	200 (1.32%)	44.09%	3.12	00:02:29	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. Opera Mini	173 (0.81%)	86.13%	149 (0.98%)	83.82%	1.25	00:01:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. Opera	89 (0.41%)	77.53%	69 (0.45%)	49.44%	2.64	00:02:18	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. Mozilla Compatible Agent	68 (0.32%)	94.12%	64 (0.42%)	85.29%	1.22	00:00:20	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. Mozilla	54 (0.25%)	66.67%	36 (0.24%)	29.63%	4.00	00:04:14	0.00%	0 (0.00%)	\$0.00 (0.00%)

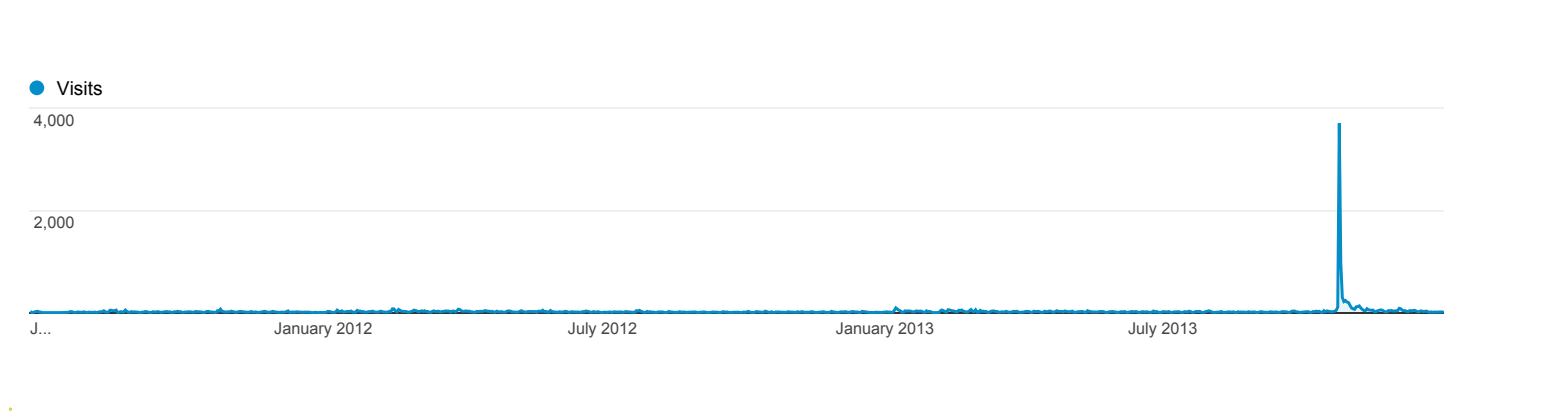
Jun 24, 2011 - Dec 31, 2013

Overview

All Visits 100.00%

Explorer

Summary



Device Category	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	21,489 % of Total: 100.00% (21,489)	70.70% Site Avg: 70.54% (0.22%)	15,192 % of Total: 100.22% (15,159)	42.01% Site Avg: 42.01% (0.00%)	3.52 Site Avg: 3.52 (0.00%)	00:03:31 Site Avg: 00:03:31 (0.00%)	0.00% Site Avg: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
1. desktop	17,751 (82.61%)	70.35%	12,487 (82.19%)	39.69%	3.69	00:03:42	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. mobile	2,258 (10.51%)	73.74%	1,665 (10.96%)	58.33%	2.29	00:02:11	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. tablet	1,480 (6.89%)	70.27%	1,040 (6.85%)	45.00%	3.27	00:03:16	0.00%	0 (0.00%)	\$0.00 (0.00%)

Network Referrals

Jun 24, 2011 - Dec 31, 2013

Discover where your social traffic originates

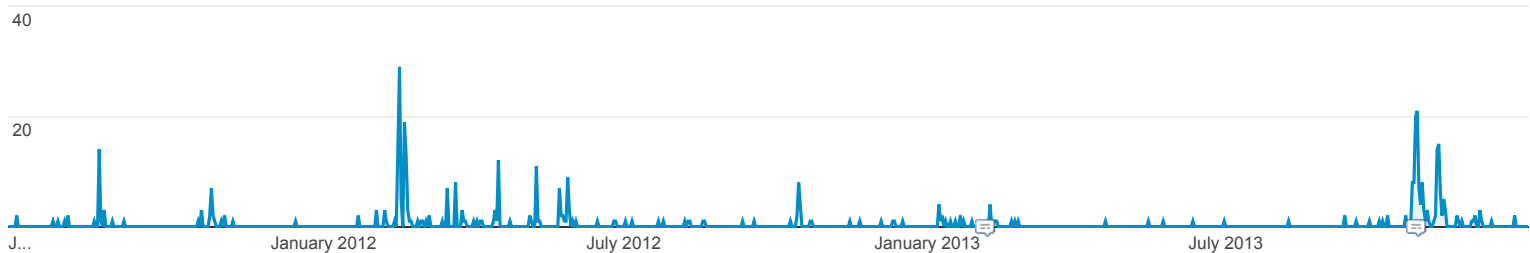
Identify the networks and communities where people engage with your content. Learn about each community, and identify your best performing content on each network.

Don't show education messages.



Social Referral

Visits via Social Referral



Social Network	Visits	Pageviews	Avg. Visit Duration	Pages / Visit
1. Facebook	297 (64.57%)	548 (59.18%)	00:01:14	1.8
2. LinkedIn	87 (18.91%)	245 (26.46%)	00:01:02	2.8
3. Twitter	38 (8.26%)	50 (5.40%)	00:00:15	1.3
4. WordPress	21 (4.57%)	36 (3.89%)	00:02:58	1.7
5. Ning	13 (2.83%)	40 (4.32%)	00:02:51	3.0
6. Blogger	1 (0.22%)	2 (0.22%)	00:01:29	2.0
7. Pocket	1 (0.22%)	3 (0.32%)	00:00:25	3.0
8. ResearchGate	1 (0.22%)	1 (0.11%)	00:00:00	1.0
9. Weebly	1 (0.22%)	1 (0.11%)	00:00:00	1.0

Appendix C - Frequently asked questions

1. What is Tellus Border?

Tellus Border is a survey project that will map the rocks, soils and streams of the six northern counties of the Republic of Ireland with modern scientific methods. Survey work will start in the summer of 2011 and run until the end of 2012. The project will sample soils and streams and analyse their chemistry in great detail. At the same time a survey aircraft will fly low over the landscape and collect information about the physical properties of soils and rocks.

2. Why do we need to do this survey?

The survey will give a comprehensive picture of the environment in the border region today which will help us sustainably manage the environment in the future. Data on soil, rocks and water will be compiled into maps that will be made freely available. This information will be of great use to policy makers, researchers, students and private industry.

3. Where does the name “Tellus” come from?

In Roman mythology, Tellus was the goddess of the Earth. This survey aims to measure and understand the properties of three key elements of the earth – soil, rock and water – in the border region of Ireland. The name Tellus Border was chosen to represent this holistic approach. It follows on from the first Tellus survey which was completed in Northern Ireland in 2007.

4. Is Tellus Border anything to do with fracking?

No. Tellus Border isn't related to fracking and isn't involved with the current shale gas exploration licensing in the border region.

5. What kind of aircraft is being used in the survey?

The aircraft is a Twin Otter aircraft operated by the specialist survey company, Sander Geophysics of Ottawa, Canada. The white, twin propeller plane has a red tail and blue stripe. Its registration number is C-GSGF. The aircraft was used by the Geological Survey of Northern Ireland to survey the whole of Northern Ireland in 2005 and 2006.



6. At what height and speed will the survey aircraft fly? Why does it have to fly at a low altitude?

The aircraft will fly at a safe height authorised by the Irish Aviation Authority. In rural areas this will be 60m – about 7-8 times the height of a two storey house. In urban areas the height will be 240m. It flies at a low altitude because the instruments on board the plane can sense the properties of soil and rocks more

accurately at a low altitude. The speed of the aircraft is about 130 mph, and the sound of the aircraft passing overhead is similar to that of a passing lorry.

7. What equipment is the plane carrying? What do they measure and are they dangerous?

The aircraft will carry a range of instruments for navigation and for measuring geophysical properties of the ground. The navigation instruments carried on the aircraft include:

- A satellite navigation system;
- A radar altimeter for measuring altitude; and
- A video camera, which gives us a record of where the plane has flown. The video footage will not be used for any other purpose.

The geophysical instruments on board the plane comprise:

- Two electromagnetic coils which measure the electrical conductivity of soil, rocks and groundwater;
- A magnetometer which measures variations in the Earth's magnetic field; and
- A gamma ray detector which measures the natural radioactivity of soil and rocks.

The electromagnetic coils are the only instruments which send out a signal to the earth. This is a very weak signal, equivalent to the power of a light bulb. The other instruments are passive i.e. they don't send out any signals.

8. Where and how will the soil and water samples be taken? What will the samples be analysed for? Is the survey anything to do with septic tanks?

Soil samples will be taken by a team of two trained scientists using a hand auger. About 1kg of soil will be taken, a similar weight and volume to that of a bag of sugar. At each stream site, three sample types will be taken – water, sediment and vegetation. One soil and one stream site will be sampled every 4km² (about 1 sample every 1000 acres), which amounts to approximately 3,500 samples across the Tellus Border survey area.

The samples will be analysed for up to 55 elements and compounds. The results will be useful for assessing the health of the environment, agricultural nutrients and trace elements. The results aren't intended to provide information on individual landholdings and the survey isn't concerned with septic tanks.

9. Will my land be visited during the survey?

The aircraft will fly through the whole border region including Donegal, Sligo, Leitrim, Cavan, Monaghan and Louth. A two-person sampling team may visit your land. If so, they will request permission to enter your land on the day of sampling.

Sampling teams will have branded clothing, vehicles, ID cards and a letter which will identify them as Tellus Border workers. If you are still concerned about the identity of the teams you can call the free helpline on 1800 303 516 for verification.

10. Who is doing the work?

The project is managed by a cross-border partnership:

- Geological Survey of Ireland
- Geological Survey of Northern Ireland

- Dundalk Institute of Technology
- Queen's University, Belfast

The survey work will be undertaken by qualified, highly specialised and experienced companies.

11. Who is paying for this project?

Tellus Border is mainly financed by the INTERREG IVA programme of the European Regional Development Fund. The project is co-financed by the Department of Environment, Community and Local Government (RoI) and the Department of Environment (NI).

12. Where can I get more information?

You can contact us by email, phone or through our website to get more information on Tellus Border.

Website address:

www.tellusborder.eu

Email address:

tellusborder@gsi.ie

Information line:

Freephone 1800 303 516

(028 3039 3851 from Northern Ireland).

Postal mail may be addressed to:

Mairéad Glennon,
Assistant Project Manager,
Tellus Border Project,
Geological Survey of Ireland,
Beggar's Bush,
Haddington Road,
Dublin 4,
Ireland.

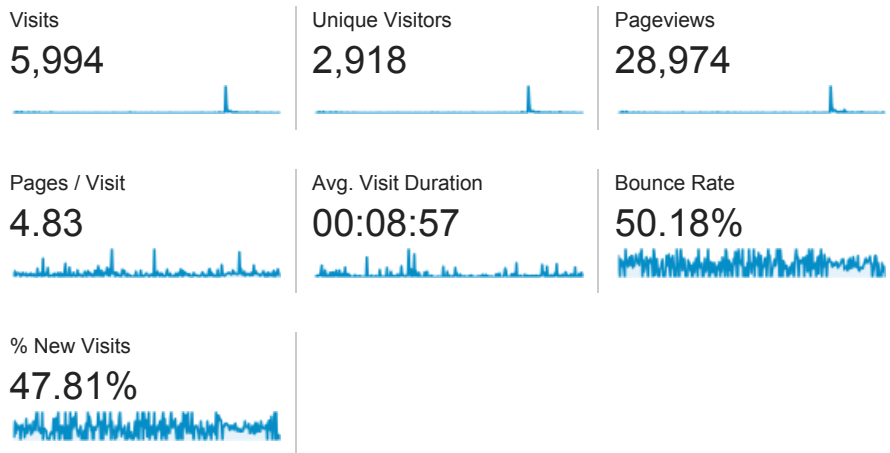
Appendix D – Google analytics report on Tellus Border map viewer

Feb 1, 2013 - Dec 31, 2013

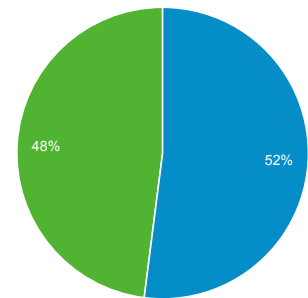
Audience Overview

All Visits
100.00%

Overview



■ Returning Visitor ■ New Visitor



Language	Visits	% Visits
1. en-us	4,817	80.36%
2. en-gb	1,021	17.03%
3. en-ie	36	0.60%
4. en	25	0.42%
5. zh-cn	13	0.22%
6. pl	12	0.20%
7. pt-br	12	0.20%
8. xu	11	0.18%
9. de-de	9	0.15%
10. fr	8	0.13%

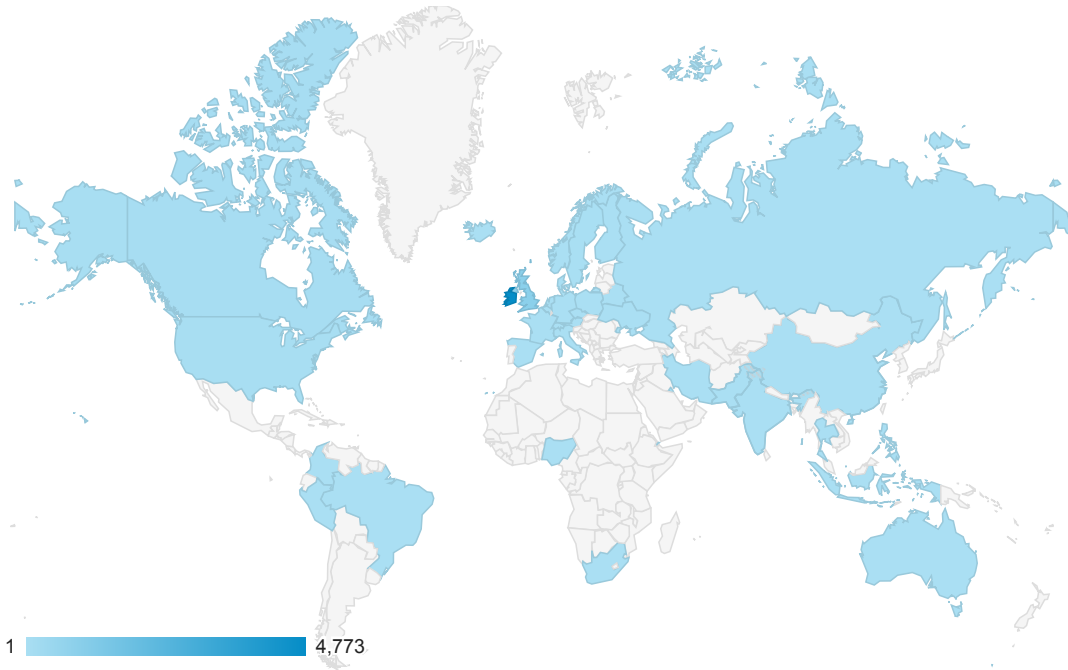
Feb 1, 2013 - Dec 31, 2013

Location

All Visits
100.00%

Map Overlay

Summary



Country / Territory	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	5,994 <small>% of Total: 100.00% (5,994)</small>	47.98% <small>Site Avg: 47.81% (0.35%)</small>	2,876 <small>% of Total: 100.35% (2,866)</small>	50.18% <small>Site Avg: 50.18% (0.00%)</small>	4.83 <small>Site Avg: 4.83 (0.00%)</small>	00:08:57 <small>Site Avg: 00:08:57 (0.00%)</small>	0.00% <small>Site Avg: 0.00% (0.00%)</small>	0 <small>% of Total: 0.00% (0)</small>	\$0.00 <small>% of Total: 0.00% (\$0.00)</small>
1. Ireland	4,773 (79.63%)	47.68%	2,276 (79.14%)	50.97%	4.53	00:07:35	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. United Kingdom	891 (14.86%)	43.55%	388 (13.49%)	46.24%	6.91	00:17:45	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. Canada	90 (1.50%)	63.33%	57 (1.98%)	48.89%	3.31	00:04:29	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. United States	73 (1.22%)	67.12%	49 (1.70%)	52.05%	3.62	00:03:23	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. Sweden	21 (0.35%)	38.10%	8 (0.28%)	61.90%	3.38	00:03:58	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. Australia	14 (0.23%)	85.71%	12 (0.42%)	57.14%	3.64	00:11:43	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. China	13 (0.22%)	100.00%	13 (0.45%)	30.77%	4.69	00:03:22	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. Poland	11 (0.18%)	36.36%	4 (0.14%)	63.64%	2.45	00:08:35	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. Spain	10 (0.17%)	70.00%	7 (0.24%)	50.00%	3.30	00:06:35	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. (not set)	9 (0.15%)	88.89%	8 (0.28%)	55.56%	4.22	00:02:49	0.00%	0 (0.00%)	\$0.00 (0.00%)

Feb 1, 2013 - Dec 31, 2013

Browser & OS

All Visits
100.00%

Explorer

Summary



Browser	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	5,994 % of Total: 100.00% (5,994)	47.98% Site Avg: 47.81% (0.35%)	2,876 % of Total: 100.35% (2,866)	50.18% Site Avg: 50.18% (0.00%)	4.83 Site Avg: 4.83 (0.00%)	00:08:57 Site Avg: 00:08:57 (0.00%)	0.00% Site Avg: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
1. Internet Explorer	2,638 (44.01%)	48.10%	1,269 (44.12%)	52.24%	4.15	00:06:10	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. Chrome	2,226 (37.14%)	45.78%	1,019 (35.43%)	46.63%	5.86	00:11:32	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. Firefox	869 (14.50%)	52.36%	455 (15.82%)	50.52%	4.64	00:11:05	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. Safari	134 (2.24%)	56.72%	76 (2.64%)	51.49%	4.26	00:09:16	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. Android Browser	47 (0.78%)	36.17%	17 (0.59%)	91.49%	1.53	00:00:59	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. Mozilla	46 (0.77%)	43.48%	20 (0.70%)	45.65%	4.61	00:12:07	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. IE with Chrome Frame	20 (0.33%)	60.00%	12 (0.42%)	70.00%	2.10	00:01:04	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. Opera	10 (0.17%)	70.00%	7 (0.24%)	50.00%	3.20	00:01:34	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. SeaMonkey	3 (0.05%)	0.00%	0 (0.00%)	0.00%	8.33	00:41:34	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. BlackBerry	1 (0.02%)	100.00%	1 (0.03%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)

Overview Feb 1, 2013 - Dec 31, 2013

 All Visits
100.00%

Explorer

Summary



Device Category	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	5,994 % of Total: 100.00% (5,994)	47.98% Site Avg: 47.81% (0.35%)	2,876 % of Total: 100.35% (2,866)	50.18% Site Avg: 50.18% (0.00%)	4.83 Site Avg: 4.83 (0.00%)	00:08:57 Site Avg: 00:08:57 (0.00%)	0.00% Site Avg: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
1. desktop	5,933 (98.98%)	48.07%	2,852 (99.17%)	49.81%	4.86	00:09:01	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. mobile	36 (0.60%)	47.22%	17 (0.59%)	86.11%	1.78	00:00:49	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. tablet	25 (0.42%)	28.00%	7 (0.24%)	88.00%	1.84	00:01:30	0.00%	0 (0.00%)	\$0.00 (0.00%)

Feb 1, 2013 - Dec 31, 2013

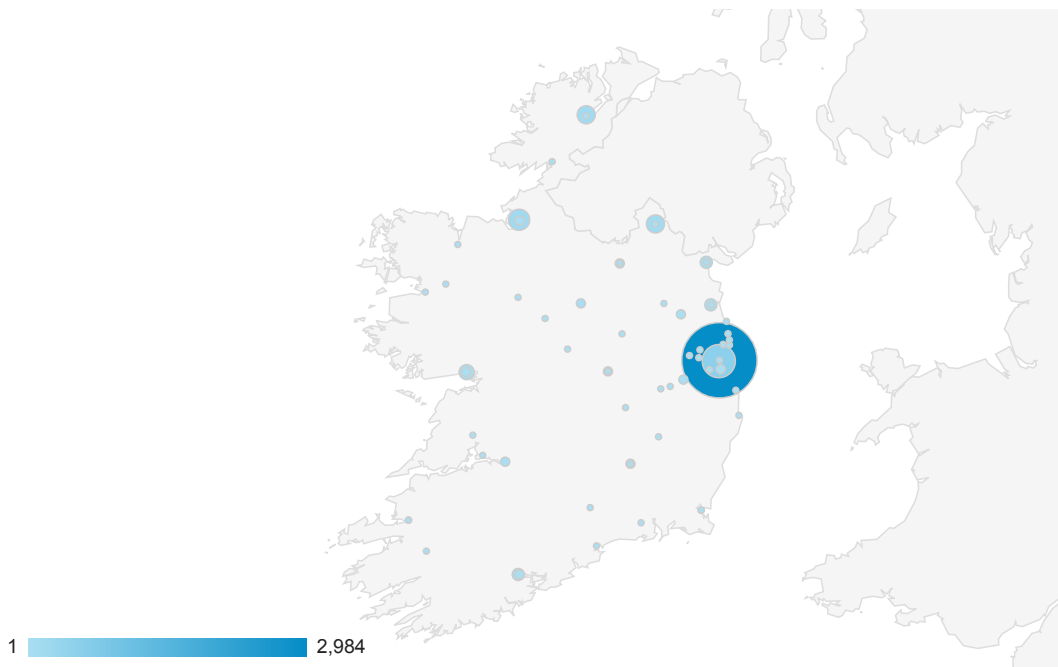
Location

ALL » COUNTRY / TERRITORY: Ireland



Map Overlay

Summary



City	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	4,773 % of Total: 79.63% (5,994)	47.68% Site Avg: 47.81% (-0.27%)	2,276 % of Total: 79.41% (2,866)	50.97% Site Avg: 50.18% (1.58%)	4.53 Site Avg: 4.83 (-6.36%)	00:07:35 Site Avg: 00:08:57 (-15.29%)	0.00% Site Avg: 0.00% (0.00%)	0 % of Total: 0.00% (0)	\$0.00 % of Total: 0.00% (\$0.00)
1. Dublin	3,521 (73.77%)	46.27%	1,629 (71.57%)	53.45%	4.30	00:07:14	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. Sligo	218 (4.57%)	50.92%	111 (4.88%)	40.37%	6.03	00:13:06	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. Letterkenny	165 (3.46%)	55.76%	92 (4.04%)	41.82%	5.41	00:06:16	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. Monaghan	162 (3.39%)	20.37%	33 (1.45%)	52.47%	5.65	00:10:34	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. (not set)	110 (2.30%)	56.36%	62 (2.72%)	34.55%	6.07	00:08:25	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. Galway	102 (2.14%)	54.90%	56 (2.46%)	40.20%	4.71	00:06:01	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. Cork	92 (1.93%)	59.78%	55 (2.42%)	44.57%	4.87	00:08:18	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. Dundalk	80 (1.68%)	48.75%	39 (1.71%)	46.25%	5.10	00:07:11	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. Drogheda	43 (0.90%)	60.47%	26 (1.14%)	46.51%	3.77	00:04:42	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. Limerick	31 (0.65%)	74.19%	23 (1.01%)	35.48%	4.00	00:09:45	0.00%	0 (0.00%)	\$0.00 (0.00%)

Feb 1, 2013 - Dec 31, 2013

Content Drilldown

All Visits
100.00%

Explorer



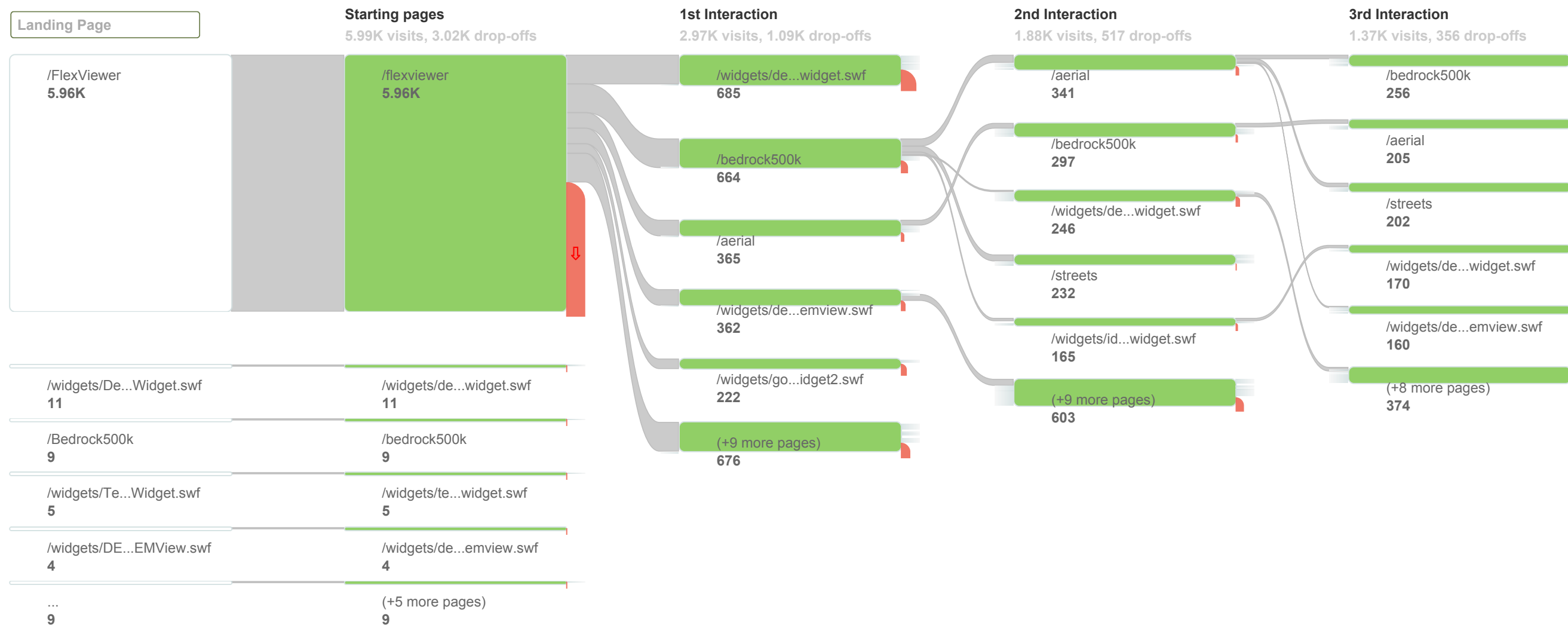
Page path level 1	Pageviews	Unique Pageviews	Avg. Time on Page	Bounce Rate	% Exit
	28,974 % of Total: 100.00% (28,974)	13,830 % of Total: 100.00% (13,830)	00:02:20 Site Avg: 00:02:20 (0.00%)	50.18% Site Avg: 50.18% (0.00%)	20.69% Site Avg: 20.69% (0.00%)
1. /widgets/	11,220 (38.72%)	4,775 (34.53%)	00:02:55	30.77%	18.18%
2. /FlexViewer	5,960 (20.57%)	5,956 (43.07%)	00:05:00	50.35%	50.35%
3. /Bedrock500k	4,723 (16.30%)	1,251 (9.05%)	00:01:13	11.11%	7.77%
4. /Aerial	3,847 (13.28%)	1,073 (7.76%)	00:00:57	0.00%	9.05%
5. /Streets	3,224 (11.13%)	775 (5.60%)	00:01:09	0.00%	7.38%

Rows 1 - 5 of 5

Behavior Flow

Feb 1, 2013 - Dec 31, 2013

All Visits
100.00%



All Traffic Feb 1, 2013 - Dec 31, 2013

 All Visits
100.00%

Explorer

Summary

● Visits

2,000

1,000

April 2013

July 2013

October 2013

Source / Medium	Acquisition			Behavior			Conversions		
	Visits	% New Visits	New Visits	Bounce Rate	Pages / Visit	Avg. Visit Duration	Goal Conversion Rate	Goal Completions	Goal Value
	5,994 <small>% of Total: 100.00% (5,994)</small>	47.98% <small>Site Avg: 47.81% (0.35%)</small>	2,876 <small>% of Total: 100.35% (2,866)</small>	50.18% <small>Site Avg: 50.18% (0.00%)</small>	4.83 <small>Site Avg: 4.83 (0.00%)</small>	00:08:57 <small>Site Avg: 00:08:57 (0.00%)</small>	0.00% <small>Site Avg: 0.00% (0.00%)</small>	0 <small>% of Total: 0.00% (0)</small>	\$0.00 <small>% of Total: 0.00% (\$0.00)</small>
1. tellusborder.eu / referral	4,061 (67.75%)	47.94%	1,947 (67.70%)	48.95%	5.29	00:09:22	0.00%	0 (0.00%)	\$0.00 (0.00%)
2. (direct) / (none)	1,290 (21.52%)	49.22%	635 (22.08%)	55.66%	3.70	00:08:38	0.00%	0 (0.00%)	\$0.00 (0.00%)
3. gsi.ie / referral	450 (7.51%)	43.33%	195 (6.78%)	37.56%	4.87	00:08:22	0.00%	0 (0.00%)	\$0.00 (0.00%)
4. thepropertypin.com / referral	53 (0.88%)	88.68%	47 (1.63%)	75.47%	1.85	00:03:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
5. arcgis.com / referral	28 (0.47%)	64.29%	18 (0.63%)	42.86%	3.50	00:05:01	0.00%	0 (0.00%)	\$0.00 (0.00%)
6. mineralsireland.ie / referral	28 (0.47%)	0.00%	0 (0.00%)	64.29%	2.93	00:09:13	0.00%	0 (0.00%)	\$0.00 (0.00%)
7. sarcms03:98 / referral	22 (0.37%)	36.36%	8 (0.28%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
8. facebook.com / referral	18 (0.30%)	44.44%	8 (0.28%)	61.11%	3.72	00:03:08	0.00%	0 (0.00%)	\$0.00 (0.00%)
9. war500759 / referral	13 (0.22%)	23.08%	3 (0.10%)	92.31%	1.23	00:00:04	0.00%	0 (0.00%)	\$0.00 (0.00%)
10. imqs.ie / referral	9 (0.15%)	33.33%	3 (0.10%)	44.44%	3.22	00:01:33	0.00%	0 (0.00%)	\$0.00 (0.00%)
11. google / organic	3 (0.05%)	33.33%	1 (0.03%)	66.67%	4.67	00:01:53	0.00%	0 (0.00%)	\$0.00 (0.00%)
12. google.co.uk / referral	3 (0.05%)	33.33%	1 (0.03%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
13. tarsrvv008.boliden.internal / referral	3 (0.05%)	33.33%	1 (0.03%)	66.67%	5.33	00:01:09	0.00%	0 (0.00%)	\$0.00 (0.00%)
14. linkedin.com / referral	2 (0.03%)	50.00%	1 (0.03%)	50.00%	6.00	00:02:38	0.00%	0 (0.00%)	\$0.00 (0.00%)
15. macromedia.com / referral	2 (0.03%)	100.00%	2 (0.07%)	0.00%	12.00	00:21:03	0.00%	0 (0.00%)	\$0.00 (0.00%)
16. projects.icreativelabs.com / referral	2 (0.03%)	100.00%	2 (0.07%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
17. 192.168.105.2:15871 / referral	1 (0.02%)	100.00%	1 (0.03%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
18. google.co.in / referral	1 (0.02%)	100.00%	1 (0.03%)	0.00%	7.00	00:04:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
19. gsiedit / referral	1 (0.02%)	0.00%	0 (0.00%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
20. t.co / referral	1 (0.02%)	0.00%	0 (0.00%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)
21. uk-mg42.mail.yahoo.com / referral	1 (0.02%)	100.00%	1 (0.03%)	0.00%	11.00	00:06:38	0.00%	0 (0.00%)	\$0.00 (0.00%)
22. uk.mc1721.mail.yahoo.com / referral	1 (0.02%)	0.00%	0 (0.00%)	100.00%	1.00	00:00:00	0.00%	0 (0.00%)	\$0.00 (0.00%)

23.	webmail.barleystone.ie / referral	1 (0.02%)	100.00%	1 (0.03%)	0.00%	17.00	00:03:58	0.00%	0 (0.00%)	\$0.00 (0.00%)
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Feb 1, 2013 - Dec 31, 2013

Network Referrals

Discover where your social traffic originates

Identify the networks and communities where people engage with your content. Learn about each community, and identify your best performing content on each network.

[Don't show education messages.](#)

 All Visits
100.00%

Social Referral

● Visits via Social Referral



● All Visits



Social Network	Visits	Pageviews	Avg. Visit Duration	Pages / Visit
1. Facebook	18 (85.71%)	67 (83.75%)	00:03:08	3.7
2. LinkedIn	2 (9.52%)	12 (15.00%)	00:02:38	6.0
3. Twitter	1 (4.76%)	1 (1.25%)	00:00:00	1.0