

**Geological Survey of Ireland
Annual Report
2004**

**Suirbhéireacht Gheolaíochta Éireann
Tuarascáil Bhliantúil
2004**

**Department of Communications, Marine and Natural Resources
An Roinn Cumarsáide, Mara agus Acmhainní Nádurtha**

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PREFACE

BROLLACH



The Geological Survey of Ireland (GSI) is the division of my Department with responsibility for the geosciences sector and in this it plays a key role nationally.

A critical role of GSI is to support policy and decision making in the planning sector. Sound decisions in land-use require scientific maps relating

to water supply, availability of minerals and aggregates, and infrastructure generally. GSI has now developed an excellent methodology to address this and has sufficient coverage online to provide routine support for such decisions.

I am pleased to note the progress made in the Irish National Seabed Survey (INSS), managed by GSI in partnership with the Marine Institute. The value and beauty of our extensive seabed has been discovered through the mapping of INSS whose results are used in practical ways by sectors such as fisheries, energy and ports, leading to greater environmental protection, public safety and commercial efficiency.

GSI products and services have created a greater understanding in both schools and communities of the role in our lives of landscape and geology, and their potential to underpin viable enterprises. An important component of this work has been achieved through Cross-Border cooperation with the Geological Survey of Northern Ireland, in many cases supported by EU funding.

In recognising recent progress by GSI, I want to acknowledge the cooperation and support it receives from its customers and stakeholders, as well as the commitment and contribution of all its staff throughout 2004.

Noel Dempsey TD
Minister for Communications, Marine and Natural Resources
February 2005

Is rannán de mo Roinnse é Suirbhéireacht Gheolaíochta Éireann (GSI) a bhfuil freagracht ó thaobh earnáil na ngeo-eolaíochtaí air agus dá bharr sin bíonn ról lárnach go náisiúnta aige.

Ceann de rólanna criticiúla GSI tacú le beartais agus cinntí a dhéanamh san earnáil phleanála. Teastaíonn léarscáileanna eolaíochta maidir le soláthar uisce, an fáil a bheidh ar mhianraí agus greannmheallta agus infrastruchtúr go ginearálta ionas go ndéanfar cinntí maithe ó thaobh úsáid na talún. Tá sár-mhodheolaíocht forbartha anois ag GSI chun aghaidh a thabhairt air seo agus tá clúdach leordhóthanach ar-líne ag GSI chun tacaíocht rialta a sholáthar do chinntí den sórt sin.

Táim sásta faoin dul chun cinn atá déanta maidir le Suirbhéireacht Náisiúnta Ghrinneall Farraige na hÉireann (INSS), a bhainistíonn GSI i gcomhpháirtíocht le Foras na Mara a luadh. Is trí léarscáiliú an INSS a cuireadh eolas ar fhiúchas agus ar áilleacht atá ar an ngrinneall farraige forleathan atá againn agus baineann earnálacha ar nós iascach, fuineamh, agus calafoirt úsáid as an obair ar an léarscáiliú ar bhealaí praiticiúla, as a leanann cosaint comhshaoil, sábháilteacht phoiblí agus éifeachtúlacht tráchtála níos fearr.

Tá tuiscint níos fearr tugtha ag táirgí agus ag seirbhísí GSI sna scoileanna agus sna pobail araon, ar ról na geolaíochta agus an ról atá ag an tírdhreach inár saol agus ar a gcumas a bhaineann leo ó thaobh a bheith ina mbonn taca d'fhiontair inmharthana. Baineadh amach cuid mhaith den obair sin trí chomhoibriú Trasteorann le Suirbhéireacht Gheolaíochta Thuaisceart Éireann, a fuair tacaíocht maoin AE go minic.

Agus aitheantas á thabhairt do dhul chun cinn an GSI le gairid, is mian liom aitheantas a thabhairt dá chustaiméirí agus dá gheallshealbhóirí as an gcomhoibriú agus an tacaíocht a fhaightear uathu, chomh maith leis an bhfoireann ar fad as a dtiomantas agus as a bhfuil déanta acu i rith 2004.

Nollaig Ó Díomasaigh TD
An tAire Cumarsáide, Mara agus Acmhainní Nádúrtha
Feabhra 2005

INTRODUCTION AND SUMMARY

RÉAMHRÁ AGUS ACHOIMRE

During 2004 GSI reported steady progress across all its programmes and the key milestones and achievements are summarised below.

- GSI developed a new strategic vision for 2015, taking account of its planned decentralisation to Cavan which will ensure a continuation of high-quality service for its customers.
- A key priority for GSI in 2004 has been supporting groundwater aspects of the EU Water Framework Directive through the River Basin District (RBD) projects. Characterisation and risk assessment reports have now been completed for all groundwater bodies nationwide. In parallel, a Groundwater Protection Scheme for Donegal and an updated version for Meath were completed and eight source protection evaluations were carried out on public water supplies.
- The GSI Customer Centre, successfully operating a one-stop shop for customers, experienced a 7% increase in product sales. The level of public queries, at over 4,000, has remained steady. The rate of visits to GSI websites has more than doubled over that of 2003. As GSI moves to greater web enablement, the number of website visits can be expected to at least remain constant while the number of public queries by mail, phone, fax or callers may decrease.
- Surveys for the Irish National Seabed Survey (INSS) were undertaken on Marine Institute vessels in four areas off the west coast as well as in the northern part of the Irish Sea. In addition an inshore survey, using a catamaran, was completed in inner Dublin Bay and GSI participated in an extensive seismic survey of the Rockall-Hatton region. The management of INSS data holdings remained a challenge, their extent during 2004 increasing by 80%. Data are made available to customers through the Marine Grid data repository of NUI Galway.
- The databases of GSI support land-use decisions by planners. The spectrum of databases is improved on an ongoing basis, with historical holdings being subject to validation procedures and new data enlarging individual databases by up to 6% in 2004. The Geotechnical Database, with its three-dimensional information on the shallow underground of urban areas and transport routes, is featured in this report.
- The significant role of GSI databases in long term monitoring has been emphasised by the recent increased attention to hazards such as landslides. A National

Thuairisc GSI dul chun cinn leanúnach ina chláir ar fad le linn 2004 agus tá achoimre déanta ar na príomhchlochmhílte agus ar na gnóhachtálacha lárnacha thíos.

- D'fhorbair GSI fíis straitéiseach nua le haghaidh 2015, ag cur a dhílarú go Co. an Chabháin san áireamh, rud a chinnteoidh go leanfar le seirbhís ar ardchaighdeán dá chuid custaiméirí.
- Mar phríomhthosaíocht de chuid GSI i 2004 bhí tacaíocht a thabhairt do ghnéithe screamhuisce Chreat-Treoir Uisce an AE, trí thionscadail Cheantar Abhantrachta (RBD) Tá tuarascálacha saintréithe agus measúnú riosca tugtha chun críche do na comhlachtaí screamhuisce ar fad ar fud na tíre. Tugadh Scéim Cosanta Screamhuisce do Dhún na nGall agus leagan cothrom le dáta don Mhí chun críche ag an am céanna agus déanadh ocht meastóireacht cosanta foinsí ar sholáthair uisce phoiblí.
- Tháinig ardú 7% ar dhíolachán táirgí in Ionad Custaiméirí GSI, a oibríonn siopa aon-stad do chustaiméirí agus éiríonn go maith leis. Tá leibhéal na bhfiosruithe ón bpobal fanta seasmhach ag os cionn 4,000. Tá breis agus dúbailt tagtha ar rátaí na gcuariteanna ar láithreáin ghréasáin de chuid an GSI i gcomparáid le 2003. Féadfar a bheith ag súil go bhfanfaidh, ar a laghad, uimhir na gcuariteanna ar láithreáin ghréasáin seasta, de réir mar a ghluaiseann GSI i dtreo a bheith níos gréasán-chumasaithe, cé go bhféadfadh laghdú teacht ar líon na bhfiosruithe ón bpobal tríd an bpost, trí ghlaio fóin, faics nó cuairteoirí.
- Chuathas i mbun suirbhéanna do Shuirbhéireacht Náisiúnta Ghrinneall Farraige na hÉireann (INSS) ar shoithigh de chuid Fhoras na Mara i gceithre limistéar amach ó chósta an iarthair chomh maith leis an gcuid ó thuaidh de Mhuir Éireann. Ina theannta sin, ag baint úsáide as catamarán, cuireadh suirbhé cladaigh i gcrích i ngar don chladach i gCuan Bhaile Átha Cliath agus bhí GSI rannpháirteach i suirbhé seismeach forleathan don réigiún Rockall-Hatton. Ba dúshlán a bhí ann fós le linn 2004 sealúchais sonraí INSS a bhainistiú agus ardú de 80% ag teacht orthu. Cuirtear sonraí ar fáil do chustaiméirí trí thaisce sonraí Marine Grid de chuid OÉ, Gaillimh.
- Cuidíonn bunachair GSI le cinntí a dhéanann pleanálaithe faoi úsáid talún. Cuirtear barr feabhais ar speictream na mbunachar ar bhonn leanúnach, bíonn sealúchais stairiúla faoi réir nósanna imeachta bailíochtaithe agus tháinig méadú de 6% ar bhunachair aonair mar thoradh ar shonraí nua i 2004. Tá an Bunachar

Landslides Database, being undertaken with partners by GSI, has recorded 94 historic events to date. GSI, as an associate partner of the European Terrafirma project, is also evaluating recent vertical ground motions in urban areas, initially in the Dublin region.

- GSI continues to support the needs of customers through its systematic land surveys. A Quaternary (subsoils) survey of Louth and Westmeath, aimed at supporting an evaluation of aggregate resources, is on schedule for completion in 2005. Also concerned with aggregates supply, the Aggregates Potential Mapping for County Wicklow was completed. More broadly, bedrock mapping at 1:50,000 scale, incorporating vital point data to provide an estimate of accuracy, got under way on a pilot basis in Wexford and Monaghan.
- GSI databases and programmes are the basis for an important range of third level sector research, with a total of 35 projects being supported and/or jointly supervised. This is an important component in the government's agenda for increasing the national R&D agenda as a way of supporting Ireland's knowledge-based economy.
- Geological heritage and landscape tourism remain important sectors for GSI and this report describes its involvement in two community-based projects, in the northwest (Cross-Border) and Waterford, respectively. In addition GSI assists local authorities in the identification of county-based heritage sites.
- The development of value-added projects is a continuing priority for GSI and its partners. In the case of INSS, particular attention was devoted to the fisheries sector, through work on seabed classification, and to navigational safety, through inshore surveys. In addition, seismic surveys and related research work will support the promotion of offshore Ireland as a hydrocarbon exploration destination.
- The provision of services to the educational sector continues to increase in importance. The distribution of the "Written in Stone" video and booklet to all second-level schools was sponsored by a consortium of hydrocarbon companies. The booklet and map geared for the new Leaving Certificate geography syllabus was similarly distributed. A new publication on Donegal granites was aimed at the international third-level market. Professional training services on on-site wastewater treatment was provided to the planning and environmental sectors.
- The GSI website, www.gsi.ie, hosted "Europe's Living Landscapes" at Geology for Everyone. This features the diversity of European landscapes on the occasion of the accession of ten new EU member states in 2004. Meanwhile, media coverage of GSI activities

Sonraí Geoiteicniúil leis an bhfaisnéis thríthoiseach ar fho-thalamh éadomhain cheantar uirbeach agus bealaí iompair luaite sa tuarascáil seo.

- Tá béim curtha ag an aird le déanaí ar chontúirtí ar nós sciorraí talún ar ról suntasach bhunachair GSI ó thaobh monatóireachta san fhadtárma. Tá GSI i gcomhar le comhpháirtithe i mbun Bunachar Sonraí Náisiúnta Sciorraí Talún agus tá taifeadadh déanta ar 94 imeacht stairiúla go dtí seo. Tá GSI, mar pháirtí comhlach den tionscadal Eorpach Terrafirma, ag meas gluaiseachtaí talún ingearacha le déanaí i gceantair uirbeacha, i réigiún Bhaile Átha Cliath ar dtús.
- Leanann GSI ag tacú le riachtanais chustaiméirí trína shuirbhéanna córasacha talún. Tá suirbhé Cheathartha (fo-ithreacha) de chontaetha Lú agus na hIarmhí agus atá dírithe ar thacú le meastachán ar acmhainní greannmheallta de réir an sceidil le bheith curtha i gcrích i 2005. Cuireadh an Léarscáiliú ar Phóitínseal Greannmheallta do chontaetha Chill Mhantáin agus Mhuineacháin, a bhaineann le soláthar greannmheallta i gcrích. Níos ginearálta ná sin cuireadh tús ar bhonn píolótach i Loch Garman agus i Muineachán le léarscáiliú buncharraige ar scála 1:50,000, ina bhfuil sonraí maidir le pointí ríthábhachtacha san áireamh chun meastachán ar chruinneas a sholáthar.
- Tá bunachair shonraí agus cláir de chuid an GSI mar bhonn do réimse tábhachtach de thaighde san earnáil tríú leibhéal, le tacaíocht á tábhairt do 35 tionscadal ar an iomlán agus/nó á gcomh-mhaoirsiú. Is cuid thábhachtach é i gclár oibre an rialtais le haghaidh cur le clár oibre náisiúnta Taighde & Forbairt (R&D) mar bhealach chun tacú le heacnamaíocht eolas-bhunaithe na hÉireann.
- Tá oidhreacht gheolaíoch agus turasóireacht tírdhreacha fós ar dhá earnáil thábhachtacha do GSI agus déanann an tuarascáil seo cur síos ar an mbaint atá ag GSI le dhá thionscadal pobalbhunaithe, san iarthuaisceart (Trasteorainn) agus i bPort Láirge, faoi seach. Ina theannta sin, cuidíonn GSI le húdaráis áitiúla láithreáin oidhreachta sna contaetha a aithint.
- Is tosaíocht leanúnach í forbairt tionscadail breisluacha do GSI agus dá comhpháirtithe. I gcás an INSS, tugadh aird faoi leith ar an earnáil iascaigh, trí oibriú ar ghrinneall na farraige a rangú, agus ar shábháilteacht loingseoireachta trí shuirbhéanna cladaigh. Ina theannta sin cuideoidh suirbhéanna seismeacha agus obair thaighde a bhaineann leo, leis an gcósta amach ó Éirinn a chur chun cinn mar cheann scríbe taiscéalaíochta hidreacarbóin.
- Tá tábhacht i gcónaí le soláthar seirbhísí don earnáil oideachais a bheith ag méadú. Bhí dáileadh an fhíseáin agus an leabhráin "Written in Stone" ar gach scoil dara

increased 20%, particularly for groundwater and heritage matters, as GSI seeks to disseminate knowledge of its role and services.

- There was a strong focus on staff training which experienced an increase over 2003 of 77%, mainly on information technology and with the aim of advancing the organisation's key business priorities. GSI was supported by a 10.7% increase in overall income for 2004.

leibhéal urraithe ag cuibhreannas de chuideachtaí hidreacarbóin. Dáileadh an léarscáil agus an leabhrán atá dírithe ar shiollabas nua tíreolaíochta na hArdteistiméireachta ar an tslí chéanna. Bhí foilseachán nua faoi eibhear Dhún na nGall dírithe ar an margadh idirnáisiúnta tríú leibhéal. Cuireadh seirbhísí oiliúna gairmiúla maidir le cóireáil fuíolluisce dramhaíola ar láithreáin ar fáil do na hearnálacha pleanála agus comhshaoil.

- Chuir láithreán gréasáin an GSI, www.gsi.ie, "Europe's Living Landscapes" ar fáil ag Geology for Everyone. Léirítear ann éagsúlacht tírdhreacha na hEorpa ar aontachas deich mballstát nua AE i 2004. Idir an dá linn tháinig ardú de 20% ó thaobh chlúdach na meán ar ghníomhaíochtaí GSI, go háirithe maidir le cúrsaí screamhuisce agus cúrsaí oidhreachta, agus GSI ag iarraidh eolas a scaipeadh maidir lena ról agus lena sheirbhísí

- Bhí béim/fócas láidir ar oiliúint foirne ar tháinig méadú de 77% uirthi le linn 2003, maidir le teicneolaíocht an eolais den chuid is mó, agus é mar aidhm príomhthosaíochtaí na heagraíochta a chur chun cinn. D'éirigh le GSI ardú de 10.7% a bhaint amach ar ioncam iomlán do 2004.

SERVING A CHANGING SOCIETY

AG FREASTAL AR SHOCHAÍ ATÁ AG ATHRÚ

The geosciences, for too long an underdeveloped sector, have seen rapid changes in recent times, improving their capacity to meet the needs of society. In Ireland the drive towards a knowledge-based society has been a key element of Government socio-economic policy and it has been supported by the national R&D strategy. GSI is a key player in the Irish geoscience sector and its impact at national level is being enhanced through its support of research and its infrastructure.

The geosciences sector is concerned with our physical environment and how we interact with it, including disciplines such as geology, geophysics, geomatics, seismology and climatology. It embraces the state, private and third-level sectors, as it expands from its geological core, recognising no boundaries in its interdisciplinary approach. Indeed the stakeholder base for the geosciences has broadened radically over the last two decades, from the earlier focus in the natural resources sector (especially minerals and hydrocarbons), to include the environmental, infrastructural and related sectors.



Sand Ripples. Scott Engering

Tonnta Gainimh. Scott Engering

The geosciences are now well positioned to contribute significantly to the Government's strategic objectives in relation to R&D. The Government has already shown its commitment to the sector through its investment in the Irish National Seabed Survey, which has aroused worldwide attention and is underpinning excellent research cooperation between the state and third-level sectors. Responding to the call by the Royal Irish Academy for serious state funding of research beyond the biotechnology and information sectors, the geosciences community is currently developing an initiative of world-class research capable of attracting national funding.

Tá athruithe tapa le déanaí sna geo-eolaíochtaí, eanáil a bhí le rófhada ina hearnáil tearcfhorbartha, athruithe a chuidíonn leo freastal ar riachtanais na sochaí. Tá an ghluaiseacht in Éirinn i dtreo sochaí eolas-bhunaithe mar mhír lárnach de pholasáí socheacnamaíoch an Rialtais agus thacaigh an straitéis R&D náisiúnta leis sin. Is príomhrannpháirtí an GSI in eanáil gheo-eolaíochta na hÉireann agus tá a tionchar ag leibhéal náisiúnta neartaithe trína thacú le taighde agus a infrastruchtúr.

Baineann eanáil na ngeo-eolaíochtaí lenár dtimpeallacht fhísiciúil agus leis an gcaoi a n-idirghníomhaimid léi, lena n-áirítear disciplíní ar nós geolaíochta, geofisic, geomaitic, seismeolaíocht agus clómeolaíocht. De réir mar a leathnaíonn sí amach óna lár geolaíoch, clúdaíonn sí an eanáil stáit, an eanáil phríobháideach, agus an eanáil tríú leibhéal, agus ní aithnítear aon teorainn ina cur chuige idirdhisciplíneach. Go deimhin, tá an bonn geallshealbhóirí do na geo-eolaíochtaí leathnaithe go mór le fiche bliain anuas, ón mbéim a bhí níos luaithe ar eanáil na n-acmhainní nádúrtha (mianraí agus hidreacarbóin ach go háirithe), chuig eanáil an comhshaoil, eanáil an infrastruchtúir, agus eanáilacha cuí eile.



Tá na geo-eolaíochtaí i gcaoi mhaith anois chun cuidiú go suntasach le cuspóirí straitéiseacha an Rialtais i ndáil le R&D. Tá a thiomantas i leith na hearnála léirithe cheana ag an Rialtas trína infheistíocht i Suirbhéireacht Náisiúnta Ghrienneall Farrage na hÉireann, a tharraing aird dhomhanda agus atá mar bhonn taca do chomhoibriú taighde den scoth idir an eanáil stáit agus an eanáil tríú leibhéal. Tá pobal na ngeo-eolaíochtaí ag forbairt tionscnamh taighde, i láthair na huair, atá ar chaighdeán domhanda agus a bheid ábalta maoiniú náisiúnta a mhealladh, mar fhreagairt ar éileamh Acadamh Ríoga na hÉireann ar mhaoiniú mór ón stát lasmuigh de na hearnálacha biteicneolaíochta agus faisnéise.

While the role of research in GSI has traditionally been limited, it does undertake a minimum level to support its spectrum of programmes and to validate their methodologies. Further, as already noted in the case of the Irish National Seabed Survey, GSI seeks to support a wide range of third-level research based on its datasets (see appendix to Annual Report on www.gsi.ie).

Cé go raibh ról taighde GSI teoranta go traidisiúnta, tugann sé faoi íosleibhéal taighde chun tacú lena speictream clár agus lena modheolaíochtaí a bhailíochtú. Chomh maith leis sin mar a bhí luaite cheana i gcás Suirbhéireacht Náisiúnta Ghrinneall Farraiige na hÉireann, tá GSI ag iarraidh tacú le réimse leathan taighde tríú leibhéal bunaithe ar a thacair shonraí (féach aguisín leis an Tuarascáil Bhliantúil ar www.gsi.ie).



Nature as pure as you can get, but ... still with a dyke. Barrier island in the Wadden Sea, Netherlands. See “Europe’s Living Landscapes”.

An Nádúr, chomh foirfe is atá ann ach ...díog ina dhiaidh sin féin. Oileán Barrier i Muir Wadden, An Ísiltír. Féach “Tírdhreacha Beo na hEorpa”.

Research is but one dimension of the GSI mission which, overall, is implemented through its 2003-2005 Statement of Strategy as well as through its more detailed annual Business Plans. GSI considers it important to engage the expertise and perspective of our stakeholders and customers in formulating and implementing our plans. We are pleased to collaborate with a range of state agencies, including the Marine Institute, the Environmental Protection Agency and Teagasc, as well as third-level and overseas organisations. This report, and its appendices (www.gsi.ie), documents the extent of this collaboration.

Níl sa taighde ach gné amháin de mhisean an GSI a fheidhmítear tríd is tríd trína Ráiteas Straitéise 2003-2004 chomh maith lena Pleananna Gnó bliantúla atá níos mine. Breithníonn GSI go bhfuil sé tábhachtach úsáid a bhaint as saineolas agus peirspictíocht ár ngeallshealbhóirí agus ár gcustaiméirí agus ár bpleananna á bhfoirmlíú agus á bhfeidhmiú. Táimid sásta oibriú i gcomhar le réimse gníomhaireachtaí stáit lena n-áirítear Foras na Mara, an Ghníomhaireacht um Chaomhnú Comhshaoil, Teagasc chomh maith le heagraíochtaí tríú leibhéal agus eagraíochtaí thar lear. Cuireann an tuarascáil seo agus a hagusíní atá ag gabháil léi (www.gsi.ie), síos ar an obair sin.

GSI is committed to providing quality service to its customers under the Customer Charter of its parent Department. GSI wishes to ensure not only effective delivery of services but also their relevance to the needs of customers. This is measured not only by the willingness of customers to assist in shaping services but also by their willingness to pay for those services. Recently 30% of GSI operational staff have been supported by external funding while an additional 20% have been undertaking work in specifically-requested collaboration with other agencies and partners.

Tá GSI tiomanta seirbhís ardchaighdeáin a sholáthar dá cuid custaiméirí faoi Chairt Chustaiméara a máthair-Roinne. Is mian le GSI ní hamháin, seachadadh éifeachtach ó thaobh seirbhísí a chinntiú, ach, a n-ábharthacht maidir le riachtanais na gcustaiméirí a chinntiú freisin. Déantar tomhas air sin ní hamháin, trí thoilteanas na gcustaiméirí cuidiú le seirbhísí a mhúnlú ach trína dtoilteanas freisin íoc as na seirbhísí sin. Le gairid fuair 30% d’fhoireann oibríochtúil GSI tacaíocht trí mhaoiniú seachtrach agus tá 20% breise ag tabhairt faoi obair i gcomhar, rud a hiarradh go sonrach, le gníomhaireachtaí agus le comhpháirtithe eile.

An important event in 2004 was the government decision that GSI, as part of the Department of Communication, Marine and Natural Resources, would be decentralised to Cavan. GSI staff in co-operation with customers and stakeholders have developed a strategic vision for the year 2015 which takes account of its decentralised location. Considerable emphasis is placed on providing services online so that GSI can continue to provide a high quality service in Cavan.

Eachtra thábhachtach i 2004 a bhí i gcinneadh an rialtais go ndéanfaí GSI, mar chuid den Roinn Cumarsáide, Mara agus Acmhainní Náidúrtha a dhíláru go dtí an Cabhán. Ta fíis straitéiseach forbartha ag foireann GSI agus iad ag comhoibriú le custaiméirí agus geallshealbhóirí, don

Ireland hosted the EU Presidency in the first half of 2004 and it was universally acknowledged as a very successful one, with ten new members joining an enlarged EU on 1 May 2004 and governmental agreement reached on a new European Constitution. To mark Enlargement Day GSI, with the cooperation of its sister organisations across Europe, developed a new section on its web site, “Europe’s Living Landscapes”.

bhliain 2015, fíis a thógann a suíomh díláraithe san áireamh. Cuirtear béim mhór ar sheirbhísí a sholáthar ar líne ionas go bhféadfaidh GSI leanúint de sheirbhís ar ardchaighdeán a sholáthar sa Chabhán.

Tionóladh Uachtarántacht an AE in Éirinn sa chéad leath de 2004 agus tugadh aitheantas gach áit gur éirigh go maith leis an Uachtarántacht sin agus deich mballstát nua ag dul isteach in AE méadaithe an 1 Bealtaine 2004 agus rialtais ag teacht ar chomhaontú maidir le Bunreacht nua don Eoraip. Le léirú a dhéanamh ar an Lá Méadaithe d’fhorbair GSI roinn nua ar a láithreán gréasáin, “Europe’s Living Landscapes”, le comhoibriú a comhchuideachtaí ar fud na hEorpa.



Cut-over coastal dunes turned into bulb-fields. Hillegom, Netherlands. See “Europe’s Living Landscapes”.

Bleibíní curtha ar an dumhchana. Hillegom, an Ísiltír . Féach “Tírdhreacha Beo na hEorpa”.



Ice and fire. Volcanic eruption in the Grimsvotn area in Vatnajokull, Iceland. Oddur Sigurosson

Oighear agus Tine: Bolcán ag pléascadh i limistéar Grimsvotn in Vatnajokull, san Íoslainn. Oddur Sigurosson

Geoscience Research Objectives

In the next few years research sponsored and undertaken by GSI and its partners will aim to:

- enhance our understanding of water and mineral resources and how geosciences can support their quality and availability;
- improve delivery of mapping products (three dimensional where possible), both offshore and onshore, designed to support land-use planning, effective infrastructure development and improved transport routes;
- provide increased inputs to understanding offshore biodiversity, especially relating to fish habitats and coral reefs;
- develop new training and research programmes to improve the national skills base and attract overseas students and researchers;
- heighten awareness among decision-makers and the general public of the value of geosciences.

Cuspóirí Taighde Geolaíochta

Beidh sé mar aidhm, sna blianta beaga amach romhainn, ag an taighde a bheidh urraithe agus á dhéanamh ag GSI agus a chomhpháirtithe:

- cur lenár dtuiscint ar acmhainní uisce agus acmhainní mianraí agus lenár dtuiscint ar na slite ar féidir leis na geo-eolaíochtaí tacú lena gcaighdeán agus an fáil a bhíonn orthu;
- barr feabhais a chur ar sheachadadh táirgí léarscáilithe (tríthoiseach áit gur féidir), cladaigh agus amach ón gcósta araon, deartha chun tacú le pleanáil úsáid talún, le forbairt éifeachtach infrastruchtúir agus bealaí iompair níos fearr;
- tuilleadh ionchuir a chur le tuiscint ar an mbithéagsúlacht amach ón gcósta, go háirithe i ndáil le gnáthóga éisc agus sceireacha coirealacha;
- cláir nua oiliúna agus taighde a fhorbairt, chun cur leis an mbonn scileanna agus chun mic léinn agus taighdeoirí a mhealladh ó áiteanna thar lear;
- feasacht maidir le fiúntas na ngeo-eolaíochtaí a thabhairt ar aird i measc lucht déanta cinntí agus an pobal i gcoitinne.

Mission and Goals of GSI

GSI is the national geological agency charged with the provision of geological information and advice in support of national and regional objectives. The strategic goals of GSI are as follows:

- To provide easily accessible and accurate geological information.
- To support sustainable development, environmental protection and national development plans.
- To map Ireland's earth resources.
- To promote public understanding of the role of GSI and geology in Irish society.
- To provide a stimulating, motivating and rewarding work environment for GSI staff.

Progress on achieving each of these goals during 2004 is described in this Annual Report.

Misean agus Spriocanna GSI

Is é GSI an ghníomhaireacht geolaíochta náisiúnta a bhfuil an cúram uirthi faisnéis agus comhairle a sholáthar le tacú le cuspóirí náisiúnta agus réigiúnacha. Is iad seo a leanas spriocanna straitéiseacha GSI:

- Faisnéis gheolaíoch chruinn ar féidir teacht uirthi go héasca a sholáthar.
- Tacú le forbairt inbhuanaithe, caomhnú comhshaoil agus pleananna forbartha náisiúnta.
- Acmhainní talún na hÉireann a léarscáiliú.
- Tuiscint an phobail maidir le ról an GSI agus ról na geolaíochta i sochaí na hÉireann a chur chun cinn.
- Timpeallacht oibre ghríosúil, spreagúil agus fhiúntach a sholáthar d'fhoireann GSI.

Déantar cur síos ar dul chun cinn gach ceann de na spriocanna sin le linn 2004 sa Tuarascáil Bhliantúil seo.

Europe's Living Landscapes

Europe is a region of outstanding landscapes, from steep mountain slopes to flat coastal plains, from icy glaciers to fiery volcanoes, from misty peatlands to scorching sands. Europeans enjoy an amazing diversity of landscapes that support the fullest range of human activities – truly landscapes for living!

As the EU welcomed ten new member states to its ranks on 1 May 2004, it was timely to reflect that these landscapes, whether barren or fertile, occupied or isolated, form a common heritage for all the people of Europe.

We invite you to explore some of these European landscapes. You will find a few images in this publication. Better still, visit “[Europe's Living Landscapes](#)” at “[Geology for Everyone](#)” (www.gsi.ie). We hope you enjoy them and find them inspiring.

Tírdhreacha Beo na hEorpa

Is réigiún í an Eoraip le tírdhreacha iontacha, idir fhánaí géara sléibhe agus machairí sínte na gcóstaí, idir oighearshruthanna fuara agus bolcáin tintrí, idir phortaigh smúitiúla agus gaineamhlaigh scallta. Is féidir le Eorpaigh taitneamh a bhaint as fíor-éagsúlacht tírdhreacha a chuireann leis an réimse is leithne de ghníomhaíochtaí an duine - tírdhreacha go fírinneach le maireachtáil a dhéanamh!

Bhí sé tráthúil nuair a d'fháiltigh AE roimh dheich mballstát nua isteach sa gcomhphobal an 1 Bealtaine 2004, cuimhneamh gur oidhreacht i gcomhar do mhuintir na hEorpa na tírdhreacha seo, bídis torthúil nó neamh thorthúil, bíodh cónaí orthu nó iad scoite.

Tugaimid cuireadh duit cuairt a thabhairt ar roinnt de na tírdhreacha Eorpacha sin. Tá roinnt íomhánna le feiceáil san fhoilseachán seo. Agus níos fearr fós téigh go dtí “[Europe's Living Landscapes](#)” ag “[Geolaíocht do Gach Duine](#)” (www.gsi.ie). Tá súil againn go mbainfear taitneamh astu agus go spreagfaidh siad daoine.

SUPPORTING A KNOWLEDGE-BASED ECONOMY

AG TACÚ LE HEACNAMAÍOCHT EOLAS-BHUNAITHE

The Government has invested heavily in developing Ireland as a knowledge-based economy where its workforce increasingly creates wealth and employment through the delivery of high-quality services. GSI has received funding in previous years from the Information Society Fund to assist its participation in this initiative, where the mode of service delivery can be just as important as the knowledge content.

Customers are increasingly making contact with GSI over the Internet. In the case of 2003, figures are only available for the second half and these have been projected over the full year for ease of comparison. Consider the following numbers of website visits:

	2004	2003 (projected)
gsi.ie	137,182	64,842
Webmapping	18,879	6,524
gsiseabed.ie	18,988	9,902
Total	175,049	81,268

When compared on an annual basis, the 2004 figures are more than double those of the previous year. In the final quarter, 20% of all visits were from Ireland. A deeper level of interaction is represented by the Webmapping domain where systematic map sets for many counties are becoming available (see “Groundwater maps online”).

The number of digital licences issued in 2004 was 73, up from 60 a year earlier. Unfortunately, a product ordering service was not available in 2004.

The overall level of public queries (via phone, fax, mail or callers) has remained steady in recent years:

	2004	2003
Customer Centre	1492	1725
Groundwater	1629	1450
Minerals	154	184
Heritage	150	219
Seabed/Marine	224	250
Quaternary	159	159
Geotechnical	136	146
Information Management	112	–
Bedrock	77	58
Total	4133	4191

The main increase is 12% in Groundwater, while most areas remained steady or showed a decrease. As more queries become answerable via the website, users may have less recourse to the GSI Customer Centre. However, our databases are still under development and it is critical that they are populated with further information in order

Tá infheistíocht mhór déanta ag an Rialtas ó thaobh fhorbairt na hÉireann mar eacnamaíocht eolas-bhunaithe áit go mbeidh an fórsa saothair ag cruthú níos mó agus níos mó saibhris agus fostaíochta trí sheirbhísí d’ardchaighdeán a sheachadadh. Fuair GSI maoiniú blianta roimhe seo ó Chiste an Chumainn Faisnéise chun cuidiú lena rannpháirtíocht sa tionscadal seo, áit a bhféadfadh an modh seachadta seirbhísí a bheith chomh tábhachtach céanna le mianach an eolais.

Tá custaiméirí ag déanamh níos mó agus níos mó teagmhála le GSI ar an Idirlíon. I gcás 2003, níl figiúir ar fáil ach don dara leath den bhliain agus ar mhaithe le héascaíocht comparáide tá siad fortheilgte thar na bliana ar fad. Breithnigh na huimhreacha do chuairteanna ar an láithreán gréasáin seo a leanas:

	2004	2003 (fortheilgte)
gsi.ie	137,182	64,842
Webmapping	18,879	6,524
gsiseabed.ie	18,988	9,902
Iomlán	175,049	81,268

Tá figiúir 2004 breis agus dhá oiread fhiigiúir na bliana roimhe sin nuair a dhéantar comparáid eatarthu ar bhonn bliantúil. Le linn an ráithe deiridh ba as Éirinn 20% de chuairteanna uile an idirlín. Léiríonn an fearainn Webmapping leibhéal imoibríthe níos doimhne áit go bhfuil tacair léarscáileanna córasacha do thíortha go leor ar fáil (féach “Léarscáileanna Screamhuisce Ar-líne”).

Ba 73 an líon ceadúnas digiteach a eisíodh i 2004, ardú ó 60 bliain roimhe sin. Ní raibh seirbhís ordú táirgí ar fáil áfach, i 2004.

Le blianta beaga anuas d’fhan an leibhéal iomlán d’fhiosruithe ón bpobal (trí ghlaio fóin, faics, tríd an bpost nó cuairteoirí) seasta:

	2004	2003
Ionad Custaiméirí	1492	1725
Screamhuisce	1629	1450
Mianraí	154	184
Oidhreacht	150	219
Grinneall/Mara	224	250
Ceathartha	159	159
Geoiteicniúil	136	146
Bainistiú Faisnéise	112	–
Buncharraig	77	58
Iomlán	4133	4191

Is é an t-ardú 12% i Screamhuisce an príomhardú, agus d’fhan na nithe eile den chuid is mó, seasta nó léirigh

to provide a high-quality service for customers. The major increase in our data holdings was in the seabed data, where the level of records increased from 2.1 terabytes in 2003 to 3.62 terabytes in 2004 (see “Information Freeflow”). However, all programmes continued to collect and validate additional data. The increase in land-based data holdings during 2004 is illustrated by the following information on some key databases:

	2004	2003	Increase
Wells Database	35,417	34,772	+2%
Mineral Exploration Database	75,300	72,500	+4%
Geotechnical Database	51,253	48,578	+6%

There is an ongoing effort to improve the quality and value of all databases by seeking to validate all existing records, remove those of questionable value and acquire new high-quality records. As a result the numbers of new records acquired may significantly exceed the net increases shown above. See “GSI databases: a wealth of information”.

The GSI Customer Centre continued to form a one-stop shop for persons wishing to use GSI services, being accessible by e-mail, fax, telephone and personal callers (see back cover for contact details). The digital Document Management System, with 0.5 million scanned records, is now an essential support to the operation of the Centre. Total publication sales in 2004 were 3310 items (3092 in 2003), an increase of 7%.



Flat-lying sandstones overlying contorted and slumped beds. Carboniferous sequence near Bridges of Ross, County Clare. Matthew Parkes.

Gaineamhchlocha cothrománacha os cionn sraitheanna lúbtha agus meathta. Sraith charbónmhar in aice le Droichid Rossa, Co. an Chláir. Matthew Parkes

siad laghdú. De réir mar a bhíonn níos mó fiosruithe á bhfreagairt ar an láithreán gréasáin, d’fhéadfadh go mbeadh níos lú baint ag úsáideoirí le Ionad Custaiméirí an GSI.

Tá ár mbunachair shonraí fós á bhforbairt áfach, agus tá sé an-tábhachtach go gcuirfí tuilleadh faisnéise leo chun seirbhís ar ardchaighdeán a sholáthar do chustaiméirí. Ba le sonraí ghrinneall na farraige a bhain an méadú mór a tháinig ar ár sealúchas sonraí, cás ar ardaigh leibhéal na dtáifead ó 2.1 teireabheart i 2003 go 3.62 teireabheart i 2004 (féach “Information Freeflow”). Lean, na cláir uile áfach, ag bailiú sonraí breise agus á mbailíochtú. Léiríonn an fhaisnéis seo a leanas atá ar roinnt bhunachair shonraí lárnaacha an t-ardú ar shealúchais sonraí talamhbhunaithe i rith 2004:

	2004	2003	Ardú
Bunachar sonraí Wells	35,417	34,772	+2%
Bunachar sonraí Taiscéalaíochta Mianraí	75,300	72,500	+4%
Bunachar sonraí Geoiteicniúil	51,253	48,578	+6%

Tá iarracht leanúnach barr feabhais a chur ar chaighdeán agus ar fhiúntas na mbunachair shonraí ar fad trí bhailíochtú a dhéanamh ar gach taifead atá ann faoi láthair, iad sin a bhfuil éiginnteacht maidir lena bhfiúntas a bhaint amach agus taifid nua d’ardchaighdeán a fháil. Mar thoradh air sin, d’fhéadfadh líon na dtáifead nua atá faighte na harduithe glana a léirítear thuas a shárú go suntasach. Féach “ Bunachair shonraí GSI : neart faisnéise”.

Lean Ionad Custaiméirí GSI mar shiopa aon-stad do dhaoine ar mhian leo seirbhísí GSI a úsáid, ar féidir teacht orthu trí r-phost, faics, glao fóin, agus cuairteoirí (féach an clúdach cúil chun sonraí teagmhála a fháil). Is tacaíocht riachtanach d’fheidhmiú an Ionaid é an Córas Bainistíochta Doiciméad digiteach, le 0.5milliún de thaifid scanta. Ba é díolachán iomlán foilseachán i 2004 ná 3310 ítmí (3092 i 2003), ardú de 7%.



Coastal scenery near Loop Head, County Clare. Matthew Parkes.

Radharc Cósta in aice le Ceann Léime, Co. an Chláir. Matthew Parkes.

Groundwater Maps Online

During 2004 a large percentage of currently available Groundwater Protection Scheme maps became available online. This is the latest move in an ongoing GSI Web Mapping Project which is making GSI datasets and maps accessible on the web.

The system that is being used to display the maps is a customized tool for viewing GIS (Geographical Information System)-enabled maps online. Each point on a GIS-enabled map has information attached to it (e.g. Aquifer Classification, Bedrock Type, Vulnerability Category). The user can query maps for this information, either by location (e.g. within a selected rectangle), or by seeking areas which have a particular type of information. Maps comprise several layers or themes and the user can choose the particular layers to be displayed. Maps can be viewed over a base of either the Ordnance Survey (OS) 1:500,000 scale map or the 1:50,000 scale OS Web Map (the latter is a simplified version of the OS 1:50,000 scale Discovery Series Maps).

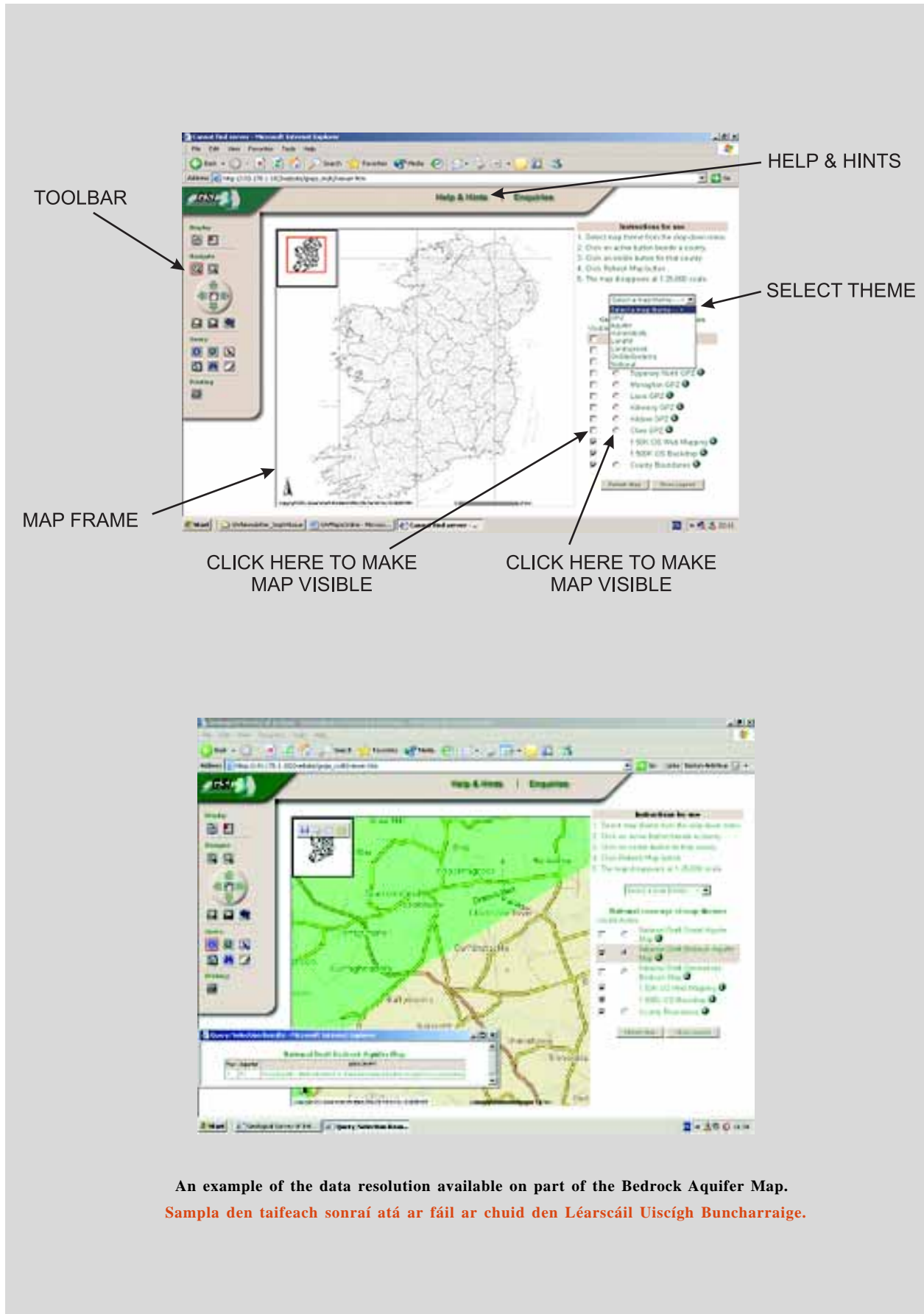
The GSI Web Mapping tool although not as powerful as a full GIS programme, provides a very useful way for those without such GIS software to access the GSI's geographically referenced information remotely. The service operates better with broadband but, due to the large amounts of data involved, those on a dial-up connection may find it slow to respond. To access the maps visit www.gsi.ie and follow the web mapping links.

Léarscáileanna Screamhuise Ar-líne

Le linn 2004 bhí fáil ar-líne ar chéatadán mór de léarscáileanna Scéim Cosanta Screamhuise atá ar fáil faoi láthair. Seo an chéim is déanaí de Thionscadal Léarscáiliú Ghréasán leanúnach de chuid GSI atá ag cur tacair shonraí agus léarscáileanna de chuid GSI ar fáil ar an ghréasán.

Is uirlis, curtha in oiriúint chun féachaint ar léarscáileanna Córas Faisnéise Geografach GIS-cumasaithe ar-líne, atá sa chóras atáthar ag úsáid chun na léarscáileanna a thaispeáint. Tá faisnéis ag gabháil le gach pointe ar léarscáil GIS-cumasaithe (e.g. Rangú Uiscígh, Cineál Buncharraige, Catagóir Leochaileachta). Féadfaidh an t-úsáideoir an fhaisnéis sin a fhiosrú de réir suímh ar léarscáileanna (e.g. laistigh de dhronuilleog a roghnófar), nó trí limistéir a mbaineann cineál áirithe faisnéise leo a lorg. Tá léarscáileanna comhdhéanta de roinnt mhaith sraitheanna/cisil nó téamaí agus féadfaidh an t-úsáideoir na sraitheanna áirithe a bheidh ar taispeáint a roghnú. Féadfar féachaint ar na léarscáileanna thar bhonn léarscáile de chuid na Léarscáilíochta Náisiúnta/Suirbhéireachta Ordanáis (OS) ar scála 1:500,000 nó an Léarscáil Ghréasáin OS ar scála 1:50,000 (is leagan simplithe í an dara léarscáil sin de na Discovery Series Maps OS ar scála 1:50,000).

Cé nach bhfuil uirlis Léarscáiliú Ghréasán GSI chomh cumhachtach le clár iomlán GIS, soláthraíonn sí slí úsáideach dóibh sin nach bhfuil bogearraí GIS den sórt sin acu cian-rochtain a fháil ar fhaisnéis geograchthagartha GSI. Is fearr a fheidhmíonn an tseirbhís le leathanbhanda, agus de bharr an líon mór sonraí a bhíonn i gceist d'fhéadfadh go mbeadh am freagartha mall ag daoine a mbeadh orthu nasc diaillithe a úsáid. Chun rochtain a fháil ar na léarscáileanna tabhair cuairt ar www.gsi.ie agus lean na naisc léarscáiliú ghréasáin.



An example of the data resolution available on part of the Bedrock Aquifer Map.
 Sampla den taifeach sonraí atá ar fáil ar chuid den Léarscáil Uiscigh Buncharraige.

GSI databases: a wealth of information

The following is a list of GSI digital datasets (at the end of 2004) for which there are metadata. Each dataset has a single page-table giving a concise description with all the pertinent information. The Datasets listed on the Document Management System (DMS) are available from the GSI Customer Centre. All others are available from the Section listed or through the Information Management Programme (IMP).

A. Maps			
Maps	Area	Format	Available from IM and
1:10,560 (Six Inch:1 mile) Bedrock Geology	All Ireland County Based Historic Field Sheets	Paper, Scanned Coloured Raster & Georeferenced	Document Management System
1: 63,360 (One Inch: 1Mile) Bedrock Geology	All Ireland Coverage, 210 Sheets	Paper & Scanned Coloured Rasters	Document Management System
1:750,000 Bedrock Geology	Published 1964	Paper /Raster	Document Management System
1:1 Million Bedrock Geology	Published 2004	Raster/pdf	Bedrock Section, Document Management System
1:100,000 Bedrock Geology	All Ireland, 21 sheets with accompanying booklets completed 2004	Vector & Raster 21 tiles	Bedrock Section, Document Management System
1:100,000 (Seamless) Bedrock Geology	All Ireland, merged dataset Completed 2004	Seamless GIS	Bedrock Section
1:50,000 Regional Quaternary Geology	c. 60% of Country	Vector/GIS	Quaternary Section
Groundwater Protection Maps	c.60% of Country	In GIS format	Groundwater Section
Aeromagnetics (Huntings)	National c.70% of Country	Paper/ Digital	Marine Geophysics
Heliborne Geophysics (Mag, Grav, Radiometrics)	Two survey areas Birr/Navan	Paper / Digital	Marine Geophysics
B. Databases			
Dataset	Area	Format	Available from
Quarry Directory	National (529 localities)	Access Database/ GIS	Mineral Section
Minlocs Index (Mineral Localities)	National (7,624 records)	Access Database, Vector & Raster	Minerals Section, Document Management System,
OpenFile Catalogue	National (75,300 Items)	Access Database catalogue, Paper & Raster copies of reports.	Minerals Section, Document Management System,
Stream Sediment Geochemistry	Regional Leinster, Inishowen & Longford-Down	Excel Spreadsheets	Minerals Section
Hydrocarbon Litho-geochemistry	Regional Carboniferous area	Excel Spreadsheets	Minerals Section, Document Management System,
Minerals References	National	Excel Spreadsheets	Minerals Section
National Geotechnical Database	Urban Areas, Reports, Site Plans & Investigations (51,253 records)	Paper, Raster & GIS	Geotechnical Section, Document Management System,
Bedrock Boreholes	National (c.9,500 records)	Spreadsheet/GIS	Bedrock Section
Core Store Catalogue	National (4,701 records)	Spreadsheet/GIS	Bedrock Section
References Catalogue	National (c.7,500)	Digital	Bedrock Section
Palaeontology Catalogue	National (24,167 records)	Digital	Bedrock Section
Groundwater Well Records	National (35,417 records)	Digital/Paper records	Groundwater Section
Karst Features	National (3,755 records)	Digital	Groundwater Section
Marine and Geophysics			
Physical Properties	National (c. 1,500 Samples)	Excel sheets	Marine Geophysics
Sediment Samples	National (611 records)	Excel sheets/Access	Marine Geophysics
National Seabed Survey Physical Media/Data items	17,779 records	Access database	Marine Geophysics
National Seabed Survey Wrecks Database	105 Locations	Access Database/GIS	Marine Geophysics
National Seabed Survey Bathymetry/Backscatter	481,564 Line Kms	Raw: ASCII, processed: into grids	Marine Geophysics
National Seabed Survey Sub-bottom	481,564 Line Kms	Raw: ASCII, processed: into grids	Marine Geophysics
National Seabed Survey Magnetics	474,812 Line Kms	DAT text files, Raw: ASCII, processed 3D models/grids.	Marine Geophysics
National Seabed Survey Gravity	469,787 Line Kms	Raw: ASCII, processed: into grids	Marine Geophysics
National Seabed Survey Sound Velocity Profiles	2,238 Profiles	Excel. diagram, tabular form and xyz co-ord.	Marine Geophysics
National Seabed Survey Video		Video Formats, GIS Locations	Marine Geophysics
National Seabed Survey Seabed Samples	233 Sample Locations	GIS Locations	Marine Geophysics

Bunachair shonraí GSI: neart faisnéise

Is liosta de thacair shonraí digiteacha GSI (ag deireadh 2004) a bhfuil meiteashonraí ann dóibh é seo a leanas. Tá tábla-leathanach amháin le haghaidh gach tacar sonraí a thugann tuairisc achomair leis an bhfaisnéis ábhartha ar fad. Is féidir na Tacair-shonraí atá liostaithe ar an gCóras Bainistíochta Doiciméad (DMS) a fháil ó Ionad Custaiméirí GSI. Is féidir na cinn eile ar fad a fháil ón Roinn liostaithe nó tríd an gClár Bainistíochta Faisnéise (IMP).

A. Léarscáileanna			
Léarscáileanna	Limistéar	Formáid	Ar fáil ó
1:10,560 (Sé Orlach:1 míle) Geolaíocht Buncharraige	Bileoga Allamuigh Stairiúla bunaith e i gContaetha Uile Éireann	Páipéar, Rastar Daite Scanta & Geothagartha	Córas Bainistíochta Docaiméad, Bainistíocht Faisnéise
1: 63,360 (Orlach amháin: 1Míle) Geolaíocht Buncharraige	Clúdach Uile Éireann, 210 Bileog	Páipéar, & Rastair Daite Scanta	Córas Bainistíochta Docaiméad
1:750,000 Geolaíocht Buncharraige	Foilsithe 1964	Páipéar, /Rastar	Córas Bainistíochta Docaiméad
1:1 Milliún Geolaíocht Buncharraige	Foilsithe 2004	Rastar/pdf	Rannóg Buncharraige, Córas Bainistíochta Docaiméad
1:100,000 Geolaíocht Buncharraige	Uile Éireann, 21 bileog le leabhráin ag gabháil leo Comhlánta i 2004	Veicteoir & Rastar 21 tleanna	Rannóg Buncharraige, Córas Bainistíochta Docaiméad
1:100,000 (Gan Uaim) Geolaíocht Buncharraige	Uile Éireann, tacar-sonraí chumaisc Comhlánta 2004	GIS Gan Uaim	Rannóg Buncharraige, Bainistíocht Faisnéise
1:50,000 Geolaíocht Cheathartha Réigiúnach	c. 60% den tír	Veicteoir /GIS	Rannóg Cheathartha
Léarscáileanna Ch Osaint Screamhuisce	c.60% den tír	I bhformáid GIS	Rannóg Screamhuisce
Aermhaighnéadaic (Huntings)	Náisiúnta c.70% den tír	Páipéar,	Geofisic Mara
Geofisic Heliborne (Mag, Grav, Radiaméadaic)	Dhá limistéar le haghaidh suirbhéireachta Biorra/An Uaimh	Páipéar,	Geofisic Mara
B. Bunachair sonraí			
Bunachair sonraí	Limistéar	Formáid	Ar fáil ó
Eolaire na gCairéal	Náisiúnta(529 ceantar)	Bunachair sonraí Access/ GIS	Rannóg Mhianraí
Innéacs Minlocs (Ceantair Mhianraí)	Náisiúnta (7,624 taifead)	Bunachair sonraí Access, Veicteoir & Rastar	Córas Bainistíochta Docaiméad, Rannóg Mhianraí
Catalóg Comhad Oscailte	Náisiúnta (75,300 Itimí)	Catalóg Bhunachair sonraí, Páipéar & Cóipeanna Rastair de thuarascálach.	Córas Bainistíochta Docaiméad, Rannóg Mhianraí
Geoiceimic Dríodar Srutha	Laignean go réigiúnach, Inis Eoghain & An Longfort-An Dúin	Scarbhileoga Excel	Rannóg Mhianraí
Líteageoicimic Hidreacarbóin	Limistéar Réigiúnach Carbónmhar	Scarbhileoga Excel	Córas Bainistíochta Docaiméad, Rannóg Mhianraí
Tagairtí Mianraí	Náisiúnta	Scarbhileoga Excel	Rannóg Mhianraí
Bunachair sonraí Náisiúnta Geoteicniúil	Limistéir Uirbeacha, Tuarascálacha, Pleananna Láithreáin & Imscrúduithe (51,253 taifead)	Páipéar, Rastar & GIS	Rannóg Gheoteicniúil, Córas Bainistíochta Docaiméad,
Poill tóraíochta Buncharraige	Náisiúnta (c.9,500 records)	Scarbhileog/GIS	Rannóg Buncharraige
Catalóg Stór Crofleaicín	Náisiúnta (4,701 taifead)	Scarbhileog/GIS	Rannóg Buncharraige
Catalóg Tagairtí	Náisiúnta (c.7,500)	Digiteach	Rannóg Buncharraige
Catalóg Palae-ontolaíochta	Náisiúnta (24,167 taifead)	Digiteach	Rannóg Buncharraige
Taifid Thobair Screamhuisce	Náisiúnta (35,417 taifead)	Digiteach/Taifid Pháipéir	Rannóg Screamhuisce
Gnéithe karst	Náisiúnta (3,755 taifead)	Digiteach	Rannóg Screamhuisce
Mara agus Geofisic			
Airíonna Fisiciúla	Náisiúnta (c. 1,500 Samples)	Bileoga Excel	Geofisic Mara
Samplaí Dríodair	Náisiúnta (611 taifead)	Bileoga Excel/Access	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Itimí Fisiciúla Meán/Sonraí	17,779 taifead	Bunachair sonraí Access	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Bunachair Raiceanna	105 Suíomh	Bunachair sonraí Access/GIS	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Bataiméadracht/ Cúlscáipeadh	481,564 Line Kms	Amh: ASCII, próiseáilte: i ngréillí	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Fo-íochtar	481,564 Line Kms	Amh: ASCII, próiseáilte: i ngréillí	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Maighnéadachais	474,812 Line Kms	Téacschomhaid DAT, Amh: ASCII, próiseáilte: i ngréillí/mionsamhlacha 3D	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Domharraingt	469,787 Line Kms	Amh: ASCII, próiseáilte: i ngréillí	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Próifíil Luais agus Fuaim	2,238 Próifíil	Excel. Léaráid, i bhfoirm tábla agus comhordanáidí xyz	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Físeán	Suirbhéireacht déanta ar 4 Láithreán	Formáid Físeán, Láithreáin GIS	Geofisic Mara
Suirbhéireacht Náisiúnta Ghrinneall na Farraige Samplaí Grinnill	233 Láithreán Samplacha	Láithreáin GIS	Geofisic Mara

Information Freeflow

Such is the extent of the data emerging from the Irish National Seabed Survey (INSS) that delivering even small portions to customers is very challenging. The National University of Ireland, Galway (NUIG) has a marine data repository, the MarineGrid disk array, which can transmit such data quantities over the HEANet fast-fibre backbone supported by the Higher Education Authority. This repository now holds a copy of all INSS data.

This welcome development, which represents a key link between the State and academic sectors in developing a knowledge-based society, facilitates the following benefits:

- All INSS data are now easily available to all HEANet contributors, as well as GSI and Marine Institute staff;
- All INSS data remain fully protected through the operation of the GSI data-licensing and data-policing system;
- All INSS data are additionally protected in that a duplicate set is securely managed in an independent repository.

Are you included? HEANet contributors include universities, institutes of technology, third-level colleges, many state-sponsored agencies and selected Dublin-based Colleges of Further Education and primary schools. Visit www.heanet.org for more information.

How does it work? Start by selecting your required data from the GSI web-mapping portal (via www.gsi.ie). A text file of requested data and a completed Digital Data Request Form is sent to GSI for approval. The requested data are then made accessible to the applicant for a specified period on the MarineGrid.

Eolas go hÉasca

Tá an oiread sin sonraí ag teacht chun cinn ó Shuirbhéireacht Náisiúnta Ghrinneall Farraige na hÉireann (INSS) go bhfuil sé thar a bheith dúshlánach codanna beaga fiú, a sheachadadh chuig custaiméirí. Tá taisce sonraí mara ag Ollscoil na hÉireann, Gaillimh, eagar diosca MarineGrid, ar féidir leis cainníochtaí sonraí den sórt sin a tharchur ar an líonra cnámh droma mearshnáithín HEANet le tacú ón Údaras um Ard-Oideachas. Tá cóip de shonraí an INSS ar fad sa taisce sonraí sin anois.

Eascaíonn an fhorbairt sin ar fáiltíodh roimpi, agus a léiríonn nasc lárnach idir an Stát agus earnálacha acadúla ó thaobh sochar eolasbhunaithe a chruthú, na buntáistí seo a leanas:

- Féadfaidh gach rannpháirtí HEANet, chomh maith le foireann GSI agus foireann Fhoras na Mara na sonraí ar fad de chuid an INSS a fháil go héasca;
- Tá cosaint iomlán ag na sonraí ar fad de chuid an INSS trí fheidhmiú chóras cheadúnú sonraí agus phóilíneacht sonraí GSI;
- Tá breis cosanta ag na sonraí ar fad de chuid an INSS de bhrí go bhfuil sraith dhúblach á bainistiú go daingean i dtaisce sonraí neamhspleách.

An bhfuil tusa san áireamh? Áirítear ollscoileanna, institiúidí teicneolaíochta, coláistí tríú leibhéal, go leor gníomhaireachtaí stát-tionscanta agus Coláistí Breisoideachais agus bunscoileanna roghnaithe atá bunaithe i mBaile Átha Cliath ar rannpháirtithe HEANet. Tabhair cuairt ar www.heanet.org le haghaidh tuilleadh faisnéise.

Cén chaoi a n-oibríonn sé? Mar thús roghnaigh na sonraí atá uait ón tairseach léarscáiliú-gréasáin GSI (via www.gsi.ie). Seolfar téacschomhad de na sonraí a iarradh agus Foirm Iarratais Sonraí Digiteacha comhlánaithe le haghaidh ceadú. Cuirfead na sonraí a iarradh ar fáil ansin don iarratasóir ar an MarineGrid le haghaidh tréimhse ama sonraithe.

NURTURING OUR ENVIRONMENT

AG COTHÚ ÁR GCOMHSHAOIL

At the end of 2004, the Southeast Asian tsunami, resulting from a major earthquake offshore Sumatra, brought a tragic and swift reminder of the vulnerability of our global physical environment. We, in Ireland, are fortunate in that the risks we normally face are less dramatic. Nevertheless, our physical environment and the way we manage it are fundamentally important to our safety and quality of life. Readers of earlier editions of this Annual Report will be familiar with certain risks, such as water pollution and exposure to radon. But extreme weather events in late 2003 brought with them another hazard – landslides. As a result, GSI began a study of the landslide risks in Ireland during 2004 (see “The Moving Earth”).

It is essential that Ireland develops the required baseline and repeat surveys to support effective understanding of our environment. Many agencies including the Environmental Protection Agency, Teagasc and the Marine Institute already contribute to this and GSI supports them where appropriate. Satellite-based monitoring is recognised as increasingly important on both a European and global scale. The US-led GEO initiative is matched by the GMES (Global Monitoring for Environment and Security) initiative of the European Commission and the European Space Agency. Such remotely sensed information should always be validated by data collected on the ground (ground-truth data). For example, GSI is an associate partner in the GMES TerraFirma Project, designed to monitor vertical ground motion in urban areas. Data for the Dublin region have already been acquired and are currently being validated by ground-truth data.

The implementation of the EU Water Framework Directive (WFD) is designed to ensure that all EU residents have access to clean water supplies and it has been a key priority of GSI in 2004 to support its partners in this important work. This work is helping to ensure that, for virtually the first time in Ireland, the underground component of the hydrological cycle is recognised as essential to river basin management. Accordingly, the work of River Basin District (RBD) characterisation has involved the delineation and description of 383 groundwater bodies nationwide, including a risk assessment of each. The GSI groundwater databases are important sources of data for this work (see “Householders improve our water database”). GSI staff have contributed to the network of working groups and committees which manages WFD implementation (see the Annual Report Appendices on www.gsi.ie).

Ag deireadh 2004, mheabhraigh an tsunami in Oirdheisceart na hÁise a bhí mar thoradh ar chrith talún mór amach ó chósta Sumatra, leochaileacht ár dtimpeallacht fhísiciúil domhanda dúinn, go tubaisteach agus go mear. Tá an t-ádh linn in Éirinn nach mbíonn na rioscaí a gcaitear dul i ngleic leo go hiondúil chomh tromchúiseach sin. Mar sin féin, baineann tábhacht bhunúsach lenár gcomhshaol fisiciúil agus leis an gcaoi a mbainistimid é maidir lenár sábháilteacht agus lenár gcaighdeáin saoil. Beidh cur amach ag léitheoirí d’eagráin níos luaithe den Tuarascáil Bhliantúil seo, ar rioscaí faoi leith, ar nós thruailliú uisce agus nochtadh do radón. Ach bhain contúirt eile leis na tréimhsí d’fhíordhroch-aimsir amach i 2003– sciorraí talún. Chuir GSI tús le staidéar ar rioscaí sciorraí talún in Éirinn i rith 2004 mar thoradh air sin (féach “The Moving Earth”).

Tá sé riachtanach go ndéanfar forbairt in Éirinn ar shuirbhéanna bunlíne agus athshuirbhéanna a theastaíonn, chun cur le tuiscint éifeachtach ar ár gcomhshaol. Cuireann go leor gníomhaireachtaí lena n-áirítear an Ghníomhaireacht um Chaomhnú Comhshaoil, Teagasc, agus Foras na Mara leis an bhforbairt seo cheana féin agus tacaíonn GSI leo nuair is cuí. Aithnítear go bhfuil níos mó agus níos mó tábhachta ag baint le monatóireacht satailít-bhunaithe ar scála Eorpach agus ar scála domhanda araon. Tá tionscnamh GEO faoi stiúir na SA ina mhúnla do thionscnamh GMES (Monatóireacht Dhomhanda ar Chomhshaol agus Slándáil) de chuid an Choimisiúin Eorpaigh agus Ghníomhaireacht Spáis na hEorpa. Ba chóir faisnéis chianbhraite den sórt sin a bhailíochtú ag baint leasa as sonraí a bhailítear ar an talamh (sonraí fíoraite ar an talamh). Mar shampla tá GSI ina pháirtí comhlach i dTionscadal TerraFirma GMES, atá leagtha amach chun monatóireacht a dhéanamh ar ghluaiseacht ingearach talún i gceantair uirbeacha. Tá sonraí faighte do réigiún Bhaile Átha Cliath cheana féin agus táthar á mbailíochtú ag baint leasa as sonraí fíoraite ar an talamh i láthair na huaire.

Tá feidhmiú an Chreat-Treoir Uisce ón AE (WFD) leagtha amach chun a chinntiú go mbeidh rochtain ag áitritheoirí uile an AE ar sholáthair uisce glan agus is príomhthosaíocht don GSI i 2004 tacú lena chomhpháirtithe san obair thábhachtach seo. Cuidíonn an obair seo lena chinntiú, go n-aithneofar den chéad uair riamh beagnach in Éirinn, go bhfuil an chuid faoi thalamh den timthriall hidreolaíoch riachtanach le haghaidh bhainistiú abhantraí. Dá réir sin tá baint ag an obair ar thréithriú Cheantar na hAbhantraí (RBD) leis an tuairisciú agus an cur síos ar 383 comhlacht screamhuisce ar fud na tíre, lena n-áirítear measúnú riosca i gcás gach ceann acu. Is foinsí sonraí tábhachtacha le haghaidh na

The long-term importance of the county-based Groundwater Protection Schemes (GWPS) is recognised and every effort is made to advance them within the limits of available resources. These resources will become more available according as WFD implementation work declines. In 2004, the GWPS for Donegal was completed and delivered to Donegal County Council. In addition, an updated GWPS was delivered to Meath County Council. Source protection work, to ensure that public water sources maintain a high water quality, continued and eight reports and maps were prepared for the following public and group water supply wells and springs: **Meath:** Athboy, Ballivor, Curragha, Dunboyne, Dunshaughlin, Nobber and Slane. **Fingal:** Bog of the Ring (draft).

GSI provided advice to the Exploration and Mining Division of the Department on water-related aspects of mining developments, including both operational and abandoned mines.

GSI responds to a range of submissions concerned with environmental impact statements and planning applications. A total of 62 notifications were received in 2004. GSI responses tend to focus on geotechnical and heritage dimensions. The GSI Geotechnical Database, being concerned with the near-surface environment, is a key database for infrastructural projects and is described in “Supporting development of the built environment”. Newly acquired data in 2004 increased the database by 6%.

hoibre sin iad bunachair shonraí screamhuisce GSI (féach “Cuireann líonta tí lenár mbunachar sonraí uisce”). Chuir foireann GSI le líonra na ngrúpaí oibre agus coistí a bhainistíonn feidhmiú WFD (féach Aguisíní leis an Tuarascáil Bhliantúil ar www.gsi.ie).

Aithnítear tábhacht fhadthéarmach na Scéimeanna Cosanta Screamhuisce (GWPS) atá contae-bhunaithe agus déantar gach uile iarracht iad a chur ar aghaidh laistigh de theorainneacha na n-acmhainní a bhfuil fáil orthu. Beidh na hacmhainní sin le fáil níos fairsinge de réir mar a thagann meath ar obair fheidhmithe WFD. I 2004, bhí GWPS curtha i gcrích do Dhún na nGall agus seachadta chuig Comhairle Chontae Dhún na nGall. Ina theannta sin, seachadaíodh GWPS nuashonraithe chuig Comhairle Chontae na Mí. Leanadh le hobair chosanta foinsí chun a chinntú go mbeadh uisce ar ardchaighdeán á chothabháil ag foinsí uisce phoiblí agus ullmhaíodh léarscáileanna agus ocht dtuarascáil de na toibreacha agus fuaráin soláthair uisce phoiblí agus na toibreacha agus fuaráin soláthair uisce do ghrúpscéimeanna. **An Mhí:** Baile Átha Buí, Baile Íomhair, Curragha, Dún Búinne, Dún Seachlainn, An Obair agus Baile Shláine. **Fingal:** Portach an Fháinne (dréacht).

Sholáthair GSI comhairle do Rannán Taiscéalaíochta agus Mianadóireachta na Roinne maidir le gnéithe d’fhorbairtí mianadóireachta a bhaineann le huisce, lena n-áirítear mianaigh atá in úsáid agus atá tréigthe araon.

Freagraíonn GSI do réimse aighneachtaí a bhaineann le ráitis tionchair comhshaoil agus iarratais phleanála. Fuarthas 62 fógra ar fad i 2004. Bíonn claonadh ar fhreagraí GSI a bheith dírithe ar ghnéithe oidhreachta agus geoiteicniúla. De bhrí go bhfuil baint ag Bunachar Sonraí Geoiteicniúil GSI leis an gcomhshaoil i ngar don dhromchla is bunachar sonraí lárnach le haghaidh tionscadail infrastruchtúir é agus déantar cur síos air i “Ag tacú le forbairt an comhshaoil thógtha”. Mhéadaigh sonraí nua a fuarthas in 2004 an bunachar sonraí 6%.



Man-made landscape: abandoned open-cast iron mine in the Minett region near Esch-Sur-Alzette, Luxembourg. See “Europe’s Living Landscapes”.

Tírdhreach déanta ag an duine: mianach iarainn theilgthe tréigthe i réigiún Minett in aice le Esch-Sur-Alzette, Luxembourg. Féach “Tírdhreacha Beo na hEorpa”.

The moving Earth

Landslides are major worldwide hazards, causing huge damage and loss of life, but it was only in late 2003 that we in GSI decided to address the risk they posed in Ireland. This followed the well-publicised landslides at Pollatomish, County Mayo and Derrybrien, County Galway: it was fortunate that there was no loss of life in either event.

In response to these events, GSI established a National Landslides Working Group in 2004 to collate information and examine the causes of landslides throughout the island of Ireland. The Working Group is a multi-disciplinary team, which includes expertise on geology, geomorphology, engineering, planning, climatology and geographic information systems (GIS), with membership drawn from the State, Northern Ireland and third-level sectors (see its membership list in the Appendices to the Annual Report on www.gsi.ie).

The Working Group is building a national database of past landslide events and 94 have been recorded to date. While landslide events have occurred on a widespread geographic basis and under many different circumstances, a distinctive feature of Irish events is the high proportion of peat failures, both on blanket and raised bogs. An initial examination of the geotechnical parameters involved suggests that many of these peat slides and flows may be caused by high, if not extreme, rainfall events and activities like peat-cutting and land drainage.

Landslide susceptibility mapping could assist in formulating planning guidance for local authorities with regard to landslide hazards. A pilot study of such mapping is currently being undertaken in the uplands of Counties Leitrim and Sligo to assess its effectiveness under Irish conditions. In addition, the Working Group facilitates research into landslides, with several postgraduate projects already underway. The Working Group ultimately intends to make recommendations on the integration of landslide-hazard issues into the planning process.



Landslide at Pollatomish, County Mayo, in late 2003. Ronnie Creighton.

Sciarradh Talún ag Poll a Tomáis i gCo. Mhaigh Eo amach in 2003. Ronnie Creighton.

Domhan atá ag Gluaiseacht

Is contúirtí móra iad sciorraí talún ar fud an domhain, a mbíonn damáiste ollmhór agus bás daoine go leor mar thoradh orthu, ach ní dheachamar i GSI i ngleic leis an riosca a bhain leo in Éirinn go dtí deireadh 2003. Lean sin na sciorraí talún a raibh caint mhór orthu i bPoll a Tomáis i gCo. Mhaigh Eo agus i nDoire Uí Bhriain i gCo. na Gaillimhe: bhí an t-ádh le daoine nár maraíodh aon duine dá mbar.

Mar fhreagra ar na heachtraí sin, bhunaigh GSI Grúpa Oibre Náisiúnta Sciorraí Talún i 2004 chun faisnéis a chóimheas agus na cúiseanna a bhíonn na sciorraí talún ar fud oileán Éirinn a scrúdú. Is foireann ildhisciplíneach atá sa Ghrúpa Oibre, a bhfuil saineolas maidir le geolaíocht, geomoirfeolaíocht, innealtóireact, pleanáil, clíomeolaíocht agus córais faisnéise geografach (GIS), le daoine ón Stát, ó Thuaisceart Éireann agus ó earnálacha tríú leibhéal (féach liosta ballraíochta an Ghrúpa Oibre sna hAguisíní don Tuarascáil Bhliantúil ar www.gsi.ie).

Tá an Grúpa Oibre ag cur bunachar sonraí náisiúnta le chéile d'eachtraí sciorraí talún a tharla san am atá thart agus tá 94 taifeadta go dtí seo. Cé gur tharla eachtraí sciorraí talún go forleathan ar bhonn geografach agus faoi imthosca éagsúla go leor is gné faoi leith iad cliseadh móna ar bhratphortaigh agus portaigh ardaithe araon maidir le heachtraí in Éirinn. Is cosúil, tar éis scrúdú tosaigh ar na paraiméadair gheoiteicniúla, go bhféadfadh an bháisteach throm ach nach uafásach amach is amach agus gníomhaíochtaí ar nós baint mhóna agus draenáil talún a bheith mar chúiseanna le cuid mhór den sleamhnú agus sreabhadh móna sin.

D'fhéadfadh léarscáiliú contúirt sciorraí talún cuidiú le treoir phleanála a dhéanamh le haghaidh údaráis áitiúla i ndáil le contúirt sciorraí talún. Táthar i mbun staidéir fhíolótaigh de léarscáiliú dá shórt in ardhailte Chontaetha Liatroma agus Shligigh chun a éifeachtacht faoi choinníollacha in Éirinn a mheasúnú. Ina theannta sin cuidíonn an Grúpa Oibre le taighde ar sciorraí talún, agus tá líon mór tionscadail taighde ar bun cheana féin. Tá sé beartaithe ag an nGrúpa Oibre moltaí a dhéanamh maidir le saincheisteanna faoi chontúirt sciorraí talún a bheith mar chuid den phróiseas pleanála.

Householders improve our water databases

For many years GSI has assisted those developing water wells with information from our groundwater databases. These databases have been built from information voluntarily submitted by well drillers, local authorities and householders. Unlike comparable agencies in other countries, GSI does not have statutory powers to acquire such information. For example, although there are probably 100,000 – 200,000 water wells in the country, GSI holds data in respect of only 35,000 (18-35%) and even then the details of location are generally imprecise.

The Well Grant Scheme introduced in 1997 by the Department of the Environment, Heritage and Local Government (DEHLG) provided a welcome opportunity to improve our records. The Well Grant Scheme is operated by local authorities, which provide applicants with an information sheet that assists them in avoiding pollution of their wells. In return, applicants complete a Well Record Sheet featuring a site location map and information such as depth-to-bedrock and water table, water yield and analysis. Copies of completed sheets are provided to GSI.

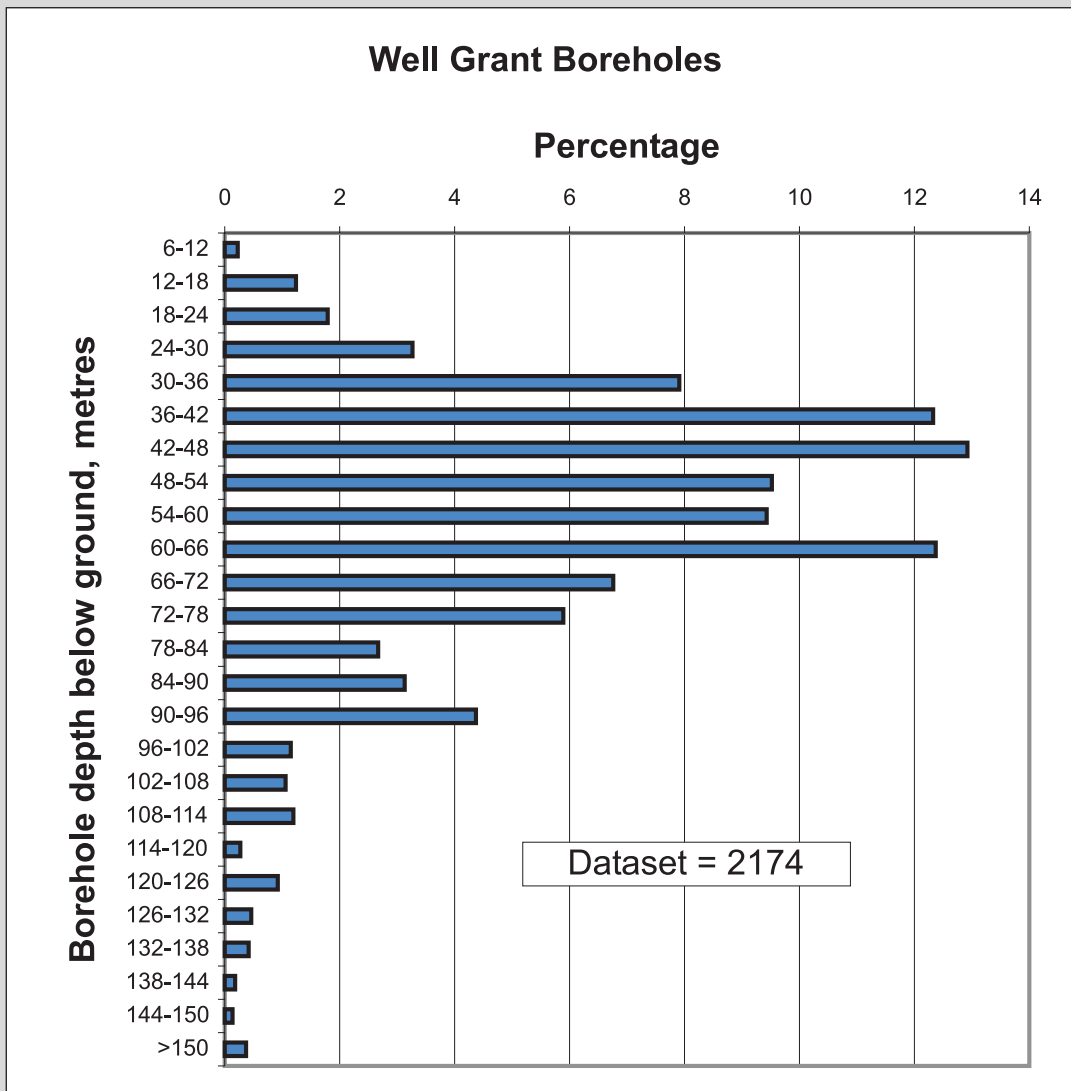
To date, GSI has received over 2,800 well records providing a wealth of information on groundwater resources in areas for which we previously had little or no information. This has been invaluable in helping GSI to characterise our groundwater bodies for the River Basin District projects. Our improved databases, in turn, improve our ability to provide accurate and useful information for those about to sink new wells and develop new groundwater resources.

Cuireann líonta tí lenár mbunachair shonraí

Le blianta anuas chuidigh GSI le daoine a bhíonn ag forbairt toibreacha uisce le faisnéis ónar mbunachair shonraí screamhuisce. Cuireadh na bunachair shonraí seo le chéile ó fhaisnéis a chuir druilirí toibreacha, údaráis áitiúla agus líonta isteach go deonach. Níl cumhachtaí reachtúla ag GSI chun faisnéis den sórt sin a fháil, ní hionann agus gníomhaireachtaí den sórt céanna i dtíortha eile. Mar shampla, cé go bhfuil 100,000 – 200,000 tobar uisce sa tír, níl ach sonraí maidir le 35,000 (18-35%) i seilbh GSI agus fiú ansin féin tá sonraí maidir lena suíomh míchruinn go ginearálta.

Sholáthair an Scéim Deontais do Thoibreacha, a bhunaigh an Roinn Comhshaoil, Oidhreacht agus Rialtais Áitiúil (DEHLG) i 1997, deis ar fáiltíodh roimpi, chun feabhas a chur ar ár dtáifid. Is iad na húdaráis áitiúla a fheidhmíonn an Scéim Deontais do Thoibreacha, agus soláthraíonn siad bileog eolais d'iarratasóirí a chuidíonn leo truailliú sna toibreacha a sheachaint. Ansin comhlíonann iarratasóirí Bileog Thaifid Thoibreacha ina bhfuil léarscáil de shuíomh an láithreáin agus faisnéis mar dhoimhneacht-go-buncharraig agus maoschlár, táirgeacht uisce agus anailís. Soláthraítear cóipeanna de na bileoga comhlánta don GSI.

Tá breis agus 2,800 taifead tobair faighte ag GSI go dtí seo, a sholáthraíonn neart faisnéise ar acmhainní screamhuisce i limistéir nach raibh mórán faisnéise againn maidir leo más bhí aon ní. Tá sé sin fíorluachmhar ó thaobh cuidiú le GSI tréithriú a dhéanamh ar an screamhuisce le haghaidh thionscadail Cheantar Abhantraí. Cuireann ár mbunachair shonraí feabhsaithe dá réir, lenár gcumas faisnéis chruinn agus faisnéis áisiúil a sholáthar dóibh siúd atá ar tí toibreacha nua a thochailt agus acmhainní nua screamhuisce a fhorbairt.



The depths of water wells drilled under the Well Grant Scheme. 65% of wells are less than 61 metres deep and only 7% exceed 92 metres deep.

Doimhneacht na dtoibreacha uisce druileáilte faoi Scéim Deontais do Thoibreacha. Tá 65% na dtoibreacha níos lú ná 61 méadar ar doimhneacht agus ní sháraíonn ach 7% 92 méadar ar doimhneacht.

Constructing the future

Site investigation reports contain a wealth of information on Ireland's subsurface, such as the nature and depth of its overburden. The GSI Geotechnical Database is based on such reports as an information resource for the construction sector. The database has nation-wide information but particularly focuses on urban areas and major infrastructure projects such as roads and pipelines. Site investigation reports contain the results of boreholes, trial pits and related tests, and they are lodged with GSI by consulting engineers, site investigation companies, local authorities and state agencies.

The GSI Geotechnical Database now has 4,400 reports containing the results of 51,200 boreholes and trial pits. It is used extensively by consulting engineers as an aid to the cost-effective design of site investigations around development sites, whether these are residential, commercial or extensive route corridors. As far as possible, GSI attempts to deliver integrated information to customers and in many cases this will include mapping data (Bedrock, Quaternary or Seabed) in addition to outputs from the Geotechnical Database

By the end of 2004, the transformation of the information into a new Oracle database was 60% completed. In addition, almost 20% of borehole locations have been digitised, starting with major urban areas. The capacity of the database to produce map outputs is being continually enhanced in order to improve our response to customer queries; a web-based spatial query tool is due to be developed in 2005.

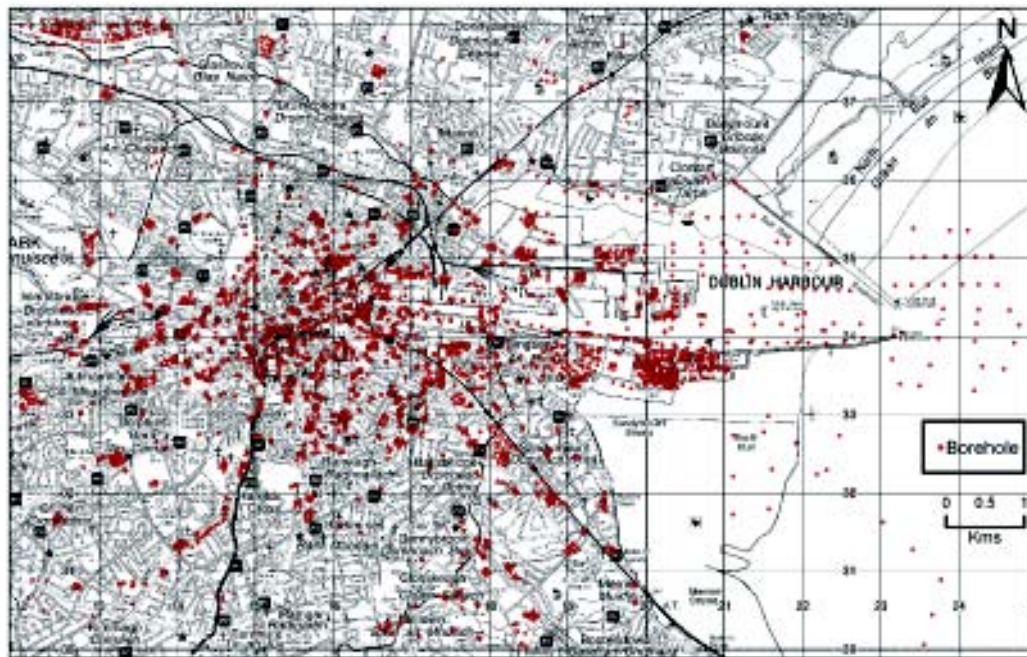


An Todhchaí á Múnlú

Bíonn neart faisnéise i dtuarascálacha imscrúdú láithreán maidir le fodhromchla na hÉireann, ar nós mianach agus doimhneacht a fhorchlúdaigh. Tá Bunachar Sonraí Gheoiteicniúil GSI bunaithe ar thuarascálacha den sórt sin mar acmhainn faisnéise don earnáil foirgníochta. Tá faisnéis náisiúnta sa bhunachar sonraí ach dírtear go háirithe ar cheantair uirbeacha agus tionscadail mhóra infrastruchtúir ar nós bóithre agus píblínte. Bíonn torthaí na bpoill tóraíochta, na gclaiseanna trialacha agus na dtástálacha cuí sna tuarascálacha imscrúdú láithreán, ar fáil sna tuarascálacha imscrúdú láithreán agus cuireann innealtóirí comhairleacha, cuideachtaí imscrúdú láithreán, údaráis áitiúla agus gníomhaireachtaí stáit chuig an GSI iad.

Tá 4,400 tuarascáil ag Bunachar Sonraí Geoiteicniúil GSI ina bhfuil na torthaí ar 51,200 poll tóraíochta agus clais thrialach. Baineann innealtóirí comhairleacha úsáid fhairsing as an mBunachar Sonraí mar áis chúnta ó thaobh dheardh imscrúduithe láithreán thart timpeall ar láithreáin forbartha a bheadh éifeachtach ó thaobh costais, cibé ina gconairí cónaitheacha, tráchtála, nó ina mbealaí conair fhairsing. Déanann GSI iarracht sa mhéid agus is féidir, faisnéis chomhtháite a sheachadadh chuig custaiméirí agus i gcásanna go leor áirítear sonraí léarscáiliú (Buncharraige, Cheathartha, nó Ghrinneall na farraige) i dteannta aschur ón mBunachar Sonraí Geoiteicniúil.

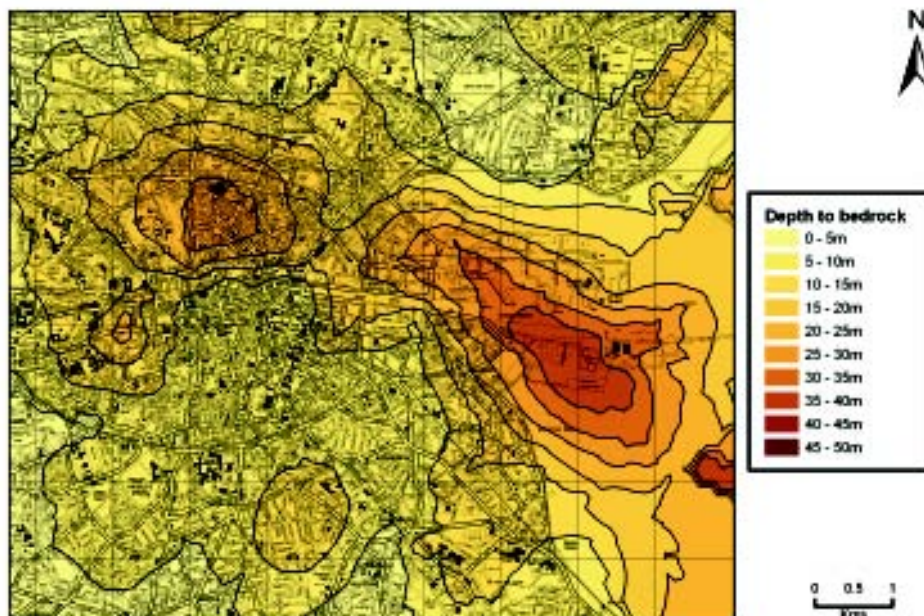
Bhí 60% den athrú faisnéise go dtí bunachar sonraí nua Oracle déanta faoi dheireadh 2004. Ina theannta sin tá beagnach 20% de na suímh le haghaidh poill tóraíochta déanta digiteach, ag tosú le mór-cheantair uirbeacha. Táthar ag feabhsú cumas an bhunachair sonraí aschur léarscáileanna a tháirgeadh go leanúnach ionas gur féidir barr feabhais a chur ar ár bhfreagairt ar cheisteanna custaiméirí; tá forbairt uirlis cheiste spásúil gréasán-bhunaithe beartaithe do 2005.



ALL BOREHOLES OF DUBLIN CITY CENTRE

Boreholes and trial pits in the Dublin area tend to be clustered between the Royal and Grand Canals, as well as in the Dublin Port area. This map represents the sites that have been digitised to date.

Tá an claonadh poill tóraíochta agus claiseanna trialacha i limistéar Bhaile Átha Cliath a bheith cnuasaithe idir An Chanáil Ríoga agus An Chanáil Mhór, chomh maith le limistéar Chalafort Bhaile Átha Cliath. Léiríonn an léarscáil seo na suímh atá déanta digiteach go dtí seo.



DUBLIN CITY CENTRE-DEPTH TO BEDROCK

Contoured map of depth-to-bedrock in Dublin city centre, where overburden tends to be 5-10 metres thick. It shows a buried river channel (in deeper shades), which may be more than 40 metres deep, of major engineering significance, which extends from the estuary at Ringsend to the vicinity of Heuston Station.

Léarscáil chomh-airde de dhoimhneacht-go-buncharraig lár chathair Bhaile Átha Cliath, áit go mbíonn an forchlúdach 5-10 méadar ar tiubhas. Léirítear cainéal abhann i dtalamh (i ndathanna níos doimhne), a d'fhéadfadh a bheith breis agus 40 méadar ar domhain, a bhfuil tábhacht innealtóireachta ag baint leis agus a shíneann ón inbhear ag An Rinn go dtí cóngaracht cheantar Stáisiún Heuston.

MAPPING OUR EARTH RESOURCES

ÁR N-ACMHAINNÍ TALÚN A MHAPÁIL

The approach to collecting earth resource information has changed radically in recent times, especially as satellite-derived data have become available and global monitoring systems have evolved. Such data are very important in that they provide comprehensive coverage in real time and therefore provide an important extension of services available through airborne and shipboard surveys. These methods, now all used by GSI, are cost effective techniques which remotely sense our environment and therefore need validation through ground-truth data. In parallel GSI continues field-based mapping in themes which can only be partly sensed remotely, including Bedrock and Quaternary mapping, in order to meet customer needs as fully as possible.

A Quaternary mapping project in Louth and part of Westmeath, jointly funded by Kilsaran Concrete Products Ltd, is on target for completion in mid-2005. This project has involved systematic field mapping and a drilling programme comprising 121 boreholes, and its results will be important in evaluating the availability of sand and gravel resources. More broadly, bedrock mapping at a scale of 1:50,000 has been initiated on a pilot basis in Counties Wexford and Monaghan. This mapping responds to customer needs for ground-truth data (including point data) which allow the user to assess its accuracy and the basis on which the interpretations are made.

The availability of aggregates, whether as sand and gravel or as crushed rock, is a key factor in the timely and cost effective completion of major infrastructural projects. It is assessed by GSI through its Aggregates Potential Mapping methodology. With projects for Counties Donegal and Meath already completed earlier, during 2004 another involving County Wicklow was delivered on schedule to Wicklow County Council. (See "Aggregates for construction"). The accompanying broader study of Minerals Potential Mapping of County Wicklow is due for completion in 2005. This work has involved extending the methodology developed for aggregates to commodities like gold and base metals and is intended as a supporting resource for local authority planners. It is hoped to provide these services to other counties across Ireland in the future.

Offshore surveying for the Irish National Seabed Survey continued in partnership with the Marine Institute (MI). The MI vessel, the Celtic Explorer, undertook five survey legs in four distinct areas, west of the Shannon Estuary, the Irish fishing Conservation Box off west Kerry, north of Donegal and the shallow (Zone 2) area of the Rockall Bank. Over a total period of 136 days, the Celtic Explorer accumulated 31,557 line kilometres of data in addition to

Tá an cur chuige ó thaobh faisnéise maidir le hacmhainní talún a bhailiú athraithe go mór le déanaí, go háirithe os rud é go bhfuil sonraí a fhaightear ó shatailítí ar fáil agus go bhfuil córais mhonatóireachta domhanda tagtha chun cinn. Tá sonraí den sórt sin fíorthábhachtach mar go soláthraíonn siad clúdach cuimsitheach i bhfor-am agus go soláthraítear leathnú tábhachtach ar sheirbhísí atá ar fáil trí shuirbhéanna aeir agus ar bord long. Is modhanna iad sin atá ar fad in úsáid ag GSI, atá éifeachtach ó thaobh costais, a chianbhraitheann ár gcomhshaol agus a dteastaíonn bailíochtú trí shonraí fíoraithe ar an talamh uathu dá bhrí sin. Ag an am céanna leanann GSI le léarscáiliú allamuigh-bhunaithe i dtéamaí nach féidir a chianbhrath go hiomlán, lena n-áirítear léarscáiliú Buncharraige agus léarscáiliú Cheathartha, ionas gur féidir freastal ar riachtanais an chustaméara chomh maith agus is féidir.

Tá tionscadal léarscáiliú Cheathartha i gCo. an Lú agus i gcuid de Cho. na hIarmhí, atá cómhaoinithe ag Kilsaran Concrete Products Ltd, le bheith curtha i gcrích mar a bhí beartaithe i lár 2005. Sa tionscadal sin tá clár druileála agus léarscáiliú allamuigh córasach comhdhéanta de 121 poll tóraíochta, agus beidh torthaí an tionscadail tábhachtach maidir le meastóireacht a dhéanamh ar chomh héasca agus is féidir teacht ar acmhainní gainimh agus gairbhéil. Níos ginearálta ná sin tá léarscáiliú buncharraige ar scála 1:50,000 tionscanta ar bhonn píolótach i gContaetha Loch Garman agus Muineachán. Is freagairt é an léarscáiliú sin ar riachtanais shonraí fíoraithe ar an talamh (lena n-áirítear sonraí a bhaineann le pointí) custaiméirí a thugann deis don úsáideoir an cruinneas agus an bonn ar a ndéantar na léirmhínte a mheas.

Is fachtóir lárnach é greannheallta a bheith ar fáil cibé mar ghaineamh, mar ghairbhéal nó mar charraigeacha mionbhrúite, i mór-thionscadail infrastruchtúir a chur i gcrích in am agus ar bhealach éifeachtach ó thaobh costais. Déanann GSI measúnú air trí mhodheolaíocht a Léarscáiliú ar Phóitínseal Greannheallta. Le tionscadail le haghaidh Chontaetha Dhún na nGall agus na Mí curtha i gcrích cheana féin go luath, seachadadh ceann eile a bhain le Contae Chill Mhantáin de réir sceidil chuig Comhairle Chontae Chill Mhantáin. (Féach "Greannheallta le haghaidh tógála/foirgníochta"). Tá cur i gcrích an staidéir níos leithne ar Léarscáiliú ar Phóitínseal Mianraí a ghabhann leis ceaptha a bheith déanta i 2005. Bhain síneadh na modheolaíochta a forbraíodh le haghaidh greannheallta do thráchtarraí cosúil le hór agus tairmhiotail leis an obair seo agus tá sé i gceist í a bheith mar acmhainn tacaíochta do phleanálaithe sna húdaráis áitiúla. Táthar ag súil na seirbhísí sin a sholáthar do chontaetha eile ar fud na hÉireann amach anseo.

collecting a number of samples for ground truthing purposes. In addition the Celtic Voyager surveyed for 50 days in the Irish Sea between Dublin Bay and Carlingford Lough, collecting 7237 line kilometres of data and a number of seabed samples. The results of these seabed surveys are provided to a number of sectors, including energy, engineering, heritage and seabed resources. See “Assisting fisheries” for a practical example.

GSI maintained a suite of tidal gauges and a base station magnetometer in support of offshore survey activity. GSI carried out a QA/QC function in relation to all surveys undertaken.

The inner part of Dublin Bay, including Dublin and Dun Laoghaire ports, was surveyed using an EM 3000 Multibeam system on board a catamaran. This was an extension of earlier inshore surveys which are directed at improved navigational safety and port development (See “Soundings Unsure!”).



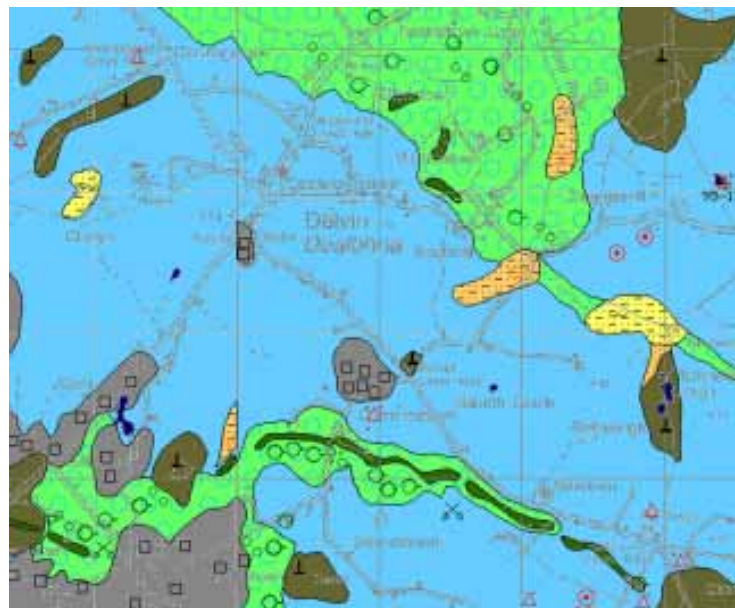
**The S.V. Granuaile.
Commissioners of Irish Lights**

**An Granuaile.
Commissioners of Irish_Lights**

Lean suirbhéireacht amach ón gcósta don tSuirbhéireacht Náisiúnta ar Ghrinneall Farraige na hÉireann i gcomhpháirtíocht le Foras na Mara (MI). Chuaigh soitheach an MI, an Celtic Explorer i mbun suirbhéanna cúig céimeanna i gceithre limistéar éagsúla ó dheas d’Inbhear na Sionainne, Bosca Caomhnaithe Iascaireachta na hÉireann amach ó chósta theas Chiarraí, ó thuaidh de Dhún na nGall, agus an limistéar (Crios 2) éadomhain de Bhruach Rockhall. Bhí 31,557 line cílíméadar de shonraí carnaithe ag an Celtic Explorer, chomh maith le líon de shamplaí chun críocha fíoraithe ar an talamh thar thréimhse iomlán de 136 lá. Ina theannta sin chuaigh an Celtic Voyager i mbun suirbhéireachta ar feadh 50 lá i Muir na hÉireann, idir Chuan Bhaile Átha Cliath agus Loch Cairlinn, agus bhailigh 7237 línechilíméadar de shonraí agus líon de shamplaí ghrinneall na farraige. Soláthraítear torthaí na suirbhéanna sin do roinnt earnálacha, lena n-áirítear fuinneamh, innealtóireacht, oidhreacht agus acmhainní ghrinneall na farraige. Féach “Cúnamh d’Iascaigh” le haghaidh sampla praiticiúil.

Bhí sraith rianairí taoide agus maighnéadaiméadar boinn á gothabháil ag GSI ag tacú le gníomhaíocht amach ón gcósta. Chomhlíon GSI feidhm QA/QC i ndáil le gach suirbhé a rinneadh.

Rinneadh suirbhéireacht ar Chuan Bhaile Átha Cliath istigh lena n-áirítear calafoirt Bhaile Átha Cliath agus Dhún Laoghaire ag baint úsáide as córas Multibeam EM 3000 ar bord catamaráin. Ba síneadh a bhí ansin ar shuirbhéanna cladaigh a rinneadh roimhe sin agus a bhí dírithe ar shábháilteacht loingseoireachta a fheabhsú agus ar fhorbairt chalafoirt (Féach “Soundings Unsure!”).



Quaternary geology image of part of County Westmeath.

Iomhá de gheolaíochta Cheathartha de chuid Chontae na hIarmhí

Aggregates for Construction

Difficult decisions are not unusual for planners at both national and local levels. Where can they site new developments, such as motorways and construction projects, while at the same time maintaining the quality and diversity of our environment? For many developments we need nearby supplies of rock aggregates in order to ensure that they are completed cost-effectively. We also need to plan for the supply of aggregates into the future by ensuring that we do not sterilise important resources inadvertently or otherwise through competing land-uses. Planners therefore need to know where there are likely to be resources of economic value in order to arrive at informed decisions.

GSI seeks to transform geological and economic information into a format that is useful for those interested in the aggregates industry. It uses a process called Aggregate Potential Mapping (APM), which assesses from available geological data the probability that aggregate deposits (whether crushed stone or sand and gravel) exist within an area and assigns relative potentials to those areas. Factors such as overburden thickness, rock type, deleterious components, proximity to market and accessibility are all evaluated in the process of assigning scores to individual areas. The resulting Aggregate Potential Map, such as that illustrating the potential for crushed aggregates in County Meath, classifies areas into a spectrum of categories ranging from very high potential to very low potential.

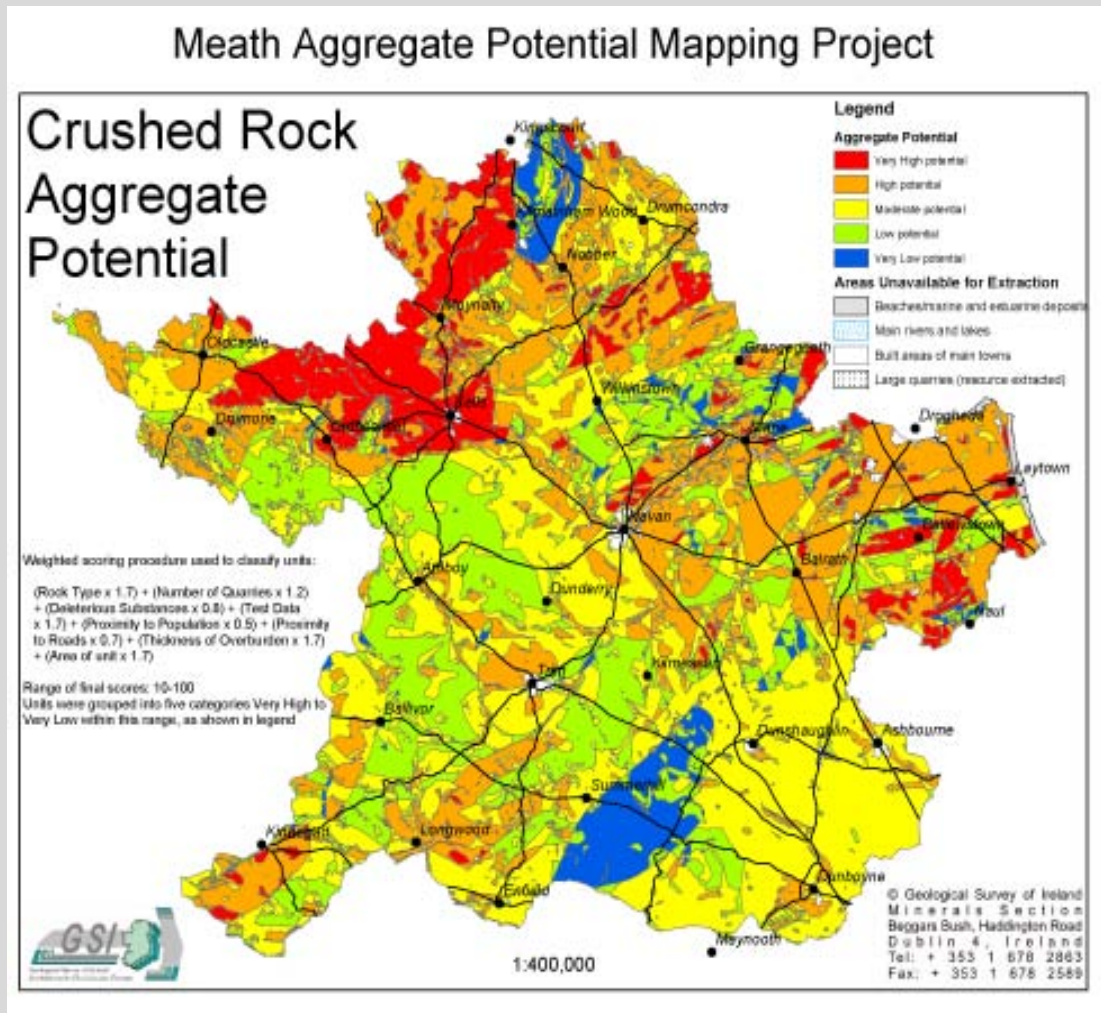
APM facilitates a better-informed planning process, with the local authority planners having high-quality information at their disposal. It is intended to make this information freely available over the GSI website so that all parties have access to impartial information on the distribution of resources. GSI has completed the process for Donegal, Meath and Wicklow and looks forward to extending it to other counties.

Greannheallta d'Fhoirgníocht

Ní rudaí neamhghnách iad cinntí deacra do phleanálaithe ag leibhéal náisiúnta agus leibhéal áitiúil araon. Cén áit ar féidir leo forbraíochtaí nua a lonnú ar nós mótarbhealaí agus tionscadail tógála, agus caighdeán agus éagsúlacht ár gcomhshaoil a choinneáil ag an am céanna? Teastaíonn soláthar greannheallta cóngarach do go leor forbraíochta lena gcur i gcrích go héifeachtach ó thaobh costais. Caithfimid freisin soláthar greannheallta amach anseo a phleanáil trína chinntiú nach ndéanfaimid acmhainní tábhachtacha a steiriliú gan cuimhneamh nó ar chuma eile trí thalamh a úsáid go hiomaíoch. Dá bhrí sin tá sé riachtanach go mbeadh a fhios ag pleanálaithe an áit ar dóigh acmhainní a bheith ar luach eacnamaíoch ionas go bhféadfaidh siad cinntí eolasacha a thógáil.

Tá GSI ag lorg faisnéis gheolaíoch agus eacnamaíoch a athrú go formáid a bheidh úsáideach dóibh sin a bhfuil suim acu i dtionscal greannheallta. Baintear úsáid as próiseas ar a dtugtar Léarscáiliú ar Phóitínseal Greannheallta (APM), a dhéanann measúnú ar dhóichúlacht sil-leaganacha greannheallta (cibé mar chloch mhionbhrúite, nó mar ghaineamh agus gairbhéal) a bheith laistigh de limistéar, ó shonraí geolaíoch atá ar fáil, agus sanntar póitinsil choibhneastúla ar na limistéir sin. Déantar meastóireacht ar fhachtóirí ar nós tiubhas forchlúdaigh, cineál carraige, comhpháirtithe díobhálacha, gaireacht don mhargadh agus inrochtaine, sa phróiseas sannta scóir do limistéir aonair. Rangaíonn an Léarscáil ar Phóitínseal Greannheallta, cosúil leis an gceann a léiríonn póitínseal do ghreannheallta mionbhrúite i gContae na Mí, limistéir i réimse catagóirí a théann ó phóitínseal an-ard go dtí póitínseal an-íseal.

Éascaíonn APM próiseas pleanála níos eolasaí, le faisnéis d'ardchaighdeán ag pleanálaithe na n-údarás áitiúil. Tá sé i gceist an fhaisnéis sin a chur ar fáil gan srian ar láithreán gréasáin GSI ionas go mbeidh rochtain ag na páirtithe uile ar fhaisnéis neamhchlaonta maidir le hacmhainní a dháileadh. Tá an próiseas curtha i gcrích ag GSI do Dhún na nGall, an Mhí agus Chill Mhantáin agus táthar ag súil é a shíneadh chuig contaetha eile.



The crushed rock aggregate potential for part of County Meath.

Póitínseal greannmheall charraig bhrúite do chuid de Chontae na Mí.

Soundings unsure!

Maritime charts for Ireland's offshore have traditionally, in the absence of an Irish Hydrographic Office, been maintained and updated by the UK Hydrographic Office (UKHO). Until recently, some of these Admiralty charts were based on information from lead line surveys carried out between 1830 and 1930. Shipping has long relied on these charts, where the annotation "Soundings Unsure" is not unknown, to ensure its safe passage through Irish waters.

Following a number of recent inshore surveys, the Irish National Seabed Survey (INSS) is now in a position to provide UKHO with some modern and accurate survey results. These results are then used by the UKHO when navigation charts of the Irish coast are being updated. A new chart of Westport Bay has been issued by the UKHO using the results of the airborne laser-based LIDAR survey carried out recently for the INSS. Compare the new chart with the earlier one published in 1981, relying on lead line surveys dated 1848 to 1896. The differences are obvious and significant, with the updated chart contributing to safety of navigation.

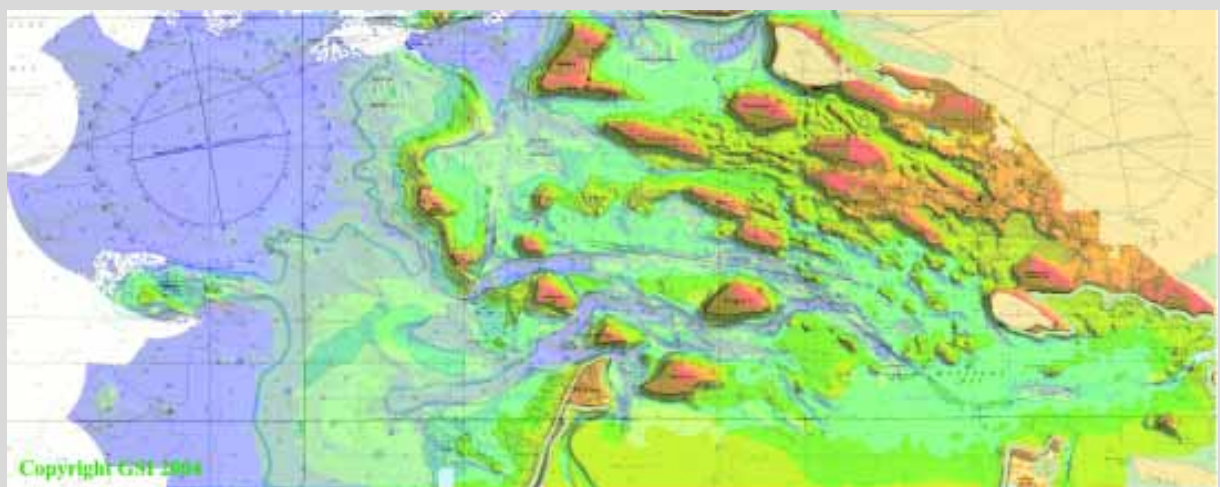
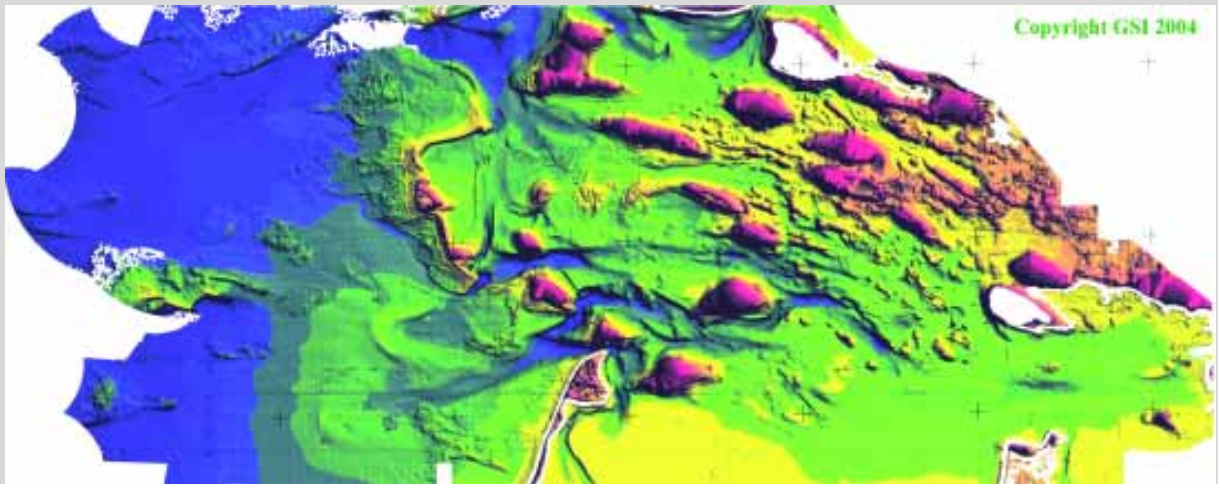
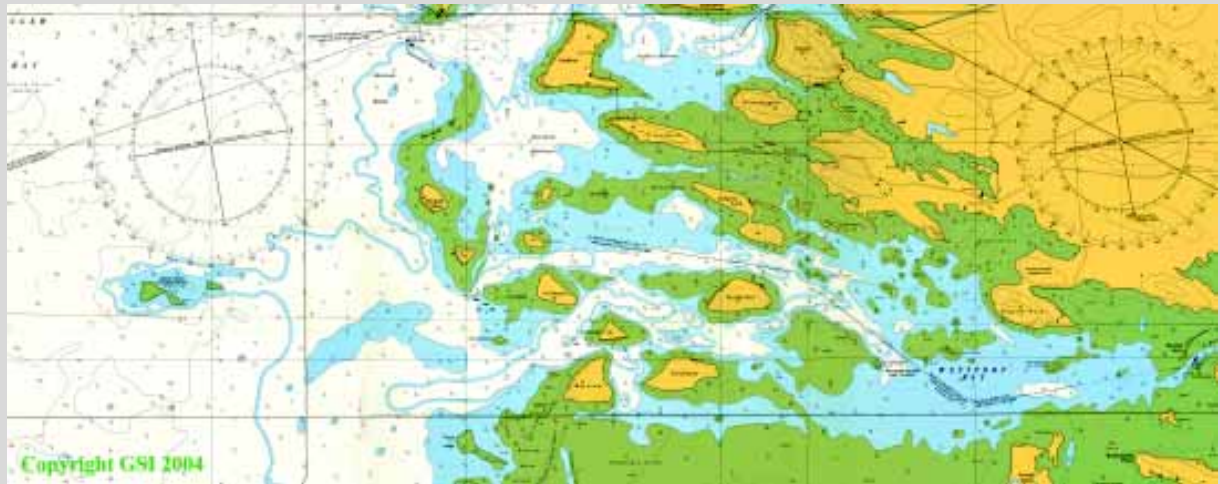
The data provided to the UKHO has added importance because it contributes to meeting Ireland's obligations under UN conventions such as SOLAS, which relates to navigational safety. In the event of an oil pollution incident or the requirement for a vessel to proceed to a port of refuge, then up to date survey and chart information are essential.

Soundings unsure!

Go hiondúil is í Oifig Hidreagrafach an RA (UKHO) a bhíonn ag cothabháil cairteacha muirí don chósta amach ó Éirinn agus á dtabhairt cothrom le dáta d'uireasa Oifig Hidreagrafach in Éirinn. Go dtí le gairid, bhí roinnt de chairteanna na hAimiréalachta bunaithe ar fhaisnéis ó shuirbhéanna ceannlínte a rinneadh idir 1830 agus 1930. Braitheann loingear ar na gcairteanna sin le fada an lá agus is minic an nóta "Soundings Unsure" curtha síos chun pasáiste shábhailte trí fharraigí na hÉireann a chinntiú.

Tar éis roinnt suirbhéanna cladaigh tá sé Suirbhéireacht Náisiúnta Ghrinneall Farraige na hÉireann anois in ann roinnt torthaí nua-aimseartha agus torthaí cruinne suirbhéireachta a sholáthar don UKHO. Ansin baineann an UKHO úsáid as na torthaí sin nuair atáthar ag tabhairt cairteanna loingseoireachta de chósta na hÉireann cothrom le dáta. D'eisigh an UKHO cairt nua de Chuan Chathair na Mart ag úsáid torthaí an tsuirbhé léasar-bhunaithe LIDAR aeriompraithe a rinneadh don INSS le gairid. Cuir an chairt nua i gcompráid leis an gceann a foilsíodh níos luaithe, i 1981, ceann a bhraith ar suirbhéanna ceannlínte ó 1848 go dtí 1896. Tá na difríochtaí eadarthu soiléir agus suntasach, leis an gcairt nua ag cur go mór le sábháilteacht loingseoireachta.

Tá tábhacht bhreise leis na sonraí a soláthraíodh don UKHO mar go gcuireann siad le hoibleagáidí na hÉireann faoi choinbhinsiúin NA ar nós SOLAS, a bhaineann le sábháilteacht loingseoireachta, a chomhlíonadh. I gcás eachtra thruailliú ola, nó go caithfeadh soitheach dul chuig calafort fothana bíonn faisnéis chairte agus suirbhéireachta cothrom le dáta riachtanach.

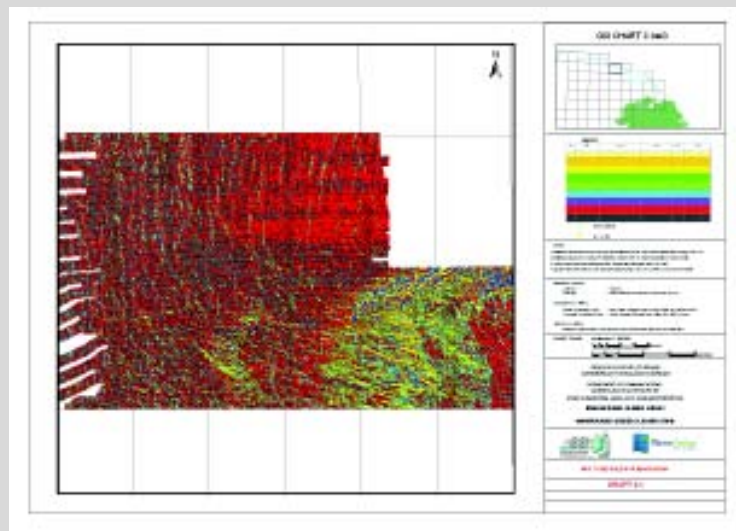


Assisting Fisheries

The nature of the seabed has a marked influence on the type of fauna (including fish), which it supports and this in turn may control the distribution of fish species in the overlying seawater. Accordingly it is not surprising that the fisheries sector is very interested in the seabed classification maps being produced by the Irish National Seabed Survey (INSS).

Seabed classification maps can be derived from the standard acoustic techniques of the INSS provided that they are backed up by ground-truthing. Based on backscatter data from the main multibeam surveying technique, it is possible to divide the seabed into a limited number of classes, each of which has consistent characteristics throughout. The nature of each class is then established by ground-truthing, either mechanically (grab samples, cores, etc.) or visually (video, photography, etc.).

Three areas were studied in a joint venture with Bord Iascaigh Mhara – West Porcupine, West Tory and Chart C1443. The last mentioned area, for example, is of shallow seas off the north Donegal coast which were surveyed by the Marine Institute's Celtic Explorer in May 2003. The seabed slopes gently westwards in water depths varying between 110m and 145m. The data were subsequently processed and interpreted using QTC.MULTIVIEW software. The map area has no rock outcrop and the most extensive seabed type (red) is gravelly sediment. Narrow linear developments of sandy sediments (blue) are widespread. Yellow areas are mainly restricted to the east and consist of sand and silt. When combined with biological stock and marine geological information this type of product is a powerful tool for the fisheries sector.



Cúnamh d'Iascaigh

Tá tionchar suntasach ag grinneall na farraige ar an gcineál fauna (iasc san áireamh) a chothaíonn sé agus d'fhéadfadh dá réir sin dáileadh na speicis éisc san fharraige forshraithnaithe a rialú. Ní iontas ar bith mar sin go bhfuil an-suim ag earnáil an iascaigh i léarscáileanna aicmiú ghrinneall na farraige a tháirgíonn an tSuirbhéireacht Náisiúnta ar Ghrinneall Farraige na hÉireann (INSS).

Féadfar léarscáileanna aicmiú ghrinneall na farraige a dhíorthú as teicníochtaí caighdeánacha fuaimeolaíochta an INSS chomh fada agus go mbíonn fíorú ar an talamh mar thaca leo. Is féidir grinneall na farraige a roinnt i líon teoranta aicmí bunaithe ar shonraí cúlscaipthe ón bpríomhtheicníocht shuirbhéireachta ilghathach a bhfuil tréithe comhsheasmhacha ag baint le gach ceann. Bunaítear mianach gach aicme ansin trí fhíorú ar an talamh meicniúil (samplaí, croíleacáin a aimsiú, srl) nó trí dhearbhfhírinniú talún (físeán, grianghrafadóireacht, srl).

Rinneadh staidéar ar thrí limistéar i comhfhiontar le Bord Iascaigh Mhara – Porcupine Thiar, Tóraigh Thiar and Cairt C1443. Tá an limistéar deiridh a luadh, mar shampla, amach ó fharraigí éadoimhne chósta thuaidh Dhún na nGall agus rinne Celtic Explorer Fhoras na Mara suirbhéireacht orthu i mBealtaine 2003. Tá fána réidh ó dheas ag grinneall na farraige in uisce lena mbaineann doimhneachtaí éagsúla idir 110m agus 145m. Próiseáladh na sonraí ina dhiaidh sin agus léirmhíodh iad ag úsáid bogearraí QTC.MULTIVIEW. Níl aon lomán carraige i limistéar na léarscáile agus is dríodar gairbhéil atá sa chineál grinnill farraige is forleithne (dearg). Tá forbairtí caola líneacha de dhríodar gainimh (gorm) go fairsing. Tá na limistéir bhúi srianta thoir agus comhdhéanta de ghaineamh agus de shiolta. Is uirlis chumhachtach don earnáil iascaigh táirge den sórt sin nuair a nascar le stoc bitheolaíochta agus faisnéis gheolaíoch mara é.

REACHING OUT TO SOCIETY

TEACHT AR THUISCINT LEIS AN BPOBAL

The Government's R&D strategy, intended to implement the Lisbon Agenda, depends on successful outreach to society, ensuring public awareness of the value of science and the continued flow of high-quality students into the geosciences. Of course the Government's strategy depends not only on successful outreach, but also on excellent research programmes. GSI is pleased to participate in such programmes (See "Seismic research supports hydrocarbons exploration") as well as to financially support them (See "Adding value and supporting research").

GSI was pleased that RTÉ-1 screened the GSI-commissioned TV series "Written in Stone" once again in 2004. This assisted GSI as it sought to develop its services to the educational sector (see "Back to School!"). GSI is also anxious to inform a wider public about the value and relevance of its activities. Media coverage is the key here. In February, the Irish National Seabed Survey featured on SCOPE, a fast-moving RTÉ-2 TV programme aimed at interesting young people in science and engineering. GSI work featured on three other TV programmes and GSI sponsored a fourth, produced by the Discover Science and Engineering Programme of Forfás for Science Week, which described recent scientific advances on Mars. An additional eight items on national and local radio also featured GSI activities, mainly related to seabed and heritage work, and at least some were stimulated by the screening of the "Written in Stone" TV series.

The main media coverage, as in recent years, continued to feature in the print media. A total of 1,877 column centimetres were recorded in 2004, an increase of 21% over the previous year (when the total was 1,551 column centimetres). The breakdown for 2004 can be summarised as follows:

	National	Regional	Trade	Total
Seabed	313	80	110	503
Groundwater	128	0	290	418
Heritage	50	441	0	491
Hazards	105	0	7	112
General	271	42	40	353
Total	867	563	447	1,877

Braitheann straitéis R&D an Rialtais a raibh sé i gceist leis Clár Oibre Liospóin a fheidhmiú, ar theacht ar thuiscint mhaith leis an bpobal, tuiscint a chinntiú ó thaobh an phobail maidir le fiúntas na heolaíochta agus ar theacht leanúnach mic léinn ardchaighdeán chuig na Geolaíochtaí. Ar ndóigh, ní bhraitheann straitéis an Rialtais ar theacht ar thuiscint mhaith leis an bpobal amháin ach ar clár thaighde den scoth chomh maith. Tá GSI sásta a bheith rannpháirtíoch i gclár den sórt sin (Féach "Tacaíonn taighde seismeach le taiscéalaíocht hidreacarbóin") chomh maith le tacaíocht airgeadais a thabhairt dóibh. (Féach "Ag cur le luach agus ag tacú le taighde").

Bhí áthas ar GSI gur chraol RTÉ-1 an tsraith teilifíse "Written in Stone" arna choimisiúnú ag GSI, arís i 2004. Chuidigh sin le GSI agus é ag iarraidh a sheirbhísí don earnáil oideachais a fhorbairt (Féach "Ar ais ar Scoil!"). Tá an-fhonn ar GSI freisin, pobal níos leithne a chur ar an eolas maidir le fiúntas agus ábharthacht a ghníomhaíochtaí. Tá clúdach sna meáin an-tábhachtach sa chás seo. I mí Feabhra bhí Suirbhéireacht Náisiúnta Ghrinneall Farraige na hÉireann ar SCOPE, clár teilifíse spleodrach de chuid RTÉ-2 dírithe ar shuim daoine óga a mhúscailt san eolaíocht agus san innealtóireacht. Bhí obair GSI léirithe ar thrí chlár teilifíse eile agus bhí an ceathrú clár faoi urraíocht ag GSI, a léirigh an Discover Science and Engineering Programme de chuid Forfás le haghaidh an tSeachtain Eolaíochta, a rinne cur síos ar an dul chun cinn ó thaobh na heolaíochta a rinneadh le gairid ar Mars. Bhí gníomhaíochtaí GSI, a bhain le hobair oidhreacht agus le hobair ar ghrinneall na farraige, luaite ar ocht gcinn d'ítimí breise ar raidió, go náisiúnta agus go háitiúil, agus spreag craoladh na sraithe teilifíse "Written in Stone" roinnt daoine ar a laghad.

Sna meáin chlóite, mar ab amhlaidh le blianta beaga anuas, ba mhó a bhí príomhchlúdach na meán. Taifeadadh iomlán de 1,877 ceintiméadair colúin i 2004, ardú de 21% ar an mbliain roimhe sin (nuair a bhí iomlán de 1,551 ceintiméadair de cholúin ann). Is féidir an briseadh síos do 2004 a achoimriú mar seo a leanas:

	Náisiúnta	Réigiúnach	Ceird	Iomlán
Grinneall na Farraige	313	80	110	503
Screamhuisce	128	0	290	418
Oidhreacht	50	441	0	491
Contúirtí	105	0	7	112
Ginearálta	271	42	40	353
Iomlán	867	563	447	1,877

The level of publicity devoted to Seabed continued to fall as the project matured, while there was an increase in the levels for Groundwater and Heritage. For the first time, Hazards are featured separately, following the landslide events of 2003.

Science Spin magazine, of which GSI is a sponsor, distributed copies of the newly published 1:1 million scale Geology of Ireland map. This attractive colour-map was offered to participants at the Young Scientist and Technology Exhibition in January 2004. GSI also supported the ES2k magazine, which seeks to widen the appreciation of geosciences throughout Ireland. GSI published a field guide to Donegal aimed at attracting overseas university parties to visit the region (see “Donegal granites”).

A significant way in which the public becomes aware of geoscience is through natural heritage. GSI works on geological dimensions of this with local authorities and the National Parks and Wildlife Service (NPWS) of the Department of Environment, Heritage and Local Government. A series of 16 priority themes has been developed by GSI and an expert panel on each has met to develop candidate-site lists for NPWS (which is responsible for designating sites). Progress in 2004 was slower than anticipated, the process still being unfinished, and this was partly due to increased customer-led demands for county-based work.

Local authorities meet their responsibility for geological heritage (under planning and heritage legislation) by including County Geological Sites within the County Development Plan, a process in which GSI assists. Many County Councils have Heritage Officers who develop and implement Heritage Plans. GSI provides them with guidance for this process, being represented on Heritage Fora. GSI also undertook an audit of the County Geological Sites of County Clare, which has a relatively high number of important sites.

GSI provides training services for targeted groups as a contribution to ensuring that Ireland has the necessary skills-base to support its accelerating development. It supports the FÁS on-site wastewater treatment course, which is presented in association with the Environmental Protection Agency and local authorities. A total of 115 participants attended two offerings of this 7-day course

Lean an leibhéal poiblíochta a bhí dírithe ar Ghinneall na Farraige de réir mar a chuaigh an tionscadal chun cinn, agus tháinig ardú ar na leibhéil do Screamhuisce agus d’Oidhreacht. Bhí Contúirtí astu féin don chéad uair, i ndiaidh na n-eachtraí sciorraí talún a tharla i 2003.

Dháil an t-irisleabhar Science Spin a fhaigheann urraíocht ó GSI, cóipeanna de léarscáil nuafhoilsithe Gheolaíocht na hÉireann scálá 1:1 milliún. Tairiscíodh an léarscáil tharraingteach sin do rannpháirtithe sa Taispeántas Teicneolaíochta agus Eolaithe Óga in Eanáir 2004. Thacaigh GSI leis an iris ES2k, a tá ag iarraidh tuiscint ar na geo-eolaíochtaí ar fud na hÉireann a leathnú. D’fhoilsigh GSI treoir allamuigh le haghaidh Dhún na nGall a bhí dírithe ar pháirtithe ollscoile as tíortha eile a mhealladh chun cuairt a thabhairt ar an réigiún (féach “Eibhear Dhún na nGall”).

Bealach tábhachtach a bhfaigheann an pobal tuiscint ar an ngeolaíocht ná tríd an oidhreacht náisiúnta. Oibríonn GSI ar ghnéithe geolaíochta de sin, in éineacht le húdarais áitiúla agus le Seirbhís Páirceanna Náisiúnta agus Fiadhúlra (NPWS) na Roinne Comhshaoil, Oidhreacht agus Rialtais Áitiúil. D’fhorbair GSI sraith de 16 téama tosaíochta agus chas painéal saineolaithe lena chéile maidir le gach ceann acu chun liostaí de láithreáin-iarrata a fhorbairt do NPWS (atá freagrach as láithreáin a ainmniú). Ní dheanadh an oiread dul chun cinn agus a bhíodhas ag ceapadh a dhéanfaí i 2004, níl an próiseas curtha i gcrích fós, agus bhí ardú ar éilimh na gcustaiméirí ar obair chontae-bhunaithe mar chúis amháin le moill an phróisis.

Comhlíonann údarais áitiúla a bhfreagracht maidir le hoidhreacht gheolaíoch (faoi reachtaíocht phleanála agus oidhreacht) trí Láithreáin Gheolaíochta Contae a chur san áireamh laistigh den Phlean Forbartha Contae, próiseas a gcuidíonn GSI leis. Tá Oifigí Oidhreacht i go leor de na Comhairlí Contae a fhorbraíonn Pleananna Oidhreacht agus a chuireann i bhfeidhm iad. Cuireann GSI treoir ar fáil dóibh le haghaidh an phróisis sin agus ionadaíocht acu ar Fhóraithe Oidhreacht. Chuaigh GSI i mbun iniúchta freisin ar Láithreáin Gheolaíochta Contae Chontae an Chláir, a bhfuil líon ard go maith de láithreáin tábhachtacha ann.

Soláthraíonn GSI seirbhísí oiliúna do ghrúpaí faoi leith lena chinntiú go mbeidh an bonn scileanna riachtanach in Éirinn chun dlús a chur faoi fhorbairt. Tacaíonn sé le

in 2004. This brings to 365 the number of people, from local authorities, health sector and consultancies, who have participated in this course to date. Local authority planners increasingly look for certification from this course of the applicants' representatives when assessing planning applications involving wastewater management.

cúrsa cóireála fuíolluisce ar láithreán de chuid FÁS a chuirtear ar fáil i gcomhar leis an Ghníomhaireacht um Chaomhnú Comhshaoil agus údaráis áitiúla. D'fhreastail iomlán de 115 rannpháirtithe ar dhá sheisiún den chúrsa 7 lá sin i 2004. Fágann sin 365 daoine, idir dhaoine ó údaráis áitiúla, an earnáil sláinte, agus lucht comhairle, a bhí rannpháirteach sa chúrsa go dtí seo. Tá pleanálaithe na n-údarás áitiúil ag lorg teastasú ón gcúrsa níos mó agus níos mó ar ionadaithe na n-iarratasóirí nuair a bhítear ag measúnú iarratais phleanála lena mbaineann bainistiú fuíolluisce.



This view shows the Clew Bay drumlin field developed by movement of ice sheets and partially drowned due to subsequent sea level rise. Matthew Parkes.

Seo droimníní Chuan Modh a tháinig ag gluaiseacht oighir agus a báthadh ina dhiaidh sin nuair a d'ardaigh leibheál na farraige anseo. Matthew Parkes



A group enjoys a Heritage Week event in the Blackstairs organised by Carlow County Council and GSI. Dermot Mulligan.

Díorma ag baint suilt as Seachtain Oidhreacht sna Staighrí Dubha eagraithe ag Comhairle Chontae Cheatharlach agus GSI. Dermot Mulligan.



The Burren, County Clare, is the finest karstic terrain in Ireland and internationally celebrated for its landforms, remarkable flora and archaeological heritage. David Drew

Boireann, Co. an Chláí, an áit carst is fearr in Éirinn, cáil air faoina mhúnlú talún, an flora iontach agus a oidhreacht seandálaíochta. David Drew

Adding Value and Supporting Research

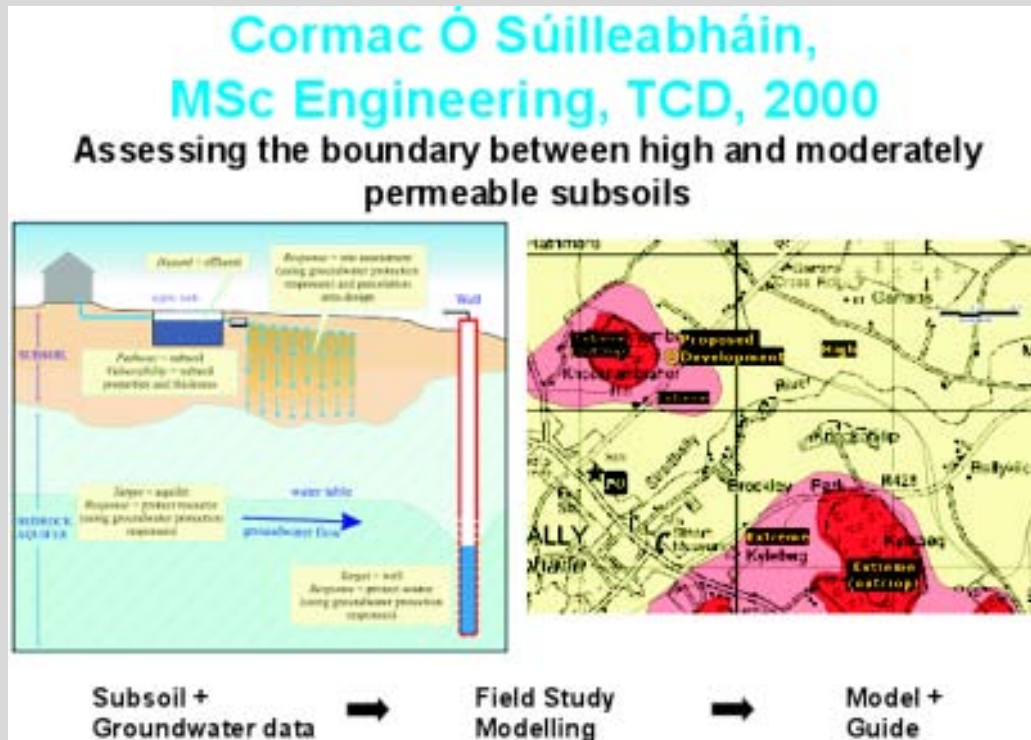
GSI adds value to its customers by developing products and services that match their needs in terms of both content and mode of delivery. A study of product development and commercialisation arising from the Irish National Seabed Survey (INSS) was undertaken by GSN Corporation of Newfoundland on behalf of GSI and the Marine Institute. A further development was the establishment of Atlantic Partners to bring together expertise from both Ireland and Newfoundland with the aim of exploiting new opportunities in other countries. Participation in the Irish Trade Mission to the Middle East provided a valuable opportunity to gather market intelligence. The potential significance of such initiatives was underpinned by the visit to GSI in mid-year by the Premier of Newfoundland, the Hon. Danny Williams to mark the initiation of Atlantic Partners.

The GSI databases are a major source of geoscientific data on which a wide range of postgraduate research is based, some of it financially supported or jointly supervised by GSI. The databases represent a remarkable opportunity for Irish geoscience researchers and GSI welcomes approaches to explore how that opportunity can be further exploited. The data have application beyond the geosciences and are relevant beyond Ireland's shores, aspects which are illustrated by the list of current research projects supported by GSI (See the Appendices to the Annual Report on www.gsi.ie).

Ag Cur le Luach agus ag Tacú le Taighde

Cuireann GSI le luach chuig a chuid custaiméirí trí tháirgí agus thrí sheirbhísí a dhéanann freastal, ó thaobh a gcomhdhéanamh agus a modh seachadta, ar a gcuid riachtanas a fhorbairt. Chuaigh an GSN Corporation as Talamh an Éisc i mbun staidéir, thar ceann GSI agus Fhoras na Mara, ar fhorbairt táirgí agus tráchtáilíocht a d'eascair ó Shuirbhéireacht Náisiúnta Ghriinneall Farraige na hÉireann (INSS). Chuaigh Atlantic Partners, a bunaíodh chun saineolas as Éirinn agus as Talamh an Éisc araon, a thabhairt le chéile agus a raibh sé mar aidhm acu leas a bhaint as deiseanna nua i dtíortha eile, i mbun forbartha eile. Chuir rannpháirtíocht i Misean Trádála na hÉireann chuig an Meánoirthear deis luachmhar ar fáil chun eolas a chruinniú maidir le margáí. Léirigh cuairt cheannaire Thalamh an Éisc, an tUasal Danny Williams ar GSI i lár na bliana le tús a chur le Atlantic Partners an tábhacht a d'fhéadfadh a bheith le tionsnaimh den sórt sin.

Is foinse mhór sonraí geo-eolaíoch a iad bunachair shonraí GSI a bhfuil réimse leathan de thaighde iarchéime bunaithe orthu, cuid de a fhaigheann tacaíocht airgeadais nó a bhíonn faoi chomhaoirseoireacht GSI. Is deis iontach do thaighdeoirí geo-eolaíoch na hÉireann na bunachair shonraí agus fáiltíonn GSI roimh bhealaí chun teacht ar an gcaoi ar féidir níos mó leasa a bhaint as an deis sin. Ní sna geo-eolaíochtaí amháin atá feidhm leis na sonraí agus ní le hÉirinn amháin a bhaineann siad, agus léiríonn an liosta de thionscadail reatha atá ag fáil tacaíochta ó GSI sin. (Féach na hAguisíní leis an Tuarascáil Bhliantúil ar www.gsi.ie).



The Hon Danny Williams, Premier of Newfoundland is briefed by M. Geoghegan, Manager of the Irish National Seabed Survey. Enda Gallagher.

Hon Danny Williams, Príomhaire Thalamh an Éisc á chur ar an eolas ag M. Geoghegan, Bainisteoir Shuirbhé Náisiúnta Ghrinneall Ferraige na hÉireann. Enda Gallagher.

Seismic research supports hydrocarbons exploration

Following on the success of the earlier HADES seismic surveys, in 2004 additional seismic surveys were undertaken of the area between Rockall and Hatton Banks. There was strong interest in determining more about the nature and extent of sedimentary basins in this frontier area, a key aspect in establishing its hydrocarbon prospectivity. The survey acquired 2,485 line km of high-quality seismic data. Initial interpretation of the results indicated the presence of several sub-basins which had not previously been recognised and which could have a significance for hydrocarbon prospectivity.

A further interest in the west of Rockall lay in its potential for gas hydrates, a potential highlighted in earlier studies commissioned under the Irish National Seabed Survey (INSS). Gas hydrates consist of methane and carbon dioxide gases, which form frozen solids in combination with water under certain pressure-temperature conditions. If effective recovery techniques can be developed, these gas hydrates could be important future energy resources. In any event it is essential to evaluate their distribution because they could represent significant tsunami hazards should they melt and give rise to undersea landslides.

This project is a good example of co-operation between the public, private and third-level sectors under the aegis of INSS. The survey was undertaken by a consortium which involved the INSS, Petroleum Affairs Division, Irish Shelf Studies Group and the British Geological Survey, using the survey vessel *Granuaile* belonging to the Commissioners of Irish Lights. Exploration Electronics Ltd. (UK) provided the seismic equipment and crew. The Geology Department of University College Dublin and the Dublin Institute for Advanced Studies provided on-board processing personnel while GSI provided quality control and overall supervision.

Tacaíonn taighde seismeach le taiscéalaíocht hidreacarbóin

De bharr chomh maith agus a d'éirigh le suirbhéanna seismeacha HADESa rinneadh níos luaithe, chuathas i mbun tuilleadh suirbhéanna seismeacha don limistéar idir Rockall agus Hatton Banks i 2004. Bhí suim mhór a fháil amach faoi mhianach agus achar na n-imchuacha dríodair sa limistéar teorann seo, gné lárnach maidir le léiriú an méid hidreacarbóin atá ann. Bhailigh an suirbhé 2,485 km líne de shonraí seismeacha ar ard-chaighdeán. Léirigh an léirmhíniú ar na torthaí i dtosach go raibh go leor fo-imchuacha nach facthas cheana agus a bhféadfadh go mbeadh tábhacht leo ó thaobh an méid hidreacarbóin atá ann.

Údar spéise eile san áit taobh thiar de Rockall ná go bhféadfaí teacht ar hiodráití gáis, rud ar tarraingníodh aird air i staidéir arna choimisiúnú níos luaithe faoi Shuirbhéireacht Náisiúnta Ghrinneall Farráige na hÉireann (INSS). Tá hiodráití gáis comhdhéanta de ghás meatáin agus de ghás dé-ocsaide carbóin, a chruthaíonn solaid reoite nuair a nascann siad le huisce faoi choinníollacha áirithe brú-teochta. Más féidir teicníochtaí éifeachtacha tearnaimh a fhorbairt, d'fhéadfadh go mbeadh na hiodráití gáis sin ina n-acmhainní tábhachtacha fuinnimh sa todhchaí. I ngach cás tá sé riachtanach meastóireacht a dhéanamh ar an gcaoi a bhfuil siad dáilte mar go bhféadfaidís a bheith ina gcontúirtí suntasacha tsunami dá léafaidís agus a bheith ina gcúis sciorraí talún faoin bhfarraige.

Is sampla maith an tionscadal sin de chomhoibriú idir an earnáil phoiblí, an earnáil phríobháideach agus an earnáil tríú leibhéal, faoi choimirce an INSS. Chuaigh cuibhreannas a raibh baint ag an INSS, an Rannán Gnóthaí Peitriiliaim, Grúpa Staidéir Scairbhe na hÉireann agus an British Geological Survey leis i mbun an tsuirbhé agus an *Granuaile*, soitheach suirbhéireachta de chuid Choimisinéirí Soilse na hÉireann á húsáid. Sholáthair Exploration Electronics Ltd. (RA) an trealamh seismeach agus an criú. Sholáthair Roinn Geolaíochta Choláiste na hOllscoile, Baile Átha Cliath agus an Institiúid Ardléinn foireann próiseála ar bord loinge agus sholáthair GSI rialú cáilíochta agus maoirseoireacht fhoriomlán.

Back to School!

It is a key strategic goal of GSI to promote public understanding of geology and its role in Irish society. Capitalising on the success of its recent re-screening on RTE-1, GSI distributed, free of charge, copies of the “Written in Stone” video and accompanying booklet to every secondary school in the State. The series is now available on DVD. Additional support material for teachers has been placed on the GSI website (www.gsi.ie).

The new Geography Leaving Certificate syllabus, introduced in September 2004, has an increased geological content in Core Unit-1 (Patterns and processes in the physical environment). In support of this development, GSI published a new geological map (1:1 million scale) designed specifically for secondary schools. Subsequently a book, “Understanding Earth Processes, Rocks and the Geological History of Ireland”, was published and, along with the map, free copies were provided to all secondary schools. A CD-Rom containing the full text in pdf-format and all the figures and illustrations in jpg-format is included with the book so that teachers can use the illustrations in PowerPoint presentations or as overhead projection slides in the classroom. GSI is now discussing with educational interests how best it can further develop its services to schools, both teachers and pupils.

The distribution of the various products during 2004 was made possible through sponsorship by a consortium of hydrocarbon companies, led by Marathon Ireland Ltd. GSI wishes to acknowledge their generous support.



Ar ais ar Scoil!

Is sprioc lárnach don GSI tuiscint phoiblí ar gheolaíocht agus ról na geolaíochta i sochaí na hÉireann a chur chun cinn. Dháil GSI cóipeanna den fhíseán “Written in Stone” agus an leabhrán a ghabhann leis ar gach scoil iarbhunscoil sa Stát agus é ag baint leasa as chomh maith agus a d’éirigh le hath-chraoladh “Written in Stone” ar RTE-1. Tá an sraith ar fáil ar DVD anois. Tá breis ábhar tacaíochta do mhúinteoirí curtha ar láithreán ghréasáin GSI (www.gsi.ie).

Tá breis ábhar geolaíoch curtha le Láraonad-1 (pátrúin agus próisis sa timpeallacht fhisiciúil) i siollabas nua Tíreolaíochta na hArdteistiméireachta a tugadh isteach i Meán Fómhair 2004. Mar thacaíocht don fhorbairt sin, d’fhoilsigh GSI léarscáil gheolaíoch nua (ar scála 1:1milliún) a bhí leagtha amach go sonrach le haghaidh iarbhunscoileanna. Foilsíodh leabhar ina dhiaidh sin, “Understanding Earth Processes, Rocks and the Geological History of Ireland”, agus cuireadh cóipeanna de den léarscáil ar fáil saor in aisce do gach iarbhunscoil. Gabhann CD-Rom, leis an téacs iomlán i bhformáid pdf agus na figiúir agus léaráidí uile i bhformáid jpg, leis an leabhar ionas go bhféadfaidh múinteoirí úsáid a bhaint as na léaráidí i gcur i láthair PowerPoint nó mar shleamhnáin d’osteilgeoir sa seomra ranga. Tá GSI i mbun cainte faoi láthair le páirtithe oideachais faoin gcaoi ab fhearr dó a sheirbhísí a fhorbairt do mhúinteoirí agus do dhaltáí araon, i scoileanna.

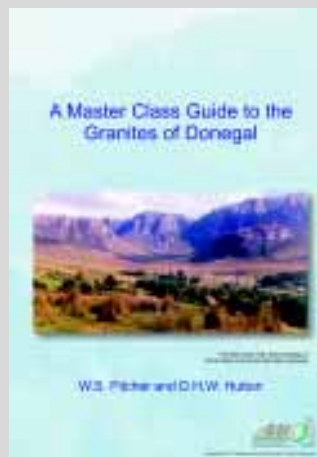
Bhíothas in ann na táirgí éagsúla a dháileadh le linn 2004 de bharr urraíochta chuibhreannais chuideachtaí hidreacarbóin faoi chinneacht by Marathon Ireland Ltd. Is mian le GSI aitheantas a thabhairt dá dtacaíocht fhlaithiúil.

Donegal Granites

The geology of Donegal is dominated by its granites, which are wonderfully exposed and well studied, making Donegal a preferred destination for university parties from across the world. Much credit for this must lie with the late Professor Wally Pitcher, University of Liverpool, an erudite scholar of granites whose easy manner won him a wide spectrum of friends in Donegal. Together with Professor Donnie Hutton, another major figure in Irish geology, he prepared a field guide to the granites of Donegal which GSI was proud to publish*.

We hope that this publication will make Donegal even more popular with university parties. Certainly there has been some good feedback on it, such as: “At long last, here is an up-to-date summary of the geology of the Donegal granites at advanced undergraduate level ... this is a substantial contribution to the literature that should be on the shelves of all geologists interested in granites ... “Geoscientist 14, No.10, p.19, 2004).

- Pitcher, W.S., and Hutton, D.H.W. 2003. A master class guide to the granites of Donegal. Geological Survey of Ireland. 97pp.



Eibhear Dhún na nGall

Is é an t-eibhear is fairsinge i ngeolaíocht Dhún na nGall, eibhear atá sár-nochta agus a bhfuil go leor staidéir déanta air, agus mar gheall air sin tá tóir air ag lucht ollscoile ó ar fud an domhain. Caithfear go leor creidiúna ina thaobh sin a thabhairt don Ollamh Wally Pitcher, Ollscoil Learphoill, nach maireann scoláire oilte faoi eibhear a raibh go leor cairde aige i nDún na nGall mar gheall ar an mbealach mánlá a bhí leis. Chuir sé eolaire allamuigh faoi eibhear Dhún na nGall le chéile i gcomhar leis an Ollamh Donnie Hutton, pearsa mór le rá maidir le geolaíocht na hÉireann, agus ba mhó ag GSI é a fhoilsiú*.

Tá súil againn go mbeidh níos mó tóir ag lucht ollscoile ar Dhún na nGall de bharr an fhoilseacháin sin. Go deimhin, fuarthas roinnt eolas maith ar ais maidir leis, ar nós: “Ar deireadh thiar thall, seo achoimre ar gheolaíocht eibhear Dhún na nGall, é cothrom le dáta, ar ard-leibhéal fhochéimithe... píosa oibre substaintiúil a chuireann go mór leis an litríocht ag ar chóir a bheith ar sheilfeanna na ngeolaithe uile a bhfuil suim in eibhear acu...”Geoscientist 14, Uimh.10, lch.19, 2004).

- Pitcher, W.S., agus Hutton, D.H.W. 2003. Eolaire máistir-ranga ar eibhear Dhún na nGall.. Suirbhéireacht Gheolaíocht Éireann. 97pp.

CO-OPERATING ABROAD

AG COMHOIBRIÚ THAR LEAR

International participation is important for GSI to ensure it is observing best practice and therefore providing the best possible services to its customers and stakeholders, given the extent of its resources.

Eurogeosurveys, an organisation of European geological surveys, provides opportunities to organise joint projects and share knowledge between staff, as well as to advise European institutions. GSI participated in Eurogeosurveys through the regular meetings of Directors and Contact Points, as well as a number of specialist events. GSI was pleased to welcome visits from delegations from sister organisations in Norway, Sweden and the UK, providing opportunities to exchange experience on a wide range of issues.

Tá tábhacht ag rannpháirtíocht ar bhonn idirnáisiúnta i gcás GSI chun a chinntiú go bhfuiltear ag leanúint sáchleachtais agus dá bhrí sin, ag soláthar na seirbhísí is fearr is féidir dá chustaiméirí agus dá ngeallshealbhóirí.

Cuireann Eurogeosurveys, eagraíocht shuirbhéireacht gheolaíochta na hÉorpa, deiseanna d'fhoirne comhthionscadail a eagrú agus eolas a roinnt lena chéile, chomh maith le deiseanna comhairle a chur ar fhorais san Eoraip. Bhí GSI rannpháirteach in Eurogeosurveys ó thaobh freastail ar chruinnithe rialta na Stiúrthóirí agus an Lucht Teagmhála, chomh maith le roinnt imeachtaí speisialaithe. Bhí GSI sásta fáiltiú roimh thoscaireachtaí óna chomheagraíochtaí san Iorua, sa tSualainn, agus san RA, cuairteanna a chuir deiseanna ar fáil taithí maidir le réimse leathan saincheisteanna a roinnt lena chéile



The Muscat de Saint Jean de Minervois vineyards, situated on limestones, Herault, France. See "Europe's Living Landscapes".

Fíonghoirt Muscat de Saint Jean de Minervois ar aolchloch, Herault, France. Féach "Tírdhreacha Beo na hEorpa".

The improvement in the international mining sector has not yet been reflected in Ireland, although there were positive indications towards the end of 2004. GSI staff cooperated with the Exploration and Mining Division and the Geological Survey of Northern Ireland (GSNI) in promoting Ireland's prospectivity in March at the annual Prospectors and Developers Association of Canada Convention in Toronto. Co-operation with GSNI was not limited to this: it also embraced the implementation of the Bréifne project (see Bréifne) and the development of Cross-Border River Basin District projects.

Níl an feabhas atá tagtha ar an earnáil mhianadóireachta idirnáisiúnta le feiceáil fós in Éirinn, cé go raibh comharthaí dearfacha le sonrú ag teacht chuig deireadh 2004. Chomhoibrigh foireann GSI leis an Rannán Taiscéalaíochta agus Mianadóireachta agus le Suirbhéireacht Gheolaíochta Thuaisceart Éireann (GSNI) chun ionchas na hÉireann a chur chun cinn ag an **Prospectors and Developers Association of Canada Convention** bliantúil in Toronto i Márta. Níorbh é sin deireadh an chomhoibríthe le GSNI: glacadh freisin le feidhmiú thionscadail Bréifne (féach Bréifne) agus le forbairt thionscadail Cheantar Abhantraí Trasteorann.

Cooperation with the Environment Agency (England and Wales), the Scottish Environmental Protection Agency and the Environment and Heritage Service, Northern Ireland, was centred on the successful implementation of the EU Water Framework Directive. GSI contributes to both ProGEO (the European Association for the Conservation of the Geological Heritage) and the European Geoparks Network (see “The Copper Coast”), thereby endorsing geological heritage as a key component of the natural environment of Europe.

GSI has continued its active participation in trans-Atlantic collaboration under the Ireland – Newfoundland Partnership. Preparations at year’s end were advanced for the North Atlantic Minerals Symposium in May 2005. A new initiative, Atlantic Partners, was developed with organisations on both sides of the Atlantic to exploit opportunities in third countries arising out of the successful cooperation on the Irish National Seabed Survey.

Díríodh an comhoibriú leis an nGníomhaireacht um Chomhshaol (Sasana agus an Bhreatain Bheag), le Gníomhaireacht um Chosaint Comhshaoil na hAlban agus le Seirbhís Comhshaoil agus Oidhreacht Thuaisceart Éireann, ar fheidhmiú Chreat-Treoir Uisce an AE. Cuidíonn GSI leis an ProGEO (Cumann um Chaomhnú Oidhreacht Gheolaíoch na hEorpa) agus le Líonra Geopháirceanna na hEorpa (féach “An Cósta Umha”), ag tacú ar an mbealach sin le hoidhreacht gheolaíoch a bheith mar chuid lárnach i gcomhshaol nádúrtha na hEorpa.

Lean GSI lena rannpháirtíocht ghníomhach i gcomhoibriú tras-Atlantach faoin gCompháirtíocht Éirinn–Talamh an Éisc. Cuireadh na hullmhúcháin a bhí ann ag deireadh na bliana ar aghaidh le haghaidh Siompóisiam Mianraí an Atlantaigh Thuaidh i mBealtaine 2005. Forbraíodh tionscnamh nua, Atlantic Partners, i gcomhar le heagraíochtaí ar dhá thaobh an Atlantaigh chun leas a bhaint as deiseanna i dtíortha an tríú domhan, a eascraíonn ón gcomhoibriú maith ar Shuirbhéireacht Náisiúnta Ghrinneall Farraige na hÉireann.



**Sandstone landscape in the Arches National Park, USA.
Geoff Wright.**

**Tírdhreach gaíneamhchloiche i Arches National Park,
Stáit Aontaithe Mheiriceá. Geoff Wright.**

Bréifne

The Bréifne project is a brand-building Cross-Border initiative, centred in the uplands of Cavan, Leitrim, Fermanagh, Sligo and Roscommon. The region has a widely varying landscape, embracing visually stunning seascapes to the west, the high amenity Shannon and Erne waterways to the south and northeast, classic drumlin landscapes to the east and a European Geopark in the Cuilcagh Mountains at Marble Arch, County Fermanagh. Funding in excess of •1.6 million has been received from the Special EU Programmes Body under the Peace II Programme with matched funding of •800,000 being provided by the project partners.

These resources will assist the economic regeneration of this region and its communities through the development of a new branded tourism destination Bréifne and will deliver:

- A comprehensive natural and cultural resource inventory and database for the entire region;
- A Bréifne region DVD-pack and booklet creatively illustrating the geology, archaeology, ecology and folklore of the region;
- A best-in-class Bréifne website (prototype at www.breifne.ie);
- A suite of district-based walking, cycling and touring publications;
- Landscape characterisation of the region;
- A suite of road and tourist information signage.

The partners are Cavan, Sligo, Leitrim and Roscommon County Councils, Fermanagh District Council, Geological Survey of Ireland, Geological Survey of Northern Ireland and the University of Ulster (Academy of Irish Cultural Heritages). The project was launched by Dr. Jim McDaid TD, Minister of State, Department of Transport in May 2004.



View of Ben Bulbin from the graveside of Yeats in Drumcliff cemetery, County Sligo. Pat O'Connor

Radharc ar Ben Bulbin ó uaigh Yeats i reilig Droim Chliabh, Contae Shligigh. Pat O'Connor



Bréifne

Is tionscnamh Tras-Teorann chun cur le branda é Tionscadal Bhréifne, atá bunaithe sna tailte arda i gCabhán, Liatroim, Fear Manach, Sligeach agus Ros Comáin. Tá éagsúlacht mhór ag baint le tírdhreach an réigiúin sin, le muirdhreacha áille thiar, uiscebhealaí na Sionainne agus na hÉirne a bhfuil áiseanna den scoth ag baint leo ó dheas agus thoir, tírdhreacha claiseacha droimnéacha thoir agus Geopháirc Eorpach ag Sléibhte Binn Chuilceach ag Marble Arch, Contae Fhear Manach. Fuarthas maoiniú os cionn 1.6 milliún ó Chomhlacht na gClár Speisialta AE faoin gClár Síocháin II le maoiniú meaitseáilte de 800,000 á sholáthar ag páirtnéirí an tionscadail.

Tabharfaidh na hacmhainní sin cúnamh le hathnuachan eacnamaíoch an réigiúin sin agus ar a chuid pobal trí fhorbairt **Bhréifne** mar áit turasóireachta brandáilte nua agus cuirfear ar fáil:

- Fardal acmhainní nádúrtha agus cultúrtha cuimsitheach agus bunachar sonraí don réigiún ar fad;
- Pacáiste DVD agus leabhrán faoi réigiún Bhréifne ag léiriú go cruthaitheach geolaíocht, seandálaíocht, éiceolaíocht agus béaloideas an réigiúin;
- Láithreán gréasáin Bhréifne “best-in-class” (fréamhshamhail ag www.breifne.ie);
- Sraith foilsíúchán faoi shiúlóid, rotháocht agus turasóireacht, bunaithe ar cheantair;
- Carachtracht tírdhreacha an réigiúin;
- Straith fógraí bóthair agus faisnéise do thurasóirí.

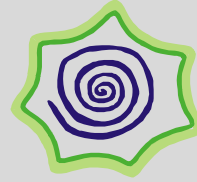
Is iad na páirtnéirí ná Comhairlí Contae Chabháin, Shligigh, Liatroma agus Ros Comáin, Comhairle Cheantar Fhear Manach, Suirbhéireacht Gheolaíochta Éireann, Suirbhéireacht Gheolaíochta Thuaisceart Éireann agus Ollscoil Ulaidh (Acadamh na n-Oidhreachtaí Cultúrtha Éireannacha). Sheol an Dr. Jim McDaid TD, Aire Stáit, An Roinn Iompair i mBealtaine May 2004.



Breifne Project Launch by Minister Jim McDaid, T.D. at the Slieve Russell Hotel with members of the Board of the Breifne Mountains Co. Ltd. Brian Mulligan

Seoladh Tionscadail Bhréifne ag an Aire Jim McDaid, T.D., ag Ostán Slieve Russell i dteannta le baill Boird Comhlachta na Sléibhte Bréifne Teo. Brian Mulligan

The Copper Coast



A European Geopark is an area with a geological heritage of European significance that has a coherent and strong management structure and where a sustainable economic development strategy is in place. A European Geopark uses integrated aspects of its natural and cultural heritage to bring real and sustainable economic benefit to its population. There are currently 17 European Geoparks across Europe and the European Geoparks Network facilitates co-operation and skills exchanges.

The Copper Coast European Geopark is based on the landscape resources and mining heritage of the Waterford coast. Its development has been facilitated in 2004 by its successful involvement in two INTERREG projects, in partnership with various other European Geoparks. A consortium of European Geoparks obtained funding of €4.1 million from INTERREG 3B North-West Europe in 2004 to develop education and tourism products and to develop joint products between members of the consortium. Approximately €1.7 million of this funding was allocated to the Copper Coast European Geopark and during 2004 archaeological excavations of the mining area at Tankardstown were completed and conservation works on the Pumping Engine House were initiated. The parallel €0.9 million INTERREG 3C Project finalised arrangements for a “Geology for All” educational course in the Geopark during 2005.

Two staff were recruited to develop the Geopark and draft proposals were completed on publications, logo design and signage. The project partners in The Copper Coast European Geopark are Waterford County Council, The Mining Heritage Trust of Ireland Ltd, University College Cork and GSI. The INTERREG projects were launched in mid-year by Mr. Martin Cullen, TD, Minister for the Environment, Heritage and Local Government.



An Cósta Umha

Is éard atá i nGeopháirc Eorpach ná limistéar a bhfuil oidhreacht gheolaíoch a mbaineann tábhacht ar bhonn Eorpach léi faoi structúr bainistíochta comhleanúnach agus láidir agus straitéis fhorbartha eacnamaíoch inbhuanaithe aici. Úsáideann Geopháirc Eorpach gnéithe comhtháite dá oidhreacht nádúrtha agus cultúrtha chun sochar eacnamaíoch fíor agus inbhuanaithe a thabhairt dá chuid daonra. Tá 17 Geopháirc Eorpach ar fud na hEorpa faoi láthair agus éascaíonn an Líonra Geopháirceanna na hEorpa comhoibriú agus malartú scileanna.

Tá Geopháirc Eorpach An Chósta Umha bunaithe ar acmhainní tírdhreacha agus ar oidhreacht mianadóireachta chósta Phort Láirge. Éascaíodh forbairt na páirce i 2004 tr í bhaint le dhá thionscadal INTERREG, i bpáirtíocht le Geopháirceanna Eorpacha éagsúla eile. Fuair cuibhreannas de Gheopháirceanna Eorpacha maoiniú de €4.1 milliún ó INTERREG 3B Thiar-Thuaidh na hEorpa i 2004 chun táirgí oideachais agus turasóireachta a fhorbairt agus chun comhtháirgí a fhorbairt idir comhaltaí an chuibhreannais. Sannadh tuairim €1.7 milliún den mhaoiniú sin do Geopháirc Eorpach An Chósta Umha agus le linn 2004 críochnaíodh tochairt seandálaíochta an limistéir mianadóireachta ag Baile Mhic Thancaird agus cuireadh tús le hoibríochtaí caomhnaithe ar an Teach Pumpála Inill. Dheimhnigh an Tionscnamh comhthreorach INTERREG 3C, ar fiú €0.9 milliún é, sócruithe le haghaidh cúrsa oideachais “Geology for Everyone” sa Gheopháirc le linn 2005.

Earcaíodh beirt bhall foirme chun an Gheopháirc a fhorbairt agus críochnaíodh dréachtmholtaí ar fhoilsiúcháin, dearadh suaitheantais agus fógraíocht. Is iad na páirtnéirí tionscadail i nGeopháirc Eorpach An Chósta Umha ná Comhairle Chontae Phort Láirge, Iontaobhas Oidhreacht Mianadóireachta na hÉireann Teo., An Coláiste Ollscoile, Corcaigh agus GSI. Sheol an tUasal Martin Cullen, TD, Aire na Roinne Comhshaoil, Oidhreacht agus Rialtais Áitiúil na tionscadail INTERREG i lár na bliana.

PROVIDING A STIMULATING WORK ENVIRONMENT

TIMPEALLACHT OIBRE SPREAGÚIL A SHOLÁTHAR

The Government's Performance Management and Development System (PMDS), now fully implemented for permanent staff in GSI, is designed to ensure that staff are empowered to perform effectively. It requires commitment on the part of both staff and organisation, not least in the provision of appropriate training resources for all staff.

With the support of the Staff Development Unit of the Department, GSI made a significant investment in training during 2004; an aggregate total of 989 days was provided as against 560 in 2003 – an increase of 77% over 2003. The training in its content had a particular relevance for the business needs of GSI in the future, being particularly directed at IT and related skills. A total of 30 persons commenced training for the European Computer Driving Licence (ECDL), others trained in Excel, Access and Powerpoint. Courses in geographic information systems (Arc GIS, ArcIMS) and remote sensing software (ERDAS Imagine) were provided. A number of staff undertook a range of courses related to the web. A dedicated Training Room has been established at Beggars Bush to facilitate software training.

Staff sustained their technical and managerial competences through attendance at a range of specialised courses, linked to their continued professional development under PMDS. The average number of training days (including attendances at conferences) per staff member in 2004 was 11.6, (compared with 5.1 in 2003 and 7.3 in 2002). The cost of training in 2004 was €99,500 and, allied to the cost of conference attendance, this amounts to 3.9% of salary costs, compared to 2.9% the previous year. The current Civil Service target is 4%.

GSI, as a division of the Department of Communications, Marine and Natural Resources, is committed to fostering a positive organisational culture that reflects core values such as integrity, impartiality and equality. We seek to create an environment where staff perform effectively in providing quality customer service. Staff are encouraged to attain professional accreditation with the Institute of Geologists of Ireland or similar organisations. Attendance at various conferences and business meetings, both at home and abroad, expose staff to new learning opportunities and raise the profile of Irish geoscience. A particularly important conference, as far as evaluating new scientific developments and exchanging experience, was the International Geological Congress (see "Florence: at the heart of the world"). The Appendices to the Annual Report (www.gsi.ie) contain additional information on presentations given by staff and conferences they attended.

Tá Córas Bainistíochta Feidhmíochta agus Forbartha an Rialtais (PMDS), i bhfeidhm go hiomlán anois ó thaobh fhoireann bhuan GSI, agus tá sé sin leagtha amach lena chinntiú go mbeidh an fhoireann in ann feidhmiú go héifeachtach. Éilítear tiomantas ón bhfoireann agus ón eagraíocht araon, soláthar acmhainní oiliúna cuí don fhoireann ar fad go háirithe.

Le tacaíocht ó Aonad Forbartha Foirne de chuid na Roinne, rinne an GSI infheistíocht shuntasach in oiliúint le linn 2004; soláthraíodh 989 lá in iomlán i gcomparáid le 560 i 2003 – sin ardú 77% ar 2003. Bhí baint ar leith ag an ábhar oiliúna le riachtanais ghnó an GSI sa todhchaí, díriodh go háirithe ar scileanna TE agus ar scileanna gaolmhara. Thosaigh 30 duine in iomlán i mbun oiliúna do Cheadúnas Eorpach Tiomána Ríomhairí (ECDL), rinne daoine eile oiliúint in *Excel*, *Access* agus *Powerpoint*. Cuireadh cúrsaí ar chórais faisnéise geografáil (Arc GIS, ArcIMS) agus ar bhogearraí cianbhraite (ERDAS Imagine) ar fáil. Rinne roinnt den fhoireann raon cúrsaí a bhain leis an ngréasán. Tá Seomra Oiliúna tiomanta bunaithe ag *Beggars Bush* chun oiliúint bogearraí a éascú.

Chothabháil an fhoireann a n-inniúlachtaí teicniúla agus bainistíochta trí fhreastal ar raon cúrsaí speisialaithe, nasctha lena bhforbairt ghairmiúil leanúnach faoi PMDS. Ba é an meán líon laethanta oiliúna (lena n-áirítear freastail ar chomhdhála) in aghaidh gach comhalta den fhoireann i 2004 na 11.6, (i gcomparáid le 5.1 i 2003 agus 7.3 i 2002). E99,500 an costas oiliúna i 2004 agus, chomh maith le costas ar fhreastail ar chomhdhála, is sin 3.9% de chostais tuarastail, i gcomparáid le 2.9% sa bhliain roimhe sin. Is é sprioc reatha na Státseirbhíse ná 4% faoi láthair.

Tá GSI, mar rannán den Roinn Cumarsáide, Mara agus Acmhainní Nádirtha, tiomanta cultúr eagraíochta dearfach a chothú a léiríonn croíluachanna ar nós sláine, neamhchlaontacht agus comhionannas. Déanaimid iarracht timpeallacht a chruthú ina bhfeidhmíonn an fhoireann go héifeachtach ó thaobh seirbhís ardchaighdeán do chustaiméirí a sholáthar. Spreagtar an fhoireann chun creidiúnú gairmiúil a bhaint amach le hInstitiúid Geolaithe na hÉireann nó eagraíochtaí den sórt céanna. Cuireann freastail ag comhdhála agus ag cruinnithe gnó éagsúla, sa bhaile agus thar lear araon, deiseanna nua foghlama ar fáil don fhoireann agus cuirtear le próifíl gheolaíochta na hÉireann freisin. Comhdháil thábhachtach a bhí sa Chomhdháil Geolaíochta Idirnáisiúnta, go háirithe, ó thaobh meastóireacht ar fhorbairtí eolaíochta nua agus cur le taithí, (féach "Florence: at the heart of the world"). Tá faisnéis bhreise sna hAguisíní leis an Tuarascáil Bhliantúil (www.gsi.ie) maidir leis na cuir i láthair a thug an fhoireann agus na

GSI was represented on the Central Partnership Committee of the Department which had a busy schedule, including the evaluation of progress on key performance indicators under Sustaining Progress, the national partnership agreement. The GSI Partnership Committee worked in parallel with the Central Partnership Committee, focusing on issues of particular relevance to GSI, and staff participation in the process remained at over 20%. In September a number of staff received Long Service Awards, to mark 25 years of service, from the Minister and Secretary General. The Cunningham Awards and Merit Awards were presented in December and these represent an important element in recognising staff achievements. (See “2004 Annual and Merit Award”).

In addition to those shown on the Organisation Chart, the following served as contract staff in GSI during 2004: David Broderick, Cathal Brugha, Jacqui Connolly, Niamh Connolly, Rory Dunphy, Scott Engering, Joanne Gavigan, Rosemary Jordan, Phelim Lally, Claire McAteer, Emma McSweeney, Shane Miley, Orla Murphy, Shane Murphy, Finnian O’Connor, Anne-Veronique Rizzo, Jenny Rush, Paul Ryan, Roger Sweetman, Katherine Smith, Denise Taylor, Tracey Walsh. Additional information (“Staff changes during 2004”) is contained in the Appendices to the Annual Report on www.gsi.ie.



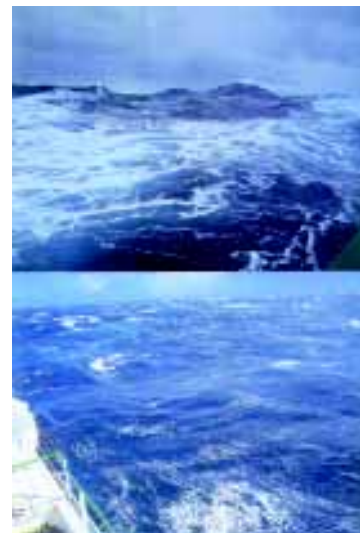
The Giant’s Organ at the Giant’s Causeway, Northern Ireland. Sadhbh Baxter (Galway)

Orgán an Fhathaigh ag Cosán an Fathaigh. Sadhbh Baxter (Gaillimh)

comhdhála ar fhreastail siad orthu.

Bhí ionadaíocht ag an GSI, ar Choiste Comhpháirtíochta Lárnach na Roinne ag a raibh sceideal gnóthach, lena n-áirítear meastóireacht ar dhul chun cinn phríomhtháscairí feidhmíochta faoi Ag Coinneáil an Dul Chun Cinn, an comhaontú comhpháirtíochta náisiúnta. D’oibrigh Coiste Comhpháirtíochta an GSI i gcomhar leis an gCoiste Comhpháirtíochta Lárnach, ag díriú ar shaincheisteanna a raibh baint áirithe acu leis an GSI, agus d’fhan rannpháirtíocht na foirne sa phróiseas ag os cionn 20%. I Meán Fómhair fuair roinnt den fhoireann Gradaim Fadseirbhíse ón Aire agus ón Rúnaí Ginearálta, chun ceiliúradh a dhéanamh ar 25 bliain seirbhíse. Bronnadh Gradaim Cunningham agus na Gradaim Fhiúntais i mí na Nollag agus is ionann iad agus gné thábhachtach ó thaobh aitheantas a thabhairt do ghnóthachtálacha na foirne. (Féach “Gradam Bliantúil agus Fíúntais 2004”)

Sa bhreis orthu sin atá léirithe sa Chairt Eagraíochta, bhí na daoine seo a leanas mar fhoireann conartha sa GSI le linn 2004: David Broderick, Cathal Brugha, Jacqui Connolly, Niamh Connolly, Rory Dunphy, Scott Engering, Joanne Gavigan, Rosemary Jordan, Phelim Lally, Claire McAteer, Emma McSweeney, Shane Miley, Orla Murphy, Shane Murphy, Finnian O’Connor, Anne-Veronique Rizzo, Jenny Rush, Paul Ryan, Roger Sweetman, Katherine Smith, Denise Taylor, Tracey Walsh. Tá faisnéis bhreise (“Athruithe ar an bhfoireann le linn 2004”) le fáil sna hAguisíní leis an Tuarascáil Bhliantúil ar www.gsi.ie

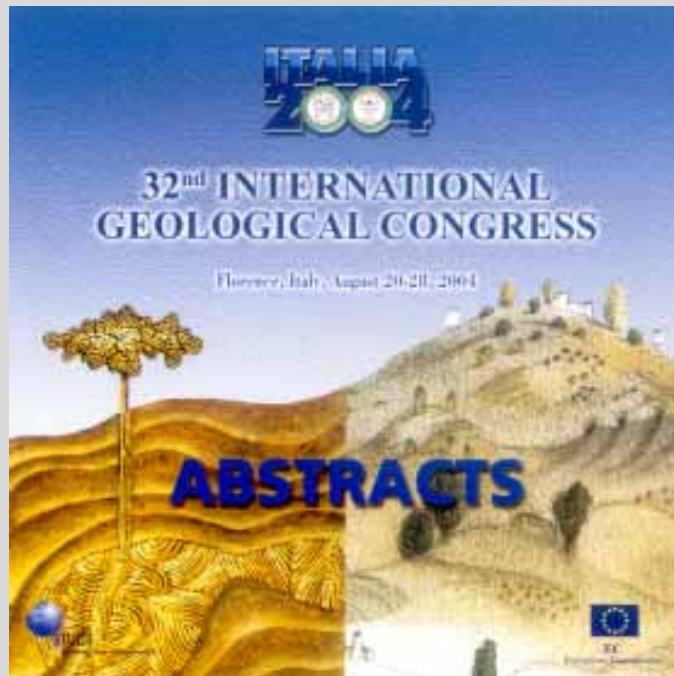


“Irish Seas”, Eibhlín Doyle.

“Farraigí Éireannacha”, Eibhlín Doyle.

Florence: at the Heart of the World

7,000 geoscientists from 140 countries assembled in Florence during August for the 32nd International Geological Congress (IGC). Held every four years, this is the largest international event for reviewing recent scientific progress and holding related business meetings. The Florence congress was regarded as highly successful in terms of scientific content, level of participation and organisation. GSI played a significant role in both scientific and business events. Its scientific presentations dealt with seabed mapping, landslides, mapping techniques, and outreach. On the business front, the merger of IGC with the International Union of Geological Sciences (IUGS) will help ensure that the international impact of geoscience will be increased: GSI chaired the commission that drafted the statutes making this possible. It also contributed to technical working groups and presented an ultimately unsuccessful bid by Ireland to host the 2012 IGC. The next IGC will be held in Norway in 2008.



Flórans: Croílár an Domhain

Tháinig 7,000 geolaí ó 150 tír le chéile i Flórans le linn Lúnasa don 32ú Comhdháil Geolaíochta Idirnáisiúnta (IGC). Tionóltar é gach ceithre bliana agus tá sé ar an imeacht idirnáisiúnta is mó chun athbhreithniú a dhéanamh ar dhul chun cinn eolaíoch le déanaí agus chun cruinnithe gnó gaolmhara a réachtáil. Ceapadh gur éirigh thar cionn le comhdháil Flórans ó thaobh ábhar eolaíochta, leibhéal rannpháirtíochta agus eagraíochta. Bhí ról suntasach ag GSI sna imeachtaí eolaíochta agus gnó araon. Bhain na cuir i láthair eolaíochta le léarscáiliú ar ghrinneall na farraige, sciorraí talún, teicnicí léarscáilithe agus for-rochtain. Ó thaobh gnó, cuideoidh nascadh IGC le hAontas Idirnáisiúnta na nEolaíochtaí Geolaíochta (IUGS) lena chinntiú go gcuirfear le tionchar idirnáisiúnta geolaíoch: Is é GSI a rinne cathaoirleacht ar an gcoimisiún a dhréachtaigh na reachtanna ionas go dtarlódh sé sin. Chuir sé freisin le grúpaí oibre teicniúla agus bhí deis ag Éirinn cur isteach ar sheans chun 2012 IGC a réachtáil ach níor éirigh leo ar deireadh. Réachtálfar an chéad IGC eile san Iorua i 2008.

2004 Annual and Merit Awards

The Cunningham Awards are presented in memory of Mark Cunningham (1908-1980), formerly Assistant Director of GSI. Two College Prizes, for the two best undergraduate geological mapping projects, were awarded to Thomas Gernon, University College Dublin, and Kevin Byrne, Trinity College Dublin. Two Survey Prizes, for a significant contribution to the work and development of GSI, were awarded to Andy Sleeman for his leadership of the Bedrock Mapping Programme, and to Dick O'Brien for his dedicated service with the Drilling Unit. Individual Merit Awards went to Carol Lodola and Kathryn Hill (for effective support in Administration and Groundwater Sections, respectively) while a single team award was made to Gerry Stanley, Brian Carroll, Jacqui Connolly, Niamh Connolly, Grainne Grehan, Irene Hogan and Charise McKeon (for their contribution in making the IGES/NAMS 2003 conferences a success).

The Annual Du Noyer Photography Competition, run in association with the Irish Geological Association, seeks to encourage geological photography with a high technical and artistic content. In the Open Category the first prize was awarded to Sadhbh Baxter (Galway) and the runners-up were Scott Engering (GSI) and Sarah Gatley (GSI). In the newly-established Overseas Category, joint first prizes were awarded to Geoff Wright (GSI) and Alain Murphy (Dublin), and a runner-up prize went to Robert Moss (Dublin).



Dick O'Brien, winner of one of this year's Cunningham Awards, and Kevin Crilly operating the drill rig. Sarah Gatley.

Dick O'Brien, duine de bhuaiteoirí Ghradam Cunningham na bliana seo, agus Kevin Crilly ag oibriú an rig druileála. Sarah Gatley.

Gradaim Bhliantúla agus Aitheantais 2004

Bronntar Gradaim Cunningham i gcuimhne ar Mark Cunningham (1908-1980), a bhí mar Stiúrthóir Cúnta ar GSI roimhe seo. Bronnadh dhá Dhuais Coláiste don dhá thionscadal léarscáiliú geolaíochta fochéimí is fearr ar Thomas Gernon, Ollscoil Bhaile Átha Cliath, agus ar Kevin Byrne, Coláiste na Tríonóide Baile Átha Cliath. Bronnadh dhá Dhuais Suirbhé, ar son cur go mór le hobair agus le forbairt an GSI, ar Andy Sleeman as a cheannaireacht ar an gClár Léarscáiliú Buncharraig, agus ar Dick O'Brien as a sheirbhís tiomanta leis an Aonad Druileála. Chuaigh Gradaim Fhiúntais Aonair chuig Carol Lodola agus Kathryn Hill (don tacaíocht éifeachtach sna Ranna Riaracháin agus Screamhúisce, faoi seach) agus chuaigh gradam fhoireann shingil chuig Gerry Stanley, Brian Carroll, Jacqui Connolly, Niamh Connolly, Grainne Grehan, Irene Hogan agus Charise McKeon (don méid a rinne siad chun gur éirigh chomh maith sin le comhdhála IGES/NAMS 2003).

Lorgaíonn Comórtas Grianghrafadóireachta Bhliantúil Du Noyer, a bhíonn ar siúl i gcomhar le Cumann Geolaíochta na hÉireann grianghrafadóireacht geolaíoch a spreagadh le go leor ábhar teicneolaíochta agus ealaíon. Bronnadh an chéad dhuais sa Chatagóir Oscailte ar Sadhbh Baxter (Gaillimh) agus bhuaigh Scott Engering (GSI) agus Sarah Gatley (GSI) duaiseanna freisin. Sa Chatagóir Thar Lear atá nuabhunaithe, bronnadh an chéad dhuais ar Geoff Wright (GSI) agus ar Alain Murphy (Baile Átha Cliath), araon agus bhuaigh Robert Moss (Baile Átha Cliath) duais freisin.

GSI ORGANIZATION CHART

(GSI is a division of the Department of Communications, Marine and Natural Resources)

Senior Management		
Peadar McArdle	Director	
Ralph Horne	Assistant Director, Finance, Support Services	
John O'Donoghue	Assistant Principal, Administrative Services	
John Morris	Principal Geologist	
Patrick O'Connor	Principal Geologist	
Michael Geoghegan	Principal Geologist	
Clive Murray	Chief Technologist	
<i>Niamh Redmond</i>	Management Support	
Accounts	Groundwater	Marine and Geophysics
Margaret Nolan	Donal Daly	Deepak Inamdar
	Geoff Wright	Eibhlín Doyle
Bedrock	Kathryn Hill	Archie Donovan
Andy Sleeman	<i>Monica Lee</i>	Irene Hogan [part-time]
Brian McConnell	<i>Silvia Caloca</i>	<i>Seán Cullen</i>
<i>Sarah Gatley</i>	<i>Coran Kelly</i>	<i>Xavier Monteys</i>
<i>Markus Pracht</i>	<i>Caoimhe Hickey</i>	<i>Enda Gallagher</i>
<i>Ray Scanlon</i>	<i>Siobhán McLaughlin</i>	<i>Oisín Ó Briain</i>
	<i>Laurence Dempsey</i>	<i>David Hardy</i>
Cartography	<i>Mairéad Glennon</i>	
Pádraig Connaughton	<i>Ekaterina Viventsova</i>	Minerals
John Dooley	<i>Jane Coll</i>	Gerry Stanley
Marie Marini		Irene Hogan [part-time]
Raymond Weafer	Information Management	<i>Vincent Gallagher</i>
Eddie McMonagle	Koen Verbruggen	<i>Brian Carroll</i>
Eddie Hand	Charise McKeon	
Ann Scanlon		Quaternary & Geotechnical
Gerry French	Information Technology	Willie Warren
Michael Kinsella	Mary Carter	Ronnie Creighton
	Joe Carey	John Butler
Central Administration	James Trench	<i>Rodger Connell</i>
Tony Glackin	Mairéad O'Dwyer	Xavier Pellicer
Joe P. Carey		<i>Beatriz Mozo</i>
David Ivers	Bréifne Project	<i>Lorraine Gallagher</i>
Jim Graham	<i>Gráinne O'Shea</i>	<i>Michael Sheehy</i>
Tracy Hall	<i>Schalk Van Lill</i>	
Caroline O'Shea	<i>Fiona Dunne</i>	Services Officers
Bernie Mockler	<i>Chris McWilliams</i>	Paddy Fitzsimons
Gerry Wright	<i>Christine Colgan</i>	Jimmy Kennedy
Central Technical Services	Copper Coast Project	
Tom McIntyre	<i>Sophie Preteseille</i>	
Chris McDonnell	<i>Margaret Cosgrave</i>	
Drilling Unit	Irish Geological Heritage / Archives	
Kevin Crilly	<i>Matthew Parkes</i>	
Dick O'Brien	<i>Petra Coffey</i>	
	<i>Aaron Sheehan-Clarke</i>	
		Section Heads in bold ; Contract staff in <i>italics</i>

CAIRT EAGRAÍOCHTA GSI

(Is rannán é GSI den Roinn Cumarsáide, Mara agus Acmhainní Nádúrtha)

Bainistíocht Shinsearach		
Peadar McArdle	Stiúrthóir	
Ralph Horne	Stiúrthóir Cúnta Airgeadas, Seirbhísí Tacaíochta	
John O'Donoghue	Príomhoifigeach Cúnta, Seirbhís Riaracháin	
John Morris	Príomhgheolaí	
Patrick O'Connor	Príomhgheolaí	
Michael Geoghegan	Príomhgheolaí	
Clive Murray	Príomhtheicneolaí	
<i>Niamh Redmond</i>	Tacaíocht Bhainistíochta	
Cuntais	Screamhuisce	Mara agus Geoifisic
Margaret Nolan	Donal Daly	Deepak Inamdar
	Geoff Wright	Eibhlín Doyle
Buncharraig	Kathryn Hill	Archie Donovan
Andy Sleeman	<i>Monica Lee</i>	Irene Hogan [part-time]
Brian McConnell	<i>Silvia Caloca</i>	<i>Seán Cullen</i>
<i>Sarah Gatley</i>	<i>Coran Kelly</i>	<i>Xavier Monteys</i>
<i>Markus Pracht</i>	<i>Caoimhe Hickey</i>	<i>Enda Gallagher</i>
<i>Ray Scanlon</i>	<i>Siobhán McLaughlin</i>	<i>Oisín Ó Briain</i>
	<i>Laurence Dempsey</i>	<i>David Hardy</i>
Cartagrafaíocht	<i>Mairéad Glennon</i>	
Pádraig Connaughton	<i>Ekaterina Viventsova</i>	Mianraí
John Dooley	<i>Jane Coll</i>	Gerry Stanley
Marie Marini		Irene Hogan [part-time]
Raymond Weafer	Bainistíocht Faisnéise	<i>Vincent Gallagher</i>
Eddie McMonagle	Koen Verbruggen	<i>Brian Carroll</i>
Eddie Hand	Charise McKeon	
Ann Scanlon		Ceathartha & Geoiteicniúil
Gerry French	Teicneolaíocht an Eolais	Willie Warren
Michael Kinsella	Mary Carter	Ronnie Creighton
	Joe Carey	John Butler
Riaracháin Láir	James Trench	<i>Rodger Connell</i>
Tony Glackin	Mairéad O'Dwyer	Xavier Pellicer
Joe P. Carey		<i>Beatriz Mozo</i>
David Ivers	Tionscadal Bréifne	<i>Lorraine Gallagher</i>
Jim Graham	<i>Gráinne O'Shea</i>	<i>Michael Sheehy</i>
Tracy Hall	<i>Schalk Van Lill</i>	
Caroline O'Shea	<i>Fiona Dunne</i>	Oifigigh Seirbhísí
Bernie Mockler	<i>Chris McWilliams</i>	Paddy Fitzsimons
Gerry Wright	<i>Christine Colgan</i>	Jimmy Kennedy
Lár Seirbhísí Teicniúla	Tionscadal Cósta Umha	
Tom McIntyre	<i>Sophie Preteseille</i>	
Chris McDonnell	<i>Margaret Cosgrave</i>	
An tAonad Druileála	Oidhreacht/ Cartlann Geolaíochta na hÉireann	
Kevin Crilly	<i>Matthew Parkes</i>	
Dick O'Brien	<i>Petra Coffey</i>	
	<i>Aaron Sheehan-Clarke</i>	
		Section Heads in bold ; Contract staff in <i>italics</i>

FINANCE

AIRGEADAS

There was an increase of 10.7% in the income of GSI during 2004. GSI derived most (67.4%) of its income from the Administrative Budget, the proportion having increased from 51.9% in 2003 due to a fall in income under the Irish National Seabed Survey (INSS). The INSS income fell from 28.3% in 2003 to 12% of the total budget in 2004. The Administrative Budget covers staff salaries, travel, office, consultancy and equipment costs. Additional income was received from other sub-heads of the Department, including information technology (10.2% of the total budget as against 8% in 2003). In addition receipts from external sources for projects amounted to 10.1% of the total budget (9.2% in 2003). These projects are commissioned by, or managed jointly with, EU, national and local authorities.

Expenditure under the Administrative Budget rose by 6.7% in 2004. Falls in expenditure were recorded under INSS, information technology and subscriptions to international organisations. The biggest fall was under INSS, and this is in line with expectation, as the current phase of this project is in its final stages. Subscriptions to international organisations were lowered, partly because Ireland did not affiliate to the Integrated Ocean Drilling Program during 2004.

Tháinig ardú 10.7% ar ioncam GSI le linn 2004. Fuair GSI an chuid is mó den ioncam (67.4%) ón mBuiséad Riaracháin, tháinig ardú ar an gcéatadán ó 51.9% i 2003 de bharr titim in ioncam faoin Suirbhé Náisiúnta an Ghrinnill Farraige (INSS). Thit ioncam INSS ó 28.3% i 2003 go dtí 12% den bhuiséad iomlán i 2004. Clúdaíonn an Buiséad Riaracháin tuarastail foirne, costais taistil, oifige, comhairleoireachta agus trealaimh. Fuarthas ioncam breise ó fho-chinn eile den Roinn, lena n-áirítear teicneolaíocht an eolais (10.2% den bhuiséad iomlán i gcomparáid le 8% i 2003). Sa bhreis air sin fuarthas 10.1% den bhuiséad iomlán (9.2% i 2003) ó fhoinsí seachtracha do thionscadail (9.2% i 2003). Bfionn na tionscadail sin arna gcoimisiúntú ag, nó bainistithe i gcomhar le, údaráis AE, náisiúnta agus idirnáisiúnta.

Tháinig ardú 6.7% ar chaiteachas faoin mBuiséad Riaracháin i 2004. Taifeadadh laghdúithe i gcaiteachas faoi INSS, teicneolaíocht an eolais agus síntiúis chuig eagraíochtaí idirnáisiúnta. Bhí an titim is mó faoi INSS, agus tá sé sin ag teacht le hionchais, mar tá an chéim reatha den tionscadal sin sna céimeanna deiridh. Íslíodh síntiúis chuig eagraíochtaí idirnáisiúnta, i bpáirt mar gheall nach raibh baint ag Éirinn leis an gClár Druileála Aigéan Lánpháirtithe le linn 2004.

Income	2004 €000's	2003 €000's	2002 €000's	2001 €000's	2000 €000's	1999 €000's
Administrative Budget	3475	3250	3361	3193	3032	2894
Partial Revenue from Sales	0	0	91	11	8	9
Carry-over from previous year	0	0	0	82	116	54
Information Technology	525	500	650	622	622	412
Subscriptions to International Organisations	12	161	100	88	51	48
Change Management Fund	0	0	0	0	6	6
National Seabed Survey Project	621	1771	4500	9465	5556	132
Receipts from external sources for Projects	520	575	650	635	317	254
Total Income	5153	6257	9352	14096	9708	3809
Expenditure						
Administrative Budget	3584	3352	3452	3374	3074	2841
Information Technology	310	435	650	620	611	411
Subscriptions to International Organisations	12	161	100	89	1	21
Change Management Fund	0	0	0	0	4	6
National Seabed Survey Project	727	1970	4500	9465	5547	72
Expenditure of external funds on Projects	520	575	650	635	317	254
Total expenditure	5153	6493	9352	14183	9554	3605
Surplus/(Deficit)	0	(236)	0	(87)	154	204

Ioncam	2004 €000's	2003 €000's	2002 €000's	2001 €000's	2000 €000's	1999 €000's
Buiséad Riaracháin	3475	3250	3361	3193	3032	2894
Páirt-Ioncam ó Dhíolacháin	0	0	91	11	8	9
Méid tugtha ón bhliain roimhe sin	0	0	0	82	116	54
Teicneolaíocht an Eolais	525	500	650	622	622	412
Síntiúis chuig Eagraíochtaí Idirnáisiúnta	12	161	100	88	51	48
Ciste Bainistíochta Athraithe	0	0	0	0	6	6
Tionscadal Suirbhé Náisiúnta an Ghrinnill Farraige	621	1771	4500	9465	5556	132
Fáltais ó fhoinsí seachtracha do Thionscadail	520	575	650	635	317	254
Ioncam Iomlán	5153	6257	9352	14096	9708	3809
Caiteachas						
Buiséad Riaracháin	3584	3352	3452	3374	3074	2841
Teicneolaíocht an Eolais	310	435	650	620	611	411
Síntiúis chuig Eagraíochtaí Idirnáisiúnta	12	161	100	89	1	21
Ciste Bainistíochta Athraithe	0	0	0	0	4	6
Tionscadal Suirbhé Náisiúnta an Ghrinnill Farraige	727	1970	4500	9465	5547	72
Caiteachas cistí seachtracha ar Thionscadail	520	575	650	635	317	254
Caiteachas Iomlán	5153	6493	9352	14183	9554	3605
Barrachas/(Easnamh)	0	(236)	0	(87)	154	204

SUPPORT SERVICES AND FACILITIES

SAORÁIDÍ AGUS SEIRBHÍSÍ TACAÍOCHTA

Technical Services: The drilling programme for 2004 comprised 327 holes drilled to an aggregated total depth of 2827.5m.

Seirbhísí Teicniúla: Bhí clár druileála do 2004 comhdhéanta de 327 poill druileáilte do dhoimhneas suimithe de 2827.5m.

Borehole No.	County	Location	Holes.	Drilling Method	Total Depth	Programme/ Section
GSI/04/01	Co. Longford	Moneylagan	1	Coring	270.0m	Bedrock
GSI/04/328	Co. Monaghan	Strathnahinch	1	Coring	42.0m	Bedrock
GSI/04/329	Co. Monaghan	Ballyalbany	1	Coring	277.0m	Bedrock
GSI/04/330	Co. Monaghan	Strathnahinch	1	Coring	50.0m	Bedrock
GSI/04/99 - 116	Co. Offaly	Rath	18	Flight Augering	100.5m	Groundwater
GSI/04/197 - 249	Co. Dublin	Fingal	53	Flight Augering	434.0m	Groundwater
GSI/04/316 - 325	Co. Dublin	Fingal	10	Flight Augering	69.0m	Groundwater
GSI/04/326 - 327	Co. Dublin	Fingal	2	Coring	35.0m	Groundwater
GSI/04/02 - 18	Co. Westmeath	Various	17	Flight Augering	164.0m	Quaternary
GSI/04/19- 36	Co. Louth	Central	18	Flight Augering	148.5m	Quaternary
GSI/04/37 - 98	Co. Offaly	North	62	Flight Augering	375.0m	Quaternary
GSI/04/117 - 174	Co. Galway	Tynagh	58	Flight Augering	193.5m	Quaternary
GSI/04/180 - 196	Co. Louth	Eastern	17	Flight Augering	174.0m	Quaternary
GSI/04/250 - 315	Co. Louth	Central	66	Flight Augering	472.0m	Quaternary
GSI/04/331	Co. Monaghan	Ballyalbany	1	Flight Augering	11.0m	Quaternary
GSI/04/332	Co. Monaghan	Strathnahinch	1	Flight Augering	12.0m	Quaternary

Uimh. Phoill Tóraíochta	Contae	Láithreán	Poill	Modh Druileála	Doimhneas Iomlán	Clár/Rannóg
GSI/04/01	Co. Longfoirt	Moneylagan	1	Croíleacadh	270.0m	Buncharraig
GSI/04/328	Co. Mhuineacháin	Strathnahinch	1	Croíleacadh	42.0m	Buncharraig
GSI/04/329	Co. Mhuineacháin	Ballyalbany	1	Croíleacadh	277.0m	Buncharraig
GSI/04/330	Co. Mhuineacháin	Strathnahinch	1	Croíleacadh	50.0m	Buncharraig
GSI/04/99 - 116	Co. Uíbh Fhailí	An Ráth	18	Eit-Tolladh	100.5m	Screamhuisce
GSI/04/197 - 249	Co. Bhaile Átha Cliath	Fingal	53	Eit-Tolladh	434.0m	Screamhuisce
GSI/04/316 - 325	Co. Bhaile Átha Cliath	Fingal	10	Eit-Tolladh	69.0m	Screamhuisce
GSI/04/326 - 327	Co. Bhaile Átha Cliath	Fingal	2	Croíleacadh	35.0m	Screamhuisce
GSI/04/02 - 18	Co. na hÍarmhí	Éagsúil	17	Eit-Tolladh	164.0m	Ceathartha
GSI/04/19- 36	Co. Lú	Lárnach	18	Eit-Tolladh	148.5m	Ceathartha
GSI/04/37 - 98	Co. Uíbh Fhailí	Tuaisceart	62	Eit-Tolladh	375.0m	Ceathartha
GSI/04/117 - 174	Co. na Gaillimhe	Tíne	58	Eit-Tolladh	193.5m	Ceathartha
GSI/04/180 - 196	Co. Lú	Thoir	17	Eit-Tolladh	174.0m	Ceathartha
GSI/04/250 - 315	Co. Lú	Lárnach	66	Eit-Tolladh	472.0m	Ceathartha
GSI/04/331	Co. Mhuineacháin	Ballyalbany	1	Eit-Tolladh	11.0m	Ceathartha
GSI/04/332	Co. Mhuineacháin	Strathnahinch	1	Eit-Tolladh	12.0m	Ceathartha

The laboratory work comprised the preparation of 109 micro thin sections, 32 stained sections, 125 rock slabs, 14 polished, and 7 milled samples. At the Core Store in Sandyford Industrial Estate, 2,230 trays of core were racked and an additional 1,400 trays acquired from exploration companies. The Core Store was opened on 18 occasions with clients examining 306 trays of core and having 62 samples cut for analysis.

The Lecture Theatre was used on 162 occasions during 2004 for seminars, lectures and training courses by GSI (73), geoscience organisations (35), external groups (29) and Departmental training courses (25). The vehicle fleet was in operation for 2,372 days for a total mileage of 124,534 miles in 2004. Having acquired three new vans in 2004, the average age of the vehicle fleet at year-end was 5.1 years.

Information management and delivery: The IT Section, with the strong support of the Information Systems Division of the Department, has a focus on systems development across the range of GSI activities, especially through Oracle upskilling to assist in the development of a new database architecture.

The Cartography Section, working closely with other support services and sections, supported the production of maps and reports, both digitally and in hard copy, as well as display materials for exhibitions and conferences. Its primary task is to serve the needs of GSI but it also provides services to other divisions of the Department.

The Administration Service: The Administration Service, in cooperation with other sections, plays a key role in the management of GSI and the delivery of its services. It processes over 2,000 invoices and payment claims per year and a new Agresso Accounts system was introduced during 2004. Administration also oversees health and safety issues at Beggars Bush and it organised a series of successful events in October, in cooperation with Corporate Services Division of the parent Department, to coincide with European Safety Week. With an increasingly heavy workload involved in managing contracts for temporary staff, the major responsibility for this has passed to the HR Division of the Department, but the Administration provides support on many key aspects.

The Customer Centre is a one-stop shop for users seeking access to a range of GSI Services and it also handles publication sales. It ensures enquirers receive comprehensive and timely replies. (See back cover for contact details). Administration also plays an important role in marketing GSI services and products and in 2004 it oversaw the free distribution of educational videos and booklets to all secondary schools in the country.

Bhí an obair saotharlainne comhdhéanta de 109 rannóga micra-thanaí, 32 rannóg smálaithe, 125 leac carraige, 14 sampla snasta, agus 7 sampla meilte. Ag an Stóras Croileacán san Eastát Tionscal Áth an Ghainimh, cuireadh 2,230 tráidire croileacán ar raca agus glacadh seilbh ar 1,400 trádaire breise ó chuideachtaí taiscéalaíochta. Osclaíodh an Stóras Croileacán 18 uair agus scrúdaigh cliant 306 trádaire croileacán le 62 samla gearrtha le haghaidh iniúchadh.

Úsáideadh an Léachtlann 162 uair le linn 2004 le haghaidh seimineár, léachtaí agus cúrsaí oiliúna ag GSI (73), eagraíochtaí geolaíochta (35), grúpaí seachtracha (29) agus cúrsaí oiliúna na Roinne (25). Bhí an flít feithiclí i mbun oibríthe ar feadh 2,372 lá le míleáiste iomlán de 124,534 míle i 2004. Agus seilbh glactha ar trí veain nua i 2004, ba í meánaois an flít feithiclí ag deireadh na bliana ná 5.1 bliain.

Bainistiú agus seachadadh faisnéise: Le tacaíocht láidir ó Rannóg Chóras Faisnéise na Roinne, tá fócas ag Rannóg Theicneolaíocht an Eolais ar fhorbairt chórais thar réimse gníomhaíochtaí GSI, go háirithe tríd uas-sciliú Oracle chun cúnaimh a thabhairt le forbairt ailtireachta nua bunachair sonraí.

Thug An Rannóg Cartagrafaíochta, ag obair go dlúth le seirbhísí agus rannóga tacaíochta, tacaíocht do tháirgeadh léarscáileanna agus tuairiscí, go digiteach agus i geruachóip araon, chomh maith le hábhair thaispeána do thaispeántais agus do chomhdhálacha. Is é an príomhtasc atá aige ná freastal do na riachtanais atá ag GSI ach soláthraíonn sé seirbhísí freisin do rannóga eile na Roinne.

An tSeirbhís Riaracháin: Tá príomhról ag An tSeirbhís Riaracháin, ag comhoibriú le rannóga eile, i mbainistiú GSI agus i seachadadh a chuid seirbhísí. Próiseálann sé os cionn 2,000 sonrasc agus éileamh íocaíochta gach bliain agus cuireadh córas cuntasaíochta Agresso nua i bhfeidhm le linn 2004. Déanann riarachán maoirsiú ar shaincheisteanna sábháilteachta agus sláinte ag Beggars Bush freisin agus d'eagraigh sé sraith imeachtaí ar éirigh go maith leo i Meán Fómhair, ag comhoibriú le Rannóg Seirbhísí Corparáide na máthair-Roinne, an t-am céanna le Seachtain Shábháilteachta na hEorpa. Agus a ualach oibre ag méadú agus conarthaí d'fhoireann shealadach a bhainistiú aige tá an phríomhfhreagracht as sin tugtha do Rannóg na n-Acmhainní Pearsanra, ach soláthraíonn riarachán tacaíocht ar roinnt mhaith príomhghnéithe.

Is siopa aon-stad é **an tIonad Custaiméirí** d'úsáideoirí atá ag iarraidh fáil ar réimse seirbhísí de chuid GSI agus lámhseálann sé díolachán foilsíúcháin freisin. Cinntíonn sé go bhfaigheann daoine a dhéanann fiosruithe freagraí cuimsitheacha agus tráthúla. (Féach cúlchlúdach le haghaidh mionsonraí teagmhála). Tá ról tábhachtach freisin ag riarachán maidir le margaíocht a dhéanamh ar sheirbhísí GSI agus i 2004 rinn sé maoirsiú ar dháileadh saor in aisce físteipeanna agus leabhrán ar gach meánscoil sa tír.

Need More Information?

If you require more information on the work of GSI or think we may be able to assist you to find solutions to problems, do not hesitate to contact us. There is also additional information on www.gsi.ie about many facets of our activities, including an [Appendix](#) to this Annual Report which covers the committees and working groups which have assisted GSI over the past year. It is a pleasure to acknowledge the contributions of all participants.

The website also contains details of the national and international representation undertaken by GSI staff, their participation in societies and working groups, details of all publications, presentations and field trips led by GSI staff, as well as overseas meetings attended.

An dTeastaíonn Tuilleadh Eolais?

Má theastaíonn tuilleadh eolais uait maidir le hobair an GSI nó ma cheapann tú go mbeimid in ann cabhrú leat réiteach a fháil ar fhadhbanna déan teagmháil linn. Tá tuilleadh eolais le fáil ag www.gsi.ie faoina lán gruanna dár n-imeachtaí, san áireamh tá [Aguisín](#) don Tuairisc Bhliantúil seo a chlúdaíonn na coistí agus na grúpaí oibre a chabhraídh leis an GSI i rith na bliana seo caite. Tá áthas orm aitheantas a thabhairt do chion na bpáirtithe uile.

Tá sonraí le fáil ar an suíomh idirlín freisin faoin ionadaíocht náisiúnta agus idirnáisiúnta a ghlac foireann GSI orthu féin, faoina rannpháirtíocht i gcumainn agus i ngrúpaí oibre, sonraí ar fhoilseacháin uile, cur i lathair agus turais allamuigh faoi threoír fhoireann GSI, chomh maith le cruinnithe thar sáile ar rinneadh freastal orthu.

HOW TO CONTACT GSI

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www.gsi.ie

www.gsiseabed.ie

www.eurogeosurveys.org

The GSI Customer Centre answers public queries and provides access to databases and individual programmes. We recommend that you contact the Centre unless you already have established contacts in GSI. A brochure outlining services and prices is available from the GSI Customer Centre.

Customer Centre

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(Publication sales, aerial photo viewing)

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Quaternary / Geotechnical

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Freagraíonn an Ionad Custaiméirí GSI fiosrúcháin ón bpobal agus soláthraíonn rochtain ar bhunachair sonraí agus ar chláir ar leithligh don phobal. Molaimid duit teagmháil a dhéanamh le GSI mura bhfuil teagmhálacha bunaithe cheana agat in GSI. Tá bróisiúr ag leagan amach seirbhísí agus praghsanna ar fáil ón Ionad Custaiméirí GSI.

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