



**NEWSLETTER  
APRIL 2014**

**Issue No. 32**

## Editor's Note

Welcome to the first IGI newsletter of 2014.

We hope to keep you informed of the latest news for the IGI and the world of geoscience. If you have any news which may be of interest to the IGI or geoscience related article which you would like included within the next newsletter please contact the editorial team below



Your Editorial Team – Claire and Jim!

Please submit articles to Claire at [cclifford@morce.ie](mailto:cclifford@morce.ie)

## IGI News

Since our last Newsletter in October 2013 the IGI have been busy involved in a number of courses and events and continued representation within the European Federation of Geologists.

### IGI AGM

The IGI AGM is scheduled for 21<sup>st</sup> May 2014 and all members are encouraged to partake. The meeting will take place at 63 Merrion Square at 6pm. A review of activities of the Institute will be given and documented in an annual report and relevant issues facing the institute will be discussed. A new board will be voted in for the coming year.



The IGI now have a LinkedIn page for its members. All members will be invited by email to join, or alternatively they can search under 'Groups' for 'Institute of Geologists of Ireland'.

The site will be used for discussion and comment, and also as a means of communication with members. The LinkedIn page is a closed group for members only, and all discussion submissions will be reviewed by a moderator before being posted. We hope this new facility will allow the board to better communicate with the membership and equally for the membership to supply feedback and comment.

**James Hodgson PGeo**

## IGI Membership

Since our last newsletter in October 2013 we would like to welcome the following new IGI members: Colman Gallagher, Siobhan Tinnelly, Brian Rouse, Eoin Wyse, Ciara Bannon, Graghmagh Parkin, Emma Sheard and Damien Gasse.

The total IGI membership currently stands at 197 Members for 2014.

## IGI Pyrite Course

The background to the course is the hardship experienced by homeowners across the North Leinster area when cracks and other defects began to appear in their homes. In 2007, the Pyrite Problem was reported to the Department of Environment, Community and Local Government (DECLG) although the phenomenon was known earlier. The problem is one of oxidising pyrite which swells in a confined space beneath concrete floors in homes and other buildings. The swelling induces heave in buildings which manifests itself in cracked floors and walls, bulging floors and walls, inability to close doors and in several other ways.

The Minister for the Environment Community and Local Government commissioned a report into the matter and the Pyrite Panel published its report in 2012. Amongst the recommendations of the report was that the National Standard Authority of Ireland (NSAI) develop standards to address the problem. Two standards were to be developed – one where existing buildings could be investigated to determine if they have been affected by pyritic heave and how to carry out remedial works and a second standard to lay down specifications for aggregate to be used as hardcore in buildings under concrete floors in the future. The former is covered by IS 398 and the latter by the soon to be published revision of IS EN 13242 and SR21, Annex E. SR21 provides guidance on the application of IS EN 13242. Both IS 398 and IS EN 13242 along with SR 21 Annex E require competent persons to carry out work specified in them.

The course was designed to inform attendees of the requirements of the new standards and the guidance document. Expert invited speakers came from government, consultants and insurance sectors and included:

- Gerry Stanley (GSI)-Overview and introduction to the pyrite problem
- Therese Clarke (NSAI)-NSAI, standards and standardisation
- Eoin Wyse (Arup)-Aggregates in building construction
- John Kelly (SLR)-The geology of pyrite
- Michael Maher (Golder Associates)-SR 398-1

- Bernadette Azzie (Golder Associates)-Tests explained
- Conor Taafe (Homebond)-Communicating results to the client
- Cathal MacMathuna (C&C Associates)-IS 13242 and SR 21

Seventeen people attended the course and comments on the course were very positive.

Below is a summary of the written comments:

- Very informative.
- Provision of pdfs of presentations would have been useful.
- Course was very informative and comprehensive.
- Some streamlining and some integration of the presentations.
- No except that the venue was a little bit cold (comment made by two people).
- A good day and well organised.
- Thanks.
- Good day.
- Great content, well presented.
- Catering excellent.

The IGI will now proceed to set up a register of competent persons to carry out pyrite related investigations and work.

**EurGeol Gerry Stanley PGeo**  
**President, IGI**

## Annual Meeting of the American Institute of Professional Geologists

The 50<sup>th</sup> meeting of the American Institute of Professional Geologist (AIPG) was a celebration of their dedication to professional geology. It was hosted by President Ron Wallace and supported by CEO Bill Siok and the AIPG office staff. As always it was enhanced by being co-hosted, this time with three local technical organisations.

Three Past Presidents of the European Federation of Geologists were invited to attend the meeting to represent the EFG. Ruth Allington (UK) is the

immediate (11<sup>th</sup>) Past President and represented EFG, President Vitor Correia, along with Christer Åkerman (Sweden) 8<sup>th</sup> Past President and myself (Ireland) 7<sup>th</sup> Past President. Canada was represented by President Greg Vogelsang and CEO Ollie Bonham (IGI PGeo).

The American Geosciences Institute was represented by Maeve Boland (who presented at the Galway Geogathering) and the integration of AIPG in this body, along with all significant USA geological organisations, was noted. This combined body has much more clout than many disparate organisations. They have enhanced their penetration by always calling themselves *Geoscientists*.

The EFG through Ruth Allington made a fine speech and presentation to AIPG President Wallace. The EFG PPs through **Gareth Ll. Jones**, Christer Åkerman and Ruth Allington made a presentation to outgoing AIPG CEO Bill Siok.

Representing the IGI, I made a statement to the Conference at the AIPG Executive Meeting, where I summarised the current IGI position and activities. Ruth Allington made a similar statement on behalf of the GeolSoc.

Many lectures were given on technical matters as well as on professional ones. In particular the development of global professional geology is now under way under the ægis of the IUGS Task Force on Global Geoscience Professionalism headed by Ruth Allington. This was covered during one of the sessions by Ruth Allington (EFG / GeolSoc), Ollie Bonham (CCPG), Barbara Murphy (AIPG), Rakesh Kumar (CCPG) and Andrea Waldie (AGI).

I noted and discussed with Ruth Allington, Christer Åkerman & Ollie Bonham the present reciprocal relationships between IGI, IAPG, EFG, CCPG and GeolSoc. I noted that we were pleased with the new agreement between IGI and CCPG, and also to see the continuing global development taking place. I was interested and concerned to detail what the present position with CPD requirements was. This may prove to be a serious problem if not enforced.

I was fortunate to be able to attend the field trip on Front Range Tectonics where I saw the manner in which the edge of the tectonic impact of the North

American plate developed as the Rockies were formed.

Thank you to IGI and SLR for sponsorship to attend this event.

Recommendations:

- Enhance the reciprocity with AIPG & CCPG
- Copper fasten the CPD elements of the reciprocal relationship with all bodies
- Join the IUGS TF on GGP

**Gareth Ll. Jones PGeo**  
**Past President**

## Ireland Brownfield Network

The Ireland Brownfield Network (IBN) held its second conference on 19 September 2013 titled "*Back from the Brink: Bringing Brownfield into Community Use*". The event, hosted by the *Geological Survey of Ireland* (GSI) in Ballsbridge, Dublin was opened by Ray Scanlon, Principal Geologist GSI, and saw a total of 86 members and speakers attend. Additional sponsorship was provided by Ashfield Solutions, URS, ERM, WYG, Tughans and Ronan Daly Jermyn. The aim of the conference was to explore themes around the regeneration of brownfield land in Ireland for the use of the entire community.

Every major conurbation throughout Ireland has tracts of brownfield land lying under-used and abandoned with no apparent stimuli to bring it back into beneficial use for the entire community. Examples of this type of land include former manufacturing land left abandoned when the industrial operators have vacated, lands contaminated by historical activities and unfinished housing estates and developments. The reasons these sites lie unused and abandoned are numerous and complex. The IBN conference aim was to promote debate on the barriers to their suitable re-use and explore how this land can be regenerated for the use of future communities.

**Chris McGarry, National Asset Management Agency (NAMA)**, described the position adopted by NAMA to dealing with their large portfolio of brownfield sites

and the approach they are taking to reinvigorating stalled developments. This involves NAMA reviewing the approach taken by developers to ensure it meets their needs and fulfils the remit of the development while balancing the economic and social aspects for the betterment of the local community. A legal perspective of dealing with brownfield regeneration was presented by **Professor Valerie Fogleman, Stephens & Bolton LLP and Cardiff University**, with a particular focus on how this is dealt with across Europe. Prof. Fogleman highlighted some of the legal pitfalls that have been experienced across Europe, and in particular in the UK, of remediating brownfield sites.

The use of environmental risk assessment to facilitate effective brownfield redevelopment was presented by **Kevin Forde, URS Ireland Ltd.** Kevin utilised two project examples to demonstrate how fully understanding your site and undertaking an appropriate risk assessment is vital for successfully completing brownfield redevelopment. Kevin demonstrated how an appropriate risk assessment can also be utilised to develop a remediation strategy and limit remedial costs.

**Pól Ó Seasnáin, Environmental Protection Agency (EPA)**, gave a brief introduction to the recently published *Guidance on the Management of Contaminated Land and Groundwater* at EPA licensed facilities. Pól described how the guidance document was developed and that the approach to be taken in relation to contaminated land and groundwater was risk based. The pertinent issue of dealing with unfinished housing estates was addressed by **John O'Connor, Housing Agency**. John explained the work that had been completed to assess the number of unfinished housing estates that were present in Ireland. He also explained the approach that was being taken to address this issue through site resolution plans. John highlighted the good progress that was being made and that the collaborative approach between developers, funders and local authorities was working.

An example of the successful regeneration of a brownfield site was provided by **Michael O'Brien, Cork City Council (CCC)**. Michael presented a case study of the rehabilitation of the Kinsale Road Landfill. The site is in the process of being converted from an active landfill in an urban setting to a local

amenity park for use by the local community for recreational purposes including wild nature areas, woodland and parkland. Michael described the challenges and costs associated with the redevelopment of a landfill but also highlighted the potential resources that are available when these types of projects are successfully completed.

**Sherry Palmer, Queens University Belfast**, presented on *"Refining the Human Health Risk Assessment Process Through the Use of Oral Bioaccessibility Testing"*. This presentation gave an interesting insight into how human health risk assessment is determined and how bioaccessibility can be used to determine site-specific risk evaluation. Sherry demonstrated that although elevated levels of a contaminant, for example arsenic, may be present but if bioaccessibility is low then tolerable exposure limits may not be exceeded. This can significantly reduce or even remove the need for remediation if bioaccessibility is assessed at a site specific level.

The approach for undertaking remedial options appraisal incorporating sustainable remediation was addressed by **Alan Thomas, ERM**. Alan described how the evolution of remedial technologies has seen an uptake in sustainable methods incorporating all stakeholders. Alan also described how sustainable remediation can be incorporated into remedial options appraisal from a project's inception.

The final presentation of the day was the *"East Tip Remediation Project"* presented by **Cormac O Suilleabhain, Cork County Council**. Cormac detailed the work that has been completed to date on the Haulbowline Island east tip remediation project, described the proposed work to complete the assessment of the site and the longer term future for the site. Cormac highlighted the complex nature of the project but how the project team were determined to address all of the risks associated with the site while engaging proactively with all of the stakeholders.

The next IBN conference will take place on 15<sup>th</sup> May in Cork city – further details will be announced shortly. This free one day event will include talks from leading industry practitioners covering local redevelopment projects, national best practice examples and a site visit to see the on-going redevelopment works at the Kinsale Road Landfill.

Places are limited so to reserve your place email your details to [info@irelandbrownfieldnetwork.com](mailto:info@irelandbrownfieldnetwork.com). Further information regarding IBN and details on how to join are available on our website: [www.irelandbrownfieldnetwork.com](http://www.irelandbrownfieldnetwork.com).



*Speakers and organisers of the 2<sup>nd</sup> Ireland Brownfield Network conference, Geological Survey of Ireland, 19<sup>th</sup> September 2013.*

*Back row L-R: Brian Rouse, ERM; Owen Williams, Ashfield Solutions; Chris McGarry, NAMA; Kevin Forde, URS; Alan Jones, ERM; Cormac O Suilleabhain, Cork County Council; John O'Connor, Housing Agency; Pól Ó Seasnáin, EPA. Front row L-R: Ray Scanlon, GSI; Mairéad Glennon, GSI; Sherry Palmer, Queen's University Belfast, Prof Valerie Fogleman, Stephens & Bolton LLP/Cardiff University and Anne Marie Casey, URS.*

***Mairéad Glennon, P.Geo.***

## IGN Meeting

On the 13<sup>th</sup> February the annual meeting of the Irish Geoscience Network was held at IGI offices in 63 Merrion Square in Dublin. The aim of the network is to provide a platform for all aspects of geoscience and the different organisation from professional, amateur, academic and state bodies to come together to improve relationships, understanding and promote geoscience.



*IGN meeting saw delegates from across the geoscience spectrum.*

## Communicating Geoscience: Lessons learned from engaging with the media, elected representatives and communities

On 28<sup>th</sup> February 2014, the IGI hosted a seminar on Communicating Geoscience as a special event of the Irish Geological Research Meeting in University College Dublin. The seminar, the first of its kind in Ireland, featured public relations professionals and geoscientists sharing their experiences communicating geoscience to the media, the public and elected representatives.

78 attendees had the opportunity to hear several key case studies on geoscience communication at home and abroad, covering the successes and challenges faced by geoscientists in communicating complex science in an effective way.

**Dr Alessandro Amato**, Director of the Italian National Earthquake Centre, had some fascinating insights into the communication of earthquake risk in Italy. Social media now drives two-way stakeholder communication, with the benefits of instant updates of Twitter uniquely suited to the need for authorities to keep the public informed about seismic risk as well as public reporting of seismic activity. The importance of accurate information coupled with effective communication was emphasised in relation to the infamous L'Aquila case, which held several Italian geoscientists accountable for a failure to effectively



convey seismic risk in advance of the deadly 2009 earthquake.



*Dr Alessandro Amato presents “INGV terremoti: communicating earthquakes in a 2.0 world”*

**Conall McDevitt** of Hume Brophy drew on his political experience to tease out the factors which influence public affairs engagement in Ireland. His insights helped explain the motives of politicians, interest groups and industry who advocate for or against issues like shale gas exploration. Conall also outlined the Irish political structure and explained that key players are on a variety of levels for engagement purposes.

**Sonya Cassidy**, Cassidy PR, had some valuable tips to share with geoscientists on how to successfully engage the media, including crafting a story, considering how the story will be seen by the public and interview tactics. Interestingly, Sonya pointed out that only 20% of voices on the radio are female – she noted that all geoscientists, especially female, should take the opportunity to have their professional voice heard if invited.

The second half of the seminar showcased examples of successful stakeholder and media engagement in major private sector, public sector and academic geoscience projects. **Mairéad Glennon**, Geological Survey of Ireland, described the award-winning communications strategy behind the publicly-funded Tellus Border project, including some of the challenges faced on the ground. **Sean Finlay** drew on his 40 years of experience in the geoscience sector to illustrate the planning and consultation issues encountered in some of Ireland’s best known mining and resource infrastructure projects including Tara Mines and Corrib Gas. **Prof Andy Wheeler**, University College Cork, finished on a high with one of Irish

geoscience’s most high profile media stories of recent years on the Moytirra black smoker which was covered by National Geographic as well as the Irish media.

Discussion during the seminar was lively, with many delegates remarking on the palpable need for more media training and awareness amongst Irish geoscientists at all levels, including undergraduate. The IGI hopes to keep developing this aspect of training for geoscientists in the coming years. Presentations from the seminar are now available to download at [www.igi.ie](http://www.igi.ie).

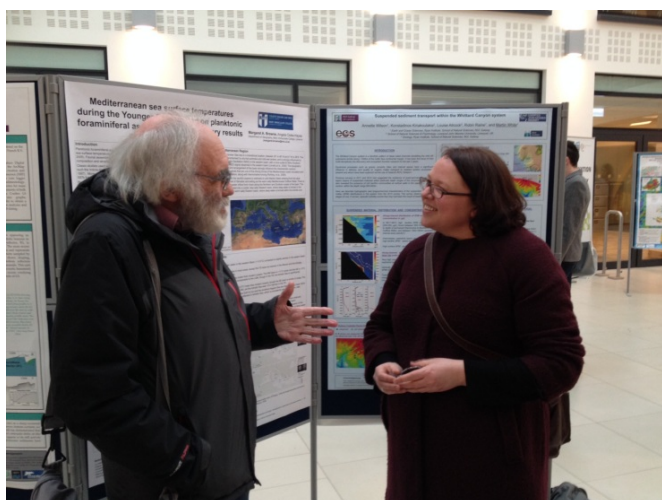
**Mairéad Glennon, P.Geo. and Dr Marie Cowan, P.Geo.**

## IGRM

The 57<sup>th</sup> annual Irish Geological research Meeting (IGRM) was held this year in UCD between 28<sup>th</sup> February and 2<sup>nd</sup> March. A record number of students and delegates attending with over 200 people registered. A rich programme of presentations was held over the three days with a special Symposium held on the Friday in memory of Ben Kennedy.

A number of guest lectures were held with Peter Cawood from the University of St Andrews talking about Earth’s Middle Age. This talk was kindly sponsored by the Geological Association of Ireland. On the Saturday evening, Giulio Selvaggi from the Istituto Nazionale di Geosifica e Vulcanologia in Italy spoke about the strange case of the L’Aquila trial and the difficulties in communicating geoscience to the media and state bodies. These themes were also addressed in an IGI meeting looking at communicating geoscience at the start of the event and discussed in detail earlier in the newsletter.

Numerous student oral and poster presentation were held throughout on numerous different topics and the event is still an important date in the geoscience calendar allowing the good and the great to meet and socialise and discuss the latest geoscience research. The meeting also provides an excellent opportunity for students to present and discuss their work and see the range of research going on within Ireland.



Barry Long and Yvonne O'Connell (NUI Galway) at the IGRM held in UCD.

## Mapping radon risk using airborne geophysics and geology

Radon is a radioactive element which occurs naturally from rocks and soils as a daughter product of Uranium 238 and Radium 226. Exposure to high concentrations is known to increase the risk of lung cancer (UNSCEAR 2009; WHO, 2009). Accurate mapping of its occurrence can help identify households that are at potential risk of radon exposure and highlight areas where buildings require radon mitigation measures. Within Ireland, currently, radon risk maps are based solely on indoor radon measurements carried out by the Radiological Protection Institute of Ireland (RPII). Although numerous measurements (>40,000) have been carried out nationwide, map resolution is low at 10 km<sup>2</sup> (Figure 1). Indoor measurements are typically concentrated in areas of perceived radon risk or areas where radon awareness campaigns have been undertaken. Therefore many areas have little or no data from which to map the natural radon distribution.

It has been shown that airborne geophysical data can be successfully used to help map radon (Appleton *et al.*, 2008, 2011). Airborne data is flown in a regular grid, collecting numerous measurements. Gamma-ray spectrometry data measures natural radiation of

potassium, thorium and uranium emitted from surface rocks and soil. Mapping uranium along with other geological data can provide an indicator of the likely emission of radon gas.

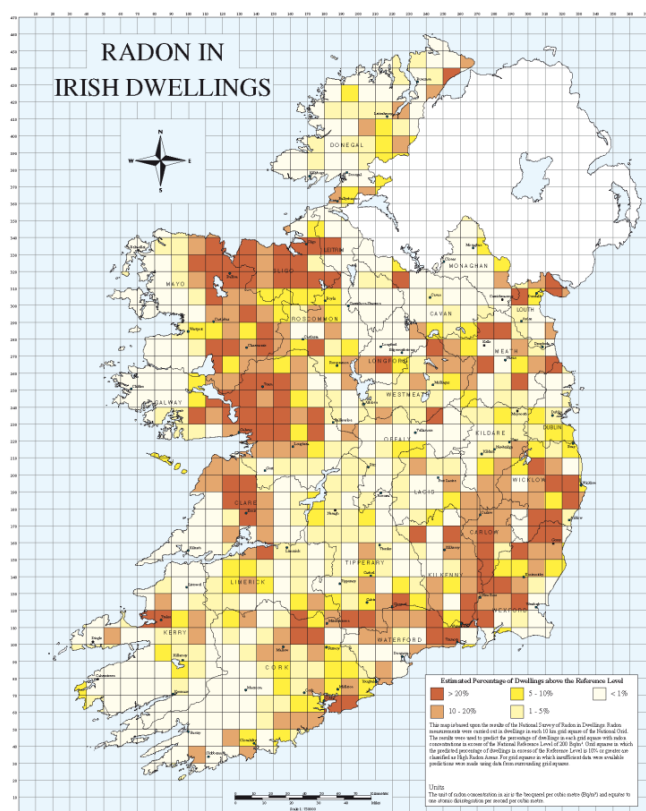


Figure 1: Radon risk map of Ireland based on indoor measurements, produced by the Radiological Protection Institute of Ireland. Data are presented as an estimated percentage of the likelihood of a dwelling within a defined area exceeding a reference level of 200 Bq/m<sup>3</sup> radon gas indoors.

The Tellus Border project carried out a state of the art airborne geophysical survey of the six northern counties of Ireland (Donegal, Leitrim, Sligo, Cavan, Monaghan and Louth) (Hodgson and Ture 2013) and provided an opportunity to help model radon risk within this region. The project was funded by the INTERREG IVA programme of the European Regional Development Fund and was an extension of the successful Tellus project of Northern Ireland (Beamish and Young 2009). Airborne data was collected using a fixed-wing De Havilland DHC-6 Twin Otter aircraft (Figure 2). Survey lines were flown 200 m at an altitude of 60 m. Nearly 60,000 line km of data were collected resulting in over 900,000 radiometric measurements at approximately 60 m

intervals along flight lines. This equates to about 200 times more measurements than indoor radon readings which are available for the region. Figure 3 shows the distribution of equivalent uranium across the border counties of Ireland. Uranium highs are typically associated with granitic and shale-rich rocks. Water bodies and thick peat deposits result in low measured values. All survey data is freely available from the project website [www.telluborder.eu](http://www.telluborder.eu).



Figure 2: Twin Otter aircraft used for geophysical survey with electromagnetic coils located in pods at end of the wings and magnetometer housed at end of the nose cone. Gamma-ray spectrometry crystals are located with the body of the plane.

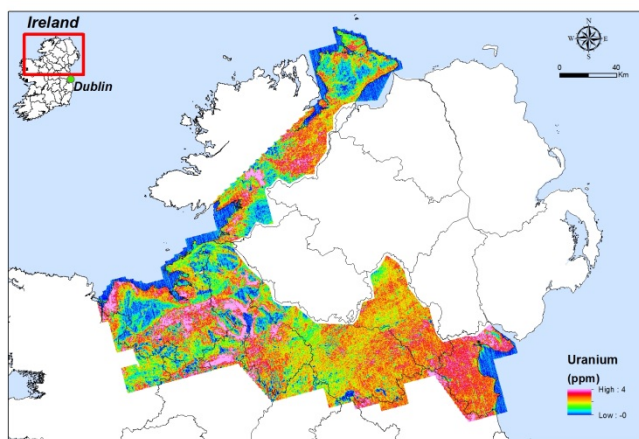


Figure 3: Equivalent uranium concentrations in parts per million (ppm) derived from Tellus Border airborne geophysical data 2011-2013.

### The location and transport of radon gas

The presence and concentration of radon gas in homes is a function of its source, its transport to the surface and the nature and construction of the building. The source of radon is associated with the local geology and the concentration of uranium

within rocks and soils. For example highly radioactive granitic rocks present within the region produce strong uranium anomalies and are associated with radon highs. However, although radon is the daughter product of uranium simply mapping the distribution of uranium wouldn't necessarily give an accurate indication of the levels of radon gas at the ground surface. Not only is it important to map the source of the radon but also the pathway it takes to reach the surface. Thin permeable soils aid the migration of the gas, while thick non-permeable or waterlogged soil impedes its movement. Radon is also soluble in water and therefore can travel great distances from its source within groundwater bodies. Karstified terrains (rock formation characterised by cavities which have been eroded by dissolution) are known to be associated with elevated radon gas levels (Gammage *et al.*, 1992; Cliff and Miles, 1997). Many pure limestones which are prone to karstification are present within this area of Ireland. Although information is not available about house types and their construction (i.e. presence of radon barriers), by mapping both the source and pathway of radon from geological and geophysical data we can better understand the natural distribution of radon gas. These improved high resolution maps can then be used to highlight the potential risk home-owners face and assist in the planning and construction of new houses and the remediation of existing dwellings if required.

### Methodology

To model not only the source but also the transport of radon to the surface, a methodology for modelling radon risk was developed which took into account airborne uranium data, the degree of karstification of the bedrock and thickness and permeability of the subsoil. Groundwater vulnerability data already available from the Geological Survey of Ireland was used as a proxy dataset for subsoil permeability and thickness seeing as it models these properties in relation to groundwater protection. Numerous other geological and geochemical datasets were tested but were determined to be less significant based on calculated p-values (the p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed).

This methodology involved assigning all data directly to 1 km grid squares which intersected the region using ArcGIS 10.1. These data could then be modelled



against indoor radon readings falling within the same grid square using multivariate linear regression. The derived model equation was then applied to data in all grid squares.

Indoor radon data falling within each grid square was also summed and averaged, however, as the radon data is log normally distributed it was necessary to transform the data so it could be correlated with the other data sets. Most radon maps are displayed as an estimated percentage of the likelihood of a dwelling within a defined area exceeding a reference level of 200 Bq/m<sup>3</sup>. Therefore a radon percentage reference level was calculated from the derived geometric mean and standard deviation based on the methodology employed by Fennell *et al.*, (2002) for the Irish National Radon Survey.

### Model results

The goodness of fit for each model was determined by a derived R<sup>2</sup> value (the coefficient of determination, R<sup>2</sup> indicates how well data points fit a line or curve) using Minitab software. R<sup>2</sup> values improved when data was filtered to use only grid squares with a minimum number of measurements. A maximum R<sup>2</sup> value of 0.66 was achieved for the models.

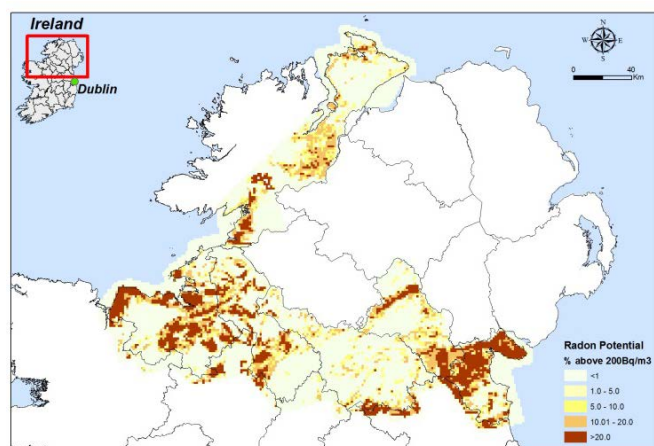


Figure 4: Model of radon potential risk derived from airborne uranium, groundwater recharge coefficient and karst values.

Figure 4 shows the results of the model applied to all grid squares in the region. Significantly more detail is resolved when compared to the existing radon map (Figure 1). Potential radon highs are seen in a number of zones coincident with the existing map but new radon potential highs where 20% of values exceed

the reference level of 200 Bq/m<sup>3</sup> have also been modelled.

### Model evaluation and future research

One of the limitations of the model is the limited number of grid squares with a high number of radon readings which were used to construct the model. Also many of these grid squares with the most numerous readings are clustered together in urban areas. This may result in bias of the models towards the geological terranes occurring in these areas. Other uncertainties relate to the accuracy of the indoor radon measurement as well as possibility that the karst parameter may result in over-predicted values in areas of thicker subsoil deposits.

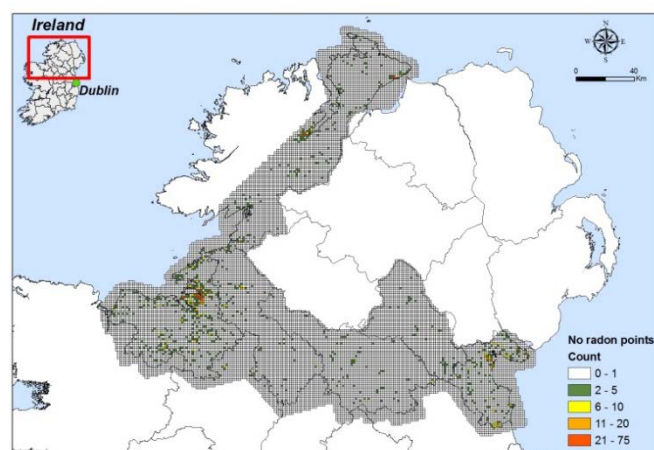


Figure 5: Number of indoor radon measurements by 1km grid used in models

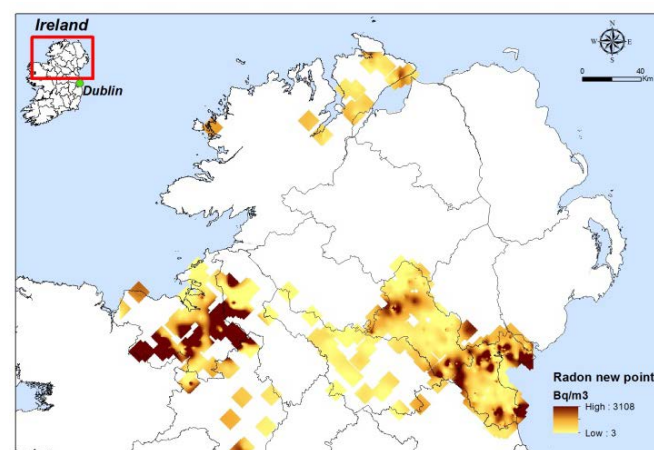


Figure 6: Radon data for new points shown in Bq/m<sup>3</sup> used for model evaluation.

To help evaluate the model, a subset of indoor radon measurements, not used in the initial modelling, (Figure 6) was gridded. This new data was limited in its distribution and quantity but did show similar

trends as those predicted from the model (Figure 4), which gives some confidence to the model.

The model is being adapted to incorporate new data including additional information on the thickness of soil deposits. Further work is on-going to fully evaluate the model. However, the initial model, using airborne uranium data along with geological information has helped improve the resolution of radon risk potential across the area. This work is being further developed with the RPII and will contribute to national radon mapping strategies that will help inform people of their risk of exposure to radon gas.

**James Hodgson PGeo**

## Upcoming Events

### IGI Drilling Course

A one day course is currently being finalised on 'drilling techniques and operations' and is planned for the end of May early June. The exact date will be confirmed soon based on the availability of a drill rig. The course will be split into two sections. The first will include a series of morning lectures and discussions introducing the different types of drilling, practical considerations, plant and equipment, site selection and drilling operations. A detailed look at drilling for water well, mineral exploration and geotechnical investigations will also be covered. The second part of the course will involve a site visit to a drill rig where a demonstration will be carried out allowing participants up close experiences of drilling operations.

There are limited places available so please check regularly the IGI website for updates, or contact [info@igi.ie](mailto:info@igi.ie) for more information.

### IAH Annual Conference, Tullamore



The 34<sup>th</sup> annual IAH conference takes place in the usual venue of the Tullamore Court Hotel on the 15<sup>th</sup> to 16<sup>th</sup> of April 2014. The theme of the conference this year is Water Resource Management: The role of hydrogeology. The sessions include Drilling and well design, Hydrochemistry, Groundwater dependant ecosystem, karst challenges, mining and management of groundwater supply sources.

### Earth Science Week

Earth Science Week 2014 is taking place from 13th to 19th October. This extremely successful event has been used by the GeolSoc as a way to raise the profile of Earth science through a concentrated number of events with a unifying theme. The Earth Science Outreach committee of Earth Science Ireland are using this week as an opportunity to raise the profile of Earth science education and to provide a way of highlighting some of the already wonderful work that is going on in this area all across the island of Ireland.

With that in mind, we would like to ask for all of your help to make this week as successful as possible. We would like to see a great number of events taking place all across the island of Ireland. This could be a visit to your local school to explain the local geology, it could be leading a public guided walk, it could be a short training course for teachers or it could be the launch of a geological publication. In fact it could be anything at all, that can raise the profile of Earth science and be used as an opportunity to educate as broad a range of people as possible. We want to hear from everyone ranging from University level to nursery schools, and from adult education classes to kids clubs.

At this stage, we are asking you to put on your thinking caps and see if you can contribute in any way. In the next month, we will have a dedicated page on the Earth Science Ireland website that all events will be added to, and before that we will

contact you again to ask if you would like to contribute and if so, to give us some more details.

For more information contact Kirstin Lemon at [kirstin.lemon@detini.gov.uk](mailto:kirstin.lemon@detini.gov.uk) or check out [www.earthscience.org](http://www.earthscience.org)

### **Launch of 100 Great Geosites**

Also as part of Earth Science week, the Geological Society and partner organisations are celebrating the geo-heritage of the British Isles by launching a list of the 100 great geosites across the UK and Ireland.

To come up with this list they are asking people for nominations. You can make as many nominations as you like whether it's a classic outcrop or an iconic feature such as the Giants Causeway, a beautiful landscape like the Burren or a famous find such as the Tetrapod trackway. Nominations can be supported by anything you like including photographs, videos or even accompanying verse. Send your favourites via twitter, using #100geosites by email at [100geosites@geolsoc.org.uk](mailto:100geosites@geolsoc.org.uk) or on the facebook page [www.facebook.com/100geosites](https://www.facebook.com/100geosites).

The only rules for the proposed sites are that it is in the UK or Ireland and can be visited by the public. For more information check out [www.geolsoc.org.uk/100geosites](http://www.geolsoc.org.uk/100geosites)

## **Obituary Eugene Daly 1947-2014**

**Eugene Daly a founding member of the IGI**



There are only a few people in life one would wish to emulate: Eugene Daly was such a person to the many people who were lucky enough to cross his path. His passion for Water was almost contagious and his vast knowledge and hands-on experience of Irish Hydrogeology was always captivating and informative. Given that Eugene was also a very kind, good humoured and witty person, he made it a pleasure for those young Hydrogeologists who were mentored by him. His enthusiasm and passion inspired many to pursue a successful career in hydrogeology.

Eugene originally graduated with a B.Sc. in Geology from University College Dublin in 1968. He always mentioned that it was Water that brought him to Geology so it was only natural for him to find a post-graduate degree where he could fulfil his interest. UNESCO had designated 1965-1975 as the International Hydrological Decade (I.H.D.) and Eugene got a scholarship through their programme, which in 1969 brought him to North Carolina State University at Raleigh to do a Master of Science Degree in Hydrology and Water Resources. During his time in the States (1969 – 1971), he did his Masters and worked as a research assistant studying groundwater movement in Ahoskie Creek, a small catchment area in the coastal plain of North Carolina. It was here that he honed his skills as a field geologist, practical skills he continued to develop

throughout his career. Eugene remained adamant that young hydrogeologists should always be mentored by a senior peer for a period of 3 to 5 years, “starting with the basics” and “getting their hands dirty”. These core beliefs later played an important part in his contribution as founder member of the Institute of Geologists of Ireland (IGI).

Upon his graduation and his return to Ireland in 1971, Eugene worked in the Geological Survey of Ireland (GSI) as assistant geologist from June 1971. He was the first modern hydrogeologist working in Ireland: In the early 1970s, he was one of the key drivers who set to work to equip the new groundwater section with surface and borehole geophysics, a drilling rig, water level recorders and field chemistry equipment. Eugene worked hard within the GSI to get water recognized as a valuable economic resource. His colleagues warmly remember how he was ahead of his time in appreciating the interplay between hydrology and hydrogeology and developing this valuable resource into the future.

Eugene worked for the GSI for 23 years. He was made Geologist on the 14<sup>th</sup> July 1975 and continued to drive the development of the Groundwater Section of the GSI. Although it would be too long to list his many accomplishments (projects, publications etc.) during his time at the GSI, his biggest project was undoubtedly the large scale study of the groundwater resources of the Nore River Basin (1971 – 1992): Eugene was a pioneer in explaining the interaction between surface water hydrology and hydrogeology and highlighting that they were both parts of a single water resource & flow system. This project stayed dear to his heart until the end as he was still talking about what remained to be done in his final days. As part of his work at the GSI, Eugene was also deeply involved in an assessment of hydrogeological reports to site an underground radioactive waste disposal facility at Sellafield in the United Kingdom (1989 – 1992) and he participated in many technical intergovernmental meetings on this issue.

In 1994, Eugene left the GSI and set up his own consultancy business, Eugene Daly Associates (EDA). Eugene held a diploma in Business Management for Engineers from Trinity College Dublin (1974) and given his wealth of experience and applied knowledge, he became one of the leading independent expert hydrogeologists of choice for

many County Councils and large consultancy businesses within just a few years of starting EDA. Among a long list of projects undertaken within EDA, the selection below shows the calibre of the studies Eugene was involved in:

- The assessment of the groundwater potential within a radius of 80km of Dublin City, as part of the examination of the options for augmenting the City’s water supply (2007-2009);
- The report (Co-authored) on Guidelines on Procedures for Treatment and Assessment of Geology, Hydrology and Hydrogeology on National Road Schemes (2006- 2007);
- Assessment of water impacts for the Route Selection Study and Environmental Impact Statement for the M7/M8 Portlaoise / Castletown / Cullahill Motorway development in Co. Laois (2001 – 2008); and
- Supervision of hydrogeological investigations to develop a hazardous and non-hazardous waste landfill at the Naul, County Dublin (2009 – 2011).

His clients and staff fondly remember Eugene as the “consummate professional redrafting and editing his reports until he was happy with the final version”.

Eugene recognised the need for a professional body to protect the standing of all geoscientists beyond those in “economic” geology. Hydrogeologists were in the forefront of this movement to create a professional body, mainly because they benefitted from quite a large single discipline membership through the International Association of Hydrogeologists (IAH) – Irish branch but also because they were frequently working with, and for, engineers and planners who needed to clearly identify professional geologists.

This idea was formally developed from 1996 onward, i.e. when the IAEG Professional Affairs Committee (PAC) was set up under the presidency of Dr. Eibhlin Doyle. Through the commitment and hard work of its members, the PAC ultimately laid out the foundations and structure of the Institute of Geologists of Ireland (IGI). Having been a key driver in the PAC from the very beginning, Eugene was a founder member of the IGI.



Eugene firmly believed in giving something back and all who knew him would agree that he was very generous with his time and knowledge. Although it would be almost impossible to account for the considerable amount of time and dedication spent by Eugene and many others in setting up the IGI, it must have been a particularly hard time for him as he was still establishing his consultancy firm and also the duties associated with being president of the IAH Irish Branch (1994 – 1997). His involvement was particularly significant in the area of the Continuous Professional Development (CPD) system. Eugene (among others) was a strong believer that standards had to be high straight from the start if membership of the IGI was going to have any meaningful professional recognition by other professions. Considerable time was spent looking at the quality of geoscience training in Europe, Great Britain and the US: Eugene was adamant that anyone seeking a membership of the IGI must have a strong 3 to 4 year long Primary Degree in Geology (which was then widened to include approved degree courses in Geosciences or Earth Sciences) followed by at least 5 years postgraduate work almost entirely in geosciences.

The IGI was officially formed in 1999 and Eugene continued to contribute thereafter and served on the first Board of the IGI.



*Eugene and colleagues at the launch of the IGI in 1999*

On a lighter note, he was also generous with his beautiful home where he hosted some memorable barbecues. He contributed to several guidelines, notably the Guidelines on Water Well Construction (2007) and the most recent Guidelines for the

preparation of Soils, Geology and Hydrogeology chapters of Environmental Impact Statements (2012).

Eugene completed his career working as technical manager for the Environment Agency (U.K.) in 2012 – 2013, following a lifelong wish to deal with Chalk and the underlying “Green-sands” Group. Needless to say, he rapidly established himself as the “go-to person” when dealing with difficult cases.

Although all the IGI members benefit from the CPD system and the professional recognition that the IGI brings to its professional members, it is also through Eugene’s example of professionalism, integrity and generosity that his true legacy lies.

All of those who were close to him knew that family aside, the only thing that could distract Eugene from work was sport! And, of course, applying perfectionism to everything he was passionate about, Eugene was an accomplished tennis player and, I was told, a very good self-taught golfer with a notoriously long pre-shot routine that could put everyone to sleep.

As I write the final words of this obituary, I am thinking back to all the people who generously assisted me in providing some of the necessary information to piece together the outstanding achievements of our dear friend Eugene P. Daly. Going through my notes, it struck me that, perhaps, Eugene’s greatest legacy is the many happy memories he has left us with.

#### **Bruno Teillard PGeo**

Special thanks to: David Ball, Timothy Morgan, Derek Luby, Tim Paul, Dr Eibhlin Doyle, Gerry Stanley, Christian Schaffalitzky, Gareth Ll. Jones, Susan & John Pyne, Derek Buckley, Bruce Misstear and Bob Aldwell.

---

Newsletter published by:

***Institute of Geologists of Ireland***

63 Merrion Square, Dublin 2, Ireland.

Phone: +353 1-662 4914

Email: [info@igi.ie](mailto:info@igi.ie).

[www.igi.ie](http://www.igi.ie)