

IRISH GEOSCIENCE NETWORK

Organisation Reports 2019

IGN Meeting at IGI



March 27 2019

Compiled by



Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Contributors

The Institute of Geologists of Ireland
The Open University Geological Society
Geological Survey of Northern Ireland
Irish Geological Association
Irish Association for Economic Geology
The Ireland Brownfield Network
Engineers Ireland
Geological Survey Ireland
Geoscience Ireland
Exploration Offshore Ireland
Exploration and Mining Division
National Museum of Ireland
Mining Heritage Trust of Ireland
Irish Quaternary Association
Irish Mining and Quarrying Society
Irish Centre for Research in Applied Geosciences
Irish UNESCO Global Geoparks Committee
Earth Science Ireland
UCD School of Earth Sciences
The Geothermal Association of Ireland



The Institute of Geologists of Ireland

63 Merrion Square, Dublin 2, Ireland

Tel: +353 1 6624914

e-mail: info@igi.ie

www.igi.ie

The Institute of Geologists of Ireland (IGI) was established in 1999 with the mission of promoting and advancing the science of geology and its professional application in all disciplines, especially the geosciences and to facilitate the exchange of information and ideas in relation thereto. IGI Members are required to uphold, develop and maintain the highest professional standards in the practise of their profession.

Professional membership of the IGI is open to all practising geoscientists who meet the required standards of qualification and experience. For information on how to apply, please visit www.igi.ie.

Events

The following events took place since the last IGN meeting in March 2018.

21st – 22nd March 2018

A two-day course on Economic Evaluation of Mineral Exploration Projects was delivered by Mr. Larry Smith from Toronto, Canada.

26th July 2018

Annual General Meeting of the IGI

2nd October 2018

Doug Bartlett, National President of AIPG and Dr. Aaron Johnston, Executive Director of AIPG presented two talks titled:

“Copper mining in the southwestern United States – understanding and managing environmental impacts”

And

“Complexities of Mined Land Remediation in the United States: A Case Study of the Tri-States (Kansas-Missouri-Oklahoma, USA) Mining District”

4th October 2018

The inaugural Honorary Fellowship was awarded to Mr. Ollie Bonham PGeo in a ceremony that took place in the National Concert Hall in Dublin. This was a wonderful occasion which saw the coming together of many of Ollie's colleagues, old class mate along with many IGI members. Ollie was honoured for his significant services to the geoscience community over the years.

3rd November 2018

Field trip to Avoca Mines, facilitated by EMD and CDM Smith, LiaMin Consulting. The field trip provided participants with a comprehensive overview of the remediation work that has been undertaken over the past few years and summarized the major findings, which are both of scientific and general interest.

11th March 2019

President of Geoscience Canada Mr. Mark Priddle PGeo is presenting a talk on Perspectives Rural Domestic Groundwater Supply Wells in Eastern Canada AND Professional Geoscience Regulation in Canada.

The following courses and seminars are planned for the coming months:**13th and 14th March 2019**

Report Writing and Presentation Skills Course

16th April 2019

Practical Mining – One-day Course presented by LTMS: Lisheen Technical and Mining Services

11th and 12th October 2019

2019 sees the 20th Anniversary of the IGI. To mark this occasion the IGI are hosting a conference and field trip, in Athlone, Co. Westmeath in October.

The IGI acknowledges the continued support of our sponsoring bodies, the Irish Mining &

Quarrying Society (IMQS), Geophysical Association of Ireland (GAI), Geotechnical Society of Ireland (GSI), Irish Association for Economic Geology (IAEG) and the International Association of Hydrogeologists (Irish Group, IAH).

Catherine Buckley

IGI President

**OUGS - The Open University Geological Society**

www.ougs.org

Twitter: @OpenUniGeolSoc

Facebook: OU Geological Society

OUGS Ireland Branch Report for 2018.

2018 was a really good year for the Ireland branch. We had seven really interesting events during the year as follows:-

1. Commencing with our branch AGM on 20th January.
2. The Mourne with leader Dr.Siobhan Power, 29th April.
3. The Building Stones of Belfast, leader Ian Forsyth, 26th May.
4. Clonbur, Co. Mayo, leader Dr. Brian McConnell 16/17th June.
5. The National Museum of Ireland Store in Swords Co. Dublin 7th July.
6. A joint trip to the north coast of Co. Antrim with the North West OUGS branch. This included a visit to the Giants' Causeway and to Bushmills distillery. 7th to 10th September. Leader Dr Michael Simms and also myself.
7. Day of talks in the National Museum Dublin. 1st December , it was Titled '**Catastrophe' Sudden events in geology past and present'**
During the day we had six speakers:-
Dr Brian McConnell, Geological Survey, Ireland,
Dr Tom Blake Dublin Institute of Advanced Studies,
Isabel O'Brien, Member
Phyllis Turkington , Member
Dr Michael Simms, Ulster Museum
Charise McKeon, Geological Survey of Ireland.

So hopefully 2019 will also be just as interesting.

Phyllis Turkington
Ireland Branch Organiser.



GSNI Headline Summary for IGN 2018

Permitted Development Rights

Staff at the Geological Survey of Northern Ireland (GSNI) provided scientific evidence and advice to support the Northern Ireland Department of Infrastructure (DoI) policy development on amending the permitted development rights for drilling boreholes for minerals, petroleum and monitoring activities. The evidence and support provided by GSNI helped to improve the DoI's understanding of the operation and impact of existing permitted development rights and provided up-to-date information on their social, environmental and economic impacts.

Local Development Plans

Since the restructuring of local government in Northern Ireland in 2015, all of the 11 council areas are responsible for developing a local development plan (LDP) that creates a clear vision as to how each council area should develop. These framework documents support economic, environmental and social needs in each area in line with regional strategies and policies, whilst providing for the delivery of sustainable development. GSNI scientists have been contributing to this process and helping to inform the LDPs by providing advice and guidance on various economic and environmental issues relevant to each council area, including mineral development, groundwater resources and abandoned mine risks. GSNI is an office of the NI Department for the Economy (DfE), a statutory consultee in the councils' LDP process.

New mine risk maps for Northern Ireland

GSNI manages and monitors Northern Ireland's abandoned mines on behalf of the DfE.

GSNI started a project to carry out an assessment of the east Tyrone coalfields to inform the DfE of the risk posed by historic mines in the area. The towns of Dungannon and Coalisland have a 300-year history of coal and fireclay mining and, due to their age, many of the mine records are incomplete or absent. The area contains a high number of mine workings over a small area due to the heavily faulted nature the underlying bedrock.

Using GSNI databases, historic geological field slips, borehole records, mine plans, historical archives and literature, a desktop study was conducted to ascertain the scale of mining and identify areas of high risk. Over 600 known mine shafts were identified, and, using the locations of outcrop and shallow coal seams, GSNI has helped to delimit areas of possible mining activity.

The depths of workings, together with shaft location and proximity to overlying structures and infrastructure, has resulted in GSNI developing new mining risk maps. These will be used to prioritise further investigative work, enable close monitoring of high-risk areas, and plan for any necessary remedial works that may be required. Apart from informing DfE of the risk associated with the abandoned mines, the new information will be incorporated into the land-use planning process to assist the planning authorities in minimising any risk to new development.

GSNI's Public Good Role

- Mark Patton delivered final MSc project paper to DfE addressing current mineral policy in Northern Ireland with a summary of recommendations for future policy development.
- Contracted to assist and advise NMDDC make an UNESCO Global Geopark application for the Mourne, Gullion and Strangford Areas that will provide economic, environmental and educational benefits for the region.
- Instigated multi-agency live mine rescue exercise, organised by the PSNI, included representatives from the North West Mountain Rescue Team, Irish Cave Rescue Organisation (ICRO), Northern Ireland Fire and Rescue Service, Northern Ireland Ambulance Service, Sligo Leitrim Mountain Rescue Team, Irish Mine Rescue Committee, British Red Cross, Maritime & Coastguard Agency, Gortatole Outdoor Education Centre and DfE
- Input to UK GeoSpatial Commission Strategy: improve HM Government's understanding of the emerging technological landscape and the needs of the geospatial sector and the wider sectors where geospatial data is of increasing relevance and value
- Produced 132 hydrogeological reports for NI Water in order to inform Environmental Health Officers' risk assessment of public water supply

Research

- EU INTERREG VA €13M Catchment Care project launch 14th June with GSI, Donegal County Council, University of Ulster, Armagh, Banbridge and Craigavon Council and other partners
- Leeds-York NERC DTP (CASE) with GSNI and Dalradian Resources Inc. Orogenic Gold in NI. Professor Mark Cooper co-supervisor.
- Successful project application 'PAGEO' (Atlantic Geohazards Network) within INTERREG VA Atlantic Area Programme led by La Palma Research Institute and partners in Spain, Portugal, France and Ireland
- Dr Sam Roberson will co-convene two sessions at INQUA 2019 and lead two fieldtrips, the conference at Dublin Convention Centre in July 2019 expects 3k attendees

Collaboration

- Helped facilitate the Solution Mining Research Institute conference (260 delegates) to come to Northern Ireland. A conference talk was given on salt deposits and exploration in NI. Help given to organise and plan field trips and trips to GSNI core store (28 attendees) and Antrim coast trip (40 attendees) were led.
- Worked with TCD and DIAS on research project establishing a network of EM stations to model electromagnetic structure of Ireland's crust in context of Space Weather
- Co-led Leeds University mineral exploration field excursion to Sperrin Mountains

Engagement activity

- Co-hosted workshop for early career research mathematical geoscientists from across China. Giant's Causeway field excursion and talks from Martin Smith (BGS) and Sir Stephen Sparks (Bristol).
- Ran Webinar and Q&A on ASKNI with Institute of Civil Engineers as part of the ICE Year of Infrastructure 'Digital' month. Webinar explained to professionals and practitioners how GSNI is moving to digital data collection in this sector.
- Hosted a day-long fieldtrip for Friends of the Earth and discussed natural resource development issues
- Co-hosted workshop, with QUB and BGS, for the Brownfield industry; share information, progress and seek feedback from 120 data users
- Attended UK-China Regional Leaders Summit in Dalian with QUB incl. mtg at Beijing Institute of Technology
- Led family event entitled Where have all our dinosaurs gone? for the NI Science Festival and as part of the nationwide Big Summer Read campaign, to highlight the arrival of 'Dippy' from the NHM London.

- Key partner with QUB in hosting GeoEnv 2018 on use of Informatics in Geosciences; attracting 100 delegates to Belfast.
- Invited to GSI-hosted meeting with USGS Director, the SMT and the Director of ICRAAG to share work programmes and discuss potential collaboration including critical metals, environmental health and citizen science human-computer interaction.

Continued Professional Development

- Dr Marie T. Cowan successfully completed the Institute of Directors Certificate in Company Direction, gaining a Distinction in Leadership
- Mark Patton awarded MSc with distinction Mining Engineering Professional from Camborne School of Mines
- Dr Marie T. Cowan took UKRI Safety Management in Research Environment course and sat IOSH exam

Awards, Recognition

- Dr Kirstin Lemon appointed as Rapporteur for the UNESCO Global Geoparks Council for 2nd term and member of UNESCO Global Geoparks Bureau
- Dr Kirstin Lemon invited key note speaker at Asia Pacific Geoparks Network and Chinese Geoparks Network symposium on Science Popularisation
- Dr Kirstin Lemon appointed Chairperson of the UK Committee for UNESCO Global Geoparks
- GSNI was NOMINATED for The Collaboration Award in the Northern Ireland Civil Service Awards 2018.

**Irish Geological Association****Cumann Géolaíochta na hÉireann****60th Anniversary Year
(1959-2019)**

The Irish Geological Association (IGA) is open to all who are interested in the geology of Ireland and beyond. Our members range from professional geologists to beginners. We hold a range of cracking lectures each year. We organise excursions to geologically diverse Irish localities and there are regular expeditions to sites of global geological significance. Other events include Members' nights and Workshops on topical issues. We support Geology students through prizes. We invite you to collaborate, to join or to reengage as a member and celebrate with us IGA's 60th Anniversary 2019!

Events held during 2018/2019 to date:**Lectures**

- "Planet Earth; our Hazardous Home" by Barry Long (Retired, GSI), February 14th 2018
- "Thomas Weaver – Geologist and Dissenter" by Dr. Peadar McArdle (Retired, GSI), March 21st 2018
- "Sediment Transport Processes on Earth, Mars and Titan" Dr. Lawrence Amy (UCD), October 24th 2018
- "Walking Among Underwater Landslide Scars" Dr. Aggeliki Georgiopoulou (UCD), November 7th 2018
- "Tephra! Linking Neanderthals to Magma Chambers" Dr. Emma Tomlinson (TCD), December 19th 2018
- "The Blast Furnace in 17th and 18th Century Ireland" Dr. Paul Rondelez (Irish Mining Heritage Trust), February 6th 2019

Workshops

- "G.V. du Noyer Geological Painting Weekend" with Shevaun Doherty (Irish Association of Botanical Artists) with viewing of Du Noyer Exhibition in Crawford Gallery and Q&A with Co-Curator Petra Coffey. Longueville House, Mallow, Co. Cork, 9-11th February 2018
- "Experience the Ancient Craft of Silversmithing" with Tina Keating, Geologist, Gemmologist and Jeweller, Tramore, Co. Waterford, April 7th 2018
- "Academic Poster Design Course" with Jesse Morris of Dezynamite at the Red Cow Hotel, Co. Dublin, February 16th 2019

Excursions

- "Coastal Geology of Louth from the Sea" with Dr. Robbie Meehan (Talamhireland), Dr. Siobhán Power (GSI) and our Captain Shane Reenan, May 18-20th 2018
- Forming and filling the South Mayo Trough with Dr. Brian McConnell (GSI) in association with OUGS, June 16-17th 2018
- Exploring the National Museum of Ireland Repository, Swords with Nigel Monaghan (NMI) in association with OUGS and MHTI, July 7th 2018
- Kiltorcan Quarry, Co. Kilkenny with Dr Ed Jarvis (UCC), August 11th 2018
- Leitir Mealláin agus Conamara - Geology and saxicolous life with some Gaeilge with Dr. Quentin Crowley (TCD), Howard Fox (National Botanic Gardens) and Maria Cullen, 15-16th September 2018

The Annual Peter Lewis Memorial Gold Panning Experience with Gerry Stanley (GSI) and Dr. Eibhlín Doyle (GSI), 1st September 2018

IGA Excursion to Crete 30th September to 12th October 2018 led by Dr. Babis Fassoulas, author of "Field Guide to the Geology of Crete", co-ordinated by Frank Clissmann

Element 6, Industrial Diamonds Tour, Shannon, Co. Clare with Richard West, followed by a walk through Coole Park, October 5th 2018, co-ordinated by Ed McKenna

Other events

EGM and Reminiscences of our excursion to Italian volcanoes Stromboli, Vulcano, Lipari and Etna, 24th January 2018

IGA Members' Night, GSI, 13th June 2018

Exhibition invigilation at "Devonian Plant Fossils: a window into the past", National Botanic Gardens Glasnevin, 2nd - 24th August

"Du Noyer in the Foyer" Introduction to Irish Geology with the National Museum of Ireland to celebrate Du Noyer Exhibition, Collins Barracks, July 28th 2018

G.V. Du Noyer Photographic Competition Judging and Awards, Geological Survey of Ireland, December 2018

BT Young Scientists' Exhibition at RDS with GSI, January 2019

IGRM at UCD, Judging and Best Student Presentation Awards, March 1-3rd 2019

Forthcoming Events

"Jurassic Skies Exhibition" and Amber Workshop with Dr. Matthew Parkes (NMI), 23rd March 2018, in association with OUGS

AGM and Presidential Address by Maria Cullen, Wednesday April 10th, 6.30pm at the GSI (refreshments as usual from 5.30pm)

Lecture by Dr. Sean McClenaghan (TCD) April 24th

Lecture by Dr. Maria McNamara (UCC) "New insights into the colour of fossil animals" May 1st 2019

Excursion to the Burren with Dr. Markus Pracht (GSI), Lisdoonvarna, 17-19th May

A Musical Celebration for IGA's 60th Anniversary Year 1959-2019!

IGA Council 2018-2019 President: Maria Cullen Vice Presidents: Michèle Castiaux, Dr. Patrick Roycroft
Treasurer: Dan O'Shea Auditor: Joan Hepworth Excursion Secretary: Howard Fox Minutes Secretary:
Frank Clissmann Website Manager: Niall Reenan Membership Co-ordinator: Chris Clayton Cork
Representative: Dr. Bettie Higgs Galway Representative: Karen O'Leary Members: Ed McKenna, Sarah
Dickson



IRISH ASSOCIATION FOR ECONOMIC GEOLOGY



The IAEG annually organises a lecture series, conference and short courses aimed at industry professionals, academia and students. Its membership is made up from geoscientists working in Ireland and internationally

2018 Programme

Event	Date	Location	Title
Course	26th January	Tara Mines, Navan	Student logging course
Lecture Series	12th April	Ashbourne	Gold mineralisation in the Klondike gold district Matthew Grimshaw, SRK Exploration
Course	18th May	Ballinasloe	Geochemical interpretation for exploration and mining geologists
Annual Conference	18th-20th May	Ballinasloe	Geochemistry: Practical applications and novel techniques for mineral exploration
Lecture Series	21st June	Portlaoise	Seismic deconstruction of the Clare basin with implications for base metal prospectivity Lars Dahlenborg, Hannan Metals
Lecture Series	23rd October	Dublin	An explorer's guide to Kazakhstan - Notes from Central Asia Kent Ballas Aurora Minerals Group
Lecture Series	6th December	Ashbourne	Overview of recent work on Group Eleven's key assets in Ireland Bart Jaworski, Group Eleven
AGM	6th December	Ashbourne	AGM

Further to the event programme, the IAEG also made changes to its constitution to modernise ballot voting regulations and also to comply with new GDPR requirements.

2019 Programme

Event	Date	Location	Title
Lecture Series	7th Feb	Liffey Valley, Dublin	I got my degree and then a funny thing happened! <i>Gerry Stanley</i>
Course	22nd-24th February	Clonbur, Co. Galway	Applied Geophysics Weekend Course
Lecture Series	28th March	Ashbourne, Co. Meath	Colombian Emeralds: A product of over-pressured basinal fluids, dissolved sabkha evaporites and K-T boundary tectonics <i>Colin Andrew, Gemrock</i>
Annual Conference	10th-12th May	Kilkenny	Ireland: Future Challenges <i>(working title)</i>

The 2019 programme is currently being finalised with further details to be confirmed. We have talks lined up on Giant Zn deposits, sulphur & diagenesis & Mine development at Cavanacaw. Shorts courses planned for the year include an Industry focused Geochemistry QA/QC course for the autumn and a Geo-Metallurgy course is being shaped with the aim of being delivered as part of the Annual Conference weekend.

2019 saw the IAEG launch a new website at www.iaeg.ie The site contains several resources including publications, and archives of presentations given throughout the lecture series and annual conferences throughout the years.

IAEG also continue to develop two planned publications. *The Mineral Exploration Handbook* (last updated 1979) and an update of *Lower Carboniferous Lithostratigraphy of the Irish Midlands* in partnership with Dr Mike Philcox and iCRAG – more widely known as the Blue Book.

Since 2018 the IAEG have developed a committee to organise the major decadal conference. The 2020 conference is entitled *Minerals 2020: Past, Present & Future*. (see below)



11 March 2019

Ireland Brownfield Network Members

Dear Ireland Brownfield Network Members,

2018 was one of the busiest years for the IBN and its committee. Following a survey from our members in early 2018, the committee started working on producing a best practice guidance document entitled "Management of Asbestos in Soil". We are roughly half way through producing this document and plan to begin consultation with you, our members, towards the mid to end of 2019.

In 2018, the IBN presented at the Queen University Remediate Conference and delivered a workshop on the Management of Asbestos in Soil as part of this conference. The IBN committee members also reviewed and responded to the EPA consultation documents relating to Article 27 and soil recovery facilities as well as the departments National Development Framework.

In 2019 we will start working on producing some technical lunch time seminars on various topics identified by our members in our surveys. Our committee member elections will be held in the coming months so keep an eye on our New Letter or website for dates. The roles in the elections are open to all to join so please consider giving your support.



Geotechnical Society of Ireland

2019 Events

15th January 2019 (6:00pm) Annual Joint Geotechnical Society/IAH Lecture,
Karst in hydrogeology and engineering :
Launch of the book Karst of Ireland – Landscape . Hydrogeology . Methods by David Drew.
Koen Verbruggen (Geological Survey Ireland), Donal Daly and David Drew .
What has karst research ever done for us? Laurence Gill (Trinity College, Dublin)
Road Design in Karst Landscapes: the M17/M18 Deirdre O'Hara (Barry Transportation),
Esther Madden (Arup) and Les Brown (Arup)
Venue: Geological Survey Ireland, Beggars Bush, Haddington Road, Dublin 4.

10th April, (2:00pm) Half-day seminar on Transport Tunnelling:
Fibre optic strain measurements for tunnel infrastructure in urban areas. Zili Li, UCC
Launch shafts for a 5km subsea tunnel in HK. Micheál Killeen, Arup.
Plans for Metro Link + Determining the extents and material effects of a buried pre-glacial
channel on underground construction in Dublin. Emer O'Connor, UCD and Arup and Miles
Friedman, TII -
3D ground model developed for Farringdon underground station. Angelos Gakis, Dr Sauer &
Partners, London
Venue: Engineers Ireland, Clyde Road, Dublin 4

7th March 2019 (6:30pm) Joint IStructE/Geotechnical Society lecture:
Risk Assessment in Geotechnical Engineering
Speaker: Prof. DV Griffiths, Colorado School of Mines
Venue: Technological University Dublin, Bolton St., Dublin 1.

19th March 2019 (6:00pm) Joint Civil Division/Geotechnical Society lecture:
The future of AI in infrastructure and its long term effects
Speaker: Tim Chapman, Arup.
Venue: Trinity College Dublin, Dublin 2.

15 or 16th May 2019 (TBC) Joint Pipeline Industries Guild/Geotechnical Society lecture:
Pipeline failure investigations & permafrost effects
Speaker: Dr Jim Oswell.
Venue: Engineers Ireland, Clyde Road, Dublin 4

Geotechnical Society of Ireland, events in development

Autumn 2019. Joint West Region/Geotechnical Society lecture:
Embankment construction over soft ground in Galway, Ireland.
Speaker: Graham Barton, Jacobs
Venue: NUI Galway

2020 Potential joint seminar/conference with IGI in 2020:
Defective aggregates with pyrite induced expansion being a key component.

**Geological Survey**Suirbhéireacht Gheolaíochta
Ireland | Éireann**Roinn Cumarsáide, Gníomhaithe
ar son na hAeráide & Comhshaoil**
Department of Communications,
Climate Action & EnvironmentGeological Survey Ireland,
Beggars Bush
Haddington Road,
Dublin D04 K7X4**Tel.** +353-1-678 2000**Fax** +353-1- 668 1782**LoCall** 1890 449900**www.**gsi.ie**Email:** info@gsi.ie

twitter@GeolSurvIE

Irish Geoscience Network: Geological Survey Ireland, 2018 News Items and 2019 Plans

Geological Survey Ireland is the national earth science knowledge centre and is part of the Department of Communications, Climate Action and Environment. Geological Survey's role is providing reliable and independent geological data, information and advice to a wide variety of customers/stakeholders, and providing policy advice, planning tools and project partnership, particularly in relation to Irish geoscience input into other Government Departments, Agencies, Local Authorities and EU Programmes, as well as developing Irish geoscience research capacity and increasing jobs in the geoscience sector.

Highlights from 2018 include:

- **Tellus.** The national airborne geophysical and geochemical mapping project continued its work in 2018. However, due to a delay in mobilisation of the aircraft only 60% of the Limerick-North Tipperary and West Cork Survey areas were surveyed. These areas will be completed in 2019. To assist the geochemistry programme a new laboratory in conjunction with Trinity College Dublin is to be established 'The Earth Surface Research Laboratory' with work already underway. The new Tellus Products workstream also began work in earnest in 2018 with a new Project 'Terra Soil' agreed with Teagasc who will analyse soil samples to investigate soil fertility to support farmers.
- **INFOMAR**, the national marine mapping programme, completed the third year of its Phase II programme, which will see all Irish waters mapped by 2026. In 2018 total marine mapping was achieved was 11,724sq.km against a target of 8,000sq.km. Nearshore mapping was undertaken by GSI and focussed on the Irish Sea off Wexford, Waterford and Cork. This involved the use of four vessels including two new inshore survey vessels commissioned in 2017, the 18.5m RV Mallet and 11m RV LIR. Offshore mapping was undertaken by the MI vessels in the Celtic Sea mainly off Waterford and Cork, using both the Celtic Voyager and Celtic Explorer. A new UAV/drone based mapping system has been developed and will be deployed to acquire data in intertidal areas in the same region. Shipwrecks continue to be investigated and recorded as part of INFOMAR mapping, working in conjunction with National Monuments Underwater Archaeology Unit (DoEHLG). In 2018, 18 shipwrecks were mapped by the programmes vessels.
- **Groundwater. Open Topographic Data Viewer** launched at the IAH conference. **GW3D** mapping programme covers a number of themes: 1) **Sand and gravel aquifers** delineation programme completed fieldwork completed. Reports completed and maps updated by Q2 2019. 2) **Karst tracer** supported flood defence studies for The Neale, Mayo. 3) A **hydrochemistry app** is being developed, due to be released in 2019. The **hydrochemistry database** QC work is on-going. **Group Water Scheme (GWS): Phase I** 'preliminary source protection zone project' produced c. 25 ZOC reports by working with 9 hydrogeological consultancies. A **Phase II pilot** (source protection plans) was also initiated to look at specific recommendations to improve or maintain drinking water quality. These are collaborative projects with the National Federation of Group Water Schemes. **'Karst Book of Ireland'** (David Drew) was published in November (launched in January 2019).

2019-2021: GW3D Phase II will focus on better understanding the groundwater resources in the **North Leinster region**, to support the supply of clean drinking water. **2019 GWSs:** complete the remaining ZOCs for GWSs (c.10 so far). Continue with GWSs Phase II pilot and review in terms of being rolled out to all GWSs.

- **Groundwater/Turlough Flooding:** The Groundwater flood team now comprises 5 members: 1 consultant project manager, 2 graduate posts (including one hydrogeologist), 1 IT Carlow senior research fellow and 1 TCD research fellow. 2018 saw the maintenance of 50 temporary water level monitoring stations, 10 of which were converted to permanent monitoring stations. The team were primarily focused on providing improved turlough (groundwater) flood risk maps to the OPW for their 2019 Floods Directive reporting deadlines. A first draft groundwater flood map has been submitted to the OPW and refinements are currently on-going. Additionally, the TCD south Galway model was calibrated in 2018 and is currently being used to test future flood alleviation works in South Galway.
- **Land Mapping (Quaternary & Bedrock Geological Mapping):** Mapping work was carried out across the country including publication of a 1:50k map and data package for the Dublin area to support urban geology projects, and mapping and drilling in the west midlands towards a data release in mid-2019. Quaternary subsoils maps were published for Co. Roscommon and parts of adjacent counties, and fieldwork was completed on a large area of east Galway for map release in early-2019. In addition, an updated version of the 1:100k national bedrock map was published
- **Corestore:** A new management team has been appointed to the National Geological Corestore (NGC) in Sandyford to streamline the existing operation, facilitate increased industry visits and to operate the hyperspectral core scanner. The entire holdings of the NGC are currently being digitised via a high resolution RGB camera and a shortwave infrared hyperspectral camera. Progress is well underway with data due to be made publically available by the end of Q1. A complementary borehole database project is underway within the GSI minerals programme.
- **Geological Heritage: County Audits: Galway (Phase 2) and Westmeath audit took place and the Wexford Audit was published at the end of the year.** We supported geologists operating in the **UNESCO Global Geoparks** of Copper Coast (Waterford) and Burren/Cliffs of Moher (Clare) as well as the Joyce Country and Western Lakes (Galway-Mayo) aspiring geopark. We took part in national Heritage Week in August by having an open day in Beggars Bush and running a number of successful fieldtrips around the country. In 2019 the County Audit of **Galway (Phase 3)** will continue and County Audit of Tipperary is planned to start. Grants worth €5,000 each have been awarded to 13 small projects around the country to produce educational and promotional materials. GSI secured funding from the Rural Development and Regeneration Fund to develop the Joyce Country and Western Lakes geopark in Counties Galway and Mayo and this new phase will commence in 2019.
- **Minerals:** The Minerals programme is continuing its extensive collaborations with European partners across a wide range of raw materials projects including dimension stone, marine minerals, critical raw materials and minerals planning systems. A new Irish Construction Materials project has commenced, integrating existing projects with new industry and academic collaborations around this broad theme including extensive work on aggregates, strategic planning and the security of supply of raw materials, dimension stone and the development of national standards. Within the Irish mineral exploration space, the Minerals programme is collaborating with multiple industry and academic partners to improve the data availability for exploration, including an improved National Borehole Database and has also started Mineral Prospectivity Mapping in collaboration with the Tellus programme.
- **Geoscience Ireland:** Further growth of this business cluster occurred in 2018, which is supported by a GSI with Enterprise Ireland and Department of Foreign Affairs and Trade. (see separate report).
- **Geoscience Research** is supported through data, partnering and grant-aid. Specific activities for 2018 have included up to 53 projects through a variety of schemes including: Griffith Fellowship scheme for Geoscience lecturers; Griffith Post-Doctoral Fellowship Scheme; Completion of 26 projects in current GSI Research short call funding both academics and SMEs; Support for further development of the SFI and industry backed iCIRAG (Irish Centre for Research in Applied Geosciences) through data, collaboration, co-funding of schemes

and a new Science Policy Research Fellow position, and participation in several committees including Executive Management, Industrial Advisory and Technical Advisory; Research collaborations and leveraged co-funding with SFI, IRC, EPA (in Water, Metals & Soils, & Critical Raw Materials), SEAI, MI, EU (ERAMIN) & the US Fulbright Association facilitating exchange of Irish and US researchers. ERAMIN is a Raw Materials for Europe initiative where GSI are collaborating with international partners and EPA to fund relevant research involving Irish partners. GEOTHERMICA is an EU backed initiative in the area of Geothermal Energy which GSI are supporting and in September 2018 GSI hosted a Deep Geothermal Workshop for industry, public bodies and researchers. GSI signed an MoU for research collaboration with ESRI (the Economic and Social Research Institute) in 2018 to pursue collaboration in the area of Social Acceptance in the geosciences. In 2019 work under this agreement will focus on an EU project PACIFIC, looking at passive seismic techniques for environmentally friendly exploration and their social acceptance. At end 2018 GSI successfully leveraged an annual research investment of €1.25m for participation in almost €4m of research programmes for a second successive year. In 2019 it is anticipated that up to 40 research schemes will be supported.

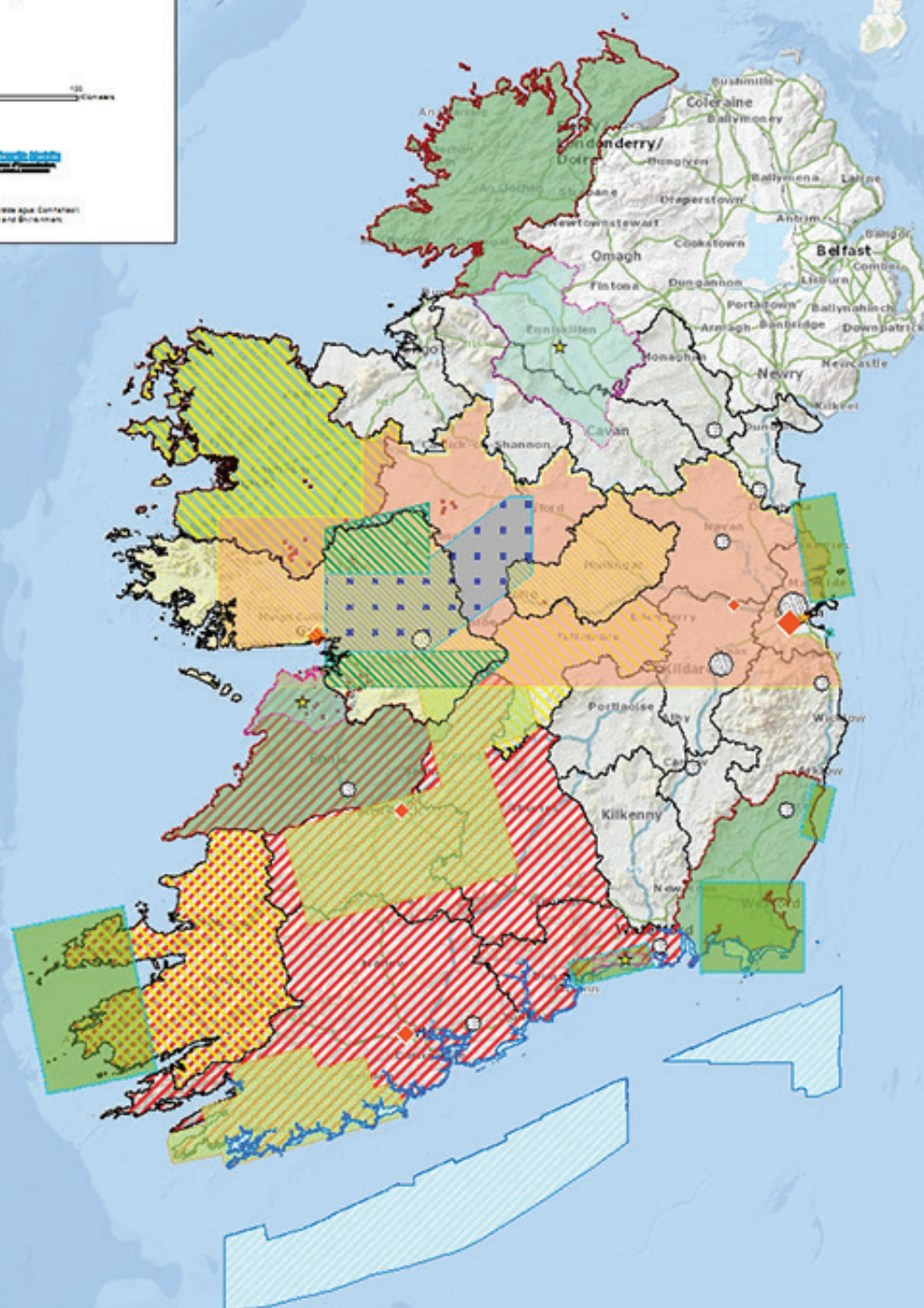
- Outreach/Communications:** Steady increase of website visits and social media followers. The Du Noyer art exhibition continued in Crawford Art Gallery until late February and then transferred to Collins Barracks from early June to late September. A new **Field Guide to the Geology of the Dingle Peninsula** and updated map was launched in May. GSI sponsored an episode of the successful **RTÉ 10 Things to Know About...** in November 2018. The GSI episode was on the Seabed and it featured Charise McKeon, Maria Judge and Brian McConnell as well as DIAS staff. Over 185,000 people viewed the programme and there were a lot of positive responses on social media. Among events supported/attended were BT Young Scientists, National Ploughing Championship and the Geoscience2018 meeting in Dublin Castle. GSI also participated with EMD at PDAC in Toronto, the world's largest mining conference, where a new "Ireland Day" event was introduced with Geoscience Ireland, EI and GSNI from 2016. **Education:** School packs worth €130 were sent to 93 schools. To avoid wastage, materials were sent on request. Collaboration with JCT (Junior Cert Teachers) Geography to run a CPD day on March 30th, and we are at the planning stage of further education collaborations. Requested packs have been sent to 44 schools in the first 3 months of 2019.
- National Committees:** GSI participate or support a wide range of national fora including several related to Water Framework Directive, Office of Emergency Planning (tsunami, ash and flooding) National Landscape Strategy, RIA Geographic and Geosciences Committee, Open Data Gov, Marine Coordination Group, National Standards Authority of Ireland (NSAI) and Dublin Institute of Advanced Studies board. In addition staff members participate in committees of very many of the Geoscience organisations, many of which also receive support of funding or corporate membership from GS and/or free access to theatre facilities for lectures.
- International:** GSI is active in a number of international Programmes and Networks. Principal among these is EuroGeoSurveys (EGS), the representative body of Geological Surveys, who have an office and secretariat in Brussels with several staff members engaged in Expert Groups. Project participation includes EPOS (European Plate Observing System), EMODNET (European Marine Data and Observation Network), ERAMIN2 (Minerals Research), and numerous EU raw materials/minerals projects. GeoERA is EGS' network supporting research in the areas of GeoEnergy, Groundwater, Minerals and the Information Platform, EGS is also building the European Geoscience Data Infrastructure or EGDI which will provides access to Pan-European and national geological datasets and services from the Geological Survey Organizations of Europe. GSI also participate in the Integrated Ocean Drilling Programme (IODP) supporting both the European Management (ECORD) and technical (ESSAC) committees, and North Atlantic Geoscience group (NAG).
- Staffing:** Geological Survey filled **five new permanent technical positions** by external competition/panels in 2018; Brian McConnell was appointed Principal Geologist with responsibility for Geological Mapping & Geohazards, 4 Senior Geologists were appointed largely to backfill retirements & promotions; Ronan O'Toole in the Marine Programme/INFOMAR, Sophie O'Connor working across Groundwater and Geological mapping, Sarah Blake in Groundwater & Eoin McGrath in Minerals.
At year end there was 102 staff, 47 of whom are permanent including 36 technical/professional.

Geological Survey Activity Areas 2018

Geological Survey Activity Areas 2018



or Public Content, is made available to the public under a Creative Commons Attribution-NonCommercial-ShareAlike license. © Ireland, 2017.



Geological Survey Ireland

- INFOMAR Survey Areas
- Groundwater: Turf Monitoring Sites
- Groundwater: Lidar survey
- Groundwater: Sand and Gravel mapping
- Groundwater: Transition Zone Mapping
- Land mapping: Quaternary Survey Area
- Land mapping: Bedrock mapping
- Tellus: Regional Geochemistry
- Tellus: Airborn Block A5
- Tellus: Airborn Block A6
- GlobalGeoparks
- Geohazards Audit Area
- Cherish Project
- Geoparks

Research Projects

- Kildare (1)
- Limerick (2)
- Cork (3)
- Galway (7)
- Dublin (36)

Geoscience Ireland Member Companies

- Clare, Carlow, Louth, Meath, Monaghan, Waterford, Wexford, Wicklow (1)
- Galway, Cork (2)
- Kildare (5)
- Dublin (16)



Geoscience Ireland | Geological Survey of Ireland, Beggars Bush, Haddington Road Dublin D04 K7X4, Ireland

w: www.geoscience.ie

LinkedIn: Geoscience Ireland

Twitter: @Geosciencelre

Sean Finlay | Business Development Director
ph: +353 1 678 2842 | e: sean.finlay@gsi.ie

Andrew Gaynor, Business Development |
ph: +353 1 678 2673 | e: andrew.gaynor@gsi.ie

Geoscience Ireland is the business cluster supporting 38 Irish, and Irish-based, companies winning business in overseas markets. In 2018, the GI Member Companies created 253 net new jobs and in 2019, GI welcomed Golder and Aurum Exploration as Members. In November 2018, GI formally launched its Strategic Review outlining its strategy up to 2022.

GI and its Members participated at a number of international conferences and exhibitions over the last year. This included mining and quarrying, energy and civil infrastructures events: PDAC, Toronto; Mining INDABA, Cape Town; AME RoundUp, Vancouver; Wind Energy, Hamburg and a Trade Mission to Ethiopia and Kenya.

Two major initiatives that GI is progressing include the Geo Driller Apprenticeship in collaboration with IT Carlow and the private sector; the course will launch this September, 2019. GI continues to work with its European partners on the COSME-funded 'Geo Energy Europe' project which is designed to assist European SMEs in accessing the global geothermal energy market.

Over the coming year, GI and its Members will continue to collaborate on events and initiatives including a Minister-led Trade Mission to Kenya and South Africa; the Mining Show, Dubai; Trafikverket transport infrastructure day, Stockholm and COSME workshops.

GI continues to work closely with its industry and IGN colleagues and stakeholders in promoting the sector. We are working the IGI, IAEG and IMQS in promoting the upcoming Practical Mining course, and worked with the IMQS in delivering its recent planning seminar.

Andrew Gaynor | **Geoscience Ireland**

Exploration Offshore Ireland



**Roinn Cumarsáide, Gníomhaithe
ar son na hAeráide & Comhshaoil**
Department of Communications,
Climate Action & Environment

Exploration Offshore Ireland

Compiled by Petroleum Affairs Division,
Department of Communications, Climate
Action and Environment

clare.morgan@dccae.gov.ie

Summary for Irish Geoscience Network annual meeting 2019

Exploration Update Offshore Ireland (to end 2018)

Clare Morgan

clare.morgan@dccae.gov.ie

The role of the Petroleum Affairs Division (PAD) is to maximise the benefits to the State from exploration for and production (E&P) of indigenous oil and gas resources. In doing this we ensure that activities are conducted with due regard to their impact on the environment and other land/sea users. PAD is responsible for regulating oil and gas E&P activities, both offshore and onshore Ireland. Our role extends from policy development, licensing, the regulation of E&P activities to outreach. PAD also plays a lead role in initiating and supporting research directed at deepening knowledge of the petroleum potential of the Irish offshore. PAD has initiated the acquisition of data where data gaps have been identified, conducts independent interpretation of technical data and occasionally issues Special Publications. PAD is the custodian of the National Data Repository and Archive for the petroleum sector.

Exploration Update 2018: The current status of exploration offshore Ireland is strong. The number of exploration authorisations in recent years is at the highest level since exploration began in the Irish offshore in the 1970s (Fig. 1a shows licensed acreage since 1999). It is expected that the current exploration interest will lead to increased drilling activity in our offshore basins in the immediate future.

The petroleum Concession Map offshore Ireland (Fig.1b) illustrates the present-day licence position and attests to industry interest in our offshore acreage, particularly in the Porcupine Basin. Acreage awarded as a result of the 2015 Atlantic Margin Licensing Round (28 new Licence Options awarded to 19 companies) was granted in two stages in February and June 2016. The Authorisations awarded were a Licence Option (LO), the vast majority of which were of 2 years duration, and 2018 saw companies apply to convert the LOs to Frontier Exploration Licences (FEL). The positive response from industry to progress licences is encouraging and each FEL, as required, is accompanied with a strong work programme. All licence conversion applications awarded in Phase 1 are completed. The evaluation of LO to FEL conversions awarded in Phase 2 are on-going. The up to date position (Dec 2018) is that in the Atlantic Margin, of the 28 licences awarded in 2016, 13 have converted (Eni, Equinor x4, Europa, ExxonMobil x2, Nexen x4, Woodside), 7 applications are under consideration, 5 have surrendered and 3 more will not expire until 2019 as these LOs were granted for 3 years. In open acreage, the Celtic Sea area continues to attract players. The Minister recently approved a three year Lease Undertaking in respect of both SEL 4/05 (Old Head of Kinsale) and SEL 5/05 (Schull)

There are currently 53 Authorisations awarded offshore Ireland with some 30 companies involved as operator or joint venture partners. There have been a significant number of assignments and this level of company interest may increase as additional exploration companies continue to enter into the Irish Atlantic Margin and Celtic Sea Basins, via farm-ins.

There was a lot of seismic acquisition in our offshore basins in recent years. From 2015 to 2017 ten significant seismic surveys were acquired, located in the Celtic Sea and Porcupine Basins (totalling 10,500 km of 2D data; 20,500 sqkm of 3D data). In 2018, seismic surveying as expected, given the life cycle of the licences issued as a result of the 2015 Licensing Round, was reduced. There was a very small

amount of 2D seismic acquisition in our offshore this year, of limited extent and duration (80km over 26 hours), with the new profiles acquired in the Goban Spur area, as part of a site survey over Providence's Newgrange prospect in FEL6/14. No 3D seismic surveys were acquired in 2018. Any consent applications for seismic surveys are assessed in accordance with the Environmental Impact Assessment Directive, the Habitats Directive and the Birds Directive. The Department/Eni substantial 2D Regional Seismic survey acquired in 2013 and 2014 is now released for copying charge only. This valuable dataset includes 16,800km of PreStackTimeMigrated seismic data, velocity data, gravity data, magnetic data and field data in our Atlantic Margin basins.

No wells were drilled offshore Ireland in 2018. The 'Dunquin' exploration well 44/23-1, drilled in 2013 by Exxonmobil and partners in the Porcupine Basin, was released in July 2018. The new well data, provides fresh knowledge on carbonate play fairway mapping and is a significant control point in this frontier area.

Petroleum production continued during 2018 from the Corrib gas field in the Slyne Basin and from the Kinsale field complex, the latter with declining gas production. Gas production from Corrib met over 55% of Ireland's gas demand in 2018. The introduction of Corrib was a key contributor to Ireland's energy import dependence falling from 87% in 2015 to 70% in 2016. Corrib met 56% of ROI gas demand in 2018, with the Inch (Kinsale) and Moffat Entry Points providing the remaining 6% and 38% respectively. Following divestment by Shell of its interest in the Corrib Gas Field in 2018 the Corrib Gas Partners are Nephin Energy Limited (43.5%), Equinor Exploration (Ireland) Limited (36.5%) and Vermilion Energy (20%), who are the Operator of the field.

In other news, A Private Members Bill, the Petroleum and other Minerals Development (Amendment) (Climate Emergency Measures) Bill 2018 was introduced into Dáil Éireann in 2018. The stated purpose of the Bill is to prohibit any further licensing for oil and gas exploration in Ireland. The Bill is currently before the Joint Oireachtas Committee on Communications, Climate Action and the Environment for legislative scrutiny. The Bill remains a legislative proposal before the Houses of the Oireachtas. Government policies in respect of climate action, energy and offshore exploration, and the application of such policies, remain unchanged.

The PAD has an ongoing communications and outreach strategy to inform the general public, companies, contractors, governments and researchers about E&P offshore Ireland and to highlight our petroleum sector. As in previous years, the 2018 effort is carefully designed to spread throughout the calendar year, with specific timely objectives, targeting a range of audiences nationally and internationally. The programme is supported by follow-up Dataroom appointments. Some other initiatives that PAD was directly involved with in 2018 include supporting the launch of the GeoScience Careers (iGEO2018) inaugural symposium in January in NUIG, the launch of the Irish Association of Women Geoscientists (IAWG) at UCC in February and the Science & Technology in Action (STA) official launch of the 13th Edition in Dublin.

2018 saw a huge effort by PAD to digitally capture technical data to facilitate ease of data access, progress work programme time lines and to aid in disaster recovery.

Research initiatives, through PIP, iCrag and NAPSA, aimed at deepening knowledge of the petroleum potential of Ireland's offshore continued in 2018. A NAPSA technical workshop was held in St. John's Newfoundland in June to foster research collaboration between Irish and Atlantic Canadian researchers. The aim was to identify current ideas, identify knowledge gaps in our understanding of North Atlantic Conjugate Margin petroleum systems and to suggest areas of study for new research projects. The Geology & Geophysics; Engineering and Environmental three PIP ISPSG Technical Committees were active throughout 2018 and a number of very relevant projects are being scoped/ on-going or completed.

The Trans-Atlantic Atlas of source rocks, oil characteristics and oil-source rock correlation in Mesozoic Basins of the North Atlantic Conjugate Margin, offshore Ireland and offshore Newfoundland-Labrador

and the Engineering Downtime Analysis & Cost Effective Drilling (2018 Revision) study were completed earlier this year. Other Department sponsored research projects have developed substantially with new projects initiated in 2018. The ongoing Bio/Litho/Stratigraphic study is progressing as planned to provide a new, updated stratigraphic framework and nomenclature for all Irish offshore basins. The baseline aerial and acoustic data acquisition of the ObSERVE programme was completed in 2017 and results and impact are currently being analysed. ObSERVE video clip, data and reports were launched and made publically available before year end.

PAD continues to collaborate with other regulatory bodies, both in Ireland and other jurisdictions, with industry and with academia through a view to ensuring effective exploration in our offshore basins.

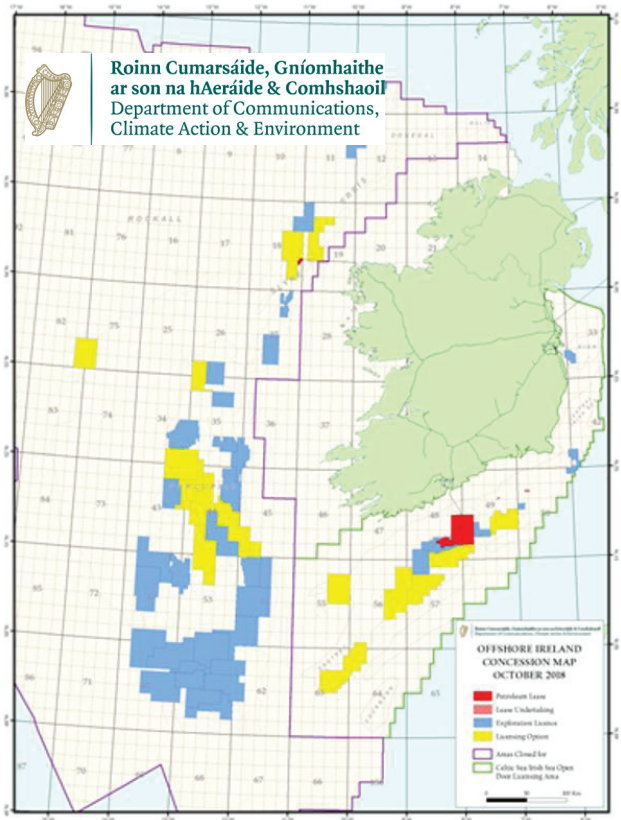
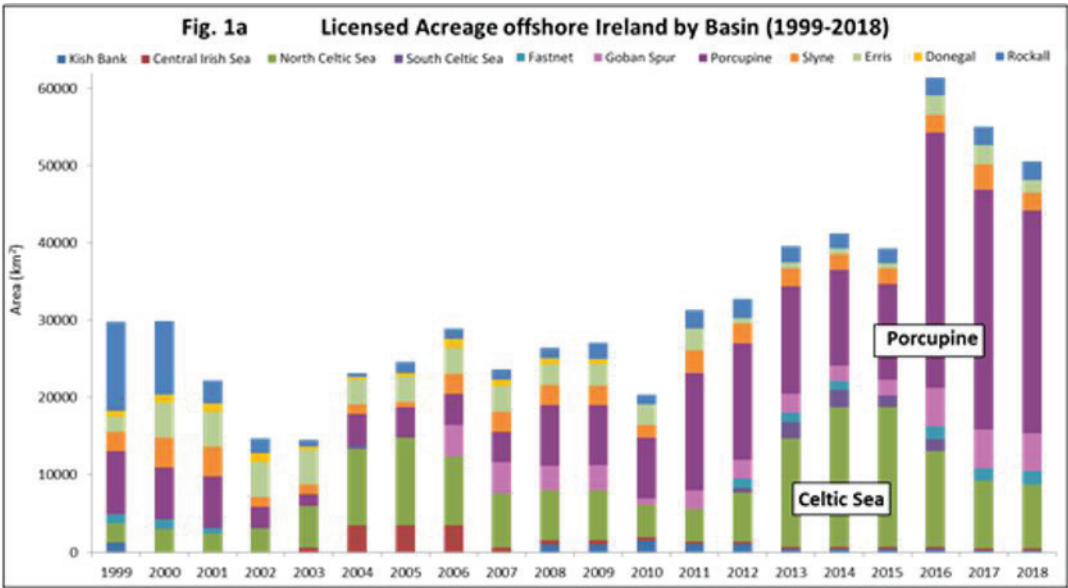


Fig. 1b The distribution of licences illustrate the exploration interest offshore Ireland



**Roinn Cumarsáide, Gníomhaithe
ar son na hAeráide & Comhshaoil**
Department of Communications,
Climate Action & Environment



**Exploration
& Mining
Division** Minerals Ireland

Exploration and Mining Division – 2018

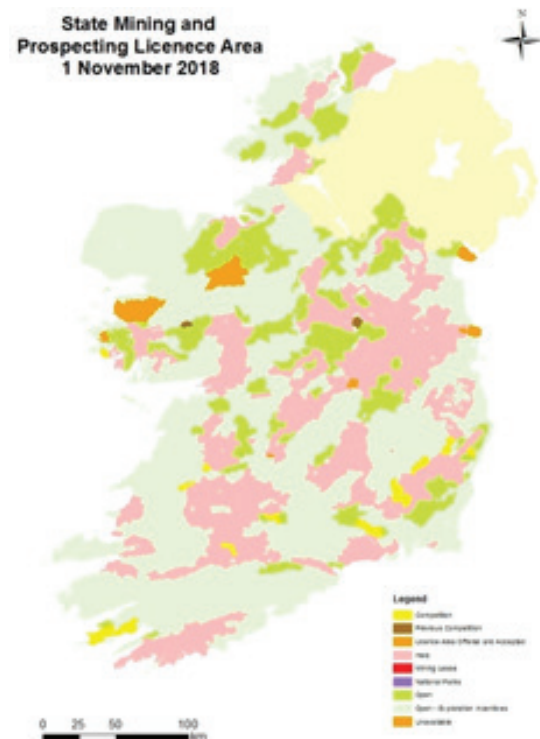
The Exploration and Mining Division (EMD), Department of Communications, Climate Action and Environment is responsible for the regulation and permitting of exploration and extraction of scheduled minerals under Minerals Development Act 1940-1999.

Mineral Exploration in Ireland

At the end of 2018, there were 614 Prospecting Licences held by 45 mineral exploration companies.

As in previous years, zinc and lead are the main commodities being explored for in Ireland, along with other commodities such as gold, silver, copper, lithium, antimony, barite, PGEs, molybdenum, tungsten, tin, REE, gem minerals, calcite, fluorite and gypsum.

EMD continued its policy of publicly releasing mineral exploration data that is six years old or associated with surrendered licences. In 2018, 185 exploration reports associated with 161 Prospecting Licences were publically released through EMD's OPALS database.



Exploration Data Depository (EDD)

As computer power and web accessible data has evolved the desire for “Big Data” by organisations has greatly increased. EMD have for many years understood the mineral industry’s need for data by providing free digital open source exploration reports and raw data since 2000. EDD, our Exploration Data Depository, is the next step in the process. Currently the free open source data is available through our website www.mineralsireland.ie/OnlineServices as company reports, pdfs, xls or text files. We are evolving this so that the raw data will be available through a free online viewer from which individuals, companies or organisations can download their required data.

The first step in the process has been the establishment of data reporting templates for exploration activities. The purpose of the templates is to allow exploration companies to feed their information into us in a structured format. The structured format will result in more consistent data reporting across the different companies resulting in better quality data to the end user.

The next phase of the project is for us to build the loading page and web viewer. We plan to send this out to tender in 2019 and have the web viewer available to the public in 2020.

Mining in Ireland

In 2018, there were 16 State Mining Leases / Licences for lead, zinc, gypsum, marble and fireclay. Two underground mines were in operation during the year, Boliden Tara Mines Ltd.'s Navan lead-zinc mine in Co. Meath and Gyproc's gypsum operations in Co. Monaghan.

According to data published by the International Lead and Zinc Study Group, Ireland had a mine production of 132kt of zinc and 17kt of lead, which equates to 12.1% of European zinc mine output and 3.8% of European lead mine output. For this period, Ireland ranked 3rd and 7th in Europe and 15th and 24th in the world for zinc and lead mine production respectively.

Drumgoosat Mine Collapse

In 24 September 2018 there was a subsidence event which affected the Magheracloone GAA club and the associated Community Centre, located above Drumgoosat Mine. SRK Consulting (SRK) were commissioned to investigate this subsidence event on behalf of the operator, Gyproc. Following SRK's report, EMD commissioned Wardell Armstrong to independently review and verify the findings of SRK's work.

SEEGAL

In 2012 and 2015 respectively Galmoy Mines and Lisheen Mines ceased operation, closed and have been rehabilitated. These mines were the first in Ireland to be opened, operated and closed under modern planning and environmental regulation. In fact Galmoy Mine was the first mine in Europe to close under an IPC licence and CRAMP, which was put in place in advance of the opening. EMD have commissioned the consultancy firm AECOM to produce a fair, independent and reasoned study of the social, environmental and economic impact the mines had on the local communities and environment.

The outcome of the study will be used to further advance the regulation and enforcement of the mining industry in Ireland by the Department and will be made publically available.

Environmental Impact Assessment (EIA) Directive – Mineral Exploration Drilling Update

In June 2018, Exploration and Mining Division (EMD) received legal advice that mineral exploration drilling falls within the scope of Annex II 2(d) of EIA Directive (2011/92/EU). It had previously been considered that mineral exploration was outside the scope of this Directive. The EIA Directive requires that a determination must be made in relation to the likely significant environmental effects of various activities, including 'deep drilling'. In addition, it was identified that SI 543/2014 did not provide the legal basis for the Minister for Communications, Climate Action and Environment (MCCAE) to undertake EIA Screening for exploration drilling and that any drilling proposals would need to be screened for EIA by the relevant Planning Authority.

EMD set about drafting amending legislation as a matter of urgency to provide for the MCCAE to screen mineral exploration drilling. Unfortunately, during the intervening period, EMD was unable to grant drilling permissions, however the provision for obtaining an EIA determination under Section 5 of the Planning and Development Act 2000 was available to companies. During the drafting of the SIs the industry was kept apprised of the situation by EMD through written communications and meetings with the industry.

This issue was resolved in late September 2018 with the passing of three Statutory Instruments (S.I. No. 384 of 2018, S.I. No. 385 of 2018 and SI No. 404 of 2018) providing MCCAE the legislative basis to undertake EIA screening. The three S.I.s will remain in place until the full transposition of the EIA by Department is completed. The full transposition will be by way of amendments to the 2017 Minerals Development Act.

Currently EMD assess relevant exclusion criteria to determine whether particular drilling proposals require screening for EIA. These criteria are based on drilling project area; distance to environmentally sensitive sites, such as SACs, SPAs, NHAs, pNHAs and National Parks; distance from domestic and

public water supply wells; equipment capable of waste spillage or process run-off; and noise levels. Licensees are now required to submit EIA Criteria Assessment Tables with relevant supporting documentation to EMD for all drilling applications. If a drilling application does not meet all of these criteria, then the drilling application will be referred to EIA screening on a case by case basis.

Prospectors and Developers Association of Canada (PDAC) Convention

In March 2019, EMD showcased Ireland's potential at the Prospectors and Developers Association of Canada (PDAC) Convention in Toronto, Canada as a country with diverse mineral potential, strong policy, and environmental awareness. There was positive interest in Ireland, particularly for zinc and gold potential.

EMD was delighted to have Minister of State, Seán Canney attend the PDAC Convention this year. The Minister had a very busy schedule which included meetings with a number of companies. The Minister also attended the International Mines Ministers Summit (IMMS), an event co-hosted by PDAC and the World Economic Forum. In addition Minister Canney formally signed Ireland membership of the International Governmental Forum on Mining, Minerals, Metals and Sustainable Development at PDAC.

museum

National Museum of Ireland

Ard-Mhúsaem na hÉireann

Natural History Museum
Merrion Street
Dublin
D02 F627

2018 Highlights

The Natural History Museum continues to be very popular with the public, with over 345,000 visits in 2018. Relocation to the Collections Resource Centre (CRC) in Swords continued. Archives, library and offices were established at the CRC to bring collections, resources and staff under the one roof for the first time in over 50 years. The movement of the geological library and insect collection were major projects this year.

The support of volunteers greatly assisted in the range of projects across collections in geology and zoology as well as major progress with entomology. In addition to their scientific publications, the three scientific staff contributed to the production and management of the journals *Geoheritage*, *The Geological Curator*, *Irish Journal of Earth Sciences*, *Irish Naturalists' Journal* and *Journal of Natural Science Collections*. The website of the *Irish Naturalists' Journal*, and the library of the *Speleological Union of Ireland* were also managed by staff.

The George Victor Du Noyer exhibition 'Stones, Slabs and Seascapes' was exhibited in NMI Collins Barracks from June to September, and proved popular with visitors. During August an exhibition of the Devonian flora and fauna from Kiltorcan, Co. Kilkenny ran in the National Botanic Gardens, to coincide with the European Palynological and Palaeobotanical Congress. A highlight of the numerous public offerings through the year was the opening of the 'Jurassic Skies' exhibition at Collins Barracks in December. The Geoconservation Committee of the Geological Society in London held its annual gathering event in the Museum in November.

Natural History Division Staff in 2018:

Mr Nigel T. Monaghan, Keeper

Dr Matthew A. Parkes, Assistant Keeper Grade 2 (Curator – Earth Sciences)

Mr Paolo Viscardi Assistant Keeper Grade 2 (Curator – Zoology)

Dr Aidan O'Hanlon Assistant Keeper Grade 2 (Entomology) commenced in Jan 2019

2019 Plans

- Jurassic Skies has been extended until after Easter (last day 22 April), with 2019 interest growing rapidly.
- Plans are currently being developed with GSI for a mid-2020 exhibition to celebrate the 175th anniversary of Geological Survey Ireland. This will now be in the Riding School in Collins Barracks, allowing for a significant sized Earth Science exhibition for the first time in decades.
- Plans are being developed for the closure of the Natural History Museum in 2021 for major renovations.



Mining Heritage Trust of
Ireland (MHTI)
c/o Natural History
Museum
Merrion Street
Dublin 2

Mining Heritage Trust of Ireland

2018 Highlights/Lowlights

A visit to the geological collections of the National Museum of Ireland in Swords Collections Resource Centre in July was followed by an AGM. Despite some efforts to sustain the Trust in 2018, the reluctant but necessary decision was taken by the remaining directors to wind up the Trust as a limited company and close the MHTI completely. This was put to an EGM in January 2019 and passed. A journal (no. 16) was produced in October which had papers from the 2016 NAMHO meeting on 'Mining and social change'.

2019 Plans

The winding up process is now in train, and Eleanor Honan, a geological graduate contractor is undertaking most of the organisational effort to address our physical and digital resources. A legacy website with all freely available records, archives and images that we can make public is a priority and it is being populated at present. The physical archives will be rehomed in appropriate locations with much being held as National Museum of Ireland – Natural History records, as is already done for some other geological organisations. A final journal to collate some outstanding research papers is planned for summer 2019, with all formal company closure completed by September. Two further newsletters will close the series, keeping members informed of final developments. The MHTI Facebook page will continue, with an associated new Facebook Group created.



Irish Geosciences Network

IQUA Update 2018

INQUA

All IQUA activities for 2018/19 have been focussed on preparations for the 20th INQUA Congress – the preeminent global conference on the Quaternary being held for the first time in Ireland.

2950 abstracts were submitted by January 9th (23% PhD students, 30% early-career researchers, 40% female) from **78 countries** (UK 503, Germany 259, China 247). Ireland had the 4th highest number of per capita submissions with Irish first authors.

We gratefully acknowledge our sponsors: GSI, GSNI, SFI, Meet in Ireland, UCD Earth Institute, Kildare Village, Marine Institute.

The conference will have **141** Scientific Sessions. The most populated sessions are:

1. **Linking land and sea - multiple approaches to investigating human-environment interactions in the coastal zone:** 70 abstracts
2. **Human-environment interactions in the late Quaternary: sources of evidence and applications:** 64 abstracts
3. **Deposits and History, Palaeohydrology and fluvial archives - hydrological extreme and critical events:** 63 abstracts
4. **Abrupt climate changes: the view from lakes:** 61 abstracts
5. **The future of Quaternary geochronology:** 52 abstracts.

Six world-class scientists will deliver plenary talks, for example **Beth Shapiro** (Univ. California) will examine questions about domestication, pathogen evolution and the potential of new genomic technologies for conservation, **Kathy Willis** (Oxford) uses the knowledge gained from long-term vegetation dynamics as a basis for biodiversity conservation, policy and management, while **Eric Wolff** (Cambridge) research aims to understand changing climate and pollution in remote areas to decipher the causes of climate evolution. **Helen Bostock** (National Institute of Water and Atmospheric Research, New Zealand) will describe modern chemistry and Quaternary palaeoceanography of the Southwest Pacific and Southern Ocean. **Yohannes Haile-Selassie** (Cleveland Museum of Natural History) will describe our early human ancestors while **Xiaoping Yang** (Zhejiang University) will speak about palaeoclimatic and landscape changes in drylands.

Public Outreach

In the lead up to the INQUA congress in 2019, IQUA have hosted a series of public outreach events and generated a range of materials and booklet on key historical Quaternary scientists, an educational leaflet on the Quaternary and 2nd level lesson plans. Sponsorship (to-date) for these and other initiatives has been generously provided by the GSI, GSNI, the Heritage Council and the BGS.

Spring Meeting 2018 Hunt Museum Limerick

IQUA hosted a retrospective on six key Quaternary Scientists known for their pioneering work investigating how the Irish landscape was shaped. This provided the basis for a booklet (with 21 contributions) to be published by IQUA and a mobile exhibition consisting of ten pull-up banner posters of key Quaternary landscape scientists sponsored by the Heritage Council.

Educational Leaflet on the Quaternary

An A4 Tri-fold Educational Leaflet was designed and produced by the IQUA committee. Printing costs were sponsored by the Heritage Council. The leaflet was distributed to every library in the country (available for download <http://iqua.ie/outreach-and-research/>).

Heritage Week and Mammal Exhibitions

An Extinct and Extant Irish Mammal Exhibition (from Jim Martin (Museum on the Move)), sponsored by the Heritage Council and IQUA, took place in public libraries in Limerick (the Granary April) and Dublin (DLRLexicon August), facilitating hundreds of school children and interested adults. These formed part of five events organised by IQUA and IQUA members for Heritage week.

IQUA Related Heritage Week Events

A variety of IQUA related events were held during heritage week notably: The Glacial Landscape of Clew Bay, Mayo; Explore the Ballyconnell Fossils, Sligo; Irish Mammals and the Ice Age, Dublin; The geology of Allihies, Cork and The Drowned Coast, Cork.

2nd Level Quaternary Lesson Plan

A range of 2nd Level Lesson Plan materials have been created by Nicole Sloane (Geosciences teacher) for IQUA and sponsored by IQUA and the Heritage Council.

Annual Field Meeting & Symposium

IQUA returned to the Midlands for the 2018 fieldtrip on the 14th to 16th September. This included new palaeoecological and archaeological data, glacial geology, medieval architecture and cultural heritage.

The 2018 symposium theme was “**Ireland’s Offshore Quaternary Records**” and was held on the 23rd November in the Geological Survey Ireland, Dublin. The keynote talk was given by Dayton Dove of the British Geological Survey.

Media

The Congress is a global event and will gain exposure for Irish Quaternary science and facilitate the dissemination of Quaternary research activities to an international audience. In preparation for INQUA, the IQUA website was redesigned and a Twitter account was established. The Congress is receiving global profile through IQUA, INQUA and social media dissemination via Facebook (@INQUADUB19, @IrishQuatAssociation, @INQUAECR) and Twitter (@INQUADUB19, @Quaternary_Irl, @INQUA_ECR). IQUA has also been extending its media attention through press releases and event articles in the Clare People, Donegal Democrat, and the Earth Science Magazine. A series of pre-congress public outreach events have been undertaken in the lead up to the INQUA Congress and the Congress will also be running a series of high-profile public engagement events.

A range of 6 pre-, 16 mid- and 8 post Congress fieldtrips have been organized by IQUA members to showcase the landscape to conference delegates. A series of videos have been produced by IQUA to illustrate fieldtrips <https://www.youtube.com/watch?v=qgZSxb8EKao>

The Quaternary Cycle

Sam Roberson (GSNI) contributed a biography of Francis Synge to the Quaternary Giants booklet published by IQUA. Synge was an avid cyclist and this inspired Sam to cycle from one end of Ireland to the other over a period of c. 10 days to promote the Quaternary in Ireland.

Ireland and the Ice Age: a public event

The 2019 IQUA Spring meeting will be a public event with a set of talks for the general public on **Ireland and the Ice Age**. The event will take place on Saturday the **13th of April** 2019 from 4 to 6pm in the auditorium at the **National Botanical Garden** in Glasnevin, Dublin. The session will be chaired by the acclaimed journalist and author **Lorna Siggins** and will feature talks catered for the general public. **Prof Peter Coxon** from Trinity College Dublin will talk about the **Irish Landscape** before the Ice Age and the changes that occurred because of it. **Prof John Sweeney** from Maynooth University will delve into the evolution of the **climate** that triggered and followed the Ice Age. **Dr Bethan Davies** of Royal Holloway University in London will explore the importance of **teaching** the events of this time period, the **Quaternary**, and the influence it has on our modern world. In addition, there will be the launch of the book and exhibition on Quaternary Giants (see above).



IRISH MINING & QUARRYING SOCIETY
The Lucan Centre | Primrose Lane | Lucan | Co. Dublin

+353 (0)89.492.7942 info@imqs.ie www.imqs.ie

The highlights from 2018 are listed below and a note is made of future events for 2019. Further details can be found at www.imqs.ie

Representations in 2018

Council members represented the IMQS at the following events/committees during 2018

- Council of the European Federation of Explosives Engineers
- Prospectors and Developers Conference in Toronto
- Geoscience Ireland
- Sinn Fein Motion 68 on mining (by correspondence)
- Quarry Skills Certification Scheme meetings (QSP)

In addition to the above, the IMQS make representations on a number of levels when requested by various mining and quarrying related bodies.

IMQS Planning & Environmental Law Forum 22nd May 2018

As part of its 60th Anniversary Celebrations, IMQS held a Forum on Planning and Environmental Law in Louis Fitzgerald Hotel Dublin.

The speakers included;

Yvonne Scannell, Professor of Environmental Law

Rory Mulcahy SC

Liam Smyth (ICF)

Gordon Best (QPANI)

Siobhan Tinnelly (TOBINConsultant Engineers)

Annual Review 2018

The 2018 Annual Review was once again very popular and includes many articles of general interest within mining and quarrying and also related to the history of the industry. It can be viewed at www.imqs.ie.

Annual Dinner Dance 2018

The 2018 annual dinner dance was held at the K-Club, in Straffan, Co. Kildare. The event which took place on November 10th was attended by nearly 300 people and was a very enjoyable night. It is likely that the 2019 Dinner Dance will be held again at the K-Club. Minister Sean Canney TD presented the keynote speech on the night. This is always a great opportunity to re-connect with people from the industry and to make new acquaintances. A golf tournament was held on the same day on the Smurfit course.

Institute of Quarrying – Northern Ireland, Stone Crushers Ball

The annual Institute of Quarrying (Northern Ireland) Stone Crushers Ball took place in the Europa Hotel, Belfast on October 19th, 2018. The event was attended by John Francis & Brendan Morris on behalf of the IMQS.

Annual Field Trip

IMQS were delighted to facilitate two field trips this year. In June IMQS Members participated on an interesting trip to Aughey Screens which included a presentation of the company's history in the mining and quarrying industry including their products and services available as well as a tour of their manufacturing plant. Second field trip in September was to Kilkenny Limestone, Kilkenny Limestone are experts in the extraction, manufacture and supply of Irish Blue Limestone, and provided a tour of both its Kellymount and Old Leighlin quarries.

Health & Safety Conference & Exhibition

The Irish Mining and Quarrying Society (IMQS), in conjunction with the Health and Safety Authority, the Irish Concrete Federation and the Health and Safety Executive NI, successfully delivered the biennial event.

Over 250 delegates, exhibitors and speakers attended the conference which was based on health and safety, and automation and technology in the extractive industries.

Thirty-six companies exhibited at the event promoting a range of products and services spanning plant and machinery, surveying equipment and professional consultancy services.

Mine Rescue 2018

Regular mutual training continues between Boliden Tara Mines, Irish Salt Mining and Exploration, Dalradian Gold and Gyproc.

In June 2018 Boliden Tara Mines competed in the 69th Ontario Mine Rescue Provincial Competition, hosted by Alamos Gold Young Davidson Mine in Matachewan, Ontario. Tara were highly commended, especially for their performance in the Search and Rescue, and First-Aid. The PSNI emergency planning group invited IMRC to participate in a multi-agency exercise at the Marble Arch Caves in September 2018. The object of the exercise was to test the JESIP (Joint Emergency Services Interoperability Principles). The IMRC were represented by Dalradian Gold and Boliden Tara Mines.

Irish Salt Mining and Exploration are planning to host the 2019 All Ireland and UK Mine Rescue Competition in early summer.

Geo-Driller Course

Geoscience Ireland in collaboration with the Institute of Technology Carlow is developing a Geo Drilling Apprenticeship.

Due to commence in September 2019, the Apprenticeship will provide a Level 6 qualification for drillers in mineral exploration, mining, quarrying, water well drilling, site investigation and directional drilling. IMQS is represented on the Apprenticeship Steering Committee by Brendan Morris, Past President.

Events in 2019

1. The first major event for the IMQS in 2019 was the AGM, which was held in the Spa Hotel in Lucan, on Tuesday 19th February. The AGM was followed by IMQS Planning, Regulatory & Environmental Law Seminar.

The speakers were;

John Francis, President IMQS

Eoin McGrath, Head of Minerals GSI

Tom Moore, SLR Consulting

Liam Smyth, ICF

Brendan Slattery, McCann Fitzgerald

Sybil Berne, McCabe Durney Barnes

Panel on Recent Case Law;

Yvonne Scannell, Professor of Environmental Law

Arthur Cox (Moderator)

Oisin Collins BL

Aoife Carroll BL

2. A final destination for the Annual Field Trip for 2019 and theme for a Seminar for May 2019 will be decided soon and will be posted on the website. www.imqs.ie

3. The annual Prospectors and Developers Association of Canada (PDAC) Convention was held in Toronto, March 3rd-6th 2019 The IMQS was represented by Brendan Morris.

We also have a very active LinkedIn page available for members and non-members and all activities of the society are kept up to date.

We have significantly increased our Corporate membership in the last two years, with benefits such as advertising, IMQS support and regular information updates a part of the package. We welcome new individual and corporate members, with membership details available online.

John Francis,

President IMQS



Irish Centre for Research in Applied Geosciences UCD
School of Geological Sciences
Belfield, Dublin D4, Ireland
Tel: +353 1 716 2939
Email: info@icrag-centre.org
Twitter: @icragcentre Facebook: facebook.com/icrag
LinkedIn: linkedin.com/company/icrag

Established in 2015, iCRAG is Ireland's national geosciences research centre spanning the broad range of geosciences including energy security, raw materials, groundwater, the geomarine environment, and geohazards. Comprising 150 researchers across seven research institutes, and collaborating with more than 50 industry partners, our vision is to become a world leader in applied geosciences research, discovery, and public understanding of Earth's critical resources and environment for a sustainable society. iCRAG is funded by Science Foundation Ireland and co-funded under the European Regional Development Fund and by industry partners. The Centre is hosted by UCD, with research partners in TCD, DIAS, NUIG, UCC, NUIM and Teagasc. iCRAG's state policy partners include GSI, EMD, PAD, EPA and DCCAE.

The Centre has created hitherto unrealized synergies between researchers, industry, and government bodies, and supported collaborative research that addresses challenges beyond the scale of individual researchers. For the first time, Ireland has a centre-level presence in the geosciences that can provide the critical levels of organizational and scientific capacity needed to attract and implement major international projects. By working across the broad range of applied geosciences, iCRAG has benefitted from many synergies as not only are the different research teams in iCRAG often working on the same host rocks (e.g., hydrocarbons, groundwater and minerals within Carboniferous sequences), they also include the same (or similar) processes, such as subsurface fluid flow, sediment transport and deposition, basin and structural evolution.

iCRAG's combined research team has, in just under three years, produced world-class scientific results focused primarily on issues dealing with Ireland's natural resources (energy, minerals, and water) and created a research centre that is becoming well known internationally. iCRAG is now recognized as a thought leader by relevant industry in Ireland and has generated scientific findings that have been important for government policy. To date, iCRAG research has involved the development of new, innovative geochemical techniques, and iCRAG researchers have made significant breakthroughs in the fields of high spatial resolution mapping and sandstone provenance research. iCRAG researchers have compiled, integrated and interpreted drilling and seismic data to generate 3D models for many deposits across Ireland, which are set within a regional scale model combining the vast majority of Ireland's onshore seismic and well. These models provide a much better understanding of the structural controls on Irish ore deposits and the importance of later deformation. The completion of iCRAG's comprehensive seismic and well database for offshore Ireland has underpinned major landmark improvements in our knowledge of associated basins and basinal processes.

iCRAG has had success in leveraging additional funding for our research, including ocean bottom sensors based at DIAS, state of the art lab equipment at TCD, expansion into environmental geoscience and a 5 million euro SFI Research Professorship Award. Our Education and Public Engagement activities have gone from strength to strength, covering the areas of teacher training, career events such as Girls Into Geoscience Ireland, and collaboration with the arts communities through poetry and theatre.

With national attention now being placed on the UN Sustainable Development Goals, iCRAG looks forward to delivering sustainable economic and societal impact for Ireland.

Murray Hitzman,
Director

Irish UNESCO Global Geoparks Committee

The Irish UNESCO Global Geoparks Committee (IUGGC) met on two occasions throughout the year, one of which was in June at Geological Survey Ireland in Dublin and the second was at the International Conference on UNESCO Global Geoparks in Adamello Brenta, Italy.

The biggest output of the Committee was a new joint publication entitled “UNESCO Global Geoparks in Ireland” which was compiled by the Geological Survey of Northern Ireland and was designed and printed with funding from Geological Survey Ireland. This booklet summarises what a UNESCO Global Geopark is, where they are in Ireland, how to become a UNESCO Global Geopark and the role of the IUGGC.

The IUGGC Annual Seminar was held in the Joyce Country & Western Lakes Aspiring UNESCO Global Geopark with the theme of ‘Sustainable Finance’. This event was attended by around 40 people from a range of sectors including tourism, education, heritage, environment as well as representations from all existing and aspiring UNESCO Global Geoparks in Ireland. Next year’s seminar will be hosted by the Causeway Coast.

There are currently three aspiring UNESCO Global Geoparks in Ireland; Causeway Coast, Joyce Country & Western Lakes, and Mourne Gullion Strangford. The IUGGC is working with all of these areas to work towards formal submission to become UNESCO Global Geoparks.

Two applications (Burren & Cliffs of Moher and Copper Coast) from Ireland are up for revalidation in 2019 and the documents for both of these were sent on the UNESCO via the Irish National Commission for UNESCO and the IUGGC.

Dr Kirstin Lemon
Team Leader: Information & Infrastructure
Geological Survey NI / BGS
Dundonald House
Upper Newtownards Road
Belfast

Earth Science Ireland

In late 1999, it was looking bleak for Earth science education in Ireland; the geology department at Queen's University Belfast had just announced its imminent closure, and teaching of geology in schools was at an all-time low. Determined to address this issue, a group of passionate geologists from across the country created a network dedicated to raising awareness of Earth science across the island of Ireland and Earth Science Ireland was born.

Earth Science Ireland quickly evolved and went from strength to strength. It has supported Earth science education and learning at all ages, promoted the conservation of critical Earth science sites, engaged the public on topical issues and demonstrated the environmental and economic benefits of Earth science.

The flagship output of Earth Science Ireland is its excellent magazine, of which there have been 34 issues in total. At its peak the magazine was distributed to approximately 6000 people twice a year including to 1200 individual members across the island of Ireland and worldwide, and also to libraries, museums, science centres, and all post-primary schools.

Nearly two decades on and thanks to the foundation that Earth Science Ireland has laid, there has been a huge increase in the number of organisations with Earth science public engagement as part of their core work.

However, the environment in which Earth Science Ireland operates has changed significantly, especially in the last decade. Substantial funding cuts have ensued meaning it has become increasingly difficult to secure regular funding for the magazine. Even now as budgets start to return and even increase, the funding environment has completely changed, with much more scrutiny being placed on public spending. For this reason, the Earth Science Ireland committee decided in late 2018 that the organisation would be brought to a close with the current edition of the magazine being the last hard copy and a celebration event was held at the recent IGRM in Dublin to mark this occasion.

Earth Science Ireland has achieved such a huge amount thanks to the support and sponsorship from a vast number of organisations, societies and individuals many of whom are represented on the Irish Geoscience Network. Without this support and that from its 1200 members, the vast journey that Earth Science Ireland has travelled would never have been possible.

Dr Kirstin Lemon

Team Leader: Information & Infrastructure

Geological Survey NI / BGS

Dundonald House

Upper Newtownards Road

Belfast

Tel: +44 (0) 28 9052 0979

Mob: +44 (0) 7796 931 788

**UCD School of Earth Sciences**

UCD Science Education and Research Centre (West),
University College Dublin,
Belfield, Dublin 4, Ireland

Email: geology@ucd.ie
Web: www.ucd.ie/earthsciences/
Twitter: @UCD_Geosciences

Scoil na Domaneolaíochtaí UCD

Ionad Léann agus Thaighde
Eolaíochta UCD (Iarthar),
An Coláiste Ollscoile, Baile Átha Cliath,
Belfield, Baile Átha Cliath 4, Éire

15th March 2019

The UCD School of Earth Sciences had a successful 2018 on a variety of fronts, publishing papers in many of the top international journals, leveraging more than €6M research funding and consolidating our teaching programmes with near-record numbers of students undertaking our elective modules. There have been several important developments with the arrival or appointment of new staff, the start of new research initiatives and changes in leadership of both our school and the Irish Centre for Research in Applied Geosciences (iCrag).

Murray Hitzman, formerly Associate Director for Energy and Minerals at the USGS, joined the School in March 2018, with the support of a prestigious SFI Research Professorship over the next 5 years. Murray's research project, entitled 'Innovative Geological Research to Improve Mineral Resource Discovery and Sustainable Development' will involve the recruitment of up to 15 staff and PhD students, who will develop upon iCrag's raw materials research at both home and abroad. At the same time, Murray also took over the Directorship of iCrag from John Walsh, who has since taken on the role of Deputy Head of School. Drs David van Acken and Greg Van der Bleeken joined us in the early part of 2018 as Technical Officers, with responsibility for our Mass Spectrometry and Thin Section facilities, respectively. In September, Paddy Orr became Head of School, with Frank McDermott getting a well-earned break having completed the second of his two phases as School Head in the past 10 years! We have also recruited staff members in two new technical areas for our school, with Dr Maeve Boland, formerly of the American Geoscience Institute and an Adjunct Professor at UCD, joining us in January 2019 as a Geoscience Policy Specialist, a position which is jointly funded by the Geological Survey of Ireland, and with Dr Sam Kelley starting as Assistant Professor in Quaternary Geology from April 2019, having been a Postdoctoral Fellow at the School of Earth and Environmental Sciences, University of Waterloo, Canada. We were, however, very sorry to lose Aggeliki Georgiopolou who has taken up a permanent position as Senior Lecturer at the School of Environment and Technology in University of Brighton – we wish Aggie every success in the future.

Our success in raising support for our research has extended beyond Murray Hitzman's SFI Research Professorship, to several research grants for our academic and research staff. For example, Drs Simone Fiaschi and Srikumar Roy received Irish Research Council Post-Doctoral Fellowships for projects on karst-related subsidence and methane hydrates offshore Ireland, respectively. Dr Chris Mark was awarded an SFI Starting Investigator Research Grant, one of only 20 such projects nationally, for a 5 year project on Advanced Geochronology of Earth-System Processes using U-Pb isotope techniques. Drs Laia Comas Bru and Lola Yeasares received Royal Irish Academy Charlemount grants for their research, and Aileen Doran, a PhD researcher at UCD-iCrag, received a U21 travel bursary grant to travel to the Scottish Universities Environmental Research Centre (SUERC) and the University of Glasgow.

Members of our school also won prestigious awards for their research. Aggeliki Georgiopolou undertook her Fullbright-GSI Geoscience Scholarship to visit and collaborate with the USGS Woods Hole Coastal and Marine Science Center in Massachusetts, in an investigation of the structure, morphology and lithologies of submarine landslide scars using diving equipment video data and Structure-for-Motion techniques. John Walsh was awarded the 2017 Gold Medal in the Environmental Sciences and Geosciences by the Royal Irish Academy: the medal is awarded every 5 years to individuals who have made a demonstrable and internationally recognised outstanding scholarly contribution in their fields.



The Geothermal Association of Ireland

Ground Source Heat Pumps and Deep Geothermal Energy

Geothermal Association of Ireland. 2018-2019 Report to Irish Geoscience Network March 2019

Membership

After a period of stasis, a new membership drive is in place and the AGM will be held shortly. New members include Providence Resources.

Website & Social Media

The website is currently being upgraded, whilst Linked-in and Twitter are being developed

Publications

A new monthly GAI NEWS BULLETIN was unrolled at the start of 2019 to provide members with current information about matters geothermal.

GAI Newsletter 25 was published in January 2019 and covered the presentations of the 2016 conference, plus the award of Honorary Membership to Founder Member Bob Aldwell. Also the winners of the Breacan Mooney Installation of the Year competition and the results of the 2016 Poster Competition.

Projects

GEOFIT looks at the status of geothermal energy utilisation in Ireland and is using geothermal in the Aran Islands and elsewhere.

The GEO4CIVHIC project commenced April 2018 to develop easier to install & more efficient GSHEs, through hybrid solutions with other RES technologies. Looking at retrofitting heating and cooling in existing and historical buildings including a one in Greystones, Co. Wicklow and another in Clondalkin library.

GAI is one of the partners in the GEO-URBAN project which commenced in July 2018 to examine the ability to use geothermal resources to generate heat in urban areas.

The MUSE project aims to provide tools and services for sustainable and efficient use of shallow geothermal energy in European urban areas. The Irish pilot area is the city of Cork.

CheapGSHPs is holding a one day training course for Irish stakeholders on 25 April in Dublin.

News

Geo-Energy Europe. An agreement was signed in Dublin in January between European innovation cluster organisations involved in geoscience, geo-energy and/or geothermal energy. Minister Richard Bruton TD welcomed the cluster at Iveagh House, stressing the importance of geothermal in Ireland.

iCRAG. In February a meeting at the EU Parliament with MEPs Marian Harkin and Mairead McGuinness highlighted Geothermal energy research which addresses Sustainable Development Goals.

Gareth Ll. Jones
GAI