

## **iCRAG Environmental Geosciences Postgraduate Programme**

**Supported by Geological Survey Ireland**

Call Document

### Important Deadlines

Call open	6 <sup>th</sup> March 2018
<b>Call deadline</b>	<b>12pm, Thursday, 29<sup>th</sup> March 2018</b>
Evaluation process	29 <sup>th</sup> March – 27 <sup>th</sup> April 2018
Notification to applications	May 2018
Recruitment of postgraduate students commences	May 2018
Cohort start date	September 2018

## Contents

1.iCRAG-GSI Environmental Geosciences Postgraduate Programme .....	3
2. Research Themes.....	4
3. Eligibility .....	6
4. Structured PhD training and cohort .....	7
5. Budget .....	7
6. Application Process.....	8
7. Evaluation Process and Criteria .....	8
8. Conditions of Award.....	10

## 1. iCRAG-GSI Environmental Geosciences Postgraduate Programme

The Irish Centre for Research in Applied Geosciences (iCRAG) and Geological Survey Ireland (GSI) invite potential postgraduate student supervisors to submit proposals to its new Environmental Geosciences Postgraduate Programme. In addition to the funding secured from SFI for five PhD projects, up to three additional projects will be funded by GSI.<sup>1</sup> Up to **eight (8) PhD projects will be funded**. The programme's research area is relevant nationally and globally and encompasses areas of clear future opportunity for iCRAG and Irish researchers to contribute to addressing global challenges in the areas of: **Climate Change, Climate Action, Geoscience & Health, Soils, Water, and Marine Geosciences**. These areas of research are of great significance to Ireland, given the challenges of climate change, sustainable development and health and the importance of agriculture to Ireland's economy. The identified research area aligns with priority research areas of the Irish Government, as defined in [GSI Research Road Map](#). The initiative will build upon the strong links between iCRAG and GSI, which already includes topics, such as construction materials, groundwater, marine geology, geohazards (i.e. those which are climate-related, for example, flooding), and geotechnical engineering. The projects will foster: (i) cross-spoke activity; (ii) seed research for future spokes of iCRAG Phase 2; and (iii) develop collaborative research projects with GSI staff and using GSI hosted datasets. This proposed new research theme and future direction of iCRAG aligns with both the **UN's Sustainable Development Goals**, for example, Goal 6 (Clean Water and Sanitation), Goal 13 (Climate Action) and Goal 14 (Life Below Water) and the **COP21 Paris Agreement**. This will in turn assist iCRAG to align more strategically with European Commission funding programmes.

The iCRAG-GSI Environmental Geosciences Postgraduate programme has **four key objectives**:

- To support the **strategic expansion of iCRAG Phase 2 and growth into new research areas**: The Environmental Geosciences PhD programme will underpin the strategic development and growth of iCRAG's research goals and its membership.
- To **address succession planning and gender balance**: iCRAG needs to take steps to ensure the Centre's future leadership is secure in terms of talent in new areas and a diverse demographic profile. The proposed research theme will allow for the inclusion of new Funding Investigators (FIs) within iCRAG, thereby helping to improve our FI gender balance.
- To **train a new generation of creative, flexible and innovative geoscience researchers**: in line with the goals of Innovation 2020, the proposed postgraduate programme will increase enrolment of postgraduate researchers.
- To **contribute to building capacity and expertise** in Environmental Geosciences: to allow Irish geoscience researchers to fully participate in national and European Commission funding programmes.

---

<sup>1</sup> GSI will fund up to 3 PhD or equivalent number of years for research master's projects (i.e. 1 x 4-year PhD = 2 x 2 research MSc projects).

In addition to these four key objectives, the SFI programme also seeks to:

- support collaboration between the SFI Research Centres and research groups outside of Ireland, with focus on the United Kingdom;
- facilitate increased participation from the Institutes of Technology (IoT)s;
- strengthen industry collaboration through co-supervision of students by industry.

## **2. Research Themes**

Proposals for postgraduate projects are sought under the following research themes with **specific focus on geoscience research**:

- **Climate Change**

Climate change affects a wide range of human, ecological, and physical properties and processes, and it interacts in complex ways with other global and regional environmental changes. Given this complexity, climate change research needs to be integrative and interdisciplinary. Consequently, under this thematic area, iCRAG aims to expand its activities in the area of climate change, further developing cross-disciplinary research across its five spokes and collaborating with existing Irish climate change research, such as that carried out by the Environmental Protection Agency (EPA) and Teagasc, and integrating knowledge bases from different areas of the physical, chemical biological, social, and engineering sciences.

- **Climate Action**

The global climate is changing and the changes underway will have consequences for Ireland, as outlined in the *Project Ireland 2040 National Planning Framework*.<sup>2</sup> It has become a national Irish objective to make up for lost ground in relation to carbon reduction targets and move towards transition to a competitive, low carbon, climate resilient and environmentally sustainable economy. iCRAG aims to advance its research in climate action, expanding upon projects in its marine, groundwater and geohazards and geotechnical engineering spokes and building upon existing Irish climate action research and analysis, such as that carried out under the 2014-2020 EPA climate research programme.<sup>3</sup> Research under this theme aims to develop climate-related tools, guidance, and information to enable the low-carbon energy transition and risk-based decision making for integrating climate issues into business and management, including resilience, adaptation and disaster management.

- **Geoscience & Health**

Geoscience can impact human, animal and plant health in a variety of ways – from water and air quality and quantity, natural and anthropogenic health hazards, to physical hazards such as landslides and floods. For example, bedrock, glacial materials, and soils each have positive and/or negative impacts on water quality and air quality. While, the transference of their minerals and trace elements is often beneficial as they are a primary source of nutrients (calcium, iron, magnesium, etc.) essential for our health, sometimes such materials may also be the source of airborne contaminants or of naturally-occurring elements of concern in drinking water, including radionuclides and arsenic. The interdisciplinary field of geoscience

---

<sup>2</sup> Government of Ireland, [Project Ireland 2040: National Planning Framework](#) (Dublin, 2018),119.

<sup>3</sup> Environmental Protection Agency (EPA), [Research Strategy 2014-2020](#) (Dublin, 2014).

and health is therefore of increasing importance in education and to society at large. Under this research theme, iCRAG aims engage a broad range of disciplines to examine the complex relationships between the natural environment and health, focussing on characterising the properties of geological processes and agents, the dispersal of geological material and their effects on both human and environmental health.

- **Soils**

Soil is a vital non-renewable resource delivering multiple functions simultaneously, including food and fibre production, nutrient retention and cycling, carbon storage, filtration of water and a habitat for soil biodiversity. In Ireland and across the world, there is an ever-increasing demand been placed on soil by government policies and strategies, for example, *Food Harvest 2020*<sup>4</sup>, to support the intensification of agriculture to meet global food security objectives. However, simultaneously, greening objectives of the Common Agricultural Policy insist that any increases in production must be achieved in a sustainable manner.

Soil was also recently highlighted as one of the areas to invest in geoscience research by the *Indecon Sectoral Economic Review of the Irish Geosciences Sector*, which stressed a requirement for a better understanding of soil properties and their relation to valuable ecosystem services, and to support our efforts to ensure continued sustainable food production. However, despite its evident importance, our understanding not only of how soil performs its multiple functions, but also its ability to adapt to land use and climate change, is relatively limited. iCRAG research under this thematic area aims to help fill these knowledge gaps, through developing a multi-disciplinary and multi-scale approach to improve our understanding of how soil performs multiple functions and reacts to climate and land-use changes.

- **Water**

Growing pressure on water resources from population and economic growth, climate change, pollution, and other challenges has resulted in water security emerging as a primary sustainability challenge faced by society on a global and local scale. The access to, and quality of, groundwater remains a key requirement for the survival of many Irish communities, as stressed in the recent *Indecon Economic Review of the Irish Geoscience Sector*.<sup>5</sup> Existing and future threats to groundwater availability and quality is already a key research challenge of iCRAG, and under this research theme iCRAG plans to expand its existing activities in identifying challenges facing our water resources and find solutions that promote the sustainable management of water resources, in Ireland and around the world. The aim of the research is to further develop methodologies, measurements and models to improve our understanding of ongoing and future threats to groundwater quantity and quality.

---

<sup>4</sup> Department of Agriculture, [Fisheries and Food, Food Harvest 2020: a vision for Irish agri-food and fisheries](#) (Dublin, 2010).

<sup>5</sup> Geological Survey Ireland, [Sectoral Economic Review of Irish Geosciences Sector](#), report by Indecon International Economic Consultants (Dublin, 2017), ii.

- **Marine Geoscience**

The strategic importance of the marine environment, in terms of renewable energy, and the need to sustainably manage our marine resources has been recognised under *Project Ireland 2040*<sup>6</sup>. Through its established research challenges, particularly its water, marine and geohazards and geotechnical engineering spokes, iCRAG aims under this research theme to further develop and grow its research programme in seabed activities and the marine environment, marine biodiversity, alongside the further development of technologies to increase information and communication on the marine environment and offshore renewable energy resource development.

Themes of specific interest to GSI include<sup>7</sup>:

- Applications of IODP data for marine geoscience.
- Research optimising GSI hosted data (Tellus, INFOMAR, international datasets, etc.).
- Increasing capacity and internationalisation of [GSI-funded research](#) to date.

### **3. Eligibility**

This scheme will offer research opportunities for academic researchers affiliated with, or supported by, a recognised SFI eligible research body. The list of eligible SFI research bodies can be found [here](#).

Potential applicants must:

- have been awarded their doctoral degrees no later than 31<sup>st</sup> August 2015. For this condition, the date of graduation will be considered.
- not currently be primary supervisors or lead investigators on iCRAG projects.

### **Promoting female researchers**

**We explicitly invite female researchers to apply.** The strong gender imbalance in geoscience disciplines, and by extension iCRAG PIs, is primarily historic. In this context, this *Environmental Geosciences Postgraduate Programme* provides the first major opportunity to recruit Funded Investigators with a **positive focus on addressing the gender imbalance**.

In addition, we are seeking applications from:

- Applicants who have links, or the potential to develop links, with research performing organisations in the UK or from around the world. One of the objectives of the programme is to support collaboration between iCRAG and research groups outside of Ireland, with a focus on the UK. As part of the Environmental Geosciences Postgraduate Programme, students will have the opportunity to undertake secondments at UK or international academic and non-academic partners and funding has been allocated for this purpose. The evaluation process for the selection of postgraduate projects and supervisors will consider the quality and appropriateness of planned international collaborations, including secondments, with researchers at the top international geoscience schools.

---

<sup>6</sup> Government of Ireland (2018), 98.

<sup>7</sup> Projects not considered for specific GSI funding will be evaluated under the general research themes above.

- Applicants who have the potential to facilitate increased participation from the Institutes of Technology (IoT)s. It is at the discretion of the applicant to define the parameters of this participation.
- Applicants who have links, or the potential to develop links, with industry with the aim of strengthening industry collaboration through co-supervision of students by industry.

#### 4. Structured PhD programme and cohort training

The iCRAG-GSI Environmental Geosciences Postgraduate programme will adhere to the [Seven Principles of Innovative Doctoral Training](#) and the [National Framework of Doctoral Education](#). The programme will provide training with a strong disciplinary base and both a policy and innovation focus, which delivers not only a high-quality research experience and training for the student, but also preparation for varied and flexible careers in a wide variety of settings. Each student will be fully integrated into the doctoral programmes, where appropriate, at local level and will have access to a range of academic courses, group meetings, seminars and presentations. Each postgraduate student will complete a **Research and Professional Development plan**, with input from their postgraduate supervisor. The Research and Professional Development plan will comprise three sections: research plan; professional development plan and doctoral studies panel meetings. The plan will give the student a framework within which to reflect on their skills as a researcher, set their goals and build a portfolio of evidence for progress review meetings and future job applications. Specific cohort training will comprise several workshops which will align with existing iCRAG activities such as the iCRAG away day, the iGeo Early Career Symposium (2020) and iCRAG 2019. Additional cohort activities comprise industry workshops; secondments and a challenge series.

#### 5. Budget

There is no requirement to submit a budget as part of the application. Each postgraduate student will receive the following budget:

	Year 1	Year 2	Year 3	Year 4
<b>Stipend</b>	€18,500	€18,500	€18,500	€18,500
<b>Fees (non-EU fees are not eligible)</b>	€5,500	€5,500	€5,500	€5,500
<b>Conference travel</b>		€1,500	€1,500	€1,500
<b>Materials &amp; Consumables</b>	€43,000			
- Lab analysis				
- Lab supplies				
- Software				
- Fieldwork				
- Publications				
<b>Laptop</b>	€1,200			

#### **Travel:**

Provision has been made for up to 8 PhD students to be able to undertake a secondment (working visit) with a leading geoscience school at another academic institution (including UK) as well as at Irish non-academic partners during their four-year programme of study.

#### **Training:**

Budget equivalent to 30 Credits (ECTs) has been allowed for up to 8 PhD students in this cohort to undertake training modules. Funding has been included to cover costs associated

with advanced masterclasses and workshops for this cohort. In addition, budget has been allowed for each postgraduate student to have the opportunity to lead their own training e.g. convening a seminar series or attend additional workshops or training modules relevant to their thematic discipline.

The postgraduate supervisors will be supported in the management of the budget by iCRAG's Finance and Operations Manager.

## 6. Application Process

A full and complete application comprises the application form and the applicant's CV including appendix. Applicants must:

- use the template provided;
- upload the application to the online system in PDF format: [Environmental Geosciences Postgraduate Programme 2018](#).

The minimum font size allowed is 11 points in a clearly readable font (Arial or Times New Roman). Please consult the document *Instructions for submitting applications to the iCRAG - GSI Environmental Geosciences Postgraduate Programme* before uploading your application.

An application to this scheme will not be assessed if:

- the applicant is not eligible;
- the incorrect application form is submitted;
- the application is incomplete;
- additional materials other than those requested (application form and CV) are attached to the application form, or if sections of the application form are appended rather than included in the form (additional appended materials will render an entire application ineligible);
- it exceeds the word limit.

### *Queries*

If you have any queries, please email: [phd.call@icrag-centre.org](mailto:phd.call@icrag-centre.org)

### *Deadline*

The deadline for applications is **12pm, Thursday, 29<sup>th</sup> March 2018**. **Late applications will not be considered.**

## 7. Evaluation Process and Criteria

The evaluation process will consist of two phases: (i) eligibility check and fit to research themes and (ii) evaluation. Each application will be reviewed by three evaluators. The evaluators will be selected from the iCRAG Executive Committee, representatives from iCRAG's Technical Advisory Committees (TACs, industry memberships) and Scientific Advisory Board (SAB) and GSI nominees. In line of transparency and to avoid conflict of interests, members of the iCRAG Executive Committee will not evaluate applications from their home institutions. In line with national and international best practice, for example the SFI Gender Strategy 2016-2020, we will aim to achieve a minimum 40% representation of evaluators of each gender.



Each proposal will be reviewed and scored against the evaluation criteria (see below). Evaluators will provide both quantitative and qualitative feedback. The Executive and GSI representatives will make the final decision on those projects to be funded based on a ranked list of the average scores and written feedback.

GSI will select up to three PhD projects, or equivalent, for funding. These projects must align with GSI priorities listed in section 2 and Funded Investigators will be expected to include GSI staff as collaborators.

### *Criterion*

Each criterion will be scored out of 5. Marks will be awarded in integers or halves. Marks will be awarded for each of the three criteria, not for the sub-elements of each criterion. These elements will be considered by the evaluators in the assessment of the criteria. The scoring table is as follows:

0	<b>The proposal fails to address</b> the criterion or cannot be assessed due to missing or incomplete information.
1	<b>Poor.</b> The criterion is inadequately addressed, or there are serious inherent weaknesses.
2	<b>Fair.</b> The proposal broadly addresses the criterion, but there are significant weaknesses.
3	<b>Good.</b> The proposal addresses the criterion well, but several shortcomings are present.
4	<b>Very good.</b> The proposal addresses the criterion very well, but a small number of shortcomings are present.
5	<b>Excellent.</b> The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

The proposal will be evaluated against the award criteria, as follows:

<b>Excellence</b>	<b>Impact</b>	<b>Quality &amp; efficiency of implementation</b>
Description of the proposal and quality of the proposal. Including originality, innovative nature and significance of the proposal.	Potential impact of proposed measures to exploit and disseminate the results.	Quality and appropriateness of planned international collaborations, including secondments
Relevance to international leading research in the area.	Potential proposed measures to communicate the results to different target audiences including	Quality and appropriateness of participation of IoTs if appropriate

	education and public engagement activities.	
Quality of PI's track record to date in the proposed research area.	Potential to contribute to iCRAG's future development.	Quality and appropriateness of industry collaboration if appropriate.
	Enhancement of the potential and future career perspectives of researchers including postgraduate researchers.	Alignment with the Environmental Geosciences Postgraduate programme's research themes.
		Inclusion of GSI hosted data/expertise in GSI-funded projects.
		Planned project implementation including schedule, project delivery and management.

## 8. Conditions of award

### *Reporting*

All iCRAG researchers from PhD students to Principal Investigators are required to provide progress reports. Both postgraduate student and supervisor funded under the Environmental Geosciences programme will be required to adhere to the reporting requirements for iCRAG and GSI where appropriate. This is a condition for holding the award.

### *Research and Professional Development Plan*

Each postgraduate student will complete a Research and Professional Development plan, with input from their supervisor(s). The Research and Professional Development plan will comprise three sections: research plan; professional development plan and doctoral studies panel meetings. The plan will give the student a framework within which to reflect on their skills as a researcher, set their goals and build a portfolio of evidence for progress review meetings and future job applications. A template will be provided for this purpose. The first draft of the plan should be completed within the first three months of the start date of the degree.

### *Research Integrity*

The awardee's institution must ensure that the highest quality of research conduct is maintained. The institution must ensure that systems are in place to manage research misconduct (e.g. plagiarism, falsification of data, improper data selection). The systems in place to manage research misconduct should align with the basic principles that underpin all research integrity and good practice as outlined in the national policy statement on '[Ensuring Research Integrity in Ireland](#)' and the '[European Code of Conduct for Research Integrity](#)'.

### *Acknowledgements*

All publicity, including interviews, email signatures, conference presentations, posters, publications, print materials, online materials, press releases, television and radio advertisements, websites, film, and video/audio recordings associated with or arising from the research undertaken by the postgraduate student and supervisor while in receipt of funding must contain acknowledgement of funding received. Advice on wording and logos will be provided to awardees.