



# Maynooth University Ollscoil Mhá Nuad

## Department of Geography Irish Climate Analysis and Research UnitS (ICARUS)

### Senior Post-Doctoral Researcher HydroDARE Project (Fixed Contract)

#### The Role

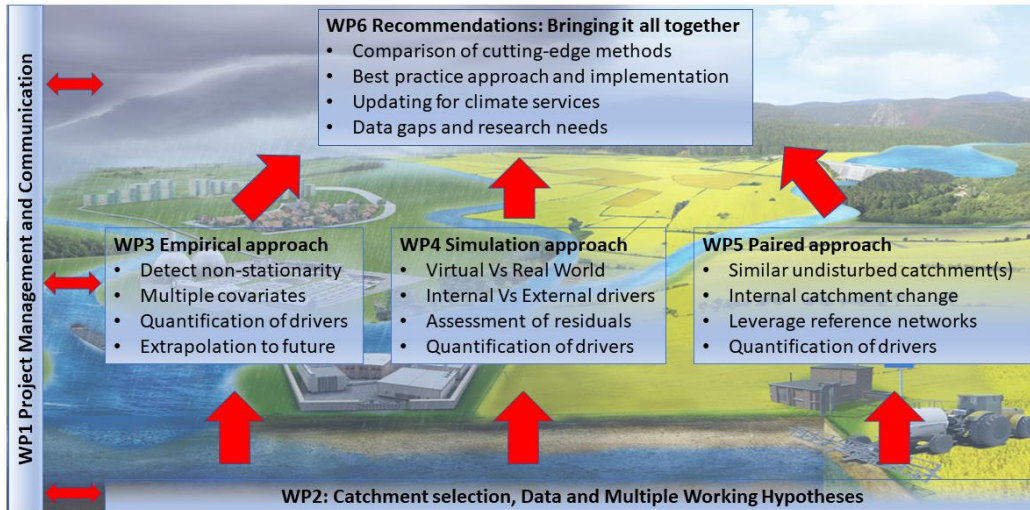
Maynooth University is committed to a strategy in which the primary University goals of excellent research and scholarship and outstanding education are interlinked and equally valued.

We are seeking a Senior Post-Doctoral researcher to work on the EPA funded HydroDARE project. Working with Prof Conor Murphy (Geography/ICARUS) and Dr. Niamh Cahill (Maths/ICARUS) the successful candidate will develop and evaluate approaches for attributing detected changes in hydrological series. Attribution is central to sustainable catchment management and climate change adaptation. HydroDARE aims to bring together state of the art approaches to attribution and evaluate their applicability in different contexts and situations of differing data availability. HydroDARE frames attribution in the context of multiple working hypotheses of drivers of detected change to ensure all plausible drivers are considered. The project then develops datasets on key drivers (including land use change, drainage, water use, climate variability and change) with three approaches to attribution developed: 1) Empirical approaches and the use of non-stationary and panel regression to detect and attribute change; 2) Simulation based approaches to attribution; 3) use of paired catchments and reference networks for attribution. Each approach has different levels of complexity, necessary expertise and data requirements. By applying approaches to the same catchment sample HydroDARE will evaluate insights and conclusions offered by each and develop guidance and recommendations to advance and consolidate attribution science and inform integration into catchment management and climate services for hydrology.



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**Overview of HydroDARE project structure and work packages. The underlying image represents the complexity of attribution at the catchment scale through external drivers (climate) and internal confounding factors (through for example, land use change, urbanisation, impoundments, and typical human activities).**

## Principal Duties

### Administrative and other duties:

The successful candidate will be responsible for leading and delivering outputs from the following work packages:

*WP1 Project Management and Communication:* including delivery of timely scientific progress reports to the EPA, reporting on progress at biannual project steering group meetings and delivery of the project communications plan, including delivery of presentations to national and international conferences, communication with stakeholders and data providers.

*WP2 Catchment selection and Dataset development:* including the collation of data necessary for the development of multiple working hypotheses of different drivers of change at the catchment scale. This will include the development and collation of metadata on observational records, collating information on the implementation of arterial drainage works, use of remote sensing to quantify landuse change, collation of information on abstractions and discharges to watercourses, and collation and analysis of other meteorological and climatological data and development of multiple working hypotheses.

*WP3 the development of non-stationary empirical approaches* for detection and attribution. This work will seek to develop and apply regression-based techniques with two main approaches being investigated; GAMLSS models and panel regression. GAMLSS models allow facilitate the detection and attribution of non-stationarity and extension of statistical techniques beyond using time as covariate to include other and more informative covariates representing specific drivers of change (i.e. covariates developed in WP2) and allow the integration of detection and attribution in a consolidated framework. Panel regression is a relatively new technique that can identify robust signals between anthropogenic impacts and hydrological response.

*WP6 recommendations for policy on doing better attribution:* the successful candidate will work with the project team to develop and collate case study applications, produce peer reviewed publications in leading international journals, develop the final project report and recommendations for integration of attribution techniques to support climate services and catchment management.



In addition, the successful candidate will collaborate with and provide supports for other team members, including providing mentorship to another post-doctoral researcher on other project work packages.

**The ideal candidate will have:**

- A PhD in Physical Geography, Hydrology, Engineering, or a cognate discipline
- To be appointed at the grade of Senior Post Doctoral researcher, candidates will need at least two years post-doctoral relevant relative research experience.
- Previous Postdoctoral research experience and a publication record commensurate with career stage.
- Excellent analytical and statistical skills together with proficiency in statistical programming in R or Python.
- Experience in the application of remote sensing techniques for evaluation of land use change and/or hydrological application.
- Excellent communication skills and experience in project reporting.
- Excellent teamwork and organisational skills and previous experience in provision of mentorship/supervision to other researchers.
- Experience in working with gridded climate datasets, meteorological and hydrological data

## Department

The Department of Geography has over 30 staff and offers undergraduate and postgraduate degrees, based on its research strengths in many aspects of physical and human geography in a vibrant learning environment. Postgraduate programmes include the MSc Climate Change, MSc GIS and Remote Sensing and the MA in Human Geography/Spatial Justice. The candidate will therefore join a vibrant, research active and interdisciplinary working environment. The department hosts the Irish Climate Analysis and Research Units (ICARUS) within which the successful candidate will be based. ICARUS has a rich community of faculty, post-doctoral and postgraduate students investigating a range of aspects of Irish and global climate. The Department also has strong links with leading University Research Institutes including the National Centre for Geocomputation (NCG) and the National Institute for Regional and Spatial Analysis (NIRSA). Further details on ICARUS and the Department of Geography can be found at the links below.

**Geography:** <https://www.maynoothuniversity.ie/geography>

**ICARUS:** <https://www.maynoothuniversity.ie/icarus>

## The University

Maynooth University is a very distinctive university, a collegial institution focused on science and engineering, humanities, and social sciences, and equally committed to research, teaching and community engagement. Located in Ireland's only university town, its distinctive features and character owe much to its unique history and heritage. It provides a high-quality educational experience to over 15,000 students on a campus with 18<sup>th</sup> century roots and 21<sup>st</sup> century dynamism.

The strategic trajectory and accomplishments of Maynooth University, in the 25 years since its establishment as an autonomous public university, are exceptional, and a source of great pride to the university community, staff, students and alumni. Maynooth University is now acknowledged to be one of the leading young universities in the world, and in 2022 ranked # 1 in Ireland in the latest Times Higher Education (THE) Best Young University Rankings. Maynooth University's growing global reputation is based on the originality, quality, importance and impact of its research and scholarship, commitment to teaching and learning, the quality of academic programmes, and its leadership in widening participation in higher education. The sources of success are the dedication of its staff and the energy and engagement of its students.



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Maynooth University is a place of lively contrasts – a modern institution, dynamic, rapidly-growing, research-led and engaged, yet grounded in historic academic strengths and scholarly traditions. With over 15,000 students Maynooth offers a range of programmes at undergraduate, postgraduate and doctoral level in the humanities, science and engineering and social sciences, including business, law and education. The University also offers a range of international programmes and partnerships.

Maynooth's unique collegial culture fosters an interdisciplinary approach to research, which its world-class academics bring to bear in tackling some of the most fundamental challenges facing society today. The University's research institutes and centres consolidate and deliver this impact as vibrant communities of learning, discovery and creation. Research at Maynooth also is very much central to its teaching and the University prides itself on placing equal value on its research and teaching missions.

## Principles and Values

Maynooth University is committed to the following values:

- Scholarly rigour;
- Academic freedom;
- Integrity and ethical behaviour;
- Collegiality, transparency and trust;
- Equality, inclusiveness and social justice;
- Operational excellence, organisational flexibility and responsiveness;
- Dignity, respect and care for the individual.

## Strategy 2018 - 2022

The University's Strategic Plan 2018-22 builds from a position of confidence. Maynooth University is a University with ambition, vision and values, a clear identity and sense of purpose, a history of achievement, and a future of considerable promise. The Strategy builds on the University's accomplishments and concentrates institutional energy and resources on further development of research and postgraduate education.

**For more information please visit <http://www.maynoothuniversity.ie/about-us/university-strategic-plan>**

## Selection and Appointment

- Only shortlisted candidates will be invited to attend for interview;
- Appointments will be approved by the President based on the report of the selection board;
- It is anticipated that interviews will be held during the week of the 6<sup>th</sup> March 2023;
- The appointment is expected to be effective from 1<sup>st</sup> April 2023.

## Equality and Diversity

Maynooth University values the enrichment that comes from a diverse community and seeks to promote equality, prevent discrimination and protect the human rights of each individual. To learn more about our commitment to Equality and Diversity, please read the Maynooth University [Equality and Diversity Policy](#). Additionally, as an [Athena SWAN Bronze Award](#) Institute, we are committed to advancing gender equality across the University.



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We aim to reflect the diversity of the community we serve and welcome applications from all individuals, in particular from people underrepresented in our workforce.

## Terms and Conditions

<b>Tenure</b>	This a full-time, temporary post, for a duration of 21.5 months duration. Project end date is 01/01/2025. Contract duration may vary depending on date of commencement.
<b>Location</b>	The place of work is the campus of Maynooth University, Maynooth, Co. Kildare.
<b>Salary</b>	Senior Post-Doctoral Researcher: €48,813 - €53,019 per annum (4 points) Post-Doctoral Researcher: €41,209 - €47,477 per annum (6 points)  Appointments will be made in accordance with public sector pay provisions.
<b>Hours of work</b>	A 37-hour working week is in operation in respect of full-time positions (pro-rated for part-time positions).  This can be reviewed or adjusted from time to time through national agreements.
<b>Annual Leave</b>	Annual leave and public holidays are provided for in the University policy: <a href="https://www.maynoothuniversity.ie/human-resources/policies/annual-leave-policy">https://www.maynoothuniversity.ie/human-resources/policies/annual-leave-policy</a>  Annual leave will be allocated on a pro-rata basis for part-time and temporary positions.
<b>University policies and schemes</b>	Employees of the University will be subject to the terms of the University policies and schemes, available on the University website at:  <a href="https://www.maynoothuniversity.ie/university-policies">https://www.maynoothuniversity.ie/university-policies</a>  <a href="https://www.maynoothuniversity.ie/human-resources/policies">https://www.maynoothuniversity.ie/human-resources/policies</a>
<b>Pension</b>	This is a pensionable post. Employees of the University will enter into a public sector pension scheme, details of the schemes are available at: <a href="https://www.maynoothuniversity.ie/human-resources/pension-information">https://www.maynoothuniversity.ie/human-resources/pension-information</a>
<b>Eligibility</b>	Applications from <b>non-EEA citizens</b> are welcomed, applicants should note that eligibility is determined by the Department of Enterprise, Trade and Employment. Further information regarding eligibility is available at: <a href="https://enterprise.gov.ie/en/what-we-do/workplace-and-skills/employment-permits/employment-permit-eligibility/">https://enterprise.gov.ie/en/what-we-do/workplace-and-skills/employment-permits/employment-permit-eligibility/</a>  Non-EEA applicants are responsible for ensuring they can secure a visa to travel to Ireland. Any offer of employment is conditional on applicants securing the appropriate employment permissions.  <b>Former Irish Public Service employees - Certain Restrictions on Eligibility</b>



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	<p>Eligibility of applicants formerly employed by an Irish Public Sector body, and who availed of an Irish Public Service Redundancy or Incentivised Retirement Scheme under the Schemes below, may be affected:</p> <ul style="list-style-type: none"> <li>• Collective Agreement: Redundancy Payments to Public Servants</li> <li>• Incentivised Scheme for Early Retirement (ISER)</li> <li>• Department of Health and Children Circular (7/2010)</li> <li>• Department of Environment, Community &amp; Local Government (Circular Letter LG(P) 06/2013)</li> </ul> <p>Applicants should ensure that they are eligible to be re-engaged in the Irish Public Service under the terms of such Schemes. Applicants should address queries with their former Irish Public Sector employer.</p>
<b>Garda vetting</b>	Garda vetting or clearance may be required by the University.
<b>Medical</b>	The University may require a medical examination as a condition of employment.

## Data Protection Law

Maynooth University will process any personal data provided by you in connection with an application for this role in accordance with the General Data Protection Regulation and the Data Protection Acts 2018.

If your application is successful and you accept an offer of employment at Maynooth University, then your personal data will continue to be processed in accordance with Maynooth University's Staff Data Privacy Notice.

Both the privacy notices and further information relating to data protection, including Maynooth University's other data protection policies and processes, can be viewed at <https://www.maynoothuniversity.ie/data-protection>

## Application Procedure

### Closing Date:

23:30hrs (local Irish time) on **Sunday, 26<sup>th</sup> February 2023**

Please note all applications must be made via our **Online Recruitment Portal** at the following link:

<https://www.maynoothuniversity.ie/human-resources/vacancies>

Applications must be submitted by the closing date and time specified above. Any applications which are still in progress at the closing time on the specified closing date will be cancelled automatically by the system.

Late applications will not be accepted.

**Maynooth University is an equal opportunities employer**

**The position is subject to the Statutes of the University**



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