Fulbright-GSI (incoming) Scholarships

Since 2017

The Geological Survey is pleased to announce that 2022 will see one Fulbright-GSI scholars coming to Ireland form the US to undertake research and teaching activities in Irish Institutes.

2022

Dr Andrew Pilant from the United States Environmental Protection Agency will spend 10 months in the Department of Geography at Trinity College Dublin (TCD) for research and lectures in remote sensing, environmental earth observation and geospatial science in 2022/2023. His project titled *Environmental Remote Sensing and Satellite Image Analysis Using Deep Learning* is about research and teaching in environmental and geoscience remote sensing, earth observation, geospatial analytics, and explorations of emerging artificial intelligence methods for satellite image analysis. The learning goal is to expose students to fundamentals and emerging topics in remote sensing of Earth's surface, with an experimental AI component using new machine learning and deep learning methods to process earth imagery. This is important data science training for students in new algorithms/methods, technology and data streams. Student term projects will be use cases relevant to the host institution and will be summarized in interactive GIS story maps.

With Professor John Connolly he will use satellite synthetic aperture radar (SAR) data to map peat lands in Ireland. With Professor Iris Moeller he will apply remote sensing to study coastal geomorphology and morphodynamics.

Dr Pilant is a Research Physical Scientist at the United States Environmental Protection Agency (US EPA), leading the teams on remote sensing, land cover mapping, PFAS GIS and animal agriculture. He has co-leaded a national-scale online GIS for PFAS research at US EPA and has been granted the 2019 ORD Honour Award for EnviroAtlas contributions, in September 2020. He looks forward to meeting new colleagues, particularly those with

interests aligning with his research projects at the US EPA: mapping PFAS chemicals, livestock operations and ecosystem services, and exploring machine learning techniques to extract information from earth observation imagery.

2021

Dr David Moecher from the University of Kentucky will spend 5 months in 2021/2022 working with the internationally renowned group of geoscientists at Trinity College Dublin and University College Dublin to test models for potential ancient linkages among continents using a wide range of instrumentation for determining ages of geologic events, under the project titled *Collaborative Research: Beyond Zircon - Developing Novel Methods for Assessing Sedimentary Recycling Using Detrital Minerals*.

Dr Moecher is the Alumni Endowed Professor in the Department of Earth and Environmental Sciences. He is a Fellow of the Geological Society of America, the former Department Chair, and recipient of awards for undergraduate advising and alumni development.

Dr Jennifer Jones from the East Carolina University will spend 10 months collaborating with the Marine and Coastal Unit in Geological Survey Ireland (GSI) working for the CHERISH project in 2021/2022. Her interdisciplinary research and teaching project has several goals; the overarching goal to increase understanding of the relationship between cultural heritage, archaeological resources with coastal and marine environments. More specifically, this project seeks to evaluate the relationship between coastal geomorphology, assessing the impacts of geographical and geological impacts on the preservation and protection of archaeological resources along Ireland's coastline.

Dr Jones' holds a PhD in Coastal Resources Management, in particular in coastal archaeology and geosciences (geomorphology and geography). Her research has focused on interdisciplinary issues of archaeological resources, particularly shipwrecks, and their relationship with coastal geomorphology.

2019

Prof. Tracy Frank from the University of Nebraska-Lincoln will spend 5.5 months in National University of Ireland, Galway (NUIG) in 2018/2019, in collaboration with Dr John Murray and colleagues. Her research project, with the title *Paleoclimate archives in Irish limestone*, is focused on limestone exposed in the Burren region and teaching activities in the discipline of Earth and Ocean Science at NUI Galway. Research activities will comprise a collaborative study of the Burren Limestone Formation in western Ireland and newly acquired drill core by the Geological Survey of Ireland, which archive a record of a global climate transition out of a greenhouse and into an icehouse climate state c. 330 million years ago. These rocks are also of economic significance. Teaching activities will include both classroom and field based efforts.

Prof. Frank is a Chair Professor in the department of Earth and Atmospheric Sicences at the University of Nebraska-Lincoln. She is a Fellow of the Geological Society of American, and holds an NSF Career award.

Prof. Kamini Singa from Colorado School of Mines will spend 10 months in University College Cork in 2018/2019. Her project titled *Peering Into the Black Box of Surface Water-Groundwater Systems: Distinguishing Controls on Arsenic Transport with Electrical Geophysics* explores the importance of anoxic microzones within surface water-groundwater systems on the fate and transport of arsenic, a carcinogenic contaminant. This research will couple new hydrogeological and geophysical field measurements collected near Cork, Ireland, with numerical modelling, and will evaluate the role of anoxic-oxic interfaces in limiting or promoting arsenic migration. These results will have implications for other biogeochemical reactions, and via modelling, will be transferable to river systems beyond those tested

Prof. Singa holds a PhD in Hydrogeology and is a Professor at the Department of Geology and Geological Engineering at the Colorado School of Mines. She is also a Fellow of the Geological Society of American, holds a Colorado School of Mines Dean's Faculty Award, and has been awarded the Ben Fryrear Endowed Chair for Innovation and Excellence.

2016

Prof. Nancy Riggs (Volcanology) from the School of Earth Sciences and Environmental Sustainability, Northern Arizona University, will spend 10 months in Trinity College Dublin in 2016/2017, hosted by Dr Quentin Crowley. During her visit she will also collaborate with Dr Brian McConnell at the Geological Survey Ireland. Prof. Riggs has considerable teaching and field experience and will contribute significantly to the teaching programme in TCD Department of Geology, in particular in the area of volcanology and palaeo-volcanology.

Her Fulbright scholarship goals are to:
1) bring expertise in Volcanology to undergraduate and post-graduate students through field trips and a class, thus broadening their education and perspective;
2) contribute to research that will use new Tellus geophysical data to address long-standing geologic problems regarding the ancient assembly of Ireland and a second that will use modern volcanological methods to assess an ore deposit that has recently reopened to mining;
3) explore ways to bring Irish and American students together to learn.

Prof. Riggs is a Fellow of the Geological Society of America and former Science Editor for the Geological Society of America Bulletin Science Editor. She holds a Certificate of recognition, NAU Commission on the Status of Women and an NSF Research Experience for Undergraduates award. She is currently a Faculty mentor for Northern Arizona University Association of Women Student Geologists.

Prof. William Berry Lyons (Geochemistry) from the School of Earth Sciences, Ohio State University and will be hosted by Prof. Peter Croot at NUI,Galway for 6 months in 2016/2017. He has been involved in the collection and analysis of natural water samples for over forty five years and has worked on geochemistry problems from very low ionic strength polar snow and ice to hypersaline brines in numerous desert locations in the world. He has published papers on major element geochemistry, trace element geochemistry, and isotope geochemistry and has extensive experience in all aspects of low-temperature and environment geochemistry.

While in Galway, Prof. Lyons will research the geochemistry of stream and bog waters in the west of Ireland. He will collect stream and bog water samples in counties Galway and Mayo and analyse them for dissolved major, minor and selected trace metals. The primary focus of the collection will be in the highest elevation portions of watersheds. The dissolved major

element data will be used to determine chemical weathering rates, and the trace element information will be tied to the on-going Tellus program in order to provide important new information to aid in both environmental management and natural resource assessment.

Prof. Lyons also has vast teaching experience and will contribute to geochemistry, marine biogeochemistry, groundwater hydrology, sedimentation and stratigraphy modules in Earth and Ocean Science, NUI,Galway.

Prof. Lyons is a Fellow of the Geological Society of American, the American Association for the Advancement of Science and the American Geophysical Union. He has been both the Ingerson Lecturer of the Geochemical Society and the IAGC and was winner of GSA's Limnogeology Division's IC Russell Award in 2011. He has also been awarded Ohio State's University Distinguished Undergraduate Research Mentor Award and is a Math and Physical Sciences (MAPS) Distinguished Professor at Ohio State.