Javier **Elío**

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Personal information

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Career Summary

I am a Mining Engineer, with an MSc in Environmental Research, Modelling and Risk Assessment, and a PhD in Environmental Sciences. For the last years, I have been working on radon mapping at the Geology Department at Trinity College Dublin, although I have also experience in monitoring geological storage of CO_2, and in geochemical characterization of contaminated sites.

My research interests are:

- Environmental risk assessment
- Radon mapping
- Radon measurements in air, soil, and water
- Natural radioactivity, Natural Occurrence Radioactive Materials (NORM)
- Statistics, spatial data analysis, and geostatistics (R language)
- Geographic information systems

Education

2009-13 **Ph.D. in Environmental Science**, Technical University of Madrid, Madrid, ES.

2007-09 **M.Sc. in Environmental Research, Modelling and Risk Assessment**, Technical University of Madrid, Madrid, ES.

1998-05 **M.Eng. in Mining Engineering. Specialization: Resource and Environment**, Technical University of Madrid, Madrid, ES.

Experience

2019-19 **Assistant Professor**, Western Norway University of Applied Sciences, Department of Safety, Chemistry and Biomedical laboratory sciences, Haugesund, NO.

2016-18 **Postdoctoral Research Fellow**, Trinity College Dublin, Geology, Dublin, IE.

2014-14 **Research Assistant**, Technical Universityof Madrid, School of Mining and Energy Engineering, Madrid, ES.

2009-13 **PhD Candidate**, Fundación Ciudad de la Energía, CO2 Geological Storage , Ponferrada, ES.

2007-09 **Research assistant**, Technical University of Madrid, School of Mining and Energy Engineering, Madrid, ES.

2005-07 **Tunnel Engineer**, Obrascon Huarte Lain SA, AVE Colmenar-Soto del Real, Western tunnel (9.5 km), Madrid, ES.

Invited Positions

2018-18 **Visiting Research Assistant**, Trinity College Dublin, Geology, Dublin, IE.
2013-13 **Research Stay**, University of Florence, Dipartimento di Scienze della Terra, Florence, IT.

Professional memberships

2019- **Applied Marine Microbiology**, Western Norway University of Applied Sciences, Haugesund, NO.
2017- **European Commission - Joint Research Centre**, European Geogenic Radon Map expert group, Ispra, IT.
2016- **European Radon Association**, Brussels, BE.

Professional Services

2019-19 **International Atomic Energy Agency**, Regional Workshop on Development of Radon Maps and the Definition of Radon-Prone Areas (Vilnius, Lithuania), Vienna, AT.
2018-18 **International Atomic Energy Agency**, Expert Mission on radon regulations implementation (Nicosia, Cyprus), Vienna, AT.
2018-18 **International Atomic Energy Agency**, Expert Mission to advice on radon detection, mapping and analysis (Lima, Peru), Vienna, AT.
2018-18 **European Commission - Joint Research Centre**, Working Group Meeting on Indoor Radon Dose, Ispra, IT.

Funding projects

2017-18 **An All-Ireland Geogenic Indoor Radon Map**, Geological Survey Ireland, Dublin, IE.
2016-17 **Radon monitoring and hazard prediction in Ireland**, Irish Research Council - Enterprise Partnership Scheme Fellowship 2015, Dublin, IE.

Honours and Awards

2019 **Roland Schlich Early Career Scientist's Travel Support grant**, European Geosciences Union, Vienna, AT.
2019 **European Radon Association Award**, European Radon Association, Brussels, BE.
2016 **Extraordinary PhD Award**, Technical University of Madrid, Madrid, ES.
2014 **Gómez-Pardo Foundation Award**, Spanish Royal Academy of Doctors, Madrid, ES.
2012 **International Mobility Program Grant**, Social Council at the Technical University of Madrid, Madrid, ES.
2009 **Doctoral Research Grant**, Ciudad de la Energía Foundation, Ponferrada, ES.

Teaching Experience

PhD Examiner

2017 **External PhD examiner**, Thesis: "Integration of remote sensing and statistical techniques for detecting CO2 leaks in geological storage areas through the study of natural analogues, Miguel A. Rincones Salinas, Technical University of Madrid, Madrid, ES.

Supervision

2017 **Co-supervisor of a Master thesis in Environmental Sciences**, Assessing the contribution of Quaternary deposits to the soil radon budget in Ireland, Trinity College Dublin, School of Natural Sciences, Geology, Dublin, IE.

2017 **Co-supervisor of an Earth Science Dissertation**, Evaluating two techniques of soil gas radon detection in application, performance and against indoor radon concentrations, Trinity College Dublin, School of Natural Sciences, Geology, Dublin, IE.

2016 **Co-supervisor of a Master thesis in Environmental Sciences**, Linking radon concentrations between the natural and built environments, Trinity College Dublin, School of Natural Sciences, Geology, Dublin, IE.

Lectures/Seminars

2018 **Teaching assistant**, 10 day geological residential field-school in SE Spain, Trinity College Dublin, School of Natural Sciences, Geology, Dublin, IE.

2017 **GIS module in MSc Environmental Science**, Lecture: A new indoor radon risk map of Ireland. Geology, School of Natural Sciences, Trinity College Dublin, School of Natural Sciences, Geology, Dublin, IE.

2016 **Michaelmas Semester 2016 - Geology Seminar Series**, Modelling Indoor Radon Concentration: Towards a High-Resolution Indoor Radon Map of Ireland, Trinity College Dublin, School of Natural Sciences, Geology, Dublin, IE.

2016 **Teaching assistant**, 10 day geological residential field-school in SE Spain, Trinity College Dublin, School of Natural Sciences, Geology, Dublin, IE.

2013 **Summer school in Carbon Capture and Storage**, Surface and subsurface monitoring of a CO2 storage site: theory and practice, University of León, Ponferrada, ES.

Publications

I have published **18** peer-reviewed journal articles, chapters or books on Environmental Science topics. I have also presented my research at 3 invited talks, and in several national and international conferences including AGU, EGU, EAGE, IGC and Goldschmidt. My metrics in **Google Scholar** are:

- Total citations: 180
- h-index: 8
- i10-index: 7

Peer reviewed articles

2019 **Elío**, J.; Crowley, Q.; Scanlon, R.; Hodgson, J.; Long, S., Rapid radon potential classification using soil-gas radon measurements in the Cooley Peninsula, County Louth, Ireland, Environmental Earth Sciences, 78, http://dx.doi.org/10.1007/s12665-019-8339-4.

2019 Nisi, B.; Vaselli, O.; **Elío**, J.; Giannini, L.; Tassi, F.; Guidi, M.; Darrah, T.H.; Maletic, E.L.; Delgado Huertas, A.; Marchionni, S., The Campo de Calatrava Volcanic Field (central Spain): Fluid geochemistry in a CO2-rich area, Applied Geochemistry, 102, 153–170, http://dx.doi.org/10.1016/j.apgeochem.2019.01.011.

2019 **Elío**, J.; Cinelli, G.; Bossew, P.; Gutiérrez-Villanueva, J.L.; Tollefsen, T.; De Cort, M.; Nogarotto, A.; Braga, R., The first version of the Pan-European Indoor Radon Map, Natural Hazards and Earth System Sciences, 19, 2451–2464, http://dx.doi.org/10.5194/nhess-19-2451-2019.

2018 De Miguel, E.; Barrio-Parra, F.; **Elío**, J.; Izquierdo-Díaz, M.; García-González, J.E.; Mazadiego, L.F.; Medina, R., Applicability of radon emanometry in lithologically discontinuous sites contaminated by organic chemicals, Environmental Science and Pollution Research, 25, 20255–20263, http://dx.doi.org/10.1007/s11356-018-2372-9.

2018 Barrio-Parra, F.; **Elío**, J.; De Miguel, E.; García-González, J.E.; Izquierdo, M.; Álvarez, R., Environmental risk assessment of cobalt and manganese from industrial sources in an estuarine system, Environmental Geochemistry and Health, 40, 737–748, http://dx.doi.org/10.1007/s10653-017-0020-9.

2018 **Elío**, J.; Crowley, Q.; Scanlon, R.; Hodgson, J.; Zgaga, L., Estimation of residential radon exposure and definition of Radon Priority Areas based on expected lung cancer incidence, Environment International, 114, 69–76, http://dx.doi.org/10.1016/j.envint.2018.02.025.

2017 **Elío**, J.; Crowley, Q.; Scanlon, R.; Hodgson, J.; Long, S., Logistic regression model for detecting radon prone areas in Ireland, Science of the Total Environment, 599-600, 1317–1329, http://dx.doi.org/10.1016/j.scitotenv.2017.05.071.

2016 **Elío**, J.; Ortega, M.F.; Nisi, B.; Mazadiego, L.F.; Vaselli, O.; Caballero, J.; Chacón, E., A multi-statistical approach for estimating the total output of CO2 from diffuse soil degassing by the accumulation chamber method, International Journal of Greenhouse Gas Control, 47, 351–363, http://dx.doi.org/10.1016/j.ijggc.2016.02.012.

2015 **Elío**, J.; Ortega, M.F.; Nisi, B.; Mazadiego, L.F.; Vaselli, O.; Caballero, J.; Grandia, F., CO2 and Rn degassing from the natural analog of Campo de Calatrava (Spain): Implications for monitoring of CO2 storage sites, International Journal of Greenhouse Gas Control, 32, 1–14, http://dx.doi.org/10.1016/j.ijggc.2014.10.014.

2015 **Elío**, J.; Ortega, M.F.; Nisi, B.; Mazadiego, L.F.; Vaselli, O.; Caballero, J.; Quindós-Poncela, L.S.; Sainz-Fernández, C.; Pous, J., Evaluation of the applicability of four different radon measurement techniques for monitoring CO2 storage sites, International Journal of Greenhouse Gas Control, 41, 1–10, http://dx.doi.org/10.1016/j.ijggc.2015.06.021.

2014 Ortega, M.F.; Rincones, M.; **Elío**, J.; Del Olmo, G.J.; Nisi, B.; Mazadiego, L.F.; Iglesias, L.; Vaselli, O.; Grandia, F.; García, R.; De La Vega, R.; Llamas, B., Gas monitoring methodology and application to CCS projects as defined by atmospheric and remote sensing survey in the natural analogue of campo de Calatrava, Global Nest Journal, 16, 269–279, http://dx.doi.org/10.30955/gnj.001242.

2014 Nisi, B.; Vaselli, O.; Tassi, F.; **Elío**, J.; Ortega, M.; Caballero, J.; Rappuoli, D.; Mazadiego, L.F., Origin of the gases released from the Acqua Passante and Ermeta wells (Mt. Amiata, central Italy) and possible environmental implications for their closure, Annals of Geophysics, NA, http://dx.doi.org/10.4401/ag-6584.

2014 Llamas, B.; Mazadiego, L.F.; **Elío**, J.; Ortega, M.F.; Grandia, F.; Rincones, M., Systematic approach for the selection of monitoring technologies in CO2 geological storage projects. application of multicriteria decision making, Global Nest Journal, 16, 36–42, http://dx.doi.org/10.30955/gnj.001241.

2013 **Elío**, J.; Nisi, B.; Ortega, M.F.; Mazadiego, L.F.; Vaselli, O.; Grandia, F., CO2 soil flux baseline at the technological development plant for CO2 injection at Hontomin (Burgos, Spain), International Journal of Greenhouse Gas Control, 18, 224–236, http://dx.doi.org/10.1016/j.ijggc.2013.07.013.

2013 Vaselli, O.; Nisi, B.; Tassi, F.; Darrah, T.; Bruno, J.; **Elío**, J.; Grandia, F.; Del Villar, L.P., Gas Discharges for Continental Spain: Geochemical and Isotopic Features, Mineralogical Magazine, 77, 2383–2434, http://dx.doi.org/10.1180/minmag.2013.077.5.22.

2013 Nisi, B.; Vaselli, O.; Tassi, F.; **Elío**, J.; Huertas, A.D.; Mazadiego, L.F.; Ortega, M.F., Hydrogeochemistry of surface and spring waters in the surroundings of the CO2 injection site at Hontomín-Huermeces (Burgos, Spain), International Journal of Greenhouse Gas Control, 14, 151–168, http://dx.doi.org/10.1016/j.ijggc.2013.01.012.

2012 **Elío**, J.; Ortega, M.F.; Chacón, E.; Mazadiego, L.F.; Grandia, F., Sampling strategies using the "accumulation chamber" for monitoring geological storage of CO2, International Journal of Greenhouse Gas Control, 9, 303–311, http://dx.doi.org/10.1016/j.ijggc.2012.04.006.

Book chapters

2016 **Elío**, J.; Ortega, M.F.; Mazadiego, L.F.; Nisi, B.; Vaselli, O.; Garcia-Martinez, M.J., Monitoring of soil gases in the characterization stage of CO2 storage in saline aquifers and possible effects of CO2 leakages in the groundwater system, Geologic Carbon Sequestration: Understanding Reservoir Behavior, 81–95, http://dx.doi.org/10.1007/978-3-319-27019-7_ 5.