



Javier Elío

RESEARCHER | ENVIRONMENTAL SCIENCES | DATA SCIENCES

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"Expert on environmental research, statistics, spatial data analysis, and modelling."

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. 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 University of 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.

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 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.**; 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 **Elío, J.**; Cinelli, G.; Bossew, P.; Gutiérrez-Villanueva, J.L.; Tollesen, T.; De Cort, M.; Nogarotto, A.; Braga, R., The first version of the Pan-European Indoor Radon Map, *Natural Hazards and Earth System Sciences*, NA, <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 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 multi-criteria decision making, *Global Nest Journal*, 16, 36–42, <http://dx.doi.org/10.30955/gnj.001241>.

- 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>.
- 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>.
- 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>.
- 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.