



# Javier Elío

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

## Publications

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I have published 0 peer-reviewed journal articles, chapters or books on Environmental Science topics. I have also presented my research at 4 invited talks, and in several national and international conferences. For more information, please visit my Google Scholar profile.

### PEER REVIEWED ARTICLES

- 2020 Bossew, P., Cinelli, G., Ciotoli, G., Crowley, Q.G., de Cort, M., **Elío**, J., Gruber, V., Petermann, E., Tollefson, T., Development of a geogenic radon hazard index—concept, history, experiences, International Journal of Environmental Research and Public Health, 17, 4134, <http://dx.doi.org/10.3390/ijerph17114134>
- 2020 Javier **Elío**, Quentin Crowley, Ray Scanlon, Jim Hodgson, Stephanie Long, Mark Cooper, Vincent Gallagher, Application of airborne radiometric surveys for large-scale geogenic radon potential classification, Journal of the European Radon Association, <http://dx.doi.org/10.35815/radon.v1.4358>
- 2020 Namrata Kaile, Mathilde Lindivat, Javier **Elío**, Gunnar Thuestad, Quentin G. Crowley, Ingunn Alne Hoell, Preliminary Results From Detection of Microplastics in Liquid Samples Using Flow Cytometry, Frontiers in Marine Science, 7, <http://dx.doi.org/10.3389/fmars.2020.552688>
- 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 CO<sub>2</sub>-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., Tollefson, T., De Cort, M., Nogarotto, A., Braga, R., The first version of the Pan-European Indoor Radon Map, Natural Hazards and Earth System Sciences, <http://dx.doi.org/10.5194/nhess-19-2451-2019>
- 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 CO<sub>2</sub>-rich area, Applied Geochemistry, 102, 153–170, <http://dx.doi.org/10.1016/J.APGEOCHEM.2019.01.011>
- 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 CO<sub>2</sub> 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., Quindós-Poncela, L.S., Sainz-Fernández, C., Pous, J., Evaluation of the applicability of four different radon measurement techniques for monitoring CO<sub>2</sub> storage sites, International Journal of Greenhouse Gas Control, 41, 1–10, <http://dx.doi.org/10.1016/j.ijggc.2015.06.021>
- 2015 **Elío**, J., Ortega, M.F., Nisi, B., Mazadiego, L.F., Vaselli, O., Caballero, J., Grandia, F., CO<sub>2</sub> and Rn degassing from the natural analog of Campo de Calatrava (Spain): Implications for monitoring of CO<sub>2</sub> storage sites, International Journal of Greenhouse Gas Control, 32, 1–14, <http://dx.doi.org/10.1016/j.ijggc.2014.10.014>
- 2014 Llamas, B., Mazadiego, L.F., **Elío**, J., Ortega, M.F., Grandia, F., Rincones, M., Systematic approach for the selection of monitoring technologies in CO<sub>2</sub> 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, <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 CO<sub>2</sub> injection site at Hontomín-Huermececs (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., CO<sub>2</sub> soil flux baseline at the technological development plant for CO<sub>2</sub> 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 CO<sub>2</sub>, International Journal of Greenhouse Gas Control, 9, 303–311, <http://dx.doi.org/10.1016/j.ijggc.2012.04.006>

## BOOK CHAPTERS

- 2019 European Commission, Joint Research Centre – Cinelli, G., De Cort, M., Tollefse, T. (Eds.): European Atlas of Natural Radiation, Publication Office of the European Union, Luxembourg, 2019. ISBN 978-92-76-08259-0, Catalogue number KJ-02-19-425-EN-C, EUR 19425 EN. Printed by Bietlot in Belgium 2019 – 190 pp. – 30.1 cm— 42.4 cm, <http://dx.doi.org/10.2760/520053>.
- 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 CO<sub>2</sub> storage in saline aquifers and possible effects of CO<sub>2</sub> 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](http://dx.doi.org/10.1007/978-3-319-27019-7_5)

## INVITED TALKS

- 2020 **Elío** J., Methodology behind the first Pan-European Indoor Radon Map, Technical solutions for displaying and communicating indoor radon data - European Radon Week 2020, Joint Research Centre (JRC) - European Commission, AT.
- 2016 **Elío** J., Modelling Indoor Radon Concentration: Towards a High-Resolution Indoor Radon Map of Ireland, Michaelmas Semester 2016, Geology Seminar Series, Trinity College Dublin, IE.
- 2016 **Elío** J., Groundtruthing Tellus High Radon Areas, Geoscience 2016 Conference, Geological Survey of Ireland, IE.

- 2016 **Elío** J., Radon potential classification using in-situ radon soil-gas measurements, Tellus meeting. Unearthed - Impacts of the Tellus surveys of the north of Ireland, Geological Survey of Ireland, IE.

## CONFERENCES

- 2020 Bossew P., Janik M., Petermann E., **Elío** J., Machine learning in environmental radon science, International Committee for Radionuclide Metrology, Low-Level Radioactivity Measurement Techniques - ICRM-LLRMT 2020, IT.
- 2020 Fernandez Anez N., Meyer A., **Elío** J., Kleppe G., Hagen B.C., Frette V., Behaviour of smouldering fires during periodic refilling of wood pellets into silos, 13th International Symposium on Hazards, Prevention, and Mitigation of Industrial Explosions - ISHPMIE, DE.
- 2019 Bossew P., Cinelli G., Ciotoli GC., Crowley Q., De Cort M., **Elío** J., Gruber V., Petermann E., Tollefson T., Development of a geogenic radon hazard index GRHI, 3rd International Conference Radon in the Environment, PL.
- 2019 **Elío** J., Bossew P., Cinelli G., De Cort M., Garcia-Talavera M., Gruber V., Gutiérrez Villanueva JL., Iurlaro G., Tollefson T., Udovicic V., Advances in the European Indoor Radon Map, towards a European Indoor Radon Dose Map, EGU General Assembly 2019, AT.
- 2018 Cinelli G., Bossew P., **Elío** J., Gruber V., Braga R., Nogarotto A., Petterman E., Tollefson T., De Cort M., Analysis of the European Atlas of Natural Radiation data within geological and soil units, 14th International workshop on the geological aspects on radon risk mapping – GARRM, CZ.
- 2018 **Elío** J., Crowley Q., Scanlon R., Hodgson J., Gallagher V., Long S., Cooper M., Correlation between topsoil geochemistry and indoor radon concentration, 12th Conference on Geostatistics for Environmental Applications – geoENV2018, UK.
- 2018 Bossew P., Cinelli G., Tollefson T., Gruber V., De Cort M., García-Talavera M., **Elío** J., From the European Indoor Radon Concentration Map to a European Indoor Radon Dose Map, VI. Terrestrial Radioisotopes in Environment International Conference on Environmental Protection, HU.
- 2018 **Elío** J., Crowley Q., Scanlon R., Hodgson J., Long S., Zgaga L., Bossew P., Utilizing multiple approaches for the definition of radon priority areas, EGU General Assembly 2018, AT.
- 2018 Hodgson J., Bossew P., **Elío** J., Crowley Q., Airborne gamma spectrometry as predictor of indoor radon concentration and radon priority areas, EGU General Assembly 2018, AT.
- 2018 Crowley Q., **Elío** J., Lehne R., Militzer A., Ciotoli G., McKinley J., Cinelli G., Bossew P., Tectonically enhanced geogenic radon, EGU General Assembly 2018, AT.
- 2017 **Elío** J., Crowley Q., Scanlon R., Hodgson, Long S., Detection of radon priority areas by in-situ radon soil-gas measurements: a case-study in the Cooley Peninsula (County Louth, Ireland), 2nd International Workshop on the European Atlas of Natural Radiation - IWEANR, IT.
- 2017 **Elío** J., Crowley Q., Scanlon R., Hodgson, Long S., Cooper M., Mapping Natural Occurring Radioactive Materials (U, Th and K) in Ireland: implications for radon mapping, 2nd International Workshop on the European Atlas of Natural Radiation - IWEANR, IT.
- 2017 **Elío** J., Crowley Q., Scanlon R., Hodgson, Long S., Use of geological information to develop a high resolution indoor radon risk map of Ireland, Third East-European Radon Symposium - TEERAS2017, BG.
- 2017 **Elío** J., Crowley Q., Scanlon R., Hodgson J., Long S., A new high-resolution radon map of Ireland, 60 Irish Geological Research Meeting, IE.
- 2016 **Elío** J., Crowley Q., Scanlon R., Hodgson, Cooper M., Long S., Radon monitoring and hazard prediction in Ireland, EGU General Assembly 2016, AT.
- 2014 **Elío** J., Ortega M.F., Grandia F., Gasparini A., Caballero J., Sáinz A., Mazadiego L.F., Enhanced radon emission in natural CO<sub>2</sub> flows in Campo de Calatrava region (central Spain), Third International Conference on Radioecology and Environmental Radioactivity, ES.
- 2013 **Elío** J., Ortega M.F., Mazadiego L.F., Caballero J., et al., Monitorización y verificación de un almacenamiento geológico de CO<sub>2</sub>. Aplicación de la monitorización superficial en la PDT de Hontomín, Burgos, España), XII reunión del Grupo Español del Carbón, ES.
- 2013 Rincones M.A., Ortega M.F., **Elío** J., Gutierrez del Olmo J., et al., Atmospheric and remote sensing surveys evaluated at the natural analogue Campo de Calatrava and its relation with isotopic Radon activity and CO<sub>2</sub> flux as strategy for CCS projects, Congreso Ibérico - XI Congreso nacional de Geoquímica, ES.

- 2013 Ortega M.F., Rincones M., **Elío J.**, Gutiérrez Del Olmo J., et al., Gas monitoring methodology and application to CCS projects as defined by atmospheric and remote sensing survey in the natural analogue of Campo de Calatrava, 13th International Conference on Environmental Science and Technology - CEST2013, GR.
- 2013 Llamas B., Mazadiego L.F., **Elío J.**, Ortega M.F., Grandia F., Systematic approach to selection of technologies of monitoring in projects for geological storage of CO<sub>2</sub>. Application of multiple criteria decision making, 13th International Conference on Environmental Science and Technology - CEST2013, GR.
- 2013 Nisi B., Vaselli O., Tassi F., **Elío J.**, et al., Water chemistry at Hontomín-Huermeces (Burgos, Spain): insights for a pre-, intra- and post-CO<sub>2</sub> injection geochemical monitoring, EGU General Assembly 2013, AT.
- 2013 Grandía F., **Elío J.**, Mazadiego L.F., Ortega M.F., Llamas J.F., Rn gas emission distribution in the soil-atmosphere interface: lessons learned from CO<sub>2</sub> storage monitoring, MoDeRn Monitoring in Geological Disposal of Radioactive Waste, objectives, strategies, technologies and public involvement, LU.
- 2012 **Elío J.**, Ortega M.F., Caballero J., García-González J.E., et al., Baseline of soil CO<sub>2</sub> flux in the Hontomin Site (Burgos, Spain), 34th International Geological Congress, AU.
- 2012 Nisi B., Vaselli O., **Elío J.**, Ortega M.F., et al., CO<sub>2</sub> emission from two old mine drillings (Mt. Amiata, central Italy) as a possible example of storage and leakage of deep-seated CO<sub>2</sub>, 34th International Geological Congress, AU.
- 2012 Mazadiego L.F., Grandia F., **Elío J.**, Nissi B., et al., Baseline of soil-atmosphere CO<sub>2</sub> flux in the Hontomin site (Burgos, Spain), Third EAGE CO<sub>2</sub> Geological Storage Workshop. Understanding the Behaviour of CO<sub>2</sub> in Geological Storage Reservoirs, UK.
- 2012 Grandia F., Mazadiego L.F., **Elío J.**, Ortega M.F., Bruno J., Radon isotope measurements as a monitoring tool for CO<sub>2</sub> leakage in geological storage, AGU fall meeting 2011, USA.
- 2011 Grandia F., **Elío J.**, Ortega M.F., Caballero J., Nisi B., et al., Baseline of CO<sub>2</sub> fluxes in the PDT of Hontomín (Burgos, España), II coloquio Hispano-Francés sobre Almacenamiento Geológico de CO<sub>2</sub>, ES.
- 2011 Nisi B., Vaselli O., **Elío J.**, Ortega M.F., Caballero J., Tassi F., CO<sub>2</sub> emission two old mine drillings in the Monte Amiata Area (Italy): can they be safely shut down?, II Coloquio Hispano-Francés sobre Almacenamiento Geológico de CO<sub>2</sub>, ES.
- 2011 Ortega M.F., **Elío J.**, Caballero J., Mazadiego L.F., et al., Radon isotopes as a monitoring tool in CCS projects, II Coloquio Hispano-Francés sobre Almacenamiento Geológico de CO<sub>2</sub>, ES.
- 2011 Rincones M.A., Iglesias L., García R., de la Vega R., Grandia F., Mazadiego L.F., **Elío J.**, et al., Remote sensing techniques as a monitoring tool in geological CO<sub>2</sub> storage, II Coloquio Hispano-Francés sobre Almacenamiento Geológico de CO<sub>2</sub>, ES.
- 2011 **Elío J.**, Ortega M.F., Caballero J., García-González J.E., et al., Caracterización geoquímica de la línea base de flujo de CO<sub>2</sub> en la planta de almacenamiento geológico de Hontomín (Burgos, España), VIII Congreso Ibérico de Geoquímica-XVII Semana de Geoquímica, PT.
- 2011 Ortega M.F., **Elío J.**, Caballero J., Vaselli O., et al., Estudio de análogos naturales de captura y almacenamiento de CO<sub>2</sub>: relación radón (222Rn) - torón (220Rn), VIII Congreso Ibérico de Geoquímica-XVII Semana de Geoquímica, PT.
- 2011 Nisi B., Vaselli O., **Elío J.**, Tassi F., et al., Geochemical monitoring of water discharges and dissolved gases in the CO<sub>2</sub> injection site of Hontomin (Burgos, Spain), VIII Congreso Ibérico de Geoquímica-XVII Semana de Geoquímica, PT.
- 2011 Nisi B., **Elío J.**, Vaselli O., Tassi F., Grandia F., Mazadiego L.F., Geochemical monitoring in the Hontomín (Burgos, Spain) injection site: preliminary results and perspectives, EGU General Assembly 2011, AT.
- 2010 Vaselli O., Nisi B., Tassi F., Mazadiego L.F., **Elío J.**, et al., Geochemical baseline characterization of the storage area around the injection site at Hontomín (Burgos, Spain), Coloquio Franco-Español sobre almacenamiento geológico de CO<sub>2</sub>, FR.
- 2010 Vaselli O., Tassi F., Bicocchi G., Nisi B., Montegrossi G., Burgassi P., Grandia F., **Elío J.**, Bruno J., Injection and extraction of CO<sub>2</sub> - The role of the geochemical monitoring, IGRS International Geo-Hazards Research Society, Scientific approach to GeoHazard: a window to the future, 2nd Symposium, IT.

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