



# Eloi González-Esvertit

PhD Student, Earth Scientist

Departament de Mineralogia, Petrologia i Geologia Aplicada  
Facultat de Ciències de la Terra, Universitat de Barcelona

[e.gonzalez-esvertit@ub.edu](mailto:e.gonzalez-esvertit@ub.edu) / +34 722752532

[Google Scholar](#) | [ORCID](#) | [Scopus](#) | [Twitter](#)

Personal webpage: <https://gonzalezesvertit.com/>

## MAIN RESEARCH INTERESTS

### Structural Geology

Geological and structural mapping  
Microtectonics  
Folding and fracturing of rocks  
Crystal-plastic deformation  
in shear zones

### Petrology

Fluid-rock interactions  
Fluid flow and heat transport  
Stable isotope geochemistry  
Metasomatism of crystalline rocks  
and alteration styles

### Geoenergy and Geohazards

Earthquakes and fluid flow  
Carbon Capture and Storage  
GIS multi-scale analysis  
Energy, carbon, and nuclear  
waste sub-surface storage

## EMPLOYEMENT

---

### 04/21 – 04/24. PhD Researcher. University of Barcelona, Faculty of Earth Sciences

Multidisciplinary study of the giant quartz veins and their host rocks in the Pyrenees through a combination of fieldwork, laboratory analyses, and numerical modelling. Contribution to the knowledge of the Pyrenean tectono-thermal evolution as well as to the global understanding of crustal fluid flow, fluid-rock interactions, and formation of giant quartz veins. Supervisors: Dr. Enrique Gomez-Rivas, Dr. Àngels Canals, Prof. Josep Maria Casas.

### 03/2023. International research visitor at the University of Aberdeen (United Kingdom)

Research stay at the School of Geosciences of the University of Aberdeen. SEM-EBSD investigations on brittle and ductile microstructures from deformed rocks. With Dr. Joyce Neilsen, Dr. Alexander Brasier and Dr John Still.

### 09/22 – 11/22. International research visitor at the RWTH Aachen University (Germany)

Research stay at the Institute of Applied Mineralogy and Economic Geology of the RWTH Aachen University. Comprehensive study of fluid inclusions: microthermometry, raman spectroscopy and LA-ICPMS microanalysis. With Prof. Thomas Wagner and Dr. Tobias Fusswinkel.

### 09/20 – 03/21. Assistant Research Scientist. University of Barcelona, Faculty of Earth Sciences

Development of the Iberian Evaporite Structures Database (IESDB) (<https://iesdb.eu>)  
Data mining, filtering, and curation. Webpage design and implementation. Image creation.  
Overall assessment of evaporite structures in the Iberia Peninsula for earth science, academic research, and resource exploration and appraisal (CO<sub>2</sub> and Energy storage, nuclear waste management).

### 09/18 – 06/19. Internship Student. Spanish National Research Council (GEO3BCN-CSIC)

Practical introduction to geochronology (360h). Description of igneous rocks from the Pyrenees. Sample management, sample preparation and zircon extraction for U-Pb dating.

## EDUCATION

---

### 2019 – 2020. MSc (Honours) in Mineral Resources and Geological Hazards, University of Barcelona.

Awarded by the Spanish Mineralogical Society (SEM). MSc dissertation: *Insights into the structural evolution of the pre-Variscan rocks of the Eastern Pyrenees from metric- and hectometric-sized quartz veins; constraints on chlorite and fluid inclusions thermometry.*

### 2013 – 2019. Degree in Geology, University of Barcelona.

Awarded by the Spanish Illustrious Official College of Geologists (ICOG). Undergraduate dissertation: *La discordancia del Ordovícico Superior en La Molina (Pirineo): estudio de la deformación y condiciones de formación de las venas de cuarzo asociadas.*

## ENROLMENT IN FUNDED PROJECTS

---

### **2021SGR-00349 – Grup de Recerca Geologia Sedimentària**

Funding: Generalitat de Catalunya.  
PI: Dr. Telm Bover.

### **PID2021-122467NB-C22 – *Fold- and fault-controlled diagenesis in orogenic and rifting systems: implications for geothermal resources and CO<sub>2</sub> storage.***

Funding: Min. de Ciencia, Innovación y Universidades (Spanish Government) / European Regional Development Fund.  
PI: Prof. Anna Travé Herrero / Dr. Juan Diego Martín Martín.

### **Geomodels Research Institute – *Member of the Editorial Board and representative of the PhD Students.***

Funding: Generalitat de Catalunya.  
PI: Prof. Eduard Roca.

### **PID2020-118999GB-100 – *New evaporite records from the Eastern and Western Mediterranean: contributions to the evolution of the last saline giant and opportunities for the energy transition.***

Funding: Min. de Ciencia, Innovación y Universidades (Spanish Government) / European Regional Development Fund.  
PI: Dr. Lluís Gibert / Dr. Enrique Gómez-Rivas.

### **RyC-2018-026335 – *Understanding the interplay between deformation, dynamic fluid flow and rock alteration in the Earth's crust.***

Hired as Assistant Researcher in the framework of the Ramón y Cajal fellowship of Dr. Enrique Gómez Rivas.  
Funding: Min. de Ciencia, Innovación y Universidades (Spanish Government) / European Regional Development Fund.

### **PGC2018-093903-B-C22 – *Unravelling fluid flow during the evolution of inverted basins and orogenic belts: application to CO<sub>2</sub> storage.***

Funding: Min. de Ciencia, Innovación y Universidades (Spanish Government) / European Regional Development Fund.  
PI: Prof. Anna Travé Herrero / Dr. Juan Diego Martín Martín.

### **2017SGR-00824 – Grup de Recerca Geologia Sedimentària**

Funding: Generalitat de Catalunya.  
PI: Prof. Anna Travé Herrero.

## COURSES AND FIELDTRIPS

---

### **University of Lausanne / University of Padua – Understanding deep crustal processes [Course]**

2023 – Prof. Bernardo Cesare, Prof. Lukas Baumgartner.

Course on petrologic processes in the deep Earth's crust, with emphasis on melting in the lower crust, granitoid magmatism, geochemical differentiation and crustal rheology.

### **University of Milano-Bicocca – Detrital geochronology and thermochronology [Course]**

2023 – Dr Igor M. Villa, Dr Chloé Bouscary, Dr Massimiliano Zattin, Dr Marco G. Malusà.

Course on geo/thermochronological methods (zircon U-Pb, mica Ar-Ar, apatite and zircon fission-track and (U-Th)/He, trapped-charge thermochronology) and the main factors that control the final complexity of the detrital geochronology record in a sedimentary basin.

### **Marrakech University – High-Atlas of Marrakech, Morocco [Fieldtrip]**

2022 – Dr El Hassane Chellai, Dr Mohamed Aquit. Morocco.

Sedimentary, tectonic, and magmatic markers of the Phanerozoic rifting on the northern side of the High-Atlas of Marrakech, Morocco. Cross-section from the Axial zone to the Mesozoic and Cenozoic deposits.

### **Universitat de Barcelona – Statistics applied to Earth Sciences [Course]**

2022 – Dr Cristina Baeza. Barcelona.

Descriptive and inferential statistics, analysis of data matrices, preparation of data for statistical analysis, SPSS package.

### **University of Catania / INGV – Etna Volcano [Fieldtrip]**

2022 – Dr Rosalda Punturo, Dr Giorgio De Guidi, Dr Carmelo Monaco, and Dr Giuseppe Puglisi. Italy.

Volcano-tectonic evidence, dykes, eruptive apparatus and lava flows, active tectonics

### **University of Catania / INGV – Calabria Crystalline Basement [Fieldtrip]**

2022 – Dr Gaetano Ortolano, Dr Eugenio Fazzio, Dr Patrizia Fiannacca, Dr Carmelo Monaco, Dr Giovanni Barreca. Italy.

From ductile to brittle deformation: Palmi Shear Zone – Rovaglioso syn-tectonic granitoids – Messina Strait fault system.

### **University of Mainz – Microtectonics Masterclass [Course]**

2022 – Prof. Cees Passchier and Prof. Virginia Toy. Germany.

Principles of microtectonic analysis, overprinting relations, deformation phases, flow and deformation, intracrystalline deformation, foliations and lineations, shear zones, veins and fringes, metamorphic reaction rims.

### **University of Edinburg (Online) - Climate Change: Carbon Capture and Storage [Course]**

2021 – Prof. Mathieu Lucquiaud, Prof. Mark Wilkinson and Prof. Mennat Allah Labib. Online.

Explore the technology that can provide a long-term solution to protect our atmosphere from an excess of carbon dioxide, in the context of global energy, our use of fossil fuels, and climate change.

### **University of Kyoto (Online) – Introduction to Geochemistry**

2021 – Prof. Yoji Kobayashi. Online

How the Earth's elements are formed. What determines the elements' abundances and distribution on Earth. Rock classification and geochemical diversity. Environmental/technological problem solving.

### **Stanford University (Online) – Reservoir Geomechanics**

2021 – Prof. Mark Zoback. Online.

Rock mechanics, structural geology, earthquake seismology and petroleum engineering to address a wide range of geomechanical problems that arise during the exploitation of oil and gas reservoirs.

## **TEACHING**

---

### **Universitat de Barcelona (F. Ciències de la Terra) – MSc Mineral Resources and Geological Hazards**

1st MSc year – Ductile and Fragile deformation. Leading: Dr Enrique Gomez-Rivas.

Mineral Resources and Geological Hazards (University of Barcelona)

Number of teaching hours: 2 hours.

### **Tübingen University (Mathematisch-Naturwissenschaftliche Fakultät) – MSc Geosciences**

Structural Geology Field Course at Cap de Creus (Spain). Leading: Prof. Paul D. Bons.

2-10 April 2022 (including travel). Elective for the degree MSc Geosciences (Tübingen University)

Number of field days: 7 full days (70 hours).

### **Universitat de Barcelona (F. Ciències de la Terra) – MSc Science and Integrated Management of Water**

2<sup>nd</sup> MSc year. Field practical – Hydrogeology. Leading: Dr Jofre Herrero.

2-10 April 2022 (including travel). Science and Integrated Management of Water (University of Barcelona)

Number of field days: 5 full days (40 hours).

## PEER-REVIEWED PUBLICATIONS

---

**9. González-Esvertit, E.,** Alcalde, J., Gómez-Rivas, E., (*in review*). IESDB – The Iberian Evaporite Structure Database. *Earth System Science Data*.

DOI: *not available yet*

**8. González-Esvertit, E., Casas, J. M.,** Canals, A., Bons, Paul D., Prieto-Torrell, C., Cofrade, G., Gomez-Rivas, E. (*accepted, in press*). Multi-scale analysis of the mylonitized giant quartz veins of the Cap de Creus and Canigó Massifs (Pyrenees). *Book Chapter – Springer. Mediterranean Geoscience Union*.

DOI: *not available yet*

**7. González-Esvertit, E.,** Alcalde, J., Gomez-Rivas, E. (*accepted, in press*). The Iberian Evaporite Structure Database (IESDB) – an evaporite radar for energy, carbon, and nuclear waste storage facilities. *Book Chapter – Springer. Mediterranean Geoscience Union*.

DOI: *not available yet*

**6. González-Esvertit, E.,** Canals, A., Gómez-Rivas, E., Bons, Paul D., Murta, H., Casas, J. M. (2022). Geology of giant quartz veins and their host rocks from the Eastern Pyrenees (Southwest Europe). *Journal of Maps*.

DOI: <https://doi.org/10.1080/17445647.2022.2133642>

**5. Bons, Paul D.,** Cao, D., de Riese, T., Gómez-Rivas, E., **González-Esvertit, E.,** Koehn, D., Naaman, I., Sachau, T. & Tian, H (2022). A review of natural hydrofractures in rocks. *Geological Magazine*.

DOI: <https://doi.org/10.1017/S0016756822001042>

**4. González-Esvertit, E.,** Canals, A., Bons, Paul D., Casas, J. M. & Gómez-Rivas, E. (2022). Compiling regional structures in geological databases: the Giant Quartz Veins of the Pyrenees as a case study. *Journal of Structural Geology*, 163(1–4):104705.

DOI: <https://doi.org/10.1016/j.jsg.2022.104705>

**3. González-Esvertit, E.,** Molins-Vigatà, J., Canals, A., & Casas, J. M. (*accepted, in press*). The geology of the Gréixer area (La Cerdanya, Eastern Pyrenees): Sardinic, Variscan, and Alpine imprints. *Trabajos de Geología*.

DOI: *not available yet*

**2. González-Esvertit, E.,** Canals, A., Casas, J. M., & Nieto, F. (2021). Chlorite chemical adjustment in the Gréixer vein: effects on thermometry. *Macla*, 24, 32-33.

URL: <https://dialnet.unirioja.es/servlet/articulo?codigo=8231752>

**1. González-Esvertit, E.,** Canals, A., Casas, J. M., & Nieto, F. (2020). Insights into the structural evolution of the pre-Variscan rocks of the Eastern Pyrenees from La Molina quartz veins; constraints on chlorite and fluid inclusion thermometry. *Geologica Acta*, 18(1), 1-20, I-XVIII.

DOI: <https://doi.org/10.1344/GeologicaActa2020.18.18>

## CONFERENCE COMMUNICATIONS

---

[Underlined author = presenting author]

12. Alcalde, J., González-Esvertit, E., Gomez-Rivas, E. (2023). IESDB – A comprehensive database of evaporite structures in Iberia. *EGU General Assembly 2023*. [Poster Presentation]. Vienna, Austria.
11. González-Esvertit, E., Casas, J. M., Canals, A., Bons, Paul D., Prieto-Torrell, C., Cofrade, G., Gomez-Rivas, E. (2022). Multi-scale analysis of the mylonitized giant quartz veins of the Cap de Creus and Canigó Massifs (Pyrenees). *Mediterranean Geoscience Union Annual Meeting*. [Oral Presentation]. Marrakech, Morocco.
10. González-Esvertit, E., Alcalde, J., Gomez-Rivas, E. (2022). The Iberian Evaporite Structure Database (IESDB) – an evaporite radar for energy, carbon, and nuclear waste storage facilities. *Mediterranean Geoscience Union Annual Meeting*. [Oral Presentation]. Marrakech, Morocco.
9. González-Esvertit, E., Alcalde, J. & Gómez-Rivas, E. (2022). Introducing the Iberian Evaporite Structure Database (IESDB). Deformation mechanisms, Rheology and Tectonics (DRT) Meeting. [Poster Presentation]. Catania, Italy.
8. González-Esvertit, E., Casas, J. M., Gómez-Rivas, E. & Canals, A. (2022). Structural analysis of giant quartz veins from the Eastern Pyrenees (SW Europe). Deformation mechanisms, Rehology and Tectonics (DRT) Meeting. [Poster Presentation]. Catania, Italy.
7. González-Esvertit, E., Gómez-Rivas, E., Canals, A., Llorens, M-G., Margalef, A. & Casas, J. M. (2022). Indexation, evaluation and interpretation of regional geological structures using Geographic Information Systems: The giant quartz veins of the Pyrenees (SW Europe) as a case study. *XXI Congreso Geológico Argentino* / Online live event [Oral presentation].
6. González-Esvertit, E. (2021). Giant quartz veins: kilometres of geological information. Invited keynote at Expominer – MinerMat 2021: Minerale, materiales, medio ambiente y desarrollo sostenible. [Oral presentation].
5. González-Esvertit, E., Gómez-Rivas, E., Canals, A. & Casas, J. M. (2021). Building an orogen-scale database of giant quartz veins: the GIVEPY (Giant Quartz Veins of the Pyrenees) database. *Waiting for Yorgset, Società Geologica Italiana (SGI)* / Online live event [Poster presentation].
4. González-Esvertit, E., Canals, A., Gómez-Rivas, E. & Casas, J. M. (2021). Giant quartz veins in the Eastern Pyrenees: a GIS-based macrostructural approach. *X Congreso Geológico de España de la Sociedad Geológica de España* / Vitoria (Spain) [Oral presentation].
3. González-Esvertit, E., Canals, A., Casas, J. M., & Nieto, F. (2020). Chlorite chemical adjustment in the Gréixer vein: effects on thermometry. *II Meeting, Spanish Mineralogical Society (SEM-CAT)* / Online live event [Oral presentation].
2. González-Esvertit, E., Canals, A., Casas, J. M., & Nieto, F. (2020). Chlorite and fluid inclusion thermometry as a tool to inquire into the tectono-thermal evolution of orogens: an example from the La Molina V1 (Late Ordovician) and V2 (Alpine) quartz veins. *Geological Society of America Annual Meeting (GSA2020)* / Online live event [Oral presentation]. doi: 10.1130/abs/2020AM-359638
1. González-Esvertit, E., Canals, A., & Casas, J. M. (2019). The Upper Ordovician Unconformity in La Molina area (Axial Pyrenees); deformation study and formation conditions of the associated quartz veins. *Basins and Resources (40th anniversary of CREGU)*. / Nancy (France) [Poster presentation].

## GRANTS AND AWARDS

---

### University of Barcelona PhD commission – Internship grant

Selected by the University of Barcelona PhD commission as one of the best research proposals in 2023. Amount awarded: 600€

### Agustí Pedro i Pons Foundation – Internship grant

Selected by the Agustí Pedro i Pons Foundation (University of Barcelona) as one of the best research proposals in the category of “Sciences” (Earth Sciences, Biology, Chemistry, Engineering and Physics). Amount awarded: 1500€

### Mediterranean Geoscience Union (MedGU) – Best Paper International Award

Awarded at the Mediterranean Geoscience Union annual meeting (MedGU-2022) in Marrakech, Morocco, for with the “Springer Award for Outstanding Paper” in the Sedimentology, Stratigraphy, Paleontology, Chronology conference track. Amount awarded: 300€

Committee: Attila Çiner (Eurasia Institute of Earth Sciences, Istanbul; Technical University, Turkey); Mustapha Meghraoui (IPG Strasbourg, France); Abdelaziz Mridekh (University Ibn Tofail, Kenitra, Morocco); Nabil Khélifi (Springer Nature, Germany).

### Deformation Mechanisms, Rheology and Tectonics Society – Student Attendance Funding Program

Awarded by the European Society for Deformation Mechanisms, Rheology and Tectonics as an early career researcher to attend the DRT2022 international conference in Catania, Italy (July 2022). Amount awarded: 700€

Committee: Paul Bons (University of Tübingen); Maria-Gema Llorens (GEO3BCN-CSIC); Gaetano Ortolano (University of Catania); Till Sachau (University of Tübingen); Eugenio Fazio (University of Catania).

### Geological Society of London Research Grants – International Project Awarded

Awarded by the Research Grants Committee of the Geological Society of London, chaired by Science secretary Dr Alex Whittaker, for the project *Unravelling the formation mechanisms of giant quartz veins at the Canigó Massif (Eastern Pyrenees): a structural and geochemical approach*. Amount awarded: £1900

Supporters: Joyce Neilson (University of Aberdeen) | Josep Anton Muñoz (University of Barcelona).

### Best MSc Dissertation (2020) – SEM

2021 Call for proposals: Academic Honours Award from the Spanish Mineralogical Society (SEM): “Best MSc Thesis Award”. Amount Awarded: 300€.

Supporters: Josep Maria Casas (University of Barcelona) | Àngels Canals (University of Barcelona).

### Best Undergraduate Dissertation (2019) - ICOG

2020 Call for proposals: Academic Honours Award from the Illustrious Official College of Geologists (ICOG): “Best BSc Thesis Award”. Amount Awarded: 200€.

Supporters: Josep Maria Casas (University of Barcelona) | Àngels Canals (University of Barcelona).

## DATASETS [Open Access]

---

**González-Esvertit, E.,** Alcalde, J., & Gomez-Rivas, E. (2022). IESDB-The Iberian Evaporite Structures DataBase. An interactive atlas of evaporite structures in Iberia [Data set]. DIGITAL.CSIC.  
<https://doi.org/10.20350/digitalCSIC/14586>

**González-Esvertit, E.,** Gomez-Rivas, E., Canals, A., Bons, P.D., & Casas, J.M. (2021). Giant Quartz Veins of the Pyrenees Database – Full Dataset (ESRI Shapefile) (12\_2021) [Data set]. Zenodo.  
<https://doi.org/10.5281/zenodo.5720513>

**González-Esvertit, E.,** Gomez-Rivas, E., Canals, A., Bons, P.D., & Casas, J.M. (2021). Giant Quartz Veins of the Pyrenees Database – Full Dataset (MS File) (12\_2021) [Data set]. Zenodo.  
<https://doi.org/10.5281/zenodo.5720604>

**González-Esvertit, E.,** Gomez-Rivas, E., Canals, A., Bons, P.D., & Casas, J.M. (2021). Giant Quartz Veins of the Pyrenees Database – Vein width Dataset (MS File) (12\_2021) [Data set]. Zenodo.  
<https://doi.org/10.5281/zenodo.5720630>

## **SERVICE TO THE RESEARCH COMMUNITY**

---

### **Conference organization**

Member of the organizing committee of the Deformation Mechanisms, Rheology and Tectonics Meeting (DRT – Barcelona 2024).

### **Webpage administration**

**IESDB DATABASE:** The IESDB (Iberian Evaporite Structures DataBase) is an interactive atlas of evaporite structures in the Iberian Peninsula. [<https://iesdb.eu>].

**GIVEPY DATABASE:** The GIVEPY Database (GIant quartz VEins of the PYrenees) is an interactive tool that incorporates information of giant quartz veins in the Pyrenees. [<https://givepy.info>].

**Sedimentary Geology Research Group:** The Sedimentary Geology consolidated group is based at the University of Barcelona and makes contributions to understanding the spatial and temporal evolution of sedimentary basins worldwide. [<https://ub.edu/sedimentary-geology>]

### **Social networks management**

**Sedimentary Geology Research Group:** Management of Twitter, LinkedIn, and Instagram official accounts.

**Iberian Evaporite Structure Database:** Management of Twitter account.

*[Earth Science communication and outreach in my private twitter account, @Eloigoes]*

### **Student Supervision**

I have contributed to the supervision of two BSc (Júlia Molins and Victor Martí) and one MSc (Andreu Castanyo) theses in the University of Barcelona in 2019 and 2022, respectively.