

## Álvaro González

---



Ciencias de la Tierra  
Universidad de Zaragoza  
Campus Plaza San Francisco  
50009 Zaragoza, Spain

Phone: (+34) 610 329 045  
Alvaro.Gonzalez@unizar.es  
www.geonaut.eu

## Education

---



**Universidad Zaragoza** University of Zaragoza, Spain

1/2016 *PhD, Geology (European Doctorate)*  
“Contributions to probabilistic earthquake forecasting”  
Advisors: Javier B. Gómez & Amalio F. Pacheco  
Outstanding *cum laude* (highest grade).

6/2003 *Diploma of Advanced Studies,*  
*Petrology and Geochemistry* (outstanding grade)

6/2001 *Degree in Geological Sciences (M.Sc.)*  
Highest grade nationwide.



**UNIVERSITY OF CAMBRIDGE EXAMINATIONS** University of Cambridge, UK  
**International Examinations**

6/2008 *Certificate in Advanced English* – Grade A

## Professional Experience

---



**Universidad Zaragoza** Department of Earth Sciences  
University of Zaragoza, Spain

*Researcher and teaching assistant.* Twelve years (2002–).  
Earthquake science, field geology & geoinformatics.  
Research supported by several competitive national grants.



**Natural Hazards Division**  
**Institute of Geological and Nuclear Sciences**  
Lower Hutt, New Zealand

*Visiting scientist.* Three months (2005).  
Characterization of active faults, North & South Islands.  
Hosts: Pilar Villamor & Mark W. Stirling.

## Skills

---

### Outreach

- Passionate communicator about earthquake hazard and preparedness in public seminars, press, radio and TV.

### Computing

- Proficient in Fortran, with basic experience with C and Python.
- Advanced user of Generic Mapping Tools (`gmt.soest.hawaii.edu`) for elaborating high-quality maps.
- Contributor to QuakePy, a Python toolbox for statistical analysis of earthquake catalogs (`quake.ethz.ch/quakepy`).

## Awards

---



**Government of Spain**

2002 *National Award in Geology*  
(to the graduate with the highest marks in Spain).



**Faculty of Sciences**  
**University of Zaragoza, Spain**

2001 *Extraordinary award for academic achievement.*

## Personal Research Fellowships

---

Competitive fellowships from funding agencies in Spain.



10/2011–09/2013 **Caja Madrid Foundation**



2008 **MAPFRE Insurance Foundation**



2003–2005 **Government of Spain**



2002 **Regional Government of Aragón**



**Section on Earthquake Risk and Early Warning**  
**German Research Centre for Geosciences**  
Potsdam, Germany

*Research fellow.* Two years (10/2011–09/2013)  
Global Earthquake Model – Testing and Evaluation Group.  
Host: Danijel Schorlemmer



**Computational Science and Engineering**  
**University of California at Davis**

*Visiting scholar.* Three months (2004).  
Programming of numerical models of earthquake physics.  
Hosts: John B. Rundle & Donald L. Turcotte

## Research Topics

---

### Active Faults

- Fault mapping and paleoseismology applied to hazard assessment and siting of critical facilities in Spain and New Zealand.
- Contributor to fault databases used for PSHA:
  - National database, Spain ([info.igme.es/qafi](http://info.igme.es/qafi))
  - European database, SHARE Project ([diss.rm.ingv.it/share-edsf/](http://diss.rm.ingv.it/share-edsf/)).

### Time-dependent earthquake probabilities

- Analysis and probabilistic forecasting of simple statistical-physics models of earthquake sequences.
- Development of renewal models, and application to the Parkfield section of the San Andreas Fault.

### Seismic risk

- Basic assessment of probable casualties and economic losses for case-based earthquake scenarios in Spain.

### Spatial distribution of earthquakes

- Development of new, non-zoned source models for California, Spain, Western Pacific and Worldwide.
- Real-time model testing with the Collaboratory for the Study of Earthquake Predictability ([cseptesting.org](http://cseptesting.org)).
- Contributor to the seismogenic source zone model of the last official PSHA in Spain ([info.igme.es/zesis/](http://info.igme.es/zesis/)).

### Statistical analysis of earthquake catalogs

- Critical evaluation of the completeness and precision of the national Spanish earthquake catalogue.

### Seismological analysis of extraordinary case studies

- Characterization of the explosion of a great meteor over Siberia in February 2013.
- Analysis of the largest earthquake sequence ever triggered by underground gas injection (Castor Project, Spain 2013).

## Selected Publications

---

• Over twenty technical publications related to geophysics or natural hazards, with the dozen most relevant listed below.

• Collaborator with co-authors based on Spain, New Zealand, Germany and USA.

→ Please check the personal web page for the full list, references and reprints.

**Legend:** • Single author   ♦ Main author   ♣ Collaborating author

- |  |   |
|--|---|
| • The National Spanish Earthquake Catalogue: Evolution, precision and completeness   | <i>Journal of Seismology</i> , 2016                           |
| ♣ New Zealand geothermal power plants as critical facilities: An active fault avoidance study in the Wairakei geothermal field | <i>World Geothermal Congress</i> , 2015                       |
| ♣ The 2013 September–October seismic sequence offshore Spain: a case of seismicity triggered by gas injection?                 | <i>Geophysical Journal International</i> , 2014               |
| ♣ Seismic characterization of the Chelyabinsk meteor's terminal explosion  | <i>Seismological Research Letters</i> , 2013                  |
| ♣ The Quaternary active faults database of Iberia  | <i>Journal of Iberian Geology</i> , 2012                      |
| • Measurement of areas on a sphere using Fibonacci and latitude-longitude lattices   | <i>Mathematical Geosciences</i> , 2010                        |
| • Map of likely locations of future earthquakes in the Iberian Peninsula, Balearics and Canaries (In Spanish.)                 | <i>Seguridad y Medio Ambiente</i> , [MAPFRE Foundation], 2009 |
| ♣ Late Quaternary paleoseismic evidence on the Munébraga half-graben fault (Iberian Range, Spain)                              | <i>International Journal of Earth Sciences</i> , 2009         |
| ♦ A way to synchronize models with seismic faults for earthquake forecasting: Insights from a simple stochastic model          | <i>Tectonophysics</i> , 2006                                  |
| ♦ Updating seismic hazard at Parkfield   | <i>Journal of Seismology</i> , 2006                           |
| ♦ The occupation of a box as a toy model for the seismic cycle of a fault  | <i>American Journal of Physics</i> , 2005                     |
| ♣ Preliminary quantitative assessment of earthquake casualties and damages   | <i>Natural Hazards</i> , 2005                                 |