

Fermín Fernández Ibáñez

Dpto. Geodinámica, Universidad de Granada
Campus Fuentenueva s/n, 18002 – Granada (SPAIN)
e-mail: fferiba@ugr.es phone: +34 659449386

Educational History

Present	Post-doctoral fellow (Andalusian Institute of Earth Sciences, Spain)
2003-2007	Ph.D. Earth Sciences (Dept. of Geodynamics, Granada University, Spain)
2002-2004	M.S. Earth Sciences (Dept. of Geodynamics, Granada University, Spain)
1997-2002	B. S. with first class honours in Geology (Granada University, Spain)

Honors and awards

2006	European Science Foundation Travel Grant
2005	European Science Foundation Travel Grant
2004-2005	<i>Fundación J. García-Siñeriz</i> Prize to the best Master thesis in Geophysics
2003-2006	Spanish Ministry Fellowship for post-graduate studies
2003	2 nd National Award of the Spanish Government to the best B. S. in Geology
2002	Research Experience for Undergraduates (Spanish Ministry Scholarship)
2002	Granada Sciences Academy Award to the most outstanding B. S. in Geology
2001	Research Experience for Undergraduates (Granada University Scholarship)
1999-2000	Granada University Honors Scholarship to the 200 most outstanding students

Work Experience

2002-2003	<i>Geological mapping and evaluation of industrial rocks resources in the Murcia Region</i> Company: The Marble and Natural Stone Technological Center (Murcia, Spain) September 2002 to February 2003 Supervisor: Antonio Molina
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Research Experience

a. Participation in research projects

2007-present	<i>EVADIR - Evaluation of Active Deformations in the south Iberia using insaR</i> Ministério da Ciência, Tecnologia e Ensino Superior (Portugal) P.I.: Maria Luisa Machado Cerqueira Bastos
2006-present	<i>The Gibraltar Arc System: Active Geodynamic Processes at the South Iberian Margins</i> Spanish Bureau of Science research project P.I.: Maria del Carmen Comas Minondo
2003-present	<i>Tectonics and Marine Geology in the Alboran Sea</i> Andalusian Council research project
2003-2006	<i>Imaging the western Mediterranean margins: a key target to understand the interaction between deep and shallow processes</i> European Science Foundation research project (Euromargins) P.I.: Manel Fernández Ortiga
2003	<i>The configuration and evolution of the West Alboran Basin (WAB) from the Pliocene up until now</i> Conoco-Phillips and Granada University P.I.: J.I. Soto

2001-2005 *Integrated geological and geophysical studies of the margins and basins of South Iberia: relationships between surface and deep processes in the Alboran Sea and its connection to the Atlantic*
Spanish Bureau of Science research project
P.I.: Maria del Carmen Comas Minondo

b. Short term stays in other research centers

2003-2004 Spanish Antarctic Base “Gabriel de Castilla”, Deception Island, West Antarctica.
Installation and maintenance of a seismic network for monitoring seismo-tectonic activity in Deception Island
Supervisor: Jesús Ibáñez Period: 12 weeks

2004 Institute of Earth Sciences “Jaume Almera”, Barcelona, Spain.
Modeling the thermal structure of the crust in the Betic-Rif and Alboran Sea region
Supervisor: Manel Fernández Period: 2 weeks

2005 Stress and Crustal Mechanics Group, Dept. of Geophysics, Stanford University.
Present-day stress field inversion in the Gibraltar Arc region
Supervisor: Mark Zoback Period: 12 weeks

2006 Institute of Earth Sciences “Jaume Almera”, Barcelona, Spain.
Modeling partial melting processes in the deep crust of the Gibraltar Arc
Supervisor: Manel Fernández Period: 12 weeks

Field Experience

2002 “*Training Through Research Program (TTR-12)*”, Intergovernmental Oceanographic Commission, UNESCO.
Member of the MARSIBAL-1 Scientific Party on board of the R/V Professor Logachev. Worked on seismic reflection interpretation, sea-bottom samples description and helped with gravity coring.
P.I.: M. Ivanov (Moscow State University) and M.C. Comas (CSIC-Granada University). 19th -28th July 2002.

2003 “*e-Ruption: A Satellite Telecommunication and Internet-Based Seismic Monitoring System for Volcanic eruption forecasting and Risk Management*”.
Installation and maintenance of a seismic network on the Teide volcano (Canary Islands, Spain).
P.I.: J. Ibáñez (Granada University). 7th – 12th November 2003.

2004 “*TOMODEC: Tomografía sísmica de alta resolución de la isla Decepción (Antártica) y modelización de la fuente sísmica de referencia*”.
Installation of seismographs and monitoring of seismic activity in Deception Island, West Antarctica.
P.I.: J. Ibáñez (Granada University). 14th December 2003 to 4th March 2004.

2004 “*Training Through Research Program (TTR-14)*”, Intergovernmental Oceanographic Commission, UNESCO.
Member of the SEIMAR Scientific Party on board of the R/V Professor Logachev. Worked on seismic reflection and swath bathymetry data interpretation, sea-bottom samples description, helped with gravity coring. Worked on preliminary results reports.
P.I.: M. Ivanov (Moscow State University) and M.C. Comas (CSIC-Granada University). 11th -19th August 2004.

2005 “*SAFOD: San Andreas Fault Observatory at Depth (SAFOD-MH-PHASE II)*”. International Continental Drilling Program (ICDP) – Earthscope (National Science Foundation).
Washed cuttings, collected cuttings and mud samples, updated DIS database with daily drilling reports and sample information, took cutting photographs.
Supervised by: Mark D. Zoback (Stanford University). 2nd June to 12th July 2005.

Publications

International publications

- Soto, J.I., Talukder, A., Marro, G., **Fernández, F.**, Comas, M., Jurado, M.J., Volkonskaya, A., Kuvaev, I. and Agibalov, S. (2003). Mud volcanoes in the northern West Alboran Basin: Airgun seismic and hull mounted profiles. In *Interdisciplinary geoscience research on the North East Atlantic Margin, Mediterranean Sea and Mid-Atlantic Ridge* (Eds. N.H. Kenyon, M.K. Ivanov, A.M. Akhmetzhanov, G.G. Akhmanov), IOC Technical Series No. 67, 55-58, UNESCO.
- Soto, J.I., Talukder, A., Marro, G., **Fernández, F.**, Comas, M., Volkonskaya, A., Kuvaev, I. and Agibalov, S. (2003). Mud volcanoes in the southern West Alboran Basin: Airgun seismic and hull mounted profiles. In *Interdisciplinary geoscience research on the North East Atlantic Margin, Mediterranean Sea and Mid-Atlantic Ridge* (Eds. N.H. Kenyon, M.K. Ivanov, A.M. Akhmetzhanov, G.G. Akhmanov), IOC Technical Series No. 67, 59-61, UNESCO.
- Molinos, M., Talukder, A., Soto, J.I., Estrada, F., Marro, G., **Fernández, F.**, Akhmetzhanov, A., Shashkin, P., Uvarov, I., Osipenko, M., and Kostinenkova, A. (2003). Mud volcanoes in the southern West Alboran Basin: Sidescan sonar data. In *Interdisciplinary geoscience research on the North East Atlantic Margin, Mediterranean Sea and Mid-Atlantic Ridge* (Eds. N.H. Kenyon, M.K. Ivanov, A.M. Akhmetzhanov, G.G. Akhmanov), IOC Technical Series No. 67, 61-62, UNESCO.
- Caselli, A.T., Bidone, A., Bengoa, C., Rojas Vera, E., Badi, G., Zandomenoghi, D., Sánchez, N., **Fernández-Ibáñez, F.**, and Ibáñez, J. (2004). Deception Island (Antarctica) Annual investigations reveal continuing seismicity and fumaroles. *Bulletin of the Global Volcanism Network*, 29(12), 8-9.
- Soto, J.I., Comas, M.C., **Fernández-Ibáñez, F.**, Marro, G., Román, M.J., Talukder, A.R., Mountfield, R. and Chevalier Y.M.R. (2005): Plio-Quaternary evolution of the West Alboran basin (W Mediterranean). *Extended Abstracts, Volume of the 67th EAGE (European Association of Geoscientists and Engineers) Conference & Exhibition*, abstract Z-99, pages: 1-4.
- Fernández-Ibáñez, F.**, Pérez-López, R., Martínez-Díaz, J.J., Paredes, C., Giner-Robles, J.L., Caselli, A.T. and Ibáñez, J.M. (2005). Costa Recta beach, Deception Island, West Antarctica: a retreated scarp of a submarine fault? *Antarctic Science*, 17 (3), 418-426.
- Fernández-Ibáñez, F.**, Marro, G., Sánchez-Gómez, M., Román-Alpiste, M., García, M., Mhammdi, N., Vanneste, H. and Comas, M. (2006). Seismic interpretation and sidescan sonographs from the West Alboran Basin. In *Interdisciplinary geoscience studies of the Gulf of Cadiz and Western Mediterranean basins* (Eds. N.H. Kenyon, M.K. Ivanov, A.M. Akhmetzhanov, E.V. Kozlova), IOC Technical Series No. 70, 46-48, UNESCO.
- Sánchez-Gómez, M., **Fernández-Ibáñez, F.**, Marro, G., García, M., Román-Alpiste, M., Mhammdi, N., Vanneste, H. and Comas, M. (2006). The transition between the Alboran and the Balearic-Algerian Basins: seismic interpretation. In *Interdisciplinary geoscience studies of the Gulf of Cadiz and Western Mediterranean basins* (Eds. N.H. Kenyon, M.K. Ivanov, A.M. Akhmetzhanov, E.V. Kozlova), IOC Technical Series No. 70, 49-52, UNESCO.
- Marro, G., Sánchez-Gómez, M., **Fernández-Ibáñez, F.**, García, M., Román-Alpiste, M., Mhammdi, N., Vanneste, H. and Comas, M. (2006). Palomares margin: seismic interpretation. In *Interdisciplinary geoscience studies of the Gulf of Cadiz and Western Mediterranean basins* (Eds. N.H. Kenyon, M.K. Ivanov, A.M. Akhmetzhanov, E.V. Kozlova), IOC Technical Series No. 70, 57-57, UNESCO.
- Marro, G., Sánchez-Gómez, M., **Fernández-Ibáñez, F.**, García, M., Román-Alpiste, M., Mhammdi, N., Vanneste, H. and Comas, M. (2006). The Cartagena margin: seismic interpretation. In *Interdisciplinary geoscience studies of the Gulf of Cadiz and Western Mediterranean basins* (Eds. N.H. Kenyon, M.K. Ivanov, A.M. Akhmetzhanov, E.V. Kozlova), IOC Technical Series No. 70, 61-61, UNESCO.
- Valero-Navarro, A., Fernández-Sánchez, J.F., Medina-Castillo, A.L., **Fernández-Ibáñez, F.**, Segura-Carretero, A., Ibáñez, J. M. and Fernández-Gutiérrez, A. (2007). A rapid, sensitive screening test for polycyclic aromatic hydrocarbons applied to Antarctic water. *Chemosphere*, 67, 903-910.
- Fernández-Ibáñez, F.**, Soto, J.I., Zoback, M.D. and Morales, J. Present-day stress field in the Gibraltar Arc (western Mediterranean). Accepted for publication in *Journal of Geophysical Research*, January 26th 2007.

National publications (in spanish)

Pérez-López, R., **Fernández-Ibáñez, F.**, Martínez-Díaz, J.J., Paredes, C., Giner, J.L. and Caselli, A.T. (2004). Criterios geomorfológicos sobre actividad tectónica reciente a lo largo de la Costa Recta, Isla Decepción (Antártida Occidental). *Geo-Temas* 6(3), 179-182.

Fernández-Ibáñez, F., Soto, J.I. and Morales, J. (2005). Profundidad de la transición dúctil-frágil en la corteza de Béticas-Rif y Mar de Alborán. *Geogaceta*, 37, 155-158.

Fernández-Ibáñez, F., Soto, J.I. and Zoback, M.D. (2006). Estado actual de esfuerzos en Béticas y Alborán a partir del análisis de “breakouts”. *Geogaceta*, 40, 59-62.

Fernández-Ibáñez, F., Pérez Peña, J.V., Azañón, J.M. and González-Lodeiro, F. (2006). Caracterización morfo-estructural del borde occidental de Sierra de Gádor (Cordillera Bética). *Geogaceta*, 40, 71-74.

Submitted manuscripts

F. Fernández-Ibáñez and J.I. Soto. Rheology and seismicity in the Gibraltar Arc (W Mediterranean). Submitted to *Tectonics*.

Soto, J.I., **Fernández-Ibáñez, F.**, Fernández, M., and García-Casco, A. Contemporary crustal melting in the Betic Cordillera (W Mediterranean) assessed by thermal modeling. Submitted to *Geology*.

Presentations and Conference Abstracts

J.I. Soto and **F. Fernández-Ibáñez** (2002). Strain and geometry of shear zones in eclogite rocks (Betic Cordillera, SE Spain) with transport normal to the stretching lineation [Poster]. In *Transport and flow processes in shear zones*, Geological Society of London (UK), 2-3 September 2002.

Pérez-López, R., **Fernández-Ibáñez, F.**, Martínez-Díaz, J.J., Paredes, C., Giner, J.L. and Caselli, A.T. (2004). Criterios geomorfológicos sobre actividad tectónica reciente a lo largo de la Costa Recta, Isla Decepción (Antártida Occidental) [Oral]. In *VI Congreso Geológico de España*, Zaragoza, 12-15 July 2004.

Caselli, A.T., Bidone, A., Bengoa, C., Rojas Vera, E., Badi, G., Zandomenighi, D., Sánchez, N., **Fernández-Ibáñez, F.**, and Ibáñez, J. (2004). Análisis sísmológico y geoquímica comparativo del verano austral 2004 en Isla Decepción, Antártica [Oral]. In *V Simposio Argentino y I Latinoamericano sobre Investigaciones Antárticas*, Buenos Aires (Argentina), 30 August - 3 September 2004.

Soto, J.I., Comas, M.C., **Fernández-Ibáñez, F.**, and Gràcia, E. (2004). Recent deformation in the northern margin of the Alboran Sea (Westernmost Mediterranean): seismogenic structures and active surface processes [Poster]. In *Euromagins Conference*, Barcelona, 11-13 November 2004.

Fernández-Ibáñez, F., Soto, J.I., Morales, J., and Comas, M.C. (2004). Rheological constrains for the seismicity in a diffuse plate boundary: the Gibraltar Arc in the Westernmost Mediterranean [Poster]. In *AGU Fall Meeting*, San Francisco (USA), 13-17 November 2004.

Soto, J.I., Gràcia, E., Comas, M.C. and **Fernández-Ibáñez, F.** (2004). Seismogenic structures in the Alboran Sea (Westernmost Mediterranean) characterized by marine geophysical data [Poster]. In *AGU Fall Meeting*, San Francisco (USA), 13-17 November 2004.

Fernández-Ibáñez, F., Soto, J.I. and Morales, J. (2005). Crustal seismicity in Western Mediterranean Margins: the Betic-Rif-Alborán region [Poster]. In *International Conference and TTR post-cruise meeting Geosphere and Biosphere Coupling Processes: the TTR interdisciplinary approach towards studies of the European and North African margins*, Marrakech (Morocco), 2-5 February 2005.

Fernández-Ibáñez, F., Sánchez-Gómez, M., Marro, G., Comas, M.C. and Soto, J.I. (2005). Recent tectonics in the transition between the East Alboran and Balearic-Algerian Basins [Poster]. In *International Conference and TTR post-cruise meeting Geosphere and Biosphere Coupling Processes: the TTR interdisciplinary approach towards studies of the European and North African margins*, Marrakech (Morocco), 2-5 February 2005.

- Comas, M.C., Ivanov, M., and **TTR 14-Leg2 Scientific Party** (2005). Preliminary results of TTR14-Leg 2 on the SE Iberian Margin (Palomares and Cartagena margins) [Poster]. In *International Conference and TTR post-cruise meeting Geosphere and Biosphere Coupling Processes: the TTR interdisciplinary approach towards studies of the European and North African margins*, Marrakech (Morocco), 2-5 February 2005.
- Fernández-Ibáñez, F.** and Soto, J.I. (2005). Distribution and tectonic significance of crustal seismicity at South-Iberian margins [Poster]. In *European Geosciences Union, General Assembly*, Vienna (Austria), 25-29 April 2005.
- Soto, J.I., **Fernández-Ibáñez, F.**, Fernández, M., and García-Casco, A. (2005). Thermal structure of the South-Iberian margins: inference for crustal geodynamic processes and seismicity [Oral]. In *European Geosciences Union, General Assembly*, Vienna (Austria), 25-29 April 2005.
- Soto, J.I., Comas, M.C., **Fernández-Ibáñez, F.**, Marro, G., Román, M.J., Talukder, A.R., Mountfield, R. and Chevalier, Y.M.R. (2005). Plio-Quaternary evolution of the West Alboran Basin (W Mediterranean) [Oral]. In *EAGE 67th Conference & Exhibition*, Madrid, 13-16 June 2005.
- Carlos Paredes, Jorge L. Giner-Robles, Raúl Pérez-López, Rogelio de la Vega, José Jesús Martínez-Díaz, Santiago de Vicente, Alicia García-García, José Manuel González-Casado, Jesús M. Ibáñez, and **Fermín Fernández-Ibáñez** (2006). The spatial pattern structure of the seismicity and volcanism in the Deception Island area (South Shetland Islands, West Antarctica) [Oral]. In *5^a Asamblea Hispano-Portuguesa de geodesia y geofísica*, Sevilla, 30 January - 3 February 2006.
- Fernández-Ibáñez, F.**, Soto, J.I. and Zoback, M.D. (2006). Present-day stress field pattern in the Gibraltar Arc (Western Mediterranean) [Poster]. In *European Geosciences Union, General Assembly*, Vienna (Austria), 2-7 April 2006.
- Soto, J.I. and **Fernández-Ibáñez, F.** (2006). *Is the Betic-Rif Cordillera still collapsing?* [Oral]. In *European Geosciences Union, General Assembly*, Vienna (Austria), 2-7 April 2006.
- Fernández-Ibáñez, F.**, and Soto, J.I. (2006). Distribution and tectonic significance of crustal seismicity at South-Iberian margins [Poster]. In *MYRES II: Dynamics of the lithosphere*, Verbania (Italy), 2-6 July 2006.
- Fernández-Sánchez, J.F., **Fernández-Ibáñez, F.**, Segura-Carretero, A., Ibáñez, J.M., and Fernández-Gutiérrez, A. (2006). Rapid and sensible screening test of Antarctic water for Polycyclic Aromatic Hydrocarbons [Poster]. In *VII Simposio Español de Estudios Polares*, Granada, 18-20 September 2006.
- Soto, J.I., **Fernández-Ibáñez, F.**, Zoback, M.D. and Morales, J. (2006). Present-day stress field in the Gibraltar Arc (Western Mediterranean) [Poster]. In *3rd Euromargins Conference*, Bologna (Italy), 4-7 octubre 2006.
- Soto, J.I. and **Fernández-Ibáñez, F.** (2007). Active tectonics and deformation partitioning in the Gibraltar Arc [Poster]. Accepted for presentation in *European Geosciences Union General Assembly*, Vienna (Austria), 15-20 April 2007.
- Fernández-Ibáñez, F.** and Soto, J.I. (2007). Using shallow seismicity and stress field to characterize active wrench systems in the Gibraltar Arc (Western Mediterranean) [Poster]. Accepted for presentation in *European Geosciences Union General Assembly*, Vienna (Austria), 15-20 April 2007.
- Soto, J.I. and **Fernández-Ibáñez, F.** (2007). Active tectonics and and crustal rheology shape topography in the Gibraltar Arc [Oral]. Accepted for presentation in *3rd International TOPO-Europe Workshop*, Roma (Italy), 2-5 May 2007.
- Fernández-Ibáñez, F.** and Soto, J.I. (2007). Recent tectonics and crustal rheology in the Gibraltar Arc [Oral]. Accepted for presentation in *1st International Conference of the Moroccan Association of Petroleum Geologists (MAPG) in association with the American Association of Petroleum Geologists (AAPG)*, Marrakech (Morocco), 28-31 October 2007.
- Fernández-Ibáñez, F.**, Soto, J.I. and Zoback, M.D. (2007). Borehole breakout analysis characterizes present-day stress field in the Alboran Sea and the Betics [Poster]. Accepted for presentation in *1st International Conference of the Moroccan Association of Petroleum Geologists (MAPG) in association with the American Association of Petroleum Geologists (AAPG)*, Marrakech (Morocco), 28-31 October 2007.

Teaching Experience

2006-2007 Teaching Assistant, Introduction to Field Geology, Granada University
2005-2006 Teaching Assistant, Introduction to Field Geology, Granada University
2005-2006 Teaching Assistant, Tectonics, Granada University

Computer skills

Working knowledge of Windows operating system, MS Office, Macromedia Freehand, Surfer, Fledermaus and Origin.

Basic knowledge of GMT scripting, FORTRAN programming, ArcGIS, and Macromedia DreamWeaver

Professional Affiliations

Geological Society of Spain

American Geophysical Union

European Geophysical Union

American Association of Petroleum Geologists

Society of Exploration Geophysicists (Vice-President of the Granada University SEG Student Section)