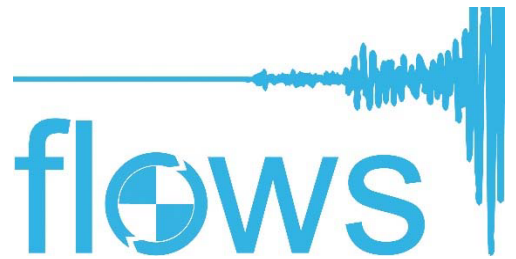


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Impact of Fluid circulation in old oceanic Lithosphere on the seismicity of transform-type plate boundaries: new solutions for early seismic monitoring of major European Seismogenic zones



**Chair of the Action:** Dr Christian HENSEN

**Editors:** Sebastiano D'Amico, Astrid Ulbrich

# *Booklet of Participants*



Booklet of Participants - FLOWS

Sebastiano D'Amico, Astrid Ulbrich (Eds.)

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Booklet of Participants - FLOWS

Sebastiano D'Amico, Astrid Ulbrich (Eds.)

ISBN:978-88-98161-54-6

# Impact of Fluid circulation in old oceanic Lithosphere on the seismicity of transform-type plate boundaries: new solutions for early seismic monitoring of major European Seismogenic zones (FLOWS)

## **Background**

The recent occurrence of large earthquakes and discovery of deep fluid seepage calls for a revision of the postulated hydrogeological inactivity and low seismic activity of old oceanic transform-type plate boundaries. Both processes are intrinsically associated. FLOWS seeks to merge the expertise of a large number of research groups and to support the development of multidisciplinary knowledge on how seep fluid (bio)geochemistry relates to seismicity. It aims to identify (bio)geochemical proxies for the detection of precursory seismic signals and to develop innovative physico-chemical sensors for deep-ocean seismogenic faults. National efforts will be coordinated through Working Groups focussing on

- Geophysical and (bio)geochemical data acquisition
- Modelling of structure and seismicity of faults
- Engineering of deep-ocean physico-chemical sensors
- Overarching themes and dissemination of results

Main study areas are the Azores-Gibraltar Fracture Zone and the North Anatolian Fault which have generated some of the most devastating earthquakes in Europe.

## **Organization**

Among the four working groups FLOWS will address to improve our current understanding of the interplay between seismic activity and fluid dynamics at ocean transform-type plate boundaries. Specifically, it aims to

- foster our understanding of processes leading to seismic rupture at ocean transform faults

- link researchers and engineers to develop future in-situ sensors and experiment novel technologies
- promote the emergence of a novel scientific topic of excellence and high societal relevance

Working Group 1: Seismicity and fluid flow at TTPBs: field data and modeling

Working Group 2: Deep lithospheric structure and mechanical behaviour of TTPBs

Working Group 3: Fluids, minerals, and microbial processes at TTPBs

Working Group 4: Integration and dissemination

## Management Committee

<b>MC Chair</b>	Dr Christian Hensen (DE)
<b>MC Vice Chair</b>	Dr Mark Alexander Lever (DK)

Management Committee please see

[http://www.cost.eu/COST\\_Actions/essem/ES1301?management](http://www.cost.eu/COST_Actions/essem/ES1301?management)

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Dr Rafael Bartolomé	Spain
Prof M. Namik Çağatay	Turkey
Dr Sebastiano D'Amico	Malta
Dr João C. Duarte	Portugal
Dr Stéphanie Dupré	France
Dr Marcus Elvert	Germany
Dr Sonja Geilert	Germany
Dr Louis Géli	France
Dr Pierre Henry	France
Dr Christian Hensen	Germany
Dr Aristomenis P. Karageorgis	Greece
Dr Michael Lazar	Israel
Dr Mark Alexander Lever	Denmark
Dr Matteo Lupi	Switzerland
Dr Luis Manuel Henriques Marques Matias	Portugal
Dr Adriano Mazzini	Italy
Paraskevi Nomikou	Greece
Dr Marianne Nuzzo	United Kingdom
Prof Philip Philipoff	Bulgaria
Dr Catherine Pierre	France
Prof Luis Menezes Pinheiro	Portugal
Dr Alina Polonia	Italy
Carmina López-Rodríguez	Spain
Christopher Schmidt	Germany
Dr Mark Schmidt	Germany
Dr Pedro Terrinha	Portugal
Dr Yama Tomonaga	Switzerland
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Name

Dr Rafael Bartolomé

Position

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Bio-sketch

My primary scientific interest is within Earth's Sciences, in the study of the deep structure and tectonics in active continental margins using a multidisciplinary approach and tools (seismic, bathymetry, and gravity)

Main experience in the Action's topics

I investigate the style of deformation and the processes involved, identifying the active tectonic structures, mapping and imaging active faults, solving the 3D structure, providing new constraints into the deep crustal structure and looking into the nature of the crust

Recent publications on the Action's topics

Martínez-Loriente, S., Gràcia, E., Bartolome, R., Perea, H., Klaeschen, D., Dañobeitia, JJ, Zitellini, N., Wynn, R., Masson, D. (2016), Morphostructure, tectono-sedimentary evolution and seismic potential of the Horseshoe Fault, SW Iberian Margin, *Basin Research, online*

Bartolome,R., Górriz, E., Dañobeitia, J.J., Cordoba, D., Martí, D., Cameselle, A.L., Núñez-Cornú, F., Bandy, W., Mortera, Carlos A., Nuñez, D., Castellón, A., Alonso, J.L. (2016), Multichannel seismic imaging of the Rivera Plate subduction at the seismogenic Jalisco Block area (Western Mexican margin), *Pure and Applied Geophysics*, 173, 3575-3594, doi:10.1007/s00024-016-1331-y

Moreno, X., Gràcia, E., Bartolome, R., Martínez-Loriente, S., Perea, H., Gómez de la Peña, L., Lo lacono, Cl., Piñero, E., Pallàs, R., Masana, E., Dañobeitia, JJ. (2016), Seismostratigraphy and tectonic architecture of the Carboneras Fault offshore based on multiscale seismic imaging: Implications for the Neogene evolution of the NE Alboran Sea (2016), *Tectonophysics*, 689, 115-132, 10.1016/j.tecto.2016.02.018

*Participation to  
other COST  
Actions*

Reviewer of COST Actions in 2015 (Open call OC-2015-2) and 2016 (Open call OC-2016-2)

*Role in COST  
Action ES1301*

- MC Member
- R Bartolome is the financial Rapporteur of ES1301 Cost Action



<i>Name</i>	<b>Prof M. Namık Çağatay</b>
<i>Position</i>	Professor
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<i>Webpage</i>	<a href="http://akademi.itu.edu.tr/cagatay/">http://akademi.itu.edu.tr/cagatay/</a>
<i>Bio-sketch</i>	M.N. Çağatay is a marine geoscientist with specific interests in submarine paleoseismology, sapropels, paleoclimate records, sediment geochemistry, diagenesis and clay mineralogy. He is the founding director of EMCOL, and involved in many international and EU funded projects, including ICDP Lake Van, ESONET, EMSO, HYPOX and MARSITE. He was previously involved in the ODP Leg 172 NW Atlantic Sediments drifts as the chief geochemist and ICDP PaleoVan drilling project as the co-leader. He participated in many marine research expeditions in the Sea of Marmara, Black Sea, Mediterranean Sea and Lake Van, mostly as a co-chief scientist. Prof. Çağatay published more than 100 peer-reviewed publications.
<i>Main experience in the Action's topics</i>	Relations between seismic activity and fluids, seismoturbidites and earthquake records in the sea of Marmara
<i>Recent publications on the Action's topics</i>	<p>Çağatay, M.N., Uçarkuş, G., Alpar, B., 2016. Geology and Morphotectonics of the Sea of Marmara. In: Özsoy, E., Çağatay, M.N., Balkıs, N., Balkıs, N., Öztürk, B. (Eds.) (2016). The Sea of Marmara; Marine Biodiversity, Fisheries, Conservation and Governance. Turkish Marine Research Foundation (TUDAV), Publication No: 42, Istanbul, Turkey, pp.209-226. ISBN 978-975-8825-34-9.</p> <p>Çağatay, M.N., Yıldız, G., Bayon, G., Ruffine, L., Henry, P., 2017. Seafloor authigenic carbonate crusts along the submerged part of the North Anatolian Fault in the Sea of Marmara: Mineralogy, geochemistry, textures and genesis. Deep-Sea Research Part II, <a href="http://dx.doi.org/10.1016/">http://dx.doi.org/</a> 10.1016/</p>

j.dsr2.2017.09.003

Dupre, S., Scalabrin, C., Grall, C., Augustin, J.M., Henry, P., Sengor, A.M.C., Görür, N., Çağatay, M.N., Geli, L., 2015. Tectonic and sedimentary controls on widespread gas emissions in the Sea of Marmara: Results from systematic, shipborne multibeam echo sounder water column imaging. J. Geophysical Research-Solid Earth, Volume: 120, Issue: 5, Pages: 2891-2912. DOI: 10.1002/2014JB011617

Çağatay, M.N., Wulf, S. Guichard, F. Özmaral, A., Henry, P., Gasperini, L., 2015. Tephra record from the Sea of Marmara for the last 71 ka and its paleoceanographic implications. Marine Geology, 361: 96-110.

Çukur, D., Krastel, S., Çağatay, M.N., Damcı, E., Meydan, A.F., Kim, S.P., 2015. Evidence of extensive carbonate mounds and sublacustrine channels in shallow waters of Lake Van, eastern Turkey, based on high-resolution chirp subbottom profiler and multibeam echosounder data. Geo-Marine Letters. Volume: 35 Issue: 5, Pages: 329-340. DOI: 10.1007/s00367-015-0410-x.

Çağatay, M.N., Erel, L., Bellucci, L.G., Polonia, A., Gasperini, L. Eriş, K., Sancar, Ü., Biltekin, D., Uçarkuş, G., Ülgen, U.B., Damcı, E., 2012. Sedimentary earthquake records in the İzmit Gulf, Sea of Marmara, Turkey. Sedimentary Geology, 282:347-359.

*Participation to other COST Actions*

-

*Role in COST Action ES1301*

MC Member

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*Webpage*

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*Bio-sketch*

Sebastiano D'Amico (Ph.D.) has been working at the University of Malta, within the Department of Physics and Geosciences since 2010. He was enrolled in the Physics program of the University of Messina where he was awarded the title of "Dottore in Fisica". In 2005 he moved to Rome where he joined the Istituto Nazionale di Geofisica e Vulcanologia (INGV). In 2007 he married Rosarianna and together with his wife he moved to U.S.A. to join the Saint Louis University (Earth and Atmospheric Sciences Department). His research interests are in the applied aspects of earthquake seismology. He is the author of several publications in this field. In particular, he is interested in seismicity and tectonics of the Central Mediterranean, earthquake ground motion and seismic hazard, earthquake moment tensor solutions, and ambient noise measurements on soil and buildings

*Main experience in the Action's topics*

Data collection and processing in mud-volcanoes areas.

*Recent publications on the Action's topics*

Panzera F., D'Amico S., Lupi M., Mauri G., Karyono K., Mazzini A., 2017. Lusi hydrothermal structure inferred through ambient vibration measurements. *Marine and Petroleum Geology*. <https://doi.org/10.1016/j.marpetgeo.2017.06.017>

Panzera F., Sicali S., Lombardo G., Imposa S., Gresta S., D'Amico S., 2016. A microtremor survey

to define the subsoil structure in a mud volcanoes area: the case study of Salinelle (Mt. Etna, Italy). Environ. Earth Sci., 75:1140, DOI 10.1007/s12665-016-5974-x

Farrugia F., Paolucci E., D'Amico S., Galea P., 2016. Inversion of surface-wave data for subsurface shear-wave velocity profiles characterised by a thick buried low-velocity layer. Geophysical Journal International, 206, 1221-1231

*Participation to other COST Actions*

TU1208 ES1301 ES1401

*Role in COST Action ES1301*

MC Member

*Name*

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*Bio-sketch*

Degree in Geology and Natural Resources the University of Lisbon in 2005. PhD in Geology in the University of Lisbon in 2012. Postdoc at Monash University from 2011 to 2014. Researcher at Monash University in 2015 and Researcher at University of Lisbon since 2016. Presently coordinator of the Marine Geology and Geophysics Group at the Instituto Dom Luiz, University of Lisbon. Arne Richter Award for Outstanding Early Career Scientists of the European Geosciences Union 2017.

*Main experience in the Action's topics*

Worked on the Azores-Gibraltar Fracture Zone dealing with thrust and wrench tectonics combining geodynamics, marine geology and analogue modeling expertizes/techniques.

*Recent publications on the Action's topics*

Duarte, J.C., and Schellart, W.P., eds, 2016. Plate Boundaries and Natural Hazards, Geophysical Monograph 219. American Geophysical Union (AGU), Published by John Wiley & Sons, Inc. (Book)

Neres, M., Carafa, M.M.C., Fernandes, R.; Matias, L., Duarte, J.C., Barba, S., Terrinha, P., 2016. Lithospheric deformation in the Africa-Iberia Plate Boundary: improved neotectonic modeling testing a basal-driven Alboran plate. Journal of Geophysical Research: Solid Earth 121, 6566-6596.

Duarte, J.C., Schellart, W.P., Cruden, A.R., 2015. How weak is the subduction zone interface? Geophysical Research Letters 41, 1-10.

Rosas, F.R., Duarte, J.C., Schellart, W.P., Tomás, R., Grigorova, V., Terrinha, P., 2015. Analog modeling

of different angle thrust-wrench fault interference in a brittle medium. *Journal of Structural Geology* 74, 81-104.

Duarte, J.C., Rosas, F.M., Terrinha, P., Schellart, W.P., Boutelier, D., Gutscher, M.A., Ribeiro, A., 2013. Are subduction zones invading the Atlantic? Evidence from the SW Iberia margin. *Geology*. doi:10.1130/G34100.1.

*Participation to  
other COST  
Actions*

-

*Role in COST  
Action ES1301*

Leader of the Working Group 2  
MC Member

*Name*

**Dr Stéphanie Dupré**

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Researcher

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IFREMER

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*Webpage*

<http://annuaire.ifremer.fr/cv/17304/en/>

*Bio-sketch*

Marine Geophysicist, specialist in fluid systems at IFREMER (Brest, France) since 2010

Research Interests:

- Submarine seepage systems and implications for energetic and mineral resources, natural risks, earthquakes and sedimentary instabilities
- Acoustic detection of fluid systems (in the sediments, on the seafloor and in the water column); (High-resolution) geophysical signatures of fluid escape systems and associated geo-structures

*Main experience in the Action's topics*

Acoustic detection and signature of fluids and fluid systems in the Sea of Marmara, and their relationships with the tectonic and sedimentary environments and the (micro)-seismic activity

*Recent publications on the Action's topics*

Dupre S., Scalabrin C., Grall C., Augustin J.M., Henry P., Sengor A. M. C., Goeruer N., Cagatay M. N., Geli L. (2015). Tectonic and sedimentary controls on widespread gas emissions in the Sea of Marmara: Results from systematic, shipborne multibeam echo sounder water column imaging . *Journal Of Geophysical Research-solid Earth* , 120(5), 2891-2912. <http://doi.org/10.1002/2014JB011617>

Géli L, Henry P, Grall C, Tary JB, Lomax A, Batsi E, Riboulot V, Cros E, Gürbüz C, Işık SE, Sengör AMC, Le Pichon X, Ruffine L, Dupré S, Thomas Y, Kalafat D, Bayrakci G, Coutellier Q, Regnier T, Westbrook G, Saritas H, Çifçi G, Çağatay MN, Özeren MS, Görür N, Tryon M, Bohnhoff M, Gasperini L, Klingelhoefer F, Scalabrin C, Augustin

JM, Embriaco D, Marinaro G, Frugoni F, Monna S, Etiope G, Favali P, Bécel A (2018) Gas and seismicity within the Istanbul seismic gap. *Scientific Reports* 8 (1):6819. doi:10.1038/s41598-018-23536-7

Ruffine L, Ondreas H, Blanc-Valleron M-M, Teichert BMA, Scalabrin C, Rinnert E, Birot D, Croguennec C, Ponzevera E, Pierre C, Donval J-P, Alix A-S, Germain Y, Bignon L, Etoubleau J, Caprais J-C, Knoery J, Lesongeur F, Thomas B, Roubi A, Legoix LN, Burnard P, Chevalier N, Lu H, Dupré S, Fontanier C, Dissard D, Olgun N, Yang H, Strauss H, Özaksoy V, Perchoc J, Podeur C, Tarditi C, Özbeki E, Guyader V, Marty B, Madre D, Pitel-Roudaut M, Grall C, Embriaco D, Polonia A, Gasperini L, Çağatay MN, Henry P, Géli L (2018) Multidisciplinary investigation on cold seeps with vigorous gas emissions in the Sea of Marmara (MarsiteCruise): Strategy for site detection and sampling and first scientific outcome. *Deep Sea Research Part II: Topical Studies in Oceanography*. doi:<https://doi.org/10.1016/j.dsr2.2018.03.006>, in press

Henry P, Grall C, Kende J, Viseur S, Özeren MS, Şengör AMC, Dupré S, Saclabrin C, Géli L (2018) A statistical approach to relationships between fluid emissions and faults: The Sea of Marmara case. *Deep Sea Research Part II: Topical Studies in Oceanography*. doi: 10.1016/j.dsr2.2018.05.010, in press

Grall C, Henry P, Dupré S, Géli L, Scalabrin C, Zitter TAC, Sengor AMC, Namik Cagatay M, Cifci G (2018) Upward migration of gas in an active tectonic basin: An example from the sea of Marmara. *Deep Sea Research Part II: Topical Studies in Oceanography*. doi:10.1016/j.dsr2.2018.06.007, in press



*Participation to  
other COST  
Actions* | -

*Role in COST  
Action ES1301* | WG1 member

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Bio-sketch

I am an organic biogeochemist studying the interactions between microbial life and carbon cycling on a range of spatial, temporal and molecular scales. In order to identify and ideally quantify important biogeochemical processes, my research focuses on the information encoded in the state, distribution and isotopic variances of lipid biomarker molecules and metabolites in environmental samples. My main expertise builds on microbial reaction networks in water and sediments, directly shaping carbon and energy cycles and fluxes on Earth. Specifically, I am interested in methane biogeochemistry, life under extreme conditions, and development and application of new and innovative analytical techniques.

Main experience  
in the Action's  
topics

Molecular isotope biogeochemistry  
Biogeochemical carbon cycling in ocean floor sediments  
Identification of geological processes and microbial communities at mud volcanoes and other fluid-emitting structures

Recent  
publications  
on the Action's  
topics

Wegener G, Kellermann MY, Elvert M (2016) Tracking activity and function of microorganisms by stable isotope probing of membrane lipids. *Current Opinion in Biotechnology* 41, 43-52.

Yoshinaga MY, Lazar C, Elvert M, Lin YS, Zhu C, Heuer VB, Teske A, Hinrichs KU (2015). Possible roles of uncultured archaea in carbon cycling in methane-seep sediments. *Geochimica et Cosmochimica Acta* 164, 35-52.

Nuzzo M, Elvert M, Schmidt M, Scholz F, Reitz A, Hinrichs K-U, Hensen C (2012). Impact of hot fluid advection on hydrocarbon gas production and seepage in mud volcano sediments of thick Cenozoic Deltas. *Earth and Planetary Science Letters* 341-344, 139-157.

*Participation to  
other COST  
Actions*

-

*Role in COST  
Action ES1301* (Co-)Leader Working Group 3

<i>Name</i>	<b>Dr Sonja Geilert</b>
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<i>Bio-sketch</i>	<p>Since 02/2015 Research Assistant at GEOMAR Helmholtz-Centre for Ocean Research Kiel Department of Marine Geosystems Kiel, Germany</p> <p>02/2014-01/2015 Research Assistant at BAM Federal Institute for Materials Research and Testing Department of Analytical Chemistry and Reference Materials Berlin, Germany</p> <p>PhD 11/2013 Doctoral Dissertation in Experimental Isotope Geochemistry Department of Earth Sciences, Utrecht University, Netherlands</p> <p>German Diploma (equiv. M.Sc) 06/2009 in Geochemistry Georg-August-University, Goettingen, Germany</p> <p>B.Sc 01/2007 Bachelor of Science in Structural Geology Georg-August-University, Goettingen, Germany</p>
<i>Main experience in the Action's topics</i>	Tracing fluid flow with geochemical tracers like non-traditional stable isotopes, e.g. Si, B.
<i>Recent publications on the Action's</i>	Geilert, S., Hensen, C., Schmidt, M., Scholz, F., Liebetrau, V., Kipfer, R., Lever, M., 2015: Investigation Of Transform-Type Plate Boundaries

*topics*

Within The Project Flows: Seep Fluids And Gases  
In The Guaymas Basin. Goldschmidt Abstracts,  
2015, 1014

*Participation to  
other COST  
Actions*

-

*Role in COST  
Action ES1301*

Geochemist

*Name*

**Dr Louis Géli**

*Position*

Research Scientist

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Louis.geli@ifremer.fr

*Webpage*

*Bio-sketch*

Present position:

- Senior research scientist at Ifremer.
- PI of MAregami Project, co-funded by ANR (France) and Tubitak (Turquie).

Last hierarchical position at Ifremer (2009-2015):

- Director of the Marine Geosciences Research Unit of Ifremer (~ 110 people : 67 permanent, 35 to 4 non-permanent). End of term: april 2015

Current Research Interests

1. geological hazards in submarine environments (seismic hazards, slope instabilities, tsunami)
2. marine geophysics, deep seafloor exploration underwater instrumentation (experience > years)
3. active deep seafloor processes and water circulation
4. assessment of mineral and energetic resources of the ocean
5. mid-ocean ridges and continental margin processes.

*Main experience in the Action's topics*

Seismology - Marine Geophysics - Seafloor Observatories

*Recent publications on the Action's topics*

Sakic P., Piete Helene, Ballu V., Royer J. -Y., Kopp H., Lange D., Petersen F., Ozeren M. S., Ergintav S., Geli Louis, Henry P., Deschamps Anne (2016). No significant steady state surface creep along the North Anatolian Fault offshore Istanbul: Results of

6 months of seafloor acoustic ranging . *Geophysical Research Letters* , 43(13), 6817-6825 . Publisher's official version : <http://doi.org/10.1002/2016GL069600> , Open Access version : <http://archimer.ifremer.fr/doc/00344/45513/2015>

Ruffine Livio, Germain Yoan, Polonia Alina, De Prunele Alexis, Croguennec Claire, Donval Jean-Pierre, Pitel-Roudaut Mathilde, Ponzevera Emmanuel, Caprais Jean-Claude, Brandily Christophe, Grall Celine, Bollinger Claire, Geli Louis, Gasperini Luca (2015). Pore water geochemistry at two seismogenic areas in the Sea of Marmara . *Geochemistry Geophysics Geosystems* , 16(7), 2038-2057 . Publisher's official version : <http://doi.org/10.1002/2015GC005798> , Open Access version : <http://archimer.ifremer.fr/doc/00272/38339/>

Dupre Stephanie, Scalabrin Carla, Grall Celine, Augustin Jean-Marie, Henry Pierre, Sengor A. M. Celal, Goeruer Naci, Cagatay M. Namik, Geli Louis (2015). Tectonic and sedimentary controls on widespread gas emissions in the Sea of Marmara: Results from systematic, shipborne multibeam echo sounder water column imaging . *Journal Of Geophysical Research-solid Earth* , 120(5), 2891-2912 . Publisher's official version : <http://doi.org/10.1002/2014JB011617> , Open Access version : <http://archimer.ifremer.fr/doc/00268/37972/2014>

Geli Louis, Piau Jean-Michel, Dziak Robert, Maury Vincent, Fitzenz Delphine, Coutellier Quentin, Henry Pierre (2014). Seismic precursors linked to super-critical fluids at oceanic transform faults . *Nature Geoscience* , 7(10), 757-761 . <http://doi.org/10.1038/NGEO2244>

Bayrakci Gaye, Scalabrin Carla, Dupre Stephanie, Leblond Isabelle, Tary Jean-Baptiste, Lanteri Nadine, Augustin Jean-Marie, Berger Laurent, Cros Estelle, Ogor Andre, Tsabaris Christos, Lescanne Marc, Geli Louis (2014). Acoustic monitoring of gas emissions from the seafloor. Part II: a case study from the Sea of Marmara . *Marine Geophysical Research* , 35(3), 211-229 .  
<http://doi.org/10.1007/s11001-014-9227-7>

Mihoubi A., Schnurle Philippe, Benaissa Z., Badsı M., Bracene R., Djelit H., Geli Louis, Sage F., Agoudjil A., Klingelhoefer Frauke (2014). Seismic imaging of the eastern Algerian margin off Jijel: integrating wide-angle seismic modelling and multichannel seismic pre-stack depth migration . *Geophysical Journal International* , 198(3), 1486-1503 . Publisher's official version :  
<http://doi.org/10.1093/gji/ggu179>

Franek Peter, Mienert Jurgen, Buenz Stefan, Geli Louis (2014). Character of seismic motion at a location of a gas hydrate-bearing mud volcano on the SW Barents Sea margin . *Journal Of Geophysical Research-solid Earth* , 119(8), 6159-6177 . Publisher's official version :  
<http://doi.org/10.1002/2014JB010990> , Open Access version : <http://archimer.ifremer.fr/doc/00204/31491/>

Hubert Bernard (2014). Atelier de Réflexion Prospective (ARP) MERMED : Adaptation aux changements environnementaux en mer Méditerranée : quelles recherches et quels partenariats ? Synthèse des fiches prospectives : Le bassin méditerranéen à l'horizon 2030 : Quels défis à relever pour la mer Méditerranée ?  
<http://archimer.ifremer.fr/doc/00375/48660/>

Grall Celine, Henry Pierre, Westbrook Graham, Cagatay M. Namik, Thomas Yannick, Marsset



Bruno, Borschneck D., Saritas H., Cifci Gunay, Geli Louis (2014). Mass Transport Deposits Periodicity Related to Glacial Cycles and Marine-Lacustrine Transitions on a Poned Basin of the Sea of Marmara (Turkey) Over the Last 500 ka . In Submarine Mass Movements and Their Consequences, S. Krastel et al. (eds.), Advances in Natural and Technological Hazards Research 37, DOI 10.1007/978-3-319-00972-8 53, pp.595-603 (Springer International Publishing) .

*Participation to other COST Actions*

-

*Role in COST Action ES1301*

No specific responsibility

*Name*

**Dr Pierre Henry**

*Position*

Senior Researcher

*Affiliation*

CNRS

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*Webpage*

<http://www.cerege.fr/>

*Bio-sketch*

Marine geophysicist and physical properties specialist. Worked on deformation processes from plate tectonic scale to fault zone scale and on the role of fluids in these processes.

*Main  
experience  
in the  
Action's topics*

Geodynamics, Coupling fluids and mechanics in fault zones, Scientific drilling and seafloor observatories

*Recent  
publications on  
the Action's  
topics*

Kende, J., P. Henry, G. Bayrakci, M. S. Özeren, and C. Grall (2017), Moho depth and crustal thinning in the Marmara Sea region from gravity data inversion, *J. Geophys. Res. Solid Earth*, <http://dx.doi.org/10.1002/2015JB012735>.

Sakic, P., Piété, H., Ballu, V., Royer, J.-Y., Kopp, H., Lange, D., Petersen, F., Özeren, M. S., Ergintav, S., Geli, L., Henry, P., Deschamps, A. (2016), No significant steady-state surface creep along the North Anatolian fault offshore Istanbul: results of 6 months of seafloor acoustic ranging, *Geophys. Res. Lett.*, 43 (13), 6817-6825  
<http://dx.doi.org/10.1002/2016GL069600>.

Dupré, S., C. Scalabrin, C. Grall, J.-M. Augustin, P. Henry, A. M. C. Şengör, N. Görür, M. N. Çağatay, and L. Géli (2015), Tectonic and sedimentary controls on widespread gas emissions in the Sea of Marmara: Results from systematic, shipborne multibeam echo sounder water column imaging, *J. Geophys. Res. Solid Earth*, 120(5), 2891–2912, <http://dx.doi.org/10.1002/2014JB011617>.

Guglielmi, Y., F. Cappa, J.-P. Avouac, P. Henry, and D. Elsworth (2015), Seismicity triggered by fluid injection-induced aseismic slip, *Science*, 348(6240), 1224–1226, <http://dx.doi.org/10.1126/science.aab0476>.

*Participation to  
other COST  
Actions* -

*Role in COST  
Action ES1301* MC Member, Leader WP1

<i>Name</i>	<b>Dr Christian Hensen</b>
<i>Position</i>	Senior Scientist
<i>Affiliation</i>	GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel
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<i>Bio-sketch</i>	<p>PhD in Marine Geochemistry, Bremen University, 1996.</p> <p>Expertise: Pore water geochemistry, diagenetic processes in marine sediments, quantification of element fluxes, numerical modeling.</p> <p>Main study areas: NE Atlantic (Gulf of Cadiz), East Pacific (Costa Rica, Peru, Chile), Mediterranean Sea. Fluids circulating within the crust and sediments receive geochemical imprint from various diagenetic processes. My research focusses on deciphering geochemical signals obtained from drill cores or sampling at seepage sites at the seafloor in order to draw conclusions about their provenance and major processes of formation and geochemical overprinting. I aim at a better understanding of how fluid emanation itself and/or changes in fluid composition are related to seismic activity in fault zones.</p>
<i>Main experience in the Action's topics</i>	Fluid Biogeochemistry, Transport-Reaction Modelling in Marine Sediments
<i>Recent publications on the Action's topics</i>	<p>Geersen, J., Scholz, F., Linke, P., Schmidt, M., Lange, D., Behrmann, J. H., Völker, D. und Hensen, C. (2016) Fault zone controlled seafloor methane seepage in the rupture area of the 2010 Maule Earthquake, Central Chile, Geochemistry, Geophysics, Geosystems, 17 (11). pp. 4802-4813. DOI 10.1002/2016GC006498 &lt;<a href="http://dx.doi.org/10.1002/2016GC006498">http://dx.doi.org/10.1002/2016GC006498</a>&gt;.</p> <p>Berndt, C., Hensen, C., Mortera-Gutierrez, C., Sarkar,</p>

S., Geilert, S., Schmidt, M., Liebetrau, V., Kipfer, R., Scholz, F., Doll, M., Muff, S., Karstens, J., Planke, S., Petersen, S., Böttner, C., Chi, W. C., Moser, M., Behrendt, R., Fiskal, A., Lever, M. A., Su, C. C., Deng, L., Brennwald, M. S. und Lizarralde, D. (2016) Rifting under steam – how rift magmatism triggers methane venting from sedimentary basins, *Geology*, 44 (9). pp. 767-770. DOI 10.1130/G38049.1 <<http://dx.doi.org/10.1130/G38049.1> >.

Steeb, P., Krause, S., Linke, P., Hensen, C., Dale, A. W., Nuzzo, M. und Treude, T. (2015) Efficiency and adaptability of the benthic methane filter at Quepos Slide cold seeps, offshore Costa Rica, *Biogeosciences (BG)*, 12 . pp. 6687-6706. DOI 10.5194/bg-12-6687-2015 <<http://dx.doi.org/10.5194/bg-12-6687-2015>>.

Luo, M., Dale, A. W., Wallmann, K., Hensen, C., Gieskes, J., Yan, W. und Chen, D. (2015) Estimating the time of pockmark formation in the SW Xisha Uplift (South China Sea) using reaction-transport modeling, *Marine Geology*, 364 . pp. 21-31. DOI 10.1016/j.margeo.2015.03.006 <<http://dx.doi.org/10.1016/j.margeo.2015.03.006>>.

Hensen, C., Scholz, F., Nuzzo, M., Valadares, V., Gracia, E., Terrinha, P., Liebetrau, V., Kaul, N., Silva, S., Martinez-Lorient, S., Bartolome, R., Pinero, E., Magalhaes, V. H., Schmidt, M., Weise, S. M., Cunha, M., Hilario, A., Perea, H., Rovelli, L. und Lackschewitz, K. (2015) Strike-slip faults mediate the rise of crustal-derived fluids and mud volcanism in the deep sea, *Geology*, 43 (4). pp. 339-342. DOI 10.1130/G36359.1 <<http://dx.doi.org/10.1130/G36359.1>>.

Krause, S., Steeb, P., Hensen, C., Liebetrau, V., Dale, A. W., Nuzzo, M. und Treude, T. (2014) Microbial activity and carbonate isotope signatures as

a tool for identification of spatial differences in methane advection: a case study at the Pacific Costa Rican margin, *Biogeosciences* (BG), 11 . pp. 507-523. DOI 10.5194/bg-11-507-2014 <<http://dx.doi.org/10.5194/bg-11-507-2014>>.

Haffert, L., Haeckel, M., Liebetrau, V., Berndt, C., Hensen, C., Nuzzo, M., Reitz, A., Scholz, F., Schönfeld, J., Perez-Garcia, C. und Weise, S. M. (2013) Fluid evolution and authigenic mineral paragenesis related to salt diapirism - the Mercator mud volcano in the Gulf of Cadiz, *Geochimica et Cosmochimica Acta*, 106 . pp. 261-286. DOI 10.1016/j.gca.2012.12.016

Scholz, F., Hensen, C., Schmidt, M. und Geersen, J. (2013) Submarine weathering of silicate minerals and the extent of pore water freshening at active continental margins, *Geochimica et Cosmochimica Acta*, 100 . pp. 200-216. DOI 10.1016/j.gca.2012.09.043.

*Participation to other COST Actions*

MARVELOUS proposal

*Role in COST Action ES1301*

Chair

<i>Name</i>	<b>Dr Aristomenis P. Karageorgis</b>
<i>Position</i>	Research Director
<i>Affiliation</i>	Hellenic Centre for Marine Research
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<i>Bio-sketch</i>	
<i>Main experience in the Action's topics</i>	Identification and measurements of submarine fluid emissions
<i>Recent publications on the Action's topics</i>	<p>Tsabaris, C., Patiris, D.L., Karageorgis, A.P., Eleftheriou, G., Papadopoulos, V.P., Georgopoulos, D., Papathanassiou, E., Povinec, P.P., 2012. In-situ radionuclide characterization of a submarine groundwater discharge site at Kalogria Bay, Stoupa. Greece, <i>Journal of Environmental Radioactivity</i>, 108, 50–59. doi:10.1016/j.jenvrad.2011.08.005).</p> <p>Tsabaris, C., Scholten, J., Karageorgis, A.P., Comanducci, J.-F., Georgopoulos, D., Liong Wee Kwong, L., Patiris, D.L., Papathanassiou, E., 2010. Underwater in situ measurements of radionuclides in selected submarine groundwater springs, Mediterranean Sea. <i>Radiation Protection Dosimetry</i>, 142(2–4), 273–281. doi:10.1093/rpd/ncq190.</p>
<i>Participation to other COST Actions</i>	-
<i>Role in COST Action ES1301</i>	MC Member

<i>Name</i>	<b>Dr Michael Lazar</b>
<i>Position</i>	Researcher
<i>Affiliation</i>	Department of Marine Geosciences, University of Haifa
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<i>Webpage</i>	<p><a href="http://marsci.haifa.ac.il/en/about/faculty-and-staff/academic-faculty/department-of-marine-geosciences/--19">http://marsci.haifa.ac.il/en/about/faculty-and-staff/academic-faculty/department-of-marine-geosciences/--19</a></p> <p><a href="https://www.researchgate.net/profile/Michael_Lazar">https://www.researchgate.net/profile/Michael_Lazar</a></p>
<i>Bio-sketch</i>	<p>Michael Lazar is a senior lecturer in marine geosciences and Head of the Dr. Moses Strauss Department of Marine Geosciences at the University of Haifa, Israel. He is also head of the Laboratory for Applied Geophysics. He obtained his PhD in Geophysics from Tel Aviv University in 2004 on active tectonics of the northern Dead Sea. He is an expert in marine geology and geophysics and has won numerous awards of excellence for teaching, as well as the Rector's Award from the University of Haifa for research.</p>
<i>Main experience in the Action's topics</i>	Tectonics of the Dead Sea, gas escape from the seafloor, shallow geophysical methods in the marine environment
<i>Recent publications on the Action's topics</i>	<p>Lazar, M., Lang, G., Schattner, U., 2016. Coincidence or not? Interconnected gas/fluid migration and ocean-atmosphere oscillations in the Levant Basin. <i>Geo-Marine Letters</i>, 1-14.</p> <p>Schattner, U., Lazar, M., Souza, L.A.P., ten Brink, U., Mahiques, M.M., 2016. Pockmark asymmetry and seafloor currents in the Santos Basin offshore Brazil. <i>Geo-Marine Letters</i>, 1-8</p>
<i>Participation to other COST Actions</i>	2012-2015: Israeli representative to Membership Committee COST Action ES 1001



*Role in COST* | MC Member  
*Action ES1301*

<i>Name</i>	<b>Mark Alexander Lever</b>
<i>Position</i>	Adjunct Scientist
<i>Affiliation</i>	Center for Geomicrobiology, Aarhus University, Denmark.
<i>Position</i>	Assistant Professor
<i>Affiliation</i>	Department of Environmental Systems Science, ETH Zurich, Switzerland.
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<i>Webpage</i>	<a href="http://www.envmicro.ethz.ch/">http://www.envmicro.ethz.ch/</a>
<i>Bio-sketch</i>	<p>Mark Alexander Lever is an adjunct scientist at Aarhus University, Denmark, and since 2014 leads the Environmental Microbiology group at ETH Zurich's Department of Environmental Systems Science. He received his PhD in marine sciences from the University of North Carolina at Chapel Hill in 2008, in which he investigated anaerobic microbial carbon cycling in subseafloor sediments and crustal habitats. Mark Alexander Lever's research currently focuses on microbial controls on the carbon cycle in marine and freshwater sediments.</p>
<i>Main experience in the Action's topics</i>	Microbial carbon cycling in the oceanic crust and hydrothermal sediments with focus on methanogenesis, anaerobic methane oxidation, acetogenesis, and chemoautotrophy.
<i>Recent publications on the Action's topics</i>	<p>Labonté JM, <b>Lever MA</b>, Edwards KJ, Orcutt BN (2017) Influence of igneous basement on deep sediment microbial diversity on the eastern Juan de Fuca Ridge flank. <i>Frontiers in Microbiol</i>, <a href="https://doi.org/10.3389/fmicb.2017.01434">https://doi.org/10.3389/fmicb.2017.01434</a>.</p> <p>Berndt C, Hensen C, Mortera-Gutierrez, Sarkar S, Geilert</p>

S, Schmidt M, Liebetrau V, Kipfer R, Scholz F, Doll M, Muff S, Karstens J, Planke S, Petersen S, Böttner C, Chi W-C, Moser M, Behrendt R, Fiskal A, **Lever MA**, Su C-C, Deng L, Brennwald M, Lizarralde D (2016) Rifting under steam – how rift magmatism triggers methane venting from sedimentary basins. *Geology* 44:767-770.

**Lever MA**, Rogers K, Lloyd KG, Overmann JO, Schink B, Thauer RK, Hoehler TM, Jørgensen BB. 2015. Microbial life under extreme energy limitation: a synthesis of laboratory- and field-based investigations. *FEMS Microbiol Rev* 39:688-728.

**Lever MA**, Teske AP. 2015. Diversity of methane-cycling archaea in hydrothermal sediment investigated by general and group-specific PCR primers. *Appl Environ Microbiol* 81:1426- 1441.

**Lever MA**, Rouxel OJ, Alt J, Shimizu N, Ono S, Coggon RM, Shanks WC, Lapham L, Elvert M, Prieto-Mollar X, Hinrichs KU, Inagaki F, Teske AP. 2013. Evidence for microbial carbon and sulfur cycling in deeply buried ridge flank basalt. *Science* 339:1305-1308.

*Participation to  
other COST  
Actions*

*MEDSALT*

*Role in COST  
Action ES1301*

Vice-Chair, Work Group Leader, MC Member

<i>Name</i>	<b>Dr Matteo Lupi</b>
<i>Position</i>	Assistant Professor
<i>Affiliation</i>	Department of Earth Science, University of Geneva, Switzerland
<i>Email address</i>	<a href="mailto:Matteo.lupi@unige.ch">Matteo.lupi@unige.ch</a>
<i>Webpage</i>	<p><a href="http://cms.unige.ch/sciences/terre/research/Groups/crustal_deformation/crustal_deformation.php">http://cms.unige.ch/sciences/terre/research/Groups/crustal_deformation/crustal_deformation.php</a></p> <p><a href="https://sites.google.com/site/genevageology/">https://sites.google.com/site/genevageology/</a></p>
<i>Bio-sketch</i>	<p>I received my MSc in Geology from the University of Pisa in 2005. In 2010 I completed my PhD as ECOSSE candidate, a joint program between the Heriot-Watt University and the University of Edinburgh. I moved to ETH in February 2013 after two years as Postdoc in Bonn. Since the summer of 2015 I lead the group of Crustal Deformation and Fluid Flow at the University of Geneva.</p>
<i>Main experience in the Action's topics</i>	<p>I am interested in the mutual interaction between fluid flow and seismic activity that is modulated by the state of stress of the crust. Vertical migration of deep fluids can either reduce the effective differential stress acting on geological structures leading to fault slip and/or hydrofracturing or vice-versa be triggered by seismic activity itself. An increasing number of observations highlights the sporadic occurrence in the crust of extremely rapid (days to years) vertical fluid flow separated by periods dominated by slow fluid diffusion. The fast upwelling of deep fluids is accompanied by short-lived permeability enhancements that are therefore associated with intense seismic and micro-seismic activity. These dynamics are more frequent in regions characterized by fluid pressures close to lithostatic where external factors such as distant earthquakes can alter the physical state of the crust.</p>
<i>Recent publications</i>	Panzer, F., Lupi, M., Mauri, G, Karyono, K., Mazzini, A. Lusi hydrothermal structure inferred through ambient

on the Action's  
topics

vibration measurements, *Marine and Petroleum Geology*, *Accepted*.

Collignon, M., Schmid, D. W., Galerne, C. Lupi, M, Mazzini, A. Modelling fluid flow in clastic eruptions: application to the Lusi mud eruption. *Marine and Petroleum Geology*, *Under Review*.

Moscariello, A., Damien Do Couto, D., Mondino, F., Booth, J., Lupi, M., Mazzini, A. Genesis and evolution of the Watukosek fault system in the Lusi area (East Java). *Marine and Petroleum Geology*, *Under Review*.

Sciarra, A., Mazzini, A., Inguaggiato, S., Vita, F., Lupi, M., Hadi, S. Radon and carbon gas anomalies along the Watukosek fault system and Lusi mud eruption, Indonesia. *Marine and Petroleum Geology*, *Under Review*.

Mauri, G., Husein, A., Mazzini, A. Karyono, K., Obermann, A. C., Bertrand, G., Lupi, M., Prasetyo, H., Hadi, S., Miller, S.A. Constraints on density changes in the funnel-shaped caldera inferred from gravity monitoring of the Lusi mud eruption. *Marine and Petroleum Geology*, *Under Review*.

Obermann, A., C., Karyono, K. Diehl, T., Lupi, M., Mazzini, A. Seismicity at Lusi and the adjacent volcanic complex, Java, Indonesia. *Marine and Petroleum Geology*, *Under Review*.

Collignon, M., Mazzini, A., Schmid D., W., Lupi, M. Modelling clastic eruptions: challenges and approaches. *Marine and Petroleum Geology*, *Under Review*.

Lupi, M., Frehner, M., Saenger, E.H., Tisato, N., Weis, P., Geiger, S., Chiodini, G., Driesner, T. Ground uplift crises at the Campi Flegrei caldera: A three years delayed response to regional earthquakes. *Earth and Planetary Science Letters*, *Under Review*.

Lupi, M., Fuchs, F., Saenger, H. E. Numerical simulations of dynamic triggering induced by passing Rayleigh waves: effects of the M9.0 Tohoku earthquake at the Larderello-Travale geothermal field, Italy. *Geophysical Research Letters*, Under Review.

Lupi, M., Kenkel, J., Ricci, T., Suski, B. Fuchs, F., Miller, S. A. Geoelectrical and Seismic Studies of a Mud Volcanic Field: The Salse di Nirano, Italy. *Geophysical Journal International* (2016), 204, 907–917.

Obermann A., Lupi, M., Mordret, A., Jakobsdóttir, S. S., Miller, S. A. 3D-ambient noise Rayleigh wave tomography of Snæfellsjökull volcano, Iceland. *Journal of Volcanology and Geothermal Research* (2016), 317, 42-52.

Karyono K., Obermann A., Lupi, M., Masturyono M., Hadi S., Mazzini, A. Lusi, a clastic dominated geysiring system in Indonesia recently explored by surface and subsurface observations. *Terra Nova*, 2016, 29: 13–19, 2017 .

Bakker, R. R., Frehner, M., Lupi, M. How temperature-dependent elasticity alters host rock / magmatic reservoir models: a case study on the effects of ice-cap unloading on shallow volcanic systems. *Earth and Planetary Science Letters*, 2016, 456, 16–25.

Participation to  
other COST  
Actions

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Role in COST  
Action ES1301

MC Member

<i>Name</i>	<b>Dr Luis Manuel Henriques Marques Matias</b>
<i>Position</i>	Associate Professor
<i>Affiliation</i>	Instituto Dom Luiz, Faculdade de Ciências, Universidade de Lisboa
<i>Email address</i>	lmatias@fc.ul.pt
<i>Webpage</i>	<a href="http://idl.campus.ciencias.ulisboa.pt/profiles/luis-matias/">http://idl.campus.ciencias.ulisboa.pt/profiles/luis-matias/</a>
<i>Bio-sketch</i>	
<i>Main experience in the Action's topics</i>	Active and Passive Seismology, Seismotectonics, Plate kinematics, Marine Geophysics.
<i>Recent publications on the Action's topics</i>	<p>Cunha, T.A., Matias, L.M., Terrinha, P., Negredo, A., Rosas, F., Fernandes, R.M.S., and Pinheiro, L.M., 2012. Neotectonics of the SW Iberia margin, Gulf of Cadiz and Alboran Sea: a reassessment including recent structural, seismic and geodetic data, <i>Geophys. J. Int.</i>, 188, 850-872, doi: 10.1111/j.1365-246X.2011.05328.x</p> <p>Rosas, F.M., Duarte, J.C., Neves, M.C., Terrinha, P., Silva, S., Matias, L., Gràcia, E., and Bartolome, R., 2012. Thrust–wrench interference between major active faults in the Gulf of Cadiz (Africa–Eurasia plate boundary, offshore SW Iberia): Tectonic implications from coupled analog and numerical modeling, <i>Tectonophysics</i>, 548–549, 1-21, doi:10.1016/j.tecto.2012.04.013</p> <p>Matias, L.M., T. Cunha, A. Annunziato, M.A. Baptista, and F. Carrilho, 2013. Tsunamigenic earthquakes in the Gulf of Cadiz: fault model and recurrence, <i>Nat. Hazards Earth Syst. Sci.</i>, 13, 1–13, doi:10.5194/nhess-13-1-2013</p> <p>Monna, S., Cimini, G.B., Montuori, C., Matias, L., Geissler, W.H., and Favali, P., 2013. New insights from seismic tomography on the complex geodynamic evolution of two adjacent domains: Gulf of Cadiz and Alboran Sea, <i>J. Geophys. Res.</i>, 118, 1–15,</p>

doi:10.1029/2012JB009607

Custódio, S; Dias, NA; Carrilho, F; Góngora, E; Rio, I; Marreiros, C; Morais, I; Alves, P; Matias, L, 2015. Earthquakes in Western Iberia: Improving the Understanding of Lithospheric Deformation in a Slowly Deforming Region, GJ I 203(1), 127-145. doi: 10.1093/gji/ggv285

Neres, M; Carafa, MMC; Fernandes, RMS; Matias, L ; Duarte, JC; Barba, S; Terrinha, P (2016). Lithospheric deformation in the Africa-Iberia plate boundary: Improved neotectonic modeling testing a basal-driven Alboran plate, J. Geophys. Res., 121(9).

Batista, L., Hubscher, C., Terrinha, P., Matias, L., Afilhado, A., Ludmann, T., 2017. Crustal structure of the Eurasia–Africa plate boundary across the Gloria Fault, North Atlantic Ocean, Geophysical Journal International, 209, 713-729, doi: 10.1093/gji/ggx050

Baptista, M. A., Miranda, J. M., Matias, L., & Omira, R. (2017). Synthetic tsunami waveform catalogs with kinematic constraints. Natural Hazards and Earth System Sciences, 17(7), 1253.

*Participation to  
other COST  
Actions*

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*Role in COST  
Action ES1301*

MC Member  
Co-chair of Working Group 1 - Seismicity and fluid at TTPBs: field data and modeling.  
Co-organizer of the 1<sup>st</sup> FLOWS Training School on the detection of gas emissions from the seafloor using multibeam echo soundings.



*Name*

**Dr Adriano Mazzini**

*Position*

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*Bio-sketch*

He conducts multidisciplinary studies on mud volcanism dynamics during dormant and active phase, hydrocarbon plumbing systems, and sedimentary hosted hydrothermal systems. In total he participated and organized in ~50 marine and field expeditions combining acoustic, sampling and seafloor imaging tools targeting shallow and deep depositional systems, pockmark fields, cold seeps, carbonate mounds and mud volcanoes, anoxic basins, modern and palaeo hydrothermal systems, mud volcanoes. Among the findings are new mud volcano fields (Mediterranean, Black Sea and Gulf of Cadiz), sampling of the first gas hydrates and methanogenic carbonates in the pockmark fields in the Norwegian Sea, and new coral mound fields offshore Ireland. Particularly successful projects have been the studies of mud volcanism in Azerbaijan and the hydrothermal system in the Salton Sea (California) that provided qualitative and quantitative results. His interest in mud volcanoes was extended to extra planetary studies identifying potential landing sites for mud volcano exploration on Mars. Since 2006, he has been focussing on the spectacular Lusi mud eruption in Indonesia. In 2012 he won the ERC grant (LUSI LAB project) to continue his research in this eruption.

*Main experience  
in the Action's topics*

Geochemistry of fluids, hydrocarbon seepages (pockmarks and mud volcanoes), authigenic carbonates, hydrothermal systems, seismicity and piercements

*Recent publications  
on the Action's  
topics*

Mazzini, A., Svensen, H. H., Forsberg, C. F., Linge, H., Lauritzen, S.-E., Haflidason, H., Hammer, Ø., Planke, S., and Tjelta, T. I., 2017, A climatic trigger for the giant Troll

pockmark field in the northern North Sea: EPSL, v. 464, p. 24-34.

Mazzini, A., Scholz, F., Svensen, C., Hensen, C., and Hadi, S., 2017, The geochemistry and origin of the hydrothermal water erupted at Lusi, Indonesia: Marine & Petroleum Geology, v. <https://doi.org/10.1016/j.marpetgeo.2017.06.018>.

Miller, S. A., and Mazzini, A., 2017, More than ten years of Lusi: A review of facts, coincidences, and past and future studies: Marine and Petroleum Geology, v. <https://doi.org/10.1016/j.marpetgeo.2017.06.019>.

Mazzini, A., & Etiope, G., 2017, Mud volcanism: An updated review: Earth-Science Reviews, v. 168, p. 81–112.

Sciarra, A., Mazzini, A., Inguaggiato, S., Vita, F., Lupi, A., and Hadi, S., 2017, Radon and carbon gas anomalies along the Watukosek fault system and Lusi mud eruption, Indonesia: Marine & Petroleum Geology, v. <https://doi.org/10.1016/j.marpetgeo.2017.09.031>.

Fallahi, M., Obermann, A., Lupi, A., Karyono, K., and Mazzini, A., 2017, The Lusi eruption plumbing system revealed by ambient noise tomography: Journal of Geophysical Research, v. DOI: 10.1002/2017JB014592.

Karyono, K., Obermann, A., Lupi, M., Masturyono, M., Hadi, S., Syafri, I., Abdurrokhim, A., and Mazzini, A., 2017, Lusi, a clastic-dominated geysering system in Indonesia recently explored by surface and subsurface observations: Terra Nova, v. 29, p. 13-19

*Participation to other COST Actions*

-

*Role in COST Action ES1301*

Coordinator of WG3 in the ITN proposal

*Name:*

**Paraskevi Nomikou**

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*Affiliation:*

Dept. of Geology and Geoenvironment

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evinom@geol.uoa.gr

*Webpage:*

<http://paraskevinomikou.weebly.com/>

*Bio-sketch*

Dr Nomikou Paraskevi has a PhD in marine geodynamics and has participated in more than 80 oceanographic cruises that focused on submarine volcanism, mud volcanoes, landslides and slope stability and the exploration of seafloor mineral deposits. More recently, she has played a leading role in the evaluation of the potential hazards associated with renewed volcanic activity at Santorini volcano in Greece. Her studies of the underwater area of the volcano where new earthquakes and deformation have been taking place are critical to the ongoing evaluation of future eruption scenarios. She has been a key-person for both local civil officials and the general population to understanding the relevant geological processes. She has also been involved in the study of economically important seafloor mineral deposits within the crater of the submarine volcano Kolumbo, off the coast of Santorini. In 2013, 2015 and 2018 she was involved in expeditions to the Mid-Atlantic Ridge and the Azores Plateau

*Main experience in the Action's topics:*

Marine geomorphology and geophysics, tectonics, submarine volcanism

*Recent publications on the Action's topics:*

Nomikou P. et al., (2016): Post-eruptive flooding of Santorini caldera and implications for tsunami generation. NATURE COMMUNICATIONS | 7:13332 | DOI: 10.1038/ncomms13332.

Escartín J., et al., (2016): First direct observation of coseismic slip and seafloor rupture along a submarine normal fault and implications for fault slip history. Earth and Planetary Science Letters 450, 96–107.

Rizzo A. et al., (2016): Kolumbo submarine volcano (Greece): An active window into the Aegean subduction system. Sci. Rep. 6, 28013.

Nomikou P., Hübscher C., Ruhnau M., Bejelou K. (2016): Tectono-stratigraphic evolution through successive extensional events of the Anydros Basin, hosting of the Kolumbo volcanic field at Aegean Sea, Greece. Tectonophysics 671, 202-217.

*Participation to other COST Actions:*

-

*Role in COST Action ES1301:*

WG 3

Name

Dr Marianne Nuzzo

Position

Organic geochemist

Affiliation

Integrated Geochemical Interpretation Ltd.

Email address

[Marianne@igilt.com](mailto:Marianne@igilt.com)

Main experience  
in the Action's  
topics

Coordinated the writing and submitted the proposal (whilst a postdoc at the geological survey of Portugal). Organic geochemist working on cold seeps offshore Iberia and Costa Rica, investigating the origin and migration of hydrocarbon fluids in deep sediments. Expertise in gas and petroleum geochemistry and biogeochemistry (stable isotope and biomarkers).

Recent publications  
on the Action's  
topics

Hensen, C., Scholz, F., Nuzzo, M., Valadares, V., Gràcia, E., Terrinha, P., Liebetrau, V., Kaul, N., Silva, S., Martínez-Loriente, S., Bartolome, R., Piñero, E., Magalhães, V.H., Schmidt, M., Weise, S.M., Cunha, M., Hilario, A., Perea, H., Rovelli, L., Lackschewitz, K., 2015. Strike-slip faults mediate the rise of crustal-derived fluids and mud volcanism in the deep sea. *Geology* 43, 339-342.

Participation to  
other COST  
Actions

None.

Role in COST  
Action ES1301

- Marianne coordinated and wrote a substantial part of the proposal and submitted it. She then moved from a post-doctoral position at the geological Survey of Portugal to a non-academic position in the UK. She remained related to the project as the MC for the United Kingdom and an industry-related member of the FLOWS community.

- She organized a training school, which involved other members of the FLOWS network (Prof. H. Villinger and Dr. E. Burwicz-Galerie) and scientists working in the academia (Dr. Tiago Alves) and in the petroleum industry (Dr Tiago Cunha at IGI Ltd; Dr Helen Doran at Ophir Oil & Gas; and Prof. Ian Davison at Earthmoves

Ltd). The training school was entitled “A practical introduction to heat and fluid flow modelling – Applications in Petroleum Systems Analysis”. She also taught a module during the training school. The training school took place in Hallsannery, Bideford, North Devon (UK) from the 9th to the 14th May 2017. It was attended by eighteen participants from Europe (but also self-funded participants from Canada, Australia and Pakistan). The participants were mostly PhD students and post-doctoral fellows as well as three scientists working in the industry. The aim of the training school was to provide essential background knowledge on heat and fluid flow, with a strong “hands-on” emphasis on practical aspects and to promote academia-industry exchanges and collaborations.

Field trip on the last day of the training school led by Prof. Ian Davison.

<i>Name</i>	<b>Prof Philip Philipoff</b>
<i>Position</i>	Professor
<i>Affiliation</i>	Institute of Mechanics – Bulgarian Academy of Sciences
<i>Email address</i>	philip.philipoff.auto@gmail.com <a href="mailto:philip_philipoff@imbm.bas.bg">philip_philipoff@imbm.bas.bg</a>
<i>Webpage</i>	<a href="http://www.imbm.bas.bg/index.php/philip-yordanov-philipoff">http://www.imbm.bas.bg/index.php/philip-yordanov-philipoff</a>
<i>Bio-sketch</i>	<p>PhD in Applied Mechanics</p> <p>High Education:</p> <ol style="list-style-type: none"> <li>1) “Civil Engineering Structures”, Civil Engineer, UASG</li> <li>2) „Applied Mathematics” Applied Mathematics Faculty Technical University – Sofia</li> <li>3) PhD Dissertation in Applied Mechanics Area, Institute of Mechanics, Bulgarian Academy of Sciences</li> <li>4) „Control Systems” – post doctor course , Automation Faculty – Technical University - Sofia</li> </ol> <p>Fields of Research:</p> <ol style="list-style-type: none"> <li>1) Wave propagation in multi layered media</li> <li>2) Soil – Structure interaction problems</li> <li>3) Wave propagation in structures</li> <li>4) Spectral properties of signals</li> </ol>
<i>Main experience in the Action’s topics</i>	
<i>Recent publications on the Action’s topics</i>	<p>Blagoev, A., Jivkov, V., Philipoff, P., Folic, R., Getcov, P., Sotirov, G., Mardirossian, G., Kovachev, A., Mandiev, P., Doneva, S., Tankovsky, Y., Application of Quadruple Symmetric Real Function Spectral Properties in Engineering Sciences, III National Congress of Physical Sciences, Sofia, 2016, Collection Program / Abstracts, Section: Atomic Physics and Plasma Physics, Page 8.</p> <p>Jivkov, v., Philipoff, Ph., Mandiev, P., Doneva, S., Pneva,</p>

A., Numerical Examples on Spectral Even and Odd Decomposition for Quadruple Symmetric Real Signals, International Conference "Days of Mechanics 2016", Varna, ISSN 0861-9727.

Natarajan, V., Philipoff, P., Sreedharan, V., Venkatachalapathy, H., Observation of Pre-Earthquake Thermal Signatures using Geostationary Satellites: Implications for Earthquake Forecasting, SPIE, Journal of Applied Remote Sensing, 10(4), 046004 (2016), doi: 10.1117/1.JRS.10.046004.Oct-Dec 2016 • Vol. 10(4), Page from 046004-1 to 046004-13, Link: <https://spie.org/publications/journals/journal-of-applied-remote-sensing>

*Participation to other COST Actions*

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*Role in COST Action ES1301*

MC Member



<i>Name</i>	<b>Dr Catherine Pierre</b>
<i>Position</i>	Emeritus Researcher
<i>Affiliation</i>	Université Pierre et Marie Curie- LOCEAN
<i>Email address</i>	catherine.pierre@locean.upmc.fr
<i>Webpage</i>	
<i>Bio-sketch</i>	Stable isotope geochemistry of sedimentary systems, methane related authigenic carbonates, paleoenvironmental and paleoceanographic reconstructions
<i>Main experience in the Action's topics</i>	Diagenetic processes related to fluid migration in the sediments of passive and active continental margins Main study areas: Marmara sea, Mediterranean sea, west African margin, Bering sea
<i>Recent publications on the Action's topics</i>	<p>Pierre C. et al., 2014. Authigenic carbonates related to active seepage of methane-rich hot brines at the Cheops mud volcano, Menes caldera (Nile deep-sea fan, eastern Mediterranean Sea). <i>Geo-Mar Lett</i>, doi 10.1007/s00367-014-0362-6</p> <p>Pierre C. et al., 2015. Methanogenesis and clay minerals diagenesis during the formation of dolomite nodules from the Tortonian marls of southern Spain. <i>Mar Petrol Geol</i>, <a href="http://dx.doi.org/10.1016/j.marpetgeo.2015.04.017">http://dx.doi.org/10.1016/j.marpetgeo.2015.04.017</a></p> <p>Pierre C., 2016. Origin of the authigenic gypsum and pyrite from active methane seeps of the southwest African Margin. <i>Chem Geol</i>, <a href="http://dx.doi.org/10.1016/j.chemgeo.2016.11.005">http://dx.doi.org/10.1016/j.chemgeo.2016.11.005</a></p>
<i>Participation to other COST Actions</i>	COST-Pergamon (end October 2013) COST-Medsalt (start October 2015)
<i>Role in COST Action ES1301</i>	participation to the meetings in Bremen, Heraklion, Barcelona and to the Dead Sea workshop

<i>Name:</i>	<b>Luis Menezes Pinheiro</b>
<i>Position:</i>	Associate Professor
<i>Affiliation:</i>	Geosciences Dept., University of Aveiro, 3810-193, Portugal
<i>Email address</i>	Imp@ua.pt
<i>Webpage</i>	<a href="http://www.cesam.ua.pt/Imp">http://www.cesam.ua.pt/Imp</a>
<i>Bio-sketch</i>	<p>Associate Professor in Marine Geology and Geophysics, University of Aveiro (UA). PhD in Marine Geophysics, Imperial College, London.</p> <p>Chairman Portuguese Committee and National Delegate to the Executive Council to the IOC of UNESCO.</p> <p>Coordinator of the Sea Technology Platform of the University of Aveiro.</p> <p>Coordinator of the Coordinating Group for Research Ships &amp; Shiptime Allocation, Portuguese Science Foundation (2006-).</p> <p>Member of the Coordinating Comm. Assoc. Laboratory CESAM.</p> <p>Effective Member of the Academy of the Navy</p>
<i>Main experience in the Action's topics</i>	Geophysics, serpentization processes; fluid flow and cold seeps
<i>Recent publications on the Action's topics</i>	<p>Duarte, D., Magalhães, V. H., Terrinha, P., Ribeiro, C., Madureira, P., Pinheiro, L. M., Bennazouz, O., Kim, J.-H., and Duarte, H. (2017). Identification and characterization of fluid escape structures (pockmarks) in the Estremadura Spur, West Iberian Margin. <i>Marine and Petroleum Geology</i>, V.82, 414-423.</p> <p>Gutscher, M.-A., Dominguez, S., Mercier de Lepinay, B., Pinheiro, L., Gallais, F., Babonneau, N., Cattaneo, A., Le Faou, Y., Barreca, G., Micallef, A., and Rovere, M. (2016). Tectonic expression of an active slab tear from high-resolution seismic and bathymetric data</p>

offshore Sicily (Ionian Sea). *Tectonics*, 34, 39-55. doi:10.1002/2015TC003898.

Amarjouf, N., Oujidi, M., Pinheiro, L.M., Hammadi, A., and Rezqi, H. (2016). Assessing the Temporal Rates of Siltation with a Historical Approach: Application in Nador's Harbor (Morocco). *Thalassas*, 32, 51-64. DOI 10.1007/s41208-015-0007-1.

Wang S., Magalhães V. H., Pinheiro, L. M., Liu J. and Yan W. (2015). Tracing the composition, fluid source and formation conditions of the methane-derived authigenic carbonates in the Gulf of Cadiz with rare earth elements and stable isotopes. *Marine and Petroleum Geology*, V.68, 192-205. DOI 10.1016/j.marpetgeo.2015.08.022

Chen, J., Song, H., Guan, Y., Yang, S., Pinheiro, L. M., Bai, Y., Liu, Geng, M. (2015). Morphologies, classification and genesis of pockmarks, mud volcanoes and associated fluid escape features in the northern Zhongjiannan Basin, South China Sea. *Deep-Sea Research II*, V. 122, 106-117. doi:10.1016/j.dsr2.2015.11.007

*Participation to other COST Actions*

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*Role in COST Action ES1301*

MC Member, WG 2, WG 3, WG 4

<i>Name</i>	<b>Dr Alina Polonia</b>
<i>Position</i>	Researcher
<i>Affiliation</i>	Institute of Marine Sciences, National Research Council (ISMAR-CNR)
<i>Email address</i>	alina.polonia@ismar.cnr.it
<i>Webpage</i>	<a href="https://scholar.google.it/citations?user=2GiVckkAAAAJ&amp;hl=it&amp;oi=ao">https://scholar.google.it/citations?user=2GiVckkAAAAJ&amp;hl=it&amp;oi=ao</a> <a href="https://www.researchgate.net/profile/Alina_Polonia">https://www.researchgate.net/profile/Alina_Polonia</a>
<i>Bio-sketch</i>	My research aims to study tectonic processes and geohazards of convergent and transform plate margins through a multidisciplinary, multi-scale approach involving geophysical data at different scales (seismic reflection data, multibeam, gravity and magnetic data) and sediment cores. The final goal is to reconstruct the interplay between active tectonics, seismic shaking, tsunami wave propagation, fluid flow and deposition of turbidites in tectonically controlled sedimentary basins.
<i>Main experience in the Action's topics</i>	<ul style="list-style-type: none"> <li>- Marine geological and geophysical methods to study the structure and evolution of continental margins.</li> <li>- Study of convergent and transform plate boundary fault zones: deformation and earthquake potential in the Calabrian Arc, Chile, Eastern Mediterranean, Sea of Marmara (North Anatolian Fault) and Israel (Dead Sea fault).</li> <li>- Submarine paleoseismology: geological processes that govern the nature and evolution of earthquakes, subaquatic landslides and tsunamis. Causative faults and triggering mechanisms of submarine landslides for the major Italian tsunamigenic earthquakes.</li> <li>- Sedimentological, geophysical and geochemical techniques to study sediment deformation, failure and mass-transport processes, their structures and deposits, and how they are recorded in the stratigraphic record.</li> </ul>
<i>Recent publications</i>	Giuliani S., Bellucci L.G., Cagatay N., Polonia A., Piazza R., Vecchiato M., Pizzini S., Gasperini L., 2017. Risks

on the Action's  
topics

of extensive industrialization in seismic areas: The impact of the 1999 Mw 7.4 event in the İzmit Bay (Turkey) on anthropogenic contaminant (PCBs, PAHs and PBDEs) concentrations recorded in a sediment core. *Science of the Total Environment*. In press.

Bortoluzzi G., Polonia A., Torelli L., Artoni A., Carlini M., Carone S., Carrara G., Cuffaro M., Del Bianco F., D'Oriano F., Ferrante V., Gasperini L., Ivaldi R., Laterra A., Ligi M., Locritani M., Muccini F., Mussoni P., Priore F., Riminucci F., Romano S., Stanghellini G., 2016. Styles and rates of deformation in the frontal accretionary wedge of the Calabrian Arc (Ionian Sea): controls exerted by the structure of the lower African plate. *Italian Journal of Geosciences* DOI: 10.3301/IJG.2016.11, IF(2015): 1.028.

Cavallaro, D., Monaco, C., Polonia, A., Sulli, A., Di Stefano, A. Evidence of positive tectonic inversion in the north-central sector of the Sicily Channel, 2016. *Natural Hazards*, DOI 10.1007/s11069-016-2515-6.

Polonia A., Nelson H. C., Romano S., Vaiani S.C., Colizza E., Gasparotto G., Gasperini L., 2016. A depositional model of seismo-turbidites in confined basins based on Ionian Sea deposits. *Marine Geology*, DOI:10.1016/j.margeo.2016.05.010.

Polonia A., Torelli L., Artoni A., M. Carlini, Faccenna C., Ferranti L., Gasperini L., Govers R., Klaeschen D., Monaco C., Neri G., Nijholt N., Orecchio B., Wortel R., 2016. The Ionian and Alfeo-Etna fault zones: new segments of an evolving plate boundary in the central Mediterranean Sea? *Tectonophysics*, 675, 69-90, 10.1016/j.tecto.2016.03.016.

Polonia A., Vaiani C.S. and de Lange G.J., 2016. Did the AD 365 Crete earthquake/tsunami trigger synchronous giant turbidity currents in the

Mediterranean Sea? *Geology*, DOI:  
10.1130/G37486.1

Ruffine L., Germain Y., Polonia A., De Prunelé A., Croguennec C., Donval J.-P., Pitel-Roudaut M., Ponzevera E., Caprais J.-C., Brandily C., Grall C., Bollinger C., Géli L., Gasperini L., 2015. Pore-water geochemistry at two seismogenic areas in the Sea of Marmara. *Geochemistry Geophysics Geosystems* 06/2015; 16(7). DOI:10.1002/2015GC005798 ·

Polonia A., Romano S., Çağatay M.N., Capotondi L., Gasparotto G., Gasperini L., Panieri G., Torelli L., 2015. Are repetitive slumpings during sapropel S1 related to paleo-earthquakes? *Marine Geology* 361 (2015) 41–52.  
<http://dx.doi.org/10.1016/j.margeo.2015.01.001>

Embriaco D., Marinaro G., Frugoni F., Monna S., Etiope E., Gasperini L., Polonia A., Del Bianco F., Çağatay N., Ulgen U., Favali P., 2013. Monitoring of gas and seismic energy release by multiparametric benthic observatory along the North Anatolian Fault in the Sea of Marmara (NW Turkey). *Geophysical Journal International* 11/2013.

Polonia A., Bonatti E., Camerlenghi A., Lucchi R. G., Panieri G., Gasperini L., 2013. Mediterranean megaturbidite triggered by the AD 365 Crete earthquake and tsunami. *Scientific Reports* 02/2013; 3:1285

Polonia A., Panieri G., Gasperini L., Gasparotto G., Bellucci L.G., Torelli L., 2013. Turbidite paleoseismology in the Calabrian Arc Subduction Complex (Ionian Sea). *Geochemistry Geophysics Geosystems* 01/2013; 14(1):112-140.  
doi:10.1029/2012GC004402

Panieri G., Polonia A., Lucchi R. G., Zironi S., Capotondi

L., Negri A., Torelli L., 2013. Mud volcanoes along the inner deformation front of the Calabrian Arc accretionary wedge (Ionian Sea). *Marine Geology* 336 (2013) 84–98.  
<http://dx.doi.org/10.1016/j.margeo.2012.11.003>

*Participation to  
other COST  
Actions* -

*Role in COST  
Action ES1301* MC Member

*Name*

**Carmina López-Rodríguez**

*Position*

Early Career Researcher

*Affiliation*

Andalusian Earth Science Institute (CSIC-UGR); Center of Advanced Studies in Earth Sciences (CEACTierra)

*Email address*

carmina@ugr.es

*Webpage*

-

*Bio-sketch*

Carmina López-Rodríguez studied Geology (B. Sc 2007 and M.Sc 2009) at Granada University, Spain. She did her Ph. D. in Marine Geosciences and Geochemistry at the same institution (2016). During her Ph.D studies he focused her studies on mud volcanoes from the Alboran Sea, especially on related solid materials and fluids (mud breccias and hemipelagic drapes; methane-derived authigenic carbonates- MDACs; porewaters; methane). During her Ph. D. studies and afterwards she has collaborated with prestigious research groups abroad (Aveiro University-Portugal; IF-GEOMAR-Germany; NIOZ and Utrecht University- the Netherlands) in the research of mud volcanoes. Currently, she is technical researcher of sedimentary geochemistry at the Center of Advanced Studies in Earth Sciences (CEACTierra- University of Jaen, Spain) at the time she continues her investigations on mud volcanism at the Andalusian Institute of Earth Sciences (IACT; CSIC-UGR, Granada, Spain).

*Main experience in the Action's topics*

I focus my investigations in active methane seepage structures, such as mud volcanoes and pockmarks. Specially hydrocarbon reservoirs and deep fluid migration to the seafloor. My interest focuses in understand diagenetic processes related to fluid generation and methane production and microbial processes which act as hydrocarbon sinks.

To address my research I use a multidisciplinary approach which include inorganic (mineralogy, sedimentology and geochemistry) and organic (biomarkers) proxies, both on solid phases (sediments and rocks) as well as in porewaters and gases.



*Recent publications on the Action's topics*

C. López-Rodríguez (2016) "Mud Volcanoes from the Alboran Sea: materials and vulcano-sedimentary and diagenetic process involved" Eds. Universidad de Granada, Tesis Doctoral. ISBN 9788491254218

I. Rodríguez-Germade, B. Rubio, D. Rey, F. Vilas, C.F. López-Rodríguez, M. C. Comas and F. Martínez-Ruiz (2015) "Optimization of Itrax Core Scanner Measurement Conditions for Sediments from Submarine Mud Volcanoes". Micro-XRF Studies of Sediment Cores. I.W. Croudace, R.G. Rothwell (eds.), In Developments in Paleoenvironmental Research 17, 103-126. DOI 10.1007/978-94-017-9849-5\_3

C. López-Rodríguez, A. Stadnitskaia, G.J. De Lange, F. Martínez-Ruiz, M. Comas, and J. S. Sinninghe Damsté. (2014) "Origin of lipid biomarkers in mud volcanoes from the Alboran Sea, western Mediterranean". Biogeosciences, 11, 3187-3204. doi: 10.5194/bg-11-3187-2014

G. Gennari, S. Spezzaferri, M.C. Comas, A. Rüggeberg, C. López-Rodríguez, and L.M. Pinheiro (2013). "Micropaleontological characterization of the mud breccia from three mud volcanoes in the West Alboran Basin: implications for age variation of the source sediments and mud volcanic activity". Marine Geology, Vol. 339, 83-95.

*Participation to other COST Actions*

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*Role in COST Action ES1301*

FLOWS Participant and STSM beneficiary (COST-STSM-ECOST-STSM-ES1301-050316-071994: Mud breccia/deep fluids – sediment-fluid interactions beneath mud volcanoes from the Alboran Sea and COST-STSM-ES1301-36149: Active mud-methane discharge evidenced by authigenic methane-derived carbonates in mud volcanoes from the Alboran Sea).

<i>Name</i>	<b>Christopher Schmidt</b>
<i>Position</i>	PhD Student
<i>Affiliation</i>	Marine Biogeochemistry GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel
<i>Email address</i>	cschmidt@geomar.de
<i>Webpage</i>	<a href="http://www.geomar.de/en/mitarbeiter/fb2/mg/cschmidt/">http://www.geomar.de/en/mitarbeiter/fb2/mg/cschmidt/</a>
<i>Bio-sketch</i>	Christopher Schmidt is a PhD student of GEOMAR Helmholtz Center Kiel. He achieved his B.Sc. degree in applied geoscience in Karlsruhe in 2012, and obtained his M.Sc. from Kiel University in 2016, where he focused on mud volcanism in the Gulf of Cadiz. His research interest is the numerical modelling of biogeochemical subsurface processes, fluid flow and mud volcanism.
<i>Main experience in the Action's topics</i>	Biogeochemistry; fluid flow and mud volcanos
<i>Recent publications on the Action's topics</i>	-
<i>Participation to other COST Actions</i>	-
<i>Role in COST Action ES1301</i>	WG 3

*Name*

**Dr Mark Schmidt**

*Position*

Senior scientist

*Affiliation*

GEOMAR Helmholtz Centre for Ocean Research Kiel

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mschmidt@geomar.de

*Webpage*

<http://www.geomar.de/en/mitarbeiter/fb2/mg/mschmidt/>

*Bio-sketch*

Dr. Mark Schmidt is member of the Marine Biogeochemistry Division of the German research institute GEOMAR and Associate Professor at University Kiel ("Privatdozent"). He started his scientific career in the 90th as an environmental/physical chemist (PhD in atmospheric chemistry), and then changed to earth sciences (habilitation in geosciences in 2006). Over the last decades his research interest covered a wide range of using stable isotopes to reconstruct (bio)geochemical processes in earth sciences. He is specialized on mineral formation at cold and hot marine vent areas. Moreover, he investigated trace gas-formation, -degradation, and -transport processes in most of the oceans worldwide. Mark Schmidt participated on about 40 international research cruises including offshore ROV, AUV, CTD, and Lander operations. Actually a more applied and industry-related research is in focus (i.e. gas sensor development, underwater mass spectrometry, wave glider applications). In addition to research activities he is leading the gas chromatography and isotope ratio-mass spectrometry group in his department.

*Main experience in the Action's topics*

Biogeochemical processes in the marine environment, new subsea monitoring technology

*Recent publications on the Action's topics*

Polonia A., Torelli L., Gasperini L., Cocchi L., Muccini F., Bonatti E., Hensen C., Schmidt M., Romano S., Artoni A., Carlini M. (2017) Mantle diapirism in the Calabrian Arc subduction complex (Mediterranean Sea). Submitted to Nature Communications.

- Brennwald, M. S., Schmidt, M., Oser, J. und Kipfer, R. (2016) A portable and autonomous mass spectrometric system for on-site environmental gas analysis *Environmental Science & Technology* 50 (24), 13455-13463.
- Geersen, J., Scholz, F., Linke, P., Schmidt, M., Lange, D., Behrmann, J. H., Völker, D., Hensen, C. (2016) Fault zone controlled seafloor methane seepage in the rupture area of the 2010 Maule Earthquake, Central Chile. *Geophysical Research Letters* 43 (11), 4802-4813.
- Feldens, P., Schmidt, M., Mücke, I., Augustin, N., Al-Farawati, R., Orif, M., Faber, E. (2016) Expelled subsalt fluids form a pockmark field in the eastern Red Sea. *Geophysical Research Letters* 43, 339-352.
- Berndt, C., Hensen, C., Mortera-Gutierrez, C., Sarkar, S., Geilert, S., Schmidt, M., Liebetrau, V., Kipfer, R., Scholz, F., Doll, M., Muff, S., Karstens, J., Planke, S., Petersen, S., Böttner, C., Chi, W. C., Moser, M., Behrendt, R., Fiskal, A., Lever, M. A., Su, C. C., Deng, L., Brennwald, M. S., Lizarralde, D. (2016) Rifting under steam – how rift magmatism triggers methane venting from sedimentary basins. *Geology* 44, 767-770.
- Sommer, S., Schmidt, M. und Linke, P. (2015) Continuous inline mapping of a dissolved methane plume at a blowout site in the Central North Sea UK using a membrane inlet mass spectrometer – Water column stratification impedes immediate methane release into the atmosphere. *Marine and Petroleum Geology* 68, 766-775.
- Schmidt, M., Linke, P., Sommer, S., Esser, D., Cherednichenko, S. (2015) Natural CO<sub>2</sub> seeps offshore Panarea – A test site for subsea CO<sub>2</sub> leak detection technology *Marine Technology Society Journal* 49 (1), 9-30.

*Participation to  
other COST  
Actions* | -

*Role in COST  
Action ES1301* | MC Substitute, WG3 Member

*Name*

**Dr Pedro Terrinha**

*Position*

Head of Division of Marine Geology and Georesources of the Portuguese Institute for the Sea and Atmosphere

*Affiliation*

Portuguese Institute for the Sea and Atmosphere

*Email address*

Pedro.terrinha@ipma.pt

*Webpage*

*Bio-sketch*

*Main experience*

*in the Action's topics*

Neotectonics of the Eurasia-Nubia plate boundary in the Atlantic Ocean

*Recent publications  
on the Action's topics*

Christian Hensen, Florian Scholz, Marianne Nuzzo, Vasco Valadares, Eulàlia Gràcia, Pedro Terrinha, Volker Liebetrau, Norbert Kaul, Sonia Silva, Sara Martínez-Loriente, Rafael Bartolome, Elena Piñero, Vitor H. Magalhães, Mark Schmidt, Stephan M. Weise, Marina Cunha, Ana Hilario, Hector Perea, Lorenzo Rovelli, Klas Lackschewitz. STRIKE-SLIP FAULTS MEDIATE THE RISE OF CRUSTAL-DERIVED FLUIDS AND MUD VOLCANISM IN THE DEEP SEA. *Geology*, doi:10.1130/G36359.1

Omira, R., Ramalho, I., Terrinha, P., Baptista M., Batista, L., Zitellini, N. Deep-water seamounts, a potential source of tsunami generated by landslides? The Hirondele Seamount, NE Atlantic. *Marine Geology* 379 (2016) 267–280. <http://dx.doi.org/10.1016/j.margeo.2016.06.010>

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Neres, M.; M. M. C. Carafa; R. Fernandes; L. Matias; J. C. Duarte; S. Barba; P. Terrinha (2016). Lithospheric deformation in the Africa–Iberia Plate Boundary: improved neotectonic modeling testing a basal-driven Alboran plate. *Journal of Geophysical Research - Solid Earth*. AGU, 10.1002/2016JB013012

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*Participation to  
other COST Actions*

MEDSALT

*Role in COST Action  
ES1301*

MC Member

*Name*

**Dr Yama Tomonaga**

*Position*

Postdoctoral associate

*Affiliation*

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*Webpage*

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*Bio-sketch*

Noble-gas geochemistry in the pore water of unconsolidated sediments and in the water column of lakes and oceans allows characterization of local/regional fluid emissions fostered by tectonic activity. In the past years I investigated seismically active areas (continental and offshore) to understand such emissions from a mechanistic point of view and to study among the various volatiles any potential precursors of major earthquakes. Furthermore, I am interested in developing analytical tools that will allow quantitative (deep-sea) monitoring of noble gases and other gas species.

*Main  
experience  
in the Action's  
topics*

Characterization of the fluid dynamics in porous media using trace gases as proxies for the physical transport processes

*Recent  
publications  
on the Action's  
topics*

Wen, H., Sano, Y., Takahata, N., Tomonaga, Y., Ishida, A., Tanaka, K., Kagoshima, T., Shirai, K., Ishibashi, J.-I., Yokose, H., Tsunogai, U., & Yang, T. F. (2016). Helium and methane sources and fluxes of shallow submarine hydrothermal plumes near the Tokara Islands, Southern Japan, *Sci. Rep.*, 6, 34126.

Kagoshima, T., Sano, Y., Takahata, N., Ishida, A., Tomonaga, Y., Roulleau, E., Pinti D. L., Fischer, T. P., Lan, T., Nishio, Y., & Tsunogai, U. (2016). Spatial and temporal variations of helium and carbon isotopes at Ontake volcano, Japan, *J. Volcanol. Geoth. Res.*, 325, 179–188, doi:10.1016/j.jvolgeores.2016.06.013.

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Tomonaga, Y., Brennwald, M. S., & Kipfer, R. (2011). Spatial distribution and flux of terrigenous He dissolved in the sediment pore water of Lake Van (Turkey). *Geochim. Cosmochim. Acta*, 75(10), 2848–2864.

*Participation to other COST Actions* | *ESSEM COST Action ES0902 (PERGAMON)*

*Role in COST Action ES1301* | MC Member

*Name*

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*Position*

Prof. Dr.

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*Webpage*

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*Bio-sketch*

I am a hydrogeologist (hydrogeological engineer) with a background in hydrogeochemical/isotopic tracing of hydrothermal systems in sedimentary basins and tectonic evolution of sedimentary basins. I have carried out various research projects on hydrogeology and geohazard projects as well as water contamination and water-borne problems.

*Main experience  
in the Action's  
topics*

I am interested in isotope hydrology, hydro-geochemistry, karst hydrogeology, groundwater contamination, groundwater prospection and well construction, groundwater hydrodynamics, mineral and thermal waters, surface-groundwater interaction, gas geochemistry, radon. Evaluation of hydrogeological and hydrogeochemical data associated with seismicity, water and gas geochemistry, serpentinization processes are my main study areas.

I was the coordinator of international project named as "Determination of fault activity and geothermal origin by soil and groundwater degassing: The extension of Dead Sea Fault Zone (DSFZ) in the Amik Basin (Hatay) and its relation with Karasu Fault Zone and origin of thermal waters in Amik Basin" (2012-2015). The project code was 111Y090 which directly related with the FLOWS. The study area of the project was close to the boundary of three tectonic plates (Anatolian, Arabian and African plates) and was characterised by important tectonic lineaments such as the Dead Sea Transform Fault and the Karasu Fault which connects the former to the East Anatolian fault system. Geochemical, mineralogical and petrographic analyses besides helium isotopes ratio showed OIB-like origin while alkaline basalts MORB-type compositions. The distribution of soil Rn, CO<sub>2</sub> flux (gr/m<sup>2</sup>/g), and CO<sub>2</sub> (ppm) in the area appears as point-

*Recent  
publications  
on the Action's  
topics*

source (spot) and diffuse (halo) anomalies along the buried faults/fractures due to crustal leaks.

Y. Y. Wang, S. Zhang, and G. Yuce. 2018. Gas geochemistry: From conventional to unconventional domains", Marine and Petroleum Geology. Vol: 89, Part 1, pp. 1-3.

F. Italiano, G. Yuce, M. Di Bella, B. Rojay, G. Sabatino, A. Tripodo, M. Martelli, A.L. Rizzo, M. Misseri. 2017. Noble gases and rock geochemistry of alkaline intraplate volcanics from the Amik and Ceyhan-Osmaniye areas, se Turkey. Vol. 469, pp. 34-46.

Yuce, G., Fu, C.C., D'Alessandro, W., Gulbay, A.H., Lai, C.W., Bellomo, S., Yang, T.F., Italiano, F., Walia, V. 2017. Geochemical characteristics of soil radon and carbon dioxide within the Dead Sea Fault and Karasu Fault in the Amik Basin (Hatay), Turkey, Chemical Geology, Vol. 469, pp. 129-146.

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U Ring, IT Uysal, G Yüce, E Ünal-İmer, F Italiano, A Imer, J Zhao. 2016. Recent mantle degassing recorded by carbonic spring deposits along sinistral strike-slip faults, south-central Australia, Earth and Planetary Science Letters 454, 304-318.

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Yuce G., Italiano F., D'Alessandro W., Yalcin T.H., Yasin

D.U., Gulbay A.H., Ozyurt N.N., Rojay B., Karabacak V., Bellomo S., Brusca L., Yang T., Fu C.C., Lai C.W., Ozacar, A., Walia, V. 2014. Origin and interactions of fluids circulating over the Amik Basin (Hatay-Turkey) and relationships with the hydrologic, geologic and tectonic settings, Chemical Geology, Chemical Geology, 388, 23-39.

Italiano F., Sasmaz, A., Yuce, G., Okan, O.O. 2013. Thermal fluids along the East Anatolian Fault Zone (EAFZ): Geochemical features and relationships with the tectonic setting. Chemical Geology, 339, 103-114.

Yuce, G., Ugurluoglu, Y.D., Nadar, N., Yalcin, H.T., Yaltirak, C., Streil, T., Oeser, V. 2010. Monitoring of earthquake precursors by multi-parameter stations in Eskisehir Region (Turkey), Applied Geochemistry, Vol: 25, no: 4, pp. 572 – 579.

*Participation to  
other COST  
Actions*

MARVELOUS

*Role in COST  
Action ES1301*

MC Member





Impact of Fluid circulation in old oceanic  
Lithosphere on the seismicity of transform-  
type plate boundaries: new solutions for  
early seismic monitoring of major European  
Seismogenic zones

