IDL interim report 2015

1. Introduction

The external review of all Portuguese research units was completed in the end of 2014, based on applications submitted in 2013 based on 5 year reports for the period 2008-2012. The process was very controversial for many reasons, and the IDL coordination believes it was not entirely fair, and that the final marks do not represent the real value of the different units. There are however relevant comments made by the evaluation panel that need to be considered and we have the opportunity of adjusting the IDL structure in response to those comments. The final "consensus report" of the external panel is sent in the attached files, togheter with IDL final comment on that report, which conveys the main criticism we have to the evaluation process. A powerpoint that was presented by IDL in the site visit is also attached.

In this evaluation process, IDL went through a large reorganization, which brought to the group the full Faculty of Sciences Geosciences community and a small group in Renewable Energy. The 8-group structure established in that process had some weaknesses, which is not a surprise, but some were very emphasized by the referees. Because the external evaluation was designed to be fragmented, with different referees evaluating different groups, we can not really understand a rationale linking specific weaknesses to the final rank of the evaluation.

Nevertheless, in the aftermath of this exercise we believe that IDL structure may be slightly adjusted to make the group stronger, more resilient and better prepared for an interim evaluation that is due by the end of 2017. In the following section we asked each of the groups to answer a set of common questions: (1) What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure; (2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups; (3) What specific measures does this group propose to enhance IDL? Each group also presents a list of current members and students, funding and recent publications (2013-2015, necessarily incomplete in 2015).

By the end of July 2015 we were informed that we could adjust the IDL structure and objectives to the evaluation decisions, considering the given budgets. FCT has accepted that IDL can do such changes until the end of September 2015, fully taking into account the views of the advisory board. By the end of this report we present our current views on that matter to discuss in the meeting.

2. Working Group's reports

2.1 WG1

A. Team

(list of integrated members (EXPLAIN their status) and PhD students (indicate supervision))

1. Álvaro Peliz (Faculty, coordinator)
2. Álvaro Semedo (Faculty)
3. Ana Barbosa Aguiar (moving to MetOffice in 2015)
4. Ana Teles-Machado (FCT, PostDoc, from 2015)

5. Frank Raischel (FCT, PostDoc)
6. João Catalão (Faculty)
7. José Miguel Alves (FCT, PostDoc)
8. Miguel Nogueira (Research Contract, from 2015)
9. Pedro Mateus (FCT, PostDoc, from 2015)
10. Pedro Miranda (Faculty)
11. Pedro Soares (IDL Research Contract)
12. Pedro Viterbo (IPMA, permanent)
13. Ricardo Tomé (IDL Research Contract, paid by SHARE)
14. Rita Cardoso (IDL Research Contract, paid by EUPORIAS)
15. Sandra Plecha (FCT, PostDoc, from 2015)

PhD students

1. Catarina Guerreiro (Á. Peliz & P. Miranda)
2. Clarisse Magarreiro (M. Brito & P. Soares)
3. Daniela Lima (P. Soares & A. Semedo, Escola Naval)
4. Hugo Campaniço (P. Soares, P. Hollmueller)
5. Luisa Lamas (Á. Peliz & P. Marchesiello, LEGOS/Toulouse, France)
6. Maria João Chinita (P. Miranda & J. Teixeira, JPL)
7. Martin Vodopevic (A. Malej, NIB, Eslovénia & Á. Peliz)
8. Nádia Rijo (A. Semedo, P. Miranda)
9. Nuno Martins (G. Graça, P. Soares)
10. Pedro Guerreiro (P. Soarea & P. Miranda)
11. Pedro Benevides (J. Catalão & P Miranda)

B. Scientific output (2013-2015)

Papers in refereed journals

2015 (incomplete)

1. Almeida MC, Rodrigues AC, Coelho PS, Diogo PA, Maurício R, Cardoso RM, Soares PM (2015): Thermal stratification of Portuguese reservoirs: potential impact of extreme climate scenarios. Journal of Water and Climate Change
2. Barbosa Aguiar AC, Peliz A, Neves F, Bashmachnikov I, Carton X (2015), Mediterranean outflow transports and entrainment estimates from observations and high-resolution modelling, *Progress in Oceanography*, 131, 33-45, doi:10.1016/j.pocean.2014.11.008
3. Campaniço H, Soares PMM, Hollmuller P, Cardoso RM (2015): Climatic cooling potential of direct ventilation and evaporative cooling: high resolution spatiotemporal analysis for Iberia. Renewable Energy
4. Katragkou E, García-Díez M, Vautard R, Sobolowski S, Zanis P, Alexandri G, Cardoso RM, Colette A, Fernández J, Gobiet A, Goergen K, Karacostas T, Knist S, Mayer S, Soares PMM, Pytharoulis I, Tegoulias I, Tsikerdekis A, Jacob D (2015) Hindcast regional climate simulations within EURO-CORDEX: evaluation of a WRF multi-physics ensemble. Geosci. Model Dev., 8, 603-618. doi:10.5194/gmd-8-603-2015
5. Martins JPA, Cardoso RM, Soares PMM, Trigo I, Belo-Pereira M, Moreira N, Tomé R (2015): The diurnal cycle of coastal cloudiness over west Iberia using Meteosat/SEVIRI and a WRF regional climate model simulation. International Journal of Climate, in press
6. Nogueira M, Barros AP (2015) Dynamical downscaling of Quantitative Precipitation Estimation over the Southern Appalachians region. J. of Hydrology. In press.

7. Prieto L, Macías D, Peliz A, Ruiz J (2015). Portuguese Man-of-War (Physalia physalis) in the Mediterranean: A permanent invasion or a casual appearance? Scientific Reports,5:11545, DOI: 10.1038/srep11545
8. Ramos A, Trigo R, Liberato M, Tomé R (2015) Daily precipitation extreme events in the Iberian Peninsula and its association with Atmospheric Rivers. J.Hydrometeor. doi:10.1175/JHM-D-14-0103.1, in press.
9. Ranjha R, Tjernström M, Semedo A, Svensson G, Cardoso RM (2015) Structure and Variability of the Oman Coastal Low-Level Jet. Tellus A, 67, 25285
10. Russo A, Trigo RM, Lind PG, Raischel F (2015) Neural Network Forecast of daily pollution concentration using optimal meteorological data at synoptic and local scales. Atmospheric Pollution Research, 6, DOI: 10.5094/APR.2015.060
11. Semedo A, Vettor R, Breivik O, Sterl A, Reistad M, Soares CG, Lima D (2015) The wind sea and swell waves climate in the Nordic seas, Ocean Dynamics, 65, 2, 223-240, doi: 10.1007/s10236-014-0788-4
12. Soares PMM, Cardoso RM, Ferreira JJ, Miranda PMA (2015) Climate change and the Portuguese precipitation: ENSEMBLES regional climate models results. Climate Dynamics. DOI 10.1007/s00382-014-2432-x
13. Teles-Machado A, Peliz A, McWilliams JC, Cardoso RM, Soares PMM, Miranda PMA (2015): On the year-to-year changes of the Iberian Poleward Current. Journal of Geophysical Research - Oceans, in press, doi:10.1002/2015JC010758
14. Teles-Machado A, Peliz A, McWilliams JC, Couvelard X, Ambar I (2015): Circulation on the Northwestern Iberian Margin: Vertical structure and seasonality of the alongshore flows. Progress in Oceanography, in press, doi:10.1016/j.pocean.2015.05.021

2014

1. Bartilotti C, dos Santos A, Castro M, Peliz A, Santos AMP (2014) Decapod larval retention within distributional bands in a coastal upwelling ecosystem. Mar Ecol Prog Ser 507:233-247
2. Benevides P, Catalão J, Miranda P (2014) Experimental GNSS tomography study in Lisbon (Portugal). Fisica de la Tierra, Vol. 26, 65-79. http://dx.doi.org/10.5209/rev_FITE.2014.v26.46972.
3. Boutov D, Peliz A, Miranda PMA, Soares PMM, Cardoso RM, Prieto L, Ruiz J, García-Lafuente J (2014) Inter-annual variability and long term predictability of exchanges through the Strait of Gibraltar, Global and Planetary Change, Volume 114, March 2014, Pages 23-37, ISSN 0921-8181.
4. Campaniço H, Hollmuller P, Soares PMM (2014) A simplified method for assessing savings in cooling demand of buildings by way of passive cooling systems based on ventilation. Applied Energy 134 (2014) 426–438.
5. Carrasco A, Semedo A, Isachsen PE, Christensen KH, Saetra (2014) Global surface wave drift climate from ERA-40: the contributions from wind-sea and swell, Ocean Dynamics, 64,12, 1815-1829, doi: 10.1007/s10236-014-0783-9
6. Carton X, Sokolovkiy M, Ménesguen C, Aguiar A, Meunier T (2014), Vortex stability in a multi-layer quasi-geostrophic model: application to Mediterranean Water eddies, *Fluid Dynamics Res.*, 46, 061401, doi:10.1088/0169-5983/46/6/061401
7. Fraga H, Malheiro AC, Moutinho-Pereira J, Cardoso RM, Soares PMM, Cancela JJ, Pinto JG, Santos JA (2014): "Integrated analysis of climate, soil, topography and vegetative growth in Iberian viticultural regions". PLOS ONE, 9 (9), e108078, doi: 10.1371/journal.pone.0108078
8. L'Hégaret P, Carton X, Ambar I, Ménesguen C, Hua BL, Chérubin L, Aguiar A, Le Cann B, Daniault N, Serra N (2014), Evidence of Mediterranean Water dipole collision in the Gulf of Cadiz, *J. Geophys. Res. Oceans*, 119, doi:10.1002/2014JC009972
9. Macias DM, Guerreiro C, Prieto L, Peliz A, Ruiz J (2014), A high-resolution hydrodynamic-biogeochemical coupled model of the Gulf of Cadiz-Alboran Sea region, Mediterranena Marine Science, Vol 15, N4, DOI: 10.12681/mms.841

10. Magarreiro C, Brito MC, Soares PMM (2014) Assessment of diffuse radiation models for cloudy atmospheric conditions in the Azores region, Solar Energy, 108, 538-547, DOI: 10.1016/j.solener.2014.08.003
11. Marques FO, Catalão J, Hildenbrand A, Costa ACG, Dias NA (2014). The 1998 Faial earthquake, Azores: Evidence for a transform fault associated with the Nubia-Eurasia plate boundary?. Tectonophysics, 633, 115-125, DOI:10.1016/j.tecto.2014.06.024.
12. Marques FO, Catalão J, DeMets C., Costa ACG, Hildenbrand A. (2014). GPS and tectonic evidence for a difuse plate boundary at the Azores triple Junction. Earth and Planetary Science Letters 381, 177-187.
13. Mateus P, Nico G, Catalão J (2014). Maps of PWV Temporal Changes by SAR Interferometry: A Study on the Properties of Atmosphere's Temperature Profiles. IEEE Geoscience and Remote Sensing Letters, Vol. 11, No. 12, Dec 2014, doi:10.1109/LGRS.2014.2318993
14. Nogueira M, Barros AP (2014) The Integrated Precipitation and Hydrology Experiment. Part III: High-Resolution Ensemble Rainfall Products Precipitation Datasets, Report EPL-2013-IPHEX-H4SE-3, EPL/Duke University (Pub.), 38pp
15. Nogueira M, Barros AP (2014) The nonconvective/convective structural transition in stochastic scaling of atmospheric fields. J. Geophys. Res., 119, 13, 771-13, 794, doi*10.1002/2014JD022548*
16. Oliveira SC, Zêzere JL, Catalão J, Nico G (2014) The contribution of PSInSAR interferometry to landslide hazard in weak rock-dominated areas. Landslides, DOI 10.1007/s10346-014-0522-9.
17. Peliz A, Barbosa-Aguiar A, Boutov D, Carton X (2014) The Gulf of Cadiz Gap Wind Anticyclones, Continental Shelf Research, doi: 10.1016/j.csr.2014.09.004
18. Peliz A, Boutov D, Barbosa Aguiar A, Carton, X. (2014) The Gulf of Cadiz Gap Wind Anticyclones, *Continental Shelf Res.*, 91, 171-191, doi:10.1016/j.csr.2014.09.004
19. Rios-Entenza A, Soares PMM, Trigo RM, Cardoso RM, Miguez-Macho G (2014) Moisture recycling in the Iberian Peninsula from a regional climate simulation: Spatiotemporal analysis and impact on the precipitation regime. J. Geophys. Res. Atmos., 119, 5895–5912, doi:10.1002/2013JD021274.
20. Soares PMM, Cardoso RM, Semedo A, Chinita MJ, Ranjha R (2014) Climatology of Iberia Coastal Low-Level Wind Jet: WRF High Resolution Results. Tellus A, 66, 22377, http://dx.doi.org/10.3402/tellusa.v66.22377
21. Vettor R, Semedo A, Soares CG, Breivik O, Sterl A, Reistad (2014) Wind sea and swell waves in the Northeast Atlantic Ocean, DEVELOPMENTS IN MARITIME Transportation and Exploitation of Sea Resources, 2, 1029-1036
22. Weedon GP, Balsamo G, Bellouin N, Gomes S, Best MJ, Viterbo P (2014) The WFDEI meteorological forcing data set: WATCH Forcing Data methodology applied to ERA-Interim reanalysis data, Journal of Hydrometeorology Volume: 16 Issue: 1 Pages: 214-231
23. Westerberg I K, Gong L, Beven KJ, Seibert J, Semedo A, Xu CY, Halldin S (2014) Regional water balance modelling using flow-duration curves with observational uncertainties Hydrology and Earth System Sciences, 18, 8, 2993-3013 doi: 10.5194/hess-18-2993-2014
24. Yano J–I, Geleyn J-F, Köller M, Mironov D, Quaas J, Soares PMM, Phillips VTJ, Plant RS, Deluca A, Marquet P, Stulic L, Fuchs Z (2014) Basic Concepts for Convection Parameterization in Weather Forecast and Climate Models : COST Action ES0905 Final Report. Atmosphere 2015, 6(1), 88-147; doi:10.3390/atmos6010088.
25. Yano, J-I, Soares PMM, Köhler M, Deluca A (2015) Convection Parameterization Problem: Breadth and Depth. Bull. Amer. Meteo. Soc., doi: http://dx.doi.org/10.1175/BAMS-D-14-00134.1.

2013

1. Alves JMR, Miranda PMA (2013) Variability of Iberian upwelling implied by ERA-40 and ERA-Interim reanalyses, Tellus A, **65**, 19245, DOI: 10.3402/tellusa.v65i0.19245
2. Barbosa Aguiar A, Peliz A, Carton X (2013) A sensus of Meddies in a long-term high-resolution simulation, Progress in Oceanography, 116, 80–94, doi:10.1016/j.pocean.2013.06.016.

3. Boussetta S, Balsamo G, Beljaars A, Panareda AA, Calvet JC, Jacobs C, van den Hurk B, Viterbo P, Lafont S, Dutra E, Jarlan L, Balzarolo M, Papale D, van der Werf G (2013) Natural land carbon dioxide exchanges in the ECMWF integrated forecasting system: Implementation and offline validation, Journal of Geophysical Research-Atmospheres, 118, 5923-5946, DOI: 10.1002/jgrd.50488Caldeira R, Tomé R (2013) Wake Response to an Ocean-Feedback Mechanism: Madeira Island Case Study, Boundary-Layer Meteorology, DOI 10.1007/s10546-013-9817-y.
4. Cardoso RM, Soares PMM, Miranda PMA, Belo-Pereira M (2013): WRF high resolution simulation of Iberian mean and extreme precipitation climate. International Journal of Climatology. 33, 2591-2608. (doi: 10.1002/joc.3616).
5. Hemer MA, Fan Y, Mori N, Semedo A, Wang XL (2013) Projected changes in wave climate from a multi-model ensemble, Nature Climate Change, 3, 5, 471-476 doi:10.1038/NCLIMATE1791
6. Mateus P, Nico G, Catalao J (2013). Can spaceborne SAR interferometry be used to study the temporal evolution of PWV? ATMOSPHERIC RESEARCH, vol 119, 70-80.
7. Mateus P, Nico G, Tomé R, Catalão J, Miranda PMA (2013) Experimental study on the atmospheric delay based on GPS, SAR interferometry, and numerical weather model data, IEEE Transactions on Geoscience and Remote Sensing, 51, 6-11, DOI: 10.1109/TGRS.2012.2200901
8. Miranda PMA, Alves JMR, Serra N (2013) Climate change and upwelling: response of Iberian upwelling to atmospheric forcing in a regional climate scenario. Climate Dynamics, 40, 2813-2824, doi: 10.1007/s00382-012-1442-9
9. Peliz A, Boutov D, Teles-Machado A (2013), The Alboran Sea mesoscale in a long term high resolution simulation: Statistical analysis, Ocean Modelling, 72, 32-52 , DOI: 10.1016/j.ocemod.2012.10.007
10. Nogueira M, Barros AP, Miranda PMA (2013) Multifractal properties of embedded convective structures in orographic precipitation: toward subgrid-scale predictability, Nonlinear Processes in Geophysics, 20, 605–620, 2013,doi:10.5194/npg-20-605-2013
11. Peliz A, Boutov D, Cardoso R, Delgado J, Soares PMM (2013) The Gulf of Cadiz-Alboran Sea sub-basin: Model setup, exchange and seasonal variability, Ocean Modelling, 61, 49–67, doi:10.1016/j.ocemod.2012.10.007.
12. Pires RFT, Pan M, Santos AMP, Peliz A, Boutov D, dos Santos A (2013), Modelling the variation in larval dispersal of estuarine and coastal ghost shrimp: *Upogebia* congeners in the Gulf of Cadiz, MEPS 492:153-168 (2013) – doi:10.3354/meps10488
13. Ranjha R, Svensson G, Tjernstrom M, Semedo A (2013) Global distribution and seasonal variability of coastal low-level jets derived from ERA-Interim reanalysis, Tellus Series A-Dynamic Meteorology And Oceanography, 65, doi10.3402/tellusa.v65i0.20412
14. Riha S, Peliz A (2013) A two-layer primitive equation model of an idealized Strait of Gibraltar connected to an eastern basin, Ocean Dynamics, 6, 615-631,doi:10.1007/s10236-013-0621-5
15. Russo A, Raischel F, Lind PG (2013) Air quality prediction using optimal neural networks with stochastic variables. Atmospheric Environment, 79, 822-830, DOI:10.1016/j.atmosenv.2013.07.072
16. Semedo A, Weisse R., Behrens A, Sterl A, Bengtsson L, Guenther H (2013) Projection of Global Wave Climate Change toward the End of the Twenty-First Century, Journal of climate, 26, 21, 8269-8288, doi: 10.1175/JCLI-D-12-00658.1
17. Silva AN, Taborda R, Antunes C, Catalão J, Duarte J (2013) Understanding the coastal variability at Norte beach, Portugal. Journal of Coastal Research, Special Issue No. 65, pp. 2173-2178, ISSN 0749-0208.201.
18. Teixeira MAC, Argain JL, Miranda PMA (2013) Drag produced by trapped lee waves and propagating mountain waves in a two-layer atmosphere, *Quarterly Journal of the Royal Meteorological Society,* 139, 964-981, DOI: 10.1002/qj.2008
19. Teixeira MAC, Argain JL, Miranda PMA (2013) Orographic Drag Associated with Lee Waves Trapped at an Inversion, *Journal of the Atmospheric Sciences*, **70**, 2930-2947, DOI: 10.1175/JAS-D-12-0350.1

Recently concluded PhDs

Sandra Gomes (2015), sup Viterbo P, Miranda_PMA

Miguel Nogueira (2014), sup Barros A, Miranda PMA

Ricardo Tomé (2013) Mudanças Climáticas nas Regiões Insuladores, PhD thesis, Universidade dos Açores, supervision Miranda PMA, Brito E.

Sambingo Cardoso (2013) Clouds and Convection in the Tropics and Subtropics: Models, Observations and Parametrizations, PhD Thesis, Universidade de Lisboa, supervision Miranda PMA, Gettelman A.

Pedro Belé Mateus (2013) Mitigação dos efeitos atmosféricos em interferometria SAR, PhD thesis, Universidade de Lisboa, supervision Catalão J, Nico G.

C. Funding

Project	Reference	Funding	PI	Start	End	IDL Funds (k€)
SHARE	RECI/GEO-MET/0380/2012	FCT	P Miranda	07/2013	07/2016	250
SHORE	PTDC/MAR-EST/3485/2012	FCT	T. Drago	06/2013	12/2015	198
SMOG		FCT	P Miranda	1/2012	7/2015	65
EUPORIAS		EU	P Miranda	9/2012	9/2016	245

D. Strategic assessment

1) What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure;

The group has changed considerably during the reported period, and it is difficult to make an assessment of the publications. Nevertheless, a number of 45 ISI papers resulting in a number of about 1.2 papers per year per person. In what concerns the quality, it is confirmed that the group gives preference to high quality journals and in most cases the top journals of their field of Research.

The number of PhD students is reasonable given the number of integrated and fixed term researchers. However, there is a small number of foreign students. The group age structure is good with researcher at different stages of their carreers.

The funding and number of projects has been reduced considerably in the last years, and that should be point of special concern in the planning of future activities of the RG1.

2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups;

The group has been developing collaborations with different groups but from the list of PhDs and publications it is clear that these collaborations have been more frequent with RG2 and RG8. The group has been restructured several times in the last few years and although the members are available for a new configuration of the Lab it is clear that the identity of the group as an Atmospheric, Oceanic and Climate modelling should not be diluted as far as there is no other research group in Portugal with such characteristics.

3) What specific measures does this group propose to enhance IDL?

NA

2.2 WG2

A. Team

Members

1. Alexandre Miguel Urbano da Fonseca Ramos
2. Ana Cristina Machado Russo
3. Armand Hernandez Hernandez
4. Carlos Alberto Leitão Pires
5. Carlos da Câmara
6. Cathy Besson
7. Célia Marina Pedroso Gouveia
8. Isabel Alexandra Martinho Franco Trigo
9. Malik Amraoui
10. Margarida da Conceição Rodrigues Liberato
11. Maria Antónia Caeiro Olaio Valente
12. Maria Teresa Calado
13. Sandra Isabel Pinto Mogo
14. Ricardo Machado Trigo (coordinator)
15. Ana Cordeiro Pires
16. Thomas Cropper

PhD students

1. Ana Filipa Ferreira Bastos (R Trigo, C Gouveia)
2. Pedro Miguel Ribeiro de Sousa (R Trigo, D Barriopedro)
3. Sofia Nunes Lorena Ermida (C Camara, I Trigo)
4. Virgílio Alexandre da Silva Marques Bento (C Camara, I Trigo)
5. Dulce Oliveira (R Trigo)
6. Diogo Martins (C Pires)
7. Jevier Mellado Cano (R Trigo, D Barriopedro)

B. Publications

2015 (incomplete)

1. Amraoui M, Pereira MG, DaCamara CC, Calado TJ (2015) Atmospheric conditions associated with extreme fire activity in the Western Mediterranean region. Science of the Total Environment, 524-525, 32-39. DOI: 10.1016/j.scitotenv.2015.04.032
2. Brugnara Y, Auchmann R, Brönnimann S, Allan RJ, Auer I, Barriendos M, Bergström H, Bhend J, Brázdil R, Compo GP, Cornes RC , Dominguez-Castro F, van Engelen AFV, Filipiak J, Holopainen J, Jourdain S, Kunz M, Luterbacher J, Maugeri M, Mercalli L, Moberg A, Mock CJ, Pichard G, Řezníčková L, van der Schrier G, Slonosky V, Ustrnul Z, Valente MA, Wypych A, Yin X (2015) A collection of sub-daily pressure and

temperature observations for the early instrumental period with a focus on the "year without a summer" 1816. Clim. Past Discuss., 11, 1741-1794, DOI:10.5194/cpd-11-1741-2015

3. Cropper, T., Hanna, E., Valente, M. A. and Jónsson, T. (2015), A daily Azores–Iceland North Atlantic Oscillation index back to 1850. Geoscience Data Journal. DOI: 10.1002/gdj3.23
4. Domínguez-Castro F, Ramos AM, García-Herrera R, Trigo RM (2015) Iberian extreme precipitation 1855/1856: an analysis from early instrumental observations and documentary sources, International Journal Climatolology, 35, 142-153, DOI:10.1002/joc.3973
5. Fernández-Fernández MI, Gallego MC, Domínguez-Castro F, Trigo RM, García JM, Vaquero JM (2015) The climate in Zafra from 1750 to 1840: precipitation, Climatic Change, 129, 267-280, DOI:10.1007/s10584-014-1315-9
6. de Lima MIP, Santo FE, Ramos AM, Trigo, RM (2015) Trends and correlations in annual extreme precipitation indices for mainland Portugal, 1941-2007, Theoretical and Applied Climatology, 119, 55-75, DOI:10.1007/s00704-013-1079-6
7. Hernández A, Trigo RM, Plas-Rables S, Valero-Garcés B, Jerez S, Rico-Herrero M, Vega JC, Jambrina-Enriquez M, Giralt S (2015) Sensitivity of two Iberian lakes to North Atlantic atmospheric circulation modes, Clim. Dynamics. DOI: 10.1007/s00382-015-2547-8
8. Kurz-Besson C, Lousada JL, Gaspar MJ, Correia I,David TS, Soares PMM, Cardoso RM, Russo A, Varino F, Mériaux C, Trigo RM and Gouveia CM. The combined effect of the minimum temperature increase and precipitation changes on Pinus pinaster in South Portugal, Frontiers in Plant Science (abstract accepted for paper submission in a special issue).
9. Kirchner-Bossi N, García-Herrera R, Prieto L, Trigo RM (2015) A Long-Term perspective of Wind Power Output Variability, International Journal of Climatology, DOI: 10.1002/joc.4161
10. Ramos AM, Trigo RM, Liberato MLR, Tomé R (2015) Daily precipitation extreme events in the Iberian Peninsula and its association with Atmospheric Rivers, Journal of Hydrometeorology, 16, 579-597 doi: 10.1175/JHM-D-14-0103.1
11. Ribeiro AFS, Pires CAL (2015) Seasonal drought predictability in Portugal using statistical–dynamical techniques. J. Phys. Chem. Earth, http://dx.doi.org/10.1016/j.pce.2015.04.003
12. Russo A, Gouveia C, Trigo R, Liberato MLR, DaCamara CC (2015) The influence of circulation weather patterns at different spatial scales on drought variability in the Iberian Peninsula Front. Environ. Sci, 3, 1, DOI: 10.3389/fenvs.2015.00001
13. Russo A, Trigo RM, Lind PG, Raischel F (2015) Neural Network Forecast of daily pollution concentration using optimal meteorological data at synoptic and local scales. Atmospheric Pollution Research, 6, DOI: 10.5094/APR.2015.060
14. Sánchez-López G, Hernández A, Plas-Rables S, Toro M, Granados I, Sigró J, Trigo RM, Rúbio-Inglés MJ, Camarero L, Valero-Garcés B, Giralt S (2015) The effects of the NAO on the ice phenology of Spanish Alpine lakes, Climatic Change, 130, 101-113.
15. Santos JA, Rochinha C, Liberato MLR, Reyers M, Pinto JG (2015) Projected changes in wind energy potentials over Iberia, Renewable Energy, 75, 68-80 DOI: 10.1016/j.renene.2014.09.026
16. Sousa P, Trigo RM, Pereira M, Bedia J, Gutierrez JM (2015) Different approaches to model future burnt area in the Iberian Peninsula, Agricultural and Forest Meteorology, 202, 11-25. DOI: 10.1016/j.agrformet.2014.11.018
17. Sousa P, Barriopedro D, Ramos AM, Nieto R, Gimeno L, Turkman KF, Liberato MLR (2015) Impact of Euro-Atlantic blocking patterns in Iberia precipitation using a novel high resolution dataset, Climate Dynamics, in print
18. Trigo RM, Sousa P, Pereira M, Rasilla D, Gouveia CM (2015) Modeling wildfire activity in Iberia with different Atmospheric Circulation Weather Types, International Journal of Climatology, DOI: 10.1002/joc.3749
19. Vaquero JM, Trigo RM (2015) Redefining the limit dates for the Maunder Minimum. New Astronomy, 34, 120–122. DOI: 10.1016/j.newast.2014.06.002

2014

1. Azorin-Molina C, Vicente-Serrano SM, McVicar TR, Jerez S, Sanchez-Lorenzo A, López-Moreno JL, Revuelto J, Trigo RM, Lopez-Bustins JA, Espírito Santo MF (2014) Homogenization and Assessment of Observed near-surface wind speed trends over Spain and Portugal, 1961-2011, Journal of Climate, 2014, 27, 3692-3712, DOI:10.1175/JCLI-D-13-00652.s1.http://idlcc.fc.ul.pt/pdf/Azorin-Molina_et_al_2014_JCLIM.pdf
2. Bastos A, Gouveia CM, Trigo RM and Running SW (2014) Analysing the spatio-temporal impacts of the 2003 and 2010 extreme heatwaves on plant productivity in Europe, Biogeosciences 11: 3421-3435, DOI: 10.5194/bg-11-3421-2014. http://idlcc.fc.ul.pt/pdf/Bastos_etal_2014_BG.pdf
3. Bliznak V, **Valente MA**, Bethke J (2014) Homogenization of time series from Portugal and its former colonies in the period from the late 19th to the early 21st century. Accepted by Int. J. Climatol. http://onlinelibrary.wiley.com/doi/10.1002/joc.4151/epdf
4. Cortesi N, Gonzalez-Hidalgo JC, Trigo R M, Ramos AM (2014) Weather types and spatial variability of precipitation in the Iberian Peninsula. International Journal Climatology, 34, 2661–2677, DOI: 10.1002/joc.3866. http://idlcc.fc.ul.pt/pdf/Cortesi_et_al_2014_IJC.pdf
5. Cram TA, Compo GP, Yin X, Allan RJ, McColl C, Vose RS, Whitaker JS, Matsui N, Ashcroft L, Auchmann R, Bessemoulin P, Brandsma T, Brohan P, Brunet M, Comeaux J, Crouthamel R, Gleason Jr BE, Groisman PY, Hersbach H, Jones PD, Jónsson T, Jourdain S, Kelly G, Knapp KR, Kruger A, Kubota H, Lentini G, Lorrey A, Lott N, Lubker SJ, Luterbacher J, Marshall GJ, Maugeri M, Mok HY, Nordli O, Rodwell MJ, Ross TF, Schuster D, Srnec L, **Valente MA**, Vizi Z, Wang XL, Westcott N, Woollen JS, Worley SJ (2014) The International Surface Pressure Databank, Accepted by Geoscience Data Journal.
6. DaCamara C, Calado TJ, Ermida SL, Trigo IF, Amraoui M, Turkman KF (2014) Calibration of the Fire Weather Index over Mediterranean Europe based on fire activity retrieved from MSG satellite imagery. Int J. Wildland Fire, doi: 10.1071/WF13157
7. DeSoto L, Varino F, Andrade JP, Gouveia CM, Campelo F, Trigo RM, Nabais C (2014) Different growth sensitivity to climate of the conifer Juniperus thurifera on both sides of the Mediterranean Sea, International Journal of Biometeorology, 58 (10), 2095-2019, DOI: 10.1007/s00484-014-0811-y.
8. Domínguez-Castro F, Ramos AM, García-Herrera R, Trigo RM (2014) Iberian extreme precipitation 1855/1856: an analysis from early instrumental observations and documentary sources, International Journal Climatology, 35, 142-153, DOI: 10.1002/joc.3973
9. Ermida SL, Trigo IF, DaCamara C, Göttsche FM, Olesen FS, Hulley G (2014) Validation of remotely sensed surface temperature over an oakwood landlandscape – The problem of viewing and illumination geometries. Remote Sens. Env, 148, 16-27, doi: dx.doi.org/10.1016/j.rse.2014.03.016
10. Fraga, H, Amraoui, M, Malheiro, A.C, Moutinho-Pereira, J, Eiras-Dias, J, Silvestre, J, Santos, J.A. Examining the relationship between the Enhanced Vegetation Index and grapevine phenology. European Journal of Remote Sensing, 47, 753-771, 2014. DOI: 10.5721/EuJRS20144743
11. Kirchner-Bossi N, García-Herrera R, Prieto L, Trigo RM (2014) A Long-Term perspective of Wind Power Output Variability, International Journal of Climatology, DOI: 10.1002/joc.4161
12. Kurz-Besson C, Lobo Vale R, Siegwolf R, Rodrigues L, Almeida P, Herd A, Grant OM, David TS, Schimidt M, Otieno D, Keenan T, Siegwolf R, Gouveia C, Meriaux C, Chaves MM, Pereira JS (2014) Impact of precipitation change on Cork oak physiological traits: results of a rainfall manipulation experiment, Journal of Agriculture and Forest Meteorology, 184, 230–242, DOI:10.1016/j.agrformet.2013.10.004
13. Kutiel H, Trigo RM (2014) The rainfall regime in Lisbon in the last 150 years. Theoretical and Applied Climatology, , 118, 387-403, DOI 10.1007/s00704-013-1066-y
14. Liberato MLR (2014) The 19 January 2013 windstorm over the North Atlantic: large-scale dynamics and impacts on Iberia, Weather and Climate Extremes, 5-6, 16-28, DOI: 10.1016/j.wace.2014.06.002
15. Lima MIP, Santo FE, Ramos AM, Trigo RM (2014) Trends and correlations in annual extreme precipitation indices for mainland Portugal, 1941-2007, Theoretical and Applied Climatology, DOI: 10.1007/s00704-013-1079-6

16. Pereira MG, Aranha J, Amraoui M (2014) Land cover fire proneness in Europe. Forest Systems, 23(3), 598-610. DOI: 10.5424/fs/2014233-06115
17. Peres LF, Libonati R, DaCamara CC (2014) Land-Surface Emissivity Retrieval in MSG-SEVIRI TIR Channels Using MODIS Data. IEEE Transactions on Geoscience and Remote Sensing 52, 5587-5600, DOI: 10.1109/TGRS.2013.2290778
18. Peres LF, Libonati R, DaCamara CC (2014) Land-Surface Emissivity Retrieval in MSG-SEVIRI TIR Channels Using MODIS Data. IEEE Transactions on Geoscience and Remote Sensing, 2014, 52, 5587-5600, DOI: 10.1109/TGRS.2013.2290778 http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6715998
19. Pinto C, Nadezhdina N, David JS, Kurz-Besson C, Caldeira MC, Henriques MO, Monteiro F, Pereira JS, David TS (2014) Transpiration in Quercus suber trees under shallow water table conditions: the role of soil and groundwater. Hydrological processes, 28, 6067–6079. DOI: 10.1002/hyp.10097
20. Pires AC, Nolasco R, Rocha A, Ramos AM, Duber J (2014) Global climate models as forcing for regional ocean modeling: a sensitivity study in the Iberian Basin (Eastern North Atlantic), Climate Dynamics, 43:3, 1083-1102. DOI: 10.1007/s00382-014-2151-3
21. Pires CAL, Perdigão RAP (2014) Non-Gaussian interaction information: estimation, optimization and diagnostic application of triadic wave resonance, Nonlin. Processes Geophys. Discuss, 1, 1539–1602, DOI:10.5194/npgd-1-1539-2014. http://www.nonlin-processes-geophys-discuss.net/1/1539/2014/npgd-1-1539-2014.pdf
22. Ramos AM, Cortesi N, Trigo RM (2014) Circulation weather types and spatial variability of daily precipitation in the Iberian Peninsula, Frontiers in Earth Sciences, 2:25, DOI: 10.3389/feart.2014.00025
23. Ramos AM, Sprenger M, Wernli H, Durán-Quesada A, Lorenzo M, Gimeno L A (2014) A new circulation type classification based upon Lagrangian air trajectories, Frontiers in Earth Sciences, 2:29, DOI: 10.3389/feart.2014.00029
24. Ramos AM, Trigo RM, Liberato MLR (2014) A ranking of high-resolution daily precipitation extreme events for the Iberian Peninsula, Atmospheric Science Letters, DOI: 10.1002/asl2.507
25. Ribeiro A, Barbosa S, Scotto MG, Donner RV (2014) Changes in extreme sea-levels in the Baltic Sea, Tellus A, 66, 20921, DOI:10.3402/tellusa.v66.20921
26. Rios-Entenza A, Soares PMM, Trigo RM, Cardoso RM, Miguez-Macho G (2014) Moisture recycling in the Iberian Peninsula from a regional climate simulation: Spatiotemporal analysis and impact on the precipitation regime, Journal of Geophysical Research, 119, DOI:10.1002/2013JD021274.
27. Russo A, Trigo RM, Martins H, Mendes MT (2014) NO2, PM10 and O3 urban concentrations and its association with circulation weather types in Portugal, Atmospheric Environment, 89, 768-785, DOI:10.1016/j.atmosenv.2014.02.010 EID: 2-s2.0-84896497817
28. Santo FE, de Lima MIP, Ramos A, Trigo RM (2014) Trends in seasonal surface air temperature in mainland Portugal, since 1941, International Journal of Climatology, 34, 1814-1837, DOI: 10.1002/joc.3803
29. Santo FE, Ramos A, de Lima MIP, Trigo RM (2014) Seasonal changes in daily precipitation extremes in mainland Portugal from 1941 to 2007, Regional Environmental Change, 14, 1765-1788, DOI: 10.1007/s10113-013-0515-6
30. Stickler A, Brönnimann S, Jourdain S, Roucaute E, Sterin A, Nikolaev D, **Valente MA**, Wartenburger R, Hersbach H, Ramella-Pralungo L, Dee D (2014) Description of the ERA-CLIM Historical Upper-Air data. Earth Syst. Sci. Data, 6, 29-48, DOI:10.5194/essd-6-29-2014
31. Stickler A, Brönnimann S, **Valente MA**, Bethke J, Sterin A, Jourdain S, Roucaute E, Vasquez MV, Reyes DA, Allan R, Dee D (2014) ERA-CLIM: Historical Surface and Upper-Air Data for Future Reanalysis. Accepted by BAMS - Bulletin of the American Meteorological Society.
32. Trigo RM, Sousa P, Pereira M, Rasilla D, Gouveia CM (2014) Modeling wildfire activity in Iberia with different Atmospheric Circulation Weather Types, International Journal of Climatology, DOI: 10.1002/joc.3749

33. Trigo RM, Varino F, Ramos AM, Valente MA, Zêzere JL, Vaquero JM, Gouveia CM, Russo A (2014) The record precipitation and flood event in Iberia in December 1876: description and synoptic analysis, Frontiers in Earth Sciences, 2:3, DOI: 10.3389/feart.2014.00003
34. Vaquero JM, Trigo RM (2014) Revised Group Sunspot Number values for 1640, 1652, and 1741. Solar Physics, 289, 803-808. DOI:10.1007/s11207-013-0360-2
35. Vicente-Serrano SM, López-Moreno JL, Berguería S, Lorenzo-Lacruz J, Sanchez-Lorenzo A, García-Ruiz JM, Azorin-Molina C, Trigo RM, Revuelto J, Espírito Santo MF, Espejo F (2014) Evidence of increasing drought severity caused by global warming in southern Europe, Environmental Research Letters, 9, 044001 (9pp), DOI:10.1088/1748-9326/9/4/044001
36. Zêzere JL, Pereira S, Tavares AO, Bateira C, Trigo RM, Quaresma I, Santos PP, Santos M, Verde J (2014) DISASTER: a GIS database on hydro-geomorphologic disasters in Portugal, Natural Hazards, 72, 503-532,DOI 10.1007/s11069-013-1018-y

2013

1. Amraoui M, Liberato M. L. R, Calado TM, DaCamara CC, Pinto-Coelho L, Trigo RM, Gouveia CM (2013) Fire activity over Mediterranean Europe based on information from Meteosat-8. Forest Ecology and Management, 294, 62-75, DOI:10.1016/j.foreco.2012.08.032
2. Andrade C, Santos J A, Trigo R, Corte-Real J (2013) 2nd International Conference on Ecohydrology and Climate Change. Nat. Hazards Earth Syst. Sci, 13, 1853-1856, DOI:10.5194/nhess-13-1853-2013
3. Barja B, Mogo S, Cachorro VE, Antuña JC, Estevan R, Rodrigues A, de Frutos A (2013) Atmospheric particulate matter levels, chemical composition and optical absorbing properties in Camagüey, Cuba. Environmental Science Processes & Impacts, Vol.15, 440-453, DOI: 10.1039/c2em30854a
4. Bastos A, Running SW, Gouveia CM, Trigo RM (2013) The global NPP dependence on ENSO: La Niña and the extraordinary year of 2011. J. Geophys. Res. Biogeosci, 118, 1-9 DOI:10.1002/jgrg.20100
5. Bastos A, Trigo RM, Barbosa SM (2013) Discrete wavelet analysis of the influence of the North Atlantic Oscillation on Baltic Sea level. Tellus A, 65. DOI:10.3402/tellusa.v65i0.20077
6. Berre L, Monteiro MJ, Pires CA (2013) An impact study of updating background error covariances in the ALADIN-France data assimilation system. Journal of Geophysical Research - Atmospheres, 118, 1-12, DOI:10.1002/jgrd.50847
7. Carrasco VMS, Vaquero JM, Gallego MC, Trigo RM (2013) Forty two years counting spots: Solar observations by D.E. Hadden during 1890-1931 revisited. New Astronomy, 25, 95-102, DOI:10.1016/j.newast.2013.05.002
8. Cortesi N, Trigo RM, Gonzalez-Hidalgo JC, Ramos AM (2013) Modelling monthly precipitation with circulation weather types for a dense network of stations over Iberia. Hydrol. Earth Syst. Sci, 17, 665– 678, DOI:10.5194/hess-17-665-2013
9. Domínguez-Castro F, Trigo RM, Vaquero JM (2013) The first meteorological measurements in the Iberian Peninsula: evaluating the storm of November 1724. Climatic Change, 118, 443-455, DOI 10.1007/s10584-012-0628-9
10. Freitas SC, Trigo IF, Macedo J, Barroso C, Silva R, Perdigao R (2013) Land surface temperature from multiple geostationary satellites. International Journal of Remote Sensing, Volume 34, Issue: 9-10, 3051-3068, DOI: 10.1080/01431161.2012.716925
11. Gimeno L, Nieto R, Drumond A, Castillo R, Trigo RM (2013) Influence of the intensification of the major oceanic moisture sources on continental precipitation. Geophysical Research Letters, 40,1 - 8, DOI:10.1002/grl.50338
12. Gonzalez-Villanueva R, Costas S, Pérez-Arlucea M, Jerez S, Trigo RM (2013) Effect of climate change in the stabilization and prevailing aeolian activity of a coastal dune (Traba, NW Spain). Geomorphology, 185, 96-119

13. González-Villanueva R, Costas S, Pérez-Arlucea M, Jerez S, Trigo RM (2013) Impact of atmospheric circulation patterns on coastal dune dynamics, NW Spain. Geomorphology, 185, 96-109, DOI:10.1016/j.geomorph.2012.12.019
14. Hernández A, Bao R, Giralt S, Sáez A, Leng MJ, Barker PA, Kendrick CP, Sloane HJ (2013) Climate, catchment runoff and limnological drivers of carbon and oxygen isotope composition of diatom frustules from the central Andean Altiplano during the Lateglacial and Early Holocene. Quaternary Science Reviews, 66, 64-73, DOI:10.1016/j.quascirev.2012.10.013
15. Jerez S, Trigo RM (2013) Time-scale and extent at which large-scale circulation modes determine the wind and solar potential in the Iberian Peninsula. Environmental Research Letters, 8, 044035, DOI:10.1088/1748-9326/8/4/044035
16. Jerez S, Trigo RM, Sarsa A, Lorente-Plazas R, Pozo-Vazquez D, Jimenez-Guerrero P, Montavez JP (2013) Spatio-temporal complementarity between solar and wind power in the Iberian Peninsula. Energy Procedia, 20, 48-57, DOI: 10.1016/j.egypro.2013.08.007
17. Jerez S, Trigo RM, Vicente-Serrano SM, Pozo-Vazquez D, Lorente-Plazas R, Lorenzo-Lacruz J, Santos-Alamillos F, Montavez JP (2013) The Impact of the North Atlantic Oscillation on Renewable Energy Resources in Southwestern Europe. Journal off Applied Meteorology and Climatology, 52, 2204-2225, DOI: 10.1175/JAMC-D-12-0257.1
18. Jimenez-Guerrero P, Jerez S, Montavez JP, Trigo RM (2013) Uncertainties in future ozone and PM10 projections over Europe from a regional climate multiphysics ensemble. Geophysical Research Letters, 40, 5764-5769, DOI:10.1002/2013GL057403.
19. Li ZL, Tang BH, Wu H, Ren HZ, Yan G.J, Wan ZM, Trigo IF, Sobrino JA (2013) Satellite-derived land surface temperature: Current status and perspectives. Remote Sensing of Environment, 131, 14-37, DOI:10.1016/j.rse.2012.12.008
20. Liberato MLR, Pinto JG, Trigo RM, Ludwig P, Ordóñez P, Yuen D, Trigo IF (2013) Explosive development of winter storm Xynthia over the subtropical North Atlantic Ocean. Natural Hazards and Earth System Sciences, 13, 2239-2251, DOI:10.5194/nhess-13-2239-2013
21. Margalef O, Cañellas-Boltà N, Pla-Rabes S, Giralt S, Pueyo JJ, Joosten H, Rull V, Buchaca T, Hernández A, Valero-Garcés B.L, Moreno A, Sáez A (2013) A 70,000 year multiproxy record of climatic and environmental change from Rano Aroi peatland (Easter Island). Global and Planetary Change,108, 72-84, DOI:10.1016/j.gloplacha.2013.05.016
22. Masiello G, Serio C, DeFeis I, Amoroso M, Venafra S, Trigo IF, Watts P. (2013) Kalman filter physical retrieval of surface emissivity and temperature from geostationary infrared radiances. Atmospheric Measurement Techniques, 6, 3613-3634, DOI:10.5194/amt-6-3613-2013
23. Neu U, Akperov MG, Bellenbaum N, Benestad RS, Blender R, Caballero R, Cocozza A, Dacre HF, Feng Y, Fraedrich K, Grieger J, Gulev S, Hanley J, Hewson T, Inatsu M, Keay K, Kew SF, Kindem I, Leckebusch GC, Liberato MLR, Lionello P, Mokhov II, Pinto JG, Raible CC, Reale M, Rudeva I, Schuster M, Simmonds I, Sinclair (2013) IMILAST A Community Effort to Intercompare Extratropical Cyclone Detection and Tracking Algorithms. Bulletin of the American Meteorological Society, 94(4), 529-547.
24. Pereira MG, Calado TJ, DaCamara CC, Calheiros T (2013) Effects of regional climate change on rural fires in Portugal. Climate Research, 57, 187-200, DOI: 10.3354/cr01176.
25. Pires C, Perdigão RAP (2013) Minimum Mutual Information and Non-Gaussianity through the Maximum Entropy Method: Estimation from Finite Samples. Entropy 2013, 15(3), 721-752, DOI:10.3390/e15030721
26. Ramos AM, Cordeiro Pires A, Sousa PM, Trigo RM (2013) The use of circulation weather types to predict upwelling activity along the western Iberian Peninsula coast. Continental Shelf Research, 69, 38-51, DOI:10.1016/j.csr.2013.08.019
27. Russo A, Raischel F, Lind PG (2013) Air quality prediction using optimal neural networks with stochastic variables. Atmospheric Environment, 79, 822-830, DOI:10.1016/j.atmosenv.2013.07.072
28. Russo A, Soares AO (2013) Hybrid Model for Urban Air Pollution Forecasting: A Stochastic Spatio-Temporal Approach. Mathematical Geosciences46, Issue 1, 75-93, DOI: 10.1007/s11004-013-9483-0

29. Trigo RM, Añel J, Barriopedro D, García-Herrera R, Gimeno L, Nieto R, Castillo R, Allen MR, Massey N (2013) The record Winter drought of 2011-12 in the Iberian Peninsula, in Explaining Extreme Events of 2012 from a Climate Perspective. Bulletin of the American Meteorological Society, 94 (9), S41-S45
30. Trigo RM, Barriopedro D, Ramos AM, Parker DE, Mühr B, Ehmann C, Bissolli P, Kennedy JJ (2013) Iberia, in State of the Climate in 2012. Bulletin of the American Meteorological Society, 94 (8), S176-S178
31. Trigo RM, Sousa P, Pereira M, Rasilla D, Gouveia CM (2013) Modelling wildfire activity in Iberia with different Atmospheric Circulation Weather Types. International Journal of Climatology, DOI: 10.1002/joc.3749
32. Ulbrich U, Leckebusch GC, Grieger J, Schuster M, Akperov M, Bardin M. Yu, Feng Y, Gulev S, Inatsu M, Keay K, Kew SF, Liberato MLR, Lionello P, Mokhov II, Neu U, Pinto J.G, Raible CC, Reale M, Rudeva I, Simmonds I, Tilinina ND, Trigo IF, Ulbrich S, Wang XL, Wernli H. and THE IMILAST TEAM (2013) Are Greenhouse Gas Signals of Northern Hemisphere winter extra-tropical cyclone activity dependent on the identification and tracking methodology? Meteorologische Zeitschrift 22 (1), 61-68, DOI: 10.1127/0941-2948/2013/0420
33. Vicente-Serrano SM, Gouveia C, Camarero JJ, Beguería S, Trigo RM, López-Moreno JI, Azorín-Molina C, Pasho E, Lorenzo-Lacruz J, Revuelto J, Morán-Tejeda E, Sanchez-Lorenzo A (2013) Response of vegetation to drought time-scales across global land biomes. PNAS 2013 110 (1) 52-57; DOI:10.1073/pnas.1207068110

C. Funding

Project	Reference	Funding	PI	Start	End	IDL Funds (k€)
QSECA	PTDC/AAG-GLO/4155/2012	FCT	C Gouveia	07/2013	12/2015	174
PhDrought	PTDC/GEO-MET/3476/2012	FCT	C Pires	04/2013	10/2015	90
STORMEX	PTDC/AAC-CLI/121339/2010	FCT	R Trigo	03/2012	09/2015	30
SHARE	RECI/GEO-MET/0380/2012	FCT	P Miranda	07/2013	07/2016	250
FUME	FP7	EU	R Trigo		12/2013	181
ERA-CLIM	FP7-ENV-2010-Grant Nr. 265229	EU	MA Valente	2011	2013	210
ERA-CLIM2	FP7-SPACE-2013-1	EU	MA Valente	2014	2016	210
LSA SAF - CDOP2	LSASAF/CA_CDOP2/2011/01	EUMETSAT	C DaCamara	2012	2017	199

D. Strategic assessment

1) What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure;

The overall publication record of the WG2 is very good, however it is highly uneven with some people producing considerably less than others. It would be desirable to ensure a minimum level of publication by all members, a condition extensive to the remaining IDL.

Concerning funding the WG2 is particularly active in obtaining European funding and would like to diversify and obtaining more national funding from different sources including FCT and collaboration with industry (e.g. renewable energies, insurance companies, forest utilities).

Among the 16 integrated members, 8 have permanent positions (ages 45-57) and 8 are non-permanent positions soft money (ages 31-49). The ratio between permanent position and non-

permanent is balanced. However the group is aware of the need to attract and maintain young researchers due to the fact of half of the integrated members are non-permanent positions soft money.

The student flux is relatively good, with 7 PhD students funded by a mix of individual FCT fellowships and EarthSystems doctoral program. The group has been active in proposing PhD topics to the EarthSystems program. There is room for increasing the number of PhD students supervised by the group.

The group could be more active in outreach activities and contacts with media.

2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups; 3)

The members of WG2 enjoy the current scope of the group, with core activities in climate variability, climate extremes, climate applications and remote sensing applications. In any case we are open to other configurations of IDL, namely to join efforts with the other two groups with a strong climate component, namely WG1 and WG3 with whom there are already some effective cooperation. In any case we also favour a new IDL structure with fewer and larger groups, where groups have simple and clear scientific goals.

3) What specific measures does this group propose to enhance IDL?

- In the last 2 years WG2 has been developing a webpage that can attract more prospective students and international collaborators: http://idlcc.fc.ul.pt/

  We believe that IDL in general and each WG in particular should improve their own webpage, as it is the case in most top institutions.

- Hire a full time IT technician (or a few part time) to help with multiple tasks that delay our work (installing software, updating antivirus, backups, installing printers, additional disks, improving webpages, etc, etc)

- A more active promotion of collaborations among different WGs, including some seed money for the writing of multidisciplinary collaborative project proposals.

2.3 WG3

E. Team

Members

1. Antón Manel Leira Campos
2. Carlos Antunes
3. Catarina Alexandra Vicente Guerreiro
4. César Andrade (coordinator)
5. Fátima Cristina Gomes Ponte Lira
6. Fernando Manuel S. F. Marques
7. Leena Margarida Xavier Luis Tomás
8. Maria da Conceição Freitas

9. Maria do Rosário E. de Carvalho
10. Mário Albino Pio Cachão
11. Paula Maria F. de Sousa Cruz Redweik
12. Pedro José Miranda Costa
13. Rita Villanueva
14. Rui Pires de Matos Taborda

PhD students

1. Ana Catarina Rodrigues Medeiros
2. Ana Graça Cunha
3. Ana Isabel Pereira de Oliveira da Silva Santos
4. Ana Mafalda Carapuço
5. Ana Maria Caixado Novo da Costa
6. Ana Maria Nobre Silva
7. Anabela Gonçalves Cruces
8. Carla Maria de Paiva Chaves Lopes Caroça
9. Claudia Filipa Cabeleira Narciso Pinto
10. Elisabete Malafaia
11. Fernando Barrio Parra
12. Gonçalo Prista
13. Ivana Bosnic
14. Jorge Humberto Gomes Ferreira
15. Maria Alexandra Oliveira
16. Maria João Ferrão Balsinha
17. Mónica Sofia Afonso Ribeiro
18. Ricardina Guerreiro Fialho
19. Rita Martins Henriques Matildes
20. Rute Isabel Henriqueto Ramos
21. Sandra Cristina da Conceição Moreira
22. Susana Maria Pinto de Noronha
23. Tânia Maria Azevedo Ferreira
24. Tanya Silveira
25. Umberto Andriolo

F. Publications

2015 (incomplete)

1. Ávila SP, Ramalho RS, Habermann JM, Quartau R, Kroh A, Berning B, Johnson M, Kirby MX, Zanon V, Titschack J, Goss A, Rebelo AC, Melo C, Madeira P, Cordeiro R, Meireles R, Bagaço L, Hipólito A, Uchman A, Silva CM, Cachão M, Madeira J (2015) Palaeoecology, taphonomy, and preservation of a lower Pliocene shell bed (coquina) from a volcanic oceanic island (Santa Maria Island, Azores). Palaeogeography, Palaeoclimatology, Palaeoecology, 430, 57 – 73, DOI: 10.1016/j.palaeo.2015.04.015
2. Carvalho MR, Mateus A, Nunes JC, Carvalho JM (2015) Origin and chemical nature of the thermal fluids at Caldeiras da Ribeira Grande (Fogo Volcano, S. Miguel Island, Azores) Environ Earth Sci. 73(6): 2793-2808, DOI: 10.1007/s12665-014-3585-y Published on-line August/2014
3. Costa PJM, Andrade C, Cascalho J, Dawson AG, Freitas MC, Paris R, Dawson S (2015) Heavy mineral assemblages of onshore palaeotsunami sediments. The Holocene, 25(5), 795–809, DOI: 10.1177/0959683615569322

4. Freitas S, Catita C, Redweik P, Brito MC (2015) Modelling solar potential in the urban environment: State-of-the-art review, Renewable & Sustainable Energy Reviews, Elsevier,41, 915–931, DOI: http://dx.doi.org/10.1016/j.rser.2014.08.060
5. Moreno J, Fatela F, Leorri E, Araújo MF, Moreno F, De la Rosa J, Freitas MC, Valente T, Corbett DR (2015) Bromine enrichment in marsh sediments as a marker of environmental changes driven by Grand Solar Minima and Anthropogenic activity (Caminha, NW of Portugal). Science of the Total Environment 506-507, 554–566, http://dx.doi.org/10.1016/j.scitotenv.2014.11.062 0048-9697
6. Guerreiro C, De Stigter H, Cachão M, Oliveira A, Rodrigues A (2015) Coccoliths from recent sediments of the central Portuguese margin: Taphonomical and ecological inferences. Marine Micropaleontology, 114, 55 – 68, DOI: 10.1016/j.marmicro.2014.11.001
7. Guerreiro C, Cachão M, Pawlowsky-Glahn V, Oliveira A, Rodrigues A (2015) Compositional Data Analysis (CoDA) as a tool to study the (paleo)ecology of coccolithophores from coastal-neritic settings off central Portugal. Sedimentary Geology, 319: 134 – 146, DOI: 10.1016/j.sedgeo.2015.01.012
8. Henriques C, Zêzere JL, Marques F (2015) The role of the lithological setting on the landslides pattern and distribution, Engineering Geology, 189, 17-31, DOI: 10.1016/j.enggeo.2015.01.025
9. Luís L, Bergamini A, Sim-Sim M (2015) Which environmental factors best explain variation of species richness and composition of stream bryophytes? A case study from mountainous streams in Madeira Island. Aquatic Botany, 123, 37- 46.
10. Mateus A, Carvalho MR, Nunes JC, Carvalho JM (2015) Influence of wall-rock alteration and fluid mixing mechanisms in the chemistry of thermal fluids and mud-pool sediments at Caldeiras da Ribeira Grande (S. Miguel Island, Azores). Environ Earth Sci., 73(6): 2809-2831. DOI: 10.1007/s12665-014-3439-7. Published on-line September/2014.
11. Prista GA, Agostinho RJ, Cachão M (2015) Observing the past to better understand the future: a synthesis of the Neogene climate in Europe and its perspectives on present climate change. De Gruyter, Open Geosciences, **7**(1): 65-83, DOI:10.1515/geo-2015-0007
12. Ramalho RS, Brum da Silveira A, Fonseca PE, Madeira J, Cosca M, Cachão M, Fonseca MM, Prada SN (2015) The emergence of volcanic oceanic islands on a slow-moving plate: The example of Madeira Island, NE Atlantic. Geochem. Geophys. Geosyst., 16 (2), 522-537, DOI:10.1002/2014GC005657
13. Santos A, Mayoral E, Dumont CP, Silva CM, Ávila SP, Baarli BG, Cachão M, Johnson ME, Ramalho RS (2015) Role of environmental change in rock-boring echinoid trace fossils. Palaeogeography, Palaeoclimatology, Palaeoecology, 432, 1 – 14, DOI:10.1016/j.palaeo.2015.04.029.
14. Taborda R, Ribeiro MA (2015) A simple model to estimate the impact of sea-level rise on platform beaches. Geomorphology, 234, 204-210.
15. Teixeira J, Chaminé HI, Espinha Marques J, Carvalho JM, Pereira AJSC, Carvalho MR, Fonseca PE, Pérez-Alberti A, Rocha F (2015) A comprehensive analysis of groundwater resources using GIS and multicriteria tools (Caldas da Cavaca, Central Portugal): environmental issues. Environ Earth Science, 73(6): 2699-2715, DOI: 10.1007/s12665-014-3602-1.c Published on-line August/2014. http://link.springer.com/article/10.1007%2Fs12665-014-3602-1#page-1
16. Teixeira M, Bateira C, Marques F, Vieira B (2015) Physically based shallow translational landslide susceptibility analysis in Tibo catchment, NW of Portugal, Landslides, 12, 455-468. DOI: 10.1007/s10346-014-0494-9
17. Zaczek K, Troll VR, Cachão M, Ferreira J, Deegan FM, Carracedo JC, Soler V, Meade FC, Burchardt S (2015) Nannofossils in 2011 El Hierro eruptive products reinstate plume model for Canary Islands. Scientific Reports, Nature, 5 p., DOI:10.1038/srep07945

2014

1. Baarli BG, Cachão M, Silva CM, Johnson ME, Mayoral E, Santos A (2014) A Middle Miocene carbonate embankment on an active volcanic slope: Ilhéu de Baixo, Madeira Archipelago, Eastern Atlantic, Geological Journal, 49, 90-106, DOI: 10.1002/gj.2513

2. Balsinha M, Fernandes C, Oliveira A, Rodrigues A, Taborda R (2014) Sediment transport patterns on the Estremadura Spur continental shelf: Insights from grain-size trend analysis. Journal of Sea Research, 93, 28-32, DOI: 10.1016/j.seares.2014.04.001
3. Carreira P, Marques JM, Carvalho MR, Nunes D, Antunes da Silva M (2014) Carbon isotopes and geochemical processes in CO2-rich cold mineral water, N-Portugal. Environ. Earth Sciences, 71, 2941-2953, DOI: 10.1007/s12665-013-2671-x
4. Catita C, Redweik P, Pereira J, Brito MC (2014) Extending solar potential analysis in buildings to vertical facades, Computers & Geosciences, Elsevier, 66: 1-12, DOI: 10.1016/j.cageo.2014.01.002
5. Daza R, Bustillo MA, Recio C, Carvalho MR, Nunes JC (2014) Composición isotópica (d18O y dD) de espeleotemas silíceos en las cuevas volcánicas de Algar do Carvão y Branca Opala (Isla Terceira, Azores, Portugal). Estudios Geológicos, julio-diciembre 2014, 70(2), e010, ISSN-L: 0367-0449, DOI: http://dx.doi.org/10.3989/egeol.41717.315
6. Fortunato A B, Nahon A, Dodet G, Pires AR, Freitas MC, Bruneau N, Bertin X, Azevedo A, Benevides P, Andrade C, Oliveira A (2014) Morphological evolution of an ephemeral tidal inlet from opening to closure: The Albufeira inlet, Portugal. Continental Shelf Research, 73, 49–63, DOI: 10.1016/j.csr.2013.11.005
7. Guerreiro C, Sá C, De Stigter H, Oliveira A, Cachão M, Cros L, Borges C, Quaresma L, Santos AI, Fortuño JM, Rodrigues A (2014) Influence of the Nazaré Canyon, central Portuguese margin, on late winter coccolithophore assemblages. Deep Sea Research Part II, Topical Studies in Oceanography, 104, 335 – 358, DOI: 10.1016/j.dsr2.2013.09.011
8. Jambrina-Enríquez M, Rico M, Moreno M, Leira M, Bernárdez P, Prego R, Recio C, Valero-Garcés BL (2014) Timing of deglaciation and postglacial environmental dynamics in NW Iberia: the Sanabria Lake record. Quaternary Science Reviews, 94, 136-158, DOI:10.1016/j.quascirev.2014.04.018
9. Johnson ME, Ramalho RS, Baarli BG, Cachão M, Silva CM, Mayoral EJ, Santos A (2014) Miocene–Pliocene rocky shores on São Nicolau (Cape Verde Islands): Contrasting windward and leeward biofacies on a volcanically active oceanic island, Palaeogeography, Palaeoclimatology, Palaeoecology, 395, 131-143, DOI: 10.1016/j.palaeo.2013.12.028
10. Mahaney W, Hamilton T, Barendregt RW, Hancock R, Costa PJM (2014) Mineralogy and chemistry of Late Pliocene–Early Pleistocene paleosols on Mount Kenya: Weathering indices of relative age and paleoenvironmental reconstruction. Geomorphology, 204, 217–228, DOI:10.1016/j.geomorph.2013.08.006
11. Mahaney WC, Hancock RGV, Milan A, Pulleyblank C, Costa PJM (2014) Reconstruction of Wisconsinan-age ice dynamics and compositions of southern Ontario glacial diamictons, glaciofluvial/lacustrine, and deltaic sediment. Geomorphology, 206, 421–439, DOI:10.1016/j.geomorph.2013.10.014
12. Mahaney WC, Keiser L, Krinsley DH, West A, Dirszowsky R, Allen CCR, Costa PJM (2014) Recent Developments in the Analysis of the Black Mat Layer and Cosmic Impact at 12.8 ka. Geografiska Annaler: Series A, Physical Geography, 96(1), 99–111, DOI: 10.1111/geoa.12033
13. Madureira P, Moreira M, Mata J, Nunes JC, Gautheron C, Lourenço N, Carvalho MR, Pinto de Abreu M (2014) Helium isotope systematics in the vicinity of the Azores triple junction: Constraints on the Azores geodynamics. Chemical Geology 372, 62–71, http://dx.doi.org/10.1016/j.chemgeo.2014.02.015
14. Moreno J, Fatela F, Leorri E, De la Rosa JM, Pereira I, Araújo M F, Freitas MC, Corbett DR, Medeiros A (2014) Marsh benthic Foraminifera response to estuarine hydrological balance driven by climate variability over the last 2000 years (Minho estuary, NW Portugal). Quaternary Research, 82, 318-330, DOI: 10.1016/j.yqres.2014.04.014
15. Marques FO, Mandal N, Taborda R, Antunes JV, Bose S (2014) The behaviour of deformable and non-deformable inclusions in viscous flow. Earth-Science Reviews, 134, 16-69, DOI: 10.1016/j.earscirev.2014.03.007
16. Oliva M, Vieira G, Pina P, Pereira P, Neves M, Freitas MC (2014) Sedimentological characteristics of ice-wedge polygon terrain in Adventdalen (Svalbard) - environmental and climatic implications for the Late Holocene. Solid Earth, 5, 901-914, DOI:10.5194/se-5-901-2014

17. Prista G, Estevens M, Agostinho R, Cachão M (2014) Euro – North African Sirenia biodiversity as a response to climate variations, Palaeogeography, Palaeoclimatology, Palaeoecology, 410, 372 – 379, DOI: 10.1016/j.palaeo.2014.06.008
18. Costa PJM, Andrade C, Freitas MC, Oliveira MC, Cascalho J (2014) Application of microtextural and heavy mineral analysis in the study of onshore tsunami deposits – examples from Portugal, Scotland and Indonesia. Comunicações Geológicas, 101, Especial III: 1439-1443, ISSN: 0873-948X, e-ISSN: 1647-581X, http://www.lneg.pt/download/9794/74_3031_ART_CG14_ESPECIAL_III.pdf
19. Diogo Z, Bastos A, Lira C, Taborda R, Andrade C, Silveira TM, Ribeiro M, Silva AN, Carapuço MM, Pinto CA, Freitas MC (2014) - Morphological impacts of Christina storm on the beaches of the central western Portuguese coast. Comunicações Geológicas, 101, Especial I, 31-35, ISSN: 0873-948X; e-ISSN: 1647-581X. http://www.lneg.pt/download/9795/75_3127_ART_CG14_ESPECIAL_III.pdf
20. Jesus CC, Oliveira SC, Sena C, Marques F (2014) Deslizamentos na região de Arruda dos Vinhos numa perspetiva regional e local: resultados preliminares, Congresso Nacional de Geologia, Porto, 2014. Comunicações Geológicas, 101, Especial II, 903-906, ISSN: 0873-948X, e-ISSN: 1647-581X. http://www.lneg.pt/download/9678/64_1822_ART_CG14_ESPECIAL_II.pdf
21. Mahaney WC, Allen CCR, Pentlavalli P, Dirszowsky R, Tricart P, Keiser L, Somelar P, Kelleher B, Murphy B, Costa PJM, Julig P (2014) Polybius' 'previous landslide': proof that Hannibal's invasion route crossed the Col de la Traversette. International Journal Mediterranean Archaeology and Archaeometry, 14 (2), 77-94, http://maajournal.com/Issues/2014/Vol14-2/Full7.pdf
22. Taborda R, Andrade CF, Silva AN, Silveira TM, Lira C, Freitas MC, Pinto C (2014) - Modelo de circulação sedimentar litoral no arco Caparica-Espichel. Comunicações Geológicas, 101, Especial II, 641-644, ISSN: 0873-948X; e-ISSN: 1647-581X. http://www.lneg.pt/download/9624/10_2988_ART_CG14_ESPECIAL_II.pdf

2013

1. Alday M, Cearreta A, Freitas MC, Andrade C (2013) Modern and late Holocene foraminiferal record of restricted environmental conditions in the Albufeira Lagoon, SW Portugal. Geologica Acta, 11 (1), 75-84, DOI: 10.1344/105.000001754
2. Baarli BG, Santos A, Mayoral E, Ledesma-Vázquez J, Johnson ME, Silva CM, Cachão M (2013) What Darwin did not see: Pleistocene fossil assemblages on a high-energy coast at Ponta das Bicudas, Santiago, Cape Verde Islands. Geological Magazine, 150 (1), 183-189, DOI: 10.1017/S001675681200074X; ISSN: 0016-7568
3. Baptista SL, Pinto PV, Freitas MC, Cruz C, Palmeirim JM (2013) Geophagy by African ungulates: the case of the critically endangered giant sable antelope of Angola (Hippotragus niger variani). African Journal of Ecology, 51(1), 139-146, DOI: 10.1111/aje.12020
4. Costa PJM, Andrade C, Mahaney WC, Marques da Silva F, Freire P, Freitas MC, Janardo C, Oliveira MA, Silva T, Lopes V (2013) - Aeolian microtextures in silica spheres induced in a wind tunnel experiment: Comparison with aeolian quartz. Geomorphology, 180-18, 120-9, http://dx.doi.org/10.1016/j.geomorph.2012.09.011
5. Guerreiro C, Oliveira A, de Stigter H, Cachão M, Sá C, Borges C, Cros L, Santos AI, Quaresma L, Fortuño JM, Rodrigues, A. (2013) Late winter coccolithophore bloom off central Portugal in response to river discharge and upwelling. Continental Shelf Research, 59, 65-83, DOI: 10.1016//j.csr.2013.04.016
6. Johnson ME, Baarli BG, Silva CM, Cachão M, Ramalho RS, Ledesma-Vázquez J, Mayoral E (2013) Coastal dunes with high content of rhodolith (coralline red algae) bioclasts: Pleistocene formations on Maio and São Nicolau in the Cape Verde archipelago. Aeolian Research, 8, 1-9, DOI: 10.1016/j.aeolia.2012.10.008
7. Khalil MA, Santos FM, Cachão M, Fonseca PE, Mata J (2013) 2D and 3D resistivity tomography of the Suímo garnet-bearing dyke, Lisbon Volcanic Complex, Portugal: A case study, Journal of Geophysics and Engineering, 10 (3), 10 pp, DOI: 10.1088/1742-2123/10/3/035013

8. Lopes V, Freitas MC, Andrade C, Taborda R, Ramos R, Oliveira MA (2013) A GIS-assisted reconstruction of the Holocene transgressive paleosurface of Pederneira lowland (W Portugal). Journal of Coastal Research, Special Issue 65, 547-551, ISSN 0749-0208, DOI: 10.2112/SI65-093.1
9. Luís L, Hughes S, Sim-Sim M (2013) Bryofloristic evaluation of the ecological status of Madeiran streams: towards the implementation of the European Water Framework Directive in Macaronesia, Nova Hedwigia, 96 (1-2), 181-204, DOI: 10.1127/0029-5035/2012/0074
10. Mahaney WC, Keiser L, Krinsley DH, Pentlavalli P, Allen CCR, Somelar P, Schwartz S, Dohm JM, Dirszowsky R, West A, Julig P, Costa P (2013) Weathering rinds as mirror images of palaeosols: Examples from the western alps with correlation to Antarctica and Mars. Journal of the Geological Society, 170 (5), 833-847, DOI: 10.1144/jgs2012-150
11. Mahaney WC, Barendregt RW, Hamilton TS, Hancock RGV, Tessler D, Costa PJM (2013) Stratigraphy of the Gorges moraine system, Mount Kenya: Palaeosol and palaeoclimate record. Journal of the Geological Society, 170 (3), 497-511, DOI: 10.1144/jgs2012-079
12. Marques F, Matildes R, Redweik P (2013) Sea cliff instability susceptibility at regional scale: a statistically based assessment in the southern Algarve, Portugal, Natural Hazards and Earth System Sciences, 13, 3185-3203, www.nat-hazards-earth-syst-sci.net/13/3185/2013/doi: 10.5194/nhess-13-3185-2013
13. Mayoral E, Ledesma-Vazquez J, Baarli BG, Santos A, Ramalho R, Cachão M, Silva CM, Johnson ME (2013) Ichnology in oceanic islands; case studies from the Cape Verde Archipelago. Palaeogeography, Palaeoclimatology, Palaeoecology, 381-382, 47–66, DOI: 10.1016/j.palaeo.2013.04.014; WOS: 000320424700005
14. Narciso A, Flores JA, Cachão M, Piva A, Asioli A, Andersen N, Schneider R (2013) Late Glacial-Holocene transition in the southern Adriatic Sea: Coccolithophore and Foraminiferal evidence, Micropaleontology, 58 (6), 523-538, WOS:000209065100004
15. Prista G, Estevens M, Agostinho R, Cachão M (2013) The disappearance of the European / North African Sirenia (Mammalia). Palaeogeography, Palaleoclimatology, Palaeoecology, 387, 1-5, DOI:10.1016/j.palaeo.2013.07.013
16. Redweik P, Catita C, Brito MC (2013) Solar energy potential on roofs and facades in an urban landscape, Solar Energy, 97, 332-341, http://dx.doi.org/10.1016/j.solener.2013.08.036
17. Silva TA, Freitas MC, Andrade C, Taborda R, Freire P, Schmidt S, Antunes C (2013) Geomorphological response of the salt-marshes in the Tagus estuary to sea level rise. Journal of Coastal Research, Special Issue 65, 582-587, ISSN 0749-0208, DOI: 10.2112/SI65-099.1
18. Silva AN, Taborda R, Antunes C, Catalão J, Duarte J (2013) Understanding the coastal variability at Norte beach, Portugal. In: Conley, D.C., Masselink, G., Russell, P.E. and O'Hare, T.J. (eds.), Proceedings 12th International Coastal Symposium (Plymouth, England), Journal of Coastal Research, Special Issue 65, 2173-2178, ISSN 0749-0208
19. Silveira TM, Carapuço AM, Sousa H, Taborda R, Psuty NP, Andrade C, Freitas MC (2013) Optimizing beach topographic field surveys: matching the effort with the objectives. Journal of Coastal Research, Special Issue 65, 588-593, ISSN 0749-0208, DOI: 10.2112/SI65-100.1
20. Delgado J, Marques F, Vaz T (2013) Movimientos de ladera inducidos por terremotos en España y Portugal, Cuaternario y Geomorfología, 27 (3-4), 21-35, http://tierra.rediris.es/CuaternarioyGeomorfologia/html/volumen_27_2.html
21. Ferrer M, González de Vallejo L, Seisdedos J, Coello JJ, García JC, Hernández LE, Casillas R, Martín C, Rodríguez JA, Madeira J, Andrade C, Freitas MC, Lomoschitz A, Yepes J, Meco J, Betancort JF (2013) Güímar and La Orotava mega-landslides (Tenerife) and tsunamis deposits in Canary Islands. In: Margottini, C; Canuti, P. & Sassa, K. (eds.) - Landslide Science and Practice, 5, Complex environment, Proceedings of the Second World Landslide Forum, 3-7 October 2011, Rome, Springer, Heidelberg, New York: 27-33, ISBN: 978-3-642-31426-1 (Printed) 978-3-642-31427-8 (Online), DOI: 10.1007/978-3-642-31427-8_3
22. Marques F, Matildes R, Redweik P (2013) Statistically Based Sea Cliff Instability Susceptibility Assessment at Regional Scale, at the Burgau-Lagos Coastal Section (Algarve, Portugal), In: Margottini C, Canuti P, Sassa

K (eds.), Landslide Science and Practice, Volume 5: Complex Environment, Proceedings of the Second World Landslide Forum, 3-7 October 2011, Rome, Springer-Verlag Berlin Heidelberg: 147-153. ISBN: 978-3-642-31426-1 (Print) 978-3-642-31427-8 (Online)

G. Funding

Acronym	Title	Funding agency - institution	Time period	PI	Lead. Instit.	Participants of RG3	Funding Total	Funding IDL
ID 14512	An integrated approach to shoreline evolution, application to west Portuguese coast	ESA	05/2013 05/2015	C. Lira	IDL	C. Lira, M.C, Freitas, C. Andrade, R. Taborda	20 k€ (equivalent)	
-	Coastal dynamics of Formosa beach (Madeira)	Pestana Group	09/2014 02/2015	C. Andrade	(CeGUL) IDL	M.C. Freitas, R. Taborda	6.5 k€	6.5 k€
-	Vulnerability survey and monitoring of impacts of extreme climatic events and geoenvironmental evolution of Almada municipality	Almada municipality	10/2014 12/2015	M.C. Freitas	(CeGUL)IDL	C. Andrade, F. Marques, M. Cachão, C. Silva, R. Taborda, M.R. Carvalho, C.M. Silva	31 k€	31 k€
CONDRIBER PTDC/GEO-GEO/4430/2012	Contourite drifts and associated mass-transport deposits along the SW Iberia margin – implications to slope stability and tsunami hazard assessment	FCT	01/01/2013 31/10/2015	C. Roque	IDL	M. Cachão	196 k€	170 k€
PTDC/MAR/114674/2009	Beach to Canyon Head Sedimentary Processes	FCT	1/07/11 20/06/14	R. Taborda	IDL	C. Lira	111 k€	55 k€
PTDC/MAR-EST/3485/2012 SHORE	Shoreface morphodynamics: an integrated approach	FCT	30/06/13 29/06/15	T. Drago	IPMA	R. Taborda, C. Lira	199 k€	42 k€
PTDC/GEO-GEO/3981/2012 MOSES	Equilibrium State of Crenulated Coasts	FCT	06/2013 12/15	D. Moura	U. Algarve	C. Lira, M. Ribeiro, I. Bosnic	150 k€	12 k€
PTDC/AAG-MAA/2891/2012 ORVITER	The Cabeço de Vide mineral waters (Central Portugal): a natural analogue to increase understanding of the	FCT	01/07/2013 30/11/2015	J. M. Marques	IST / UL	M.R. Carvalho	168 k€	49 k€

	origin of life on Earth and possibly elsewhere							
-	Will climate change in the Arctic increase the landslide-tsunami risk to the UK?	NERC-UK Arctic Program	2014-2017	P. Talling/S. Dawson	NOC	P. Costa	3.2 M€	4 k€
-	Extreme wave events in the Magreb-iberic Atlantic region: the tsunami and hurricanes geological record during the Holocene	Spanish Government	2014-2017	J. Lario	Univ. Nac. Educación Distancia (Madrid)	P. Costa	45 k€	4 k€
ASTARTE	Assessment, STrategy And Risk Reduction for Tsunamis in Europe	FP7	01-11-2013 30-11-2016	M. A. Baptista	IPMA	C. Antunes		80 k€

H. Strategic assessment

1) **What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure;**

SWOT

- # STRENGTH

- Iberian reference in coastal/estuarine dynamics (Holocene, present-day)
- Multidisciplinary in scientific topics + tools (field, modeling...)
- High (number) proportion of post-docs
- High (number) proportion of PhD students
- Networking with leading R&D institutions (national, e.g. IH+ abroad, e.g. USGS)
- Access to home based equipment (AAS, Laser, DGPS, microprobe, MS…)
- Financing balanced between competitive R&D projects and R&D contracts (public entities)
- Intensive participation in congresses (national, international)
- Very strong in outreach
- Very relevant in know-how transfer for society (stakeholders)
- Science developed at the interface with other fields (e.g. coastal engineering, biology, geography, archeology, environmental science, planning)

- # WEAKNESS

- Heterogeneity in scientific subjects
- Low production in highly rated journals
- Weak intra-group cooperation
- Asymmetry in individual production
- Inefficiency in uptaking R&D competitive European funding, few national-funded projects (low-budget, short-term)

- Median visibility in European scientific context, except very specific areas
- Low visibility in media (newspapers/TV/broadcasting)
- Low participation in highly rated international meetings (e.g. AGU,…)
- Low internationalization in staff (few foreign researchers)
- Low financing share from private sector

- **THREATS**

- Post-docs researchers with short term contracts (less scholarships, emigration)
- Potential reduction of PhD students (less scholarships)
- Short term reduction (3-5 yrs?) of "critical mass" – retirement, no staff renovation, emigration
- Financing reduced below critical levels
- Strong national, Spanish and European competition for limited funding
- Senior researchers – heavy teaching and administration work load, increasing with government-policy of non-renewal
- No FCT strategy at short to long time-horizon (priorities unknown, ever-changing rules, disrespect for deadlines, ...)

- **OPPORTUNITIES**

- Financing - Horizon 2020, FCT, IDL (Earthsystems – PhD students, re-equipment –C4G, post-doc researchers – IDL proposal…)
- Increase of production + in high rated journals following conclusion of PhD thesis and ongoing post-doc programs
- New IDL offers enhanced possibilities of intra RG3 and inter RGs cooperation, extending to international cooperation
- Relevance to society – demand for scientific support of country scale studies/projects on coastal geology, hydrogeology, oil/gas exploration, hazard/risk assessment
- Innovation by incorporating up to date technologies (e.g. drones, remote sensing)
- PhD programmes shared with private sector

2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups;

- Splitting of the group not desirable
- In case of IDL reshaping with smaller group number, the preferred arrangement is the following, which corresponds with Strategic Lines

RG1+RG2+RG3
RG4+RG5
RG6+RG7+RG8

3) What specific measures does this group propose to enhance IDL?

- Widen outreach scope to different areas/RGs
- Improve inter RGgroups cooperation (e.g. participation in EU proposals)
- Organization of Workshops/Open days for stakeholders
- Improve journal selection based on metrics (impact factor , quartile),
- Improve publication rate
- Improve internationalization trough training (summer courses, Earthsystems,...) and organization of international meetings

Research Questions

- Tsunami/storm hazard – improve scientific knowledge on tsunami/storm signatures in sediment; use of geological record to infer erosion/deposition processes of (paleo)tsunamis.
- Coupling numerical modeling with geomorphic response of highly dynamic coastal systems.
- Use of microfossil proxies (calcareous nannofossils) to characterize mass-movement episodes along the Portuguese continental margin**.**
- Cliff hazards – improvement of statistically and physically based hazard assessment including database acquisition and modelling.
- Landslides hazard – improvement of knowledge on processes, mechanisms and modeling of landslides, including seismically triggered and large landslides.
- Geological database – Improvement of upper soils 3D mapping techniques and soil and rock masses characterization at local and regional scales.
- Linking organic matter (carbon and nitrogen cycles) to climate change in palaeoenvironmental reconstructions.
- Palaeoecology as a tool to evaluate the influence of climate change on biodiversity, function and services of transitional systems.
- Palaeorecord studies to assess natural variability in informing management targets in the context of global change and cultural landscapes.
- Surface and growndwater - how will climate change affect groundwater quality and quantity.
- Hidromineral and hydrothermal resources - improvement of knowledge on mineral and thermal waters to support sustainable exploitation.

2.4 WG4

A. Team

Members

1. Ana Isabel Janeiro Ferreira
2. Carlos José Paulino Rosa
3. Fernando José Arraiano de S Barriga
4. Filipe Rosas
5. Isabel Amaral da Costa
6. Isabel Maria Silveira Ribeiro Costa
7. João Daniel Casal Duarte
8. João Nuno Vilhena S Lourenço
9. Joaquim Manuel Freire Luis

10. Jorge Manuel R. de Sancho Relvas
11. Jorge Miguel Alberto Miranda
12. Machiel Simon Bos
13. Maria Ana Carvalho Viana Baptista (coordinator)
14. Maria Conceição L V Louro Neves
15. Maria Teresa Drago Pereira
16. Marta Neres
17. Pedro Brito
18. Pedro Manuel Fernandes C da Silva
19. Pedro Terrinha
20. Rachid Omira
21. Rui Manuel da Silva Fernandes
22. Rui Manuel do Amaral B O Quartau
23. Vitor Hugo da Silva Magalhães

PhD students

1. Álvaro Manuel Madureira Pinto
2. Carlos Manuel Nunes de Carvalho
3. João Ricardo Silva Carvalho
4. Maria Inês Ferreira Silva da Cruz
5. Pedro David Pereira da Fonseca
6. André Garcia Vieira de Sá
7. Sónia Dulce Ferreira da Silva
8. João Pedro Apolinário Palma
9. Luis Batista

B. Publications

2015 (incomplete)

1. Adams DK, Fernandes RM, Holub KL, Gutman SI, Barbosa HM, Machado LA, ... & Tanaka LM (2015). The Amazon Dense GNSS Meteorological Network: A New Approach for Examining Water Vapor and Deep Convection Interactions in the Tropics. Bulletin of the American Meteorological Society, (2015).
2. Ávila SP, Melo C, Silva L, Ramalho RS, Quartau R, Hipólito A, ... Zazo C (2015). A review of the MIS 5e highstand deposits from Santa Maria Island (Azores, NE Atlantic): palaeobiodiversity, palaeoecology and palaeobiogeography. Quaternary Science Reviews, 114, 126-148.
3. Ayres-Sampaio D, Deurloo R, Bos M, Magalhães A, Bastos L (2015). A Comparison Between Three IMUs for Strapdown Airborne Gravimetry.Surveys in Geophysics, 1-16.
4. Casalbore D, Romagnoli C, Pimentel A, Quartau R, Casas D, Ercilla G, ... Chiocci FL (2015). Volcanic, tectonic and mass-wasting processes offshore Terceira Island (Azores) revealed by high-resolution seafloor mapping. Bulletin of Volcanology, 77(3), 1-19.
5. Chen Z, Schellart WP, Duarte JC (2015). Quantifying the energy dissipation of overriding plate deformation in three-dimensional subduction models. Journal of Geophysical Research: Solid Earth, 120(1), 519-536.
6. Duarte JC, Schellart WP, Cruden AR (2015). How weak is the subduction zone interface?. *Geophysical Research Letters*, *42*(8), 2664-2673.
7. Edwards SJ, Schellart WP, Duarte JC (2015). Geodynamic models of continental subduction and obduction of overriding plate forearc oceanic lithosphere on top of continental crust. *Tectonics*.
8. Hensen C, Scholz F, Nuzzo M, Valadares V, Gràcia E, Terrinha P, ... Lackschewitz K (2015). Strike-slip faults mediate the rise of crustal-derived fluids and mud volcanism in the deep sea. Geology, 43(4), 339-342.

9. Mériaux CA, Duarte JC, Duarte SS, Schellart WP, Chen Z, Rosas F, ... Terrinha P (2015). Capture of the Canary mantle plume material by the Gibraltar arc mantle wedge during slab rollback. Geophysical Journal International, 201(3), 1717-1721.
10. Mériaux CA, Duarte JC, Schellart WP, Mériaux AS (2015). A two-way interaction between the Hainan plume and the Manila subduction zone.Geophysical Research Letters.
11. Quartau R, Madeira J, Mitchell NC, Tempera F, Silva PF, Brandão F (2015). The insular shelves of the Faial-Pico Ridge (Azores archipelago): A morphological record of its evolution. Geochemistry, Geophysics, Geosystems.
12. Rosas FM, Duarte JC, Schellart WP, Tomás R, Grigorova V, Terrinha P (2015). Analogue modelling of different angle thrust-wrench fault interference in a brittle medium. Journal of Structural Geology, 74, 81-104.
13. Omira R, Baptista MA, Matias L (2015). Probabilistic Tsunami Hazard in the Northeast Atlantic from Near- and Far-Field Tectonic Sources. Pure and App. Geophys. DOI 10.1007/s00024-014-0949-x

2014

14. Alothman AO, Bos MS, Fernandes RMS, Ayhan ME (2014) Sea level rise in the north-western part of the Arabian Gulf, Journal of Geodynamics, 81, 105-110, DOI: 10.1016/j.jog.2014.09.002
15. Baptista MA, Miranda JM, Batlló J (2014) The 1531 Lisbon Earthquake: A Tsunami in the Tagus Estuary?, Bulletin of the Seismological Society of America, 104 (5), 2149-2161, DOI: 10.1785/0120130316
16. Bos MS, Fernandes RMS, Vethamony P, Mehra P (2014) Estimating absolute sea level variations by combining GNSS and Tide gauge data, Indian Journal of Marine Sciences, 43 (7).
17. Bos MS, Williams SDP, Araújo IB, Bastos L (2014) The effect of temporal correlated noise on the sea level rate and acceleration uncertainty, Geophysical Journal International, 196 (3), 1423-1430, DOI: 10.1093/gji/ggt481.
18. Cravo A, Cardeira S, Pereira C, Rosa M, Alcântara P, Madureira M, Rita F, Luis J, Jacob J (2014) Exchanges of nutrients and chlorophyll a through two inlets of Ria Formosa, South of Portugal, during coastal upwelling events, Journal of Sea Research, 93, 63-74, DOI: 10.1016/j.seares.2014.04.004.
19. Da Costa IR, Mourão C, Récio C, Guimarães F, Antunes IM, Ramos JF, Barriga F,. ... & Milton JA (2014). Tourmaline occurrences within the Penamacor-Monsanto granitic pluton and host-rocks (Central Portugal): genetic implications of crystal-chemical and isotopic features. Contributions to Mineralogy and Petrology, 167(4), 1-23.
20. Duarte JC, Rosas FM, Terrinha P, Schellart WP, Boutelier D, Gutscher MA, Ribeiro A (2014) Are subduction zones invading the Atlantic? Evidence from the SW Iberia margin: REPLY, Geology, 42 (3), E329, DOI: 10.1130/G35420Y.1
21. Duarte JC, Schellart WP, Cruden AR (2014). Rheology of petrolatum–paraffin oil mixtures: Applications to analogue modelling of geological processes. Journal of Structural Geology, 63, 1-11.
22. Hernández-Molina FJ, Stow DAV, Alvarez-Zarikian CA, Acton G, Bahr A, Balestra B, Ducassou E, Flood R, Flores J-A, Furota S, Grunert P, Hodell D, Jimenez-Espejo F, Kim J, Krissek L, Kuroda J, Li B, Llave E, Lofi J, Lourens L, Miller M, Nanayama F, Nishida N, Richter C, Roque C, Pereira H, Sanchez Goñi MF, Sierro FJ, Singh AD, Sloss C, Takashimizu Y, Tzanova A, Voelker A, Williams T, XuanC (2014) Onset of the Mediterranean Outflow Water into the North Atlantic, Science, 344 (6189), 1244-1250, DOI: 10.1126/science.1251306
23. Kurz-Besson C, Lobo do Vale R, Rodrigues L, Almeida P, Herd A, Grant OM, David TS, Schmidt M, Otieno D, Keenan T, Gouveia C, Mériaux C, Chaves MM, Pereira JS (2014) Cork oak physiological responses to manipulated water availability in a Mediterranean woodland,. Journal of Agricultural and Forest Meteorology, 184, 230-242, DOI: 10.1016/j.agrformet.2013.10.004
24. Madureira P, Moreira M,Mata J, Nunes JC, Gautheron C, Lourenço N, Carvalho R, Pinto de Abreu M(2014) Helium isotope systematics in the vicinity of the Azores triple junction: Constraints on the Azores geodynamics, Chemical Geology, 372, 62-71, DOI: 10.1016/j.chemgeo.2014.02.015

25. Miranda JM, Baptista MA, Omira R (2014) On the use of Green's summation for tsunami waveform estimation: a case study, Geophysical Journal International, 199 (1), 459-464, DOI: 10.1093/gji/ggu266
26. Miranda JM, Luis JF, Lourenço N, Goslin J (2014) Distributed deformation close to the Azores Triple "Point", Marine Geology, 335, 27-35, DOI: 10.1016/j.margeo.2014.05.006
27. Neres M, Bouchez JL, Terrinha P, Font E, Moreira M, Miranda R, Launeau P, Carvallo C (2014) Magnetic fabric in a Cretaceous sill (Foz da Fonte, Portugal): flow model and implications for regional magmatism, Geophysical Journal International, 199 (1), 78-101, DOI: 10.1093/gji/ggu250
28. Neves MC, Fernandes RM, Adam C (2014) Refined models of gravitational potential energy compared with stress and strain rate patterns in Iberia, Journal of Geodynamics, 81, 91-104, DOI: 10.1016/j.jog.2014.07.010
29. Pinheiro LM, Ivanov MK, Sautkin A, Akhmanov G, Magalhães VH, Volkonskaya A, Monteiro JH, Somoza L, Gardner J, Hamoumi N, Cunha MR (2014) Corrigendum to Mud volcanism in the Gulf of Cadiz: Results from the TTR-10 cruise (vol 195, pg 131, 2003),Marine Geology, 355, 384-384, DOI: 10.1016/j.margeo.2014.06.006
30. Quartau R, Hipólito A, Romagnoli C, Casalbore D, Madeira J, Tempera F, Roque C, Chiocci FL (2014) The morphology of insular shelves as a key for understanding the geological evolution of volcanic islands: Insights from Terceira Island (Azores), Geochemistry Geophysics Geosystems, 15 (5), 1801-1826, DOI: 10.1002/2014GC005248
31. Range P, Martins M, Cabral S, Piló D, Ben-Hamadou R, Teodósio MA, Leitão F, Drago T, Oliveira AP, Matias D, Chícharo L (2014) Relative sensitivity of soft-bottom intertidal macrofauna to increased CO2 and experimental stress, Marine Ecology Progress Series, 509, 153–170, DOI: 10.3354/meps10861
32. Reis J, Póvoas L, Barriga FJAS, Lopes C, Santos VF, Ribeiro B, Cascalho J, Pinto A (2014) Science education in a museum: enhancing earth sciences literacy as a way to enhance peoples' awareness of geological heritage, Geoheritage, 6 (3), 217-223, DOI: 10.1007/s12371-014-0105-0
33. Salgueiro E, Naughton F, Voelker AHL, de Abreu L, Alberto A, Rossignol L, Duprat J, Magalhães VH, Vaqueiro S, Turon JL, Abrantes F (2014) Past circulation along the western Iberian margin: a time slice vision from the Last Glacial to the Holocene, Quaternary Science Reviews, 106, 316-329, DOI: 10.1016/j.quascirev.2014.09.001
34. Silva PF, Marques FO, Machek M, Henry B, Hirt AM, Roxerová Z, Madureira P, Vratislav S (2014) Evidence for non-coaxiality of ferrimagnetic and paramagnetic fabrics, developed during magma flow and cooling in a thick mafic dyke, Tectonophysics, SI, 629, 155-164, DOI: 10.1016/j.tecto.2014.04.017-
35. Soares DM, Alves T, Terrinha P (2014). Contourite drifts on early passive margins as an indicator of established lithospheric breakup. *Earth and Planetary Science Letters*, *401*, 116-131.
36. Ungarish M, Mériaux CA, Kurz-Besson CB (2014) The propagation of gravity currents in a V-shaped triangular cross-section channel: experiments and theory, Journal of Fluid Mechanics, 754, 232-249, DOI: 10.1017/jfm.2014.396
37. Viola, I., Magalhães, V., Pinheiro, L. M., Rocha, F., Capozzi, R., Oppo, D., ... & Hensen, C. (2014). Mineralogy and geochemistry of authigenic carbonates from the Gulf of Cadiz. *Journal of Sea Research*, *93*, 12-22.
38. Wang S, Yan W, Magalhães VH, Chen Z, Pinheiro LM, Gussone N (2014) Factors influencing methane-derived authigenic carbonate formation at cold seep from southwestern Dongsha area in the northern South China Sea, Environmental Earth Sciences, 71 (5), 2087-2094, DOI: 10.1007/s12665-013-2611-9

2013

C. Funding

D. Strategic assessment

1) What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure;

2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups; 3)

3) What specific measures does this group propose to enhance IDL?

WG5 was formed slightly more than one year ago. It merged researchers with complimentary backgrounds: Marine Geology, Space Geodesy, Tectonics, Mineral Processes, Geomagnetism, Geodynamics and Tsunamis. The common goal was to develop a competitive group able to tackle a wide range of geophysical and geological phenomena relevant to the marine environment. Our view is that the objective is at our reach.

The international impact of the group is continuously improving: we coordinate an FP7 large research project on tsunamis (M. A. Baptista) and coordinate the Portuguese participation in two ESFRI infrastructures chosen by FCT as national priorities (R. Fernandes, C4G and M. Miranda/P. Brito, EMSO). The Marine Geology Lab at IPMA was installed only in 2014, but a new oceanic research vessel with significant geological and geophysical capacities will be available during 2015-2016, which will foster new research opportunities and will promote deeper international cooperation. Some of WG5 members have been rather active in the organization of international scientific meetings, and in the preparation of new initiatives for H2020.

The publication record of the group is relevant, but the integration of the new IDL members has still room for development. The quality of the journals during the period is high: *Geology, Earth and Planetary Science Letters, Journal of Fluid Mechanics, Journal of Geophysical Research: Solid Earth, Geophysical Research Letters, Tectonics, Bulletin of the Seismological Society of America, Geophysical Journal International, Journal of Structural Geology, Marine Geology, Geochemistry Geophysics Geosystems, Quaternary Science Reviews, Tectonophysics.* We also co-authored a paper in *Science* focused in paleoceanographic Research. The quality and quantity can always improve but we think that it must be the consequence of the synergy between researchers in the group (and with other groups) around innovative scientific objectives

The funding of the group is currently at a good level and we are optimistic in what concerns H2020 and the new Portuguese and EU infrastructure programs. The strong cooperation with IPMA also creates opportunities for funding and access to infrastructures and international initiatives.

Outreach has been developed mainly concerning sea-hazards and the deep exploration of the seafloor. Both topics have a large societal impact in Portugal. Larger efforts must be directed towards secondary schools and coastal communities, and IDL brand must be more explicitly used.

The scope of the group is already large and we think that the focus on Marine Geology and Geophysics is an advantage, making IDL a player on Ocean exploration, an area that was considered the priority by all Portuguese regions. Nevertheless complimentary skills could be of interest (e.g. physical oceanography, marine engineering).

In our view the enhancement of IDL must be done in a progressive and positive way. A systematic evaluation exercise must be conducted at the research level, leading to the clarification of level of commitment and expectation from each of us. A key aspect is the promotion of high level international cooperation. Specific funds could be allocated to allow research exchange programs in the scientific domains where too much "endogenous" development took place in the recent past. This will lead to rational decisions at the personal and group levels.

2.5 WG5

A. Team

Members

1. António Pedro Valério Brum da Silveira (Prof Aux, FCUL)
2. Carlos Jorge Caetano Corela (Tecn, FCUL)
3. Ícaro Fróis Dias da Silva (BPD, FCT)
4. Jaime Convers (BPD-ASTARTE/QuakelLoc, FFCUL/UC)
5. João Manuel Lopes Cardoso Cabral (Prof Assoc, FCUL)
6. José Brandão Silva (Prof Assoc, FCUL)
7. José Eduardo de Oliveira Madeira (Prof Aux, FCUL)
8. Luis Manuel Henriques Marques Matias (Prof Assoc, FCUL)
9. Manuel Francisco Colaço de Castro Pereira (Prof Assoc, UE)
10. Maria Graça Medeiros Silveira (Prof Adj, ISEL)
11. Maria Paula Pompeu de Miranda Rodrigues de Teves Costa (Prof Aux, FCUL)
12. Mário Augusto de Andrade Moreira (Prof Adj, ISEL)
13. Nuno Miguel Cortez Afonso Dias (Prof Adj, ISEL)
14. Susana Inês da Silva Custódio (Inv FCT, FCUL), coordinator

PhD students

1. Ana Rita da Costa Paiva da Silva Hipólito, Neotectónica da ilha Terceira (Açores). Implicações nos processos tectónicos do segmento ocidental da zona de fronteira Açores-Gibraltar e avaliação da perigosidade sísmica, Sup: J Madeira
2. Luís José de Sousa Albardeiro, Sup: M Francisco
3. Catarina Pontes Fernandes Carmelo de Matos, Lithospheric structure and active deformation of Western Iberia, Sup: S Custódio/ G Silveira
4. Afonso Loureiro, Geodynamics of continental passive margins - physical modelling on segments of margins in the South Atlantic Ocean, Sup: L Matias/ A Afilhado
5. Andréia Pereira, Investigation of fin whales using ocean bottom recordings, Sup: L Matias
6. Ricardo João Viegas Ressurreição, Characterization of the meso-cenozoic tectonic evolution of the Alentejo litoral (Melides-Odemira sector) and its setting in the present geodynamic framework, Sup: J Cabral

PhDs completed between 1/Jan/2014 and 30/Jun/2015:

1. Carlos Jorge Caetano Corela, Ocean Bottom seismic noise: applications for the crust knowledge, interaction ocean-atmosphere and instrumental behaviour, Sup: L Matias / G Silveira, concluded in 2014
2. Rita Lúcio Carmo, Estudos de neotectónica na ilha de S. Miguel: uma contribuição para o estudo do risco sísmico no arquipélago dos Açores, Sup: J Madeira, concluded in 2014

3. André Filipe Paxiuta Sá Couto, Tectónica activa e evolução do relevo. Caso de estudo do Rif Central (Marrocos), Sup: J Madeira, concluded in 2014
4. Paula Cristina dos Santos Marques de Figueiredo, Neotectonics of the Southwest Portugal Mainland: implications on the regional seismic hazard, Sup: J Cabral, concluded in 2015

B. Publications

2015 (incomplete)

1. Alcock JE, Martínez Catalán JR, Rubio Pascual FJ, Díez Montes A, Díez Fernández R, Gómez Barreiro J, Arenas R, Dias da Silva Í, González-Clavijo E (2015) 2-D thermal modeling of HT-LP metamorphism in NW and Central Iberia: Implications for Variscan magmatism, rheology of the lithosphere and orogenic evolution, Tectonophysics (in press), DOI: 10.1016/j.tecto.2015.05.022.
2. Ávila SP, Ramalho RS, Habermann J, Quartau R, Kroh A, Meireles R, Berninh B, Kirby M, Zanon V, Titschack J, Goss A, Rebelo AC, Melo C, Madeira P, Cordeiro R, Bagaço L, Hipólito A, Johnson M, Uchman A, Marques da Silva C, Cachão M, Madeira J (2015). Palaeoecology, taphonomy, and preservation of a lower Pliocene shell bed (coquina) from a volcanic oceanic island (Santa Maria Island, Azores, NE Atlantic Ocean). *Palaeogeography, Palaeoclimatology, Palaeoecology* 430: 57-73. doi: 10.1016/j.palaeo.2015.04.015
3. Bensalah MK, Youbi N, Mata J, Madeira J, Martins L, El Hachimi H, Bertrand H, Marzoli A, Bellieni G, Doblas M, Font E, Medina F, Mahmoudi A, Beraaouz EH, Miranda R, Verati C, De Min A, Ben Abbou M, Zayane R (2015). Reply to Comment on "The Jurassic-Cretaceous basaltic magmatism of the Oued El-Abid syncline (High Atlas, Morocco): Physical volcanology, geochemistry and geodynamic implications" by André Michard et al., (2013) Journal of African Earth Sciences, Volume 88, December 2013, Pages 101–105. *Journal of African Earth Sciences* **110**(in press). doi: 10.1016/j.jafrearsci.2015.03.008
4. Carmo R, Madeira J, Ferreira T, Queiroz G, Hipólito A (2015) Volcano-tectonic structures of S. Miguel Island. In Gaspar, J. L., Guest, J. E., Duncan, A. M., Barriga, F. J. A. S. & Chester, D. K. (eds) 2015. Volcanic Geology of São Miguel Island (Azores Archipelago). Geological Society, London, Memoirs 44: 65–86. doi: 10.1144/M44.6
5. Custódio S, Dias NA, Carrilho F, Góngora E, Rio I, Marreiros C, Morais I, Alves P, Matias L (2015, in press). Small earthquakes in Western Iberia: improving the understanding of lithospheric deformation in a slowly deforming region, Geophysical Journal International, DOI: 10.1093/gji/ggv285.
6. Dias da Silva Í, Díez Fernández R, Díez Montes A, González Clavijo E, Foster DA (2015, accepted, minor revisions) Magmatic evolution in the N-Gondwana margin related to the opening of the Rheic Ocean – Evidence from the Upper Parautochthon of the Galicia-Trás-os-Montes Zone and from the Central Iberian Zone (NW Iberian Massif), International Journal of Earth Sciences
7. Dias da Silva Í, Linnemann U, Hofmann M, González-Clavijo E, Díez-Montes A, Martínez Catalán JR (2015) Detrital zircon and tectonostratigraphy of the Parautochthon under the Morais Complex (NE Portugal): implications for the Variscan accretionary history of the Iberian Massif, Journal of the Geological Society 172, (1), 45-61. DOI: 10.1144/jgs2014-005.
8. Diaz J, Gallart J, Morais I, Silveira G, Pulgar JA, Dias NA, Ruiz M, González-Cortina, J-M (2015). From the Bay of Biscay to the High Atlas: completing the anisotropic characterization of the westernmost Mediterranean region. Tectonophysics, doi:10.1016/j.tecto.2015.03.007
9. Klingelhoefer F, Evain M, Afilhado A, Rigoti C, Loureiro A, Alves D, Leprtre A, Moulin M, Schnurle P, Benabdellouahed M, Baltzer A, Rabineau M, Feld A, Viana A, Aslanian D, 2015. Imaging proto-oceanic crust off the Brazilian Continental Margin, Geophysical Journal International, 200(1), 471-488, DOI:10.1093/gji/ggu387.
10. Madeira J, Brum da Silveira A, Hipólito A, Carmo R (2015) Active tectonics along the Eurasia-Nubia boundary: data from the central and eastern Azores Islands. In Gaspar, J. L., Guest, J. E., Duncan, A. M.,

Barriga, F. J. A. S. & Chester, D. K. (eds) 2015. Volcanic Geology of São Miguel Island (Azores Archipelago). Geological Society, London, Memoirs 44: 15–32. doi: 10.1144/M44.3

11. Mata J, Alves CF, Martins L, Miranda R, Madeira J, Pimentel N, Azevedo MR, Youbi N, De Min A, Almeida IM, Bensalah MK, Terrinha P (2015). 40Ar/39Ar ages and petrogenesis of the onshore magmatism of the West Iberian Margin at the Jurassic-Cretaceous transition: geodynamic implications and evidence for open-system processes. Lithos (in revision)
12. Matos C, Silveira G, Matias L, Caldeira R, Duarte L, Dias NA, Krueger F, Santos T (2015). Upper crustal structure of Madeira Island revealed from ambient noise tomography. J. Volcanol. Geotherm. Res, 298, 136-145, DOI:10.1016/j.jvolgeores.2015.03.017.
13. Morais I, Vinnik L, Silveira G, Kiselev S, Matias L (2015). Mantle beneath the Gibraltar arc from receiver functions, Geophysical Journal International, 200, 1155-1171, doi: 10.1093/gji/ggu456.
14. Omira R, Baptista MA, Matias L (2015). Probabilistic Tsunami Hazard in the Northeast Atlantic from Near- and Far-Field Tectonic Sources. Pure and App. Geophys, 172, 901–920, doi: 10.1007/s00024-014-0949-x
15. Quartau R, Madeira J, Mitchell NC, Tempera F, Silva PF, Brandão F (2015). The insular shelves of the Faial–Pico Ridge (Azores archipelago): a morphological record of its evolution. Geochemistry, Geophysics, Geosystems **16**(5): 1401–1420. doi: 10.1002/2015GC005733
16. Ramalho RS, Brum da Silveira A, Fonseca PE, Madeira J, Cosca M, Cachão M, Fonseca MM, Prada SN (2015). The emergence of volcanic oceanic islands on a slow-moving plate: the example of Madeira Island, NE Atlantic. Geochemistry, Geophysics, Geosystems **430**: 57-73. doi: 10.1016/j.palaeo.2015.04.015
17. Ramalho RS, Winckler G, Madeira J, Helffrich GR, Hipólito AR, Quartau R, Adena K, Schaefer JM (2015). Hazard potential of volcanic flank collapses raised by new megatsunami evidence. Science Advances (in revision)

2014

1. Albardeiro L, Pereira MF, Gama C, Chichorro M, Hofmann M, Linnemann U (2014) Provenance study of Pliocene–Pleistocene sands based on ancient detrital zircons (Alvalade Basin, SW Iberian Atlantic coast). Sedimentary Geology, 307, 47-58
2. Alvaro JJ, Bellido F, Gasquet D, Pereira MF, Quesada C, Sánchez-García T (2014). Diachronism in the late Neoproterozoic–Cambrian arc-rift transition of North Gondwana: A comparison of Morocco and the Iberian Ossa-Morena Zone. Journal of African Earth Sciences, 98, 113-132
3. Baptista MA, Miranda JM, Batlló J (2014). The 1531 Lisbon Earthquake: A Tsunami in the Tagus Estuary?, Bulletin of the Seismological Society of America, vol. 104, n.5, 2149-2161. doi: 10.1785/0120130316.
4. Calegaro S, Rapaille C, Marzoli A, Bertrand H, Chiaradia M, Reisberg L, Belieni G, Martins L, Madeira J, Mata J, Youbi N, Demin A, Azevedo MR, Bensalah MK (2014). Enriched mantle source for the Central Atlantic magmatic province: new supporting evidence from Southwestern Europe. Lithos 188: 15–32. doi: 10.1016/j.lithos.2013.10.021
5. Custódio S, Dias NA, Caldeira B, Carrilho F, Carvalho S, Corela C, Díaz J, Narciso J, Madureira G, Matias L, Haberland C, WILAS team (2014). Ambient Noise Recorded by a Dense Broadband Seismic Deployment in Western Iberia. Bulletin of the Seismological Society of America, 104 (6), DOI: 10.1785/0120140079.
6. Dias da Silva Í, Díez Fernández R, Díez Montes A, González Clavijo E, Foster DA (accepted, minor revisions) Magmatic evolution in the N-Gondwana margin related to the opening of the Rheic Ocean – Evidence from the Upper Parautochthon of the Galicia-Trás-os-Montes Zone and from the Central Iberian Zone (NW Iberian Massif), International Journal of Earth Sciences
7. Dias da Silva Í, Jensen S, González Clavijo E (2014) Trace fossils from the Desejosa Formation, Freixo de Espada à Cinta area, northeast Portugal; new age constraints on the upper part of the Douro Group, Geologica Acta, 12, 109-120, DOI: 10.1344/105.000002080.
8. Dias da Silva Í, Valverde-Vaquero P, González Clavijo E, Díez Montes A, Martínez Catalán JR (2014) Structural and stratigraphical significance of U-Pb ages from the Mora and Saldanha volcanic complexes

(NE Portugal, Iberian Variscides), Geological Society, London, Special Publications, 405, 115-135, DOI: 10.1144/SP405.3.

9. Druguet E, Castro A, Chichorro M, Pereira MF, Fernandez C (2014). Zircon geochronology of intrusive rocks from Cap de Creus, Eastern Pyrenees. Geological Magazine , DOI: http://dx.doi.org/10.1017/S0016756814000041, Published online: 11 March 2014.
10. Ferreira A, Lopes C, Chichorro M, Pereira MF, Solá AR (2014). Deciphering a multi-event in a non-complex set of detrital zircon U–Pb ages from Carboniferous graywackes of SW Iberia. Chemical Geology, 378–379, 62-74
11. Fonseca JFBD, Chamussa J, Domingues A, Helffrich G, Antunes E, van Aswegen G, Pinto LV, Custódio S, Manhiça VJ (2014). Mozart: A seismological investigation of the East African Rift in central Mozambique. Seismological Research Letters, 85(1), 108–116, DOI: 10.1785/0220130082.
12. Luchetti ACF, Nardy AJR, Machado FB, Madeira J, Arnósio JM (2014). New insights on the occurrence of peperites and sedimentary deposits within the silicic volcanic sequences of the Paraná Magmatic Province, Brazil. Solid Earth 5, 121-130. doi: 10.5194/se-5-121-2014
13. Marques FO, Catalão J, Hildenbrand A, Costa ACG, Dias NA (2014). The 1998 Faial earthquake, Azores: Evidence for a transform fault associated with the Nubia-Eurasia plate boundary?. Tectonophysics, 633, 115-125, DOI:10.1016/j.tecto.2014.06.024.
14. Martínez Catalán, J. R., Rubio Pascual, F., Díez Montes, A., Díez Fernández, R., Gómez Barreiro, J., Dias da Silva, Í., González Clavijo, E., Ayarza Arribas, P., Alcock, J. E. (2014) The late Variscan HT/LP metamorphic event in NW and central Iberia: Relationships with crustal thickening, extension, orocline development, and crustal evolution, Geological Society, London, Special Publications, London, 405, 225-247, DOI: 10.1144/SP405.1
15. Pereira MF, Castro A, Chichorro M, Fernández C, Díaz-Alvarado J, Martí J, Rodríguez C (2014). Chronological link between deep-seated processes in magma chambers and eruptions: Permo-Carboniferous magmatism in the core of Pangaea (Southern Pyrenees). Gondwana Research, 25, Issue 1, 290-308.
16. Represas P, Santos FA, Ribeiro J, Afonso A, Ribeiro J, Moreira M, Mendes-Victor LA (2014). On the Applicability of Joint Inversion of Gravity and Resistivity Data to the Study of a Tectonic Sedimentary Basin in Northern Portugal. Pure and Applied Geophysics, Springer Basel, doi 10.1007/s00024-014-0920-x.
17. Teves-Costa P, Almeida IM, Rodrigues I, Matildes R, Pinto C (2014) Geotechnical characterization and seismic response of shallow geological formations in downtown Lisbon, Annals of Geophysics, 57 (4), S0436, DOI:10.4401/ag-6390
18. Vales D, Dias NA, Rio I, Matias L, Silveira G, Madeira J, Weber M, Carrilho F, Haberland C (2014). Intraplate seismicity across the Cape Verde swell: A contribution from a temporary seismic network, Tectonophysics Volume 636, 1, 325-337, doi: 10.1016/j.tecto.2014.09.014.
19. Vilanova S, Nemser E S, Besana-Ostman GM, Bezzeghoud M, Borges JF, Silveira AB, Cabral J, Carvalho J, Cunha PP, Dias RP, Madeira J, Lopes FC, Oliveira CS, Perea H, García-Mayordomo J, Wong I, Arvidsson R, Fonseca JFBD (2014). Incorporating descriptive metadata into seismic source zone models for seismic-hazard assessment: A case study of the Azores–West Iberian Region. Bulletin of the Seismological Society of America, 104 (3), 1212-1229, DOI 10.1785/0120130210.
20. Michele M, Custódio S, and Emolo A (2014). Moment Tensor Resolution: Case Study of the Irpinia Seismic Network, Southern Italy, Bulletin of the Seismological Society of America, 104(3), 1348–1357, DOI:10.1785/0120130177.
21. Moreira M, Jeoffroy L, Pozzi JP (2015) Magma flow pattern in dykes of the Azores revealed by anisotropy of magnetic susceptibility. Journal of Geophysical Research, DOI: 10.1002/2014JB010982
22. Neres M, Bouchez JL, Terrinha P, Font E, Moreira M, Miranda E, Launeau P, Carvallo C. (2014) Magnetic fabric in a Cretaceous sill (Foz da Fonte, Portugal): flow model and implications for regional magmatism. Geophys. J. Int. 199 (1): 78-101

23. Pereira MF (2014). Potential sources of Ediacaran strata of Iberia: a review. Geodinamica Acta, DOI: 10.1080/09853111.2014.957505.
24. Quartau R, Hipólito A, Romagnoli C, Casalbore D, Madeira J, Tempera F, Roque C, Chiocci FL (2014). The morphology of insular shelves as a key for understanding the geological evolution of volcanic islands: Insights from Terceira Island (Azores). Geochemistry, Geophysics, Geosystems 15(5): 1801-1826. doi: 10.1002/2014GC005248

2013

1. Beier C, Mata J, Stockhert F, Mattielli N, Brandi PA, Madureira P, Genske FS, Martins S, Madeira J, Haase KM (2013). Geochemical evidence for melting of carbonated peridotite on Santa Maria, Azores. Contrib. Mineral. Petrol. 165: 823–841. DOI: 10.1007/s00410-012-0837-2
2. Bensalah MK, Youbi N, Mata J, Madeira J, Martins L, El Hachimi H, Bertrand H, Marzoli A, Bellieni G, Doblas M, Font E, Medina F, Mahmoudi A, Beraaouz EH, Miranda R, Verati C, De Min A, Ben Abbou M, Zayane R (2013). The Jurassic–Cretaceous basaltic magmatism of the Oued El-Abid syncline (High Atlas, Morocco): Physical volcanology, geochemistry and geodynamic implications. J. African Earth Sci. 81: 60-81. doi: 10.1016/j.jafrearsci.2013.01.004
3. Borrero JC, Kalligeris N, Lynett PJ, Fritz HM, Newman AV, Convers JA (2014). Observations and Modeling of the August 27, 2012 Earthquake and Tsunami affecting El Salvador and Nicaragua, Pure Appl. Geophys., 1-15, doi:10.1007/s00024-014-0782-2.
4. Cabral J, Moniz C, Batlló J, Figueiredo P, Carvalho J, Matias L, Teves-Costa P, Dias R, Simão N (2013) The 1909 Benavente (Portugal) earthquake: search for the source. Natural Hazards, 69, 1211-1227, DOI 10.1007/s11069-011-0062-8
5. Carmo R, Madeira J, Hipólito A, Ferreira T (2013). Paleoseismological evidence for historical surface rupture in S. Miguel Island (Azores). Annals of Geophysics 56(6): S0671 (Special Issue: Earthquake geology). doi: 10.4401/ag-6221
6. Convers JA, Newman AV (2013) Rapid earthquake rupture duration estimates from teleseismic energy rates, with application to real-time warning, Geophys. Res. Lett., 40, doi:10.1002/2013GL057664.
7. Domingues A, Custódio S, Cesca S (2013). Waveform inversion of small to moderate earthquakes located offshore southwest Iberia. Geophysical Journal International, DOI: 10.1093/gji/ggs010.
8. Ferrer M, González de Vallejo L, Seisdedos J, Coello JJ, García JC, Hernández LE, Casillas R, Martín C, Rodríguez JA, Madeira J, Andrade C, Freitas MC, Lomoschitz A, Yepes J, Meco J, Betancort JF (2013) Güímar and La Orotava mega-landslides (Tenerife) and tsunamis deposits in Canary Islands. In Margottini, C.; Canuti, P.; Sassa, K. (Eds.) Landslide Science and Practice: Volume 5: Complex Environment, Springer-Verlag Berlin Heidelberg: 27-33. ISBN: 978-3-642-31426-1 (Printed) 978-3-642-31427-8 (Online), Doi: 10.1007/978-3-642-31427-8_3
9. Figueiredo PM, Cabral J, Rockwell TK (2013) Recognition of Pleistocene marine terraces in the southwest of Portugal (Iberian Peninsula): evidences of regional Quaternary uplift. Annals of Geophysics, Special Issue: Earthquake Geology, 56 (6), DOI:10.4401/ag-6276
10. Harris D, Matias L, Thomas L, Harwood J, Geissler WH, 2013. Applying distance sampling to fin whale calls recorded by single seismic instruments in the northeast Atlantic, Journal of the Acoustical Society of America Volume, 134(5), 3522-3535, DOI: 10.1121/1.4821207
11. Hipólito A, Madeira J, Carmo R, Gaspar JL (2013). Neotectonics of Graciosa Island (Azores): a contribution to seismic hazard assessment of a volcanic area in a complex geodynamic setting. Annals of Geophysics 56(6): S0677 (Special Issue: Earthquake geology); doi: 10.4401/ag-6222
12. Leinweber, VT, Klingelhoefer F, Neben S, Reichert C, Aslanian D, Matias L, Heyde I, Schreckenberger B, Jokat W, 2013. The crustal structure of the Central Mozambique continental margin — Wide-angle seismic, gravity and magnetic study in the Mozambique Channel, Eastern Africa, Tectonophysics, 599, 170-196. DOI: 10.1016/j.tecto.2013.04.015

13. Matias LM, Cunha T, Annunziato A, Baptista MA, Carrilho F (2013). Tsunamigenic earthquakes in the Gulf of Cadiz: fault model and recurrence, Nat. Hazards Earth Syst. Sci., 13, 1–13, doi:10.5194/nhess-13-1-2013
14. Meireles RP, Quartau R, Ramalho R, Rebelo A, Madeira J, Zanon V, Ávila SP (2013). Depositional processes on oceanic island shelves – evidence from storm-generated Neogene deposits from the mid-North Atlantic. Sedimentology 60(7): 1769-1785. doi: 10.1111/sed.12055
15. Mendes VB, Madeira J, Brum da Silveira A, Trota A, Elósegui P, Pagarete J (2013). Present-day deformation in São Jorge Island, Azores, from episodic GPS measurements (2001-2011). Advances in Space Research 51: 1581-1592. doi: 10.1016/j.asr.2012.10.019
16. Mitchell NC, Quartau R, Madeira J (2013).Comment on: "Large-scale active slump of the southeastern flank of Pico Island, Azores". Geology 41(12): e301. doi:10.1130/G34006C.1
17. Monna S, Cimini GB, Montuori C, Matias L, Geissler WH, Favali P (2013). New insights from seismic tomography on the complex geodynamic evolution of two adjacent domains: Gulf of Cadiz and Alboran Sea, J. Geophys. Res., 118, 1–15, doi:10.1029/2012JB009607
18. Omira R, Baptista MA, Leone F, Matias L, Mellas S, Zourarah B, Miranda JM, Carrilho F, Cherel J-P (2013). Performance of coastal sea-defense infrastructure at El Jadida (Morocco) against tsunami threat: lessons learned from the Japanese 11 March 2011 tsunami, Nat. Hazards Earth Syst. Sci., 13, 1779–1794, doi:10.5194/nhess-13-1779-2013
19. Pereira MF, Chichorro M, Fernández C, Silva JB, Matias F (2013). The role of strain localization in magma injection into a transtensional shear zone (Variscan belt, SW Iberia) Journal of the Geological Society, 170, 93-105.
20. Pereira MF, Ribeiro C, Vilallonga F, Chichorro M, Drost K, Silva JB, Albardeiro L, Hofmann M, Linnemann U, (2013). Variability over time in the sources of South-1 Portuguese Zone turbidites: evidence of denudation of different crustal blocks during the assembly of Pangaea. International Journal of Earth Sciences. DOI 10.1007/s00531-013-0902-8
21. Represas P, Santos M, Ribeiro J, Almeida E, Gonçalves R, Moreira M, Mendes-Victor LA (2013). Interpretation of gravity data to delineate structural features connected to low-temperature geothermal resources at Northeastern Portugal.Journal of Applied Geophysics,92, 30-38
22. Sánchez-Garcia T, Pereira MF, Bellido F, Chichorro M, Silva JB, Valverde-Vaquero P, Pin Ch, Solá AR (2013). Early Cambrian granitoids of the Ossa-Morena Zone (SW Iberia) in the transition from a convergent setting to intra-continental rifting in the Northern margin of Gondwana. International Journal of Earth Sciences. DOI: 10.1007/s00531-013-0939-8.
23. Silva AN, Taborda R, Antunes C, Catalão J, Duarte J (2013) Understanding the coastal variability at Norte beach, Portugal. Journal of Coastal Research, Special Issue No. 65, pp. 2173-2178, ISSN 0749-0208.201.
24. Silveira G, Dias NA, Villaseñor A (2013). Seismic imaging of the Western Iberian Crust using ambient noise: boundaries and internal structure of the Iberian Massif, Tectonophysics, 589, 186-194, doi.10.1016/j.tecto.2012.12.025.
25. Stucchi M, Rovida A, Gomez Capera AA, Alexandre P, Camelbeeck T, Demircioglu MB, Gasperini P, Kouskouna V, Musson RMW, Radulian M, Sesetyan K, Vilanova S, Baumont D, Faeh D, Lenhardt W, Makropoulos K, Martínez Solares JM, Scotti O, Zivcic M, Albini P, Batlló J, Papaioannou C, Tatevossian R, Locati M, Meletti C, Viganò D, Giardini D (2013). The SHARE European Earthquake Catalogue (SHEEC) 1000-1899, Journal of Seismology, vol. 17, 523-544. Doi: 10.1007/ s10950-012-9335-2.
26. Tempera F, Hipólito A, Madeira J, Vieira S, Campos AS, Mitchell N (2013). Condor seamount (Azores, NE Atlantic): a morpho-tectonic interpretation. Deep-sea research (part II: topical studies in oceanography) 98 part A: 24–37. DOI: 10.1016/j.dsr2.2013.09.016
27. Teves-Costa P, Veludo I (2013) Soil characterization for seismic damage scenarios purposes: application to Angra do Heroísmo (Azores). Bulletin of Earthquake Engineering 11, 401-421, DOI 10.1007/s10518-013-9424-9
28. Veludo I, Teves-Costa P, Bard P-Y (2013) Damage seismic scenarios for Angra do Heroísmo, Azores (Portugal). Bulletin of Earthquake Engineering 11, 423-453, DOI 10.1007/s10518-012-9399-y

C. Funding

Project	Reference	Funding	PI	Start	End	IDL Funds (k€)
AQUAREL	PTDC/CTE-GIX/116819/2010	FCT	A Ferreira	01/2012	07/2015	14 660
GOLD		FCT	M Francisco Pereira			150 000
ECOTRIS		FCT	Cristina Gama			41 000
SIGMA	PTDC/CTE-GIX/121957/2010	FCT	Alexandra Carvalho	02/2012	05/2015	27 048
QuakeLoc	PTDC/GEO-FIQ/3522/2012	FCT	Susana Custódio	07/2013	09/2015	150 000
ASTARTE	FP7-ENV2013 6.4-3 GA-603839	FP7	Maria Ana Baptista	11/2013	10/2016	80 000
REGENA	PTDC/GEO-FIQ/3648/2012	FCT	Pedro Silva	2013	2015	130 000
FASTLOAD	PTDC/GEO-GEO/2860/2012	FCT	João Cabral	06/2013	08/2015	80 000
MAGIC	Ref. Ifremer	PetroBras	Maryline Moulin	09/2012	06/2015	400 000
SALSA	Ref. Ifremer 12/1210102/B	PetroBras	Maryline Moulin	03/2014	02/2016	400 000
Origin of the Cretaceous-Tertiary and Triassic-Jurassic crisis: Bolide impact, Volcanism or both?	PTDC/CTE-GIX/117298/2012	Eric Font	FCT	2013	2015	117 000
NERA	GA-262330	FP7	Luis Matias	11/2010	10/2014	
INSPIRE	PTDC/CTE-GIX/122262/2010	FCT	Josep Batlló	1/2012	04/2015	40 000

D. Strategic assessment

1) What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure;

The publication record of the group is quite good, although it can still be improved in particular cases. The group was well funded in the reporting period (2013-2014). Most projects are funded by public national sources (FCT), although some projects are funded by public international sources (FP7) and by the private sector (PetroBras). The group is aware of the need to diversify its funding sources. The student flux is rather steady and current PhD students are funded by a mix of individual FCT fellowships, EarthSystems doctoral program and private sector funding. The group has been active in proposing PhD topics to the EarthSystems program. There is room for increasing the number of PhD students supervised by the group. The group is very active in outreach activities. It can benefit from a better interweaving with other IDL groups and from dedicated support to outreach activities. Among the 14 integrated members, 11 have permanent positions (ages 47-65) and 3 are non-permanent positions soft money (ages 34-36). The group is aware of the need to attract and maintain young researchers.

2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups; 3)

The group is scientifically strong, dedicating mostly to tectonics and Earth's structure (from the crust to the mantle transition zone), with implications for volcanic and earthquake processes and hazards. We remain open to different geometries inside IDL: we can either be the core of a new larger group or split into other groups. The strongest synergies identified are with RG4 (marine geology and geophysics), RG6 (sedimentary basins) and RG7 (geochemistry). We favour a new IDL structure with fewer and larger groups, where groups have simple and clear scientific goals.

3) What specific measures does this group propose to enhance IDL?

- Development of a simpler and better-structured webpage, in English (not bilingual).

- Finding ways to allow and recognize the participation of non-FCUL members in IDL, namely by:
    - Allowing non-FCUL members to supervise EarthSystems PhDs at FCUL (using a "Professor Convidado" contract)

- Streamlining the management structure:
    - Set annual dates for the different IDL activities (annual reporting, general assembly, meetings with the advisory boards) in order to avoid duplication of efforts.
    - Let people know of deadlines with time (avoid last minute rushes).

- Encourage collaborations inside IDL:
    - Have a 1 day annual IDL meeting dedicated to science (focused around hot topics and how IDL can contribute to them) immediately preceding the General Assembly.

2.6 WG6

A. Team

Members

1. Ana Cristina Costa Neves dos Santos Azerêdo (Faculty), coordinator
2. Carlos Alberto Pires Fernandes Marques da Silva (Faculty)
3. Eric Claude Font (FCT Researcher)
4. Francisco Manuel Falcão Fatela (Faculty)
5. Maria Cristina de Sousa Cabral (Faculty)
6. Nuno Lamas Valente Pimentel (Faculty)

PhD students

1. João Carlos Jorge Moreno (Supervision: Francisco Fatela)
2. Jorge Miguel Nogueira Ponte (sup: Eric Font)
3. Sofia Raquel Cardoso Pereira (sup: Carlos M. da Silva)

B. Publications

2015 (incomplete)

1. Abrajevitch A, Font E, Florindo F, Roberts A (under review) Separating environmental signals due to asteroid impact and volcanism: The origin of low magnetic susceptibility beds below the Cretaceous-Paleogene boundary revisited, Earth and Planetary Science Letters
2. Azerêdo AC, Wright VP, Mendonça-Filho JG, Cabral MC, Duarte LV (2015) Deciphering the history of hydrologic and climatic changes on carbonate lowstand surfaces: calcrete and organic-matter/evaporite facies association on a palimpsest Middle Jurassic landscape from Portugal, Sedimentary Geology, 323, 66-91, DOI: org/10.1016/j.sedgeo.2015.04.012
3. Cabral MC, Colin JP, Azerêdo AC, Silva RL, Duarte, LV (2015) Brackish and marine ostracode assemblages from the Sinemurian of western Portugal, with description of new species, Micropaleontology, 61 (1-2), 3-24
4. Fantasia A, Adatte T, Spagenberg J, Font E (2015 in press) Paleoenvironmental changes associated with Deccan Volcanism, examples from terrestrial deposits from Central India. Special Issue on "Impact, Volcanism, Global Changes and Mass Extinction", in Eric Font, Thierry Adatte, Sverre Planke, Henrik Svensen and Wolfram Krushner eds. Palaeogeography, Palaeoclimatology, Palaeoecology
5. Font E, Adatte T, Youbi N, Veiga-Pires C, Dal Corso J, Marzoli A, Medina F (under review) Environmental magnetic and mineralogical signature of end-Triassic red beds from Morocco and their potential link with CAMP volcanism, in Eric Font, Thierry Adatte, Sverre Planke, Henrik Svensen and Wolfram Krushner eds, Special Issue on Impact, Volcanism, Global Changes and Mass Extinction, Palaeogeography, Palaeoclimatology, Palaeoecology
6. Font E, Fernandes S, Neres M, Carvallo C, Martins L, Madeira J, Youbi N (2015 in press). Paleomagnetism of the Central Atlantic Magmatic Province (CAMP) of the Algarve basin, Portugal: first insights, Special Issue on Iberian Geodynamics, Tectonophysics
7. Font E, Ponte J, Adatte T, Fantasia A, Florindo F, Abrajevitch A, Mirão J (2015) Tracing acidification induced by Deccan Phase 2 volcanism, Special Issue on "Impact, Volcanism, Global Changes and Mass Extinction", in Eric Font, Thierry Adatte, Sverre Planke, Henrik Svensen and Wolfram Krushner eds., Palaeogeography, Palaeoclimatology, Palaeoecology, DOI :10.1016/j.palaeo.2015.06.033

8. Külköylüoglu O, Yavuzatmaca M, Cabral MC, Colin JP (2015) Gomphocythere besni n. sp. (Crustacea, Ostracoda) from a man-made pool (Adıyaman, Turkey), Zootaxa, 3937 (3), 456-470, http://dx.doi.org/10.11646/zootaxa.3937.3.2
9. Mhamdi N, Medina F, Trentesaux A, Font E, Belkhayat Z, Geawhari M (2015) Sedimentary evidence of palaeo-tsunami deposits along the Loukkos estuary (Moroccan Atlantic Coast), Journal of Tsunami Society International, 34-2
10. Moreno J, Fatela F, Leorri E, Araújo MF, Moreno F, De la Rosa JM, Freitas MC, Valente T, Corbett R (2015) Bromine enrichment in marsh sediments as a marker of environmental changes driven by Grand Solar Minima and Anthropogenic activity (Caminha, NW of Portugal), Science of the Total Environment (STOTEN), 506-507, 554-566, doi: 10.1016/j.scitotenv.2014.11.062
11. Pereira S, Silva CM, Pires M, Sá AA (2015 in press) The oldest brachymetopid trilobite record from the European peri-Gondwana, Bulletin of Geosciences, 90(3)
12. Piovesan EK, Cabral MC, Boavida EA, Colin JP, Fauth G (2015) *Fossocytheridea* Swain & Brown and *Perissocytheridea* Stephenson (Ostracoda): insights into paleosalinity gradients of Late Cretaceous deposits from Brazil and Portugal, *Revista Brasileira de Paleontologia,* DOI: 10.4072/rbp.2015.1.02
13. Punekar J, Keller G, Khozyem HM, Adatte T, Font E, Spagenberg Mirão J (under review) A multi-proxy approach to decode the end-Cretaceous mass extinction, Special Issue on "Impact, Volcanism, Global Changes and Mass Extinction", eds. Eric Font, Thierry Adatte, Sverre Planke, Henrik Svensen and Wolfram Krushner, Palaeogeography, Palaeoclimatology, Palaeoecology
14. Torghabeh AK, Rezae R, Moussavi-harami R, Pimentel N (2015) Using Electrofacies Cluster Analysis to evaluate Shale-Gas Potential: Carynginia Formation, Perth Basin, Western Australia, Intern. Journal of Oil, Gas and Coal Technology, Inderscience Publ., 10 (3), 250-271

2014

1. Azerêdo AC, Duarte LV, Silva RL (2014) Configuração sequencial em Ciclos (2ª ordem) de Fácies Transgressivas-Regressivas do Jurássico Inferior e Médio da Bacia Lusitânica (Portugal), Comunicações Geológicas, 101, Especial I, 383-386, ISSN: 0873-948X, e-ISSN: 1647-581X
2. Baarli G, Cachão M, Silva CM, Johnson ME, Mayoral E, Santos A (2014) A Middle Miocene carbonate embankment on an active volcanic slope, Ilhéu de Baixo, Madeira Archipelago, Eastern Atlantic, Geological Journal, 49(1), 90-106
3. Barberes G, Fonseca P, Pena dos Reis R, Pimentel N, Azevêdo M (2014) Avaliação preliminar do potencial para Shale Gas das unidades carboníferas da Zona Sul-portuguesa, Comunicações Geológicas, 101 (II), 737-741
4. Barberes G, Pena dos Reis R, Pimentel N, Fonseca P, Azevêdo M (2014) Aplicação do método de normalização do Tório para identificação de eventuais anomalias de hidrocarbonetos em unidades carboníferas da Zona Sul-Portuguesa, Comunicações Geológicas, 101 (II), 743-746.
5. Cabral MC, Lord A, Boomer I, Loureiro I, Malz H (2014) Tanycythere new genus and its significance for Jurassic ostracoda diversity. Journal of Paleontology, 88 (3), 519-530, DOI: 10.1666/13-127
6. Cardoso F, Teixeira B, Pimentel N, Pena dos Reis R, Cortesão A, Reis M (2014) Avaliação da maturação térmica de potenciais geradores jurássicos, baseada na modelação de poços na Bacia Lusitânica e pseudo-poços na Bacia de Peniche (Margem Oeste Ibérica), Comunicações Geológicas, 101 (I), 397-400
7. Dal Corso J, Marzoli A, Tateo F, Jenkyns H, Bertrand H, Youbi N, Mahmoudi A, Font E, Buratti N, Cirilli S (2014) The dawn of CAMP volcanism and its bearing on the end-Triassic C-cycle disruption, Geological Society of London, 171-2, DOI:10.1144/jgs2013-063
8. Danielopol DL, Cabral MC, Carbonel P (2014) In Memoriam Jean-Paul Colin (1948 – 2013), Crustaceana, 87 (1), 117-122. DOI: 10.1163/15685403-00003268
9. Duarte LV, Silva RL, Azerêdo AC, Paredes R, Rita P (2014) A Formação de Coimbra na região de S. Pedro de Moel (Oeste de Portugal). Caracterização litológica, definição litostratigráfica e interpretação sequencial, Comunicações Geológicas, 101, Especial I, 421-425, ISSN: 0873-948X; e-ISSN: 1647-581X

10. Fatela F, Moreno J, Leorri E, Corbett R (2014) High marsh foraminiferal assemblages response to intra-decadal and multi-decadal precipitation variability, between 1934 and 2010 (Minho, NW Portugal), Journal of Sea Research, 93, 118-132, DOI: 10.1016/j.seares.2013.07.021
11. Fevereiro JP, Azerêdo AC (2014) Unidades sedimentares do Jurássico com valor como património geológico na região de Dagorda-Cesareda- Baleal-Consolação-Paimogo, Comunicações Geológicas, 101, Especial III, 1269-1273, ISSN: 0873-948X; e-ISSN: 1647-581X
12. Font E, Fabre S, Nédélec A, Adatte T, Keller G, Veiga-Pires C, Ponte J, Mirão J, Khozyem H, Spangenberg J (2014) Atmospheric halogen and acid rains during the main phase of Deccan eruptions: Magnetic and mineral evidence, in Keller G and Kerr AC, eds., Volcanism, Impacts, and Mass Extinctions: Causes and Effects: Geological Society of America Special Paper, 505, 353–368, DOI:10.1130/2014.2505(18)
13. Font E, Veiga-Pires C, Carvallo C, Pozo M, Neto A, Camps P, Fabre S, Mirão J (2014) Magnetic fingerprint of Southern Portuguese speleothems and implications for paleo- and environmental magnetism, Journal of Geophysical Research, 119-11, 7993-8020, doi.10.1002/2014JB01138
14. Johnson ME, Ramalho R, Baarli G, Cachão M, Silva CM, Mayoral E, Santos A (2014) Miocene–Pliocene rocky shores on São Nicolau (Cape Verde Islands), Contrasting windward and leeward biofacies on a volcanically active oceanic island, Palaeogeography, Palaeoclimatology, Palaeoecology, 395, 131-143
15. Moreno J, Fatela F, Leorri E, De la Rosa JM, Pereira I, Araújo MF, Freitas MC, Corbett R, Medeiros A (2014) Marsh benthic Foraminifera response to estuarine hydrological balance driven by climate variability over the last 2000 years (Minho estuary, NW Portugal), Quaternary Research, 82, 318-330, doi: 10.1016/j.yqres.2014.04.014
16. Neres M, Bouchez JL, Terrinha P, Font E, Moreira M, Miranda R, Launeau P, Carvallo C (2014) Magnetic fabric in a Cretaceous sill (Foz da Fonte, Portugal): magmatic flow model and implications for regional magmatism, Geophysical Journal International, 199-1, 78-101, DOI:10.1093/gji/ggu250
17. Pereira S, Sá AA, Silva CM, Vaz N (2014) *Panderia beaumonti* (Rouault, 1847) da Formação Cabeço do Peão do Berouniano médio (Ordovícico Superior, Portugal), Comunicações Geológicas, Número Especial I, 537-541
18. Pimentel N (2014) Visões filosóficas da Natureza, a Geologia no contexto cultural da Idade Média. *Geonovas*, Assoc. Port. Geólogos, 27, 95-100
19. Piovesan EK, Cabral MC, Colin JP, Fauth G, Bergue CT (2014) Ostracodes from the Upper Cretaceous deposits of the Potiguar Basin, northeastern Brazil: Taxonomy, paleoecology and paleobiogeography. Part 2: Santonian-Campanian, Carnets de Géologie (Notebooks on Geology), 14 (15), 315-351, DOI: 10.4267/2042/54151
20. Piovesan EK, Cabral MC, Colin JP, Fauth G, Bergue CT (2014) Ostracodes from the Upper Cretaceous deposits of the Potiguar Basin, northeastern Brazil: Taxonomy, paleoecology and paleobiogeography. Part 1: Turonian, Carnets de Géologie (Notebooks on Geology), 14 (12), 211-252, DOI: 10.4267/2042/54003
21. Santos A, Mayoral E, Dumont CP, Silva CM, Ávila SP, Baarli GB, Cachão M, Johnson ME, Ramalho RS (2015) Role of environmental change in rock-boring echinoid trace fossils, Palaeogeography, Palaeoclimatology, Palaeoecology, 432, 1-14
22. Silva RL, Mendonça Filho JG, Azerêdo AC, Silva TF, Duarte LV (2014) Palynofacies and TOC analysis of marine and non-marine sediments across the Middle–Upper Jurassic boundary in the central-northern Lusitanian Basin (Portugal), Facies, 60, 255-276, DOI: 10.1007/s10347-013-0369-x
23. Torghabeh AK, Rezae R, Moussavi-harami R, Pimentel N (2014) Unconventional Resource Evaluation: Kockatea shale, Perth Basin, Western Australia, International Journal of Oil, Gas and Coal Technology., Inderscience Publ., 8 (1), 16 – 30, DOI: 10.1504/IJOGCT.2014.064420

2013

1. Azerêdo AC, Mendonça Filho JG, Cabral MC, Duarte LV (2013) Calcários pedogénicos e níveis ricos em matéria orgânica no Jurássico Médio da Pedreira do Galinha, Serra de Aire: abordagem multi-disciplinar, Comunicações Geológicas, 100, Fasc. Especial I, 95 - 100

2. Baarli BG, Santos A, Mayoral E, Ledesma-Vázquez J, Johnson ME, Silva CM, Cachão M (2013) What Darwin did not see, Pleistocene fossil assemblages on a high-energy coast at Ponta das Bicudas, Santiago, Cape Verde Islands, Geological Magazine, 150 (1), 183-189
3. Baarli G, Silva CM, Cachão M, Ramalho R, Ledesma-Vázquez J, Mayoral E, Santos A (2013) Coastal dunes with high content of rhodolith (coralline red algae) bioclasts: Pleistocene formations on Maio and São Nicolau in the Cape Verde archipelago, Aeolian Research, 8, 1-9
4. Bensalah MK, Youbi N, Mata J, Madeira J, Martins L, El Hachimi H, Bertrand H, Marzoli A, Bellieni G, Doblas M, Font E, Medina F, Mahmoudi A, Beraâouz E, Miranda R, Verati C, De Min A, Ben Abbou M, Zayane R (2013) The Jurassic-Cretaceous basaltic magmatism of the Oued El-Abid syncline (High Atlas, Morocco): physical volcanology, geochemistry and geodynamic implications, Journal of African Earth Sciences, 81, 60-81, DOI:10.1016/j.jafrearsci.2013.01.004
5. Bensalah MK, Youbi N, Mata J, Madeira J, Martins L, Font E, Medina F, Marzoli A, El Hachimi H, Bertrand H, Bellieni G, Doblas M, Mahmoudi A, Beraâouz E, Miranda R, Verati C, De Min A, Ben Abbou M, Zayane, R (2015) Reply to Comment on "The Jurassic-Cretaceous basaltic magmatism of the Oued El-Abid syncline (High Atlas, Morocco): physical volcanology, geochemistry and geodynamic implications" by André Michard, Journal of African Earth Sciences, 88, 101-105, DOI:10.1016/j.jafrearsci.2015.03.008
6. Cabral MC, Colin JP, Azerêdo AC, Silva RL, Duarte LV (2013) Associações de ostracodos da Formação de Coimbra (Sinemuriano) de S. Pedro de Moel (Bacia Lusitânica): valor paleoecológico e paleobiogeográfico, Comunicações Geológicas, 100, Fasc. Especial I, 43 - 47
7. Cabral MC, Loureiro IM, Duarte LV, Azerêdo AC (2013) Registo da extinção dos Metacopina (Ostracoda, Crustacea) no Toarciano de Rabaçal, região de Coimbra, Comunicações Geológicas, 100, Fasc. Especial I, 63 - 68
8. Cabral MC, Loureiro IM (2013) Overview of Recent and Holocene ostracods (Crustacea) from brackish and marine environments of Portugal, Journal of Micropalaeontology, 32 (2), 135-159, DOI: 10.1144/jmpaleo2012-019
9. Carbonel P, Cabral MC, Danielopol DL (2013). Jean-Paul COLIN, Carnets de Géologie/Notebooks on Geology, 325-345.
10. Duarte LV, Silva RL, Mendonça Filho JG, Azerêdo AC, Cabral MC, Comas-Rengifo MJ, Correia G, Ferreira R, Loureiro IM, Paredes R, Pereira A, Poças Ribeiro N (2013) O Projecto PTDC/CTE-GIX/098968/2008 - Estratigrafia de alta resolução das séries carbonatadas marinhas ricas em matéria orgânica do Jurássico Inferior da Bacia Lusitânica: Perspectivas iniciais e resultados obtidos. Comunicações Geológicas, 100, Fasc. Especial I, 7-13.
11. Font E, Veiga-Pires C, Pozo M, Nave S, Costas S, Ruiz Muñoz F, Abad M, Simões N, Duarte S (2013) Benchmarks and sedimentary source(s) of the 1755 Lisbon Tsunami deposit at Boca do Rio estuary, Marine Geology, 43, 1-14, DOI:10.1016/j.margeo.2013.06.008
12. Leorri E, Drago T, Fatela F, Bradley S, Moreno J, Cearreta A (2013) Late Glacial and Holocene coastal evolution in the Minho estuary (N Portugal): implications for understanding sea-level changes in Atlantic Iberia, The Holocene, 23, 352-362, doi: 10.1177/0959683612460786
13. Loureiro IM, Cabral MC, Duarte LV, Azerêdo AC (2013) Ostracodos do Sinemuriano superior da região de S. Pedro de Moel e de Peniche: relação com o contexto sedimentar, Comunicações Geológicas, 100, Fasc. Especial I, 49 - 54
14. Neres M, Miranda JM, Font E (2013) Testing Iberian kinematics at Jurassic-Cretaceous, Tectonics, DOI:10.1002/tect.20074
15. Palma C, Oliveira A, Valença M, Cascalho J, Pereira E, Lilebo AI, Duarte AC, De Abreu MP (2013) Major and minor element geochemistry of deep-sea sediments in the Azores Platform and southern seamount region, Mar. Pollut. Bull. 75 (1-2), 264-7, doi: 10.1016/j.marpolbul.2013.07.002
16. Ruiz F, Rodríguez-Vidal J, Abad M, Cáceres LM, Carretero MI, Pozo M, Rodríguez-Llanes JM, Gómez-Toscano F, Font E, Toscano A (2013) Sedimentological and geomorphological imprints of Holocene

tsunamis in southwestern Spain: an approach to establish the recurrence period, Geomorphology, DOI:10.1016/j.geomorp h.2013.09.008
17. Silva RL, Duarte LV, Comas-Rengifo MJ, Mendonça Filho JG, Azerêdo AC (2013) A sedimentação margo-calcária rica em matéria orgânica do Pliensbaquiano da Bacia Lusitânica: estratigrafia integrada e evolução paleoambiental, Comunicações Geológicas, 100, Fasc. Especial I, 83 - 87
18. Silva RL, Mendonça Filho JG, Azerêdo AC, Duarte LV (2013) Palinofácies e caracterização de matéria orgânica da Formação de Cabaços (Bacia Lusitânica): contributos para a discriminação das dinâmicas paleobiológicas e paleoambientais em meios carbonatados dominantemente não-marinhos, Comunicações Geológicas, 100, Fasc. Especial I, 113 - 118
19. Landau B, Harzhauser M, Yeşim I, Silva CM (2013) Systematics and palaeobiogeography of the gastropods of the middle Miocene (Serravalian) Karaman Basin, Turkey, Cainozoic Research, 11-13, 3-584

C. Funding

Project	Reference	Funding	PI	Start	End	IDL Funds (k€)
WesTLog	PTDC/CTE-GIX/105370/2009	FCT	F Fatela	01/2010	06/2013	~102 (CeGUL)
ORGANICS	PTDC/CTE-GIX/098968/2008	FCT	L Duarte (IMAR-UC) (CeGUL A Azerêdo)	03/2010	07/2013	~40 (CeGUL)
SAGRES		Petrobras	N Pimentel	2011	2013	~133 (CeGUL)
Shale-Gas		Partex	N Pimentel	2013	2013	~13 (CeGUL)
	PTDC/CTE-GIX/117298/2010	FCT	E Font	2012	2015	~120
	PTDC/CTE-GIX/110205/2009	FCT	E Font	2011	2014	~120

D. Strategic assessment

The RG6 develops research in different areas related with the analysis, integration and interpretation of the sedimentary and paleobiological data in the stratigraphical record, covering a broad range of issues but converging into three main thematic lines: (1) Multidisciplinary integrated studies of Mesozoic Sedimentary Systems (including stratigraphy, basin analysis, hydrocarbon related subjects, paleo- and environmental magnetism); (2) Macropalaeontological and Palaeobiogeographical studies; (3) Paleoenvironmental studies in Holocene lagoons, estuaries and coastal areas. The RG work, based on the strong "bio" approach to very distinct geological situations, led to important data improvements, trans-disciplinary integrations, innovative interpretations and significant results and publications. The RG successfully linked the "bio" data and the "geo" data within different sedimentary systems, approaching issues such as ancient and recent climatic variability, extreme events record, paleobiogeographic pathways, environmental magnetism applied to Tsunami deposits,

magnetic signature of marine sediments during the Deccan Phase 2 and the Central Atlantic Magmatic Province and other. The aforementioned approaches, coupled with others such as petrographical studies and basin analysis, were also used to apply to oil industry issues, both at reservoir and basin-scale. The main results were: (*i*) New palaeoenvironmental/paleoclimatic model for sea-level lowstand carbonates poorly understood at international level (using a case study from Middle Jurassic, Portugal) (*ii)* New ostracod species to Science and new palaeocological results (Jurassic and Cretaceous from Portugal, UK, Germany and Brazil) *(iii)* Innovative results coupling geochemistry and high-resolution palaeocology (based on Cretaceous, Portugal) *(iv)* New subjects coupling rock and modelling on carbonate reservoirs *(v)* Contributions to understanding of conventional and unconventional petroleum systems with development potential, including shale-gas *(vi)* Contributions of magnetic data to Tsunami deposits, the Central Atlantic Magmatic Province and climate in speleothems *(vii)* Further data on onshore/offshore areas of Western Iberian Margin basins *(viii)* New data to check Atlantic Cainozoic palaeocurrents and invertebrate transatlantic range expansion *(iix)* New trilobite species to Science *(x)* Higher-resolution palaeoenvironmental reconstructions in Portuguese estuary marshes based on microfossil assemblage (*xi)* assessment of coastal upwelling and MOW influence using ostracoda and foraminifera seasonal distribution in the W Algarve shelf.

Scientific links with National and International Universities, Museums and Oil Companies were deepened, building on long-term collaborations with national and foreigner researchers. The RG assured participation in 8 research projects with coordination of 3; technical-scientific partnerships with industry (2); involvement of younger researchers (MSc, PhD and post-Doc levels); industry contracted advanced training; diffusion of Science and outreach actions relevant to Society.

1) What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure;

Publications: this is not a weak, rather one of the good areas of RG6, in spite of the fact that for some topics research work is highly time-consuming before publishable results. The RG keeps a good average publication rate, with no serious asymmetries among members and with quality attested by publishing in international indexed journals relevant for the scientific areas involved. Solid scientific cooperation at national and international level reinforces this aspect. The less positive point is the fact that in these areas the IF of journals is sometimes not very high, but this is not a weakness of the RG itself.

Funding: here there are some problems. Irregularity of funding is transversal to other RGs, but it is enhanced at RG6 by: low number of members, which increases the probability of coincidence at the same time-period of no external funded contracts/projects and poses difficulties to meet criteria for internationally funded large-scope projects; some research themes not matching most fashionable topics; non-homogeneities among the group members regarding efforts or opportunities to capture external funds.

Student flux: considering the lack of institutional funds to capture post-graduation students, the student flux within the RG is fair, weaker in PhDs, regularly with several students in MSc.
The RG has strong involvement in graduation and pos-graduation teaching/training. As a negative aspect, the student flux in this area usually doesn´t reflect enough in outputs beyond the theses.

Outreach: the RG has a long-time commitment with outreach and Science divulgation, keeping regular contributions. However, these have decreased in more recent years due to basic funding constraints and increasing age structure of the RG.

Group age structure: The RG members have a high average age (all but one over 50), which is a problem. Besides the transient PhD students, there´s obviously a need for younger researchers. Some of the researchers with whom the members regularly collaborate would be ideal to integrate the RG, but they are not eligible according to FCT rules because are payed by non-Portuguese institutions. Possible post-docs are one of the ways to mitigate this and in fact in 2014 two were successfully used, but unfortunately they were very short post-docs grants.

2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups;

Most of the group members would prefer to keep the RG. If a new arrangement becomes unavoidable, the preferred solution of most of the current members would be to redefine larger-scope transversal areas , that is, redefine current thematic lines in order that they could be effective; these larger-scope, gathering areas would be the umbrella for informal groups, subgroups or whatever, in which people would re-arrange as chosen and where the core of current RG6 research would be kept.

3) What specific measures does this group propose to enhance IDL?

The main perceived needed enhancement is to create a more transversal vision, an open-minded attitude to develop a culture of true mutual respect for each area, with a sense of overall team, not disregarding that it is positive to keep some pressure. If this evolves, a better "climate" among researchers will lead to natural better science and productivity.

A better communication with the IDL members and a better information on funding distribution and uses is also needed.

Organization of periodic tasks within IDL may be further optimized, through an yearly-based scheduling and definition of needed once a year data gathering, template of reports and so on.

2.7 WG7

E. Team

Members

1. António Augusto Ramos Ribeiro (retired Professor)
2. António Manuel Nunes Mateus (Faculty)
3. Cyntia Coquelet Pinto Mourão (Technician)
4. David Manuel Silva Martins (Post-Doc)
5. Fernando Acácio Monteiro dos Santos (Faculty)
6. João Manuel Lima Silva Mata (Faculty), coordinator
7. Línia Maria Nogueira Cruz Tavares Sobral Martins (Faculty)
8. Luis Miguel Guerreiro Galla Gaspar (Faculty)
9. Mário Abel Gonçalves (Faculty)
10. Mohamed Ahmed Khalil (Post-Doc)
11. Paulo Emanuel Talhadas Ferreira Fonseca (Faculty)
12. Pedro Celestino dos Reis Rodrigues (Technician)
13. Raul Carlos Godinho Santos Jorge (Faculty)

PhD students

1. Ezequiel José Estremina Carneiro Brandão Ferreira, Caracterização de fluidos hidrotermais e suas fontes em bacias sedimentares com potencial petrolífero: aplicação inovadora de análises isotópicas na exploração de petróleo e gás". PhD Thesis in Geology (Geochemistry), University of São Paulo and University of Lisbon, supervision Tassinari CCG, Mateus A
2. Joana Ribeiro, Magnetotelluric studies in detecting an old structure zone and major crustal scale shear zones (NW Iberia)", supervision Santos, FAM, Pereira, MFCConcluded PhD thesis

Recently concluded PhDs

1. Cyntia Mourão (2013) Geoquímica das rochas magmáticas da Ilha Brava: implicações para a origem e variabilidade espaço-temporal do ponto quente de Cabo Verde. PhD Thesis in Geology (Geochemistry), University of Lisbon, supervision Mata J
2. Mohammad Farzamian (2014) Joint inversion of geophysical and hydrologic data during water infiltration, PhD Thesis in Geophysics, University of Lisbon, supervision Santos FAM
3. Sofia Maria Marques Martins (2014) Plume-Lithosphere interaction at Santiago Island (Cabo Verde): Implications for the models of Ocean Island Basalts, PhD Thesis in Geology (Geochemistry), University of Lisbon, supervision Mata J, Munhá J.
4. Bruno MG Rodrigues (2014) An Integrated thermochronology, organic maturation and provenance study in the South Portuguese Zone and Algarve Basin (South Portugal), PhD Thesis in Geology, University of Algarve, supervision Fernandes P (Univ. Algarve), Chew D (Trinity College), Jorge RCGS.

F. Publications

2015 (incomplete)

1. Bensalah MK, Youbi N, Mata J, Madeira J, Martins L, El Hachimi H, Bertrand H, Marzoli A, Bellieni G, Doblas M, Font E, Medina F, Mahmoudi A, Beraâouz E, Miranda R, Verati C, De Min A, Ben Abbou M, Zayane R (2015) - Reply to Comment on "The Jurassic–Cretaceous basaltic magmatism of the Oued El-Abid syncline (High Atlas, Morocco): Physical volcanology, geochemistry and geodynamic implications" by André Michard et al.. (2013) - J. African. Earth Sci. DOI: 10.1016/j.jafrearsci.2015.03.008
2. Bento dos Santos T, Tassinari CCG, Fonseca PE (2015) Diachronic collision, slab break-off and long-term high thermal flux in the Brasiliano – Pan-African orogeny: Implications for the geodynamic evolution of the Mantiqueira Province. Precambrian Research 260, 1-22, DOI: 10.1016/j.precamres.2014.12.018
3. Carvalho MR, Mateus A, Nunes JC, Carvalho JM (2015) Origin and chemical nature of the thermal fluids at Caldeiras da Ribeira Grande (Fogo Volcano, S. Miguel Island, Azores), Environmental Earth Sciences 73 (6), 2793-2808, DOI: 10.1007/s12665-014-3585-y
4. Davies G, Huang JY, Santos FAM, Triantafilis J (2015) Modeling Coastal Salinity in Quasi 2D and 3D Using a DUALEM-421 andInversion Software, GROUNDWATER, 53.,UT WOS:000354123800010
5. Farzamian M, Santos FAM, Khalil MA (2015) Application of EM38 and ERT methods in estimation of saturated hydraulic conductivity in unsaturated soil JOURNAL OF APPLIED GEOPHYSICS, 10.1016/j.jappgeo.2014.11.016,UT WOS:000348892200017
6. Mateus A, Carvalho MR, Nunes JC, Carvalho JM (2015) Influence of wall rock alteration and fluid mixing mechanisms in the chemistry of thermal fluids and mud-pool sediments at Caldeiras da Ribeira Grande (S. Miguel Island, Azores), Environmental Earth Sciences, 73 (6), 2809-2831, DOI: 10.1007/s12665-014-3439-7
7. Matos C, Silveira G, Matias L, Caldeira R, Ribeiro ML, Dias NA, Krueger F, Bento dos Santos T (2015) Upper crustal structure of Madeira Island revealed from ambient noise tomography, Journal of Volcanology and Geothermal Research, DOI:10.1016/j.jvolgeores.2015.03.017

8. Mériaux CA, Duarte JC, Duarte SS, Schellart WP, Chen Z, Rosas F, Mata J, Terrinha P (2015) Capture of the Canary mantle plume material by the Gibraltar arc mantle wedge during slab rollback. Geophys. J. Int., 201, 1717–1721, DOI: 10.1093/gji/ggv120
9. Rodrigues B, Chew DM, Jorge RCGS, Fernandes P, Veiga-Pires C, Oliveira JT (2015) Detrital zircon geochronology of the Carboniferous Baixo Alentejo Flysch Group (South Portugal) - constraints on the provenance and geodynamic evolution of the South Portuguese Zone, Journal of the Geological Society, DOI: 10.1144/jgs2013-084
10. Tassinari CCG, Mateus A, Velásquez ME, Munhá J, Lobato LM, Bello RM, Chiquini AP, Campos WF (2015) Geochronology and thermochronology of gold mineralization in the Turmalina deposit, NE of the Quadrilátero Ferrífero Region, Brazil, Ore Geology Reviews, 67, 386-381, DOI: 10.1016/j.oregeorev.2014.12.013
11. Teixeira J, Chaminé H, Espinha Marques J, Pereira AJ, Carvalho MR, Fonseca PE, Carvalho JM, Pérez-Alberti A, Rocha F (2015) A comprehensive analysis of groundwater resources using GIS and multi-criteria tools (Caldas da Cavaca, NW Portugal): environmental issues, Environmental Earth Sciences, 73(6), DOI: 10.1007/s12665-014-3602-1

2014

1. Araffa SAS, Santos FAM, Arafa-Hamed T (2014) Assessment of subsurface structural elements around greater Cairo by using integrated geophysical tools, Environmental Earth Sciences, 71, 3293-3305, DOI: 10.1007/s12665-013-2716-1
2. Bento dos Santos T, Tassinari CCG, Fonseca PE (2014) Garnet-biotite diffusion mechanisms in granulites from Ribeira Fold Belt (SE Brazil): understanding and constraining petrological cooling rates in complex high-grade orogenic belts, Journal of South American Earth Sciences, 56, 128-138, DOI: 10.1016/j.jsames.2014.09.003
3. Bensalah MKh, Youbi N, Mata J, Madeira J, Martins L, El Hachimi H, Bertrand H, Marzoli A, Bellieni G, Doblas M, Font E, Fedina F, Mahmoudi A, Beraâouz EH, Miranda R, Verati C, De Min A, Ben Abbou M, Zayane R (2014) Reply to Comment on "The Jurassic-Cretaceous basaltic magmatism of the Oued El-Abid syncline (High Atlas, Morocco): Physical volcanology, geochemistry and geodynamic implications" by André Michard et al. (2013) Journal of African Earth Sciences, 88, 101–105.
4. Blein O, Baudin T, Chevremont P, Soulaimani A, Admou H, Gasquet D, Cocherie A, Egal E, Youbi N, Razin P, Bouabdelli M, Gombert P (2014) Geochronological constraints on the polycyclic magmatism in the Bou Azzer-El Graara inlier (Central Anti-Atlas Morocco), Journal of African Earth Sciences, 99, 287–306, DOI: 10.1016/j.jafrearsci.2014.04.021
5. Callegaro S, Rapaille C, Marzoli A, Bertrand H, Chiaradia M, Reisberg L, Bellieni G, Martins L, Madeira J, Mata J, Youbi N, De Min A, Azevedo MR, Bensalah MK (2014) Enriched mantle source for the Central Atlantic magmatic province in Southwestern Europe, Lithos, 188, 13-52, DOI: 10.1016/j.lithos.2013.10.021
6. Dal Corso J, Marzoli A, Tateo F, Jenkyns HC, Bertrand H, Youbi N, Mahmoudi A, Font E, Buratti N, Cirilli S (2014) The dawn of CAMP volcanism and its bearing on the end-Triassic carbon cycle disruption. Journal of the Geological Society, London, 171, 153-164, DOI: 10.1144/jgs2013-063
7. Doblas M, Youbi N, Doblas J, Galindo AJ (2014) The 2012/2014 swarmquakes of Jaen, Spain, a working hypothesis involving hydroseismicity associated with the hydrologic cycle and anthropogenic activity, Natural Hazards, 74, 1223-1261, DOI: 10.1007/s11069-014-1242-0
8. El Moukhayar R, Bahir M, Chamchati H, Chkir N, Carreira PM, Youbi N (2014) Using geochemical and isotope investigations for groundwater management strategies under semi-arid area: case of the Wadi Ouazzi Basin (Morocco), Journal of Environment and Earth Science, 4(7), 18-30
9. Frances AP, Lubczynski MW, Roy J, Santos FAM, Ardenaki MRM (2014) Hydrogeophysics and remote sensing for the design of hydrogeological conceptual models in hard rocks – Sardon catchment (Spain), Journal of Applied Geophysics, 110, 63-81, DOI: 10.1016/j.jappgeo.2014.08.015

10. Gärtner A, Villeneuve M, Linnemann U, Gerdes A, Youbi N, Guillou O, Rjimati EC (2014) History of the West African Neoproterozoic Ocean: Key to the geotectonic history of circum-Atlantic Peri-Gondwana (Adrar Souttouf Massif, Moroccan Sahara), Gondwana Research, DOI:10.1016/j.gr.2014.11.011
11. Gonçalves MA, Prieto M (2014) Development of compositional patterns during the growth of solid solutions from aqueous solutions: a cellular automaton simulation, Crystal Growth & Design, 14(6), 2782–2793, DOI: 10.1021/cg500010p
12. Goff A, Huang J, Wong VNL, Santos FAM, Wege R, Triantafilis J (2014) Electromagnetic conductivity imaging of soil salinity in an estuarine-alluvial landscape, Soil Science Society of America Journal, 78, 1686-1693, DOI: 10.2136/sssaj2014.02.0078
13. Huang J, Davies GB, Bowd D, Santos FAM, Triantafilis J (2014) Spatial prediction of the exchangeable sodium percentage at multiple depths using electromagnetic inversion modelling, Soil Use and Management, 30, 241-250, DOI: 10.1111/sum.12106
14. Jesus A, Mateus A, Munhá J, Tassinari CCG (2014) Internal architecture and Fe-Ti-V oxide ore genesis in a Variscan synorogenic layered mafic intrusion, the Beja Layered Gabbroic Sequence (Portugal), Lithos, 190, 111-136, DOI: 10.1016/j.lithos.2013.12.001
15. Karaoui B, Breitkreuz C, Mahmoudi A, Youbi N (2014) Physical volcanology, geochemistry and basin evolution of the Ediacaran volcano-sedimentary (Ouarzazate Super group) in the Bas Draâ inlier (Western Anti-Atlas- Morocco), Journal of African Earth Sciences, 99, 307–331, DOI: 10.1016/j.jafrearsci.2014.06.022
16. Khalil MA, Santos FM (2014) On the depth to anomaly estimation using Karous and Hjelt filter in VLF-EM data, Arabian Journal of Geosciences, 7, 4355-4359, DOI: 10.1007/s12517-013-1110-3
17. Khalil MA, Santos FM (2014) 3D gravity inversion of Northern Sinai Peninsula: a case study, Pure and Applied Geophysics, 171, 1557-1569, DOI: 10.1007/s00024-013-0707-5
18. Khalil MA, Santos FM (2014) 3D gravity inversion and Euler deconvolution to delineate the hydro-tectonic regime in El-Arish area, nothern Sinai Peninsula, Journal of Applied Geophysics, 103, 104-113, DOI: 10.1016/jappgeo.2014.01.012
19. Lenaz D, Youbi N, De Min A, Boumehdi MA, Ben Abbou M (2014) Low intra-crystalline closure temperatures of Cr-bearing spinels from the mantle xenoliths of the Middle Atlas Neogene-Quaternary Volcanic Field (Morocco): a mineralogical evidence of a cooler mantle beneath the West African Craton, American Mineralogist, 99(2), 267-275. DOI: 10.2138/am.2014.4655
20. Luz F, Mateus A, Matos JX, Gonçalves MA (2014) Cu- and Zn-Soil Anomalies in the NE Border of the South Portuguese Zone (Iberian Variscides, Portugal) Identified by Multifractal and Geostatistical Analyses, Natural Resources Research, 23(2), 195-215, DOI: 10.1007/s11053-013-9217-5
21. Luz F, Mateus A, Matos JX, Gonçalves MA (2014) Cu, Zn and Pb soil geochemistry data from the NE domain of the Iberian Pyrite Belt in Portugal; implications to mineral exploration, Geochemistry: Exploration, Environment and Analysis, 14, 331-340, DOI: 10.1144/geochem2012-196
22. Machado G, Flores D (2014) An effective method for the observation and documentation of highly mature palynomorphs using reflected light microscopy, Palynology, DOI: 10.1080/01916122.2014.970704
23. Madureira P, Moreira M, Mata J, Nunes JC, Gautheron C, Lourenço N, Carvalho R, Pinto de Abreu M (2014) Helium isotope systematics in the vicinity of the Azores triple junction: constraints on the Azores geodynamics, Chemical Geology, 372, 62-71, DOI: 10.1016/j.chemgeo.2014.02.015
24. Martins DMS, Mollinari M, Gonçalves MA, Mirão J, Parker SC (2014) Towards modelling clay mineral nanoparticles: the edge surfaces of pyrophyllite and their interaction with water, J. Phys. Chem. C, 118, 27308-27317, DOI: 10.1021/jp5070853
25. Mateus A, Riccomini C, Ferreira EJ, Tassinari CCG (2014) Permian-Triassic maturation and multistage migration of hydrocarbons in the Assistência Formation (Irati Subgroup), Paraná Basin, Brazil: implications for the exploration model, Brazilian Journal of Geology, 44(3), 355-360, DOI: 10.5327/Z2317-4889201400030002

26. Radwan AM, Hosny A, Kotb A, Khalil A, Abed A, Fernandes RMS, Rayan A (2014) Assessment of the geodynamical settings around the main active faults at Aswan area, Egypt, Arabian Journal of Geosciences, Online only, DOI: 10.1007/s12517-014-1504-x
27. Represas P, Santos FA, Ribeiro J, Afonso A, Ribeiro J, Moreira M, Mendes-Victor LA (2014) On the Applicability of Joint Inversion of Gravity and Resistivity Data to the Study of a Tectonic Sedimentary Basin in Northern Portugal, Pure and Applied Geophysics, Online early, DOI 10.1007/s00024-014-0920-x
28. Sant'Ovaia H, Nogueira P, Lopes JC, Gomes C, Ribeiro MA, Martins HCB, Dória A, Cruz C, Lopes L, Sardinha R, Rocha A, Noronha F (2014) Building up of a nested granitic intrusion: magnetic fabric, gravity modelling and fuid inclusion planes studies in Santa Eulália Plutonic Complex (Ossa-Morena Zone, Portugal), Geological Magazine, DOI: 10.1017/S0016756814000569
29. Sungkono B, Husein A, Prasetyo H, Bahri AS, Santos FAM, Santosa BJ (2014) The VLF-EM imaging of potential collapse on the LUSI embakment, Journal of Applied Geophysics, 109, 218-232, DOI: 10.1016/j.jappgeo.2014.08.004

2013

1. Astilleros JM, Pinto AP, Gonçalves MA, Sánchez-Pastor N, Fernández-Díaz L (2013) In situ nanoscale observations of metatorbernite surfaces interacted with aqueous solutions, Environmental Science & Technology, 47(6), 2636-2644, DOI: 10.1021/es302781k
2. Beier C, Mata J, Stöckhert F, Mattielli N, Brandl PA, Madureira P, Genske F, Martins S, Madeira J, Haase KM (2013) Geochemical evidence for melting of carbonated peridotite on Santa Maria Island, Azores, Contributions to Mineralogy and Petrology, 165, 823-841, DOI: 10.1007/s00410-012-0837-2
3. Bensalah MK, Youbi N, Mata J, Madeira J, Martins L, El Hachimi H, Bertrand H, Marzoli A, Bellieni G, Doblas M, Font E, Medina F, Mahmoudi A, Beraâouz EH, Miranda R, Verati C, De Min A, Ben Abbou M, Zayane R (2013) The Jurassic-Cretaceous basaltic magmatism of the Oued El-Abid syncline (High Atlas, Morocco): physical volcanology, geochemistry and geodynamic implications, Journal of African Earth Sciences, 81, 60-81, DOI: 10.1016/j.jafrearsci.2013.01.004
4. Boivin A, Lai P, Samson C, Cloutis E, Holladay S, Santos FM (2013) Electromagnetic induction sounding and 3D laser imaging in support of a Mars methane analogue mission, Planetary and Space Science, 82-83, 27-33, DOI: 10.1016/j.pss.2013.03.005
5. Campos B, Aguilar J, Algarra M, Rodríguez-Castellón E, Gonçalves MA, Esteves da Silva JCG, Bobos I (2013) Adsorption of uranyl ions on kaolinite, smectite, humic acid and composite clay materials, Applied Clay Science, DOI: 10.1016/j.clay.2013.08.046
6. Carreira PM, Marques JM, Nunes D, Monteiro Santos FA, Goncalves R, Pina A, Gomes AM (2013) Isotopic and geochemical tracers in the evaluation of groundwater residence time and salinization problems at Santiago Island, Cape Verde, Proceedings of the Fourteenth International Symposium on Water-Rock Interaction, Wri 14, 7, 113-117, DOI: 10.1016/j.proeps.2013.03.063
7. Duarte JC, Rosas F, Terrinha P, Schellart W, Boutelier D, Gutscher MA, Ribeiro A (2013) Are Subduction zones invading the Atlantic? Evidence from the southwest Iberia Margin, Geology, 41, 839-842, DOI: 10.1130/G34100.1
8. Duarte P, Silva L, Mateus A, Araújo MF, Reis M, Trindade R, Paiva I (2013) Radiological and geochemical characteristics of an ultramafic massif (NE Portugal) regarding the site aptness to host a near surface repository for low and intermediate level radwaste. Environmental Earth Sciences 68(2), 547-557, DOI: 10.1007/s12665-012-1758-0
9. Jesus AP, Mateus A, Gonçalves MA, Munhá J (2013) Multi-fractal modelling and spatial Cu-soil anomaly analysis along the southern border of the Iberian Terrane in Portugal, Journal of Geochemical Exploration, 126/127, 23-44, DOI: 10.1016/j.gexplo. 2012.12.010
10. Jorge RCGS, Fernandes P, Rodrigues B, Pereira Z, Oliveira JT (2013) Geochemistry and provenance of the Carboniferous Baixo Alentejo Flysch Group, South Portuguese Zone, Sedimentary Geology, 284, 133-148, DOI: 10.1016/j.sedgeo.2012.12.005

11. Khalil MA, Abbas M, Santos FM, Masoud U, Salah H (2013) Application of VES and TDEM techniques to investigate sea water intrusion in Sidi Abdel Rahman area, northwestern coast of Egypt, Arabian Journal of Geosciences, 6 (8), 3093-3101, DOI: 10.1007/s12517-012-0564-z
12. Khalil MA, Monteiro Santos FA (2013) Hydraulic conductivity estimation from resistivity logs: a case study in Nubian sandstone aquifer, Arabian Journal of Geosciences, 6 (1), 205-212, DOI: 10.1007/s12517-011-0343-2
13. Khalil MA, Santos FAM (2013) 2D and 3D resistivity inversion of Schlumberger vertical electrical soundings in Wadi El Natrun, Egypt: A case study, Journal of Applied Geophysics, 89, 116-124, DOI: 10.1016/j.jappgeo.2012.11.014
14. Khalil MA, Santos FM, Cachao M, Fonseca PE, Mata J (2013) 2D and 3D resistivity tomography of the Suimo garnet-bearing dyke, Lisbon Volcanic Complex, Portugal: a case study, Journal of Geophysics and Engineering, 10 (3), 035013, DOI: 10.1088/1742-2132/10/3/035013
15. Marques JE, Marques JM, Chamine HI, Carreira PM, Fonseca PE, Santos FAM, Moura R, Samper J, Pisani B, Teixeira J, Carvalho JM, Rocha F, Borges FS (2013) Conceptualizing a mountain hydrogeologic system by using an integrated groundwater assessment (Serra da Estrela, Central Portugal): a review, Geosciences Journal, 17 (3), 371-386, DOI: 10.1007/s12303-013-0019-x
16. Represas P, Monteiro Santos FA, Ribeiro J, Ribeiro JA, Almeida EP, Goncalves R, Moreira M (2013) Interpretation of gravity data to delineate structural features connected to low-temperature geothermal resources at Northeastern Portugal, Journal of Applied Geophysics, 92, 30-38, DOI: 10.1016/j.jappgeo.2013.02.011
17. Ribeiro da Costa I, Antunes IM, Farinha Ramos JM, Recio C, Barriga FJAS, Mourão C, Ferreira N (2013) Aspectos petrográficos do metamorfismo de contacto associado ao plutão de Penamacor – Monsanto, Comunicações Geológicas, 100, 89-98
18. Sánchez-Pastor N, Pinto AJ, Astilleros JM, Fernández-Díaz L, Gonçalves MA (2013) Raman spectroscopic characterization of a synthetic, non-stoichiometric Cu-Ba uranyl phosphate, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 113, 196-202, DOI: 10.1016/j.saa.2013.03.094
19. Triantafilis J, Ribeiro J, Page D, Santos FAM (2013) Inferring the Location of Preferential Flow Paths of a Leachate Plume by Using a DUALEM-421 and a Quasi-Three-Dimensional Inversion Model, Vadose Zone Journal, 12 (2), DOI: 10.2136/vzj2012.0086
20. Triantafilis J, Santos FAM (2013) Electromagnetic conductivity imaging (EMCI) of soil using a DUALEM-421 and inversion modelling software (EM4Soil), Geoderma, 211, 28-38, DOI: 10.1016/j.geoderma.2013.06.001
21. Triantafilis J, Terhune CH, Santos FAM (2013) An inversion approach to generate electromagnetic conductivity images from signal data, Environmental Modelling & Software, 43, 88-95, DOI: 10.1016/j.envsoft.2013.01.012

G. Funding

R&D Projects	Reference	Funding	PI	Start	End	IDL Funds (k€)
CHAVESMT	PTDC/CTE-GIX/098538/2008	FCT	F M Santos	??/2011	??/2013	180
iPLUS	PTDC/CTE-GIX/122232/2010	FCT	C Mériaux	??/2012	??/2015	90
REGENA	PTDC /GEO-FIQ/3648/2012	FCT	P Silva	??/2013	??/2016	130
Age of fluid migration and fluid sources in sedimentary basins with hydrocarbon potential	402797/2012-4	CNPq	CCG Tassinari	05/2013	09/2015	No direct funds for IDL. The project supports travel and accommodation expenses of A Mateus (6 months in Brazil), besides all the field analytical work to be performed at USP.
MINATURA 2020	H2020-SC5-2014-280855	EU	A Mateus	02/2015	01/2018	89
NewOreS	ERA-MIN/0001/2014	FCT	A Mateus	02/2015	01/2018	36

Industry Contracts	**Reference**	**Funding**	**PI**	**Start**	**End**	**IDL Funds (k€)**
Albernoa I	5836	EPOS SA	A Mateus	02/2013	01/2014	385
Albernoa II	5836	EPOS SA	A Mateus	02/2014	01/2015	386
Albernoa III	5836	EPOS SA	A Mateus	02/2015	07/2015	148
Geoterceira	5839	Geoterceira	A Mateus	09/2013	04/2014	34

H. Strategic assessment

1) What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure;

2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups; 3)

3) What specific measures does this group propose to enhance IDL?

The Group comprises a reasonable critical mass with demonstrated proficiency in complementary scientific domains, some of them unique within IDL. The main research lines intend to address cutting-edge topics in fundamental and applied research on: (1) oceanic and continental magmatism as windows to mantle composition/evolution and plume-lithosphere interaction; (2) metamorphic and magmatic processes in orogenic belts subjected to high-thermal regimes; and (3) ore-forming processes as key-mechanisms to trace heat and mass advection during lithosphere evolution. Under these fundamental guidelines, various approaches have been developed, crisscrossing multi-scale geological information with mineralogical, geochemical (multi-elemental and isotopic) and geophysical data obtained with a large set of lab or portable equipment and handled via adequate numerical procedures. As a result of this integrated approach, noteworthy results were achieved on:

- Multidisciplinary data for key rock-forming units of Atlantic oceanic islands, contributing to models on magma generation and emplacement;
- The Jurassic-Cretaceous magmatic activity in western Iberia and Morocco, assessing its particular role in the evolution of the Central Atlantic Magmatic Province and the Peri-Atlantic Alkaline Pulse;
- The characterisation and evolution of various tectono-stratigraphic units and regional shear zones during the Variscan Orogenic Cycle;
- Methodologies useful to decipher mechanisms of ore-deposition and to determine the lifetime of ore-forming systems developed in different geodynamic frameworks, as well to improve criteria helpful in geological, geochemical and geophysical mineral exploration surveys.

Additional advances were accomplished on:

- Algorithms for joint and cooperative inversion of geophysical data collected with different methods namely, magnetotellurics, resistivity and gravity;

- Mineralogical-, geochemical- and geophysical-based tools applied to oil and gas exploration, including 3D and 4D modelling;

- Experimental data to address the growth of solid solutions from aqueous solutions;

- Ab-inito modelling of clay edge surface sites for metal adsorption;

- The characterisation of high-enthalpy geothermal reservoirs in the Terceira Island (Azores).

Accordingly, the Group record indicates: (1) a good balance between fundamental and applied research; (2) a good international, active networking (involving 15 R&D institutions/Universities, 9 European in 6 EU state-members and 6 in non-European countries); (3) a fine interaction with industry; (4) a fair number of active R&D projects and/or industry contracts, representing an overall incoming of ≈1.5 M€ in the last 36 months; and (5) an acceptable publication rate that have potential to increase significantly in particular cases (note also that a non-negligible number of publications are delayed by impositions related to the confidential agreements involved in industry contracts). In the last two years, outreach activities carried out by the Group involved episodic visits to high-schools, contributions to in-house programs aiming at requalification of high-school teachers or at support of high-school students visiting FCUL facilities, or individual participations in conferences and other event for Public in general; there is, obviously, room to increase this kind of activities, but more importantly to optimise their coordination and enhance their visibility.

Several members and collaborators of the Group (MA Gonçalves, L Tavares Martins, P Reis, R Caldeira, J Figueiras) have been implicated in the C4G, Collaboratory for Geosciences, part of the Portuguese Infrastructures Roadmap and integrating the EPOS-PP proposal (Earth Plate Observing System – Preparatory Phase), namely its WP 16 (TCS Multi-scale laboratories; topic INFRADEV-3-2015). In addition, there has been effective participation on the: WG 1 of ERECON – European Rare Earth Competency Network, European Commission (MA Gonçalves); Ad hoc Working Group on Critical Raw Materials, European Commission (Enterprise and Industry Directorate-General), Raw Materials Supply Group (A Mateus); and Operational Group 1 (Exploration) – EIP-Raw Materials (A Mateus).

Despite of a relatively high funding rate, additional efforts are necessary to overcome detected weaknesses regarding the reduced number of R&D projects led by members of the Group, namely in EU calls. Fragmentation /dispersion of the available critical mass, along with the quite high average aging (well above 50), represent added fragilities that must be faced realistically in a near future through clarification of specific objectives and workforce rejuvenation. Indeed, one of the major debilities of the Group lies on the reduced post-graduate student flux, most certainly due to several reasons, but including the low attractiveness of several topics usually addressed by the Group and the strong discontinuity of research funds via R&D projects. Nonetheless, the Group is aware that without a clear positive evolution in these two issues the collapse of some expertise areas will be unavoidable, as well as the incapacity of sustain and upgrade the existent equipment and lab facilities. Seeking for the start of a new evolving cycle, the Group has been active in proposing PhD topics to the EarthSystems program and to the national FCT calls; several other proposals were already made for post-doc positions and for new FCT-funded projects (2015 call under evaluation).

Within IDL, the Group is totally open to new functional geometries, being either the core of a new larger team or splitting the existent expertise into other groups; the strongest, natural synergies are with RG4 and RG5, and partly with RG6. However, before any decision regarding the merging of current groups, it is crucial to think about the role of the existent Thematic Lines. If these Lines are

envisaged as fundamental driven forces of IDL, the number and relative dimension of the working groups will not be so important; in consequence, Thematic Lines should be clearly strengthened and their purposes (to be precisely defined) considered priorities. Instead, if these Thematic Lines will be replaced by "more transversal issues" (such as outreach, technology and innovation, public information, etc.), then the three existent Lines:

1. Processes and challenges of climate change at the eastern Atlantic boundary
2. Earth dynamics in the Iberian-Atlantic natural laboratory
3. Incorporating geoscience knowledge into modern energy and resource strategies and technologies

represent a good starting point for the creation of fewer (3-4) research groups that may indeed represent a true (r)evolution, preparing a common future for all IDL members and collaborators, regardless of their current connection with particular teams. Whatever the alternative, it will be necessary to review and clarify the specific objectives of each research group, as well as the main goals of IDL as a whole. And we will need time to work deeply on the various alternatives; at least until mid-2016.

Creative ideas to enhance IDL are difficult, especially when we are aware of the severe time constraints that the large majority of people already have to face daily. Notwithstanding this difficulty we will need "something" that may really trigger the development of a "common culture". Perhaps the promotion of an "IDL-Annual Workshop" in June/July: 3-4 sessions (1 day) dealing with topics related to the Thematic Lines and/or to new scientific challenges, followed by a short field trip (2 days maximum) and/or various open activities that might be of general interest and shared by an wide number of individuals.

Also important is the reorganisation of the management structure and improvements of information disclosure within IDL. The scheduling, at the beginning of each year, of fundamental meetings and of deadlines to gather information needed for reports and other requests that we all know necessary, will be a good indication for future performance enhancements. Optimising the ways of update regularly all members about "IDL-life" (not only when their contributions to reports are demanded), will make all the difference.

2.8 WG8

I. Team

Members

22. António Vallêra (Retired Professor)
23. Cristina Catita (Faculty)
24. Guilherme Carrilho Graça (Faculty)
1. João Serra (Faculty), coordinator
2. Jorge Maia Alves (Faculty)
3. José Silva (Post-Doc)
4. Killian Lobato (Faculty)
5. Marta Panão (Faculty)

6. Miguel Centeno Brito (Faculty)

PhD students

1. Clarisse Magarreiro (Brito MC and Soares P)
2. Daniel Albuquerque (Graça GC)
3. David Pêra (Maia Alves J)
4. Diana Neves (Vallera AM and Silva CA)
5. Filipa Silva (Graça GC)
6. Filipe Serra (Serra J)
7. Ivo Costa (Brito MC)
8. José Pó (Maia Alves J)
9. Nuno Martins (Graça GC)
10. Nuno Mateus (Graça GC)
11. Rita Almeida (Brito MC)
12. Rodrigo Silva (Brito MC)
13. Sara Freitas (Redweik P, Brito MC)

PhDs completed between 1/Jan/2013 and 30/Jun/2015:

1. Nunes P (2015) Enabling solar electricity with electric vehicles in future energy systems", U. Lisboa, supervison Brito MC, Farias T.
2. Zamora Z (2015) Three-level energy decoupling: Energy decoupling at the primary, final and useful levels of energy use, (MIT PhD Program), FCUL supervision Domingos T, Serra J
3. Esteves T (2014) Identificação do potencial renovável para produção de electricidade na perspectiva da microgeração, PhD, FCUL, supervision Estanqueiro A, Maia Alves J
4. Augusto A (2013) Study of process to grow silicon ribbons by fast CVD, Doutoramento em Sistemas Sustentáveis de Energia, supervision Serra J.
5. Reis F (2013) Energia fotovoltaica de baixa concentração, PhD, MIT Portugal / Sustainable Energy Systems, FCUL, orientação Brito MC, Sorasio G (WS Energia).

J. Publications

2015 (incomplete)

1. Barros B, Guerra S, Barros Z, Catita C, Fernandes J (2015) Uso de imagens de satélite para cálculo de volume em floresta de eucalipto no município de botucatu/sp. Energia na Agricultura (unesp. Botucatu), 30, 60-67, DOI: 10.17224/EnergAgric.2015v30n1p60-67.
2. Bellanger P, Bouchard PO, Bernacki M, Serra JM (2015) Room temperature thin foil SLIM-cut using an epoxy paste: experimental versus theoretical results, Mater. Res. Express, 2, 046203, DOI: 10.1088/2053-1591/2/4/046203
3. Freitas S, Serra F, Brito MC (2015) PV layout optimization: String tiling using a multi-objective genetic algorithm, Solar Energy, 118, 562-574, ISSN 0038-092X, DOI:10.1016/j.solener.2015.06.018.
4. Freitas S, Catita C, Redweik P, Brito MC (2015) Modelling solar potential in the urban environment: State-of-the-art review, Renewable and Sustainable Energy Reviews, 41, 915-931, ISSN 1364-0321, DOI:10.1016/j.rser.2014.08.060
5. Mateus NM, Carrilho da Graça G (2015) A validated three-node model for displacement ventilation, Building and Environment, 84, 50-59, ISSN 0360-1323, DOI:10.1016/j.buildenv.2014.10.029
6. Nunes P, Farias T, Brito MC (2015) Enabling solar electricity with electric vehicles smart charging, Energy, 87, 10-20, ISSN 0360-5442, DOI:10.1016/j.energy.2015.04.044.

7. Nunes P, Farias T, Brito MC (2015) Day charging electric vehicles with excess solar electricity for a sustainable energy system, Energy 80, 263–274, DOI:10.1016/j.energy.2014.11.069
8. Reis F, Guerreiro C, Batista F, Pimentel T, Pravettoni M, Wemans J, Sorasio G, Brito MC (2015) Modeling the Effects of Inhomogeneous Irradiation and Temperature Profile on CPV Solar Cell Behavior, IEEE Journal of Photovoltaics, 5, no.1, 112-122, DOI:10.1109/JPHOTOV.2014.2358080
9. Carrilho da Graça G, Daish NC, Linden PF (2015) A two-zone model for natural cross-ventilation, Building and Environment, 89, 72-85, ISSN 0360-1323, DOI:10.1016/j.buildenv.2015.02.014.
10. Neves D, Pina A, Silva CA (2015) Demand response modeling: A comparison between tools, Applied Energy, 146, 288–297. DOI:10.1016/j.apenergy.2015.02.057

2014

1. Augusto A, Serra F, Vallêra A, Serra JM (2014) Silicon film deposition on crystalline, sintered and powder substrates using an inline optical processing CVD system, Physica Status Solidi (c), Online early, DOI: 10.1002/pssc.201400126
2. Bellanger P, Brito MC, Pera DM, Costa I, Gaspar G, Martini R, Serra JM (2014) New Stress Activation Method for Kerfless Silicon Wafering Using Ag/Al and Epoxy Stress-Inducing Layers, IEEE Journal of Photovoltaics, 4 (5), 1228–1234, DOI: 10.1109/JPHOTOV.2014.2334893
3. Bellanger P, Serra JM (2014) Room Temperature Spalling of Thin Silicon Foils Using a Kerfless Technique, Energy Procedia, 55, 873–878, DOI:10.1016/j.egypro.2014.08.071
4. Brito MC, Lobato K, Nunes P, Serra F (2014) Sustainable energy systems in an imaginary island, Renewable and Sustainable Energy Reviews, 37, 229–242, DOI: 10.1016/j.rser.2014.05.008
5. Catita C, Redweik P, Pereira J, Brito MC (2014) Extending solar potential analysis in buildings to vertical facades, Computers & Geosciences, 66, 1-12, DOI: 10.1016/j.cageo.2014.01.002
6. Costa A, Marques F, Hildenbrand A, Sibrant A, Catita C (2014) Large-scale catastrophic flank collapses in a steep volcanic ridge: The Pico-Faial Ridge, Azores Triple Junction, Journal of Volcanology and Geothermal Research, 272, 111–125, DOI: 10.1016/j.jvolgeores.2014.01.002
7. Horta M, Ferreira AP, Catita C, Ker FO, Bruniera R (2014) Temporal relationship between environmental factors and the occurrence of dengue fever, International Journal of Environmental Health Research, 1 (1), 4-10, DOI: 10.1080/09603123.2013.865713
8. Magarreiro C, Brito MC, Soares PMM (2014) Assessment of diffuse radiation models for cloudy atmospheric conditions in the Azores region, Solar Energy, 108, 538-547, DOI: 10.1016/j.solener.2014.08.003
9. Mateus NM, Pinto A, Carrilho da Graça G (2014) Validation of EnergyPlus thermal simulation of a double skin naturally and mechanically ventilated test cell, Energy and Buildings, 75, 511-522, ISSN 0378-7788, DOI:10.1016/j.enbuild.2014.02.043.
10. Neves D, Silva CA (2014) Modeling the impact of integrating solar thermal systems and heat pumps for domestic hot water in electric systems - The case study of Corvo Island, Renewable Energy, 72, 113–124, DOI:10.1016/j.renene.2014.06.046
11. Neves D, Silva CA (2014) Optimal electricity dispatch on isolated mini-grids using a demand response strategy for thermal storage backup with genetic algorithms. Energy, 146, 288-297 DOI:10.1016/j.energy.2015.01.054
12. Neves D, Silva CA, Connors S (2014) Design and implementation of hybrid renewable energy systems on micro-communities: A review on case studies, Renewable and Sustainable Energy Reviews, 31, 935–946, DOI:10.1016/j.rser.2013.12.047
13. Panão MO, Marta JN (2014) Revisiting cooling energy requirements of residential buildings in Portugal in light of climate change, Energy and Buildings, 76, 354-362.
14. Santos T, Gomes N, Freire S, Brito MC, Santos L, Tenedório JA (2014) Applications of solar mapping in the urban environment, Applied Geography 51, 48-57, DOI: 10.1016/j.apgeog.2014.03.008

15. Serra JM, Bellanger P, Bouchard PO, Bernacki M (2014) Room temperature kerfless silicon thin foils obtained via a stress inducing epoxy layer, Phys. status solidi, 11, 1644–1647, DOI: 10.1002/pssc.201400105
16. Serra JM, Bellanger P, Bouchard PO, Bernacki M (2014) Room temperature kerfless silicon thin foils obtained via a stress inducing epoxy layer, Physica Status Solidi (c), Online early, DOI: 10.1002/pssc.201400105
17. Silva JA, Lukianov A, Bazinette R, Blanc-Pelissier D, Vallade J, Pouliquen S, Gaudy L, Lemiti M, Massines F (2014) Feasability of antireflection and passivation coatings by atmospheric pressure PECVD, Energy Procedia 55, 741-749, DOI:10.1016/j.egypro.2014.08.054
18. Silva JA, Quoizola S, Hernandez E, Thomas L, Massines F (2014) Silicon carbon nitride films as passivation and antireflective coatings for silicon solar cells, Surface and Coatings Technology 242, 157, DOI:10.1016/j.surfcoat.2014.01.037

2013

1. Augusto A, Pera D, Choi HJ, Bellanger P, Brito MC, Maia Alves J, Vallera AM, Buonassisi T, Serra JM (2013) Residual stress and dislocations density in silicon ribbons grown via optical zone melting, J. Appl. Phys., 113 (6), 083510, DOI: 10.1063/1.4793319
2. Brito MC, Lobato K (2013) Progressos recentes em energia solar fotovoltaica,Gazeta de Física, 35(2), 13.
3. Costa I, Brito MC, Gaspar G, Serra JM, Maia Alves J, Vallera AM (2013) Electric molten zone crystallization of silicon wafers, Semicond. Sci. Technol., 28 (12), 125023, DOI: 10.1088/0268-1242/28/12/125023
4. Nunes P, Lerer M, Carrilho da Graça G (2013) Building Energy Certification System: Application to a Building in Lisbon and Paths to a Future Enhanced Scheme Energy Engineering, Energy Engineering, 110(4), 7–24.
5. Nunes P, Lerer MM, Carrilho da Graça G (2013) Energy certification of existing office buildings: Analysis of two case studies and qualitative reflection, Sustainable Cities and Society, 9, 81–95. DOI:10.1016/j.scs.2013.03.003
6. Po JM, Brito MC, Maia Alves J, Silva JA, Serra JM, Vallera AM (2013) Measurement of the dopant concentration in a semiconductor using the Seebeck effect, Meas. Sci. Technol., 24 (5), 055601, DOI: 10.1088/0957-0233/24/5/055601
7. Serra JM, Bellanger P, Lobato K, Martini R, Debucquoy M, Poortmans J (2013), Comparative study of stress inducing layers to produce kerfless thin wafers by the Slim-cut technique,In 2013 IEEE 39th Photovoltaic Specialists Conference (PVSC) (pp. 0177–0180). Tampa, USA: IEEE. DOI:10.1109/PVSC.2013.6744124

K. Funding

Project	Reference	Funding	PI	Start	End	IDL Funds (k€)
GASPRO-BIO-WASTE	FP7- 26191	EU	JM Serra	2011	2013	80
Lacrys	PTDC/CTM-CER/104033/2009	FCT	JM Serra	2011	2013	151
Molten capillary	PTDC/CTM-CER/114422/2009	FCT	MC Brito	2011	2013	124
SUGAR - Silicon sUbstrates	FP7-ENERGY-2010-1-256752	EU	JM Serra	2010	2013	450

from an inteGrated Automated pRocess						
Rainbow Dye-Sensitized Solar Cells	EXPL/CTM-ENE/0304/2012	FCT	K Lobato	2013	2014	47
SEGSOL	RTD-SGS-RP-005	QREN	MC Brito	2012	2015	100
SusCity: Modeling urban systems	MITP-TB/CS/0026/2013	FCT	JM Serra	2014	2017	80
Solar Ribbons	QREN: 2013/032111	QREN	JM Serra	2013	2015	251
MIT-Portugal PhD Program	Sustainable Energy Systems	FCT	JM Serra	2013	2017	30
GOLD - Granitos, Orogénese, deformação de Longo termo, e Deposição de metais.	PTDC/GEO-GEO/2446/2012	FCT	M Pereira	2013	2015	150
ASTARTE Assessment, STrategy And Risk Reduction for Tsunamis in Europe		EU	MA Baptista	2013	2016	82
Bambadinca Sta Claro	n/a	EU/IPAD	JM Alves	2011	2015	40
Escolas Solares em São Tomé	n/a	UN/IPAD	JM Alves	2011	2013	25

L. Strategic assessment

1) What are the perceived weaknesses of the group in the following areas: publications (quality, quantity by person), funding, student flux, outreach, group age structure;

2) If IDL would consolidate in a smaller number of groups what would be the best options for this group: would the group be the core of a new larger group (under what agenda?) or should it adapt to the new geography maybe by splitting into different groups; 3)

3) What specific measures does this group propose to enhance IDL?

The overall publication record of the group is good (1.5 papers/researcher/year), although with some asymmetries. The publications indicator involving PhD students is also quite good (at least 1 paper/student/year). The group has a good track of projects funding both in terms of value and in terms of sources. The funding comes both from public national sources (FCT and QREN) and European Commission funds. The phase out of some of these projects stresses the need to find new resources for the coming years, keeping in mind that national funds are scarce and therefore an effort is needed to actively pursue international funds. The number of students has been growing, mainly based on fellowships from the Sustainable Energy Systems FCT Doctoral Program, but also from the Earth Systems PhD program. However the lack of funds from other sources to support the student projects and to retain some of these within further R&D activities is a matter of concern since we are aware of the need to attract and maintain young researchers. Among the 9 integrated members, 8 have permanent positions (ages 35-68) and 1 is a post-doc researcher (age 41). In fact the group should try to increase the number of post-doc researchers.

On the structure of IDL

We see IDL as a research center aiming at understanding Earth, its resources, and the processes by which it changes; applying scientific and engineering knowledge to societal problems, such as the sustainable use of energy, the identification and mitigation of risks posed by natural hazards, and the effects of human activities on the environment; high level education and training of students, and public dissemination of Earth and environmental sciences. Such linking between Energy and Earth Sciences is presented for example by the School of Earth Sciences of the Stanford University.

The societal challenges set by the H2020 program will have a strong influence of the research activity in Europe for the coming years. The existing expertise within IDL will enable us to cover at least 3 of these challenges: i) Climate action, environment, resource efficiency and raw materials; ii) Secure, clean and efficient energy; iii) Marine and maritime and inland water research;

We believe IDL should globally evolve towards the reduction of the number of groups, and have been discussing different geometries of IDL, namely considering the possibility of WG8 merging with other groups or maintaining its identity. We do not consider group splitting as an option for this group.

In terms of scientific interests we are closer to WG1, and several collaborative projects connecting energy with renewable resource and climate have emerged. However, for such bridges to exist and expand a merger is unnecessary and probably deleterious for the group's aims and identity. Several members within our group believe that we should keep the energy group's identity, focused in sustainable energy technologies and their application in society, considering the coherence and uniqueness of this group in IDL and because it presents a clearer vision in terms of scientific goals and of the group strengths, particularly in the light of the global University priority initiative, the Interdisciplinary Thematic Network on Energy.

One ambitious move would be the restructuring of IDL groups around these societal challenges. Although more risky than just regrouping existing groups, this new organization could prove to be more in line with European guidelines for research development, since funding opportunities will also be guided by these global targets aiming at solving societal problems. In this framework the Sustainable Energy Group would provide more added value for IDL by maintaining its identity, under the energy related societal challenge, then diluting its activity among other societal challenges and scientific interests. This option reinforces the coherence of this group in IDL, presents a more clear

vision in terms of scientific goals and of the group strengths, without compromising the existing links with other areas within IDL.

Specific measures that the group proposes in order to enhance IDL include:

- Integrated actions for outreach
  - Centralization/coordination of outreach activities
  - Webpage redesign
  - Science communication training
  - Annual highlights report of IDL activity
- Encourage collaborations inside IDL
  - 1 day annual IDL meeting (morning with a few selected broad contributions, followed by a buffet and team building activities in the afternoon, in order for people to meet)
- Reserve a budget for preparation of international funding applications (travel for preparation meetings for example)

3. Conclusions and proposals

A summary of current IDL numbers, by Working group, obtained from data in the period 2013-2015 (the latter incomplete) is presented in the table.

WG	Name	Coordinator	Members	Funds[1]	#Proj[2]	#PapersP[3]	#PhD[4]	#Stud[5]	P/Py[6]	k€/P[7]
1	Atmosphere-ocean processes and climate modelling	A Peliz	17	837	9	117	5	12	2.3	49
2	Climate Change, Variability and Extremes	R Trigo	16	778	6	149	1	6	3.1	49
3	Coast, water and surface processes	C Andrade	14	320	7	89	0	19	2.1	23
4	Marine Geology and Geophysics	MA Baptista	18	277	3	80	0	9	1.5	15
5	Earthquakes, volcanism and litospheric processes	S Custódio	15	1258	13	101	1	8	2.2	84
6	Sedimentary basins	A Azerêdo	6	489	6	48	1	3	2.7	81
7	Chemical geodynamics and multisciplinary research on geological resources	A Mateus	13	1078	6	84	4	3	2.2	83
8	Sustainable Energy	J Serra	7	1358	11	45	4	12	2.1	194
All	TOTAL		106	6394	61	713	16	72	2.2	60
	Independent papers				Ind	447			1.4	

Some comments on the table:

(1) IDL is now publishing about 1.4 independent papers per year per person, a value that is similar to that in the period 2008-2012 according to the FCT/Scopus analysis. Because the 2015 data is incomplete (corresponds to the numbers in July), we expect a small increase in that number;

(2) IDL members are publishing about 2.2 papers/year (each published paper has on average 1.6 IDL authors)

(3) In the last period IDL captured more than 6M€ in project funding (about 20 k€/year/member), plus about 1.5M€ in pluriannual funding;

(4) IDL has 72 active PhD students, but only 16 completed their thesis in the last 2.5 years; this is an indication of a growing community (due to the EARTHSYSTEMS and the Sustainable Energy programs), although it may include a few cases of PhDs that are taking too long to complete; The "IDL Highlitghts 2015" publication allows for an assessment of the state of those projects and it seems to indicate that most PhD projects are progressing very well.

[1] Only Project money, excludes the Pluriannual contract (currently aty 500k€/year) and Faculty money

[2] Number of Projects active in 2013-2015

[3] Papers×Person (papers with several authors in the group count more than once)

[4] PhD concluded in the period 2013-2015

[5] PhD students active

[6] Papers/Person/year (papers with several authors in the group count more than once)

[7] Project funding/Person/year

(5) There is some heterogeneity between groups, in size, funding and student size. While that is not visible in the table, there is also heterogeneity in the origin of funding (see the group reports) with some groups lacking international funded research, but compensating with industry based funds. Group 4 which has a large IPMA based activity presents a reduced funding because many activities, namely the large ASTARTE European project led by the group, are administred by IPMA.
(6) The publication and funding rates of the different groups are overall quite comparable.

If one looks to the reports from the external evaluation, one concludes that some of our solid earth activities were considered to be at an insufficient standard and even "parochial". Such analyses seems to be based more on weaknesses of the written proposal than on objective research indicators, which in spite of having been made by SCOPUS through an FCT contract, were completely forgotten in the evaluation. SCOPUS data (see the powerpoint) put IDL far at the top of the Geosciences groups (with indicators per head that are at leas 50% better than the next group) and with comparable or better values than the Biology/Environment groups. Having said this, it is clear that in spite of some inappropriate hostility in the evaluation process, we did have weaknesses in the proposal, and we need to do better next round.

In the preparation for the September 2015 review, the IDL coordination has arrived to a proposal to reorganize IDL in preparation to the interim evaluation in 2-3 years time (presumably 2017). The proposal intends to reduce the number of working groups from 8 to 5, reinforcing the alignment with the thematic lines and guaranteeing a better mix of the key indicators (e.g. students, funding, internationalization).

The proposed groups would be the following (names are tentative and may change):

RG 1: Atmosphere-ocean processes and Climate Change (includes current RG1+RG2)

RG2: Coast, water and surface processes (current RG3)

RG3: The deep ocean frontier (current RG4)

RG4: Solid Earth Geodynamics (mostly incorporating curreng RG5+RG6+RG7)

RG5: Renewable Energy

The new indicators table (where the changes already take into account some minor personal changes) is as follows:

WG	Short Name	Coordinator	Members	Funds	#Proj	#PapersP	#PhD	#Stud	P/Py	k€/P
1	Climate		33	1615	15	266	6	18	2.7	49
2	Coast		15	320	7	98	0	20	2.2	21
3	Deep ocean		19	518	6	99	1	10	1.7	27
4	Solid Earth		32	2584	22	205	5	12	2.1	81
5	Energy		7	1358	11	45	4	12	2.1	194
All	TOTAL		106	6394	61	713	16	72	2.2	60
	Independent papers				Ind	447			1.4	

This leaves 2 large groups in Climate and Solid Earth Geodynamics, two medium size groups in Coastal and Deep ocean processes, and a small group in Renewable Energy. All groups have more

than 10 active PhD students, and the other indicators also show improved homogeneity. The Energy group is still small but this is a recent area of fast growth and it seemed unnatural to merge it with some other group.

In this reorganization we do not feel a need to change the thematic lines (Climate Change are mostly the focus of RG1 and RG2, Earth dynamics is the focus of RG3 and RG4, Earth resources and energy is a more transversal topic which is the focus of RG5 but includes contributions from all other groups), although we find that their coordination does not translate easily into a permanent organization. Instead we believe we should guarantee a few cross-IDL activities concerning the Advanced Training program (EARTHSYSTEMS and Sustainable Energy Systems), Outreach and some kind of “Internal outreach” that emphasizes the Excellence in Research. Taking those concerns into account the IDL coordination was refreshed. The new IDL vowels, Filipe Rosas and Miguel Brito, will coordinate, respectively, the Advanced Training program (FR) and Outreach (MB). The “internal outreach” still needs a plan.