Pedro JM Costa

Subjects: Geology | Others
Contributor: Pedro JM Costa

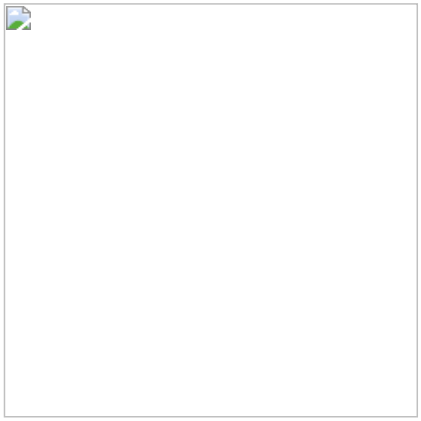
My research focus on the study of coastal processes using geomorphological and sedimentological data coupled with physical and numerical modeling to understand morphological and sediment changes caused by natural hazards (e.g. tsunamis and storms) and their impacts on the environment.

I also work on the establishment of provenance relationships in siliciclastic sediments, aspects of aeolian sediment transport, Antarctic soils, Mars geology and geoarchaeological studies.

Keywords: tsunami deposits ; provenance studies ; sedimentology ; sediment transport ; coastal geology ; marine geology ; Holocene ; heavy minerals ; microtextures ; storm deposits ; palaeofloods

---

Pedro J.M. Costa



1. Profile

Current position – Lecturer – Department of Earth Sciences, University of Coimbra, Portugal

Research Group: Earth Surface Processes
Job: Lecturer
Email: ppcosta@dct.uc.pt

2. Academic Degrees

2012 PhD in Geology Departamento de Geologia, Faculdade de Ciências da Universidade de Lisboa, Portugal

2006 Master in Geography and Earth Sciences (Sedimentology) Dep. of Geography and Earth Sciences, School for the Environment, Brunel University, London, UK

2002 BSc in Geology, “Licenciatura pré-Bolonha” (5-year degree) Departamento de Ciências da Terra, Universidade de Coimbra, Portugal

3. Scientific Informations

ORCID: https://orcid.org/0000-0001-6573-0539

SCOPUS ID: https://www.scopus.com/authid/detail.uri?authorId=35589428000

Publons & Researcher ID: https://publons.com/researcher/1315289/pedro-costa/

Research Gate: https://www.researchgate.net/profile/Pedro_Costa10

Google Scholar: https://scholar.google.pt/citations?hl=en&user=ACEzJQ8AAAAJ

Website: https://ciencias.ulisboa.pt/pt/perfil/ppcosta

4. Scientific Interests

Main Interests:

My research focus on the study of coastal processes using geomorphological and sedimentological data coupled with physical and numerical modeling to understand morphological and sediment changes caused by natural hazards (e.g. tsunamis and storms) and their impacts on the environment.

I also work on the establishment of provenance relationships in siliciclastic sediments, aspects of aeolian sediment transport, Antarctic soils, Mars geology and geoarchaeological studies.

5. Selected Publications

2020 Costa, Pedro JM., Andrade, C. Tsunami deposits: Present knowledge and future challenges. Sedimentology. DOI: 10.1111/sed.12724

2019 Dawson, A.G., Dawson, S., Bondevik, S., Costa, P.J.M., Hill, J., Stewart, I. Reconciling Storegga tsunami sedimentation patterns with modelled wave heights: A discussion from the Shetland Isles field laboratory (2019) Sedimentology. DOI: 10.1111/sed.12643

2019 Říha, K., Křupka, A., Costa, P.J.M. Image analysis applied to quartz grain microtextural provenance studies (2019) Computers and Geosciences, 125, pp. 98-108. DOI: 10.1016/j.cageo.2019.01.007

2018 Costa, P.J. M., Gelfenbaum, G., Dawson, S., La Selle, S., Milne, F., Cascalho, J., Ponte Lira, C., Andrade, C. Freitas, M.C. and Jaffe, B., (2018). The application of microtextural and heavy mineral analysis to discriminate between storm and tsunami deposits. Geological Society, London, Special Publications, Volume 456, Tsunamis: Geology, Hazards and Risks. Scourse, E. M., Chapman, N. A., Tappin, D. R. and Wallis, S. R. (eds), p. 167-190. doi:10.1144/SP456.7

2017 Costa, P.J. M., Kim, Y. D., Park, Y. S., Quintela, M., Mahaney, W. C., Dourado, F. and Dawson, S. (2017). Imprints in silica grains induced during a wave flume experiment: approach to determine microtextural signatures during aqueous transport. Journal of Sedimentary Research, Volume 87 (7), 677-687 doi: 10.2110/jsr.2017.39

2016 Costa, P.J. M., Costas, S., Oliveira, M.A., González-Villanueva, R., Roelvink, D., Andrade, C., Freitas, M.C., Cunha, P.P., Martins, A., Buylaert, J.P. and Murray, A. (2016). How did the AD 1755 tsunami impact on sand barriers across the southern coast of Portugal? Geomorphology, Volume 268, 296-311 http://dx.doi.org/10.1016/j.geomorph.2016.06.019

2015 Costa, P.J. M., Andrade, C., Cascalho, J., Dawson, A. G., Freitas, M. C., Paris, R. and Dawson, S., (2015). Onshore tsunami sediment transport mechanisms inferred from heavy mineral assemblages. The Holocene, Volume 25, no. 5, 795-809. doi: 10.1177/0959683615569322

2013 Costa, P.J. M., Andrade, C., Mahaney, W. C., da Silva, F. M., Freire, P., Freitas, M. C., Janardo, C., Oliveira, M. A., Silva, T. and Lopes, V., (2013). Aeolian microtextures in silica spheres induced in a wind tunnel experiment: Comparison with aeolian quartz. Geomorphology, 180, 120-129. doi: 10.1016/j.geomorph.2012.09.011. issn: 0169-555X

2012 Costa, P.J. M., Andrade, C., Dawson, A. G., Mahaney, W. C., Freitas, M. C., Paris, R. and Taborda, R., (2012). Microtextural characteristics of quartz grains transported and deposited by tsunamis and storms. Sedimentary Geology, 275, 55-69. doi: 10.1016/j.sedgeo.2012.07.013. issn: 0037-0738

2012 Costa, P.J. M., Andrade, C., Freitas, M. C., Oliveira, M. A., Lopes, V., Dawson, A. G., Moreno, J., Fatela, F. and Jouanneau, J. M., (2012). A tsunami record in the sedimentary archive of the central Algarve coast, Portugal: Characterizing sediment, reconstructing sources and inundation paths. The Holocene, 22, 8, 899-914. doi: 10.1177/0959683611434227. issn: 0959-6836

2011 Costa, P.J. M., Andrade, C., Freitas, M. C., Oliveira, M. A., da Silva, C. M., Omira, R., Taborda, R., Baptista, M. A. and Dawson, A. G., (2011). Boulder deposition during major tsunami events. Earth Surface Processes and Landforms, 36, 15, 2054-2068. issn: 0197-9337

2017 Wang, G., Li, J., Ravi, S., Van Pelt, S.,Costa, P.J. M., and David, D., (2017). Tracer techniques in aeolian research: Approaches, applications, and challenges. Earth-Science Reviews, Volume 170, 1-16 https://doi.org/10.1016/j.earscirev.2017.05.001

6. Selected Projects

• Set 2018 – August 2021 – PI- OnOff – Coupling onshore and offshore tsunami record: complementary tools for a broader perspective on tsunami events. Budget: 236 520 euros. Participating institutions: Instituto D.Luiz (FCUL), Instituto Hidrográfico, Universidade do Algarve, Agência Portuguesa do Ambiente, Aachen University (Alemanha) and United States Geological Survey. Funded by FCT- Fundação para a Ciência e Tecnologia. Project website http://onoff.rd.ciencias.ulisboa.pt/

• August 2018 – July 2021 – Research team member – UNTIeD: UNlocking the megaTsunamI Deadlock: using the near-source impacts to constrain tsunami generation by volcanic flank collapses. Budget: 239 800 euros. Participating institutions: Instituto D.Luiz (FCUL), Instituto Hidrográfico, etc. (PI – Ricardo Ramalho). Funded by FCT- Fundação para a Ciência e Tecnologia.

• Novembro 2017 – Co-chief Scientist – "Geological and geophysical data offshore the Algarve – Oceanographic campaign on board of Navio Research Vessel METEOR – Mission M152″. Funded Deutsche Forschungsgemeinschaf (DFG; German Research Foundation (PI – Klaus Reicherter).

• September 2016 to present – Task leader – "Desastres Naturais: Tsunamis no Rio de Janeiro: Pensando o impensável" Financiado pelo Governo do Estado do Rio de Janeiro e a Secretaria de Ciência e Tecnologia e Inovação (Secti), por meio da FAPERJ, Brazil (PI – Francisco Dourado). Budget: 273 000 reais

• September 2016 to present – – "Protocolo de Colaboração com Câmara Municipal de Vila do Bispo" Colaborating in sedimentological and archeological studies and member of the local museum scientific board

• October 2014 to present – Collaboration with the United States Geological Survey in the sedimentological and geomorphological characterization of Hurricane Sandy Washover in Fire Island (New Jersey)

• October 2012 to present – Research team member – "Will climate change in the Arctic increase the landslide-tsunami risk to the UK?" Funded by Natural Environment Research Council – UK. (PI – Pete Talling, Task leader – Sue Dawson). Budget: £2.3 million

• January 2015 to December 2018 – Task leader – "Eventos de oleaje extremo en el area atlantica ibero-magrebi: el registro geologico de tsunamis y ciclones durante el holoceno". Funded by Plan Estatal de Investigación Científica y Técnica y de Innovación of the Ministerio de Economía Y Competitividad (Spain) (PI – Javier Lario Gomez). Total amount funded: 45 000 euros

Books & Chapters:

• 2017 Costa, P.J.M., and Andrade, C. (2017). 5th International Tsunami Field Symposium – Field Guide. 97 pages. isbn: 978-989-20-7817-5_2

• 2017 Costa, P.J.M., Andrade, C. and Freitas, M.C. – Editors – (2017). 5th International Tsunami Field Symposium – Volume of Abstracts. 131 pages

• 2016 Costa, P.J.M., Oliveira, M. A., González-Villanueva, R., Andrade, C. and Freitas, M. C., (2016). Imprints of the AD 1755 Tsunami in Algarve (South Portugal) Lowlands and Post-impact Recovery. In: V. Santiago-Fandiño, H. Tanaka, M. Spiske (Eds.), Tsunamis and Earthquakes in Coastal Environments: Significance and Restoration. Springer International Publishing, 17-30. doi: 10.1007/978-3-319-28528-3_2

• 2016 Andrade, C., Freitas, M. C., Oliveira, M. A. and Costa, P.J.M., (2016). On the sedimentological and historical evidences of seismic-triggered tsunamis on the Algarve coast of Portugal. Natural Hazards and Plate Tectonics. 29 pp. Edited by Duarte, J. Published by AGU/Wiley. ISBN: 978-1-119-05397-2.

• 2015 Costa, P.J.M., (2015). Sediment transport. Encyclopedia of Estuaries, 8 pp. Editor Kennish, M. J. Published by Springer Science. ISBN: 978-94-017-8800-7

• 2014 Costa, P.J.M. and Dawson, S., (2014). Tsunami Sedimentology. In: A.R. Meyers (Ed.), Encyclopedia of Complexity and Systems Science. Springer Berlin Heidelberg, Berlin, Heidelberg, pp. 1-17.

• 2014 Costa, P.J.M., Andrade, C. and Dawson, S., (2014). Geological recognition of onshore tsunami deposits. Series: Coastal Research Library, Vol. 8 Advances in Coastal and Marine Resources Environmental Management and Governance, 28 pp. Edited by Finkl, C. W., Makowski, Christopher Published by Springer. doi: 10.1007/978-3-319-06305-8_1

• 2013 Aarup, T., Baptista, M. A., Costa, P.J.M., Ma?as, L. M., Pires, P., Santini, M., Santoro, F., Soddu, P.L., (2013). Tsunami Preparedness Civil Protection – Good Practices Guide. 73 pp. Published by IOC/UNESCO.
