

PEDRO MANUEL ALBERTO DE MIRANDA

Adress: Faculdade de Ciências da Universidade de Lisboa
Campo Grande, edifício C5
1749-016 Lisboa

Tel: +351.217500885 email: pmmiranda@fc.ul.pt

PhD in Meteorology, University of Reading (UK) 1991

Associate Professor (Ag.) FCUL (faculdade de ciências da Universidade de Lisboa)

Scientific Interests: Meteorology, Geophysical Modeling

Papers

Dutra E, Viterbo P, Miranda PMA, Balsamo G (2012), Complexity of Snow Schemes in a Climate Model and Its Impact on Surface Energy and Hydrology, Journal of Hydrometeorology, in press, DOI: 10.1175/JHM-D-11-072.1

Teixeira MAC, Argain JL, Miranda PMA (2012), The importance of friction in mountain wave drag amplification by Scorer parameter resonance, Quarterly Journal of the Royal Meteorological Society, online, DOI: 10.1002/qj.1874.

Nico G, Tomé R, Catalão J, Miranda PMA, (2011), On the Use of the WRF Model to Mitigate Tropospheric Phase Delay Effects in SAR Interferograms, IEEE Transactions on Geoscience and Remote Sensing, 49, 4970-4976, DOI:10.1109/TGRS.2011.2157511

Teixeira, J., S. Cardoso, M. Bonazzola, J. Cole, A. DelGenio, C. DeMott, C. Franklin, C. Hannay, C. Jakob, Y. Jiao, J. Karlsson, H. Kitagawa, M. Köhler, A. Kuwano-Yoshida, C. LeDrian, J. Li, A. Lock, M.J. Miller, P. Marquet, J. Martins, C.R. Mechoso, E. van Meijgaard, I. Meinke, P.M.A. Miranda, D. Mironov, R. Neggers, H.L. Pan, D.A. Randall, P.J. Rasch, B. Rockel, W.B. Rossow, B. Ritter, A.P. Siebesma, P.M.M. Soares, F.J. Turk, P.A. Vaillancourt, A. Von Engel, and M. Zhao, 2011: Tropical and subtropical cloud transitions in weather and climate prediction models: the GCSS/WGNE

Pacific Cross-section Intercomparison (GPCI). *J. Climate*, 24, 5223–5256, doi:10.1175/2011JCLI3672.1.

Dutra, E., S. Kotlarski, P. Viterbo, G. Balsamo, P. M. A. Miranda, C. Schär, P. Bissolli, and T. Jonas (2011), Snow cover sensitivity to horizontal resolution, parameterizations, and atmospheric forcing in a land surface model, *J. Geophys. Res.*, 116, D21109, doi:10.1029/2011JD016061. [DutraETal_JGR_2011.pdf](#)

[Dutra E, Schär C, Viterbo P, Miranda PMA \(2011\): Land atmosphere coupling associated with snow cover, Geophysical Research Letters, 38, L15707, doi: 10.1029/2011GL048435.](#)

Martins JPA, Teixeira J, Soares PMM, Miranda PMA, Kahn BH, Dang V, Irion B, Fetzer EJ, Fishbein E (2010): Infrared Sounding of the Trade-wind Boundary Layer: AIRS and the RICO Experiment. *Geophysical Research Letters*, 37, doi:10.1029/2010GL045902 [Martins et al GRL 2010.pdf](#).

Hazeleger, W., C. Severijns, T. Semmler, S. Stefanescu, S. Yang, X. Wang, K. Wyser, E. Dutra, J. Baldasano, R. Bintanja, P. Bougeault, R. Caballero, A. M. L. Ekman, J. H. Christensen, B. van den Hurk, P. Jimenez, C. Jones, P. Kallberg, T. Koenigk, R. McGrath, P. Miranda, T. Noije, T. Palmer, J. Parodi, T. Schmith, F. Selten, T. Storelvmo, A. Sterl, H. Tapamo, M. Vancoppenolle, P. Viterbo, U. Willén, 2010 : EC-Earth: A Seamless Earth System Prediction Approach in Action. *Bulletin of the American Meteorological Society*, 91, 1357-1363 . doi: 10.1175/2010BAMS2877.1 [Hazeleger et al BAMS 2010.pdf](#)

Dutra E, Balsamo G, Viterbo P, Miranda PMA., Beljaars A, Schär C, Elder K, 2010: An improved snow scheme for the ECMWF land surface model: description and offline validation. *J. Hydrometeorology*, 11, 899–916. doi: 10.1175/2010JHM1249.1. [Dutra et al 2010 JH.pdf](#)

Balsamo G, Dutra E, Stepanenko VM, Viterbo P, Miranda PM, Mironov D, 2010, Deriving an effective lake depth from satellite lake surface temperature data: a feasibility study with MODIS data, *Boreal Environment Research* , 15,178-190. [Balsamo et al 2010 BER.pdf](#)

Dutra EN, Stepanenko VM, Balsamo G, Viterbo P, Miranda PMA, Mironov D, Schaer C. 2010. Impact of lakes on the performance of global simulations with the ECMWF surface scheme, Boreal Environment Research 15,100-112. [Dutra et al BER 2010.pdf](#)

Teixeira MAC, Miranda PMA. 2009. On the momentum fluxes associated with mountain waves in directionally sheared flows; Journal of the Atmospheric Sciences, 66, 3419-3433. [Teixeira Miranda JAS 2009 0.pdf](#)

Miranda PMA, Martins JPA, Teixeira MAC. 2009. Assessing wind profile effects on the global atmospheric torque, Quarterly Journal of the Royal Meteorological Society, 135, 807-814. DOI: 10.1002/qj.393 [Miranda etal QJRMS 2009.pdf](#)

Miranda PMA, Tome AR (2009). Spatial structure of the evolution of surface temperature (1951-2004). Climatic Change, 93, 269-284, DOI 10.1007/s10584-008-9540-8. (proofs) <http://dx.doi.org/10.1007/s10584-008-9540-8>

Argain JL, Miranda PMA, Teixeira MAC. 2008. Estimation of the friction velocity in stably stratified boundary-layer flows over hills. Boundary Layer Meteorology, 130,15-28. DOI 10.1007/s10546-008-9329-3 [Argain etal BLM2008.pdf](#)

Trigo R.M., M.A. Valente , I.F. Trigo , P.M.A. Miranda, A.M. Ramos, D. Paredes, R. García-Herrera (2008) North Atlantic wind and cyclone trends and their impact in the European precipitation and Atlantic significant wave height, Annals of the New York Academy of Sciences, 1146, 212-234. [Trigo et al ANYAS 2008.pdf](#)

Dutra, E.N., P. Viterbo, and P.M.A. Miranda (2008) ERA-40 reanalysis hydrological applications in the characterization of regional drought, Geophysical Research Letters, 35, L19402, doi:10.1029/2008GL035381. [Dutra et al GRL 2008.pdf](#)

Teixeira, M.A.C., Miranda, P.M.A. and Argain, J.L. (2008) Mountain waves in two-layer sheared flows: critical level effects, wave reflection and drag enhancement; Journal of the Atmospheric Sciences, 65, 1912-[Teixeira et al JAS 2008.pdf](#)

Teixeira, M.A.C., Miranda, P.M.A. and Cardoso, R.M. (2008) Asymptotic gravity wave drag expressions for non-hydrostatic, rotating flow over a ridge; Quarterly Journal of the Royal Meteorological Society, 134, 271-276. [Teixeira etal QJRMS 2008.pdf](#)

Soares, P. M. M., P.M.A. Miranda, J. Teixeira and A.P. Siebesma (2007): "An Eddy-diffusivity/Mass-flux Boundary Layer Parameterization Based on the TKE Equation: a Dry Convection Case Study", Special Issue on Micrometeorology of Fisica de la Tierra, 19, 147-161.

Mendes, D., E. Souza, I. Trigo, P.M.A. Miranda (2007), On precursors of south American cyclogenesis, Tellus A, 59, 114-121. [MendesEtalTellus2007a.pdf](#)

Teixeira, M. A. C. and P. M. A. Miranda (2006): "A linear model of gravity wave drag for hydrostatic sheared flow over elliptical mountains"; Quarterly Journal of the Royal Meteorological Society, 132, 2439-2458. [Teixeira Miranda QJRMS 2006 0.pdf](#)

Tomé, A.R., and P.M.A. Miranda (2005): Continuous partial trends and low-frequency oscillations of time series, Nonlinear Processes in Geophysics, 12, 451-460. [Tome&Miranda_2005_NPG.pdf](#)

Teixeira, M.A.C. and P.M.A. Miranda (2005), Linear criteria for gravity wave breaking in resonant stratified flow over a ridge, Quarterly Journal of the Royal Meteorological Society, 131, 1815-1820. [Teixeira Miranda QJRMS 2005 0.pdf](#)

Teixeira, M.A.C., P.M.A.Miranda, J.L. Argain and M.A. Valente (2005), Resonant gravity wave drag enhancement in linear stratified flow over mountains, Quarterly Journal of the Royal Meteorological Society, 131, 1795-1814. [Teixeira etal QJRMS 2005 0.pdf](#)

Tomé, A.R., P.M.A. Miranda, and F.D. Santos (2004): "Interannual variability of the location of the main atlantic pressure systems and the NAO index", World Resource Rev., 16, 357-369. [TomeEtalWRR2004.pdf](#)

Soares, P.M.M., P.M.A. Miranda, A.P. Siebesma, and J. Teixeira (2004): "An eddy-diffusivity/Mass-flux parameterization for dry and shallow cumulus convection", Quarterly Journal of the Royal Meteorological Society, 130, 3365-3384. [SoaresEtalQJ2004.pdf](#)

Santos, F.D. M.A. Valente, P.M.A. Miranda, A. Aguiar, E.B. Azevedo, A. Tomé and F. Coelho (2004): "Climate Change Scenarios in the Azores and Madeira Islands", World Resource Review, 16, No 3, 473-491. [SantosEtalWRR2004_pdf.pdf](#)

Teixeira, J., J.P. Ferreira, P.M.A. Miranda, T. Haack, J. Doyle, A. P. Siebesma and R. Salgado (2004): "On a new mixing length formulation for the parameterization of dry convection: Implementation and evaluation in a mesoscale model", *Monthly Weather Review*, 132, 2698-2707. [TeixeiraEtalMWR2004.pdf](#)

Teixeira, M.A.C. and P.M.A. Miranda (2004). The effect of wind shear and curvature on gravity wave drag produced by a mountain ridge, *Journal of the Atmospheric Sciences*, 61, 2638-2643. [teixeira_miranda_JAS_2004_0.pdf](#)

Tomé, A.R., and P.M.A. Miranda (2004): "Piecewise Linear Fitting and Trend Changing Points of Climate Parameters", *Geophysical Research Letters*, 31, No. 2, L02207, 10.1029/2003GL019100. [Tome&Miranda2004GRL.pdf](#)

Teixeira, M.A.C., P.M.A. Miranda and M.A. Valente (2004): "An analytical model of mountain wave drag for wind profiles with shear and curvature", *Journal of the Atmospheric Sciences*, 61, 1040–1054. [Teixeira_etal_2004_JAS.pdf](#)

Pires, C. and P.M.A. Miranda (2003): "Sensitivity of the adjoint method in the inversion of tsunami source parameters", *Natural Hazards and Earth System Science*, 3, 341-351. [Pires&Miranda_2003_nhs-3-341.pdf](#)

Pires, C. and P.M.A. Miranda (2001): "Tsunami waveform inversion by adjoint methods". *Journal of Geophysical Research*, 106, No. C9, 19773-19796. [Pires&Miranda_2001_JGR.pdf](#)

Rööm, R., P.M.A. Miranda and A.J. Thorpe (2001): "Filtered non-hydrostatic models in pressure-related coordinates". *Quarterly Journal of the Royal Meteorological Society*, 127, 1277-1292. [RoomMirandaThorpe2001_QJ.pdf](#)

Teixeira, J., and P.M.A. Miranda (2001): "Fog prediction at Lisbon airport using a one-dimensional boundary layer model". *Meteorological Applications*, 8, 497-505. [TeixeiraMirandaMA2001.pdf](#)

Miranda, P.M.A., J.J. Ferreira and A.J. Thorpe (1999): "Gravity wave drag produced by Madeira". *Quarterly Journal of the Royal Meteorological Society*, 125, 1341-1357. [QJMirandaFerreiraThorpe1999.pdf](#)

Mendes-Victor, L., M.A. Baptista, J. M. Miranda, P.M.A. Miranda, "Can Hydrodynamic Modelling of Tsunami Contribute to Seismic Risk Assessment?" Phys. Chem. Earth, vol 24, N° 2, pp. 139-144. 1999. [VictorEtal1999_PCE.pdf](#)

Rabinovich, A.B., P.M.A. Miranda, and M. A. Baptista (1998): "Analysis of the 1969 and 1975 Tsunamis at the Atlantic Coast of Portugal and Spain". Oceanology, 38, No. 4, 463-469.

Baptista, M.A., P.M.A. Miranda, J. M. Miranda and L.M. Victor (1998): "Constraints on the source of the 1755 Lisbon tsunami inferred from numerical modelling of historical data". Journal of Geodynamics, 25, 159-174. [BaptistaEtalJG1998b.pdf](#)

Baptista, M.A., S. Heitor, J.M. Miranda, P.M.A. Miranda and L.M. Victor (1998): "The 1755 Lisbon tsunami: Evaluation of the tsunami parameters". Journal of Geodynamics, 25, 143-157. [BaptistaEtalJG1998a.pdf](#)

Gjevic,B., G.Pedersen, E.Dybesland, C.B.Harbitz, P.M.A.Miranda, M.A.Baptista, L.Mendes-Victor, Ph.Heinrich, R.Roche and M. Guesima (1997): "Modeling tsunamis from earthquake sources near Gorringe Bank southwest of Portugal". Journal of Geophysical Research, 102, No. C13, 27931-27949.

Miranda, P.M.A. and M.A. Valente (1997): "On Critical Level Resonance in Three-dimensional Flow Past Isolated Mountains". Journal of the Atmospheric Sciences, 54, 12, 1574-1588. [miranda_valente_1997.PDF](#)

Teixeira, M.A.C., and P.M.A. Miranda (1997): "On the entrainment assumption in Schatzmann's integral plume model". Applied Scientific Research, 57, 15-42. [teixeira_miranda_1997_ASR.pdf](#)

Miranda, J.M., P.M.A. Miranda, M.A. Baptista, and L.Mendes Victor (1996): "A comparison of the spectral characteristics of observed and simulated tsunamis". Physics and Chemistry of the Earth, 21, 71-74.

Baptista, M.A., P.M.A. Miranda, J.M. Miranda and L.Mendes Victor (1996): "Rupture extent of the 1755 Lisbon earthquake inferred from numerical modeling of tsunami data". Physics and Chemistry of the Earth, 21, 65-70.

Heinrich, Ph., M.A. Baptista and P.M.A. Miranda, (1994) "Numerical Simulations of the 1969 Tsunami along the Portuguese coasts". *Science of Tsunami Hazards*, vol 12, No.1, 3-25.

Baptista, M.A., P.M.A. Miranda, and L.M. Victor (1992): "Maximum entropy analysis of Portuguese tsunami data. The tsunamis of 28.02.1969 and 26.05.1975". *Science of Tsunami Hazards*, 10, No. 1, 9-20.

Miranda PMA, James IN (1992): Non-linear three-dimensional effects on gravity wave drag: Splitting flow and breaking waves". *Quarterly Journal of the Royal Meteorological Society*, vol 118, 1057-1082. [QJMirandaJames1992.pdf](#)

Books

Miranda, PMA (2009): *Meteorologia e Ambiente*. Universidade Aberta, 2ªEd., 357pp.

Soares PMM, Teixeira J, and Miranda PMA (2010): Parametrization of convective boundary layer turbulence and clouds in atmospheric models, in Moreira D and Vilhena M (eds) *Air Pollution and Turbulence*, 2010, CRC Press, Taylor and Francis, 324pp, 69-130.

Santos FD, Miranda PMA (eds.), 2006, *Alterações climáticas em Portugal: cenários, impactos e medidas de adaptação (Projecto SIAM II)*, Gradiva, 506 pp.

Mendes-Victor, L., A. Ribeiro, L. Matias, M.A. Baptista, J.M. Miranda, P. Miranda, N. Zitellini, E. Garcia, C. Corela, P. Terrinha, M. Rovere and F. Teixeira, Progresses in the assessment of tsunami genesis and impacts around the Portuguese coasts, in *Tsunamis, Case Studies and Recent Developments, Advances in Natural and Technological Hazards Research*, Vol. 23, Satake, Kenji (Ed.), 2005, VIII, 356 p., Hardcover, ISBN: 1-4020-3326-5.

Pires, C., and P.M.A. Miranda, Adjoint inversion of the source parameters of near-shore tsunamigenic earthquakes, in *Tsunamis, Case Studies and Recent Developments, Advances in Natural and Technological Hazards Research*, Vol. 23, Satake, Kenji (Ed.), 2005, VIII, 356 p., 241-258, Hardcover, ISBN: 1-4020-3326-5. [Pires&Miranda2004.pdf](#)

Miranda,P.M.A., M.A. Valente, A.R. Tomé, R.Trigo, M. F. Coelho, A. Aguiar, E.B. Azevedo, O clima de Portugal nos séculos XX e XXI, in Santos e Miranda (eds), 2006, 47-113), Gradiva. [Siam2_Clima.pdf](#)

Miranda PMA, R. Moita, M.A. Valente, L.V. Cunha, L. Ribeiro, R.P. Oliveira, J. Nascimento, L. Nunes, A.M. Dill, A.P. Brandão, P.A. Pinto, R. Braga, J.S. Pereira, A.C. Correia. A.V. Correia, N. Onofre, H. Freitas, C. Andrade, M.C. Freitas, P. Brito, A. Amorim, A. Barata, G. Cabaço, C.S. Reis, R. Lemos, D. Alagador, E. Casimiro, J.M. Calheiros, C. Sousa, C. Alves-Pires, M.C. Pereira, M. Cardoso, O. Afonso, P. Almeida, P. Nogueira, R Sousa, R. Aguiar, M. Oliveira, e H. Gonçalves, A mudança climática no vale do Sado, in Santos e Miranda (eds), 2006, 385-479, Gradiva.

Miranda PMA, F. Coelho, A. R. Tomé, M. A Valente., A. Carvalho, C. Pires, H. O. Pires, V. C. Cabrinha and C. Ramalho (2002) “20th Century Portuguese Climate and Climate Scenarios”, in Santos, F.D., K Forbes and R. Moita (eds) Climate Change in Portugal: Scenarios, Impacts and Adptation Measures”, 27-83. Gradiva. [Siam1_Clima.pdf](#)

Miranda PMA (2001): Meteorologia e Ambiente. Universidade Aberta, 325 pp.

Miranda PMA (1997): "Non-linear effects and resonance in 3D flow past isolated mountains", in Workshop on Orography, 81-96. European Centre for Medium Range Weather Forecasts, Reading, UK.

Miranda, PMA (1991): PhD thesis, University of Reading. [MirandaPhD.pdf](#)

RECENT SUPERVISED THESIS

PhD thesis by D. Mendes [MendesPhD_FCUL2006_rev_Out2006.pdf](#)

PhD thesis by R. Salgado [RSalgadoPhD2006.pdf](#)

PhD thesis by J. Argain [PhDArgain.pdf](#) (draft)

PhD thesis by P. Soares [PhDPSoares.pdf](#)

MSc thesis by C. Ramalho [MScCRamalho.pdf](#)

MSc thesis by P. Costa [PauloCostaMSc.pdf](#)

Degree dissertation by R. Fonseca [Ricardo_Fonseca_Lic_2007.pdf](#)

Degree dissertation by Sambingo Cardoso [SAMgpciThesis2006.pdf](#)

Degree dissertation by Sónia Domingos [Sonia_2006.pdf](#)

Degree dissertation by João Martins [Martins2006.pdf](#)

Degree dissertation by Emanuel Dutra [EmanuelDutraEstagio2006.pdf](#)

[Degree dissertation by Ricardo Tomé Ricardo Tome Estagio 2004.pdf](#)