

CURRICULUM VITAE – FRANCO MARENCO

Research interests:

- characterisation of the atmospheric composition and structure
- studies on remote sensing at visible and UV wavelengths
- lidar systems, algorithms and methods
- atmospheric aerosols
- field experiments; airborne research

Current occupation:

Since 2009: Senior Scientist at the Met Office, Exeter, UK:

- atmospheric campaigns on-board the FAAM research aircraft (www.faam.ac.uk)
- aerosol and cloud remote sensing by lidar
- characterisation of the Eyjafjallajökull volcanic plume in 2010
- characterisation of the atmosphere of the Sahara and of the Amazon
- studies on the CALIPSO satellite product.

Previous scientific experience:

2006-2009: Researcher at the Italian National agency for new technologies, Energy and sustainable economic development (ENEA), Palermo, Italy

2003-2006: PhD student at the University of Genova, Italy

2000-2003: Researcher at the Italian National agency for new technologies, Energy and sustainable economic development (ENEA), Roma, Italy

1998-2000: Holder of a national grant at the Italian Space Agency (ASI), Roma, Italy.

1997-1998: Holder of a national grant at Istituto di Fisica dell'Atmosfera (IFA-CNR, nowadays known as ISAC-CNR), Roma, Italy.

1996-1997: Young Graduate Trainee at ESA/ESTEC, Noordwijk.

1995-1996: Holder of a European grant (Human Capital & Mobility) at the “Aristotle” University of Thessaloniki, Greece.

Education:

- European baccalaureate in 1987 (European School, Brussels I, Belgium)
- Laurea in Fisica (vecchio ordinamento) in 1994 (Università di Roma “La Sapienza”, Italy)
- Specialisation in Optics in 2002 (Università di Firenze, Italy)
- PhD in Physics in 2006 (Università di Genova, Italy)

PUBLICATIONS

1. F. Marengo, A. di Sarra, M. Cacciani, G. Fiocco and D. Fuà, "Thermal structure of the winter middle atmosphere observed by lidar at Thule, Greenland, during 1993-94," *Journal of Atmospheric and Solar-Terrestrial Physics* **59**, 151-158, 1997.
2. F. Marengo, V. Santacesaria, A. Bais, D. Balis, A. di Sarra, A. Papayannis, and C. Zerefos, "[Optical properties of tropospheric aerosols determined by lidar and spectrophotometric measurements \(PAUR campaign\)](#)," *Applied Optics* **36**, 6875-6886, 1997.
3. F. Marengo, Mie scattering calculations for the Earth Radiation Mission, EWP-1950, 74 pages, August 1997. (European Space Agency, Noordwijk).
4. E. Hamonou, P. Chazette, A. Papayannis, D. Balis, F. Marengo, V. Santacesaria, and G. Ancellet, "[Ground-based measurements of Saharan dust optical properties in the frame of the European MEDUSE Project](#)," *Journal of Aerosol Science* **28**, Suppl. 1, S695-S696, 1997.
5. V. Santacesaria, F. Marengo, D. Balis, A. Papayannis, C. Zerefos, "Lidar observations of the Planetary Boundary Layer above the city of Thessaloniki, Greece," *Nuovo Cimento* **21C**, 585-596, 1998.
6. D. Balis, A. Bais, A. Papayannis, F. Marengo, V. Santacesaria, and C. Zerefos, "Comparison of model calculations with spectral solar UV measurements," in *Atmospheric Ozone, Proceedings of the XVIII Quadriennial Ozone Symposium, l'Aquila, 12-21 September 1996*, edited by R.D. Bojkov and G. Visconti, pp. 837-840, 1998. (International Ozone Commission, l'Aquila).
7. F. Congeduti, F. Marengo, P. Baldetti, and E. Vincenti, "[The multiple mirror lidar 9-eyes](#)," *Journal of Optics A: Pure and Applied Optics* **1**, 185-191, 1999.
8. D. Balis, A. Papayannis, E. Galani, F. Marengo, V. Santacesaria, E. Hamonou, P. Chazette, I. Ziomas, and C. Zerefos, "[Tropospheric lidar aerosol measurements and sun photometric observations at Thessaloniki, Greece](#)," *Atmospheric Environment* **34**, 925-932, 2000.
9. A. di Sarra, M. Cacciani, M. Campanelli, P. Chamard, C. Cornwall, J. DeLuisi, L. De Silvestri, T. Di Iorio, P. Dinkerhoft, G. Fiocco, D. Fuà, P. Grigioni, W. Junkermann, F. Marengo, D. Meloni, F. Monteleone, and B. Olivieri, "Radiation, ozone, and aerosol measurements at Lampedusa during the PAUR II campaign," in *IRS 2000: Current Problems in Atmospheric Radiation (Proceedings of International Radiation Symposium 2000)*, edited by W.L. Smith and Y.M. Timofeyev, pp. 1193-1196, 2001. (Deepak, Hampton, USA).
10. F. Marengo, A. di Sarra, and J. De Luisi, "[Methodology for determining aerosol optical depth from Brewer 300-320-nm ozone measurements](#)," *Applied Optics* **41**, 1805-1814, 2002.
11. F. Marengo and P. Tini Brunozi, "[Different possibilities for water vapour measurements by lidar in daytime at ENEA's observatory in Lampedusa, Italy: a simulation](#)," *Journal of Optics A: Pure and Applied Optics* **4**, 408-418, 2002.
12. D. Meloni, F. Marengo, and A. di Sarra, "[Ultraviolet radiation and aerosol monitoring at Lampedusa, Italy](#)," *Annals of Geophysics* **46**, 373-383, 2003.
13. P. Tini Brunozi and F. Marengo, "[A lidar for water vapour measurements in daytime at Lampedusa, Italy](#)," *Annals of Geophysics* **46**, 459-465, 2003.
14. F. Mazzei, A. D'Alessandro, F. Lucarelli, F. Marengo, S. Nava, P. Prati, G. Valli, and R. Vecchi, "Elemental composition and source apportionment of particulate matter near a steel plant in Genoa (Italy)," *Nuclear Instruments and Methods in Physics Research B* **249**, 548-551, 2006.
15. F. Marengo, P. Bonasoni, F. Calzolari, M. Ceriani, M. Chiari, P. Cristofanelli, A. D'Alessandro, P. Fermo, F. Lucarelli, F. Mazzei, S. Nava, A. Piazzalunga, P. Prati, G. Valli, and R. Vecchi, "[Characterization of atmospheric aerosols at Monte Cimone, Italy, during summer 2004: Source apportionment and transport mechanisms](#)," *Journal of Geophysical Research* **111**, eid: D24202, doi: 10.1029/2006JD007145, 2006.
16. F. Marengo, "[On Langley plots in the presence of a systematic diurnal aerosol cycle centered at noon: a comment on recently proposed methodologies](#)," *Journal of Geophysical Research* **112**, eid: D06205, doi: 10.1029/2006JD007248, 2007.
17. F. Marengo, F. Mazzei, P. Prati, and M. Gatti, "[Aerosol advection and sea salt events in Genoa, Italy, during the second half of 2005](#)," *Science of the Total Environment* **377**, 396-406, 2007.
18. H.F. Dacre, A.L.M. Grant, R.J. Hogan, S.E. Belcher, D.J. Thomson, B.J. Devenish, F. Marengo, M.C. Hort, J.M. Haywood, A. Ansmann, I. Mattis, and L. Clarisse, "[Evaluating the structure and magnitude of the ash plume during the initial phase of the 2010 Eyjafjallajökull eruption using lidar observations and NAME simulations](#)," *Journal of Geophysical Research*, **116**, eid: D00U03, doi: 10.1029/2011JD015608, 2011.
19. F. Marengo, B.T. Johnson, K.F. Turnbull, S. Newman, J.M. Haywood, H. Webster, and H. Ricketts, "[Airborne lidar observations of the 2010 Eyjafjallajökull volcanic ash plume](#)," *Journal of Geophysical Research* **116**, eid: D00U05, doi: 10.1029/2011JD016396, 2011.
20. F. Marengo and R.J. Hogan, "[Determining the contribution of volcanic ash and boundary-layer aerosol in backscatter lidar returns: a three-component atmosphere approach](#)," *Journal of Geophysical Research* **116**, eid: D00U06, doi: 10.1029/2010JD015415, 2011.
21. H.N. Webster, D.J. Thomson, B.T. Johnson, I.P.C. Heard, K. Turnbull, F. Marengo, N.I. Kristiansen, J. Dorsey, A. Minikin, B. Weinzierl, U. Schumann, R. S. J. Sparks, S.C. Loughlin, M.C. Hort, S.J. Leadbetter, B.J. Devenish, A.J. Manning, C.S. Witham, J.M. Haywood, and B.W. Golding, "[Operational prediction of ash concentrations in the distal volcanic cloud from the 2010 Eyjafjallajökull eruption](#)," *Journal of Geophysical Research* **117**, eid: D00U08,

doi: 10.1029/2011JD016790, 2012.

22. N.I. Kristiansen, A. Stohl, A.J. Prata, N. Bukowiecki, H. Dacre, S. Eckhardt, S. Henne, M.C. Hort, B.T. Johnson, F. Marenco, B. Neininger, O. Reitebuch, P. Seibert, D.J. Thomson, H.N. Webster, and B. Weinzierl, "[Performance assessment of a volcanic ash transport model mini-ensemble used for inverse modeling of the 2010 Eyjafjallajökull eruption](#)," *Journal of Geophysical Research* **117**, eid: D00U11, doi: 10.1029/2011JD016844, 2012.
23. K. Turnbull, B. Johnson, F. Marenco, J. Haywood, A. Minikin, B. Weinzierl, H. Schlager, U. Schumann, S. Leadbetter, and A. Woolley, "[A case study of observations of volcanic ash from the Eyjafjallajökull eruption: 1. In situ airborne observations](#)," *Journal of Geophysical Research* **117**, eid: D00U12, doi: 10.1029/2011JD016688, 2012.
24. S.M. Newman, L. Clarisse, D. Hurtmans, F. Marenco, B. Johnson, K. Turnbull, S. Havemann, A.J. Baran, D. O'Sullivan, and J. Haywood, "[A case study of observations of volcanic ash from the Eyjafjallajökull eruption: 2. Airborne and satellite radiative measurements](#)," *Journal of Geophysical Research* **117**, eid: D00U13, doi: 10.1029/2011JD016780, 2012.
25. B.J. Devenish, D.J. Thomson, F. Marenco, S.J. Leadbetter, H. Ricketts, and H.F. Dacre, "[A study of the arrival over the United Kingdom in April 2010 of the Eyjafjallajökull ash cloud using ground-based lidar and numerical simulations](#)," *Atmospheric Environment* **48**, 152-164, 2012.
26. S.A. Christopher, N. Feng, A. Naeger, B. Johnson, and F. Marenco, "[Satellite remote sensing analysis of the 2010 Eyjafjallajökull volcanic ash cloud over the North Sea during 4-18 May 2010](#)," *Journal of Geophysical Research* **117**, eid: D00U20, doi: 10.1029/2011JD016850, 2012.
27. H.M. Jones, J. Haywood, F. Marenco, D. O'Sullivan, J. Meyer, R. Thorpe, M.W. Gallagher, M. Krämer, K.N. Bower, G. Rädcl, A. Rap, A. Woolley, P. Forster, and H. Coe, "[A methodology for in-situ and remote sensing of microphysical and radiative properties of contrails as they evolve into cirrus](#)," *Atmospheric Chemistry and Physics* **12**, 8157-8175, 2012.
28. A.L.M. Grant, H.F. Dacre, D.J. Thomson, and F. Marenco, "[Horizontal and vertical structure of the Eyjafjallajökull ash cloud over the UK: a comparison of airborne lidar observations and simulations](#)," *Atmospheric Chemistry and Physics* **12**, 10145-10159, 2012.
29. V. Amiridis, A. Tsekeri, F. Marenco, E. Marinou, E. Giannakaki, D. Balis, A. Nenes, J. Allan, A. Bacak, H. Coe, Validation of CALIPSO nighttime aerosol products using airborne lidar and in-situ observations, in *Proceedings of the 26th International Laser Radar Conference*, 25-29 June 2012, Porto Heli, Greece, edited by A. Papayannis, D. Balis, and V. Amiridis, National Technical University of Athens (2012).
30. A.J. Baran, R. Cotton, S. Havemann, L.-C. Labonnote, and F. Marenco, "[A self-consistent high- and low-frequency scattering model for cirrus](#)," in *Radiation Processes in the Atmosphere And Ocean (International Radiation Symposium 2012)*, edited by R.F. Cahalan and J. Fischer, pp. 167-170, doi: 10.1063/1.4804733, 2013. (AIP Publishing LLC, Melville, USA).
31. F. Marenco, "[Nadir airborne lidar observations of deep aerosol layers](#)," *Atmospheric Measurement Techniques* **6**, 2055-2064, 2013.
32. A.J. Baran, R. Cotton, K. Furtado, S. Havemann, L.-C. Labonnote, F. Marenco, A. Smith, and J.-C. Thelen, "[A self-consistent scattering model for cirrus. II: The high- and low-frequencies](#)," *Quarterly Journal of the Royal Meteorological Society* **140**, 1039-1057, 2014.
33. S.M. Illingworth, G. Allen, S. Newman, A. Vance, F. Marenco, R.C. Harlow, J. Taylor, D.P. Moore, and J.J. Remedios, "[Atmospheric composition and thermodynamic retrievals from the ARIES airborne FTS system - Part 1: Technical aspects and simulated capability](#)," *Atmospheric Measurement Techniques* **7**, 1133-1150, 2014.
34. S.R. Osborne, S.J. Abel, I.A. Boutle, and F. Marenco, "[Evolution of stratocumulus over land: comparison of ground and aircraft observations with numerical weather prediction simulations](#)," *Boundary-Layer Meteorology*, doi: 10.1007/s10546-014-9944-0, 2014.
35. L. Garcia-Carreras, D.J. Parker, J.H. Marsham, P.D. Rosenberg, I.M. Brooks, A.P. Lock, F. Marenco, J.B. McQuaid, and M. Hobby, "The turbulent structure and diurnal growth of the Saharan atmospheric boundary layer," *Journal of the Atmospheric Sciences*, *in press*, 2014.
36. F. Marenco, V. Amiridis, E. Marinou, A. Tsekeri, and J. Pelon, Airborne verification of CALIPSO products over the Amazon: a case study of daytime observations in a complex atmospheric scene, *Atmospheric Chemistry and Physics Discussions* **14**, 9203-9224, 2014.
37. A. J. Baran, K. Furtado, L.-C. Labonnote, S. Havemann, J.-C. Thelen, and F. Marenco, On the relationship between the scattering phase function of cirrus and the atmospheric state, *Atmospheric Chemistry and Physics Discussions* **14**, 14109-14157, 2014.
38. G. Allen, S. M. Illingworth, S. J. O'Shea, S. Newman, A. Vance, S. J.-B. Bauguitte, F. Marenco, J. Kent, K. Bower, M. W. Gallagher, J. Muller, C. J. Percival, C. Harlow, J. Lee, and J. P. Taylor, "Atmospheric composition and thermodynamic retrievals from the ARIES airborne TIR-FTS system – Part 2: Validation and results from aircraft campaigns", *Atmos. Meas. Tech. Discuss.*, **7**, 3397-3441, 2014.