

Curriculum Vitae

Arnaud CARRARA

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Born 1970, single, one child, French nationality

Education

- 1998 **Ph.D.**, University Paul Sabatier of Toulouse (*UPST*), France. (*21 Dec 1998*)
Specialty: Physics and chemistry of the lower atmosphere.
- 1994 **DEA** (*first year post-graduate course*) (*UPST*).
Specialty: Physics and chemistry of the environment.
- 1993 **Master's Degree** in Physics, (*UPST*).
- 1990 **Diplôme d'Etudes Universitaires Générales (DEUG A)**, (*UPST*).
Specialty: Physics and Chemistry.

Experience

- Since July 2003 **Senior Researcher** at Fundación CEAM: Responsible of carbon cycle research group. Main research line is carbon and water cycle and their interaction in Mediterranean drought-prone ecosystems. Responsible of various eddy-covariance flux measurements stations ("flux-towers") with European CarboEurope network. Responsible for writing proposals, reports and publications. PI in various national (BALANGEIS, CARBOREDES, BIOSPEC, CARBORED-II) and European (CARBOEUROPE-IP, MIND, IMECC, ICOS-PP, CarboExtreme, GHG-Europe, InGOS) research projects. National Spanish representative in European research committees (ICOS infrastructure project, COST actions ES0804, ES0903, FP0903).
- Apr 2000–Mar 2003 **Post-doctoral stay** in the Univ. of Antwerp (Belgium), supervised by R. Ceulemans. Research theme on forest-atmosphere exchange of CO₂, H₂O, and energy fluxes. PI of the Brasschat flux tower site in CarboEuroflux European project.
- Apr-Oct 1999 **Post-doctoral stay** in INRA (Bordeaux, France) supervised by Y. Brunet. .
- Measurements and analysis of fluxes of O₃ in a pine forest canopy.
- Oct 1994 - Jan 1999 **Graduate Research Assistant / Teaching Assistant** at Univ. Paul Sabatier, Toulouse, France. (Ph.D.)
- Conducted eddy covariance O₃ and energy fluxes field measurement campaigns. Designed algorithms for eddy covariance flux calculation and advanced statistical analysis of turbulence data. Analysis and interpretation of results.
- Mar-April 1994 **DEA** practical course at Univ. Paul Sabatier. (Research theme: Atmospheric electricity: electromagnetic fields associated with storms systems)
- Analysis of the induced electric charge of sensors of atmospheric electric field.

Teaching activities:

Univ. Paul Sabatier (France): Over 4 years, a total experience of 144 h of courses (TD) and 234 h of practical courses (TP) in different fields of Physics (Mechanics, Thermodynamics, Optics).

Univ. Valencia (Spain): Master course on Global Change and Carbon Cycle (12h/year, 2009-2012)

Additional information

Languages: French: Native tongue.
English: fluent, scientific redaction ability
Spanish: fluent, scientific redaction ability

Computing: Advanced user knowledge (Matlab, Unix, Fortran, Excel, Origin, Word, R, Pascal).

Driving license

Publications (peer review)

Garcia-Hurtado E., Pey J., Baeza M.J., Carrara A., Llovet J., Querol X., Alastuey A., Vallejo R. (2013). Carbon emissions in Mediterranean shrubland wildfires: An experimental approach. *Atmospheric Environment*, doi: 10.1016/j.atmosenv.2012.11.063

Resco de Dios V, Goulden M, Ogle K, Richardson AD, Hollinger DY, Davidson EA, Alday JG, Barron-Gafford GA, Carrara A, Kowalski AS, Oechel WC, Reverter BR, Scott RL, Varner RK, Díaz-Sierra R, Moreno JM. (2012). Endogenous circadian regulation of carbon dioxide exchange in terrestrial ecosystems. *Global Change Biology*. doi: 10.1111/j.1365-2486.2012.02664.x

Ross, I., Misson, L., Rambal S., Arneth A., Scott R. L., Carrara A., Cescatti A., Genesio L. (2012) How do variations in the temporal distribution of rainfall events affect ecosystem fluxes in seasonally water-limited Northern Hemisphere shrublands and forests? *Biogeosciences*, 9, 1007–1024, doi:10.5194/bg-9-1007-2012.

Balzarolo, M.; Anderson, K.; Nichol, C.; Rossini, M.; Vescovo, L.; Arriga, N.; Wohlfahrt, G.; Calvet, J.-C.; Carrara, A.; Cerasoli, S.; Cogliati, S.; Daumard, F.; Eklundh, L.; Elbers, J.A.; Evrendilek, F.; Handcock, R.N.; Kaduk, J.; Klumpp, K.; Longdoz, B.; Matteucci, G.; Meroni, M.; Montagnani, L.; Ourcival, J.-M.; Sánchez-Cañete, E.P.; Pontailler, J.-Y.; Juszczak, R.; Scholes, B.; Martín, M.P. Ground-Based Optical Measurements at European Flux Sites: A Review of Methods, Instruments and Current Controversies. (2011) *Sensors*, 11, 7954-7981.

Reverter, B. R., Carrara, A., Fernández, A., Gimeno, C., Sanz, M. J., Serrano-Ortiz, P., Sánchez-Cañete, E. P., Domingo, F., Resco, V., Burba, G. G., Kowalski, A. S. (2011) Adjustments of annual NEE and ET for the open-path IRGA self-heating correction: magnitude and approximation over a climate range, *Agricultural and Forest Meteorology*, 151 (12), 1856 – 1861, doi:10.1016/j.agrformet.2011.06.001.

Migliavacca, M.; Reichstein, M.; Richardson, A. D.; Colombo, R.; Sutton, M.; Lasslop, G.; Tomelleri, E.; Wohlfahrt, G.; Carvalhais, N.; Cescatti, A.; Maheca, M. D.; Montagnani, L.; Papale, D.; Zaehle, S.; Arain, A.; Arneth, A.; Black, T. A.; Carrara, A.; Dore, S.; Gianelle, D.; Helfter, C.; Hollinger, D.; Kutsch, W.; Lafleur, P.; Nouvellon, Y.; Rebmann, C.; da Rocha, H. R.; Rodeghiero, M.; Rouspard, O.; Sebastia, M.T.; Seufert, G.; Soussana, J.F; van deer Molen, M. K.. (2011). Semiempirical modeling of abiotic and biotic factors controlling ecosystem respiration across eddy covariance sites. *Global Change Biology*, 17 (1). 390-409. 10.1111/j.1365-2486.2010.02243.x

Casals, P., Lopez-Sangil, L., Carrara, A., Gimeno, C., Nogués, S. (2011). Autotrophic and heterotrophic contributions to short-term soil CO₂ efflux following simulated summer precipitation pulses in a Mediterranean dehesa. *Global Biogeochemical Cycles*, 25, GB3012 pp 1-12. doi:10.1029/2010GB003973

Moors, E.J., C. Jacobs, W. Jans, I. Supit, W. L. Kutsch, C. Bernhofer, P. Béziat, N. Buchmann, A. Carrara, E. Ceschia, J. Elbers, W. Eugster, B. Kruijt, B. Loubet, E. Magliulo, C. Moureaux, A. Olioso, M. Saunders, H. Soegaard (2010). Variability in carbon exchange of European croplands. *Agriculture, Ecosystems and Environment*, 139, 325-335.

Kutsch, W. L., Aubinet, M., Buchmann, N., Smith, P., Osborne, B. Eugster, W., Wattenbach M., Schulze E.D., Tormellieri E., Ceschia, E., Bernhofer C., Beziat, P., Carrara, A., Di Tommasi, P., Grünwald, T., Jones, M., Magiulo, V., Marloie, O., Olioso, A., Sanz, M.J., Saunders, M., Sjøgaard, H., Ziegler, W. (2010). The net biome production of full crop rotations in Europe. *Agriculture, Ecosystems and Environment*, 139, 336-345.

Eugster, W., Moffat, A., Ceschia, E., Marc Aubinet, Christof Ammann, Phillip A. Davis, Bruce Osborne, Pete Smith, Cor Jacobs, Eddy Moors, Wilma Jans, Valérie Le Dantec, Pierre Béziat, Thomas Grünwald, Corinna Rebmann, Werner Kutsch, Radek Czerný, Dalibor Janouš, Christine Moureaux, D. Dufranne, Arnaud Carrara, Enzo Magliulo, Paul di Tommasi, Jørgen E. Olesen, Kirsten Schelde, Albert Olioso, Christian Bernhofer, Pierre Cellier, Eric Larmanou, Benjamin Loubet, Olivier Marloie, Zoltán Nagy, Krisztina Pintér, Maria-Jose Sanz, Matthew Saunders, and Nina Buchmann (2010). Management Effects on European Cropland Respiration. *Agriculture, Ecosystems and Environment*, 139, 346-362.

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Casals, P., Gimeno, C., Carrara, A., López-Sangil, L., Sanz, M.J (2009). Soil CO₂ efflux and extractable organic carbon fractions under simulated precipitation events in a Mediterranean Dehesa. *Soil Biology and Biochemistry*, 41, 1915-1922. doi:10.1016/j.soilbio.2009.06.015.

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Nagy M., Janssens I.A., Curiel Yuste J., Carrara A. and Ceulemans R. (2006). Footprint-adjusted net ecosystem CO₂ exchange and corresponding carbon balance components of a mixed temperate forest. *Agricultural and Forest Meteorology* 139, 344-360.

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