

# **CURRICULUM VITAE**

## **Iolanda Filella**

### **Personal details**

Iolanda Filella Cubells  
Address C/ Sant Quirze, 23, 08201 Sabadell (Barcelona).

### **Current professional status**

**Dr. Iolanda Filella** is a **Research Scientist of the National Research Council of Spain (CSIC)** (May 2009-present).

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Web group: [www.creaf.uab.cat/ecophysiology](http://www.creaf.uab.cat/ecophysiology)

### **Education Background**

University degree: Biology degree. Universitat de Barcelona (1990)  
Doctorate: PhD in Biology, Universitat de Barcelona (1995)

**Languages:** Catalan, Spanish, English and French,

### **Previous scientific activities**

1990-1991. Research assistant at CREAM (Universitat Autònoma), in a study of CO<sub>2</sub> fluxes in a Mediterranean soil.

1992-1995. PhD Fellowship from Ministerio de Educación y Ciencia. IRTA (Cabrlis).

1996-2001. Research Scientist at CREAM

Junior Research Scientist of CREAM (1997-2001). Universitat Autònoma de Barcelona, Spain.

Senior Scientist of CSIC (2002-2009)

### **Main research lines**

Global Change, Climatic Change, atmospheric pollution, remote sensing, plant ecophysiology, phenology, VOCs and functioning and structure of Mediterranean ecosystems

### **Relevant milestones and summary of the scientific activity and production records**

The development of increasingly used remote sensing techniques to assess plant and ecosystem functioning (e.g. the PRI she developed is becoming an established tool in remote sensing) and diversity; the discovery of current evidences of global change, climate change, and air pollution effects on biodiversity and structure and functioning of terrestrial ecosystems; or the study of the mechanisms and the function and effects of volatile organic compounds emissions by plants and ecosystems.

## PUBLICATIONS

### Papers published in scientific journals included in the SCI

**6527 citation** (Web of Science)

1. PEÑUELAS J., FILELLA I., SERRANO, L., BIEL C., and SAVE R. 1993. The reflectance at the 950-970 nm region as an indicator of plant water status. **International Journal of Remote Sensing** 14(10): 1887-1905.
2. FILELLA I. & PEÑUELAS J. 1994. The red edge position and shape as indicators of plant chlorophyll content and biomass. **International Journal of Remote Sensing** 15:1459-1470.
3. ESTIARTE M., FILELLA I., SERRA J., PEÑUELAS J. 1994. Phenolic content of plants under different nutrient and water status and its influence on herbivores. **Oecologia**. 99:387-391.
4. SAVE, R., PEÑUELAS J., FILELLA I., OLIVELLA C. 1995. Water relations, hormonal level, and spectral reflectance of *Gerbera jamesonii* Bolus subjected to chilling stress. **J. Amer. Hort. Science**. 120 (3): 515-519.
5. PEÑUELAS J., FILELLA I., BARET F. 1995. Semiempirical indices to assess carotenoids/chlorophyll a ratio from leaf spectral reflectance. **Photosynthetica**. 31 (2): 221-230.
6. FILELLA I., SERRANO L., SERRA J., PEÑUELAS J. 1995. Evaluating wheat nitrogen status with canopy reflectance indices and discriminant analysis. **Crop Science**. 35: 1400-1405.
7. PEÑUELAS J., FILELLA I., ELVIRA S., INCLAN R. 1995. Reflectance of summer ozone fumigated Mediterranean white pine seedlings. **Environmental Experimental Botany**. 35 (3): 299-307.
8. PEÑUELAS J., FILELLA I., GAMON J. 1995. Optical assessment of plant photosynthetic efficiency in field conditions. **New Phytologist**. 131: 291-296.
9. PEÑUELAS J., FILELLA I. & VILAJELIU M. 1995. Reflectance assessment of plant mite attack on apple trees. **International Journal of Remote Sensing**. 16(14): 2727-2733.
10. PEÑUELAS J., FILELLA I., SAVE R., SERRANO L. 1996. Cell wall elasticity and water index (R970nm/R900nm) in wheat under different nitrogen availabilities. **International Journal of Remote Sensing**. 17(2):378-382.
11. FILELLA I., AMARO T., ARAUS J.L. and PEÑUELAS J. 1996. Relationship between photosynthetic radiation-use efficiency of barley canopies and the photochemical reflectance index (PRI). **Physiologia Plantarum**. 96: 211-216.
12. PEÑUELAS J., ISLA R., FILELLA I., ARAUS J.L. 1997. Visible and near-infrared reflectance assessment of salinity effects on barley. **Crop Science**. 37 (1): 198-202.

13. PEÑUELAS J., FILELLA I., PIÑOL J., LLUSIA J. 1997. Estimation of plant water concentration by the reflectance Water Index WI (R900/R970). **International Journal of Remote Sensing**. 18 (13): 2869-2875.
14. PEÑUELAS J., LLUSIA J., PIÑOL J., FILELLA I. 1997. Photochemical reflectance index and leaf photosynthetic radiation-use efficiency assessment in Mediterranean trees. **International Journal of Remote Sensing**. 18(13): 2863-2868.
15. PEÑUELAS J., FILELLA I., GAMON J. FIELD. C. 1997. Assessing photosynthetic radiation-use efficiency of emergent aquatic vegetation from spectral reflectance, **Aquatic Botany**. 58: 307-315.
16. PEÑUELAS J., FILELLA I., LLUSIA J., SISCART D., PIÑOL J. 1998. Comparative field study of spring and summer leaf gas exchange and photobiology of the mediterranean trees *Quercus ilex* and *Phillyrea latifolia*. **J. Exp. Botany** 49(319): 229-238.
17. PIÑOL J., FILELLA I., OGAYA R., SAURET M., PEÑUELAS J. 1998. Ground-based spectroradiometric estimation of fine live fuel moisture in Mediterranean plants. **Agricultural Forest Meteorology** 90:173-186
18. RIBAS A., FILELLA I., GIMENO B., PEÑUELAS J. 1998. Evaluation of tobacco cultivars as bioindicators and biomonitors of ozone phytotoxic levels in Catalonia. **Water, Air, and Soil Pollution**. 107/1-4.
19. PEÑUELAS J., FILELLA I. 1998. Visible and near-infrared reflectance techniques for diagnosing plant physiological status. **Trends in Plant Science**, 3(4):151-156.
20. FILELLA I., PIÑOL J., LLUSIA J., PEÑUELAS J. 1998. Gas exchange and reflectance changes in *Quercus ilex* and *Phillyrea latifolia* submitted to progressive desiccation. **Environmental Experimental Botany**. 39: 213-220.
21. PEÑUELAS J., FILELLA I., LLORET F., PIÑOL J., RODA F., SISCART D. 1998. Drought memory effects on water and N use by *Quercus ilex* and *Phillyrea latifolia* in Mediterranean forests. **Butletin Soc. Ecophysiol.** (1998): 23-24.
22. PEÑUELAS J., FILELLA I. 1998. Spectral absorbance traits of different plant canopies in NE Spain. **Spectrum** 22: 127-133.
23. PEÑUELAS J., FILELLA I., TERRADAS J. 1998. Gradient of plant nitrogen and water use in a subdesertic depression of the Ebro valley (Spain) assessed by leaf  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ . **Acta Oecologica**. 20(2): 119-123.
24. PEÑUELAS J., RIBAS A., GIMENO B.S., FILELLA I. 1999. Dependence of ozone biomonitors on meteorological conditions of different sites of Catalonia (NE Spain). **Environmental Monitoring and Assessment** 56: 221-224.
25. FILELLA I., PEÑUELAS J. 1999. Altitudinal differences in UV absorbance, UV reflectance and related morphological traits of *Quercus ilex* and *Rhododendron ferrugineum* in the Mediterranean region. **Plant Ecology**, 145: 157-162.
26. PEÑUELAS J., FILELLA I., LLORET F., PIÑOL J., & SISCART D. 2000. Effects of a severe drought on water and nitrogen use by *Quercus ilex* and *Phillyrea latifolia* **Biologia Plantarum**, 43 (1): 47-53.
27. SERRANO L., FILELLA I. & PEÑUELAS J. 2000. Remote sensing of biomass and yield of winter wheat under different nitrogen supplies. **Crop Science**, 40:723-731
28. PEÑUELAS J., FILELLA I., TOGNETTI R. 2001. Leaf mineral concentrations of *Erica arborea*, *Juniperus communis*, and *Myrtus communis* growing in the proximity of a natural CO<sub>2</sub>

spring. **Global Change Biology** 7: 291-301.

29. PEÑUELAS J., FILELLA I. 2001. Herbaria century record of increasing eutrophication in Spanish terrestrial ecosystems. **Global Change Biology** 7: 427-433.

30. PEÑUELAS J., FILELLA I. 2001. Phenology: Responses to a warming world. **Science** 294: 93-795.

31. PEÑUELAS J., FILELLA I., COMAS P. 2002. Changed plant and animal life cycles from 1952-2000 in the Mediterranean region. **Global Change Biology** 8:531-544.

32. PEÑUELAS J., FILELLA I. 2002. Metal pollution in Spanish terrestrial ecosystems during the twentieth century, **Chemosphere**, 46:501-505.

33. FILELLA I, PEÑUELAS J. 2003. Indications of hydraulic lift by *Pinus halepensis* and its effects on the water relations of neighbour shrubs. **Biologia Plantarum**, 47(2): 209-214.

34. PEÑUELAS J., FILELLA I. 2003. Deuterium labelling of roots provides evidence of deep water access and hydraulic lift by *Pinus nigra* in a Mediterranean forest of NE Spain. **Environmental and Experimental Botany**, 49: 201-208.

35. LLORENS L, PEÑUELAS J, FILELLA I. 2003. Diurnal and seasonal variations in the photosynthetic performance and water relations of two co-occurring Mediterranean shrubs, *Erica multiflora* and *Globularia alypum* **Physiologia Plantarum**, 118: 84-95.

36. FILELLA I, PEÑUELAS J. 2003. Partitioning of water and nitrogen in co-occurring species of a mediterranean shrubland. **Oecologia**, 137: 51-61.

37. STEFANESCU C, PEÑUELAS J, FILELLA I. 2003. The effects of climatic change on the phenology of butterflies in the northwest Mediterranean basin. **Global Change Biology**, 9 (10): 1494-1506

38. FILELLA I, PEÑUELAS J, LLORENS L, ESTIARTE M. 2004. Reflectance assessment of seasonal and annual changes in biomass and CO<sub>2</sub> uptake of a Mediterranean shrubland submitted to experimental warming and drought. **Remote Sensing of Environment**, 90: 308-318.

39. PEÑUELAS J, FILELLA I, ZHANG X, LLORENS L, OGAYA R, LLORET F, COMAS P, ESTIARTE M, TERRADAS J. 2004. Complex spatio-temporal phenological shifts in response to rainfall changes. **New Phytologist**, 161:837-846.

40. PEÑUELAS J, MUNNÉ-BOSCH S, LLUSIÀ J, FILELLA I. 2004. Leaf reflectance and photo- and antioxidant protection in field-grown summer-stressed *Phillyrea angustifolia*. Optical signals of oxidative stress? **New Phytologist**, 162: 115-162.

41. FILELLA I, PEÑUELAS J, RIBAS A. 2005. Using biomonitors and modelling to develop O<sub>3</sub> dose-response curves in Catalonia. **Environmental Pollution**, 134: 145-151.

42. STEFANESCU C, PEÑUELAS J., FILELLA I 2005. Butterflies highlight the conservation value of hay meadows highly threatened by land-use changes in a protected Mediterranean area. **Biological Conservation** 126: 234-246

43. PEÑUELAS J, FILELLA I, STEFANESCU C, LLUSIA j. 2005. Caterpillars of *Euphydryas aurinia* (Lepidoptera: Nymphalidae) feeding on *Succisa pratensis* leaves induce large foliar emissions of methanol. **New Phytologist**, 167:851-857.

44. COPOLOVICI L, FILELLA I, LLUSIÀ J, NIINEMETS U, PEÑUELAS J. 2005. The capacity for thermal protection of photosynthetic electron transport varies for different monoterpenes in *Quercus ilex*. **Plant Physiology** 139:485-496.

45. FILELLA I, PEÑUELAS J, LLUSIA A. 2006. Dynamics of the enhanced emissions of monoterpenes and methyl salicylate and decreased uptake of formaldehyde by *Quercus ilex* leaves after application of jasmonic acid. **New Phytologist** 169:135-144.
46. FILELLA I, PEÑUELAS J. 2006. Daily, weekly and seasonal relationships among VOCs, NO<sub>x</sub> and O<sub>3</sub> in a semi-urban area near Barcelona. **Journal of Atmospheric Chemistry**, 54:189–201
47. MENZEL, A., SPARKS, T.H., ESTRELLA, N., KOCH, E., AASA, A., AHAS, R., ALM-KÜBLER, K., BISSOLLI, P., BRASLAVSKÁ, O., BRIEDE, A., CHMIELEWSKI, F.M., CREPINSEK, Z., CURNEL, Y., DAHL, A., DEFILA, C., DONNELLY, A., FILELLA, I., JATCZAK, K., MÅGE, F., MESTRE, A., NORDLI, Ø., PEÑUELAS, J., PIRINEN, P., REMISOVÁ, V., SCHEIFINGER, H., STRIZ, M., SUSNIK, A., VAN VLIET, A.J.H., WIELGOLASKI, F.E., ZACH, S., ZUST, A.. 2006. European phenological response to climate change matches the warming pattern. **Global Change Biology** 12: 1969-1976
48. PEÑUELAS J, SARDANS J, STEFANESCU C, PARELLA T, I. FILELLA. 2006. *Lonicera implexa* leaves bearing naturally laid eggs of the specialist herbivore *Euphydryas aurinia* have dramatically greater concentrations of iridoid glycosides than other leaves. **Journal of Chemical Ecology**, 32 (9): 1925-1933.
49. STEFANESCU C, PEÑUELAS J, SARDANS J, FILELLA I. 2006. Females of the specialist butterfly *Euphydryas aurinia* (Nymphalinae: Melitaeini) select the greenest leaves of *Lonicera implexa* (Caprifoliaceae) for oviposition. **European Journal of Entomology**, 103: 569–574.
50. FILELLA I, PEÑUELAS J. 2006. Daily and weekly time courses of some volatile organic compounds in a semi-urban atmosphere near Barcelona. **Atmospheric Environment**, 40: 7752-7769.
51. PEÑUELAS J., LLUSIA J., FILELLA I. 2007. Methyl salicylate and increased terpene emission. **Biologia Plantarum**, 51(2): 372-376.
52. SECO R, PEÑUELAS J, FILELLA I. 2007. Short-chain oxygenated VOCs: Emission and uptake by plants and atmospheric sources, sinks and concentrations. **Atmospheric Environment** 41 (12) 2477–2499.
53. FILELLA I, WILKINSON M, LLUSIÀ J., HEWITT C.N., PEÑUELAS J. 2007. Volatile organic compounds emissions in Norway spruce (*Picea abies*) in response to temperature changes. **Physiologia Plantarum**, 130: 58-66.
54. BARTOLOMÉ J., PEÑUELAS J., FILELLA I., LLUSIÀ J., BRONCANO M.J. and PLAIXATS J. 2007. Mass scans from a Proton Transfer Mass Spectrometry analysis of air over Mediterranean shrubland browsed by horses. **Journal Environmental Biology**, 28 (4): 697-70.
55. ASENSIO D., PEÑUELAS J., LLUSIA J., OGAYA R., FILELLA I., 2007. Interannual and interseasonal soil CO<sub>2</sub> efflux and VOC exchange rates in a Mediterranean holm oak forest in response to experimental drought. **Soil Biology and Biochemistry** 39: 2471-2484.
56. SECO R., PEÑUELAS J., FILELLA I. 2008. Formaldehyde emission and uptake by Mediterranean trees *Quercus ilex* and *Pinus halepensis*. **Atmospheric Environment** 42: 7907-7914.
57. ASENSIO D., PEÑUELAS J., PRIETO P., ESTIARTE M., FILELLA I., LLUSIA J. 2008. Interannual and seasonal changes in the soil exchange rates of monoterpenes and other VOCs in a Mediterranean shrubland. **European Journal of Soil Science** 59: 878-891.

58. GARBULSKY M.F., PEÑUELAS J., PAPALE D., FILELLA I. 2008. Remote estimation of carbon dioxide uptake by a Mediterranean forest. **Global Change Biology**, 14: 2860-2867.
59. FILELLA I, PORCAR-CASTELL A, MUNNÉ-BOSCH S, BÄCK J, PEÑUELAS J. 2009. PRI assessment of long-term changes in carotenoids/chlorophyll ratio and short-term changes in de-epoxidation state of the xanthophyll cycle. **International Journal of Remote Sensing** 30: 4443-4455.
60. FILELLA I, PEÑUELAS J, SECO R 2009. Short-chained oxygenated VOCs emissions in *Pinus halepensis* in response to changes in water availability. **Acta Physiologiae Plantarum** 31: 311-318.
61. PEÑUELAS J., FILELLA I., SECO R., LLUSIÀ J. 2009. Increase in isoprene and monoterpene emissions after re-watering of droughted *Quercus ilex* seedlings. **Biologia Plantarum** 53: 351-354.
62. PEÑUELAS J., RUTISHAUSER T., FILELLA I. 2009. Phenology Feedbacks on Climate Change. **Science** 324: 887-888
63. STEFANESCU C., PEÑUELAS J., FILELLA I. 2009. Rapid changes in butterfly communities following the abandonment of grasslands: a case study. **Insect Conservation and Diversity** 2: 261-269.
64. GARBULSKY M.F., PEÑUELAS J., PAPALE D., ARDÖ J., GOULDEN M.L., KIELY G., RICHARDSON A.D., ROTENGERB E., VEENENDAAL E.M., FILELLA I. 2010. Patterns and controls of the variability of radiation use efficiency and primary productivity across terrestrial ecosystems. **Global Ecology and Biogeography** 19: 253-267.
65. PEÑUELAS J., GARBULSKY M., FILELLA I. 2011. Photochemical reflectance index (PRI) and remote sensing of plant CO<sub>2</sub> uptake. **New Phytologist** 191: 596-599.
66. FILELLA I., BOSCH J., LLUSIÀ J., SECO R., PEÑUELAS J. 2011. The role of frass and cocoon volatiles in host location by *Monodontomerus aeneus*, a parasitoid of Megachilid solitary bees. **Environmental entomology**, 40:126-131.
67. PEÑUELAS J., GRACIA C., FILELLA I., JUMP A., CARNICER J., COLL M., LLORET F., CURIEL YUSTE J., ESTIARTE M., RUTISHAUSER T., OGAYA R., LLUSIÀ J., SARDANS J. 2011. Intégration des effets du changement climatique sur les forêts méditerranéennes: observation, expérimentation, modélisation et gestion. **Forêt méditerranéenne** XXXI: 351-356.
68. GARBULSKY M.F., PEÑUELAS J., GAMON J., INOUE Y., FILELLA I. 2011. The photochemical reflectance index (PRI) and the remote sensing of leaf, canopy and ecosystem radiation use efficiencies. A review and meta-analysis. **Remote Sensing of Environment** 115: 281-297.
69. SECO R., FILELLA I., LLUSIÀ J., PEÑUELAS J. 2011. Methanol as a signal triggering isoprenoid emissions and photosynthetic performance in *Quercus ilex*. **Acta Physiologiae Plantarum** 33: 2413-2422.
70. FILELLA I., BOSCH J., LLUSIÀ J., PEÑUELAS A., PEÑUELAS J. 2011. Chemical cues involved in the attraction of the oligolectic bee *Hoplitis adunca* to its host plant *Echium vulgare*. **Biochemical Systematics and Ecology** 39: 498-508.
71. SECO R., PEÑUELAS J., FILELLA I., LLUSIÀ J., MOLOWNY-HORAS R., SCHALLHART S., METZGER A., MÜLLER M., HANSEL A. 2011. Contrasting winter and summer VOC mixing ratios at a forest site in the Western Mediterranean Basin: the effect of local biogenic emissions. **Atmospheric Chemistry and Physics** 11: 13161-13179.

72. LLUSIÀ J., PEÑUELAS J., SECO R., FILELLA I. 2012. Seasonal changes in the daily emission rates of terpenes by *Quercus ilex* and the atmospheric concentrations of terpenes in the natural park of Montseny, NE Spain. **Journal of Atmospheric Chemistry** 69: 215-230.
73. SECO R., PEÑUELAS J., FILELLA I., LLUSIÀ J., SCHALLHART S., METZGER A., MÜLLER M., HANSEL A. 2013. Volatile organic compounds in the western Mediterranean basin: urban and rural winter measurements during the DAURE campaign. **Atmospheric Chemistry and Physics** 13: 4291-4306.
74. PEÑUELAS J., MARINO G., LLUSIÀ J., MORFOPOULOS C., FARRÉ-ARMENGOL G., FILELLA I. 2013. Photochemical reflectance index as an indirect estimator of foliar isoprenoid emissions at the ecosystem level. **Nature Communications** 4: 2064. DOI: 10.1038/ncomms3604.
75. PEÑUELAS J., SARDANS J., ESTIARTE M., OGAYA R., CARNICER J., COLL M., BARBETA A., RIVAS-UBACH A., LLUSIÀ J., GARBULSKY M., FILELLA I., JUMP A.S. 2013. Evidence of current impact of climate change on life: a walk from genes to the biosphere. **Global Change Biology** 19: 2303-2338.
76. PEÑUELAS J., GUENTHER A., RAPPARINI F., LLUSIÀ J., FILELLA I., SECO R., ESTIARTE M., MEJÍA-CHANG M., OGAYA R., IBÁÑEZ J., SARDANS J., CASTAÑO L.M., TURNIPSEED A., DUHL T., HARLEY P., VILA J., ESTAVILLO J.M., MENÉNDEZ S., FACINI O., BARALDI R., GERON C., MAK J., PATTON E.G., JIANG X., GREENBERG J. 2013. Intensive measurements of gas, water, and energy exchange between vegetation and troposphere during the MONTES campaign in a vegetation gradient from short semi-desertic shrublands to tall wet temperate forests in the NW Mediterranean Basin. **Atmospheric Environment** 75: 348-364.
77. FARRÉ-ARMENGOL G., FILELLA I., LLUSIÀ J., PEÑUELAS J. 2013. Floral volatile organic compounds: Between attraction and deterrence of visitors under global change. **Perspectives in Plant Ecology, Evolution and Systematics** 15: 56-67.
78. GARBULSKY M.F., PEÑUELAS J., OGAYA R., FILELLA I. 2013. Leaf and stand-level carbon uptake of a Mediterranean forest estimated using the satellite-derived reflectance indices EVI and PRI. **International Journal of Remote Sensing** 34: 1282-1296.
79. FILELLA I., PRIMANTE C., LLUSIA J., MARTÍN GONZÁLEZ A.M., SECO R., FARRÉ-ARMENGOL G., RODRIGO A., BOSCH J., PEÑUELAS J. Floral advertisement scent in a changing plant-pollinators market. **Scientific Reports**. 3: DOI: 10.1038/srep03434.
80. GREENBERG J.P., GUENTHER A., TURNIPSEED A., JIANG X., SECO R., FILELLA I., ESTIATRE M., OGAYA R., LLUSIÀ J., PEÑUELAS J. 2014. A tethered-balloon PTRMS sampling approach for rapid surveying of landscape-scale biogenic VOC fluxes. **Atmospheric Measurement Techniques Discussion** 7: 979-999.
81. SARDANS J., GARGALLO-GARRIGA A., PÉREZ-TRUJILLO M., PARELLA T.J., SECO R., FILELLA I., PEÑUELAS J. 2014. Metabolic responses of *Quercus ilex* seedlings to wounding analysed with nuclear magnetic resonance profiling. **Plant Biology** 16: 395-403.
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83. MORFOPOULOS, C., SPERLICH, D., PEÑUELAS, J., FILELLA, I., LLUSIÀ, J., MEDLYN, B., NIINEMETS, U., POSSELL, M., SUN, Z., COLIN PRENTIC, I. 2014. A model of plant isoprene emission based on available reducing power captures responses to atmospheric CO<sub>2</sub>. **New Phytologist** 203 (1), 125-139

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85. KEFAUVER, S., FILELLA, I., PEÑUELAS, J. 2014. Remote sensing of atmospheric biogenic volatile organic compounds (BVOCs) via satellite-based formaldehyde vertical column assessments. **International Journal of Remote Sensing**, 35:21, 7519-7542, DOI:10.1080/01431161.2014.968690
86. SARDANS, J., JANSSENS, I.A., ALONSO, R., VERESOGLOU, S.D., RILLIG, M.C., SANDERS, T.G.M., CARNICER, J., FILELLA, I., FARRÉ-ARMENGOL, G., PEÑUELAS, J.. 2015. Foliar elemental composition of European forest tree species associated with evolutionary traits and present environmental and competitive conditions. **Global Ecology and Biogeography**, 24, 240–255
87. FARRÉ-ARMENGOL, G., FILELLA, I., LLUSIÀ, J., PEÑUELAS, J.. 2015. Relationships among floral VOC emissions, floral rewards and visits of pollinators in five plant species of a Mediterranean shrubland. **Plant Ecology and Evolution** 148 (1): 90–99, 2015. doi: 10.5091.
88. FARRE-ARMENGOL, G., FILELLA, I., LLUSIA, J., PEÑUELAS, J. 2015. Pollination mode determines floral scent. **Biochemical Systematics and Ecology** 61 (2015) 44-53
89. VERGER, A., BARET, F., WEISS, M., FILELLA, I., PEÑUELAS, J. 2015. GEOCLIM: A global climatology of LAI, FAPAR, and FCOVER from VEGETATION observations for 1999–2010. **Remote Sensing of Environment** 166 (2015) 126–137.
90. PEÑUELAS, J., BARTRONS, M., LLUSIA, J., FILELLA, I. 2015. Sensing the energetic status of plants and ecosystems. **Trends in Plant Science** (2015), DOI: 10.1016/j.tplants.2015.07.002. *In press*.
91. KEFAUVER, S., FILELLA, I., ZHANG, C., PEÑUELAS, J. 2015. Linking OMI HCHO and MODIS PRI satellite data with BVOCs emissions in NE Spain. International Geoscience and Remote Sensing Symposium (**IGARSS IEEE**), Milan, Italy. July 26-31, 2015. *In press*.
92. FARRE-ARMENGOL, G., FILELLA, I., LLUSIA, J., PRIMANTE, C., PEÑUELAS, J. (2016) Enhanced emissions of floral volatiles by *Diplotaxis erucoides* (L.) in response to folivory and florivory by *Pieris brassicae* (L.) **Biochemical Systematics and Ecology**. *In press*
93. FARRÉ-ARMENGOL, G., PEÑUELAS, J., LI, T., YLI-PIRILÄ, P., FILELLA, I., LLUSIÀ, J., BLANDE, J. (2016) Ozone degrades floral scent and reduces pollinator attraction to flowers. **New Phytologist**, *In press*

### Papers published in scientific journals not included in the SCI

1. PEÑUELAS J., FILELLA I., SAVE R. 1995 Assessing plant water status through the nearinfrared reflectance. **Investigación Agraria**, Producción y Protección Vegetales 10(3): 415-428.
2. PEÑUELAS J., FILELLA I., S. GIMENO B. 1995. Avaluació de la fitotoxicitat de l'ozó a Catalunya amb plantes de tabac. **But. Inst. Cat. Hist. Nat.** 63:133-140.
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1990. CICYT INFRA AGR 90-259. Càmares de CO<sub>2</sub> en condicions controlades. Dr. Josep Peñuelas. FPI fellowship.

1993-1995. NSF, EPA (Environmental Protection Agency) and NASA. Remote sensing of photosynthesis. Prof. Dr. John Gamon. CSULA Los Angeles. Visiting student.

1993 Grups de qualitat CIRIT Grup de Relacions hídriques, coordinado por Joan Girona. Becaria colaboradora.

1994-1996. INIA SC94-011. Cambios en la producción, composición y características espectrales de los cultivos abonados con CO<sub>2</sub> en la zona mediterránea.. Dr. Josep Peñuelas. FPI fellowship.

1994-1996 CICYT AMB94-0199. Teledetección de la biomasa y la fisiología de la vegetación mediterránea ante el aumento de CO<sub>2</sub> y diversas disponibilidades hídricas y nutritivas. Dr. Josep Peñuelas. FPI fellowship.

1994-1996. Departament Medi Ambient GENERALITAT. Avaluació de la fitotoxicitat de l'ozó troposfèric a Catalunya. Dr. Josep Peñuelas. **Codirector**

1995. Grup de qualitat del Comissionat per a Universitats i Recerca de la Generalitat de Catalunya SGR1995-0258. Ecofisiologia vegetal y biogeoquímica. Dr. Josep Peñuelas. Researcher.

1997. Grupo CREAM en el proyecto Predicció meteorològica i previsió de la qualitat de l'aire a Catalunya DOGC 2283. Dr. Jose M<sup>a</sup> Baldasano. Researcher.

1997 Remote Assessment of vegetation status by hyperspectral imagery: REMVEG. GERMAN AEROSPACE RESEARCH STABILISHMENT e. V. DAIS-96-ES3. Dr. Josep Peñuelas. Researcher.

1997. Proyecto complementario al anterior en su vertiente de validación verdad-terreno subvencionado por la Fundació Catalana per la Recerca RP1997-728. Researcher.

1997-1999. Desarrollo de índices de reflectividad y de radiómetros sencillos para la evaluación del estado hídrico y funcional de la vegetación. Aplicación a sensores terrestres y aerotransportados. 5.2 millones. CICYT AMB97-0332. **Principal Investigator**.

1997-2000. CLIMOOR Climate driven changes in the functioning of heath and moorland ecosystems. CE-DGXII ENV4-CT97-0694. Drs. F. Rodà y J. Peñuelas. Researcher.

1997-1999. MELODY Mediterranean Landscapes in a changing world: coupling dynamic and functional analyses. GCTE core project. (GCTE-IGBP report 21,80-81). Dr. J. Peñuelas. Researcher.

1998, 1999. Grup d'Ecologia Terrestre considerado consolidado por la Generalitat 1997SGR 00117 (4000000). Dr. J. Terrades. Researcher.

1998-2000. Efectes de l'ozó a Catalunya i bioindicació. Fundació Territori i Paisatge, La Caixa de Catalunya 1998-0003. Dr. J. Peñuelas. Researcher.

1999-2001 IMPACTE. Integració metodològica i de models per a la previsió i anàlisi de la



contaminació i el temps i els seus efectes. CIRIT-Departament de Medi Ambient (Generalitat Catalunya). (19000000). Drs. J.M<sup>a</sup> Baldasano y J. Peñuelas. Researcher.

1999-2001 CICYT CLI99-0479 Absorción y uso de agua en especies mediterráneas de distintos grupos funcionales y de distinta historia evolutiva. Respuestas a condiciones más áridas. **Principal investigator**

2001-2004. Vulnerability assessment of shrubland ecosystems in Europe under climatic changes VULCAN EVK2-2000-22108. CREAM. Researcher.

2001-2003. Efectos del cambio climático sobre los ecosistemas arbustivos del Garraf. Simulación experimental, herbarios y teledetección. CICYT REN-2001-0278/CLI. **Codirector**

2003-2004. Efectos del cambio climático sobre los ecosistemas arbustivos centroeuropeos. CSIC-2003HU0012. Researcher.

2004-2009 **COST-725**. Establishing a European phenological data platform for climatological applications. **Committee member**.

2004-2006 ALARM Assessing large-scale environmental risks with tested methods. EU sixth framework programme. Subpriority 6.3. sustainable development, global change and ecosystems. Contract 506675. Researcher

2004-2007 ISONET Ecological and physiological functions of biogenic isoprenoids and their impact on the environment. Marie Curie Research Training Network UE CREAM.FP6-2002-Mobility-1 no. MRTN-CT-2003-504720. Researcher

2004-2007 Gradientes altitudinales de ozono en Cataluña, Madrid y Méjico. Convocatoria Conservación de la biodiversidad. Fundación BBVA. Researcher

2004-2007 MEC CGL2004-01402/BOS. Funciones fisiológicas y ecológicas de las emisiones vegetales de compuestos orgánicos volátiles y caracterización de las emisiones de comunidades con distinta biodiversidad. Researcher

2004-2009 ACCENT work package *Biosphere Atmosphere Exchange of Pollutants*. ACCENT is a Network of Excellence funded by EC, FP6, PRIORITY 1.1.6.3 Global Change and Ecosystems. ACCENT Consortium Agreement and EC Contract n. GOCE-CT-2004-505337 **PI CREAM**

2005-2010. NUE Specific Programme "Integrating and Strengthening the European Research Area" - Sub-Priority 1.1.6.3, "Global Change and Ecosystems" Call identifier: FP6-2004-GLOBAL-3 (OJ 2004 C 159/03). Proposal N°017841-2 (NitroEurope IP) "The nitrogen cycle and its influence on the European greenhouse gas balance. Investigador principal CREAM. Researcher

2005-2008 SGR2005-00312 Grup reconegut i subvencionat per la Generalitat. Núm. expedient: 00312 Investigador principal. Nom del grup: Grup d'ecofisiologia i efectes ecològics dels canvis ambientals globals. Modalitat: B. Centre: CREAM. Import: 49600 €. Researcher

2005-2008. Martín F. Garbulsky. Becario Doctoral Programa Alþan 2005-2008. Título del proyecto: Flujos de carbono entre la vegetación y la atmósfera. Integración de aproximaciones a diferentes escalas. **Researcher in charge**

2006-2010. Ecofisiología y efectos ecológicos de los cambios ambientales globales en el marco de las interacciones atmosfera-biosfera. CGL2006-04025 del MEC Tipo C (Consolider). Researcher

2008-2013 CREAM-CEAB-CSIC en proyecto MONTES: "Spanish woodlands and global change: threats and opportunities". CONSOLIDER CSD2008-00040. Researcher.

2009-2013. Grup d'ecofisiologia i efectes ecològics dels canvis ambientals. GRC-Grup de recerca reconegut i finançat. AGAUR-2009 SGR 458 (83.200,00 €). Researcher.

2008- COST 254/08 COST Action ES0805: The Terrestrial Biosphere in the Earth System (TERRABITES). Researcher.

2009 Researcher. CREAM-CEAB-CSIC DAURE Montseny-Barcelona

2010-2013 Researcher. CGL2010-17172(BOS): COMPUESTOS ORGANICOS VOLATILES (BVOCS) Y ECOLOGIA DEL CAMBIO GLOBAL: Ministerio de Ciencia e Innovación

2010-2013. Towards a mechanistic approach to remote sensing of gross primary production. University of Helsinki. Project leader Albert Porcar-Castell. Finland Research Ministry. 307874 Eur. Researcher

2011-2014. Associate partner EUROSPEC COST Action (ES0903). Spectral Sampling Tools for Vegetation Biophysical Parameters and Flux Measurements in Europe

2013-2017. COST Action number: FP1309. Innovative Optical Tools for proximal sensing of ecophysiological processes (OPTIMISE)

2013-2014. Biosphere monitoring in the GIO global land service. IP Alexandre Verger. BIOGIO. VITO Belgium

2013-2014. AgriUAV Assessment of the influence of variation in illumination conditions on the estimation of biophysical variables from UAV acquisitions. Alexandre Verger, Frédéric Baret.

2014-2019. **Synergy ERC grant SyG-2013-610028 IMBALANCE-P.** Effects of phosphorus limitations on Life, Earth system and Society. 13.7 millions euros.

2014-2016. SGR2014- 274. Grup de Recerca Reconegut per la Generalitat de Catalunya 2014-2016 Grup d'Ecologia Global.

## **STAYS IN FOREIGN CENTRES**

### Visits of more than two months in overseas research centres

April-June 1992. Department of Biology, California State University, Los Angeles (USA). Postgraduate student.

February-April 1993. INRA Bioclimatologie de Avignon (Francia). Postgraduate student.

October-December 1993. Department of Biology. California State University, Los Angeles (USA). Postgraduate student.

### Visits of less than two months

July 1992. Department of Plant Biology, Stanford CIW (California, USA). Postgraduate student.

August 2004. Department of Environmental Science, Lancaster University

February 2005. Ionicon Analytik. Austria

July 2006. NCEAS, Santa Barbara, USA

August 2006. NCAR, Boulder, USA

June 2014. University of Kuopio

June 2014. University of Helsinki

## **CONGRESSES:**

1991. Reunió anual de la Societat Catalana de Biologia sobre: "De la biologia del gen a la planta sencera", Sitges, Març, (Comunicación invitada).

1992. Jornada sobre "Biologia de les plantes en condicions d'estrés". Facultat de Farmacia. U. B., Barcelona, Febrero (Comunicación invitada).

1992. Workshop "Interacting Stresses on plants in a changing climate". London, (Comunicación)

1993. Congress: "Photosynthetic Responses to the Environment". Hawaii. August (Comunicación).

1994. Sixth International Symposium on Physical Measurements and Signatures in Remote Sensing. Val d'Isere. (Comunicación invitada).

1995. Remote sensing of photosynthesis Congress. Montpellier, Agost (Comunicación invitada).

1997. GCTE meeting on global primary productivity, Montpellier, March 1997

1997. Advance data analysis for modelling and assessment of biogeochemical effects of air pollution in temperate ecosystems. CIEMAT, Madrid. (Comunicación invitada).

1998. The Earth Changing Land. GCTE-LUCC Open Science Conference on Global Change, Barcelona, March 1998. (Miembro comité organizador y una comunicación)

1998. First EARsel Workshop on Imaging Spectroscopy. Zurich, Switzerland. (Comunicación)

2000. EARSeL Workshop July 2000. (Comunicación).

2001. Global Change Open Science conference, International Geosphere-Biosphere Programme. Amsterdam July 2001 (Comunicación)

2002. European Federation of Plant Physiology Societies, Crete, Greece, September 2002 (Comunicación).

2003. Challenging Times. Towards an operational system for monitoring, modeling, and forecasting of phenological changes and their socio-economic impacts, Wageningen University, April (Comunicación).

2004. Biogenic Hydrocarbons & The Atmosphere. Gordon Conference. Barga. Italy. (Poster)
2005. 2nd Internacional Conference on Proton Transfer Reaction Mas Spectrometry and its applications. Obergurgl, Austria.
2005. Biotic effects on plant VOC emissions" EGU European Geosciences Union II General Assembly & Congress, session BG1.03 "Biological processes related to trace gas emissions, Vienna 25-29 April.
2006. JOSEP PEÑUELAS, IOLANDA FILELLA, MARC ESTIARTE, JOAN LLUSIÀ, ROMÀ OGAYA, JORDI SARDANS, ROGER SECO, GIORGIO ALESSIO, JENNY HUNT, SUE OWEN, DOLORES ASENSIO, PATRICIA PRIETO, ANGELA RIBAS, SALVADOR BLANCH, ALISTAIR JUMP, FRANCISCO LLORET, MARTÍN GARBULSKY. Ecophysiology in the frame of water-biogeochemical cycles. Water-Biogeochemical cycles Retreat. The Institute for Integrative and Multidisciplinary Earth Sciences, Boulder, Colorado 17-21 July
2006. ESTIARTE M, PEÑUELAS J, PRIETO P, CARRILLO B, SARDANS J, FILELLA I, LLUSIÀ J. Canvi climàtic i ecosistemes arbustius. Jornada sobre Canvi Global: Efectes i estratègies de gestió. Barcelona, 30 de Novembre de 2006
2006. JOSEP PEÑUELAS, MARC ESTIARTE, FRANCISCO LLORET, BENJAMÍN CARRILLO, PATRICIA PRIETO, IOLANDA FILELLA, JOAN LLUSIÀ, ALISTAIR JUMP, JORDI SARDANS, JAUME TERRADAS Field experimental climate manipulation in a Mediterranean Shrubland of Catalonia. EuroBioForum. Connecting life sciences. European Science Foundation.. Academy of Finland. 14-15 Dec.
2007. JOSEP PEÑUELAS, JORDI SARDANS, ALISTAIR JUMP, MARC ESTIARTE, ROMÀ OGAYA, IOLANDA FILELLA, FRANCISCO LLORET, JOAN LLUSIÀ. Experimental and observational analyses of climate change effects on Mediterranean Ecosystems. Mon 22nd of January 2007. In ALARM "Assessing large-scale environmental risks with tested methods". General meeting, Athens, Greece
2007. ROGER SECO, JOSEP PEÑUELAS AND IOLANDA FILELLA "Short-chain oxVOCs emission and uptake by *Pinus halepensis*" Biogenic hydrocarbons & the atmosphere Gordon Conference, Ventura, California Feb 2007
2007. MARTÍN F. GARBULSKY, JOSEP PEÑUELAS, IOLANDA FILELLA, MARK LOMAS, IAN WOODWARD, 2007 Estimation of carbon dioxide uptake of terrestrial ecosystems: putting together remote sensing, modelling and eddy covariance data. International Climate Change Conference 2007. Bringing scientist together. Birmingham, 25-31 March 2007
2007. JOSEP PEÑUELAS, MARC ESTIARTE, ROMÀ OGAYA, IOLANDA FILELLA, ALISTAIR JUMP, MARTÍN GARBULSKY, JORDI SARDANS, JOAN LLUSIÀ, ROGER SECO, GIORGIO ALESSIO, JENNY HUNT, SUE OWEN, DOLORES ASENSIO, PATRICIA PRIETO, ANGELA RIBAS, BENJAMIN CARRILLO, SALVADOR BLANCH, MARTA COLL, SHAWN KEFAUER, FRANCISCO LLORET, JAUME TERRADAS. 2007. "Climate change effects on Mediterranean forests: from observations to experimentation, from genetics to remote sensing". Afforestation and sustainable forests as means to combat desertification. IUFRO, KKL-JNF, 16-19 April Jerusalem, Israel
2007. FILELLA I, PEÑUELAS J, LLUSIA J, BLANCH S, SECO R, ASENSIO D, ESTIARTE M, OGAYA R, OWEN S 2007 The effects of global change on BVOCs emissions. Not only warming. In the International Science meeting of the ESFresearch networks VOCBAS and INTROP "Biogenic Volatile Organic Compounds: Sources and fates in a changing world", CNRS Montpellier, October 2-5, 2007, invited presentation
2007. ASENSIO D, PEÑUELAS J, LLUSIA J, OWEN S, OGAYA R, ESTIARTE M, FILELLA I 2007 Exchange rates and content of Vocs in Mediterranean soils; their responses to drought and warming and their linkage with biotic factors. In the International Science meeting of the ESFresearch networks VOCBAS and INTROP "Biogenic Volatile Organic Compounds: Sources

and fates in a changing world”, CNRS Montpellier, October 2-5, 2007, invited presentation

2007. SECO R, PEÑUELAS J, FILELLA I 2007 Formaldehyde emission and uptake by mediterranean trees *Quercus ilex* and *Pinus halepensis*. In the International Science meeting of the ESF research networks VOCBAS and INTROP “Biogenic Volatile Organic Compounds: Sources and fates in a changing world”, CNRS Montpellier, October 2-5, 2007, poster

2008. J. PEÑUELAS, I. FILELLA, M. ESTIARTE, R. OGAYA, J. LLUSIÀ, J. SARDANS, A. JUMP, M. GARBULSKY, M. COLL, M. DIAZ DE QUIJANO, R. SECO, J. SALVADOR BLANCH, S. OWEN, J. CURIEL, J. CARNICER, M. BOADA, C. STEFANESCU, F. LLORET & J. TERRADAS. Climate change and phenology, adaptation, migration and \* extinction in plant species. \*Climate Change and Systematics, \*Trinity College, Dublin, September 2008, pp 16

2009. Cost Action ES0805 “The terrestrial Biosphere in the Earth System” Meeting of the Management Committee. Brussels, 12 June 2009.

2009. FILELLA I. , SECO R. , LLUSIÀ J., PEÑUELAS J. BVOC induced emission by clipping and by the herbivore induced signals jasmonic acid, methyl salicylate and methanol in *Quercus ilex*. In the VOCBAS Science conference 2009 “Induced BVOC emissions: processes and feedback”, Taagepera (Estonia), 14<sup>th</sup> to 17<sup>th</sup> January 2009, invited presentation.

2009. T. RUTISHAUSER, C. RÖTHLISBERGER, I. FILELLA AND J. PEÑUELAS Landscape phenology from legacy data sets integrates changes of seasonality, International Conference “Scope and current limits of linking phenology and climatology”, in the context COST 725 “Establishing a European Phenological Data Platform for Climatological Applications” and in cooperation with the German Weather Service (DWD), Geisenheim, Germany, 10.-12.03.2009.

2009. T. RUTISHAUSER, J. PEÑUELAS, I. FILELLA, C. RÖTHLISBERGER Robust, ground-observed plant phenological metrics for applications in climate impact analyses at the landscape level, Geophysical Research Abstracts, Vol. 11, EGU2009-3168, 2009, EGU General Assembly 2009

2009. PEÑUELAS J. FILELLA I, LLUSIA J, SECO ROGER, IZQUIERDO R, AVILA A Biogenic VOCs and N deposition in Mediterranean ecosystems and cities. DAURE Science Meeting on Mon. March 2

2009. PEÑUELAS J, SECO R, LLUSIA J, FILELLA I Biogenic Voc emissions and ozone and aerosol formation in Montseny and Barcelona. DAURE meeting, IJA Barcelona.

2009. SECO R, PEÑUELAS J, LLUSIA J, FILELLA I PTR-MS air VOC analyses in Montseny and Barcelona. DAURE meeting, IJA Barcelona.

2009. OGAYA R, PEÑUELAS J, ESTIARTE M, LLUSIÀ J. FILELLA I, ASENSIO D, PRIETO P, SILVA J, LLORENS L, LLORET F, JUMP A, RICO L, SARDANS J. Ecological effects of Manipulation of precipitation in a shrubland and a forest of the Mediterranean region. Precipitation manipulation workshop Biosphere II, Tucson, Arizona, October 2009

2010. MARCO PANDOLFI, XAVIER QUEROL, ANDRÉS ALASTUEY, JOSE LUIS JIMENEZ, JORGE PEY, MICHAEL CUSACK, CRISTINA RECHE, FULVIO AMATO, BEGOÑA ARTIÑANO, JOSE MARIA BALDASANO, JOHN BURKHART, ARMIN HANSEL, ORIOL JORBA, JERONI LORENTE, CLAUDIA MOHR, TERESA MORENO, EIKO NEMITZ, JOSEP PEÑUELAS, ROGER SECO, IOLANDA FILELLA, JOAN LLUSIÀ, MICHAËL SICARD, MAR VIANA. An Overview of the DAURE Campaign: Aerosols Emissions and Evolution in the Western Mediterranean Basin EGU Vienna 2010

2010. SECO R, PEÑUELAS J, LLUSIA J, FILELLA I 2010. PTRMS and GCMS measurements of VOCs in Barcelona and Montseny in winter and summer. DAURE meeting. CSIC- Jaume Almera Barcelona 14 enero 2010

2010. GARBULSKY M, PEÑUELAS J, FILELLA I 2010. Photochemical Reflectance Index (PRI)

can estimate seasonal variations of ecosystem gross radiation use efficiency for different forest types. 1<sup>st</sup> Symposium The Terrestrial biosphere in the Earth System. Hamburg, February 9-11

2010. Ponencia inaugural invitada Phenology 2010 Dublin: PEÑUELAS J, FILELLA I, ESTIARTE M, RUTISHUASER T., GARBULSKY M. 2010. Phenology in the local, regional and global ecology of climate change. Phenology 2010. Climate change impacts and adaptations, Trinity College, Dublin. June 14-18

2010. Ponencia invitada: IOLANDA FILELLA, CLARA PRIMANTE, JOAN LLUSIÀ, ANSELM RODRIGO, ANA MARTÍN, JORDI BOSCH, JOSEP PEÑUELAS 2010. Matching phenology of community plant odour and pollinators in a Mediterranean shrubland. the "Climate change manipulation experiments" workshop in Vindeln, June 21-24<sup>th</sup>.

2010. Invited speech: JOSEP PEÑUELAS, ROMÀ OGAYA, PEP CANADELL, ULO NIINEMETS, MARC ESTIARTE, MARTA COLL, JOFRE CARNICER, JIM GREENBERG, ALEX GUENTHER, MARTÍN GARBULSKY, IOLANDA FILELLA 2010. Photosynthesis and productivity in a changing world: the assessment of terrestrial CO<sub>2</sub> sinks. The 15th International Congress of Photosynthesis, International Society of Photosynthesis Research (ISPR), August 22-27 2010, Beijing China,

2011. Peñuelas J, Garbulsky M, Filella I, 2011 Photochemical Reflectance Index (PRI) and remote sensing of plant CO<sub>2</sub> uptake. Invited presentation. AGU San Francisco Dec 3-9 (Abstract B43I-08)

2011. Peñuelas J, Estiarte M, Filella I. 2011. More than just warming and advance unfolding: drought as a driver of growth phenology and pollinators as drivers of floral volatile phenology Invited presentation. AGU San Francisco Dec 3-9 (Abstract B51P-05).

2013. Filella I., Marino G., Llusia J., Morfopoulos C., Farré-Armengol G. & Peñuelas J., 2013 "Photochemical reflectance index as an indirect estimator of foliar isoprenoid emissions at the ecosystem level". Cost Action ES0903 "EUROSPEC, Final Conference. Trento, 6-8 November 2013. (poster).

2013. Peñuelas J., Marino G., Llusia J., Morfopoulos C., Farré-Armengol G., Kefauver, S. & Filella I. 2013 "Photochemical reflectance index as a proxy for remote sensing of isoprenoid emissions". Cost Action ES0903 "EUROSPEC, Final Conference. Trento, 6-8 November 2013. (Oral communication).

2014. Peñuelas J, Filella I, Estiarte M, Llusia J, Sardans J, Ogaya R, Carnicer J, Rico L, Verger A, Asensio D, Bartrons M, Kefauver S, Barbeta A, Rivas-Ubach A, Achotegui A, Gargallo A, Sperlich D, Farré G, Liu D, Zhang C, Tao S (2014) Quantifying the responses of ecosystems and society in a world increasingly rich in N and C but limited in Phosphorus. In: Phosphorus Imbalance in the Terrestrial Biosphere Processes from Root to Globe Meeting. Phosphorus meeting, Montpellier, March 6-7. Invited presentation.

2014. PEÑUELAS J, FILELLA I, ESTIARTE M, LLUSIÀ J, SARDANS J, OGAYA R, CARNICER J, RICO L, VERGER A, ASENSIO D, BARTRONS M, KEFAUVER S, BARBETA A, RIVAS-UBACH A, ACHOTEGUI A, GARGALLO A, SPERLICH D, FARRÉ G, LIU D, ZHANG C, TAO S (2014) Quantifying the responses of ecosystems and society in a world increasingly rich in N and C but limited in Phosphorus. In: Phosphorus Imbalance in the Terrestrial Biosphere Processes from Root to Globe Meeting. Montpellier, March 6-7.

2014. VERGER, A., BARET, F., FILELLA, I., PEÑUELAS, J. 2014. Anomalies and Trends in Vegetation Responses to Climate Change from Global Satellite Observations. Nutriplanta "XV simpósio de nutrição mineral das plantas" Lisboa de 6 a 8 de Dezembro de 2014. Miembro a Comissão de Honra

2014. VERGER, A., BARET, F., FILELLA, I., PEÑUELAS, J. Global vegetation-climate dynamics from 30-year satellite observations. IGARSS 2014

2014. PEÑUELAS, J., FILELLA, I., ZHANG, C., LLUSIÀ, J., OGAYA, R., LIU, D., VERGER, A., BALZAROLO, M., VICCA, S., FERNANDEZ-MARTINEZ, M., JANSSENS, I., GARBULSKY, M., MARINO, G., FARRÉ-ARMENGOL, G. On the use of remote sensing techniques to assess forest gas exchange. Invited final keynote speech. 2014 ForestSAT conference: a bridge between forest sciences, remote sensing and geo-spatial applications, Riva del Garda (TN), Italy, November 4-7 (2014).

2015. PEÑUELAS, J., FILELLA, I., ESTIARTE, M., LLUSIÀ, J., SARDANS, J., OGAYA, R., CARNICER, J., BARTRONS, M., RIVAS, A., GRAU, O., PEGUERO, G., MARGALEF, O., ASENSIO, D., PREECE, C., LIU, L., VERGER, A., RICO, L., BARBETA, A., ACHOTEGUI-CASTELLS, A., GARGALLO, A., SPERLICH, D., FARRÉ-ARMENGOL, G., FERNÁNDEZ-MARTINEZ, M., LIU, D., ZHANG, C., URBINA, I. 2015. **Invited final conference keynote lecture**. Integration of molecular and global tools for a better understanding of current changes in forest structure and functioning. X National Congress of the Italian Society of Silviculture and Forest Ecology, Sostenere il pianeta, boschi per la vita ricerca e innovazione per la tutela e la valorizzazione delle risorse. Florence, 15-18 September 2015.

2015. OGAYA, R. & FILELLA, I. and Global Ecology Unit CREAM-CSIC. 2015. Fluorescence, PRI and reflectance in tropical forests. Imbalance-P conference (European Research Council Synergy grant ERC-2013-SyG-610028). Barcelona (Catalonia, Spain), 13-16 January, 2015

2015. VERGER, A., FILELLA, I., BARET, F., PEÑUELAS, J. 2015. Caracterización de la fenología de la vegetación a escala global mediante series temporales SPOT VEGETATION. XVI Congreso de la AET, Teledetección Humedales y espacios protegidos, October 21-23, Sevilla

2015. KEFAUVER, S., FILELLA, I., ZHANG, C., PEÑUELAS, J. 2015. Linking OMI HCHO and MODIS PRI satellite data with BVOCS emissions in NE Spain. Oral presentation at the International Geoscience and Remote Sensing Symposium (IGARSS IEEE), Milan, Italy. July 26-31, 2015.

## **PARTICIPATION IN RESEARCH CONTRACTS WITH PRIVATE CORPORATIONS:**

TITULO DEL CONTRATO: Métodos ópticos de evaluación de estrés en la vegetación y cultivos

EMPRESA/ADMINISTRACION FINANCIADORA: **Massó Analítica S. A.**

DURACION DESDE: 1993 HASTA: 1997

INVESTIGADOR RESPONSABLE: J. Peñuelas

1998-2000. Collaboration with **Yamaha** (remote control helicopters) and **Fuji Opt** (cameras), for the development of optical sensors to remote sense crops and ecosystems.

## **PhD SUPERVISOR**

TITULO: Efectos del ozono troposférico y de la radiación UV sobre la vegetación y cultivos mediterráneos

DOCTORANDO: Angela Ribas

UNIVERSIDAD: **Autónoma Barcelona**

AÑO: 2004

FACULTAD/ESCUELA: Ciencias

CALIFICACION: Sobresaliente "cum laude"

TITULO: Teledetección del intercambio de gases a escala de paisaje

DOCTORANDO: Martín Garbulsky

UNIVERSIDAD: Autónoma Barcelona

AÑO: 2010

FACULTAD/ESCUELA: Ciencias

CALIFICACION: Sobresaliente "cum laude"

TITULO: Emisión de compuestos orgánicos volátiles por especies mediterráneas

DOCTORANDO: Roger Seco

UNIVERSIDAD: Autónoma Barcelona

AÑO: 2010

FACULTAD/ESCUELA: Ciencias

CALIFICACION: Sobresaliente "cum laude"

TITULO: BVOCs i polinització a les comunitats florals mediterranean

DOCTORANDO Gerard Farré

UNIVERSIDAD: Universitat Autònoma de Barcelona

AÑO: 2015

FACULTAD/ESCUELA: Biociències

CALIFICACION: Excel.lent cum laude

TITULO: Ús del PRI com indicador de l'eficiència fotosintètica

DOCTORANDO Chao Zhang

UNIVERSIDAD: Universitat Autònoma de Barcelona

AÑO: en curso

FACULTAD/ESCUELA: Biociències

CALIFICACION:



## **SUPERVISOR OF MASTERS AND BACHELOR DEGREES**

Angela Ribas Artola, 1998-2000 Avaluació amb bioindicadors dels nivells de fitotoxicitat de l'ozó a Catalunya (Excel.lent). **Universidad Autónoma de Barcelona.**

Roger Seco 2007, Intercanvi planta-atmosfera de COVs oxidats de cadena curta en espècies mediterrànies. **Master Universitat Autònoma de Barcelona (Excel.lent, MH)**

Martín Garbulsky 2007, Teledetección de la fijación de CO2 en distintos tipos de vegetación **Master Universitat Autònoma de Barcelona (Excel.lent, MH)**

Gerard Farré. 2011 BVOCs en les relacions entre flors i pol·linitzadors de les comunitats arbustives del Garraf. **Universitat Autònoma de Barcelona.**

## **SUPERVISER OF POST-DOCS**

Dr. This Ruthishauser **University of Berne** 2008-2009

Dr. Aleixandre Verger, **Universitat Autònoma de Barcelona** 2013

## **TEACHING**

1995. Postgraduate course: "Evaluación de los efectos de la contaminación atmosférica en cultivos y vegetación". CIEMAT. Madrid.

1998-2000. Professor of Ecology at the Escuela Universitaria de Enfermería "Sant Joan de Déu". Universitat de Barcelona.

2002. La llum i la forma de les plantes. IV Seminari De Morfologia: La llum i la forma. Farrera.

1997-2007. Teacher of the postgraduate course: "Ecofisiologia vegetal i Canvi Global". Universitat Autònoma de Barcelona. Annually.

2007. Direction of the end of high school research work "Señales olfactivas en la polinización de Echimium vulgare" Ana Peñuelas Peñarroya, that was graded with a 10/10.

## **OTHER ACTIVITIES, MERITS AND ACHIEVEMENTS WITH SCIENTIFIC, TECHNICAL OR ACADEMIC INTEREST**

### Personal grants

1985-90. Asignación de becas del Ministerio de Educación y Ciencia durante toda la licenciatura.

1991. Beca de formación de Personal Investigador del Ministerio de Educación y Ciencia.

1992. Beca Catalunya-California, de la asociación Amics de Gaspar de Portolà.

### Scientific illustration

Illustrator of the books "Flora dels briòfits dels Països Catalans", and "Handbook of mosses of the Iberian peninsula and the Balearic Islands"

## **REVIEWER OF SCIENTIFIC PAPERS AND MANAGEMENT OF SCIENCE**

- Reviewer for the journals **International Journal of Remote Sensing, Remote Sensing of Environment, Plant Biology, Physiologia Plantarum, Environmental and Experimental Botany, Tree Physiology, New Phytologist, Science, Australian Journal of Botany, Journal of Environmental Quality, Ecology letters,...**

- Projects evaluator

- Member of PhD panels

- Coordinator of the laboratories of Unitat d'Ecofisiologia CSIC-CREAF.

### **Organization of R+D activities**

1998. Member of the organizing committee of the congress of Global Change of the IGBP: The Earth Changing Land. GCTE-LUCC Open Science Conference on Global Change, Barcelona

2006. Member of the organizing committee of the "Jornada sobre Canvi Global: Efectes i estratègies de Gestió". Barcelona, 2006