

Name: **Jordi Sardans Galobart**

Academic formation.

- **Degree in Biological Sciences.** Central Barcelona University (1982). Specialist in Biochemistry and Genetics
- **Degree in Farmacology** Central Barcelona University (1997). Specialist in Environmental Health.
- **Degree in Chemistry** Complutense Madrid University (2002). Specialist in Analytical Chemistry.
- **Degree adward in Biological Sciences** Central Barcelona University (1982).
- **Master in Ecology.** Autonomous University of Barcelona (1993).
- **Phd in Ecology.** Autonomous University of Barcelona (1997).
- **Master in Analytical Chemistry.** Complutense Madrid University. (2008).

Areas of interest

Plant ecophysiology and biogeochemical cycles, and atmosphere-biosphere and plant-soil interactions, with a primary focus on the elemental stoichiometry relationships with terrestrial ecosystems structure and function and in the metabolomic plant responses to abiotic and biotic changes.

Academic profesional activities.

- 1991-92 Ph d Student of *la Caixa d'Estalvis de Barcelona* in the research project of *the nutrient role in Mediterranean recovery after fire*.
- 1989-2014 Senior professor of Sciences in the high school of Sant Vicenç de Castellet.
- 1992-2000 Proffessor-in-chief of the high school of Sant Vicenç de Castellet.
- 1999-2001 Post Phd researcher in the biogeochemistry of Mediterranean woodlands
- 2000-2001 Scientific adviser of the enterprise NATURGEST S.L.
- 2000-2001 Scientific adviser of the Hydraulic and Environment Dpt of the Politecnic Valencia University
- 2002-2004 Post Phd researcher of the Global Ecology Unit CSIC-CEAB-CREAF, in the project: IMMPACTE and VULCAN.
- 2004-2006 Post Phd researcher of the Global Ecology Unit CSIC-CEAB-CREAF, in the project: ALARM.
- 2006-2007. Post Phd researcher of the Global Ecology Unit CSIC-CEAB-CREAF, in the project: *NUE Specific Programme "Integrating and Strengthening the European research area*.
- 2007-2015 Senior Researcher of the Global Ecology Unit CSIC-CEAB-CREAF.

Other Academic merits.

- Highly cited: ISI WEB (2500) Google scholar (3400).
- Assistant editor of "Global Change Biology" and "Plant and Soil".
- 105 ISI publications.

Publications

SCI manuscripts.

1. Vilà, M. & **Sardans, J.** 1999. Plant competition in Mediterranean type-ecosystems. **Journal of Vegetation Science** 10: 281-294. DOI: 10.2307/3237150
2. De la Fuente, J., **Sardans, J.** & Rodà, J. 1997. "Creixement de rebrots d'alzina en una brolla postincendi en el període entre 3 i 6 anys després de fertilitzar-los." . **Orsis** 12: 117-125. ISSN: 0213-4039.
3. **Sardans, J.**, Rodà, F. & Peñuelas, J. 2004. Phosphorus limitation and competitive capacities of *Pinus halepensis* and *Quercus ilex rotundifolia* on different soils. **Plant Ecology** 174: 305-317. © 2004 *Kluwer Academic Publishers. Printed in the Netherlands*
4. **Sardans, J.** & Peñuelas, J. 2004. Drought decreases P availability in an evergreen oak Mediterranean forest. **Plant and Soil** 267: 367-377. © 2004 *Kluwer Academic Publishers. Printed in the Netherlands*

5. **Sardans, J.**, Rodà, F. & Peñuelas, J. 2005. Effects of water and nutrient supply on *Rosmarinus officinalis* flowering, growth and nutrient content in the field. **Environmental and Experimental Botany** 53: 1-11. DOI: 10.1016/j.envexpbot.2004.02.007
6. **Sardans, J.** & Peñuelas, J. 2005. Drought decreases soil enzyme activity in a Mediterranean holm oak forest. **Soil Biology and Biochemistry** 37: 455-461. DOI: 10.1016/j.soilbio.2004.08.004
7. **Sardans, J.** & Peñuelas, J. 2005. Bioaccumulation of trace elements in Catalonia using the moss *Hypnum cupressiforme* and the trees *Pinus halepensis* and *Quercus ilex*. **Chemosphere** 60: 1293-1307. DOI: 10.1016/j.chemosphere.2005.01.059
8. **Sardans, J.**, Peñuelas, F. & Rodà, F. 2005. Changes in litterfall production and in nutrient content, retranslocation and nutrient use efficiency in *Pinus halepensis* after N and P fertilisation, irrigation and neighbour removal. **Tress** 19: 233-250. DOI: 10.1007/s00468-004-0374-3
9. **Sardans, J.** & Peñuelas, J. 2006. Introduction of the factor of partitioning in the lithogenic enrichment factors of the trace element bioaccumulation in plant tissues. **Environmental Monitoring and Assessment** 45: 473-498. DOI: 10.1007/s10661-006-7241-1
10. **Sardans, J.**, Peñuelas, J. & Rodà, F. 2006. Nutrient availability and neighbour removal effects on resprouter capacity and the nutrient accumulation of the Shrub *Erica multiflora*. **Acta Oecologica** 29: 221-232. DOI: 10.1016/j.actao.2005.10.006
11. **Sardans, J.**, Peñuelas, J. & Rodà, F. 2006. Plasticity in leaf morphological traits and leaf nutrient content in the Mediterranean evergreen oak *Quercus ilex* subsp. *rotundifolia* in response to fertilisation and changes in competitive conditions. **Ecoscience** 13 (2): 258-270. Laval University.
12. Peñuelas, J., **Sardans, J.**, Filella, I., Stefanescu C., & Parella, T. 2006. *Lonicera implexa* leaves bearing naturally laid eggs of the specialist herbivore ephydryas aurinia have dramatically greater concentrations of iridoid glycosides than other leaves. **Journal of Chemical Ecology** 32: 1925-1923. DOI: 10.1007/s10886-006-9118-8
13. **Sardans, J.**, Peñuelas, J. & Rodà, F. 2005. Nutrient use by the Mediterranean *Quercus ilex* subsp. *rotundifolia* and *Pinus halepensis* in different soils and under different competitive pressure. **Tress** 20: 619-632. DOI: 10.1007/s00468-006-0077-z
14. **Sardans, J.**, Peñuelas & J., Estiarte. 2006. Warming and drought alter soil phosphatase activity and soil P availability in a Mediterranean shrubland. **Plant and Soil** 289: 227-238. DOI: 10.1007/s11104-006-9131-2
15. 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. ISSN 1210-5759
16. **Sardans, J.**, Peñuelas, J., Estiarte, M. 2007. Patterns of soil and root-surface phosphatase activities in a Mediterranean shrubland. Effects of experimental drought. **Biology and Fertility of Soils** 43: 779-786. DOI: 10.1007/s00374-007-0166-1
17. **Sardans, J.**, Peñuelas, J. 2007. Trace elements accumulation patterns in a *Quercus ilex* mediterranean forest: the role of drought increase. **Environmental Pollution** 147: 567-583. DOI: 10.1016/j.envpol.2006.10.008
18. **Sardans, J.**, Peñuelas, J. 2007. Drought changes the P and K accumulation patterns in an evergreen oak *Quercus ilex* Mediterranean forest. **Functional Ecology** 21: 191-201. DOI: 10.1111/j.1365-2435.2007.01247.x
19. **Sardans, J.**, Peñuelas, J., Estiarte, M., 2008. The effects of warming and drought on trace element content and accumulation in a Mediterranean shrubland. **Chemosphere** 70: 874-885. DOI: 10.1016/j.chemosphere.2007.06.085

20. **Sardans, J.**, Peñuelas, J., Ogaya, R. 2008. Drought effects on Ca, Mg, S, Fe and Mo concentrations and accumulation patterns in a Mediterranean evergreen *Quercus ilex* forest. **Biogeochemistry** **87**: 49-69. DOI: 10.1007/s10533-007-9167-2
21. Estiarte, M., **Sardans, J.**, Peñuelas, J., Emmet, B., Beier, C., Schmidt, L., Tietema, A., Van Meeteren, M. J. M., Kovacsne, E., De Angelis, P. 2008. Root-surface phosphatase activities in shrubland across an European gradient: effects of warming. **Journal of Environmental Biology** **29**: 25-29. ISSN: 0254-8704
22. **Sardans, J.**, Peñuelas, J., Estiarte, M. 2008. Changes in soil-enzymes related to C and N cycle and in soil C and N content under prolonged warming and drought in a Mediterranean shrubland. **Applied Soil Ecology** **39**: 223-235. DOI: 10.1006/j.apsoil.2007.12.011
23. **Sardans, J.**, Peñuelas, J., Estiarte, M., 2008. Warming and drought induced different patterns of change of P and K accumulation in biomass and soil in a Mediterranean shrubland. **Plant and Soil** **306**: 261-271. DOI: 10.1007/s11104-008-9583-7
24. **Sardans, J.**, Peñuelas, J. 2008. Drought changes nutrient sources, content and stoichiometry in the bryophyte *Hypnum cupressiforme* growing in a Mediterranean forest. **Journal of Bryology**. **30**: 59-65. DOI: 10.1179/174328208X281987
25. **Sardans, J.**, Peñuelas, J., Prieto, P., Estiarte, M. 2008. Different plant specific and ecosystem patterns responses of C and N accumulation in a Mediterranean shrubland under drought and warming conditions. **Global Change Biology** **14**: 2304-2316. DOI: 10.1111/j.1365-2486.2008.01656.x
26. **Sardans, J.**, Peñuelas, J., Estiarte, M., Prieto, P. 2008. Changes in Ca, Fe, Mg, Mo, Na and S content in a Mediterranean shrubland submitted to an experimental drought and warming. **Journal of Geophysical Research. Section Biogeosciences** **113**.G03039. DOI:10.1029/2008JG000795.
27. **Sardans, J.**, Peñuelas, J., Ogaya, R. 2008. Drought reduced acid and alkaline soil phosphatase activities and increased soil organic extractable P in a *Quercus ilex* Mediterranean forest. **European Journal of Soil Biology** **44**: 509-520. DOI: 10.1016/j.ejsobi.2008.09.011
28. **Sardans, J.**, Peñuelas, J., Ogaya, R. 2008. Drought induced changes in C and N stoichiometry in a *Quercus ilex* Mediterranean forest. **Forest Science** **54**: 513-522. © Society of American Foresters
29. Peñuelas, J., **Sardans, J.**, Ogaya, R., Estiarte, M. 2008. The biogeochemistry niche of coexisting plant species. **Polish Journal of Ecology** **56**: 613-622. ISSN: 1505-2249
30. Blanch, J.S., Peñuelas, J., **Sardans, J.**, Llusà, J. 2009. Drought, warming and soil fertilization effects on leaf volatile terpene concentrations in *Pinus halepensis* and *Quercus ilex*. **Acta Physiologica Plantarum** **31**: 207-218. DOI: 10.1007/s11738-008-0221-z
31. Peñuelas, J., **Sardans, J.**, Alcañiz, J.M., Poch, J. M. 2009. Increased eutrophication and nutrient imbalances in the agricultural soils of NE Catalonia (Spain) during the last four decades. **Journal of Environmental Biology** **30**: 841-846. ISSN: 0254-8704
32. Peñuelas, J., **Sardans, J.** 2008. Ecological metabolomics. **Chemistry and Ecology** **25**: 305-309. DOI: 10.1080/02757540903062517
33. Peñuelas, J., **Sardans, J.** 2009. Elementary factors. **Nature** **460**: 803-804. © Macmillan Publishers Limited
34. **Sardans, J.**, Peñuelas, J. 2010. Drought change C and N soil stocks by reducing soil urease, protease and α -glucosidase activity in a Mediterranean holm-oak forest. **Journal of American Society of Soil Science** **74**: 838-851. DOI: 102136/sssaj2009.0225
35. **Sardans, J.**, Montes, F., Peñuelas, J. 2009. Recent improvements in Graphite furnace atomic absorption spectrometry (GFAAS) applied to determining As, Cd, Cu, Hg and Pb in biological samples. **Spectrochimica Acta. Part B. Atomic spectroscopy** **65**: 97-112. DOI: 10.1016/j.sab.2009.11.009
36. Peñuelas, J., **Sardans, J.**, Llusia, J., Owen, S., Carnicer, J., Giambelluca, T. W., Rezende, E., Waite, M., Niinemets Ü. 2010. Invasive plant species in Oahu, Hawaii, are positioned towards the fast-return end

- of leaf economics spectrum and have different biogeochemical niche and climatic sensitivity. **Global Change Biology**. 16: 2171-2185. DOI: 10.1111/j.1365-2486.2009.02054.x
37. **Sardans, J.**, Llusia, J., Owen, S., Niinemets, Ü., Peñuelas, J. 2009. An investigation of mono- and sesquiterpene foliar contents and their relationships with leaf economy in native and alien plant species in Oahu (Hawai'i). **Journal of Chemical Ecology** 36: 210-226. DOI: 10.1007/s10886-010-9744-z
 38. Llusia, J., Peñuelas, J., **Sardans, J.**, Owen, S., Niinemets, U. 2009. Volatile terpene emission differences between 38 invasive and 35 native plant species in Hawai'i. **Global Ecology and Biogeography** 19: 863-874. DOI: 10.1111/j.1466-8238.2010.00557.x
 39. **Sardans, J.** Peñuelas, J. Pedrafit, S. 2009. Changes in water content distribution and mobility in *Quercus ilex* leaves during drought by in vivo spin ¹H and T₂ magnetic resonance imaging. **BMC Plant Biology**. 10: art. N° 188. DOI:10.1186/1471-2229-10-188
 40. Pellicer, J., Estiarte, M., Garcia S., Garnatje, T., Peñuelas, J., **Sardans, J.**, Vallés, J. 2009. Do climatic change and phosphorus availability effect genome size in Mediterranean plants. **Journal of African Biotechnology**. 9: 6070-6077. ISSN: 1684-5315
 41. Peñuelas J., **Sardans, J.**, Llusia, J., S. Owen, S., J. Silva, J., Niinemets, J. 2010. Higher allocation to low cost chemical defenses in invasive species of Hawaii. **Journal of Chemical Ecology** 36: 1255-1270. DOI: 10.1007/s10886-010-9862-7
 42. Curriel, Y., Peñuelas, P., Estiarte, M., García-Mas, J., Mattana, S., Ogaya, R., Pujol, M., **Sardans, J.** 2010. Fungal diversity controls the temperature sensitivity of soil organic matter decomposition. **Global Change Biology** 17: 1475-1486. DOI: 10.1111/j.1365-2486.2010.02300.x
 43. Peñuelas, J., **Sardans, J.**, Llusia, J., Owen, SM., Niinemets, Ü. (2011) Leaf chemical traits and ecosystem age in tropical forest: lower P contents and more widespread terpene presence in old Bornean than in young Hawaiian tropical species guilds. **Ecosphere** 2 (4) Article 45: 1-19. DOI: 10.1890/ES10-00185.1
 44. **Sardans, J.**, Montes, F., Peñuelas, J. 2011. Recent improvements in electrothermal atomic absorption spectrometry for determination of trace metal and metalloid elements in soils and sediments- A review. **Soil and Sediment Contamination** 20: 447-491. DOI: 10.1080/15320383.2011.571526
 45. **Sardans, J.**, Peñuelas, J., Rivas-Ubach, A. 2011. Ecological metabolomics as a proxy for organisms, populations and species lifestyle: current development and future challenges. **Chemoecology** 21: 191-225. DOI: 10.1007/s00049-011-0083-5
 46. Kattge, J., Díaz, S., Lavorel, S., Prentice, I.C., Leadley, P., Gerhard Bönsch, Eric Garnier, Mark Westoby, Peter B. Reich, Ian J. Wright, Johannes H.C. Cornelissen, Cyrille Violle, Sandy P. Harrison, Peter M. van Bodegom, Markus Reichstein, Nadejda A. Soudzilovskaia, David D. Ackerly, Madhur Anand, Owen Atkin, Michael Bahn, Dennis Baldocchi, Renée Bekker, Carolina Blanco, Ben Blonder, William Bond, Ross Bradstock, Daniel E. Bunker, Fernando Casanoves, Jeannine Cavender-Bares, Jeffrey Chambers, F. Stuart Chapin, Jerome Chave, David Coomes, Miguel Cluesener-Godt, Will K. Cornwell, Joseph M. Craine, Walter Durka, John Dickie, Leandro Duarte, James Elser, Brian J. Enquist, Gerd Esser, Marc Estiarte, William Fagan, Jingyun Fang, Fernando Fernández, Alessandra Fidelis, Bryan Finegan, Alastair Fitter, Olivier Flores, Henry Ford, Dorothea Frank, Gregoire Freschet, Nikolaos Fyllas, Rachael Gallagher, Andy Gillison, Walton Green, Thomas Hickler, Stephen Higgins, John G. Hodgson, Adel Jalili, Steven Jansen, Carlos Joly, Andrew J. Kerkhoff, Don Kirkup, Michael Kleyer, Stefan Klotz, Johannes M.H. Knops, Koen Kramer, Ingolf Kühn, Hiroko Kurokawa, Omara Lange, Daniel Laughlin, Tali D. Lee, Michelle Leishman, Frederic Lens, Tanja Lenz, Simon Lewis, Kenwin Liu, Jon Lloyd, Joan Llusia, Frédérique Louault, Siyan Ma, Miguel D. Mahecha, Pete Manning, Tara Massad, Belinda Medlyn, Julie Messier, Angela Moles, Gabriel Montserrat-Martí, Sandra Müller, Karin Nadrowski, Shahid Naeem, Ülo Niinemets, Steffi Nöllert, Angela Nüske, Roma Ogaya, Jacek Oleksyn, Jenny Ordoñez, Vladimir G. Onipchenko, Gerhard Overbeck, Wim Ozinga, Susana Paula, Juli Pausas, Josep Peñuelas, Valerio Pillar, Hendrik Poorter, Lourens Poorter, Peter Poschlod, Raphael Proulx, Anja Rammig, Sabine Reinsch, Björn Reu, Lawren Sack, Beatriz Salgado, **Sardans, J.**, Jean-Francois Soussana, Satomi Shiodera, John William Shipley, Enio Sosinski, Emily Swaine, Nathan Swenson, Ken Thompson, Peter Thornton, Matthew Waldram, Evan Weiher, Michael White, S. Joseph Wright, Sönke Zaehle, Amy E. Zanne, Christian Wirth (2011) - TRY – a global database of plant traits. **Global Change Biology** 17: 2905-2955. DOI: 10.1111/j.1365-2486.2011.02451.x

47. **Sardans, J.**, Rivas-Ubach, A., Peñuelas, J. 2011. Climate, forest type, and other natural and anthropogenic factors as determinants of the stoichiometry of forest trees in Catalonia (NE Spain). **Forest Ecology and Management** 262: 2024-2034. DOI: 10.1016/j.foreco.2011.08.019
48. Molina-Montenegro, M.S., Peñuelas, J., Munné-Bosch, S., **Sardans, J.** 2012. Does higher plasticity in photoprotective traits improve the ecophysiological performance of the invasive *Taraxacum officinale* (dandelion) in alpine environments? **Ecological Invasions** 14: 21-33. DOI: 10.1007/s10530-011-0055-2
49. Peñuelas, J., **Sardans, J.**, Rivas-Ubach, A., Janssens, I. 2012. The human induced imbalance between C, N and P in Earth's life-system. **Global Change Biology** 189: 5-8. DOI: 10.1111/j.1365-2486.2011.02568.x
50. Rivas-Ubach, A., **Sardans, J.**, Pérez-Trujillo, M., Estiarte, M., Peñuelas, J. 2012. Strong relationship between elemental stoichiometry and metabolome in plants. **Proceedings of the National Academy of Sciences USA**. 109: 4181-4186. DOI: 10.1073/pnas.1116092109/-/DCSupplemental
51. **Sardans, J.**, Rivas-Ubach, A., Peñuelas, J. (2012) Organism and ecosystem C:N:P stoichiometry in a changing world: a review and future perspectives. **Perspectives in Plant Ecology, Evolution and Systematics** 14: 33-47. DOI: 10.1016/j.ppees.2011.08.002
52. **Sardans, J.**, Rivas-Ubach, A., Peñuelas, J. (2012). The elemental stoichiometry of aquatic and terrestrial organisms and its relationships with life style and ecosystem structure and function: Review and perspectives. **Biogeochemistry** 111: 1-39. DOI: 10.1007/s10533-011-9640-9
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54. Vicca S, Gilgen AK, Camino Serrano M, Dreesen FE, Dukes JS, Estiarte M, Gray SB, Guidolotti G, Leakey ADB, Ogaya R, Ort DR, Ostrogovic M, Rambal S, **Sardans J**, Schmitt M, Siebers M, van der Linden L, van Straaten O, Granier A (2012) Urgent need for a common metric to make precipitation manipulation experiments comparable. **New Phytologist** 195: 518-522. DOI: 10.1111/j.1469-8137.2012.04224.x
55. **Sardans, J.** Peñuelas, J., Coll M., Vayreda, J. Rivas-Ubach, A. 2012. Stoichiometry of potassium is largely determined by water availability and growth in Catalanian forests. **Functional Ecology** 26: 1077-1089. DOI: 10.1111/j.1365-2435.2012.02023.x
56. **Sardans J**, Peñuelas J. 2012. The role of plants in the effects of global change on nutrient availability and stoichiometry. **Plant Physiology** 160: 1741-1761. DOI:10.1104/pp.112.208785
57. **Sardans, J.**, Peñuelas, J. 2013. Tree nutrient allocation to leaves and wood changes with climate, forest type and growth. **Global Ecology and Biogeography** 22: 494-507. DOI: 10.1111/geb.12015
58. Achotegui-Castells, A., **Sardans, J.**, Ribas, A., Peñuelas, J. (2013) Identifying the origin of atmospheric inputs of trace elements in the Prades Mountains (Catalonia) with bryophytes, lichens and soil monitoring. **Environmental Monitoring and Assessment** 185: 615-629. DOI: 10.1007/s10661-012-2579-z.
59. Nogues, I., Llusia, J., Ogaya, R., Munné-Bosch, S., **Sardans, J.**, Peñuelas, J., Loreto F, (2014). Physiological and antioxidant responses of *Quercus ilex* to drought in two different seasons. **Plant Biosystems** 148: 268-278. DOI: org/10.1080/11263504.2013.768557
60. Peñuelas, J., **Sardans, J.**, Llusà, J., Silva, J., Owen S.M., Bala-Ola B, Linatoc, A.C., Noh Dalimin, M., Niinemets, Ü. (2013) Herbivory is related to leaf elemental content and stoichiometry but not to leaf phenolics and morphological traits of early and late successional dominant plant species in a Borneo rainforest. **Plant Ecology and Biodiversity** 6: 245-256. DOI: org/10.1080/17550874-2013.76713
61. Llusia, J., **Sardans, J.**, Peñuelas, J., Owen, S. Niinemets. Ü. 2014. A screening study of leaf terpene emissions of 43 rainforest species in Danum Valley Conservation Area (Borneo) and their relationships

- with chemical and morphological leaf traits and herbivore attack. **Plant Biosystems**. 148: 307-317. DOI: org/10.1080/11263504.2013.770803
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63. **Sardans J**, Peñuelas J. 2013. Plant-soil relationships in Mediterranean forest and shrublands: perspectives in the framework of CO₂-rich atmosphere and climatic change. **Plant and Soil** 365: 1-33. DOI: 10.1007/s11104-013-1591-6
64. Rivas-Ubach, A., Pérez-Trujillo, M., **Sardans, J.**, Gargallo-Garriga, A., Peñuelas, J (2013) Ecometabolomics: Optimized NMR-based procedures. **Methods in Ecology and Evolution** 4: 464-507. DOI: 10.1111/2041-210X.12028
65. **Sardans, J.**, Gargallo-Garriga, A., Perez-Trujillo, M., Parella, T. J., Seco, R., Filella, I., Peñuelas, J. (2014) Metabolomic responses of *Quercus ilex* seedlings to wounding simulating herbivory. **Plant Biology** 16: 395-403. DOI: 10.1111/plb.12032
66. **Sardans, J.** Ribas-Ubach, A., Estiarte, M., Ogaya, R., Peñuelas, J. 2013. Seasonal and climate change related droughts apparently affect the contents of foliar nutrients and trace elements in the dominant plant species of Mediterranean forests and shrublands. **Acta Oecologica** 50: 20-31. DOI: org/10.1036/j.actao.2013.04.002
67. J. Peñuelas, J. Llusia, I. Filella, R. Seco M. Estiarte, M. Mejia-Chang, R. Ogaya, **J. Sardans**, A. Guenther, T. Karl, P. Harley, C. Wiedinmyer, P. I. Palmer, and C. Geron (2013) Intensive measurements of water, energy and gas exchange between vegetation and troposphere during the MONTES Campaign in a vegetation gradient from short semidesertic shrublands to tall wet temperate forests in the NW Mediterranean basin. **Atmospheric Chemistry and Physics** 75: 348-364. DOI: 10.1016/j.atmosenv.2013.04.032
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69. Josep Penuelas, Ivan Janssens, **Sardans, J.**, Michael Obersteiner, Marijn van der Velde, Laurent Bopp, Olivier Boucher, Yves Godderis & Philippe Ciais: 2013. Effects of human-induced phosphorus imbalances and limitation on Life, Society and the Earth System. **Nature Communications** 4: 2934. DOI: 10.1038/ncomms3934
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71. **Sardans, J.**, Peñuelas, J. (2013) Global change is shifting the interactions among plants, hydrology and the content, availability and stoichiometry of soil nutrients. **Ecohydrology** 7: 1-20. DOI: 10.1002/eco.1459
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74. Fernández-Martínez M, Vicca S., Janssens I., **Sardans J.**, Luyssaert, S., Campioli M., Chapin, S.T. Ciais, P., Malhi Y., Obersteiner M., Papale D., Piao S., Reichstein M., Peñuelas J. 2013. Fertility matters most in Earth's carbon cycle. **Nature Climate Change** 4: 471-476. DOI: 10.1038/NCLIMATE2177

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