

Curriculum vitae et studiorum Donatella Spano

Personal Data:

Donatella Spano
Citizenship: Italian

Work address:

Department of Science for Nature and
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Position: - Full Professor, Biometeorologist at the University of Sassari (Italy)
- Regional Minister for the Protection of the Environment – Sardinia.

Education and training

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| 1982/83 | Degree in Agricultural Science at the University of Sassari |
| 1986/89 | Three-year Post Doctoral program specializing in Agrometeorology and Micrometeorology |
| 1985 | Plant Water Relationship and Photosynthesis Measurement Course, Scuola Superiore di Studi Universitari e di Perfezionamento, Pisa (Italy) |
| 1985 | Plant Atmosphere Relationships: Theory and Measurements of Mass and Energy Exchanges Course, Istituto Biologico Selvicolturale, University of Tuscia (Italy) |
| 1995 | Advanced Short Course on Biometeorology and Micrometeorology, University of Sassari (Italy) |
| 1999 | Advanced Course MEDTRAIN, Mediterranean Ecosystems under Threat: Monitoring and Protecting Strategies founded by European Commission, General Directorate XII. |
| 2001 | Advanced Short Course on Agricultural, Forest and Micro Meteorology, Bologna (Italy) |

Job experience

- 2001–present: Full Professor at the University of Sassari, Italy – DIPNET, Department of Science for Nature and Environmental Resources (former DESA)
- 1998–2001: Associate Professor at the University of Basilicata, Dipartimento di Produzione Vegetale, Potenza, Italy

Curriculum vitae et studiorum Donatella Spano

- 1993-1994: Visiting Scientist at the University of California, Davis, California, USA
- 1990-1998: Assistant Professor at the University of Sassari – Istituto di Coltivazioni Arboree, Sassari, Italy
- 1989-1990: Research Scientist at the National Research Council - Institute for Monitoring Agroecosystem, Sassari, Italy
- 1986-1989: Researcher at the Consorzio Ricerche Sardegna - Department of Agrometeorology, Sassari, Italy

STUDY AND RESEARCH PERIODS ABROAD

- University of California Davis, USA, Department of Land, Air and Water Resources. June 1993 - April 1994, August 1995 – October 1995, February–March 1997, September-October 1999, August 2000, May 2002, August-September 2004, October-November 2005, May-June 2006, October-November 2007, December 2009, 2010, 2011, 2012
- Columbia University and NASA-GISS, Center for Climate Systems Research. April 2007
- University of Dundee (UK), Division of Environmental and Applied Biology, February 2005
- Universidad de Cordoba, Spagna, Departamento de Agronomia. November 1994
- Deputacion General De Aragon (Saragoza, Spagna) Servicio de Investigacion Agraria, Unidad de Suelos y Riegos. October 1994
- National Research Council - Institute for Environmental Analysis and Agrometeorology, Florence (Italy). November 1987 - June 1988

PROFESSIONAL SOCIETIES, SERVICES, AND ACADEMIC COMMITMENTS

- 2013 – **Founding Member and President Elect** of the Italian Society for Climate Sciences (SISC)
- December 2011, **Expert on Agriculture and Forestry** for the European Topic Centre on Climate Change impacts, vulnerability and Adaptation (ETC/CCA)
- November 2009 - present, **Rectoral Delegate** for Research and Technologic Transfer, University of Sassari
- 2011 – present, **Member** of the Research Commission of CRUI – Conference of Italian Universities Rectors
- 2013 – present, **Member** of the CRUI Work Group on the Internal Evaluation of Universities
- March 2007 – present, **Deputy Director** of the Impacts on Agriculture, Forest, and Natural Ecosystems (IAFENT) Division at the Euro-Mediterranean Center on Climate Change (CMCC)

Curriculum vitae et studiorum Donatella Spano

- 2006–present, **Scientific Coordinator** of the Agrometeorology and Ecophysiology laboratory with the - Department of Economics and Woody Plant Ecosystems (the staff of the laboratory includes: 5 Research Scientists, 4 Post-Doc, 8 PhD students)
- 2003-2005, **Member** of the National Large Risk Forecast and Prevention Commission – Wildfire Session
- 2004-2006, **Field Editor** for Agricultural and Forest Meteorology of International Journal of Biometeorology.
- **Member** of the Editorial Board for the Agricultural and Forest Meteorology Journal.
- **Member** of the Editorial Board of the Italian Journal of Agrometeorology.
- **Peer reviewer** of Agricultural and Forest Meteorology, International Journal of Biometeorology, Tree Physiology, Journal of Geophysical Research, Acta Horticulturae, Italian Journal of Agronomy.
- **Member** of the American Meteorological Society (AMS), International Society for Biometeorology (ISB), International Society for Horticultural Science (ISHS), Italian Society for Horticultural Science (SOI), and Italian Society for Agrometeorology (AIAM).
- Active **Member** of the ISB Study Group on Measuring fluxes of trace gases.

ADVANCED AND TRAINING COURSE ORGANIZATION (ONLY FROM 2000 TO PRESENT)

- Co-Chair of the Scientific and Organizing Committee of the “**Evapotranspiration Measurement and Modeling**” session at the American Geophysical Union (AGU) Fall Meeting 2012, San Francisco, 3-7 Dec 2012.
- Scientific Coordinator of the International Fall School **Modelling Climate Change Impacts on Water and Crops at Different Scales**, Alghero (Italy), Nov 4-9, 2012
- Member of the Scientific Committee of the **Forest Fires In The Perspective Of Global Change** Advanced Course, Zaragoza (Spain), Feb 13-17, 2012
- Member of the Scientific and Organizing Committee of the International Conference on **Forest Fire Behaviour and Risk**, Alghero (Italy), Oct 4-6, 2011
- Chair of the Scientific Committee of the **Fire Behaviour Analyst** courses (I-IV edition, 2009-2012), organised by the University of Sassari for the Sardinian Forestry Corps
- Member of the Scientific and Organizing Committee of the 12th National Conference AIAM on **Climate and Agriculture: adaptation and mitigation strategies**, Sassari (Italy), June 15 – 17, 2009
- Coordinator of the Summer School on **Climate Change and Agriculture**, Alghero (Italy), Sept 14-18, 2009
- Member of the Scientific Committee of the International Society for Horticultural Science (ISHS) – 5th International Symposium on Irrigation of Horticultural Crops, Mildura, Australia, August 28 – September 2, 2006.
- Scientific Coordinator of the workshop “Gli incendi boschivi e rurali: pericolosità e lotta”, Olbia, Italy, June 24, 2005.

Curriculum vitae et studiorum Donatella Spano

- Member of the Scientific Committee of the “International Workshop on Ecosystem Management and Agriculture” and Coordinator of the session “Effects of Climate Variability on Agricultural Ecosystems”, Alghero, Italy, 2 -4 February 2005.
- Member of the Scientific Committee of the National Conference **Miglioramento della qualità in sistemi viticoli tipici**, Torino (Italy), Jan 23, 2004.
- Member of the Organizing Committee of the ISHS 4th **International Symposium on Irrigation of Horticultural Crops**, Davis, CA, USA, Sept 1-5, 2003
- Member of the Scientific Committee of the National Conference **Piante della Macchia Mediterranea: dagli usi tradizionali alle nuove opportunità agro-industriali**, Sassari (Italy), Oct 2-3, 2003
- Member of the Organising Committee of the Workshop **Climate Change and Agriculture**, Cagliari (Italy), Jan 16-17, 2003
- Member of the Scientific and Organizing Committee of the **Advanced Short Course on Agricultural, Forest and Micro Meteorology**, Bologna (Italy), Oct 8-12, 2001

TEACHING

- **Graduate and undergraduate classes**

Three year and five year Degree Course on Forest and Environmental Science: Forest Ecology.

Three year Degree Course on Plant Production and Protection: General Arboriculture.

Master Course on Vegetative Production and Protection in the Mediterranean Environment: Ecophysiology of Agroecosystems.

Master Course on Planning and Management of Forest and Environmental Systems: Monitoring Techniques of Forest and Environmental Systems.

Master Course on Agrarian Systems: Woody Plant Systems.

Master Course on Forest and Environmental Science: Ecophysiology of Woody Plant Systems.

- **PhD program**

2008-present, Member of the Coordination Committee of the doctorate school in Global Change Science and Policy (ChangeS), consortium of three Italian universities (Ca' Foscari, Salento and Sassari)

2006-present, Coordinator of the Agrometeorology and Ecophysiology of Agricultural and Forestry Ecosystems doctorate school, University of Sassari, Italy

- 2013 – Cooperation with the Ca' Foscari University of Venice as Member of the Reading Committee of the Ph.D. on Science and Management of Climate Change.

- **Master program**

Chair of the International Master program PIROS: “Pianificazione, Prevenzione e Lotta agli Incendi Boschivi in Area Mediterranea” (Fire Planning, Prevention and Fighting in Mediterranean areas), University of Sassari, Italy (1.500 hours)

STATEMENT OF RESEARCH

Much of my research relates to studies on the interaction between the lower atmosphere and vegetative surfaces with emphasis on methods to estimate fluxes between vegetation and the atmosphere. Extensive work on the development and refinement of the surface renewal method for estimating sensible and latent heat flux density with the main purpose to use it for estimating evapotranspiration. Recently, I have worked on evaluating the surface renewal method for direct measurement of latent heat flux and CO₂ exchange between a forest surface and the atmosphere. In the past few years, I have been closely involved in research to model plant phenological development and relate the models to possible climate change. My most recent research effort is directed towards the development and testing of wildfire risk and forecasting models.

My studies and research can be synthetically grouped into five main research lines:

- **Modeling of exchange processes between terrestrial ecosystems and the atmosphere**

Modeling of turbulent fluxes in agricultural, forestry, and urban systems with particular regard to the analysis and application of climatological, meteorological and micrometeorological models in order to estimate the evapotranspiration, energy balance and carbon fluxes at local and regional scales.

- **Analysis and management of risk connected to fire, drought and climate change**

Analysis of the relationships between weather conditions and wildland fires. Modeling of fire spread, behaviour, danger and emissions. Calibration and validation of different fire simulators and fire danger models in Mediterranean areas. Assessment of the impacts of climate and land use changes on fire regime, spread, behaviour, danger, at the Euro-Mediterranean level.

- **Ecophysiology of tree species**

Evaluation of eco-physiological parameters in tree species. Functionality of Mediterranean ecosystems. Stress responses and stress interactions in Mediterranean species

- **Phenology**

Development of models for predicting the onset of phenological phases. Relationship between environmental parameters and phenology.

- **Adaptation strategies for the agriculture and water resources**

Analysis of climate change impacts on agricultural sector and adaptation and mitigation strategies evaluation. Potential synergies and economic evaluation. Models and tools to evaluate the climate change impacts on agriculture. Focus on crop simulation models, land evaluation methodologies and downscaling techniques.

FELLOWSHIPS, AWARDS AND HONORS

- 2010-2013, Member of the Project Coordination Committee of the EU FUME project
- 2009-2012, Member of the Scientific steering Committee of the PO Marittimo Proterina-C project
- 2008-2011, Member of the Scientific steering Committee of the EU Bridge Project
- 2012 Contributing Author IPCC AR5 WGII Chpt 23
- 2012 Member of the Scientific Committee of the ItaliaCamp- An idea for the Country
- 2012 Best research achievement medal of the University of Sassari
- 2001, Co-recipient of the “Best Practice Paper” in the Journal of Irrigation and Drainage Engineering – American Society of Civil Engineers for the paper: Ventura, F., Faber, B.A., Bali, K., Snyder, R.L., Spano, D., Duce, P., and Schulbach, K.F. 2001. Model for estimating evaporation and transpiration from row crops. J. of Irrigation and Drain. Engng. 127(6):339-345.
- 1997, Sardinian Region Grant fellowship at Department of Land, Air and Water Resources dell'Università della California, Davis, CA (USA)
- 1995, Sardinian Region Grant fellowship at Department of Land, Air and Water Resources dell'Università della California, Davis, CA (USA)
- 1993, NATO-CNR Grant fellowship at Department of Land, Air and Water Resources dell'Università della California, Davis, CA (USA)
- 1985, Regional Center for Experimental Agriculture Grant fellowship at Tree Crop Systems, University of Sassari (Italy)

NATIONAL AND INTERNATIONAL PROJECTS (ONLY FROM 2006 TO TODAY)

1. **Orientgate EU & South East Europe Transnational Cooperation Programme (2012-2014)** – Coordination of a pilot study aiming at assessment of climate change adaptation in a new water regime in the Puglia region.
2. **ACLIMAS European Commission SWIM Programme (2011 -2014)** – Identification of sustainable farming strategies for wheat and faba beans in Egypt. Development of guidelines for farming practice under climate change conditions.
3. **ETC European Environment Agency project (2012 -2013)** – Collection, elaboration, review and updating of thematic contents of Agriculture and Forestry for the European Climate Adaptation Platform – Climate ADAPT.
4. **Tender Sardinia Region**, Development, functional assessment and setup of an integrated system for the quantification of net CO₂ exchanges and for the evaluation of mitigation strategies at the urban and territorial levels. (€250.000). 2012-2013
5. **Sardinia Region Project Legge Regionale 7 agosto 2007, n. 7 “Promozione della ricerca scientifica e dell’innovazione tecnologica in Sardegna.”** - EXTREME - Setup of methodologies and support systems for the evaluation of fire risk in extreme meteorological conditions – Co-ordinator CNR IBIMET Sassari (€200.000). – 2012 - 2014.

6. **Tender Nigeria** – Nigeria Climate risk assessment in agriculture and coastal development. Funded by World Bank. Coordinator: Euro Mediterranean Centre for Climate Change (CMCC). (€ 247.913,43). 2011
7. **EU 7FP CLIMAFRICA** - Climate change predictions in Sub-Saharan Africa: impacts and adaptations. Coordinator: Euro Mediterranean Centre for Climate Change (CMCC). (€802.040,00). 2010-2014.
8. **EU 7FP “WASSERMED** - Water Availability and Security in Southern Europe and the Mediterranean”. Co-ordinator CMCC Centro Euro Mediterraneo per i Cambiamenti Climatici. (€ 862.640,00). 2010 - 2013.
9. **EU 7FP “FUME”** - Forest fires under climate, social and economic changes in Europe, the Mediterranean and other fire-affected areas of the world”. Co-ordinator Universidad de Castilla - La Mancha. (€ 652.063,20). 2010 - 2013.
10. **Sardinia Region Project Legge Regionale 7 agosto 2007, n. 7 “Promozione della ricerca scientifica e dell’innovazione tecnologica in Sardegna.”** - Metodologie e indicatori per la valutazione del rischio di incendio nelle aree di interfaccia urbano-rurale in ambiente mediterraneo – Co-ordinator CNR IBIMET Sassari – (€ 32.509,00). 2010 - 2011.
11. **EU 7FP “Increase”** - An Integrated Network on Climate Change REsearch Activities on Shrubland Ecosystems. Co-ordinator University of Copenhagen .(€ 247.913,43). 2009 - 2012.
12. **Cross-border project Italia/Francia Marittimo Proterina C** - Co-ordinator Regione Liguria. (€ 225.000,00). 2009 - 2012.
13. **EU “Bridge”** - Sustainable urban planning decision support system accounting for urban metabolism. Co-ordinator Forth, Heraklion, Crete, Grecia. (€ 102.342,11). 2009 - 2011.
14. **Sardinia Region Project SQF VS, CONVISAR (APQ, Accordi Programma Quadro):** Per un salto di qualità della filiera viti-vinicola della Sardegna. 2008-2009.
15. **Sardinia Region Project ENOWIRELESS** – sperimentazione in agricoltura di sistemi e sensori senza fili. POR Sardegna 2000-2006 “Ricerca e sviluppo tecnologico nelle imprese e territorio. 2008.
16. **MIUR – PRIN** - Metodologie per la contabilizzazione degli assorbimenti di CO₂ in ecosistemi mediterranei (*Methods for accounting the absorption of CO₂ in Mediterranean ecosystems*). Responsible Prof. Donatella Spano. 2007 - 2008.
17. **MIUR - FISR: Project CARBOITALY** - Una rete nazionale per la misura dei sink forestali e agricoli italiani e lo sviluppo di un sistema di previsione dell’assorbimento dei gas serra (A national network for measuring italian forest and agricultural sinks and the development of a forecasting system for the absorption of greenhouse gases). 2006 - 2008.
18. **Ministero dell’Economia e delle Finanze, MIUR, dell’Ambiente della Tutela del Territorio, MIPAF – Strategic Programme: Centro Euro Mediterraneo per i Cambiamenti Climatici (CMCC). Linea di Ricerca 4 VALUTAZIONE E DIAGNOSTICA DEGLI IMPATTI (Evaluation and diagnosis of the Climate Change Impacts).** University of Sassari, DESA, in collaboration with University of Tuscia – DISAFRI, CNR-IBIMET Sassari. (€ 800.000,00). 2005 - 2008.
19. **California Dep. of Water Resources e US Dep. of Agriculture-WERA-202,** Project “Crop Coefficient Testing and Development Project” and “Users' Guide on the surface renewal method”. (\$240,000). 2006 - 2007.

INVITED PRESENTATIONS TO PEER-REVIEWED, INTERNATIONALLY ESTABLISHED CONFERENCES AND/OR INTERNATIONAL ADVANCED SCHOOLS

- Invited lecturer on “Integrated assessment of climate change impacts” at the ICCG-CMCC Summer School on Adaptation Policies and Practices in the Mediterranean Basin (MedAdapt). 19 – 23 May 2014, Venice, Italy.
- Invited seminar presentation on “An overview of monitoring and modeling activities in Mediterranean ecosystems” at the Lawrence Berkeley National Laboratory. December 16, 2013, Berkeley, USA
- Invited lecturer on “Fire regime and fire risk” and “Fire behaviour and propagation” for the Advanced course of the FUME Project on FOREST FIRES IN THE PERSPECTIVE OF GLOBAL CHANGE. 13-17 February 2012, Zaragoza, Spain
- Invited presentation “Numerical Tools for Low-Carbon Urban Development Studies” for the Third annual Meeting of the International Research Network for Low Carbon Societies (LCS-RNet): Transition towards low carbon societies in a changing world, 13-14 October 2011, Paris, France.
- Invited presentation “IFI: applications at local and regional scale in the Euro-Mediterranean area” for the International Conference on Fire Behaviour and Risk. 4-6 October 2011, Alghero, Italy
- Invited presentation “Interazioni tra Incendi Boschivi e Cicli Biogeochimici” for the International Conference on Environment Including Global Change. 5-9 October 2009, Palermo, Italy
- Invited to the Think-Tank meeting on research needs in Natural hazards on Forest fires (in a climate change context) and related to multi-hazard/ risk perspectives. EU-DG research, Bruxelles, 12-13 November 2007
- Invited presentation “Stima del patrimonio di carbonio forestale e rurale: le prospettive per la regione Sardegna” for the Technical Seminar on “Lotta ai cambiamenti climatici: il ruolo delle aree agro forestali” organized by Enet Foreste della Sardegna, February 27, 2007, Cagliari, Italy.
- Invited presentation “ Risultati della divisione impatti sull’agricoltura, foreste ed ecosistemi naturali” for the Workshop on “La ricerca italiana sui cambiamenti climatici. Scenari, impatti, politiche”, May 30 – June 1, 2007, Gallipoli, Italy.
- Invited presentation “L’impatto delle variazioni climatiche sui sistemi agro-forestali nelle aree a rischio desertificazione” for the Workshop “Le variazioni climatiche e i processi di desertificazione: verso piani di monitoraggio e strategie di riduzione della vulnerabilità e di adattamento” organized by the Ministry of Environment and Protection of Land and Sea – APAT and the Autonomous Sardinia Region – ARPAS, June 21-22, 2007, Alghero, Italy.
- Invited presentation “Lessons from Mediterranean Environments”, for the Workshop “Climate Change Impacts and Adaptation Metrics” organized by the Center for Climate Systems Research, Columbia University and NASA-GISS, 5-6 June 2006, New York, USA
- Invited presentation “Flux research for fire models and characterization of Mediterranean maquis”, UC Davis Atmospheric Science Seminar Series, November 1 2005, Davis, USA

Curriculum vitae et studiorum Donatella Spano

- Invited presentation “Predicting chill accumulation requirements using different models” for the Workshop on Modelling Phenology and Seasonality organized by the Technical University of Munich, 20-22 November 2002, Freising, Germany

Scientific Production

Publications with referee

International peer-reviewed scientific journals

1. MANCOSU N., SNYDER R.L., SPANO D. (2014). Procedures to Develop a Standardized Reference Evapotranspiration Zone Map.. JOURNAL OF IRRIGATION AND DRAINAGE ENGINEERING, ISSN: 1943-4774, doi: 10.1061/(ASCE)IR.1943-4774.0000697
2. AGER A. A., PREISLER H., ARCA B., SPANO D., SALIS M. (2014). Wildfire risk estimation in the Mediterranean area. ENVIRONMETRICS, ISSN: 1180-4009, doi: 10.1002/env.2269
3. ARCA B, SALIS M, AGER AA, PELLIZZARO G, PINTUS GV, ALCASENA F, SPANO D, DUCE P (2014) Temporal patterns of wildfire probability and intensity in Northern Sardinia, Italy. *Geophysical Research Abstracts*, Vol. 16, 13179 p. ISSN 1607-7962
4. SALIS M, AGER AA, ARCA B, FINNEY MA, ALCASENA F, BACCIU V, DUCE P, MUNOZ LOZANO O, SPANO D (2014). Analyzing wildfire exposure on Sardinia, Italy. *Geophysical Research Abstracts*, Vol. 16, 11596 p. ISSN 1607-7962
5. SIRCA C, SALIS M, SPANO D (2014) A regional estimate of soil organic carbon content linking the RothC model to spatialised climate and soil database. *Geophysical Research Abstracts*, Vol. 16, 9923 p. ISSN 1607-7962
6. BACCIU V, MASALA F, SALIS M, SIRCA C, SPANO D (2014) Analysis of weather conditions influencing fire regime in Italy. *Geophysical Research Abstracts*, Vol. 16, 14640 p. ISSN: 1607-7962
7. BLECIC I., CECCHINI A., FALK M., MARRAS S., PYLES D., SPANO D., TRUNFIO G.A., 2014. *Urban metabolism and climate change: a planning support system*. International Journal of Applied Earth Observation and Geoinformation, Volume 26, February 2014: 447–457
8. NOLÈ A., COLLALTI A., MAGNANI F., DUCE P., FERRARA A., MANCINO G., MARRAS S., SIRCA C., SPANO D., BORGHETTI M., (2013) Assessing temporal variation in primary and ecosystem production in two Mediterranean forest types using a modified 3-PG model. *Annals of Forest Science*: vol.70, Issue 7(2013), pp. 729-741, [doi:10.1007/s13595-013-0315-7](https://doi.org/10.1007/s13595-013-0315-7)
9. MANCOSU, N., SNYDER, R. L., SPANO, D. 2013. Procedures to develop a Standardized Reference Evapotranspiration zone map. *Journal of Irrigation and Drainage Engineering* (under review).
10. SALIS M., AGER A.A., FINNEY M.A., ARCA B., SPANO D., (2013) Analyzing spatiotemporal changes in wildfire regime and exposure across a Mediterranean fire-prone area. *Natural Hazards*. DOI: 10.1007/s11069-013-0951-0
11. CARDIL A., SALIS M., SPANO D., DELOGU G., MOLINA D. (2013). Large wildland fires and extreme temperatures in Sardinia (Italy). *IFOREST*, ISSN: 1971-7458, doi: 10.3832/ifor1090-007
12. CHRYSOULAKIS, N., LOPES, M., JOSÉ, R.S., ET AL. (2013) Sustainable urban metabolism as a link between bio-physical sciences and urban planning: The BRIDGE project. *Landscape and Urban Planning*. 112 (2013) 100-117. [DOI: 10.1016/j.urbandplan.2012.12.005](https://doi.org/10.1016/j.urbandplan.2012.12.005).
13. FALK. M., PYLES R.D., MARRAS S., SPANO D., PAW U K.T., XU L., SNYDER R.L., (2013) Regional simulation of urban metabolism using the WRF-ACASA model. *Urban Climate* (submitted)

14. MARRAS S., SIRCA C., DUCE P., ZARA P., ARCA A., SNYDER R. L., SPANO D., 2012. Long-term monitoring of evapotranspiration in a Sardinian vineyard. ACTA HORT. (ISHS) (submitted)
15. PYLES R.D., FALK M., XU L., MARRAS S., CASULA M., SNYDER R.L., SPANO D., PAW U K.T., (2013) WRF coupled to ACASA: an evaluation of a mesoscale atmospheric model equipped with a sophisticated ecophysiological land surface scheme. Journal Of Applied Meteorology And Climatology (submitted)
16. MARRAS S., PYLES R.D., FALK M., JÄRVI L., TOSCANO P., SNYDER R.L., PAW U K.T., SPANO D., (2013) *ACASA model implementation in urban environment*. Journal of Applied Meteorology and Climatology (submitted).
17. MONTEIRO A.T., FAVA F., MARCHESI A., SPANO D., BOCCHI S. (2013) Assessing and detecting changes in land cover in mountain regions using Landsat data and NDVI differences: a case of study in the Italian Alps. Journal of Mountain Science (submitted)
18. MONTEIRO A.T., FAVA F., GONÇALVES J., HUETE A., GUSMEROLI F., PAROLO G., SPANO D., BOCCHI S. (2013). Landscape context determinants to plant diversity in the permanent meadows of Southern European Alps. Biodiversity and Conservation Journal, vol. 22 (4), pp. 937 -958, doi: 10.1007/s10531-013-0460-1
19. STOY P, MAUDER M, FOKEN T, MARCOLLA B, BOEGH E, IBROM A, ALTAF ARAIN M, ARNETH A, AURELA M, BERNHOFER C, CESCATTI A, DELLWIK E, DUCE P, GIANELLE D, VANGORSEL E, KIELY G, KNOHL A, MARGOLIS H, MCCAUGHEY H, MERBOLD L, MONTAGNANI L, PAPALE D, REICHSTEIN M, SAUNDERS M, SERRANO-ORTIZ P, SOTTOCORNOLA M, SPANO D., VACCARI F, VARLAGINV (2013) A data-driven analysis of energy balance closure across FLUXNET research sites: The role of landscape-scale heterogeneity, Agricultural and Forest Meteorology, 171, 137-152 <http://dx.doi.org/10.1016/j.agrformet.2012.11.004>
20. SALIS M, AGER A, ARCA B, FINNEY M, BACCIU V, DUCE P, SPANO D., 2012 “Assessing exposure of human and ecological values to wildfire in Sardinia, Italy”. International Journal Of Wildland Fire, 22(4) 549-565 doi: <http://dx.doi.org/10.1071/WF11060> ISSN:1049-8001
21. SALIS M, ARCA B, AGER AA, FOIS C, BACCIU V, DUCE P, SPANO D (2012) Extreme wildfire spread and behaviour: case studies from North Sardinia, Italy. *Geophysical Research Abstracts*, Vol. 14, 10052 p. ISSN 1607-7962
22. SIRCA C, CARTA M, SALIS M, SPANO D (2012) Soil carbon projections in Mediterranean soils under climate change conditions. *Geophysical Research Abstracts*, Vol. 14, 10842 p. ISSN 1607-7962
23. CHIESI M, CHIRICI G, CORONA P, DUCE P, SALVATI R, SPANO D, VACCARI FP, MASELLI F (2012). “Use of BIOME-BGC to simulate water and carbon fluxes within Mediterranean macchia”. *iForest –Biogeosciences and Forestry*, vol. 5: pp. 38-43. - doi: 10.3832/ifor0605-009
24. S. NIU, Y. LUO, S. FEI, W. YUAN, D. SCHIMEL, B.E. LAW, C. AMMANN, M.A. ARAIN, A. ARNETH, M. AUBINET, A. BARR, J. BERINGER, C. BERNHOFER, T.A. BLACK, N. BUCHMANN, A. CESCATTI, J. CHEN, K.J. DAVIS, E. DELLWIK, A.R. DESAI, S. ETZOLD, L. FRANCOIS, D. GIANELLE, B. GIELEN, A. GOLDSTEIN, M. GROENENDIJK, L. GU, N. HANAN, C. HELFTER, T. HIRANO, D.Y. HOLLINGER, M.B. JONES, G. KIELY, T.E. KOLB, W.L. KUTSCH, P. LAFFEUR, D.M. LAWRENCE, L. LI, A. LINDROTH, M. LITVAK, D. LOUSTAU, M. LUND, M. MAREK, T.A. MARTIN, G. MATTEUCCI, M. MIGLIAVACCA, L. MONTAGNANI, E. MOORS, J.W. MUNGER, A. NOORMETS, W. OECHEL, J. OLEJNIK, K.T. PAW U, K. PILEGAARD, S. RAMBAL, A.

- RASCHI, R.L. SCOTT, G. SEUFERT, SPANO D., P. STOY, M.A. SUTTON, A. VARLAGIN, T. VESALA, E. WENG, G. WOHLFAHRT, B. YANG, Z. ZHANG, X. ZHOU (2012). "Thermal optimality of net ecosystem exchange of carbon dioxide and underlying mechanisms". *NEW PHYTOLOGIST*, vol. 194 (3): p.775-783, ISSN: 0028-646X, doi: 10.1111/j.1469-8137.2012.04095.x
25. MORATIEL R., SPANO D., NICOLOSI P., SNYDER R.L., 2012. *Correcting Soil Water Balance Calculations for Dew, Fog, and Light Rainfall*. *Irrigation Science*, vol. 31 (3), pp 423-429, doi:10.1007/s00271-011-0320-2
26. BACCIU V, PELLIZZARO G, SANTONI PA, ARCA B, VENTURA A, SALIS M, BARBONI T, LEROY V, CANCELLIERI D, LEONI E, FERRAT L, PEREZ Y, DUCE P, SPANO D (2012) Fuel types and potential fire behavior in Sardinia and Corsica islands. *Geophysical Research Abstracts*, Vol. 14, 12172 p. ISSN 1607-7962
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