



Università degli Studi
di Sassari

NRD – Nucleo Ricerca Desertificazione



International Conference on

Dryland ecosystem functioning and resilience: integrating biophysical assessment with socio-economic issues

Alghero (Italy), 6-8 July 2011

POSTER ABSTRACTS

Organized in collaboration with:



Società Italiana di Agronomia



Session 1 Climate change and sensitivity of desertification	5
<i>Session chairs: Giuseppe Scarascia Mugnozza and Giuseppe Enne</i>	
1. Trends in intense precipitations in Friuli Venezia Giulia (NE Italy) <i>P. Ceccon, F. Cazorzi</i>	6
2. Land surface temperature of Yardang region in Lut Desert (Iran) based on field measurements and Landsat Thermal data <i>Alavipanah Seyed Kazem, Goodarzi Mehr Saeed, Hamzeh Mohamad, Khakbaz Bahere</i>	7
3. EcoFINDERS - linking soil trophic processes and above-below ground diversity: the Mediterranean Long-Term Observatories at Berchidda-Monti (Sardinia) <i>Bagella S., Bianciotto V., Caria M.C., Girlanda M., Lai R., Ledda L., Lumini E., Orgiazzi A., Rossetti I., Seddaiu G., Roggero P.P.</i>	8
4. Critical issues and adaptive options for the Sardinian dairy sheep grazing system in the context of climate change <i>Phuoc Lai Nguyen, Giovanna Seddaiu, Clara Demurtas, Pier Paolo Roggero</i>	9
5. Pasture condition mapping in desertification sensitive areas of Sardinia by MODIS satellite data <i>Fava F., Pulighe G., Zucca C.</i>	10
6. Remote sensing analysis on inter-annual spatial variability of vegetation productivity and land surface biophysical variables in Mongolia <i>Nayoung Do, Sinkyu Kang</i>	11
7. Desertification in Algeria: overgrazing and climate change <i>Dalila Nedjraoui, Aziz Hirche</i>	12
8. Identification and interpretation of anomalous vegetation trend in west Africa dryland through remote sensed data <i>Francesco Nutini, Mirco Boschetti, Pietro A. Brivio, Etienne Bartholomé, Daniela Stroppiana</i>	13
9. Constraints on gas exchange of white spruce near the Arctic treeline <i>Patrick F. Sullivan, Bjartmar Sveinbjörnsson</i>	14
10. A Compact Laser Spectrofluorimeter (CASPER) for groundwaters monitoring in an agricultural district of Sardinia <i>Daniele Pittalis, Ileana Iocola, Maria Vittoria Pinna, Luca Fiorani, Ivano Menicucci, Antonio Palucci, Massimo Iannetta, Giorgio Ghiglieri</i>	15
11. Important topics critical to remote sensing in arid regions <i>Seyed Kazem Alavipanah, M. Hamze, S. Goodarzi Mehr, B. Khakbaz. salavipa@ut.ac.ir</i>	16
12. Detection of variability of lake areas using LANDSAT imagery <i>Sinkyu Kang, Kyungbin Lee, Sukyoung Hong, Nayoung Do, Dongreol Ryu</i>	17

Session 2 Dryland resilience: the role of geo-engineering and agroforestry systems

19

Session Chairs: Mauro Centritto and Pier Paolo Roggero

13. Damages of palm groves in Algeria: impact of climate change on appearance and spreading of date palm (*Phoenix dactylifera* L.) fusariosis. 20
Arbadi Ratiba, Kadi Hanifi Halima, Rahmania Fatma
14. Suitability of Mediterranean maquis species as potential crops with high ecological and industrial value. 21
Camboni Irene, Dessena Leonarda, Mura Gian Paola, Mulas Maurizio
15. Dryland management practices to increase soil organic carbon 22
Giacomo De Sanctis, Giuseppe Iezzi, Giovanna Seddaiu, Roberto Orsini, James W. Jones, Pier Paolo Roggero
16. Multipurpose use and environmental adaptability of the species *A. halimus* 23
Dessena Leonarda, Mura Gian Paola, Camboni Irene, Mulas Maurizio
17. The influence of historical tree harvesting to current semi-arid woodland expansion into rangeland 24
Dongwook W. Ko, Peter J. Weisberg, Ashley D. Sparrow
18. Integrated water projects to improve the socio-economic conditions of rural communities in africa (Mauritania and Tanzania) 25
Giorgio Ghiglieri, Giacomo Oggiano, Daniele Pittalis, Alberto Carletti
19. Assesment of vegetation and soil response to stress and disturbance in dry ecosystems in Algeria 26
Dahmani-Megrerouche M., Kadi-Hanifi H.
20. Study of the biodiversity on vegetation cover of mine dumps to select strategic plant resources 27
Mulas Maurizio, Congia Antonio, Cabras Matteo, Manca Manuela
21. Improving agamic propagation of Mediterranean maquis species as a tool to combat desertification 28
Mura Gian Paola, Camboni Irene, Dessena Leonarda, Mulas Maurizio
22. Spatial self-organization of a semi-arid nebkha ecosystem in southern New Mexico 29
Jan J. Quets, Stijn Temmerman, Magdy El-Bana, Saud L. Al-Rowaily, Ivan Nijs
23. Actions to combat desertification: do they enhance ecosystem goods & services? The contribution of the PRACTICE project to the development of integrated assessment methods 30
Claudio Zucca, Massimo d'Angelo; Sergio Campus; Maria Laura Congiu, Carlo Cucca, Paolo Dui, Francesco Fava, Valeria Fiori, Selim Kapur, Salvatore Madrau, Mustapha Mortaji, Maurizio Mulas, Silvia Musinu, Franco Previtali, Giuseppe Pulighe, Roberto Scotti.

Session 3 Integration of Bio-physical and Socio-Economic Issues – Generating Baseline Information for Desertification, Land Degradation and Drought (DLDD) Assessment	31
<i>Session Chairs: Michael Cherlet and Stefan Sommer</i>	
24. Assessment of rural land abandonment using an innovative approach for the integration of bio-geophysical and socio-economic information	32
<i>Pietro Alessandro Brivio, Mirco Boschetti, Paola Carrara, Gloria Bordogna, Christof J. Weissteiner</i>	
25. Land degradation syndromes and projections : using land cover/use as inputs for scenario building	33
<i>Tomaso Ceccarelli, Sofia Bajocco, Luca Salvati, Antonella De Angelis, Simone Rinaldo, Luigi Perini</i>	
26. SOILPRO: a LIFE+ project implementing soil monitoring and protection together with regional stakeholders of Sicily and Peloponnese.	34
<i>E.A.C. Costantini, P.Bucelli, M.Fantappiè, F.Guaitoli, P.Kalliris, K.Kyriakopoulos, M.G.Matranga, T.Papadopoulos, S.Pellegrini, E.Vasilakis, N.Vignozzi</i>	
27. Climate and anthropism impact on the desertification of the steppe in Algeria	35
<i>Kadi-Hanifi Halima, Dahmani-Megrerouche Malika</i>	
28. The UNCCD’s Performance Review and Assessment of the Implementation System (PRAIS): generating country-driven baseline information to combat Desertification, Land Degradation and Drought (DLDD)	36
<i>Philip Bubb, Adamou Bouhari, Massimo Candeloro, Victor Castillo, Anna Chenery, Peter Herkenrath, Abisha Mapendembe, Sara Minelli, Luca Perez, Alison Rosser, Jessica Smith, Damon Stanwell-Smith, Anja Thust, T istan Tyrrell, Steve Twomlow, Matt Walpole</i>	
29. Multiscale desertification assessment and monitoring based on RS data. The state-of- the-art contribution from DESERTWATCH-E	37
<i>C.Zucca, R. Armas, M. Caetano, H. Carrão , A. Soares , M.J. Pereira , A.Gutierrez, A.Rocha , G. Pace , L.Compagnone, G. Del Barrio, M. Paganini</i>	
30. The contribution of the FAO LADA project to the “National Piloting of provisional UNCCD impact indicators”	38
<i>Zucca Claudio, Riccardo Biancalani, Monica Petri, Sally Bunning, Dominique Lantieri</i>	

Session 4: Global Perspective on Current Status and Options: Food Security and Food Sovereignty in Drylands 39

Session Chairs: Mariam Akhtar-Schuster and Lindsay Stringer

31. DSIRR “Decision Support for IRRigated agriculture” 40
Bazzani Guido M.
32. Nanobiosensors for E. coli detection in water 41
Stefania Mura, Gianfranco Greppi, Maria Laura Marongiu, Pier Paolo Roggero, Reeta Davis, Sandeep P. Ravindranath, Lisa J. Mauer, Joseph Irudayaraj
33. Agrosценari – Adaptation scenarios to climatic changes in agriculture 42
Luigi Perini, Sofia Bajocco, Tomaso Ceccarelli, Marco Zitti, Luca Salvati

Session 5: The economics of land degradation and sustainable land management. 43

Session Chair: Richard Thomas

34. An integrated approach to ensure sustainable livelihood conditions and mitigate land degradation effects in rural areas of Ghana: the case of *Jatropha curcas* 44
Bellavite D., Lubino M., Contran N., Obeng G., Adjaloo M., Nutsugah S., Kombiok J., Faalong J., Akai C., Fuseini S., Sahanoon O., Sayibu T., Mulas M., Roggero P.P., Enne G.
35. Estimating carbon credits variations supplied from agriculturaland forest soils of Italy between 1979 and 2008 45
M. Fantappiè, E.A.C. Costantini, G. L'Abate
36. New paradigms for the assessment of "best practices" to combat desertification 46
Giovanna Seddaiu, Stefania Solinas, Pietro Pisanu, Pier Paolo Roggero

Poster n. 35

Estimating carbon credits variations supplied from agricultural and forest soils of Italy between 1979 and 2008

M. Fantappiè¹, E.A.C. Costantini¹, G. L'Abate¹

¹CRA-ABP Research Centre for Agrobiological and Pedology, Firenze, Italy

Soils contain approximately three times the world amount of organic carbon present in vegetation and the double present in atmosphere. Italy, which has joined the Kyoto Protocol, has decided to consider only forest management within the additional activities contemplated for the count of carbon credits (CC), and to launch a monitoring campaign only in forests. The scope of this research work was to estimate CC variations supplied from both agricultural and forest soils of Italy during last the 3 decades (from 1979 to 2008). The soil database of Italy was the source of information of soil organic carbon stock (CS), referred to the first 50 cm depth. The CRA -CMA (Research Unit for Climatology and Meteorology Applied to Agriculture) database was the source of information for mean annual temperature and mean annual precipitations of the two periods 1961-1990 and 1991-2006. Multiple linear regression analysis were used to interpolate the CS with geographic attributes as predictive variables. An index of climatic change influence on soil organic carbon variations (Ic) was calculated. The net CS variations, that may be attributed to agricultural and forest management change, were calculated subtracting the ones due to climate change. The calculation of CC was done following the Emission Trading System (EU-ETS, EU Directive 2003/87/EC), and the exchange rate given by the Carbon Dioxide Emission Allowances Electronic Trading System (SENDECO2) at September 2010. The Italian CS passed from 3,32 Pg in 1979-1988, to 2,74 Pg in 1989-1998, and 2,93 Pg in 1999-2008. The CC lost from the first to the second decade totalled some 31,171 M€, while the CC recovered from the second to the third were about 9,218 M€. About 90 % of the recover was due to the management change in arable lands. Italy should then extend also to arable lands the CS monitoring.

Keywords: Carbon sequestration, Land management, Climate change impact, Environmental economics.