

DesertNet International



DesertNet International Newsletter n. 1/2015

This quarterly electronic newsletter is intended to inform the scientific community about dryland-relevant research matters. The **deadline** for receipt of material for the next issue is **15.06.2015**. Please send your contributions (1000 characters max, including spaces) to nrd@uniss.it and czanolla@uniss.it

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1 Message from Wafa Essahli – Chair of DesertNet International

Dear members of DesertNet International,

2015 will be marked by the meeting of UNCCD's three main bodies: the Committee on Science and Technology (CST), the Committee to review the implementation of the Convention (CRIC) and the Conference of the Parties (COP).

The DNI is called to participate in these important events and to respond to Parties' requests for assistance in preparatory discussions organized by them. This is a clear recognition of the contribution of our Network and our commitment to UNCCD's implementation process. At the same time this is also a challenge for our Network that has to meet the expectations of our partners in terms of independence and validated scientific information.

For this reason DNI, as founding member of the STK4SD Consortium, participated in the UNCCD 3rd Scientific Conference held with the 4th Session of the Committee of Science and Technology in Cancun in March 2015. Some of

our Network members are also members of the UNCCD Science-Policy Interface which allows a close connection between the two institutions and ensure the effectiveness of our action.

On the sidelines of the third conference DNI, in collaboration with WOCAT and GNDRI, organized a side-event to gather an outside opinion on the relevance, challenges and expectations in relation to the implementation of the Network of Networks. The Network of Networks science-policy initiative was launched by the DNI-WOCAT-GNDRI consortium following a workshop in Hamburg, Germany in November 2014. Its development is a direct response to *Decision 23* taken at the 11th Conference of the Parties of the United Nations Convention to Combat Desertification (UNCCD) in 2013 in Windhoek. *Decision 23* encouraged the formation of an independent consortium of scientific networks to interact with the UNCCD new Science-Policy Interface (SPI) that would support the UNCCD to become a global authority on all aspects pertaining desertification and land degradation.

Participants of the side event in Cancun, while emphasizing the need for such a Network of Networks, raised many questions regarding its functioning, its financing, its relationship with the UNCCD institutions and its added value compared to other networks. These questions will be the subject of a meeting that it will be held in Berlin from 19 to 23 April 2015 during the Global Soil Week, with members of the three networks that will be attending this event.

We invite those of you that have scheduled their participation in this upcoming event to take this opportunity to meet with other DNI members present there to share your ideas and vision. Please contact the DNI operational Secretariat to RSVP.

Regarding other events that the DNI is invited to participate in, specific messages will be sent to all network members to solicit their input on the topics of interest.

In the meanwhile, we reiterate our call to all our members to mobilize alongside the Executive Board and the Advisory Board to strengthen our joint action and to those who have not paid their contributions to do it as soon as possible to allow DNI to be fully operational.

Wafa Essahli, DNI Chair

2. Information relevant to DesertNet members

UNCCD 3rd Scientific Conference on combating LD and drought for poverty reduction and sustainable development: the contribution of science, technology, traditional knowledge and practices



The UNCCD 3rd Scientific Conference was organized by the DNI, jointly with **Agropolis International, CGIAR Consortium, The Sahel and Sahara Observatory, The Instituto Argentino des Investigaciones de las Zonas Aridas (IADIZA)** and took place from March 9 to March 12 2015 in Cancun, Mexico. The conference followed an exceptional new round table discussion format, organised in 15 workshops. The discussions were supported by poster contributions, which stood central in the discussions.

The Conference placed three themes at the centre of its discussions:

- The vulnerability of land to LDD, droughts and climate change (**constraints**) and the adaptive capacities of socio-ecosystems;
- Best examples of adapted, knowledge-based practices and technologies (**responses**); and
- How to **monitor and assess** methods to evaluate the effectiveness of adaptation practices and technologies.



300 Scientists, policy makers, CSOs and other relevant stakeholders met in 15 workshops over the 4 days of the conference and discussed scientific issues, policy needs and research gaps. The initial scientific findings and the policy implications identified at the 3rd Scientific Conference are summarized in the document "ICCD/CST(S-4)/L.3 - Combating DLDD for poverty reduction and sustainable development". This UNCCD document can be downloaded from <http://www.unccd.int/en/about-the-convention/the-bodies/The-CST/Pages/L-documents.aspx>.

[bodies/The-CST/Pages/L-documents.aspx](http://www.unccd.int/en/about-the-convention/the-bodies/The-CST/Pages/L-documents.aspx).

This document summarizing the initial findings of the conference will be forwarded by the CST to the UNCCD Science Policy Interface (SPI) to be further developed into a policy brief for the UNCCD COP.12 to be held in Turkey in October 2015. Information on date and the venue of COP12 is now available at the UNCCD website <http://www.unccd.int/en/media-center/MediaNews/Pages/highlightdetail.aspx?HighlightID=357>

Photo credit: Earth Negotiations Bulletin (ENB)

Information provided by: Mariam Akhtar-Schuster, Advisory Board DNI

UNCCD 3rd Scientific Conference preliminary conclusions

The preliminary conclusions of the UNCCD 3rd Scientific Conference have just been released and you can find them by following this link:

<http://3sc.unccd.int/documents-outputs/outputs>

Particularly for those who did not have the chance to participate* nor to follow the sessions broadcast live on the internet, please note that all conference documents and communications are available on this web site, including the Impulse Report, an excellent digest of current views on the Drylands development issues. Moreover, similarly to the two previous conferences, a special issue of the LDD journal will be prepared.

*among the DNI members, we noted the participation of:

Wafa Essahli
 Richard Escadafal
 Mariam Akhtar-Schuster
 Pier Paolo Roggero
 Giuseppe Enne
 Elena María Abraham
 Stefan Sommer
 Michael Cherlet
 Hanspeter Liniger
 Richard Thomas
 Mark Schauer

Lindsay Stringer
 Mélanie Requier-Desjardins
 Martial Bernoux
 Simonetta Bagella
 Sahibzada Irfanullah Khan

Information provided by: Richard Escadafal, vice chair of DNI and of the STK4SD consortium

Desertif'actions - 10th -13th 2015 Montpellier, France



Desertif'actions is the civil society International Forum dedicated to land degradation and combating desertification. The forum will bring together over 300 stakeholders from over 100 countries from June 10th to 13th 2015 in Montpellier (France).

Civil society organizations, scientists, local governments, farmer organizations, private and public institutions will meet in Montpellier to share their concerns and build common positions on the topic of

desertification and land degradation under a changing climate, and its consequences in northern and southern countries.

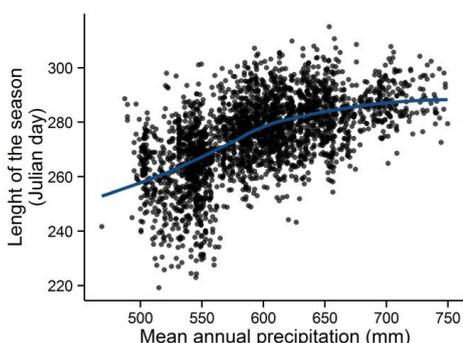
Pre-registration is required to participate in the Forum and organizers encourage civil society groups of southern countries to organize a pre-forum workshop at the national level.

More information in <http://www.desertif-actions.fr/en/>

Information provided by: Wafa Essahli, Tunisia

3. Researchers Updates

Seasonal patterns of Mediterranean evergreen woodlands (Montado) are explained by long-term precipitation



In drylands, vegetation productivity and phenology depend on water availability. We observed those metrics, measured by satellite on south-west-Europe (Portugal), and found they were more significantly related with long-term precipitation than with concurrent precipitation. In

drier areas (c.496 mm long-term annual precipitation) the growth cycles of annual plants were 25 days shorter (see Figure) and ended 16 days sooner than in more rainy regions (c. 739 mm). Also, evergreen vegetation productivity, mostly Holm-oak trees and scattered shrubs, was found to be c. 30% less in drier areas. A non-linear response of productivity and phenology was observed at c. 600–650 mm (see Figure), suggesting a memory effect in the response of vegetation to climate, probably associated with plant and soil legacies, i.e., the local soil and plant communities, maintained over the years, influence the vegetation response to concurrent precipitation. This also suggests a response threshold, below which vegetation is water limited. This method can be further used to track ecosystem services over space in drylands.

Published in Ramos A et al., 2015. Seasonal patterns of Mediterranean evergreen woodlands (Montado) are explained by long-term precipitation. *Agricultural and Forest Meteorology* 202: 44–50 <http://dx.doi.org/10.1016/j.agrformet.2014.11.021>.

Information provided by: Cristina Branquinho, University of Lisbon, Portugal

Role of Seasonal Changes (SC), Frequency (F), Intensity (I) of Rainfall and NPK-Nutrition on Corn (*Zea mays* L.) Yield

One-third of the world's population is residing in water stressed drought regions of the world. Amount and timing of rainfall therefore is an important factor influencing corn production. This paper conducts "Corn Specific Drought Standard System" (CSDSS), "Corn Specific Drought Indices" (CSDI) and "Rainfall-Fertilization (N, P₂O₅, K₂O)-Corn Yield" (RFMY) model evaluation of drought risk. Rainfall and corn yield data observed in "National Long-Term Fertilization Trial" (Code: NLFT A-17) on "Calcareous Chernozem Soil" (CCS) using "Wheat-Corn-Corn-Pea" (WCCP) crop sequence at Nagyhöröcsök-Hungary for 52 yr between 1961 and 2013. There were 20 treatments in experiments arranged in "Split-Split-Plot" (SSP) design with four replications, giving a total of 80 plots. Fertilizer application rates averaged 0, 39, 67, 99, 125 kg N ha⁻¹ year⁻¹; 0, 52, 104, 158 kg P₂O₅ ha⁻¹ year⁻¹ and 0, 96, 152 kg K₂O ha⁻¹ year⁻¹. Over 52 yrs, monthly rainfall changed between 0 and -50%. Seasonal changes highlight that in "Winter Half Years" (WHY) rainfall amounts decreased by -24%, and in "Summer Half Years" (SHY) decreased by -10%. Rainfall averaged over "Whole Years" (WY) decreased by -34%. CSDI's values of WHY were +1.0 in normal years, -2.0 in dry years, -5.0 in drought years, and -2.0 in excessively wet years. CSDI's values of SHY were -1.0 in normal years; -8.0 in dry years; -2.0 in drought years; and -3.0 in excessively wet years. "Rainfall Frequency" (RF) decreased by -22% during drought events, while in case of wetness events did not change significantly. "Rainfall Intensity" (RI) did not change significantly during drought events, but in wetness events increased +32%. These results suggest that frequency of rainfall in drought years decreased -22%, while the intensity of rainfall increased +32%. Following these negative trends, corn seed yield diminished in drought -25.5% and in excessively wet years -27.7%. Statistical models of rainfall, mineral fertilization and yield response could be described by significant polynomials in normal years: R² = 0.9160***, dry years: R² = 0.9740***, drought years: R² = 0.9936***, and excessively wet years: R² = 0.9479***. However, both water deficits and excess rainfall greatly reduce corn productivity, and lower yields are expected. Additionally, "Desert Mitigation and Adaptation Strategies" (DMAS) must be based on integrated evaluation which links rainfall and fertilization interactions

Information provided by: Márton László, ISSAC CAR HAS, Hungary

4. Important upcoming events

List of links to next meetings regarding desertification, water conservation and land degradation.

2015		
19-23 Apr	3 rd Global Soil Week http://globalsoilweek.org/	Berlin, Germany
9-10 May	SOAS Camel Conference. School of Oriental and African Studies, London. Contact: ed.emery@soas.ac.uk	London, UK
11-14 May	Integrated Land and Water Resources Management in the Dry Areas under Climate Change http://www.ildac2015.tn/	Djerba, Tunisia
11-17-May	2015 Global Land Forum http://www.landcoalition.org/en/node/2490	Dakar, Kaolack, Senegal
2-4 Jun	Land Quality and Landscape Processes http://lq2015.georgikon.hu/	Keszthely, Hungary
8-11 Jun	17th WOCAT Network Meeting	Feldafing, Germany

	https://www.wocat.net/en/news-events/events/upcoming-events.html	
10-13 Jun	Climate Change and the Preservation of Drylands - Time to Act! http://www.desertif-actions.fr/en	Montpellier, France
16-17 Jun	DesertLand II: Conference on Desertification and Land degradation http://www.desertland.eu/index.asp	Ghent, Belgium
22-25 Jun	MDC International Research Conference — Research: An Imperative for Economic Reforms and Development in Developing Countries http://www.mercdataconsulting.org/#!/news/c2t8	Enugu State, Nigeria
10-14 Jul	Caux Dialogue on Land and Security http://caux.iofc.org/en/Caux-Conferences-2015	Caux, Vaud, Switzerland
7-20 Aug	International Conference on Sustainable Uses of Soil in Harmony with Food Security http://www.idd.go.th/WEB_ISC2015/Index.html	Phetchabun, Thailand
1-5 Sep	44 th Conference of ESNA (European Society for New Methods in Agricultural Research) http://umbr.af.mendelu.cz/en/esna	Brno, Czech Republic
7-10 Sep	The 5th international symposium for farming systems design http://fsd5.european-agronomy.org/	Montpellier, France
20-24 Sep	5 th International symposium on soil organic matter http://www.som2015.org/	Göttingen, Germany
23-26 Sep	Soil Functions and Climate Change - do we underestimate the consequences of new disequilibria in soil properties? . SUSTAIN http://www.soils.uni-kiel.de/de/sustain-2015	Kiel, Germany
11-14 Oct	2nd International Conference on Global Food Security http://www.globalfoodsecurityconference.com/	New York, USA
12-23 Oct	UNCCD COP 12 http://www.unccd.int/en/media-center/MediaNews/Pages/highlightdetail.aspx?HighlightID=357	Ankara, Turkey
5-6 Dec	Global Landscapes Forum 2015 http://www.landscapes.org/setting-stage-2015-global-landscapes-forum/	Paris, France

Information provided by: Maria José Marques Perez Univ. Autónoma de Madrid, Spain

DesertLand II: 16-17 June 2015, Ghent, Belgium

The DesertLand conference brings together scientists, volunteers, NGOs and corporations that deal with problems concerning desertification and land degradation. It is a unique opportunity to find out how projects of the past have made a difference and how future problems should be tackled!

This first day (16/06) of this year's event focuses on the local, regional and global responses to water security challenges. The second day (17/06) will cover current scientific knowledge and the management strategies to prevent and to combat land degradation in drylands.

Don't miss your chance to be part of Desertland II and register now. Just follow these three steps:

- Go to <http://desertland.eu/registration.asp>
- Choose the correct registration fee, enter your personal details and check the box 'I wish to upload an abstract' if you want to present
- Click on the button 'register as a participant'

Check our website <http://desertland.eu/> for the latest news! Or email us at info@desertland.eu should you have any questions!

Information provided by: Donald Gabriels, Ghent University

5. Publications and Special Issues

1. Barkemeyer, R, Stringer LC, Hollins J, Josephi F. 2015 Corporate Reporting on Solutions to Wicked Problems: Sustainable Land Management in the Mining Sector. *Environmental Science and Policy* 48, 196-209 <http://dx.doi.org/10.1016/j.envsci.2014.12.021>
2. Bestelmeyer, B. T., G. S. Okin, M. C. Duniway, S. R. Archer, N. F. Sayre, J. C. Williamson, and J. E. Herrick, 2015, Desertification, land use, and the transformation of global drylands: *Frontiers in Ecology and the Environment*, v. 13, p. 28-36.
3. Corrado, R., A. M. Cherubini, and C. Pennetta, 2015, Critical desertification transition in semi-arid ecosystems: The role of local facilitation and colonization rate: *Communications in Nonlinear Science and Numerical Simulation*, v. 22, p. 3-12.
4. Dixon JL, Stringer LC. 2015 Towards a theoretical grounding of resilience assessments for application in smallholder farming systems. *Resources* 4(1), 128-154 Available free online: <http://www.mdpi.com/2079-9276/4/1/128>
5. Jacobs, M., C. Schloeder, and P. Tanimoto, 2015, Dryland agriculture and rangeland restoration priorities in Afghanistan: *Journal of Arid Land*, v. 7, p. 391-402.
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7. Marengo, J. A., and M. Bernasconi, 2015, Regional differences in aridity/drought conditions over Northeast Brazil: present state and future projections: *Climatic Change*, v. 129, p. 103-115.
8. Okin, G. S., M. Moreno-de las Heras, P. M. Saco, H. L. Throop, E. R. Vivoni, A. J. Parsons, J. Wainwright, and D. P. C. Peters, 2015, Connectivity in dryland landscapes: shifting concepts of spatial interactions: *Frontiers in Ecology and the Environment*, v. 13, p. 20-27.
9. Peters, D. P. C., K. M. Havstad, S. R. Archer, and O. E. Sala, 2015, Beyond desertification: new paradigms for dryland landscapes: *Frontiers in Ecology and the Environment*, v. 13, p. 4-12.
10. Reed MS, Stringer LC, Dougill AJ, Perkins JS, Atlhopheng JR, Mulale K, Favretto N 2015. Reorienting land degradation towards sustainable land management: linking sustainable livelihoods with ecosystem services in the Kalahari's rangelands. *Journal of Environmental Management* 151, 472-485 doi:10.1016/j.jenvman.2014.11.010 (Open access –available free online)
11. Spiekermann, R., M. Brandt, and C. Samimi, 2015, Woody vegetation and land cover changes in the Sahel of Mali (1967-2011): *International Journal of Applied Earth Observation and Geoinformation*, v. 34, p. 113-121.
12. Tan, M. H., and X. B. Li, 2015, Does the Green Great Wall effectively decrease dust storm intensity in China? A study based on NOAA NDVI and weather station data: *Land Use Policy*, v. 43, p. 42-47.
13. Wang F, Mu X, Li R, Fleskens L, Stringer LC, Ritsema C. 2015 Co-evolution of soil and water conservation policy and human-environment linkages in the Yellow River Basin since 1949. *Science of the Total Environment* 508(1): 166-177 doi:10.1016/j.scitotenv.2014.11.055 (Open access- available free online)
14. Whitfield S, Dougill AJ, Dyer JC, Kalaba FK, Leventon J, Stringer LC 2015 Critical Reflections on Knowledge and Narratives of Conservation Agriculture in Zambia. *Geoforum* 60, 133-142. doi:10.1016/j.geoforum.2015.01.016

---- Editorial Board ----

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