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# ***Interactive comment on “Modeling the contributing factors of desertification and evaluating their relationships to soil degradation process through Geomatic techniques” by P. Shoba and S. S. Ramakrishnan***

## **Anonymous Referee #2**

Received and published: 8 February 2016

I think the paper can be much improved with the suggestions of the other reviewer. In addition I want to stress that you must show in the introduction that the desertification processes change the natural Earth System cycles and that this is a risk for the humankind sustainability You can read more on this in the following papers, and use for your introduction

Smith, P., Cotrufo, M.F., Rumpel, C., Paustian, K., Kuikman, P.J., Elliott, J.A., McDowell, R., Griffiths, R.I., Asakawa, S., Bustamante, M., House, J.I., Sobocká, J., Harper, R., Pan, G., West, P.C., Gerber, J.S., Clark, J.M., Adhya, T., Scholes, R.J., Scholes,

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M.C., 2015. Biogeochemical cycles and biodiversity as key drivers of ecosystem services provided by soils. SOIL 1, 665-685. doi:10.5194/soil-1-665-2015 Decock, C.,J. Lee, M. Necpalova, E. I. P. Pereira, D. M. Tendall, and J. Six 2015 Mitigating N2O emissions from soil: from patching leaks to transformative action SOIL, 1, 687-694, doi:10.5194/soil-1-687-2015, Keesstra, S.D., Geissen, V., van Schaik, L., Mosse., K., Piirinen, S., 2012. Soil as a filter for groundwater quality. Current Opinions in Environmental Sustainability 4, 507-516.doi:10.1016/j.cosust.2012.10.007 Brevik, E. C., Cerdà, A., Mataix-Solera, J., Pereg, L., Quinton, J. N., Six, J., and Van Oost, K.: The interdisciplinary nature of SOIL, SOIL, 1, 117-129, doi:10.5194/soil-1-117-2015, 2015. Berendse, F., van Ruijven, J., Jongejans, E., Keesstra, S. (2015) Loss of plant species diversity reduces soil erosion resistance Ecosystems, 18 (5), 881-888. DOI: 10.1007/s10021-015-9869-6

Your paper is about the desertification processes, but you are having very little information on this process and your introduction should be updated See here some papers that will help Xie L. W., Zhong J., Chen F. F., Cao F. X., Li J. J., Wu L. C. Evaluation of soil fertility in the succession of karst rocky desertification using principal component analysis. (2015) Solid Earth, 6 (2), pp. 515-524. DOI: 10. 5194/se-6-515-2015Vieira R. M. S. P., Tomasella J., Alvalá R. C. S., Sestini M. F., Affonso A. G., Rodriguez D. A., Barbosa A. A., Cunha A. P. M. A., Valles G. F., Crepani E., De Oliveira S. B. P., De Souza M. S. B., Calil P. M., De Carvalho M. A., Valeriano D. M., Campello F. C. B., Santana M. O. Identifying areas susceptible to desertification in the Brazilian northeast. (2015) Solid Earth, 6 (1), pp. 347-360. DOI: 10. 5194/se-6-347-20 Symeonakis E., Karathanasis N., Koukoulas S., Panagopoulos G. Monitoring sensitivity to land degradation and desertification with the environmentally sensitive area index: The case of Ilesvos island. (2014) Land Degradation and Development, . Article in Press. Cited 3 times. DOI: 10. 1002/ldr. 2285 De Pina Tavares J., Ferreira A. J. D., Reis E. A., Baptista I., Amoros R., Costa L., Furtado A. M., Coelho C. Appraising and selecting strategies to combat and mitigate desertification based on stakeholder knowledge and global best practices in cape verde archipelago. (2014) Land Degradation and Development, 25 (1), pp.

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45-57. Cited 6 times. DOI: 10. 1002/ldr. 2273 Bisaro, A., Kirk, M., Zdruli, P., Zimmermann, W. 2014. Global drivers setting desertification research priorities: Insights from a stakeholder consultation forum. *Land Degradation and Development*, 25 (1), pp. 5-16. DOI: 10.1002/ldr.2220 Yan X., Cai Y. L. Multi-Scale Anthropogenic Driving Forces of Karst Rocky Desertification in Southwest China. (2015) *Land Degradation and Development*, 26 (2), pp. 193-200. Cited 4 times. DOI: 10. 1002/ldr. 2209 Xu E. -Q., Zhang H. -Q., Li M. -X. Object-Based Mapping of Karst Rocky Desertification using a Support Vector Machine. (2015) *Land Degradation and Development*, 26 (2), pp. 158-167. Cited 2 times. DOI: 10. 1002/ldr. 2193 Wang T., Xue X., Zhou L., Guo J. Combating Aeolian Desertification in Northern China. (2015) *Land Degradation and Development*, 26 (2), pp. 118-132. Cited 1 time. DOI: 10. 1002/ldr. 2190 Fleskens, L., Stringer, L.C. Land management and policy responses to mitigate desertification and land degradation (2014) *Land Degradation and Development*, 25 (1), pp. 1-4. DOI: 10.1002/ldr.2272 Torres L., Abraham E. M., Rubio C., Barbero-Sierra C., Ruiz-Pérez M. Desertification Research in Argentina. (2015) *Land Degradation and Development*, 26 (5), pp. 433-440. Cited 1 time. DOI: 10. 1002/ldr. 2392 Miao L., Moore J. C., Zeng F., Lei J., Ding J., He B., Cui X. Footprint of Research in Desertification Management in China. (2015) *Land Degradation and Development*, 26 (5), pp. 450-457. Cited 1 time. DOI: 10. 1002/ldr. 2399 Xu E. Q., Zhang H. Q. Characterization and interaction of driving factors in karst rocky desertification: A case study from Changshun, China. (2014) *Solid Earth*, 5 (2), pp. 1329-1340. Cited 1 time. DOI: 10. 5194/se-5-1329-2014 Barbero-Sierra C., Marques M. J., Ruiz-Pérez M., Escadafal R., Exbrayat W. How is Desertification Research Addressed in Spain? *Land Versus Soil Approaches*. (2015) *Land Degradation and Development*, 26 (5), pp. 423-432. Cited 2 times. DOI: 10. 1002/ldr. 2344 Escadafal R., Barbero-Sierra C., Exbrayat W., Marques M. J., Akhtar-Schuster M., El Haddadi A., Ruiz M. First Appraisal of the Current Structure of Research on Land and Soil Degradation as Evidenced by Bibliometric Analysis of Publications on Desertification. (2015) *Land Degradation and Development*, 26 (5), pp. 413-422. Cited 2 times. DOI: 10. 1002/ldr. 2351

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Interactive comment on Solid Earth Discuss., 7, 3735, 2015.

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