

## ***Interactive comment on “Evaluating management-induced soil salinization in golf courses in semi-arid landscapes” by J. Young et al.***

**P. Sarah (Referee)**

sarah.pariante@biu.ac.il

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General comment The paper aims to examine the potential management-induced alteration in soil salinity indicators in golf course facilities and to develop predictive relationships for a more rapid soil salinity examination within urban landscape soils using findings from portable x-ray fluorescence (PXRF) spectrometer. The authors give attention to the risk of salinization because of irrigation in golf courses which are major users of irrigation water per unit area. They provide evidences on the alteration of soil characteristics because of land management. Their findings are of great importance for the urban system.

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The description of the “study sites” and “materials and methods” needs more information and more clarified information. I recommend to separate “Results and discussion” into “results” and “discussion”. The “Introduction” and “Materials and methods” should be improved by more citations and information, respectively. This is the basis for analysis of the data and for comparison with other studies.

Specific comments Additional references related to the introduction (such as Soil sodium and potassium adsorption ratio along a Mediterranean-arid transect. J. Arid Environments 59(4), 731-741; Soluble salts dynamics in the soil under different climatic regions. Catena 43(4), 307-321) should be given. P 3 L 15: Add values of “relatively higher level of soluble salts”. Higher than what? A detail description of the study sites might support the discussion. Information on climate (rainfall amount and distribution, temperature, relative humidity), lithology, topography and history (date of construction) should be completed. P 5 L 15: “ seven golf course facilities spread all over the city were selected”. Selected in random? Are they similar in their structure (organization), topography, history? What is the area of each facility? All of these might explain the range of the results in these areas (and added to the discussion too). P 5 L22: “. . . non-managed areas were composed of poorly managed grass cover, native vegetation, or bare soil.” Assessment of the cover percentage of each type of cover should be added. The root system of different types of veg. might affect soil depth characteristics including leaching, upwards movement of salts. It might give an additional explanation to the differences between the managed and non-managed treatments. The species (full names) are also indicative for treatment type. In the summary you mentioned that the research area is characterized by wind erosion. Don't you think that the difference between the treatments in soil salinity can be attributed, in addition to irrigation etc', to the roughness of the land, i.e., differences in the potential of vegetation cover and type to trap dust? (Soluble salts dynamics in the soil under different climatic regions. Catena 43(4), 307-321) P 6. . . L 1: How many samples? In what season the samples were taken? More details/description on the biomass of the sites is needed. Such details can improve the discussion (For example: P 8 L 21) P 10 L 26: “Besides irriga-

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tion, this shift toward salinization is further supported by the semi-arid condition of the study site, characterized by low rainfall and less leaching of the soluble salts, leading to their build up in the top soil.” Salts in the soil represent . . . . . Can you relate to the hydraulic conductivity of each soil layer? Is it similar/not similar in both the managed and no-managed? The HD in depth can affect the EC in the upper soil layers. P 13 L 10-11: “This is an area characterized by semi-arid climatic conditions, typified by drought, wind erosion, salinization, etc.” What other characteristics are included in “etc”

One of your findings was “Irrigation tended to increase the salinity and sodicity properties of the soils. . . . .” . Based on the values of soil EC, ESP and SAR that you have found, do you think that there is a risk for salinization of the golf areas.

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Interactive comment on Solid Earth Discuss., 7, 91, 2015.

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