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Interactive comment on "Elemental Composition, Leachability Assessment and Spatial Variability Analysis of Surface Soils in the Mugan Plain in the Republic of Azerbaijan" *by* Junho Han et al.

Anonymous Referee #2

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soil_2019_66 Elemental Composition, Leachability Assessment and Spatial Variability Analysis of 4 Surface Soils in the Mugan Plain in the Republic of Azerbaijan

This paper discusses the elemental composition of Azerbaijani soils. In the present study, the Authors described some chemical parameters of 532 soil samples. They conclude, using XRF and ICP-OES analyses, that the heavy metal guidelines suggested by neighboring Georgia would be appropriate for heavy metal contamination, and Ni and Pb are the most concerning elements in Azerbaijani soils. This manuscript adheres to the journal's standards. The research meets the applicable standards for the research integrity. The article does not adhere to appropriate reporting guidelines

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Discussion paper

and community standards for data availability: the complete raw database is not made completely available in a public repository, such as Zenodo, for instance. It must be available for future researches on these data. The research output, in terms of novelty, scores poor uniqueness in terms of main findings. The level of clarity is below the threshold of acceptability. Below the threshold of acceptability is the state of the art and the comparative discussion. It partially adopts up to date methodologies in respect to the object of research. The paper does not fully discuss the limitations of the approach and potential biases due to the assumptions made. As it is, its potential impact upon the international scientific community of reference is low. The study presents the results of primary scientific research, while the comparison with other soils described in the literature should be the toughest section, although not yet exploited into the Discussion section, which must be separated from the Results section. Experiments, statistics, and other analyses are performed to a moderately sound technical standard and are partially described in detail. Conclusions presented are not new and must be focused. The article is presented in a quite intelligible manner. This work has not yet a sufficient impact and does not add yet to the knowledge base.

Strengthens: region Weaknesses: a survey more than a research paper; previously demonstrated correlations between parameters are essentially confirmed. No particularly innovative findings from a functional point of view Keywords: not proper. Most of them are mere repetitions from the title. Tables: 3 (descriptive statistics are not worthwhile, please add the full database as independent dataset) Figures: 3 (figure 1 without coordinates is useless, please provide a kmz file instead; unclear the reason for sorting 'agricultural soils' from 'salt affected soils'; units are missing in figure 3) Citations: 27 (easily findable: 20; published after the year 2015: 9) Title: 20 words that describe current (unfocused) content of the paper. Please, focus Introduction: The aims, five, are too many. Please, focus Materials & Methods: They are not adequately explained in some parts (field and lab) and redundant in others (modelling) Results: Both amplification and pruning are necessary Discussion: This discussion has not sufficient depth Conclusions: Vague and not innovative Referencing: There important missing refer-

ences on broader contexts (both geographical and in terms of management strategies) Originality: It does not contain sufficiently new results, ideas or techniques. Potentially, if re-discussed, it might do Scope: At current stage, it is extremely poor in scope. A kind of we have an analytical instrument, we analyse a number of samples, and will see what happens approach Implications: The broader context is completely not explored Organization: Is it not very well organized Figures: They are all necessary. Their quality is poor, and sometimes they are not completely informative (ex. Figure 3 where scales are not shown) Tables: not all are necessary. Overall evaluation: This paper potentially could improve significantly on previous work of its type as it contains new information. Several data are presented but not discussed. In essence, wasted. At this stage, it is a quite modest work, and contains little novelty and may be of limited interest to most readers. Previous papers on from the open Literature must be linked to this effectively in a sort of synopsis on the main mechanisms. References: several mistakes throughout the whole list (just a couple of examples: at row 467 Colombo, C., et al., or at row 480 Applied Soil Ecology)

In general: This research article does not satisfy all the main criteria to be accepted for publication: 1. The study presents the results of primary scientific research; 2. As far as I know making a search in the scientific libraries, these results reported have not been published elsewhere; 3. Experiments, statistics, and other analyses are performed to a reasonable technical standard and are described in appropriate detail; 4. Conclusions are presented are supported by the data, not exactly in an appropriate fashion. But do not add an important piece of knowledge; 5. The article is presented in an adequate intelligible fashion; 6. The research meets all applicable standards for the ethics of experimentation and research integrity; 7. The article does not adhere completely to appropriate reporting guidelines and community standards for data availability.

In particular (page.row): 5.122 Please, refer to soil names according to IUSS WG WRB (2015) 7.181 Please, divide in two different sections. Results must discuss original results only while in Discussion previously published data can be discussed compara-

tively

Recommendation: REVISE – Major revision is required

References IUSS Working Group WRB. 2015. World Reference Base for Soil Resources 2014, update 2015 International soil classification system for naming soils and creating legends for soil maps. World Soil Resources Reports No. 106. FAO, Roma IT EU, 192 p.

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