

## ***Interactive comment on “Analysis of decadal land cover changes and salinization in Urmia Lake Basin using remote sensing techniques” by Yusuf Alizade Govarchin Ghale et al.***

### **Anonymous Referee #2**

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The manuscript investigates the problem of water decrease and soil salinity increase in the basin of a large lake in northwestern Iran. The investigation is based only on satellite (Landsat) images, in particular in salinity index and vegetation index. These indicators are extrapolated by satellite images over a period ranging between 1975 and 2016. It is emphasized how particularly during the last 20 years the level of the lake dramatically decreased as well as soil salinity increased, thus caused a severe degradation of soil, in terms of farming. The manuscript focuses on an interesting topic, however I think there are some critical conceptual issues which prevent the paper from being published as it is. These are:

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1. The proposed methodology is exclusively based on satellite images. An extensive climatic analysis is missing. I think this is a critical point, since, as correctly emphasized by Authors, starting from 2014 something is changing, possibly due to precipitation increase.
2. It is not clear the relation between increase of urban population and lake level decrease. It should be investigated how water distribution systems and water pumping increased, or if new dams were built.
3. It is not clear how the agriculture affected the problem of lake depauperation and soil desertification: did irrigation practices changed? Did the crops changed? Apparently in the latest years agriculture decreased, is this related to a low fertility of soils, or to low availability of water?
4. Almost nothing is mentioned about the hydrogeological and geological features of the catchments, I think these important features, which may help the reader in understanding the investigated problems.
5. The entire manuscript should be proofread, there are a lot of typos and English is sometimes poor.

Given the aforementioned points, I would suggest to return the manuscript to the Authors for a major review.

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