

## ***Interactive comment on “Caspian Sea level changes during the last millennium: historical and geological evidences from the south Caspian Sea” by A. Naderi Beni et al.***

**Anonymous Referee #2**

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Review: Caspian Sea level changes during the last millennium: historical and Geological evidence from the south Caspian Sea

The apparent objective of this paper is to use historical and geological data to establish ancient surface-level of the last millennium Caspian Sea and discuss climate mechanism that controlled the level changes.

While this objective is certainly legitimate and the combined use of historical – documentary evidence with geological data is desirable, the reader (and the reviewer) is drowned in a kind of long overview descriptions of the geography- limnology- hydrology- seismic history etc etc of the Caspian Sea and its vicinity (pages 1399-1404)

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and then (after a very short description of the geological methods) a very long and detailed description of the historical evidence (pages 1408- 1417). In fact, most of the rest of the paper is also a kind of a overview-discussion on the various interpretations of the historical evidence.

The only relevant section that deals with geological evidence is that with the Radiocarbon dating of the core and some, mineralogical and magnetic susceptibility description and interpretation. The very short parag on the magnetic susceptibility (p 1406 to 1407) is confusing and does not really tell us whether they identified the “suspected minerals” (e.g. they write “could be linked to. . .) and t OK, then what ?

Even the very short discussion of the “sedimetological and mineralogical data” is read as a kind of short overview of previous works (p 1407).

Most disturbing are the radiocarbon ages. They were determined on shells. But , no word on hard water or reservoir age correction that can reach hundreds to thousand of years. We get no information on the reservoir age of the current water or any thing that could help to constrain the reservoir ages. Thus, the chronology could be completely offset.

I recommend rejecting the paper. A newly written paper that can be considered for the geo-science and/or paleo-climate community (e.g. for a forum of Climate of the past) should have a short summary (in a table and diagram) of the major and relevant historical evidence. Then, they should elaborate on the description of the mineralogy and sedimentology of the sampled cores. They need to compare to the observations in modern environments, they need to address the issues of the hard water and reservoir age for the radiocarbon, Best is to date terrestrial organic debris that provide real atmospheric ages.

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