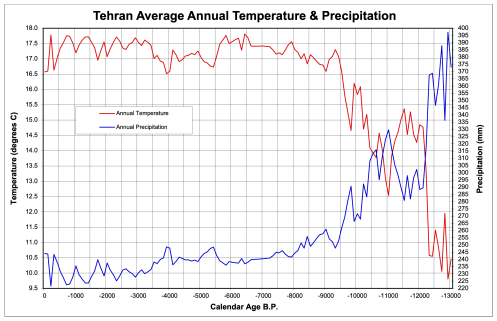
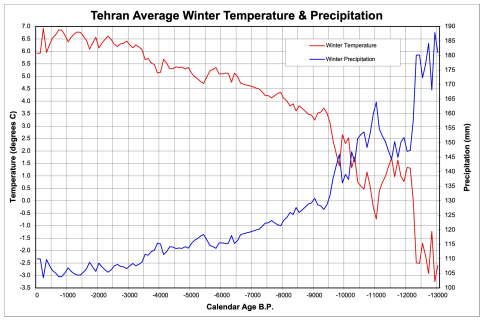
I have been conducting Holocene climate history in southern Iran, examining the vegetation and lake histories of several sites in the Zagros Mountains, and have linked it to Metaphysical Climate models based on the climate records of Rafsanjan, Kerman, and Zahedan. We have two publications in review regarding the Holocene climate history of Iran that includes a reconstruction of the precipitation history of southern Iran for the last 13,000 years. My discussion regarding Mega-pluvial Lake Rey will include some reference to that research.

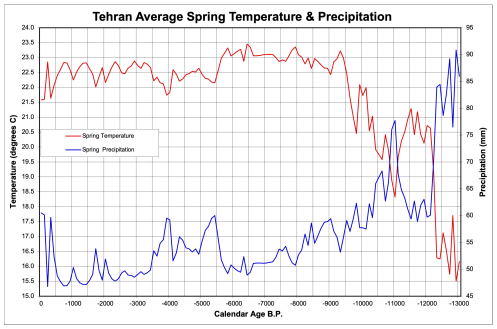
In this paper, Hadi has tried to winnow out the many references to bodies of water in Iran over the past 2,500 years ranging from Achaemenid Empire to as recently as the last few hundred years. The references come primarily from areas of northwestern, north central and eastern Iran. There are a few scattered references as far south as Kerman, but they do not seem to extend into the adjacent, Hamun-e Jaz Murian or Jazmurian Basin just adjacent to the southern margin of Lake Pamela. Mr. Jarahi provide a map to put the lake into context. It is interesting that during the Achaemenid period Alexander the Great's army would have had to wade or swim through the Afghani extension of the lake.

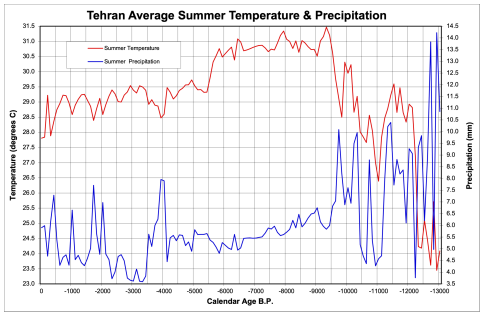
First to the citations that Mr Jarahi provides. They are numerous, they mention locations on the landscape but no descriptions of the lake itself, in most cases. It would be helpful if when he used these citations, he would mention the descriptions of the lake that they contained. The problem with these many citations, is being able to confirm that they all refer to the same lake or possibly to individual lakes scattered around Iran at these times.

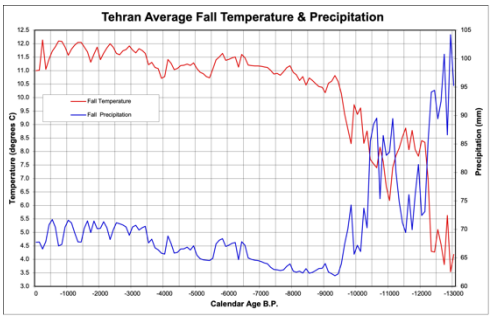
Is there physical evidence that a lake that large and extensive has ever existed? Is there climate evidence that indicates that a lake that large could ever have existed. That is what is lacking. Now where is there any evidence given for a water source, a stream or streams that could have maintained such a lake. Is there any evidence in the pollen records from the lakes in the Zagros Mountains that indicate when such a lake may have existed? So the climate models indicate when such a lake might have been created by the right mix of rainfall and temperature, so that evaporation rates would have been lower a such a lake might have been maintained. The real problem is that in order to maintain such a lake with a surface area that has been suggest, means that either there must have been incredible water sources, or temperatures had dropped significantly to reduce evaporation from a lake that extensive. Let us look at Tehran.





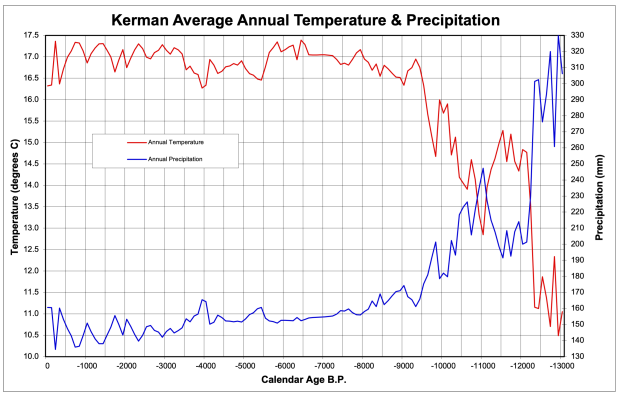


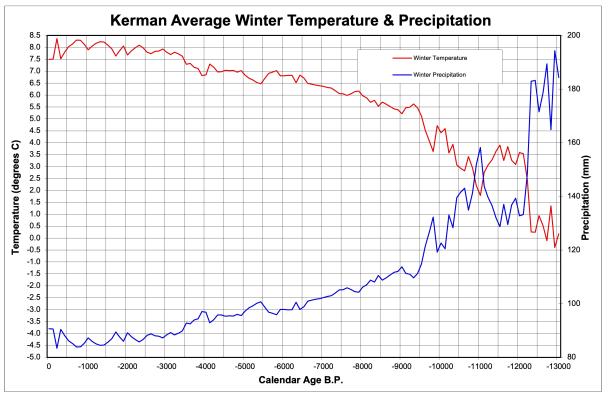


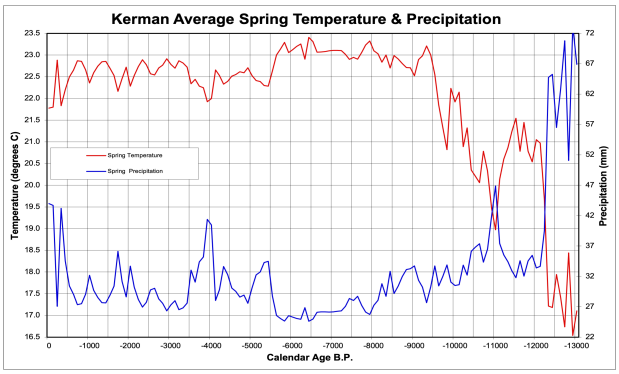


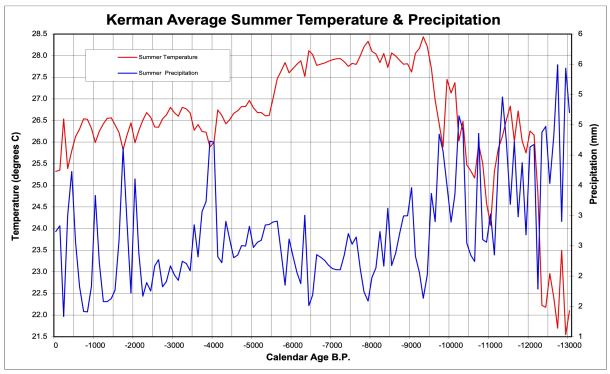
What is clear is that prior to 10,000 years ago precipitation may have been high enough and temperatures low enough to have supported pluvial lakes. And in fact, sediments from several basins around Iran indicate that there were lakes in those basins at that time. But it is also clear that if we look at the dating of those sediments, they are not in correspondence. The increase in rainfall after 6,000 years ago, is slight (look at the mm numbers on the right hand side of each diagram. The increase is barely reflected in the annual precipitation, and temperature is not going down, so evaporation rates remain high. If you look at spring and summer precipitation there are some brief intervals of precipitation increase with slight decreases in temperature as well. Those were sufficient to result in marsh expansion and the expansion of grasslands around the lake of the Zagros Mountains, i.e., Zeribar, Mirabad, and Maharlou. But they are barely reflected in the sediment records of the playas that have been studied.

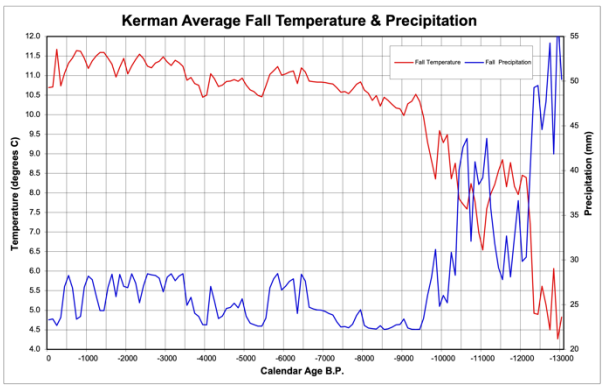
If we look at the record from Kerman, at the southern range of pluvial lake Pamela, we have a similar result, just the details are slightly different, but the timing of events remains similar.











As with the Tehran record the early Holocene as the most probably period for a pluvial lake in the small basins of southern Iran. And it is the middle to late Holocene that has several increases in precipitation, whose timing parallels shifts to grassier landscapes and marsh expansion around the lakes in the Zagros Mountians. In particular, is the period around 4,000 years ago, and a couple of times during the last 2,000 years, but note that temperatures are not reduced significantly enough to increase effective rainfall.

So, the question is do many of the accounts that are reported in the literature describe the expansions of smaller, individual lake basins scattered around Iran, rather than describing
one large lake.

I suggest that Mr. Jarahi, groups his citations according to years before the present of the account, and the specific location.

And then he should extract the descriptive details from those citations to determine what is being described. Lake size, salinity if there is that information, etc.

He might generate a table using those criteria as well. It might make identifying what is being described much easier.
At that point, other investigators could compare the information that Mr. Jarahi has gathered with the scientific record, and we might be able link the descriptions to known scientific lakes. That would create a very rich database of literary and scientific evidence for Iran's past environmental history.