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Letter to the Editor

Vegetation and climate changes during the late Pliocene and early Pleistocene in SW Turkey – Response to comments by Elitez et al., Quaternary Research, 84, pp. 448–456

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We found the comments by Elitez et al. irrelevant to the scientific study on the vegetation history of the Çameli Basin in SW Anatolia, as presented by Jiménez-Moreno et al. (2015). The comments are far from the scientific debate but instead deal with technical issues raised after looking for the studied sites on Google Earth. Elitez et al. argue about the geographic coordinates of the localities and the thickness of the studied successions, appear to have a stationary view of a fossil site as a single spot on the Earth' surface, and forget that a sedimentary layer containing fossils can outcrop laterally with changes in thickness.

Elitez et al. also have problems with the stratigraphic position and the age given for the Ericek and Bicakci localities. Jiménez-Moreno et al. (2015) show that they are different in age; small changes in the dates in the literature are normal as science progresses with further scientific work. For example, notice how many times the Geological Time Scale has changed/evolved.

In order to justify their criticism towards our knowledge of the geology of the area, Elitez et al. discuss a landslide issue that they illustrated with a Google Earth image. They also show a calculation on present-day sediment accumulation on an artificially dammed lake and delta plain far out to the south as a proxy for sedimentary rates in the past. However, they do not take into account that climate has changed since then, and that human impact on the environment (e.g., enhanced erosion due to deforestation) is an important factor today when estimating erosion rates and thus sedimentation. Biostratigraphy is therefore fundamental when trying to learn about the age of old sedimentary sequences and cannot be replaced by simple calculations such as this one.

They present the geological map as their own work, but it was extracted from the Geological Map Series of the Geological Survey of Turkey (MTA) compiled by Akdeniz (2011). They also did some computer mapping on a Google Earth image without citation. Elitez et al. failed to present any field evidences and instead showed logging and lithological observations on an old photo. They claim their unpublished evidence is stronger than international published data, and to justify their comments they cite personal communications with us that we are not aware of, and they cite non-scientific sources such as Research Gate. Such sites are unreliable personal domains, like Facebook, and the holder can change them arbitrarily.

Comments such as these do not contain any data refuting our arguments on Plio-Quaternary vegetation history of the Çameli Basin in SW Anatolia and do not stimulate discussion within the scientific community. Regardless, we direct them to read carefully pre-existed studies on the Late Miocene-early Pleistocene extensional graben-type basins in SW Anatolia, including the Çameli Basin (Şenel, 1997a,b,c; Alçiçek et al., 2005, 2006, 2012, 2013a,b, 2015; Alçiçek, 2007, 2009, 2010, 2015; Alçiçek and Ten Veen, 2008; Ten Veen et al., 2009; Over et al., 2010, 2013a,b; Akdeniz, 2011; Helvacı et al., 2013; Alçiçek and Jiménez-Moreno, 2013; Alçiçek and Alçiçek, 2014; Jiménez-Moreno et al., 2015, 2016; van den Hoek Ostende et al., 2015a,b; Ozsayın, 2016).

Here we summary the stratigraphy of the Çameli Basin and its sedimentary infill to better inform the reader:

The Çameli Basin, ca. 40 km wide and 60 km long, is delimited by NE-trending basin-bounding normal faults (see Fig. 1 in Jiménez-Moreno et al., 2016). The basin resides on the Lycian nappes and consists of a series of NE-trending interconnected tilt-block compartments resulting from the NW–SE directed regional crustal extension. The basin formation in SW Anatolia was followed by final southeastward emplacement of the Lycian Nappes, which was sealed by Langhian shallow marine reef carbonates, and its nappe front was eventually covered by Serravalian shallow marine clastics to the southeast (Hayward and Robertson, 1982; Hayward, 1984; Collins and Robertson, 1997; Alçiçek and Ten Veen, 2008). Final movement of the nappes was followed by regional uplift, which caused NE–SW trending extension and resulted in graben-type depressions parallel to the nappe front. The age of basin-fill succession has been well determined as late Miocene (biozones MN9-12; Vallesian-Turolian chronozones) to early Pleistocene (biozone MN17; latest Villanyian chronozone) based on terrestrial macro- and micro-mammal associations (Alçiçek, 2001; Saraç, 2003; Alçiçek et al., 2005; Van den Hoek-Ostende et al., 2015a,b).

The basin-fill succession of the Çameli Basin has been identified as Çameli Formation and grouped into three lithostratigraphic

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subunits referred to as the Derindere, Kumafşarı and Değne members, consisting of alluvial, fluvial and lacustrine deposits, respectively. In the central part of the basin these members overlie each other in a 500-m-thick sequence, but they are laterally equivalent along the basin margins. The Derindere Member is composed of coarse-grained alluvial deposits and occurs typically in the lower- and also uppermost parts of the basin fill along the basin margins. It is about 60 m thick with dark-red colored matrix-supported conglomerates and mudstones, and passes laterally and vertically into the fluvial deposits. The Kumafşarı Member is widespread in the northern part of the basin and in the middle stratigraphic level of the basin fill, and it consists of up to 146 m of stacked fluvial deposits characterized by a light yellow color. This member passes laterally and vertically into lacustrine deposits. The Değne Member is composed of lacustrine deposits that vary from 75 to 300 m in thickness. The unit is common in southern parts of the basin and mainly constitutes the upper part of the basin succession, passing laterally and vertically into the fluvial deposits.

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