

Interactive comment on “Distinct phases of eustatism and tectonics control the late Quaternary landscape evolution at the southern coastline of Crete” by Vasiliki Mouslopoulou et al.

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We now have three detailed reviews back on the manuscript, that provide valid and very useful suggestions for the improvement of the final document. The revised version of the paper needs to address all comments raised by the reviewers, and I would like to suggest you to take the following four elements along in your revisions :

1/ The conclusions should be robust and based on facts and data. In the paper, the authors conclude (p14, L 1-7) that "sea-level fluctuations in response to varying climatic conditions formed the landscape at Domata during MIS 3 (~57-29 kyr BP). It is, however, because of the fast tectonic uplift that Crete experienced during the subsequent ~20 thousand years that the entire alluvial sequence escaped destruction and/or mod-

ification due to marine inundation and is preserved sub-aerially today". As tectonism, sea level variation and paleo-climate have regional impact, the observations at Domata cannot be isolated from other studies on nearby alluvial fans. A discussion of the findings from the Domata fan, in the light of previous work on alluvial fans in Crete is essential (see comments raised by reviewer#1, reviewer#2). If there exist different hypotheses about the Quaternary evolution of the region, try to give the different models of evolution and discuss alternative interpretations based on facts and data.

2/ The text misses some consistency in the interpretations as outlined by the reviewers. To give one example : p4, Line 5-10 : the interpretation of the tilted paleoshoreline. The authors state that..." A number of studies have constrained the timing of this prominent paleoshoreline at ~ 1.5 -2 kyr BP, with some attributing it to the AD 365 historic earthquake". However, we see on p6, L24-30 : "bioerosion notch indicating an uplifted paleoshoreline at ~ 6 m "... seismically uplifted paleoshoreline dated at ~ 365 AD"... the AD 365 bioerosional notch ". Also in Figure 6, the authors only refer to the "365 AD paleo-shoreline" not mentioning alternative explanations (Pirazzoli et al., 1982; 1996; Stiros, 2001; Shaw et al., 2008).

3/ As the chronological framework of the sedimentary events is not well constrained (5 samples, with four samples giving a broad time interval of ~ 30 to 60 kyr BP, Figure 9), one needs to be very careful with the interpretation of landscape evolution (section 4, and Figure 10). Supplementary information (either from soil chronosequences, or lithostratigraphy) would be very helpful. Two reviewers have recommended to include lithostratigraphic logs, or detailed stratigraphic and sedimentological evidence of the fan sequences, and I fully support these recommendations. See details in review#1 and 1-bis and review#2.

4/ Carefully revise and edit the figures 5 and 8. Figure 5 is a new figure showing the topography of the fan surfaces. Can you give the orientation of the profiles (or location on Fig 4), and the unit of the X-axis ? Figure 8 shows two soil profiles. One would typically give the soil depth (depth till C horizon, starting at 0 cm at the surface). Also,

what is meant with "parent rock"?

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