General Comments

This is my second review of the paper by Koehl et al. In general, it is readily apparent that the authors took ample time to take the reviewers' comments into consideration and to make adjustments as seen fit. This updated draft reads much better, and helps the reader to understand the importance of the work. I especially like the detailed Discussion section, notably the regional comparisons. Some changes are pretty sizable: e.g., the names of faults, and hence their structural significance, have changed between versions (what was termed the Banning fault is now recognized as the main SAFZ, it seems). I assume these changes reflect issues brought up by the other reviewer, and trust the new interpretations are sound.

There are a couple instances where the authors talk of a convergent plate boundary along the San Andreas fault. I think this is an error, and they may be referring to local contraction along the transform plate boundary?

The authors took care to address my biggest concerns. This includes making an updated Figure 1 (which looks great, by the way), and to add coordinates to the GoogleEarth image on Figure 2. However, the authors refrained from adding coordinates to all maps/images in Figs. 3, 5, and 6. I don't feel strongly that Figs. 3, 5, and 6 all need coordinates, since they are shown clearly on Fig. 2, but if it were my paper I would certainly add coordinates, north arrows, scales, etc., to all map figures. However, this is not an issue that warrants rejecting the manuscript, and I think it is okay to leave Figs. 3, 5, and 6 without coordinates if the authors choose to.

One major issue I brought up was partly addressed, but still appears. I still worry about how features are mapped on Figure 2, and then subsequently represented on Figs. 3, 5, and 6. One major issue I had with the original figures was that geologic features (faults, fold axes, etc.) appeared short and discontinuous on Figs. 3, 5, and 6, whereas on Figure 2 it was apparent these features were continuous. Some instances of this mistake still persists. I feel strongly that the geology should be represented accurately, and if strike/trend lengths are continuous across and past the bounds of the figure area, then those features strike/trend lengths should go all the way to the ends of the image, not be cut short to fit within the bounds of the figure. In geologic mapping, we do not stop mapping features because they get close to the end of the map, we keep the lines going to hit the edges of the map if that is what the geology is on the ground. I suggest the authors take a careful look at all interpreted images and make sure that geologic features are mapped correctly.

Despite these comments, I feel that the paper has had a lot of great work put into it since my first read through it. Given the careful review by the authors of our reviewer comments (including some pretty ample suggestions from the other reviewer), and that the work is timely, interesting, and a good contribution, I find that the paper is suitable for publication with minor revisions.

Good luck, and thanks for a good read. Cheers.

Specific Comments –

Line 14 – "…southern California (USA),…"

Line 28 – "…southeast along strike…" (add "along strike")

Line 29 – I feel that a closing sentence is warranted to pull the reader back into why this work is important. E.g., "Our work allows for better understanding of along-strike complexity and fault zone structure of a major transform plate boundary fault."

Lines 40-42 – This parentheses section may be better suited in the Geologic Setting section?

Lines 47-48 – As noted in my original revisions, I believe shear zone should be decapitalized in Eastern California shear zone. Most recent work do not capitalize it. However, if you choose to use it make sure you are consistent.

Lines 52-54 – This is a great addition to the paper; brings the reader back to why this work is important at a broader scale.

Line 83 – Be consistent. Eastern California shear zone; eastern California shear zone (either way, I think shear zone should be decapitalized).

Line 85 – is axis an appropriate word here? Could it be omitted and just use trending?

Lines 97-101 – This sentence is pretty dense. Could break it up into two.

Lines 143-145 – Should there be a reference at the end of this sentence, or is this your observation?

Lines 154-157 – Could probably merge this single-sentence paragraph with the previous paragraph.

Line 249 – suggest decapitalizing "fault" in all named faults

Lines 249 and 258 – This is a problem from the original manuscript that persists into the present manuscript. Is it "East Shoreline fault" or "Eastern Shoreline fault"? Either way, fault should not be capitalized (as it is in Line 249), and you need to check the entire manuscript so that all names are the same (East or Eastern).

Line 279 – omit dash

Line 331 – suggest changing to "(see subsequent Southeastern macro-fold section)"

Line 387 – omit period at beginning of sentence

Line 759, and throughout manuscript – In some places you dash Landers-Mojave, in other areas of the text you do not (e.g., Landers Mojave Line). I assume dashed is correct. Be consistent throughout manuscript.

Line 849, 864, 872, 873, 879 – Eastern Shoreline fault or East Shoreline fault (I think Eastern, but there are two instances in the manuscript where you say East Shoreline fault at Lines 103 and 249).

Technical Corrections –

Line 181 – The abstract says about 0.76 Ma, but here you say before 0.76 Ma.

Line 228 – steep (shallow) ?

Line 231 – Why not just say reverse fault instead of reverse and thrust fault? Do you have constraints on it being a thrust (i.e., <30 degree dipping plane) fault? In my mind, it should be one or the other, if you're going to be explicit about stating fault type, but you cannot go wrong by simply stating reverse fault.

Line 263 – I do not think you can quantify the resolution of stitched and processed Google Earth imagery? As such, it is probably best to omit "high-resolution"

Line 268 – You do not present any restorations in your work. Perhaps "…notably to correlate bed displacements…" is a better wording?

Line 378 (and 263, 402) – Is a Google Earth image a DEM (digital elevation model) image, technically? Should "Google Earth" replace "DEM" here?

Line 393 – What do you mean by large-scale? Large-scale compared to what? Perhaps just say meso-scale, or macro-scale, or outcrop-scale…whatever scale you mean.

Line 531 – shortening strain. Shortening is the strain term, so you do not need to say strain here.

Lines 558-560 – It is unclear as written how the timing on the San Andreas fault-related structure is comparable to structure in Svalbard. Make more clear what you are comparing here.

Lines 625-626 – convergent plate boundary in the late Pleistocene? It is a full-blown transform plate boundary by then.

Line 734 – Again with convergent plate boundary – I don't think you mean plate boundary?

Line 901 – Do you actually mean convergent plate boundary (I don't think so, because it is a transform plate boundary fault system you are examining).

Reply to Comment 78 in review reply: Yes, a fault is a fracture that shows displacement, so you are correct in your reply, technically. However, you cannot expect a reader to know what you mean. Furthermore, technically faults are fractures, yes, but fractures are not faults and the presence/absence of both or one or the other can have different implications. Therefore, you need to be explicit for readers.

Detailed comments on figures and figure captions –

Figure 1

Figure 1b, in the legend the Landers-Mojave Line does not have a dash, but elsewhere in the manuscript it does. Be consistent, whichever way you choose (I think dashed is probably correct).

Line 1230–1231 – Eastern California shear zone (says "East")

Figure 2

For the Bishop Ash, you could also add the age on the figure (e.g., "Bishop Ash X.XX Ma")

Line 1246 – Probably better to say Google Earth image instead of "DEM"

Figures 3, 5, 6

I appreciate that coordinates were added to Figure 2. I still think adding coordinates to all maps would be good, but I will leave that up to the authors.

In some areas I can see that feature lines with continuous strike/trend lengths were extended to the edges of maps. However, Fig 3a and 3b is a perfect example where the mapping is not consistently/appropriately portrayed. In 3a, you show the southernmost anticlinal feature continuing for ~900 m west-east from the N-S striking fault, but in Fig 3b – which includes the southernmost portion of 3a – that same anticlinal feature ends before the western edge of the figure. I know these are the same anticline, because in 3a and 3b, you can see the north limb's 20 degree NNW dip, and on the south limb you can see the overturned 80 degree NNE dip. As shown, some of these maps give the impression that the geologic features are shorter than they actually are on the ground. A geologic map depicts reality as best it can be interpreted, whereas these maps do not depict reality, and/or are inconsistent with each other, especially when compared with each other and overall to Figure 2.

I am also concerned after close inspection to see that the location of strikes and dips vary slightly in crossover sections of Figs. 3a–c. It is very apparent these orientation measurements are generally located and not properly georeferenced to an exact point on the ground. For example, the overturned 80 degree NNE dip on the southern limb of the anticline in Figs 3a (southern part of map) and 3b (northern part of map) is in slightly different locations. Sure, the overall orientation of beds is probably represented well by that orientation symbol, but it gives me suspicion how accurately located all other orientations are.