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Interactive comment on “Folding pattern in the Fars province, Zagros folded belt: case study on the Karbasi and Khaftar anticlines, interior Fars, Iran” by Z. Maleki et al.

Anonymous Referee #1

Received and published: 25 August 2015

Dear Editor and Authors. This is the revised version of a previously rejected paper (Solid Earth Discuss., 6, 2143–2167, 2014). In this new version of the manuscript, the authors have taken into account some reviewers suggestions but major problems persist.

The aim of the work is not well explicated, neither in the abstract nor in the introduction. Different topics are awkwardly mixed in the introduction: deep geometry of the study area (i.e. Paleozoic strata); effect of detachment level on folding; effect of the Nezamabad fault on the local fold pattern. These topics are only marginally addressed in the paper, which simply reports on some basic geometric parameters (aspect ratio, tightness, bluntness) of two anticlines located the Fars region.

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The abstract does not reflect the content of the work

The introduction does not include the state of the art.

The discussion is very short and not exhaustive. It does not discuss the topics listed in the introduction.

If one of the purposes of the work is that of reconstructing the deep geometries (as claimed in the abstract and introduction), the approach used to quantify fold geometry, and so the entire data section, is useless. The authors are describing reservoir-scale folds in a fold and thrust belt, so they should build balanced cross section.

The paper does not properly acknowledge related work

There are many repetitions in the text, see comments below.

Additional comments Page 2 line 3 “is easily recognized by the NW–SE trending parallel anticlines that verge to the SW.” Why is this important?

Line 6. Please define “structural geometry”

Lines 6-9. I agree, but the only way to solve the problem is to build balanced cross-sections

Lines 11-14. Is the exact repetition (copy-paste) of lines 5-8

Page 3 Lines 13-17. As it stands, the meaning of this paragraph is that the Fars region is located in the interior Fars region. Is this correct?

Line 15. “in a 6–12km cover sequence”. What does it mean?

Lines 19-20. False. There are several works dealing with this topic in this area. See for example: Jahani et al, 2009 (DOI: 10.1029/2008TC002418); Moutheraeau et al, 2006 (doi: 10.1111/j.1365-246X.2006.02855.x); McQuarrie, 2004 (doi:10.1016/j.jsg.2003.08.009)

Line 22. Not clear

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Line 26. Which cases? mentioned where?

Page 4 Lines 2-3 Not only in the Zagros, please include references from other areas.

Lines 3-5. Not clear

Lines 6-7. Is this information important? if it is the case you should explain how detachment layer influence the folding process. The same in the following sentences (lines 7 to 12). You are just listing, in a confuse way, a set of important concepts without explaining them.

Line 8. “geometric and mechanical model”. Expand and add references

Line 13. Not clear

Lines 19-21. Explain why you have selected this anticline.

Page 5 Line 1-8. This is not the correct approach. You are dealing with reservoir-scale anticlines. The appropriate literature includes: Suppe, Medwedeff, Mitra; Erslev, Allmendinger, Poblet and McCaly; Homza and Wallace. See also the recent review by Brandes and Tanner

Lines 17-19. Again, this is not the proper approach. If the aim of this work is to reconstruct the deep geometry (as claimed in the abstract), these analyses are useless. Instead, you should build balanced cross sections.

Line 21. Why the 3D path profiles are important?

Page 6 Line 7-8. “...the SW in a 6–12km cover sequence”. Not Clear

Lines 9-10. Check the words “known” and “estimates”

Lines 15-16. Not clear

Chapter 8 is the exact repetition of chapter 6

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