

Formation of linear planform chimneys controlled by preferential hydrocarbon leakage and anisotropic stresses in faulted fine-grained sediments, Offshore Angola

Ho et al.,

The paper is significantly easier to follow. I must admit that it is still a bit difficult to cope with all the figures included in the manuscript. Nevertheless, I reckon that the features documented are so amazing that it is difficult to cut the number of figures. In this version the information provided in the figures is more synthesized and does a better job of illustrating what is described in the text.

I could identify a few typos and a few parts that would benefit from clarifying the ideas. Please find below the summary of minor points that I think would improve the manuscript even more (specific annotations can be found in the PFD file as comments):

- Minor typos identified
- It is said that near-offset, middle offset and far offset stacks were used to investigate the origin of the chimneys. It is not clear whether the interpretation of chimneys has been done indistinctively over the three type of stacks. The chimneys look different in a near-offset vs. a far offset stack. It would help if the type of stack is indicated in the figure caption of figures showing seismic sections with chimneys. Otherwise, mentioning that several offset stacks were used makes no sense.
- Shearing of the basal part of footwall – if compaction is an issue then wouldn't it be so for the entire hanging and footwall? Can this be clarified?
- What if the gas was already distributed along the reservoir layer before polygonal faulting? Then there would be gas available for generating chimneys that originate at the hanging and foot walls indistinctively. Isn't this a plausible scenario?
- Section 5.2.5 – This section is still hard to follow. It is not clear whether the authors propose that 1) generally the regional stress field controls the orientation of chimneys while there are exceptions where a local modification of the stress field becomes dominant and controls the orientation of certain chimneys; or 2) whether an interaction of both regional and local stress patterns is always a requirement to trigger the development of chimneys. I think all the info is there but it is just hard to follow up. My feeling is that a little rewording and restructuring of the ideas would be enough to improve this section. It comes clearer in the abstract.
- Terminology “in-situ stress” to refer to local stress – is the use of in situ here correct? If we go to the field and measure stress (in-situ) wouldn't we measure a stress quantity that is the summation of different sources of stress (regional + local)? I tend to think that referring to “local” stress fields when describing the stress field dominated by the small scale faults and pore-fluid pressure interactions, is more appropriate.
- Section 5.3.2 is very interesting however, it is still not entirely clear why the authors argue for a shift in the orientation of the stress field. Different stress fields may characterize the north and the

east of the salt feature at a contemporaneous period. Why the observation of chimneys toward the eastern edge is used as evidence of a shift in the stress field with time? Can this be clarified?

- The conclusion would benefit from avoiding repeating the details of chimney development as presented already in section 5.2.6