



EGUsphere, referee comment RC2  
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## **Comment on egusphere-2022-1014**

Daniele Maestrelli (Referee)

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Referee comment on "Analogue modelling of the inversion of multiple extensional basins in foreland fold-and-thrust belts" by Nicolás Molnar and Susanne Buiter, EGU sphere, <https://doi.org/10.5194/egusphere-2022-1014-RC2>, 2022

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Dear Editor,

I am attaching here my revision comments for the manuscript by Nicolás Molnar and Susanne Buiter.

It's been a true pleasure to read this interesting manuscript, which deals with analogue modelling of positive inversion tectonics. The Authors performed an experimental series of analogue models to investigate the effect of pre-existing basins on the nucleation and development of thrust faults associated with a subsequent compressive stage.

By changing the number and position of the 1° stage-related basins, and by filling the basin with a less competent material than the undeformed portion of the models, the Authors focuses on the effect of basin shortening and uplift, thrust localization and reactivation and the variation of the strength associated to the presence of less competent materials in the basins.

The manuscript is very well structured, well written and nicely illustrated by figures.

I particularly appreciated the presence of section 3- "Analytical expectation", that makes clear which are the intents of the modelling and the expected results. This part is then properly discussed in the discussion section, allowing the reader to easily follow Author's reasoning.

Despite the comparison with nature remains to the first orders, I believe these models

represent a good addition in terms of insight about inversion tectonics, providing general insights that can be helpful for interpreting similar natural settings.

I have no major comments to this manuscript, and I suggest acceptance after minor revisions. I attached an annotated pdf file with a few minor comments.

The only suggestion I would give to the Authors is to illustrate in Fig. 4-7 the extensional stages of the modelling, and not only the compressive ones.

I really hope to see this manuscript published soon.

Daniele Maestrelli

Please also note the supplement to this comment:

<https://egusphere.copernicus.org/preprints/2022/egusphere-2022-1014/egusphere-2022-1014-RC2-supplement.pdf>