



EGUsphere, author comment AC1  
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## Reply on RC1

Conor M. O'Sullivan et al.

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Author comment on "Tectonostratigraphic evolution of the Slyne Basin" by Conor M. O'Sullivan et al., EGU Sphere, <https://doi.org/10.5194/egusphere-2022-581-AC1>, 2022

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Re: Manuscript Submission

Dear Editor,

Please find enclosed our manuscript titled 'Tectonostratigraphic evolution of the Slyne Basin' by Conor O'Sullivan (corresponding author), Conrad Childs, Muhammad Saqab, John Walsh and Patrick Shannon, which we have submitted for peer-review and publication in the Solid Earth Journal. There has been significant study into the development of rift basins along the European Atlantic margin from offshore Portugal to offshore northern Norway. The Irish Atlantic margin has by comparison seen conspicuously little investigation in this area, owing to the historic lack of seismic data and the relatively limited number of well penetrations. Since then, significantly more seismic data has been acquired and additional exploration wells have been drilled, providing the materials and impetus for a re-evaluation of these basins.

Our manuscript is a comprehensive investigation of the structural evolution of the Slyne Basin, located offshore north-western Ireland. We incorporate the most recent seismic reflection data alongside recent hydrocarbon exploration wells to investigate the location, shape and age of major structures which define this basin. We also investigate the upper-crustal character of this Mesozoic rift basin relative to deep, crustal-scale structures believed to be related to the Caledonian Orogeny. We demonstrate a rarely documented style of fault reactivation where basin-bounding faults are oblique to the earlier structural trend, but the initial fault segments are parallel to this trend. This manuscript will be of interest to several geoscientists working on the Irish Atlantic margin and adjacent jurisdictions, as well as the global community investigating fault analysis and general structural geology.

We think this paper will be a valid contribution to your journal and hope that you will consider it positively. Alongside this submission we have included a list of potential reviewers and would be grateful of any additional reviewers of your choice. We look forward to hearing from you.

Yours sincerely,

Dr. Conor O'Sullivan (on behalf of the co-authors)

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Please also note the supplement to this comment:

<https://egusphere.copernicus.org/preprints/2022/egusphere-2022-581/egusphere-2022-581-AC1-supplement.pdf>