Mitchell, W.H., Whittaker, A.C., Lonergan, L., Mayall, M., and Pizzi, M., 2021, Quantifying structural controls on submarine channel architecture and kinematics: GSA Bulletin, https://doi.org/10.1130/B36001.1.

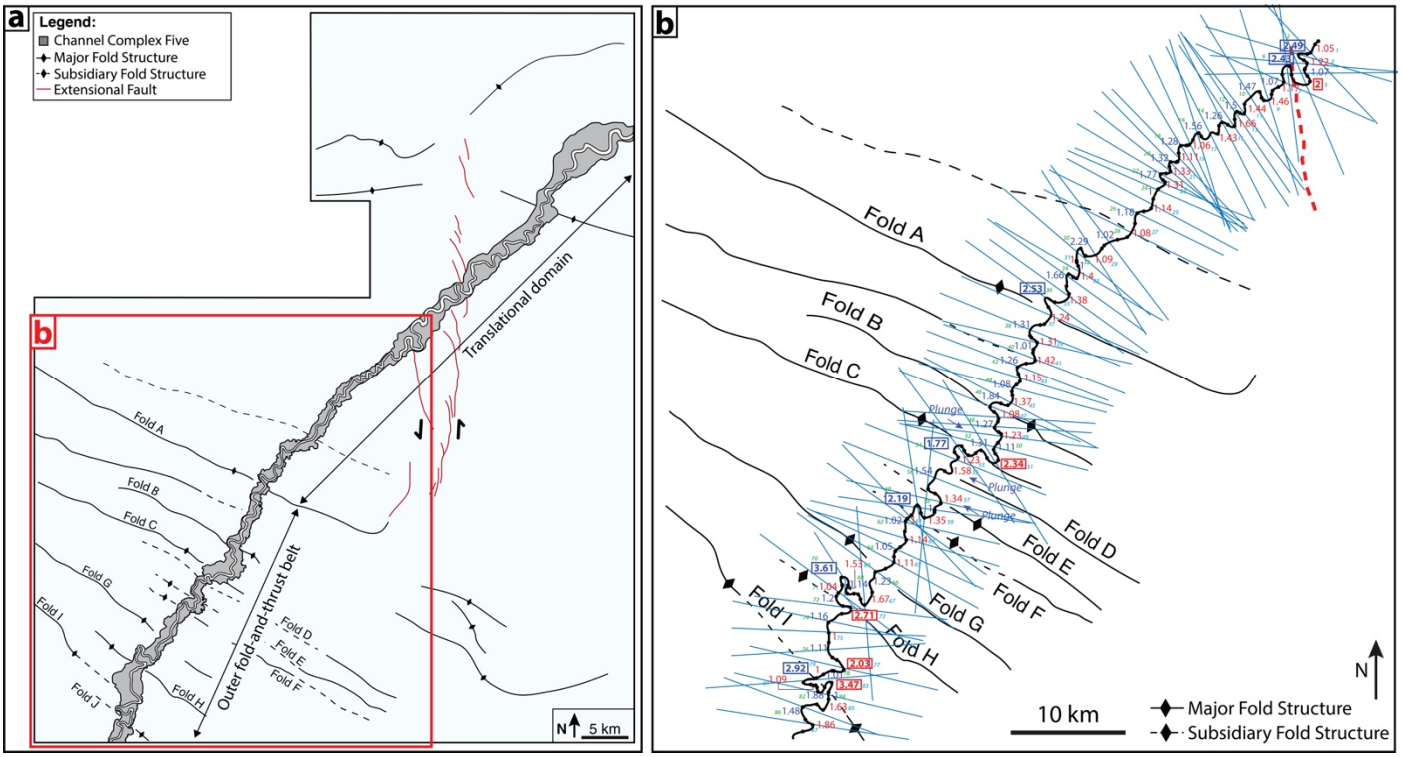
Supplemental Material

Figure S1. Location of cross sections through Channel Complex Five. The upper part of the complex is eroded by a later channel system. Consequently, the final channel element could not be mapped and no analysis was undertaken in this area.

Figure S2. Location of cross-sections taken through Channel Complex Six. Further downsystem, the complex is eroded by a more recent channel and consequently, the analysis could not be performed. See fig. 1C.

Figure S3. (a) The final channel elements of channel complex five (ChC 5) and six (ChC 6) overlain on interval strain rates presented in Pizzi et al. (2020). Sections 1-3 from Mitchell et al. (*in review*), show (1-1') the onlap of ChC fives's levee reflectors onto pre-existing structural bathymetry relating to fold E and (2-2', 3-3') the rotation of ChC 5 external levees associated with uplift of folds H and I, respectively, which were not included in the analysis of Pizzi et al. (2020).

Table S1. KS test values for channel complex five and six. Critical values based on the two sample sizes (structured (m) and unstructured (n) measurements) and Dmax values for channel complex width, thickness, aspect ratio, and complex-averaged stratigraphic mobility.



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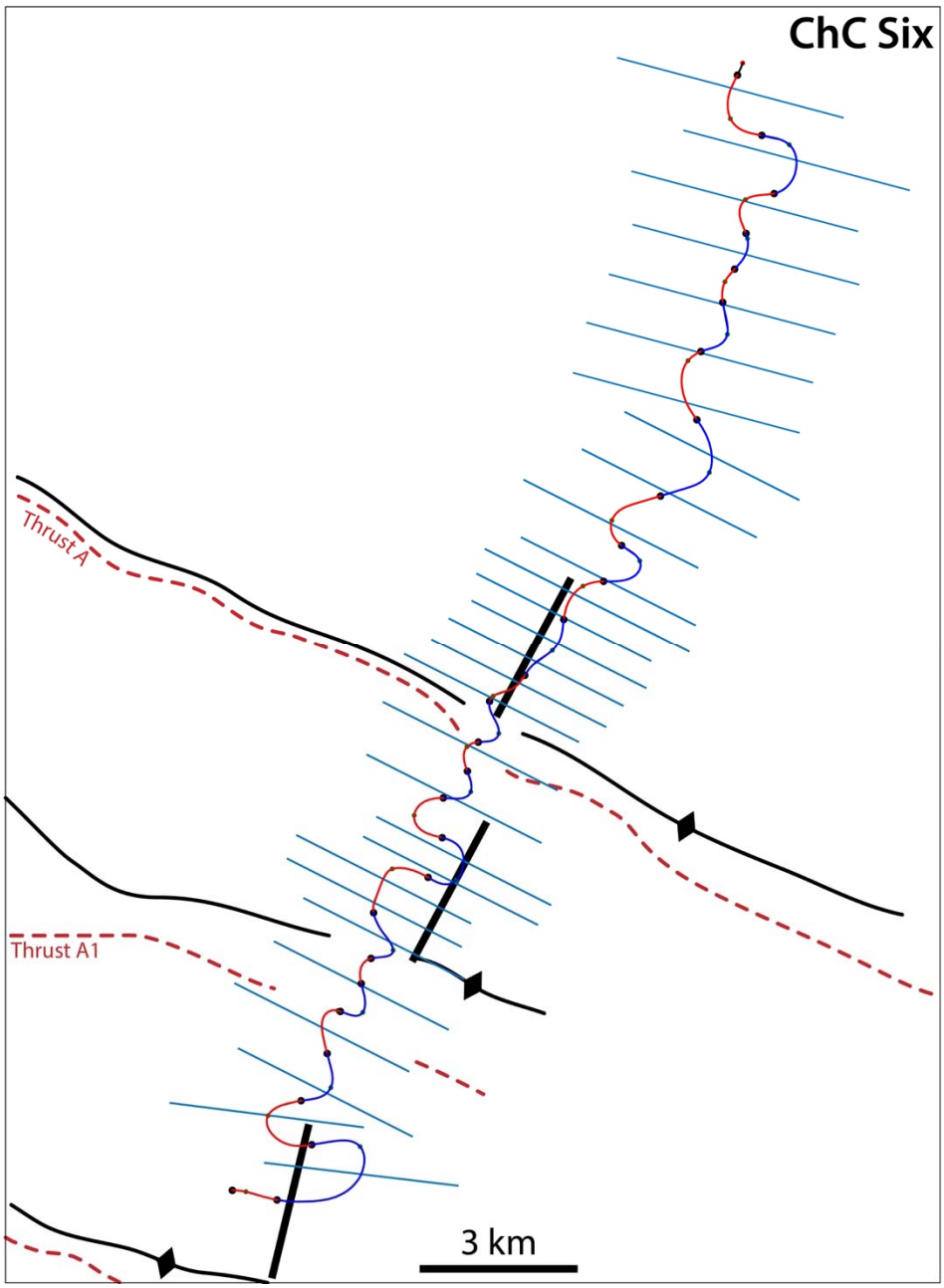

Figure S2. Location of cross-sections taken through Channel Complex Six. Further downsystem, the complex is eroded by a more recent channel and consequently, the analysis could not be performed. See fig. 1c.

ChC5	n = 41; m = 34	Width	Thickness	Aspect Ratio	Strat Mob
Dcrit 90%	0.25	0.47	0.17	0.43	0.52
Dcrit 95%	0.32				
Dcrit 99%	0.38				

ChC6	n = 15; m = 14	Width	Thickness	Aspect Ratio	Strat Mob
Dcrit 90%	0.36	0.63	0.25	0.74	0.66
Dcrit 95%	0.48				
Dcrit 99%	0.55				

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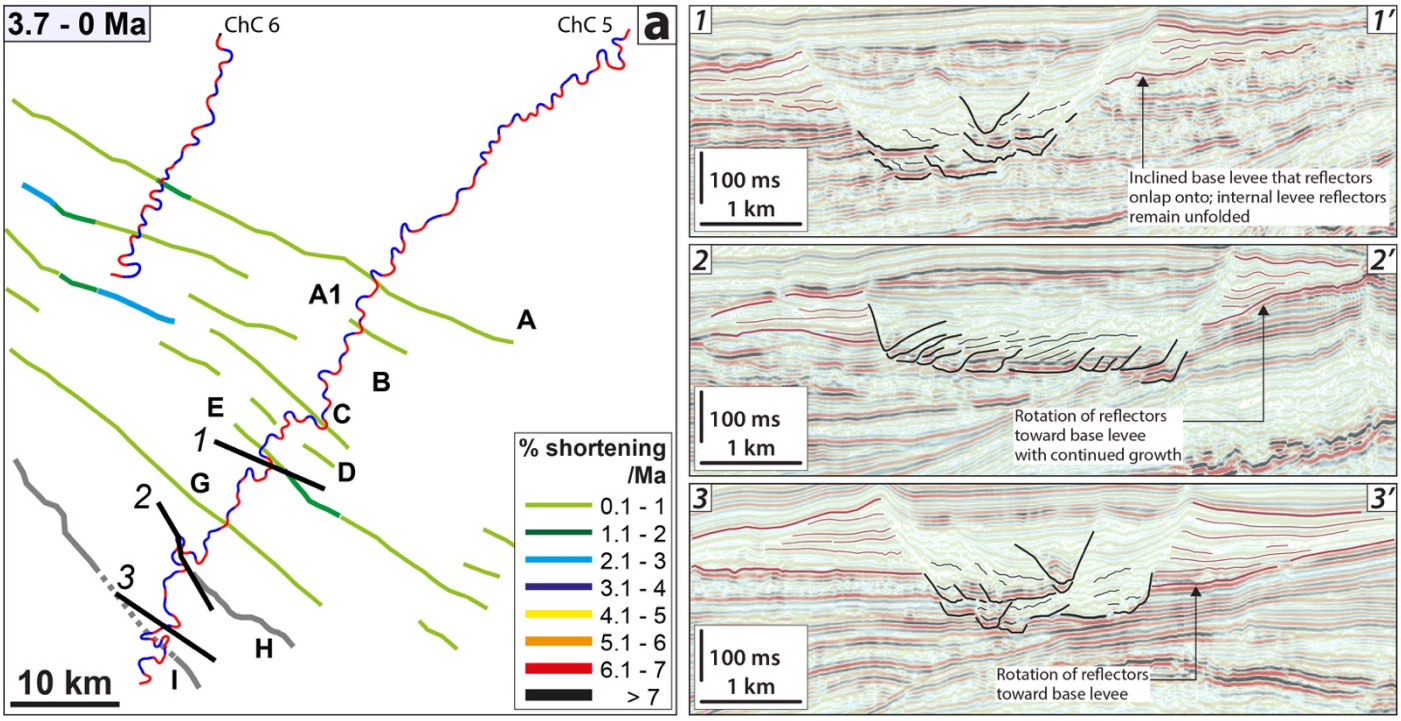

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