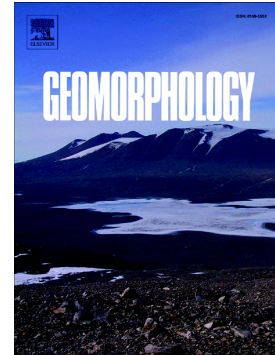


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**The role of bank collapse on tidal creek ontogeny: A novel process-based model
for bank retreat**

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Abstract:

Bank retreat in coastal tidal flats plays a primary role on the planimetric shape of tidal creeks and is commonly driven by both flow-induced bank erosion and gravity-induced bank collapse. However, existing modelling studies largely focus on bank erosion and overlook bank collapse. We build a bank retreat model coupling hydrodynamics, bank erosion and bank collapse. To simulate the process of bank collapse, a stress-deformation model is utilized to calculate the stress variation of bank soil after bank erosion, and the Mohr-Coulomb failure criterion is then applied

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