GLY 4734/6932 - Coastal Morphology and Processes
Sea Cliff Retreat

Group 1

April 17, 2019

Help sheet for sea cliff retreat graphics

- **Cliff erosion**
  Wave action against the cliff erodes a notch in the cliff base. The wave action can include unbroken waves (in deep water), broken waves (in shallow water), or runup (in the nearshore).

- **Cliff failure**
  The undercut cliff can fail either due to tensile stress or shear stress.

  Shear stress refers to the stress produced by the downward directed graviational force acting on the cantilevered block.

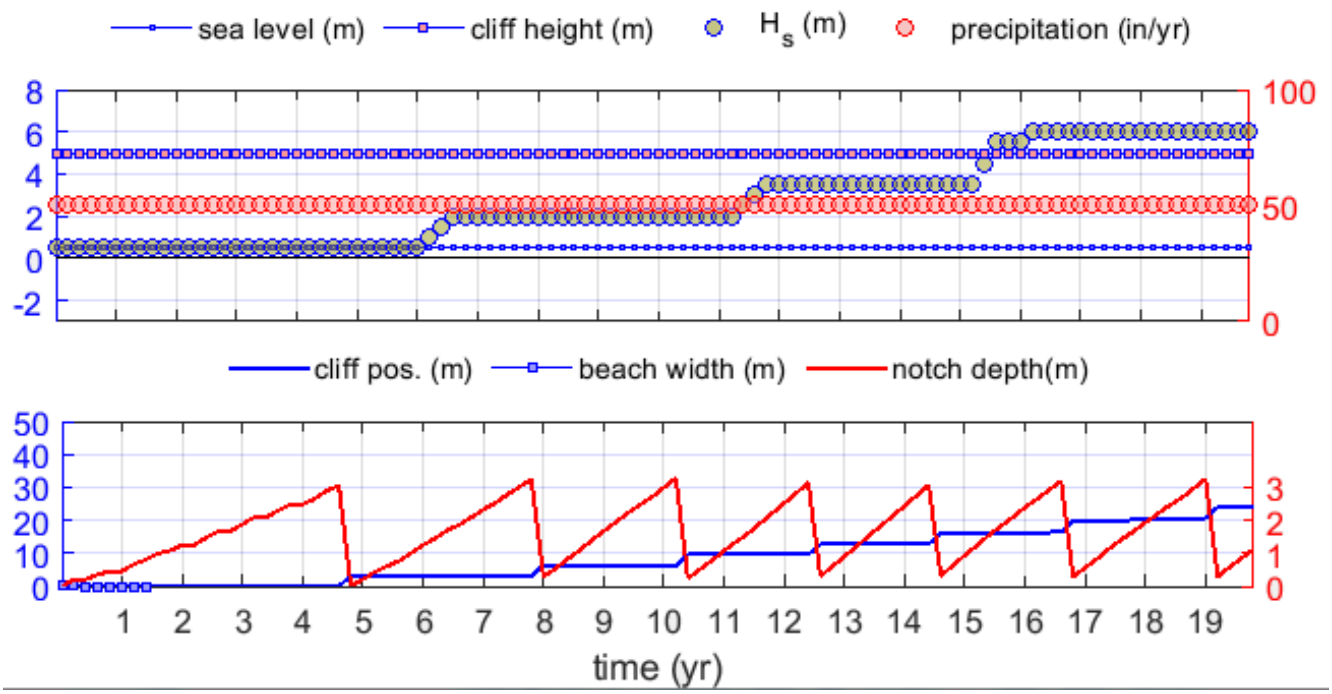
  Tensile stress refers to the force which is pull the cantilereved block away from the cliff, leading to cliff fractures.

- **Sediment balance**
  In this model it is assumed that all eroded sediment is carried away by longshore transport. Therefore mechanical abrasion by loose sediment as well as deposition in front of the cliff are ignored.

References

1. Sunamura, T. (1992). Geomorphology of rocky coasts (Vol. 302). Chichester: Wiley.

2. Young, A. P., Ashford, S. A. (2008). Instability investigation of cantilevered seacliffs. Earth Surface Processes and Landforms: The Journal of the British Geomorphological Research Group, 33(11), 1661-1677.


sea level (m)
cliff height (m)
H_s (m)
precipitation (in/yr)
8
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100
50
0
cliff pos. (m)
beach width (m)
notch depth(m)
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30
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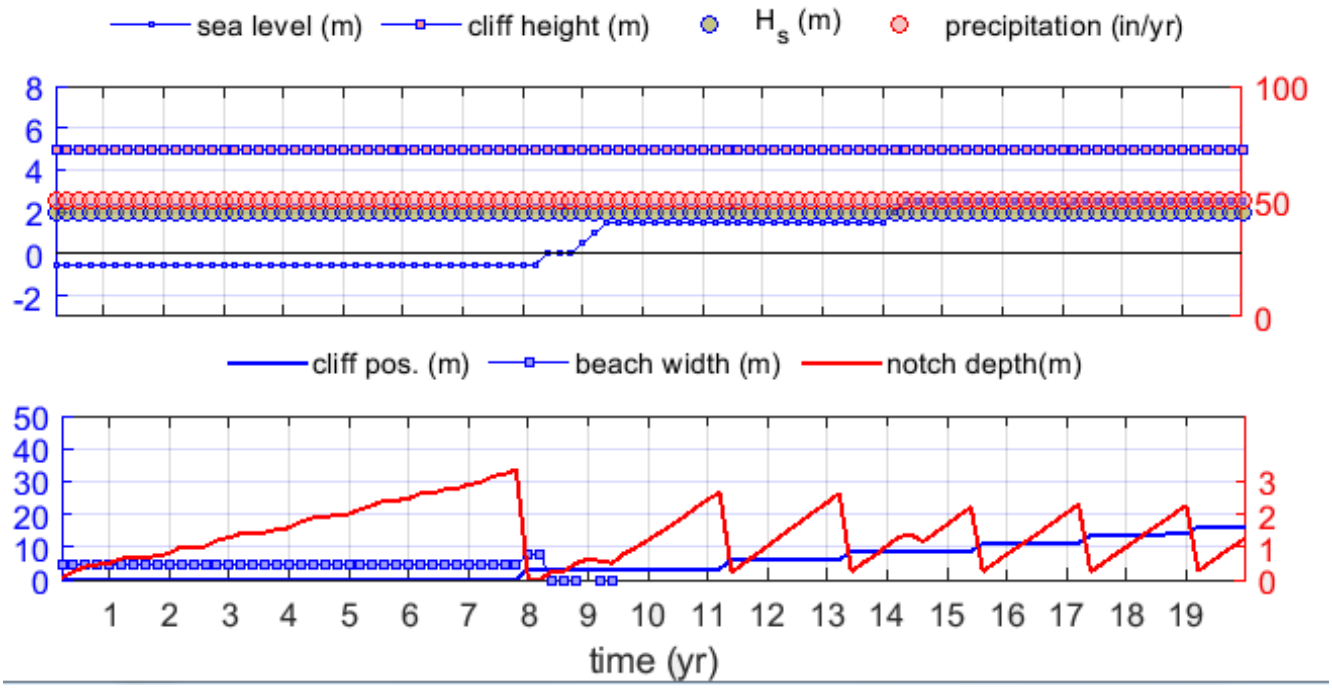
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
time (yr)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cliff height (m)
H_s (m)
precipitation (in/yr)
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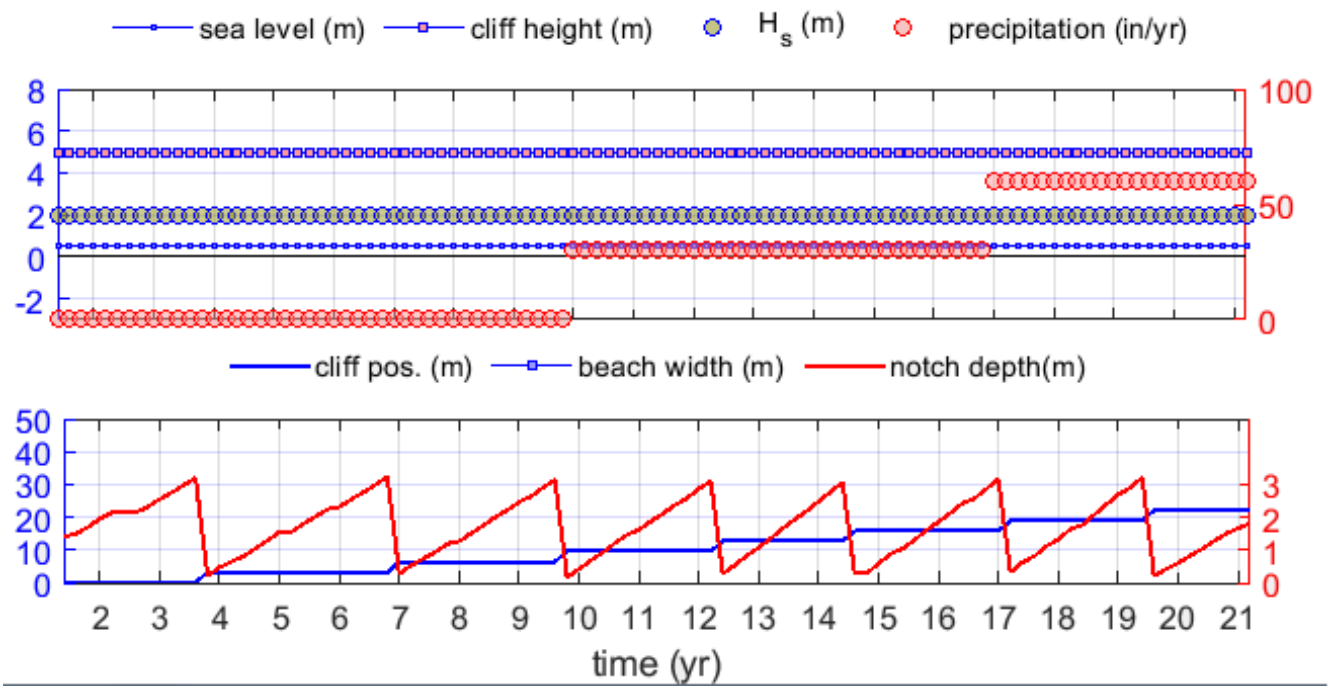
time (yr)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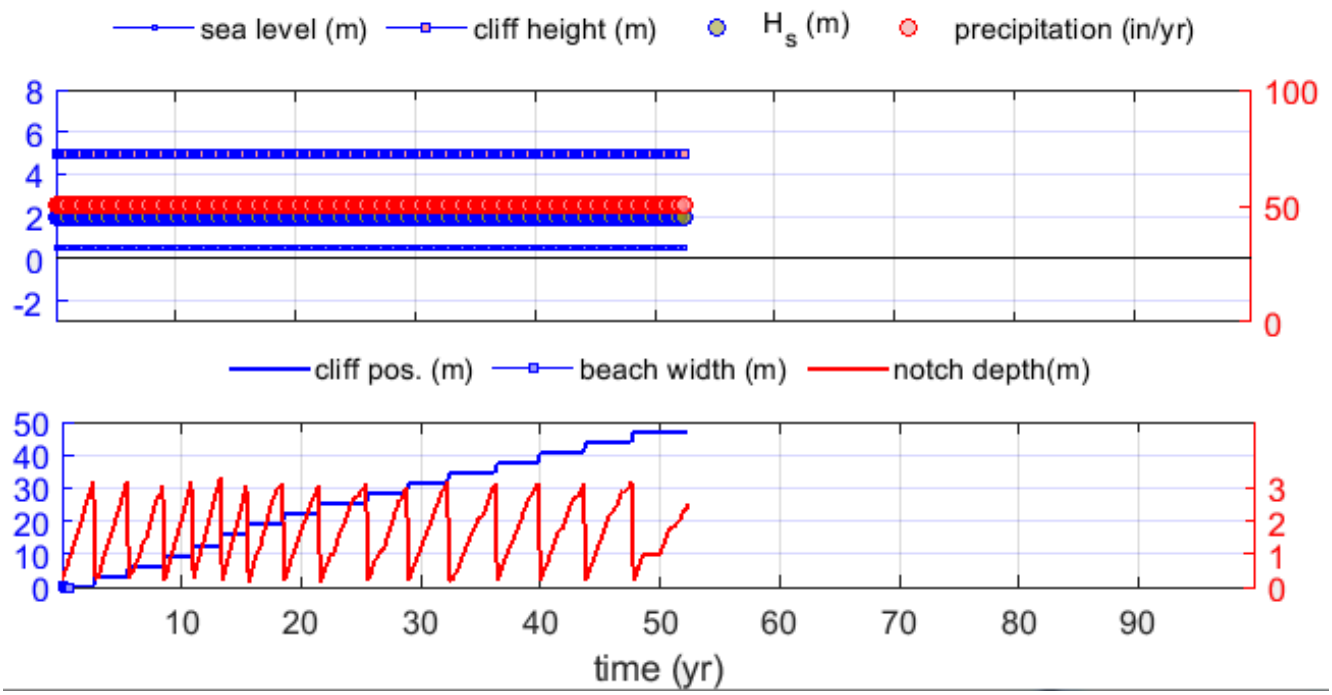
time (yr)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beach width (m)
notch depth(m)
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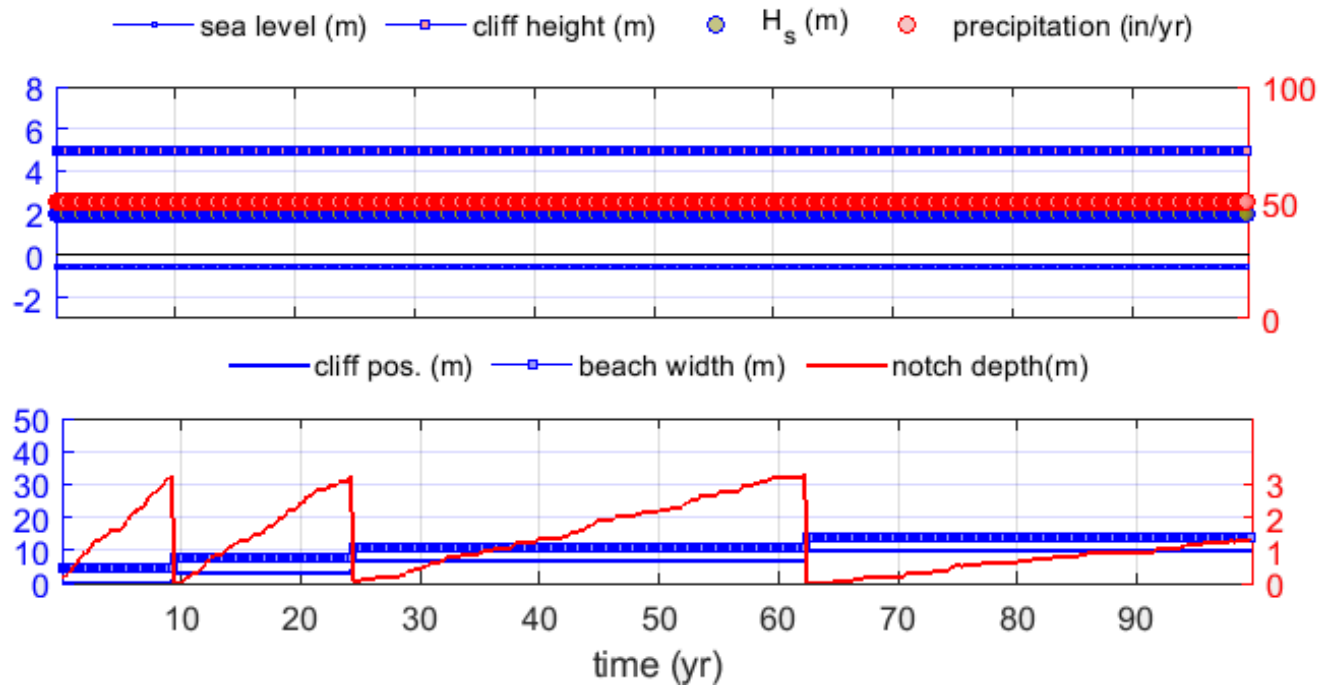
80
90
time (yr)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time (yr)