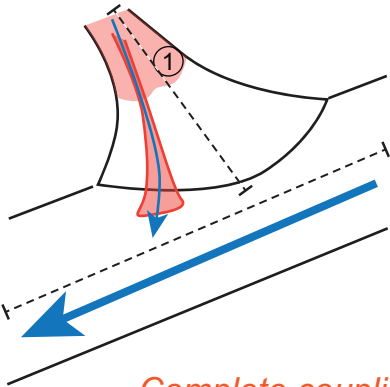


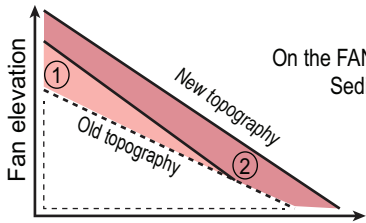
(a) Fan aggradation

Non-influential alluvial fans

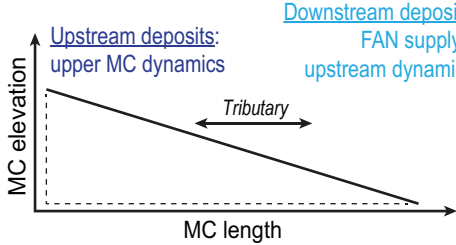
Partial coupling between FAN & MC



Complete coupling within MC



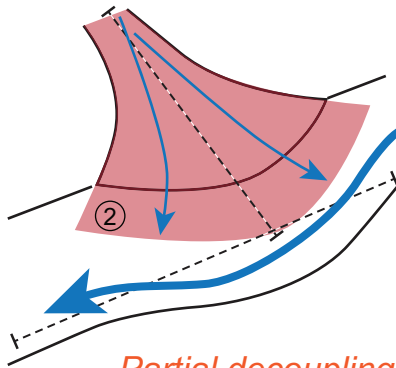
On the FAN: top-down deposition and propagation of $Q_{s,in}$ signal. Sediment reaching the MC records the perturbation onset with a delay.



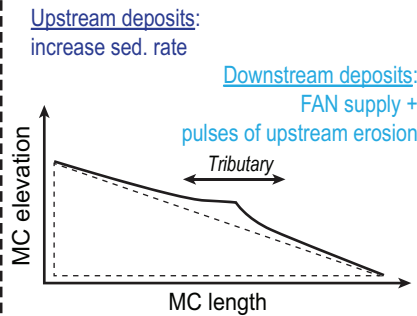
(b) Fan aggradation & progradation

Influential alluvial fans

Partial coupling between FAN & MC



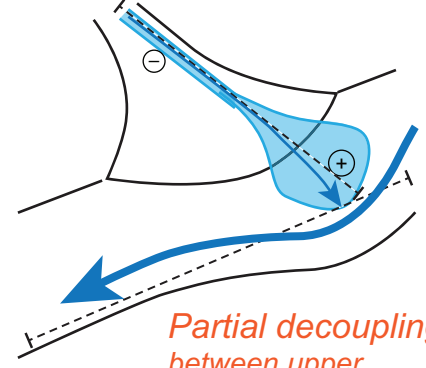
Partial decoupling between upper and lower MC



(c) Fan incision & progradation

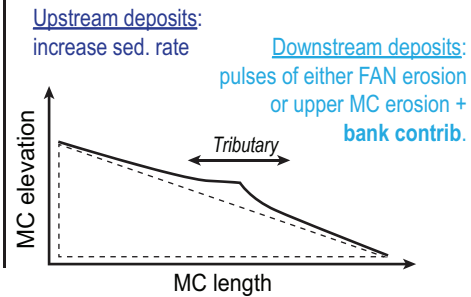
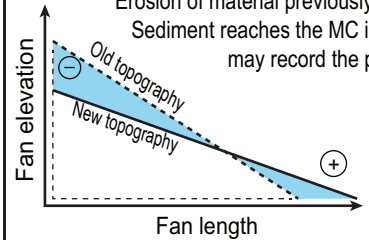
Influential alluvial fans

Complete coupling between FAN & MC



Partial decoupling between upper and lower MC

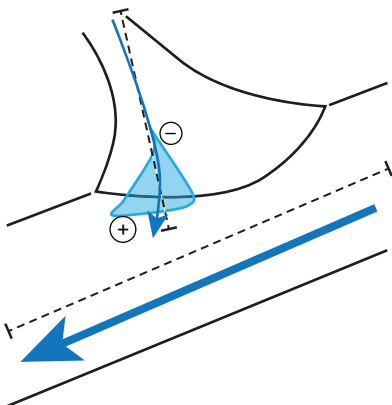
On the FAN: top-down incision and healing wedge. Erosion of material previously deposited. Sediment reaches the MC in pulses and may record the perturbation onset.



(d) Main channel incision

Non-influential alluvial fans

Complete coupling between FAN & MC



Complete coupling between upper and lower MC

On the FAN: bottom-up incision and erosion of material previously deposited. Sediment reaching the MC is immediately transported away.

