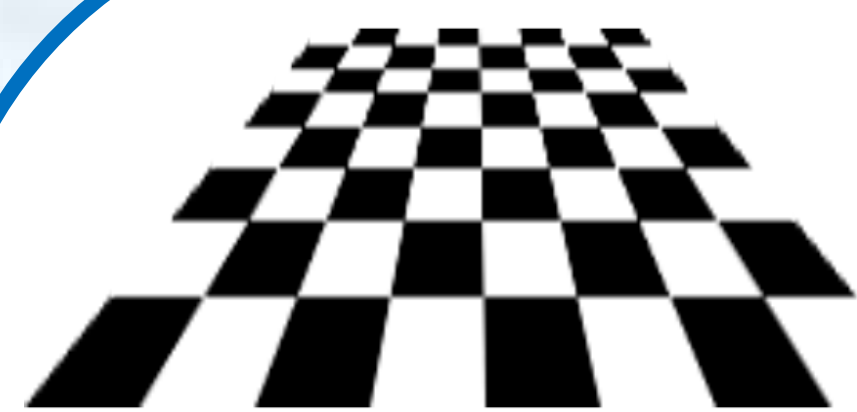


Chess at the mudflat

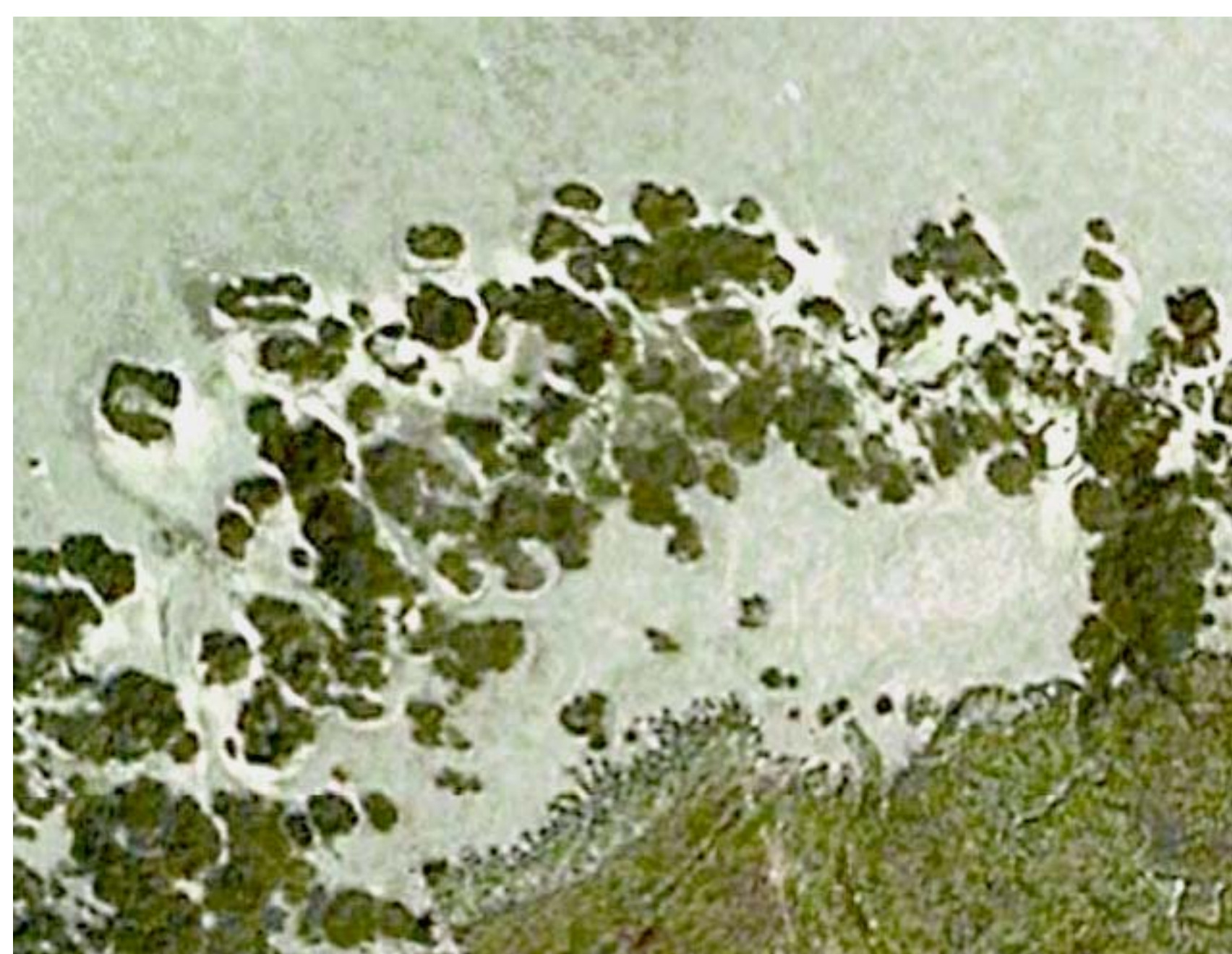
Disturbance & recovery at salt-marsh pioneer zones

Jim van Belzen, Daphne van der Wal, Tjeerd Bouma, Peter Herman, & Johan van de Koppel



The chess board...

...is the interface between mudflat and salt-marsh, a highly dynamic habitat, where a mosaic of tussocks and bare mudflat is created by the effects of water flow and wave action.



The pieces...

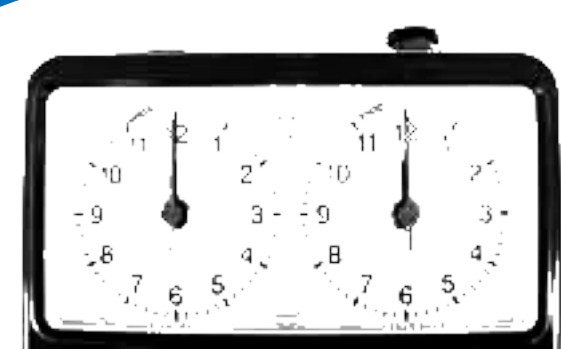
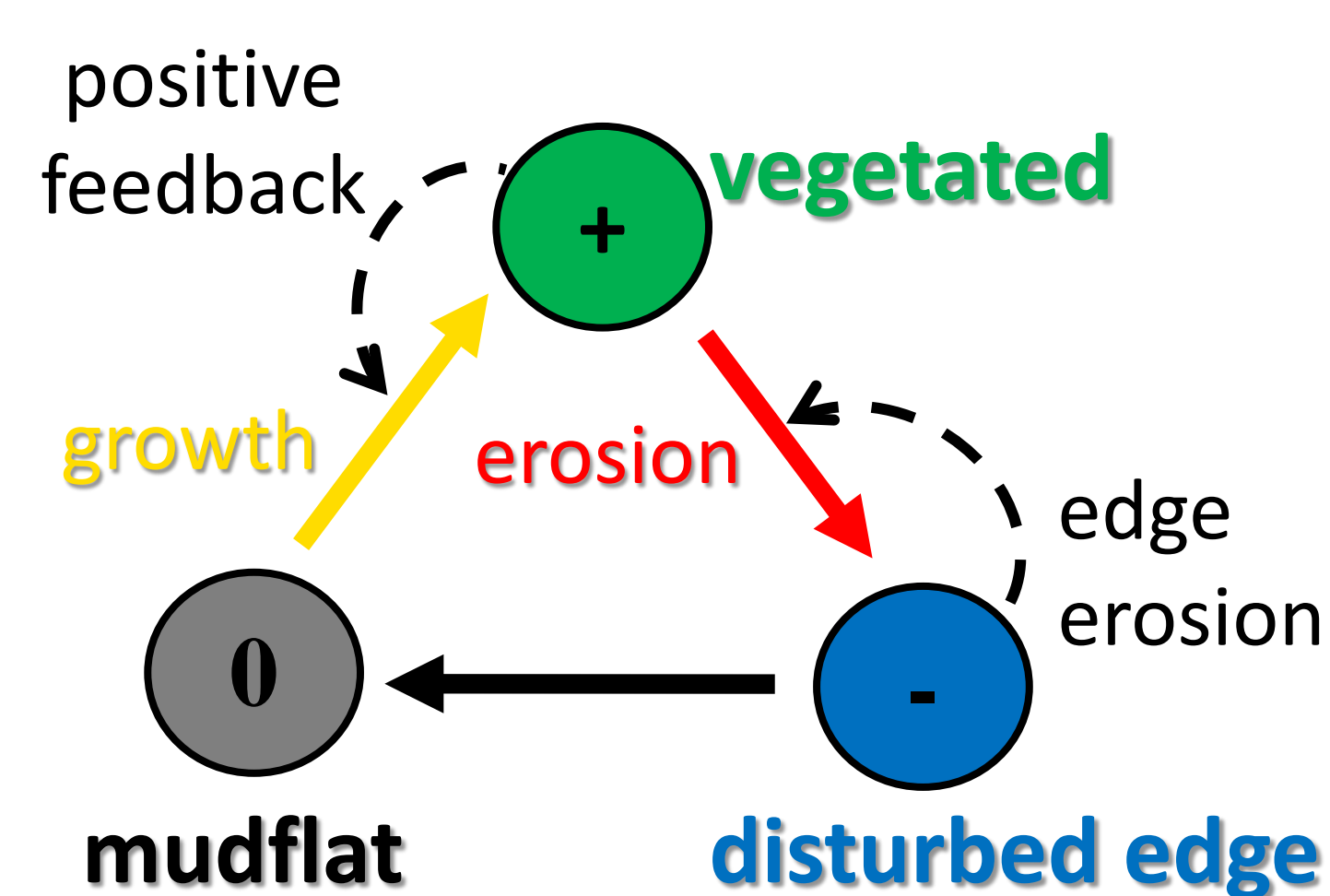


...are **tussocks of cordgrass** (*Spartina sp.*), the **bare mudflat** in between the tussocks, and **disturbed tussock edges** due to wave action and water flow.

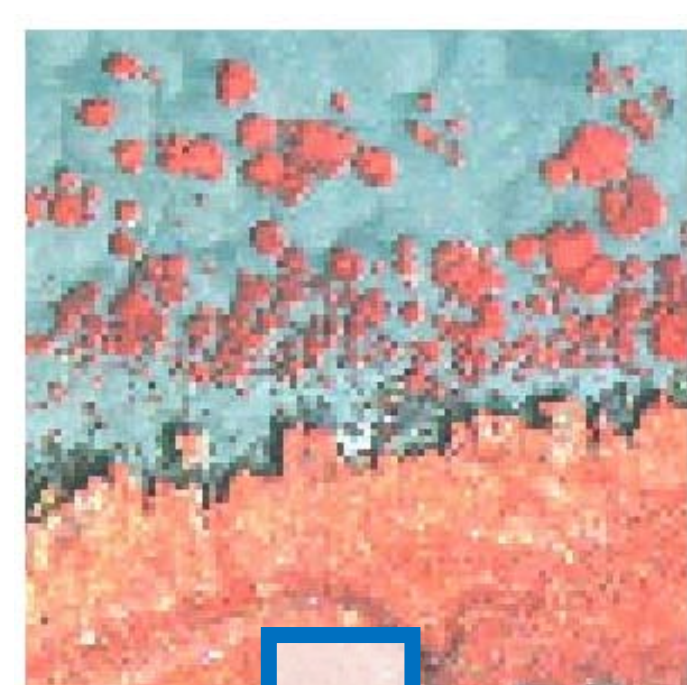


The rules...

...are governed by **disturbance** and **recovery** processes of *Spartina* tussocks: Self-propelling erosion by instability of disturbed edges, and lateral regrowth from tussocks are the main processes driving patch dynamics.



The game...

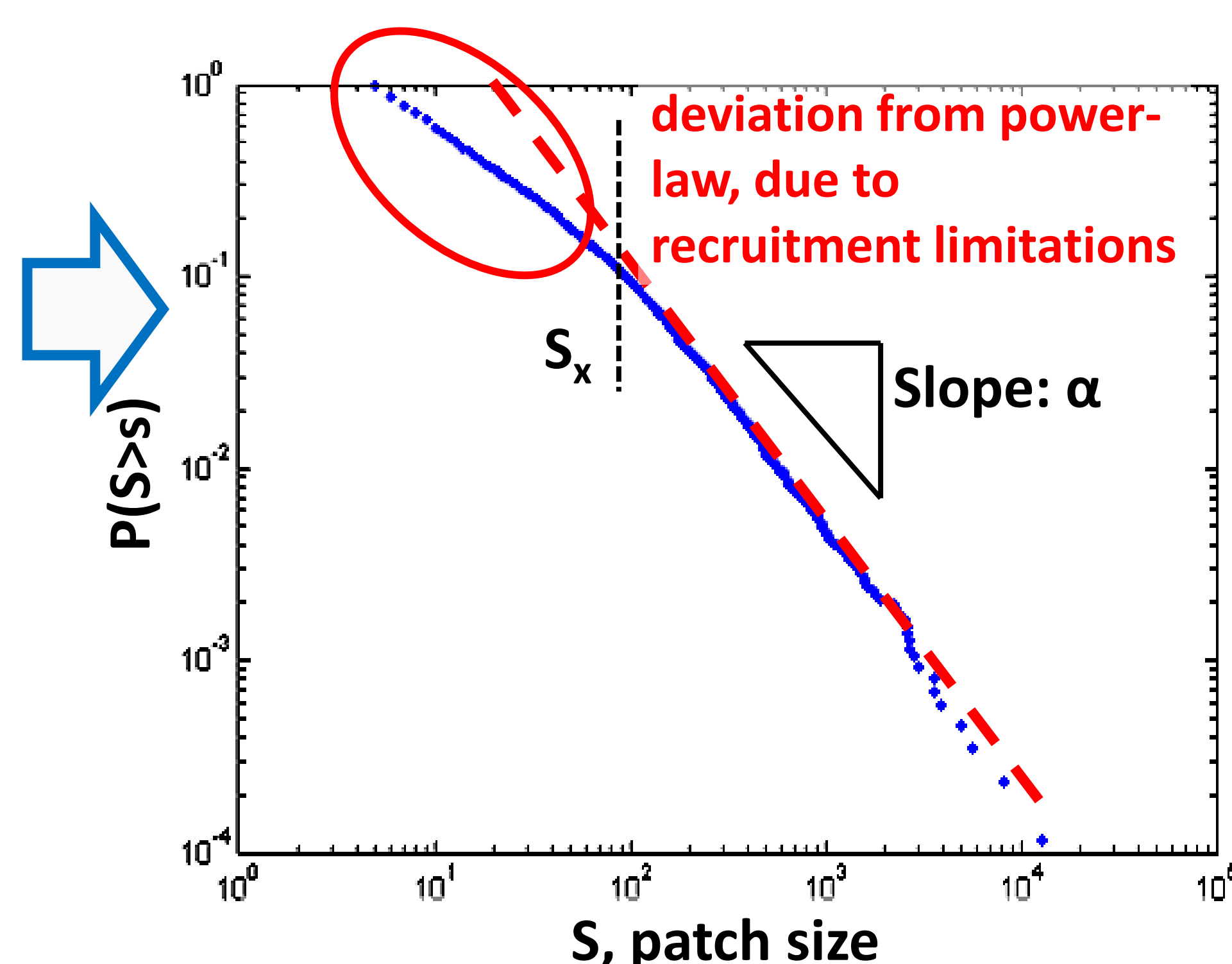


FCC aerial pictures

Difference between years

stable
erosion
growth

...between disturbance and recovery results in **power-law** patch-size distributions.

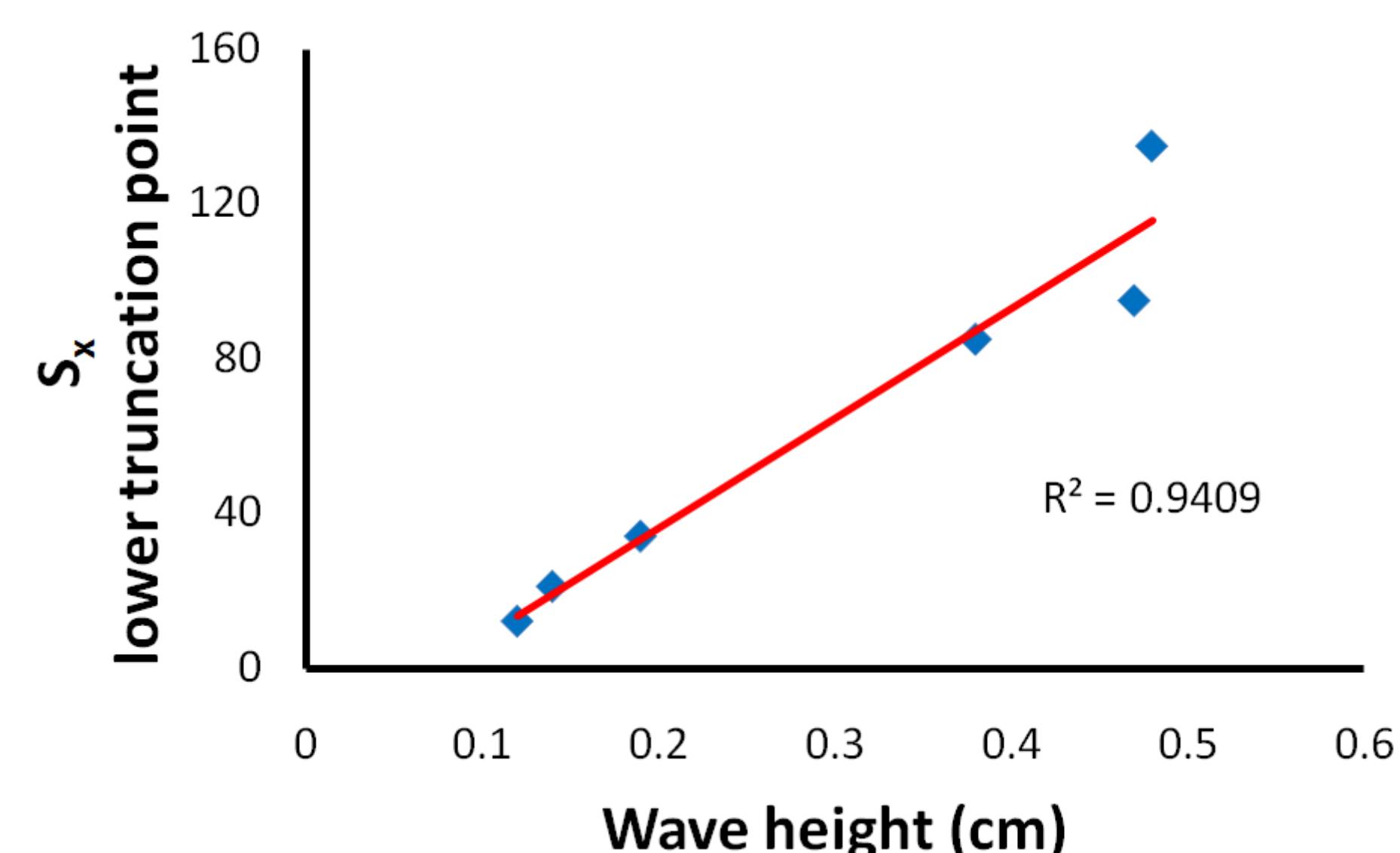


Slope (α) of the power-law is strongly related to hydrodynamic regime.



The match results...

...show that deviation from power-law distributions point to critical ecological processes: e.g. waves limit emergence of small patches.



Our results reveal that processes controlling regrowth, rather than erosion, determine patch dynamics at salt-marsh pioneer zones.