Spatial Patterns of Islands and Salt Crusts in the Okavango Delta, Botswana

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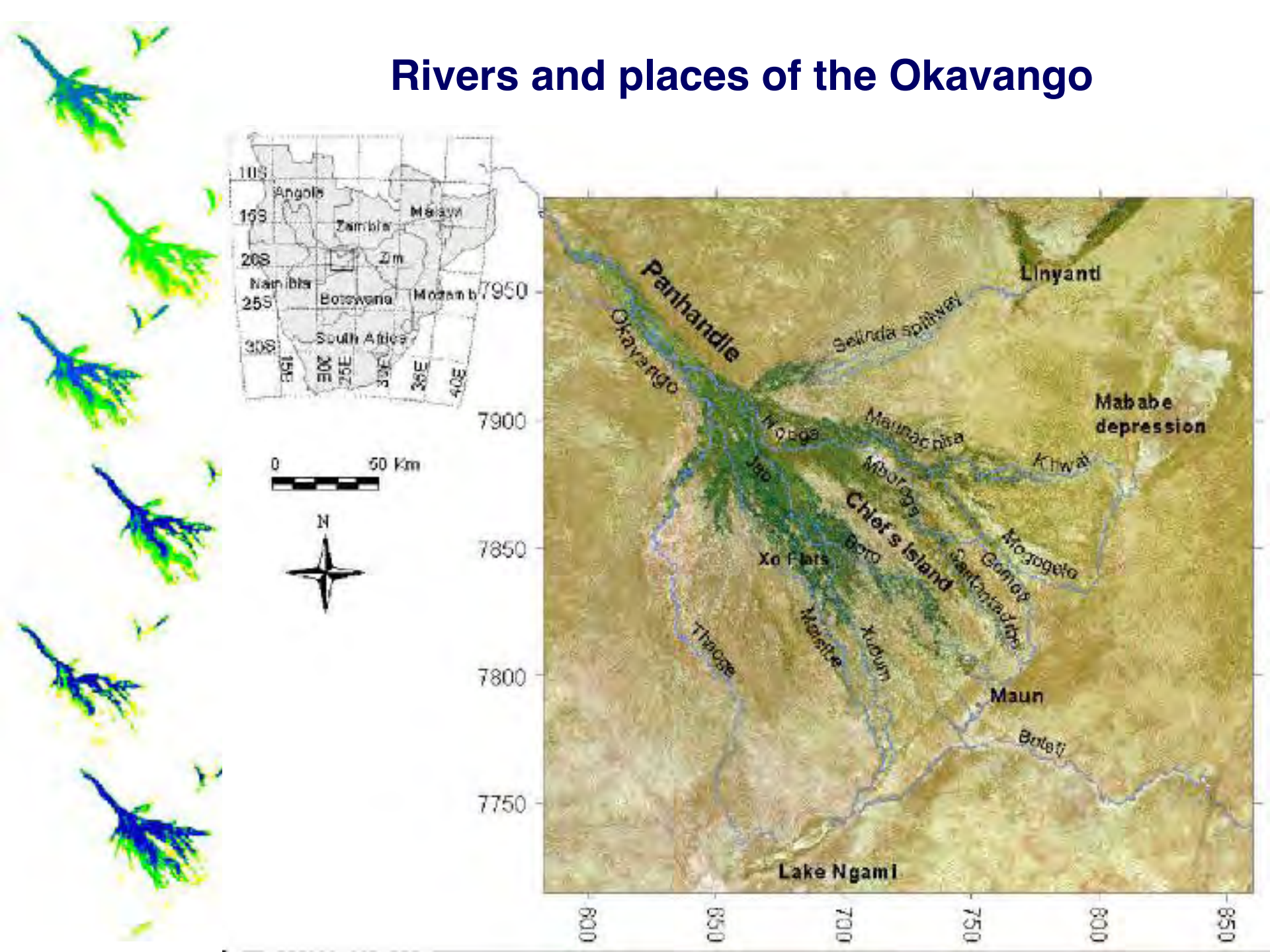
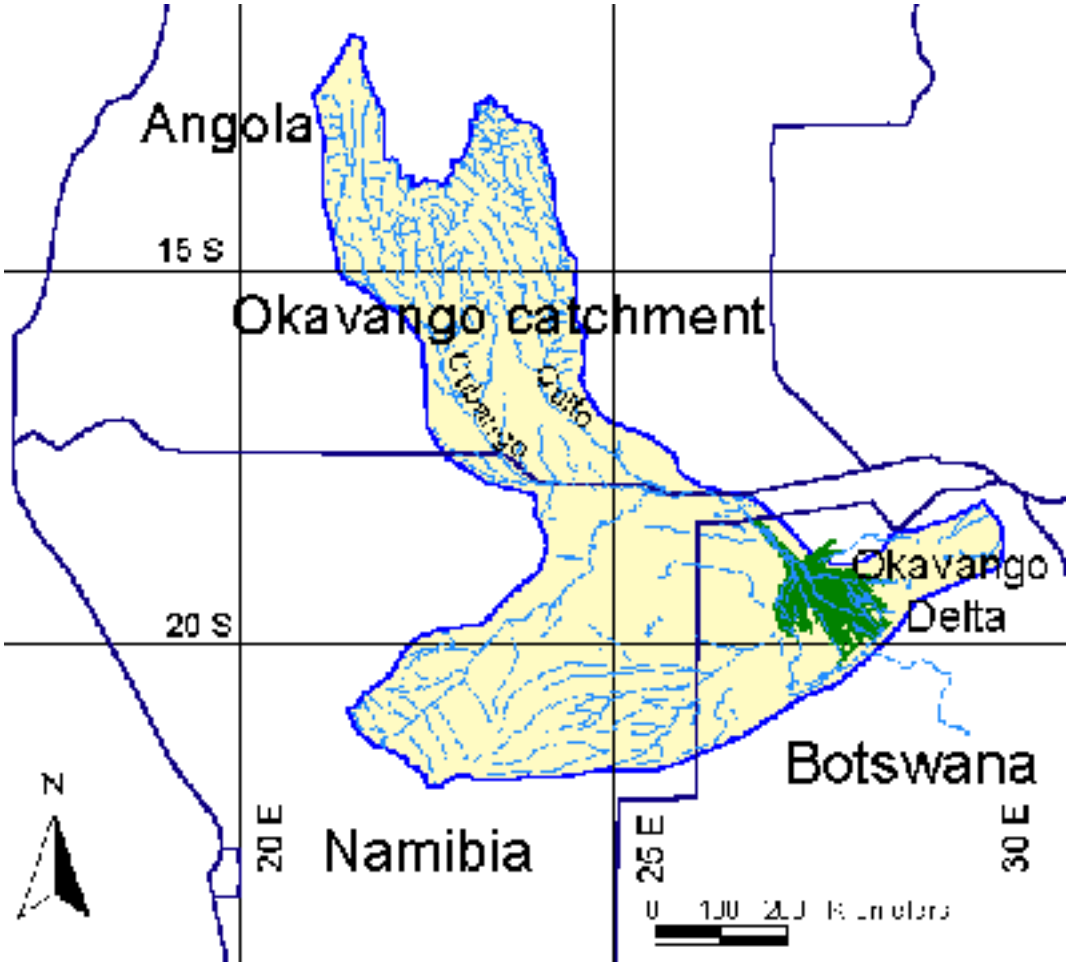
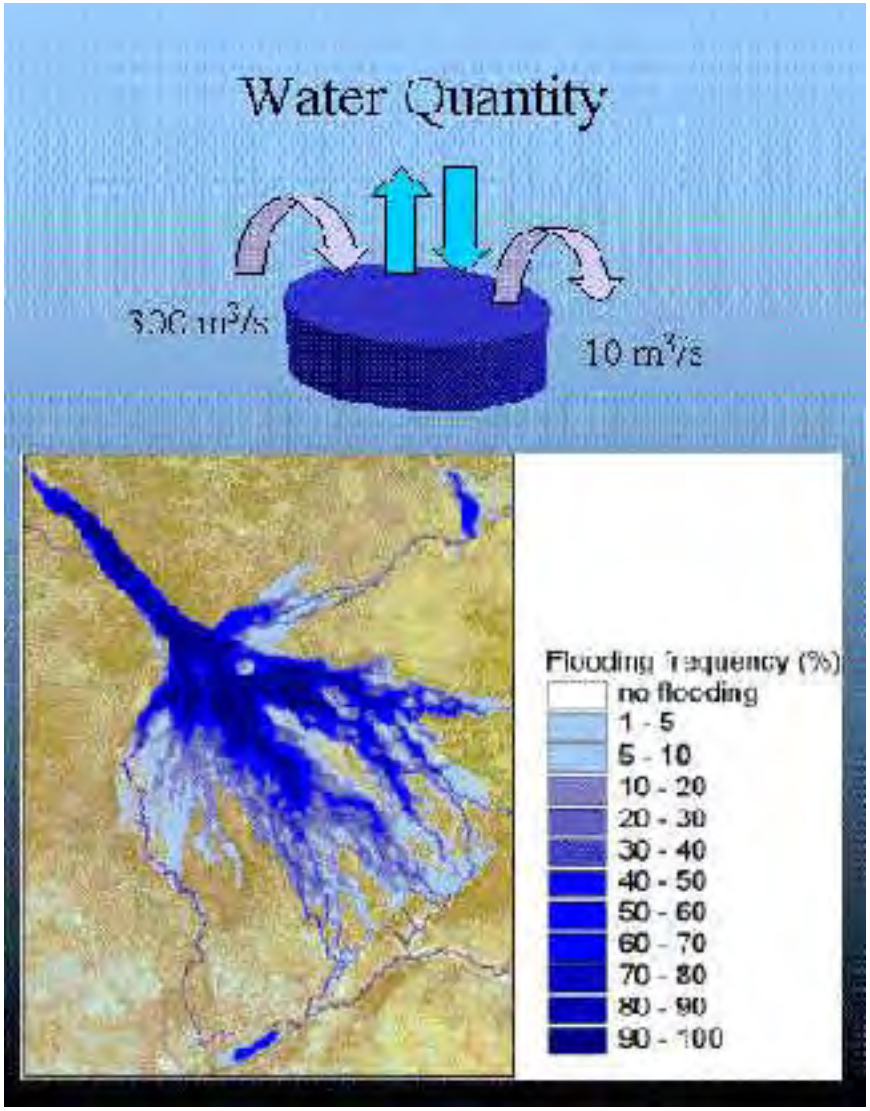
Rivers and places of the Okavango



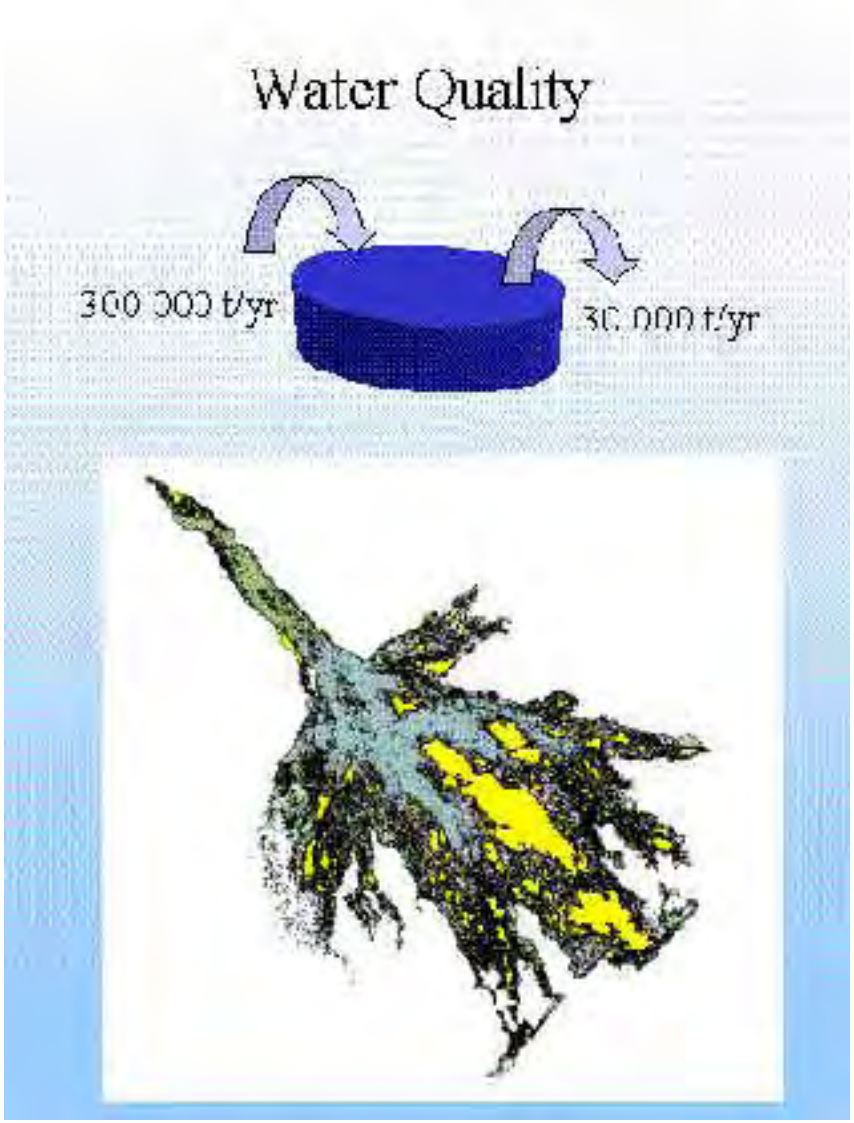
Catchment area



Water Balance – Evapotranspiration is the big consumer



Matter balance –
Where do the dissolved salts end up?




Panhandle

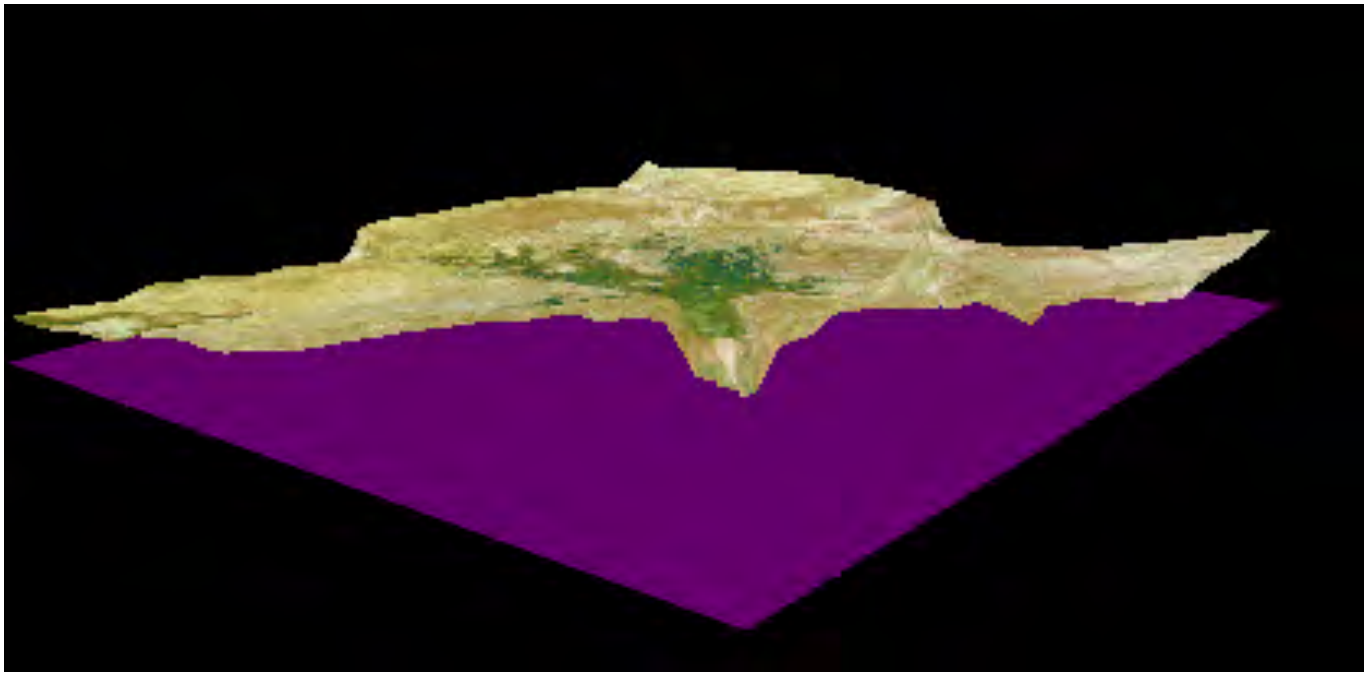

Permanent swamps


Seasonal swamps


Seasonal swamps, channels

Seasonal swamps, during flood

Topography and water flow – local relief and islands must play a crucial role



Primary islands built from accumulation of clastic sediments

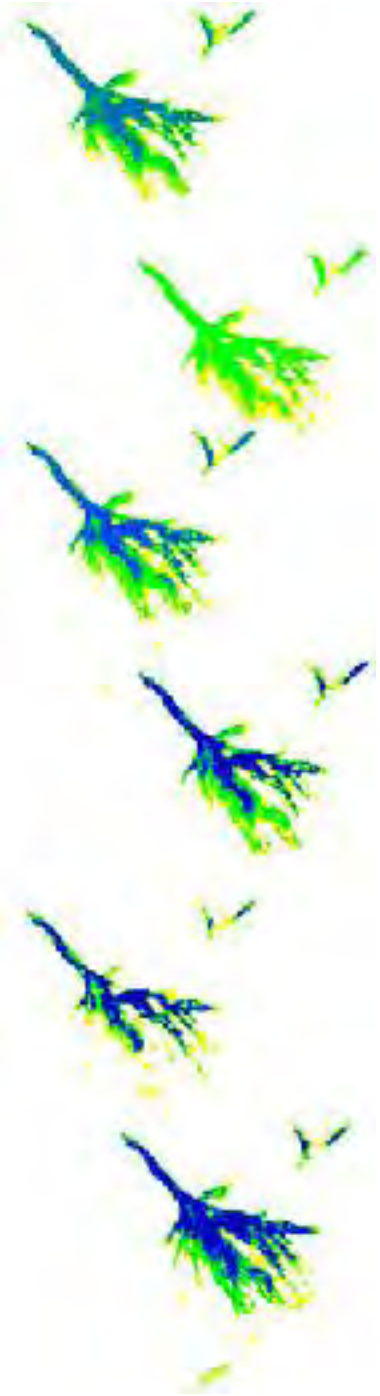
Island types

Inverted channel island

Primary islands built from accumulation of clastic sediments

Island types

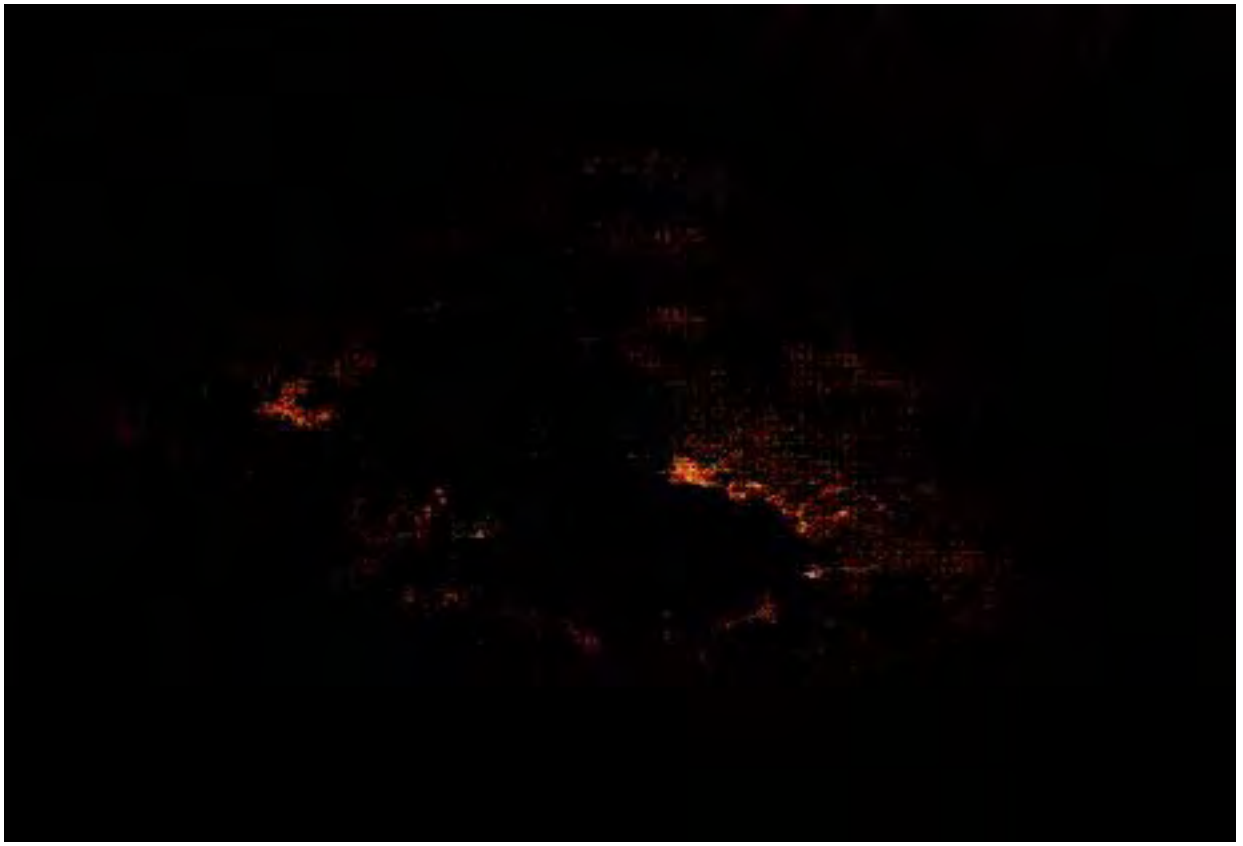
Scroll bar island



Primary islands built from accumulation of clastic sediments

Island types

Anthill island



Secondary islands grown from precipitation of chemical sediments

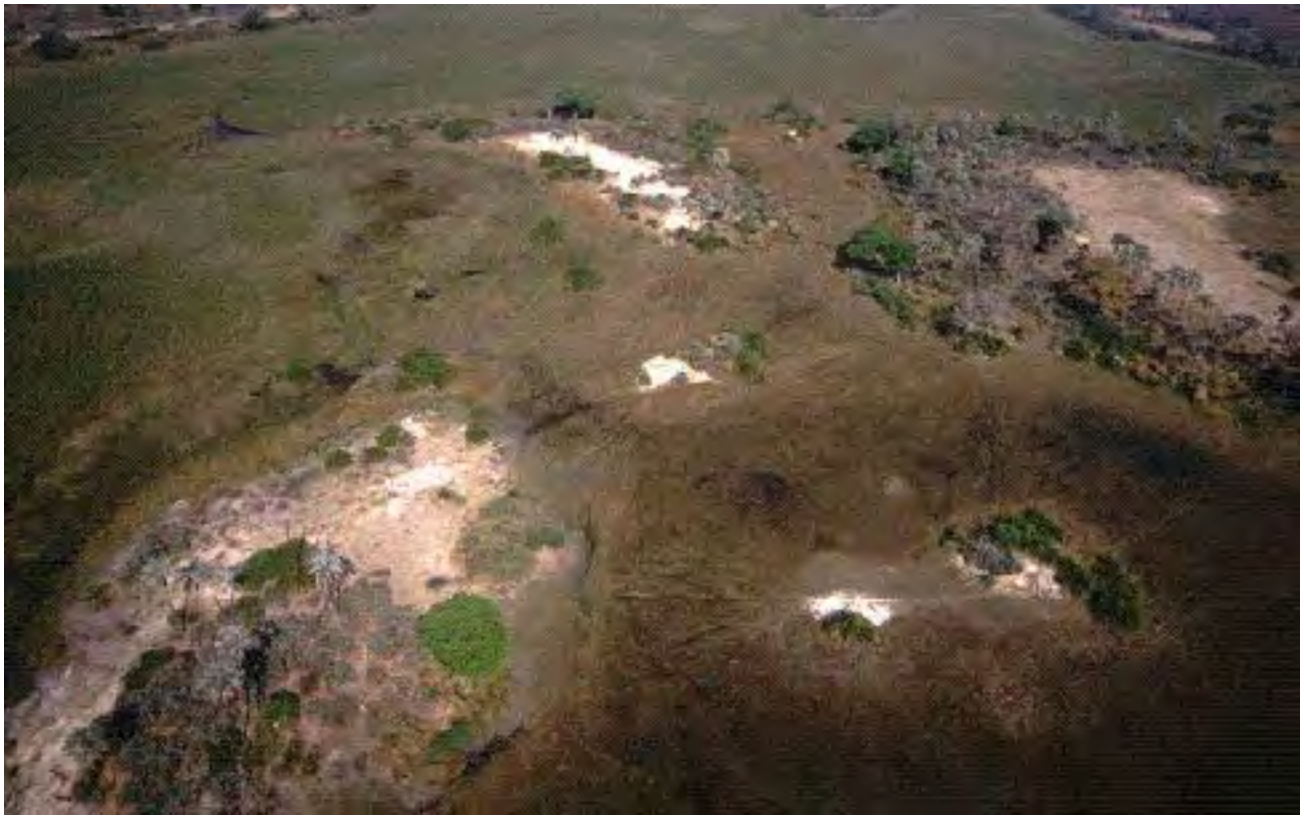
Island types

Riparian forest island

Secondary islands grown from precipitation of chemical sediments

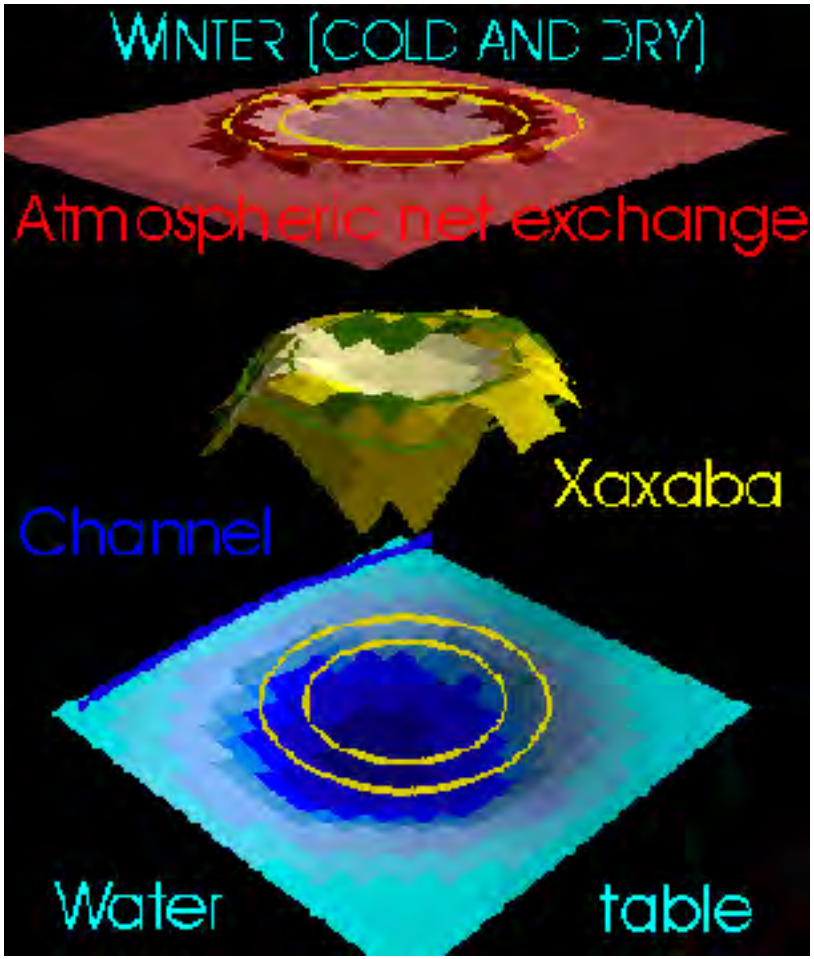
Island types

Salt islands



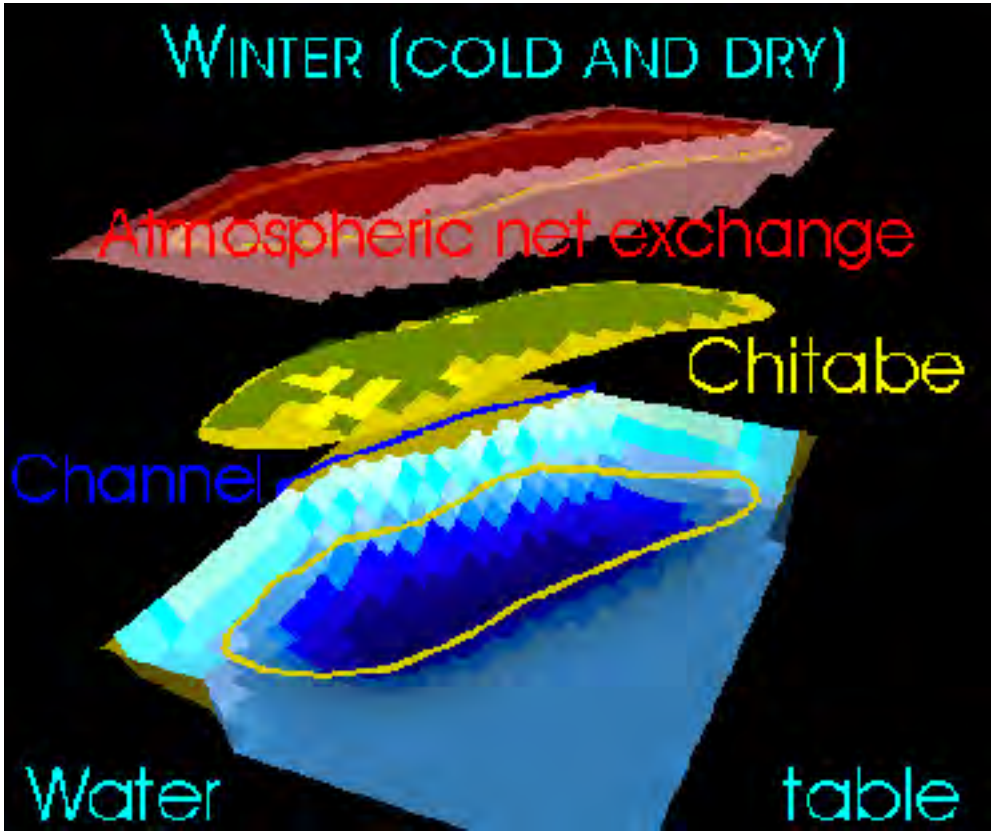
Groundwater flow under an island

In the Permanent swamp



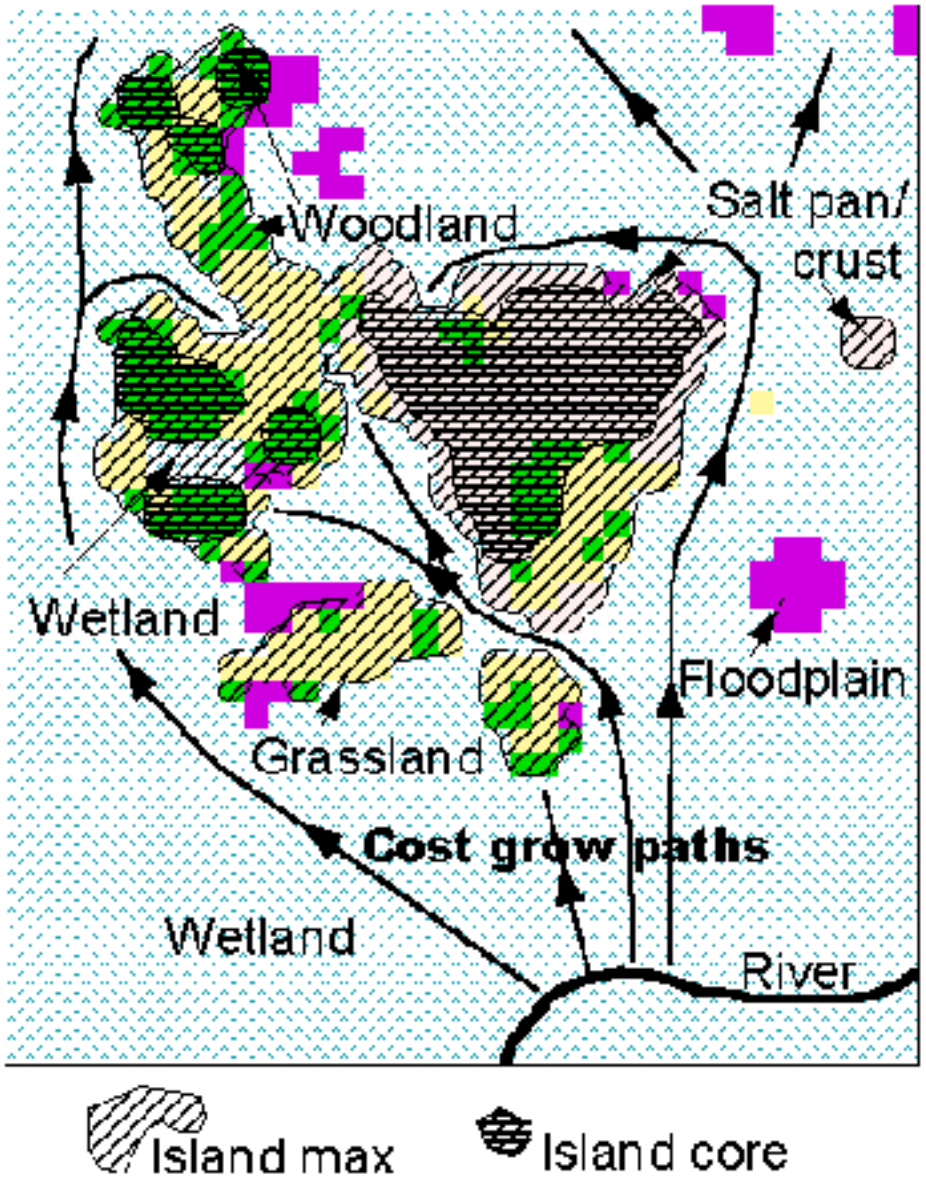
Groundwater flow under an island

In the Seasonal swamp

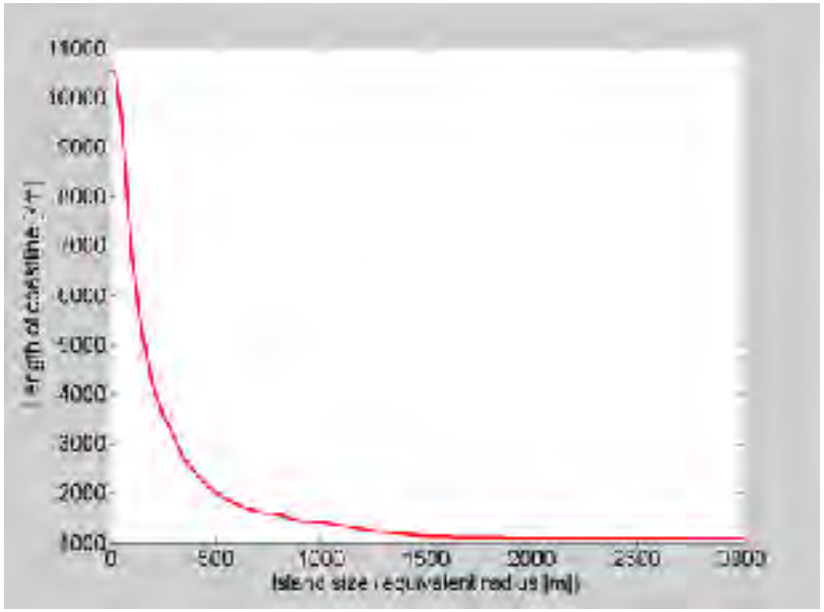


Landcover ecoregions

Island delineation

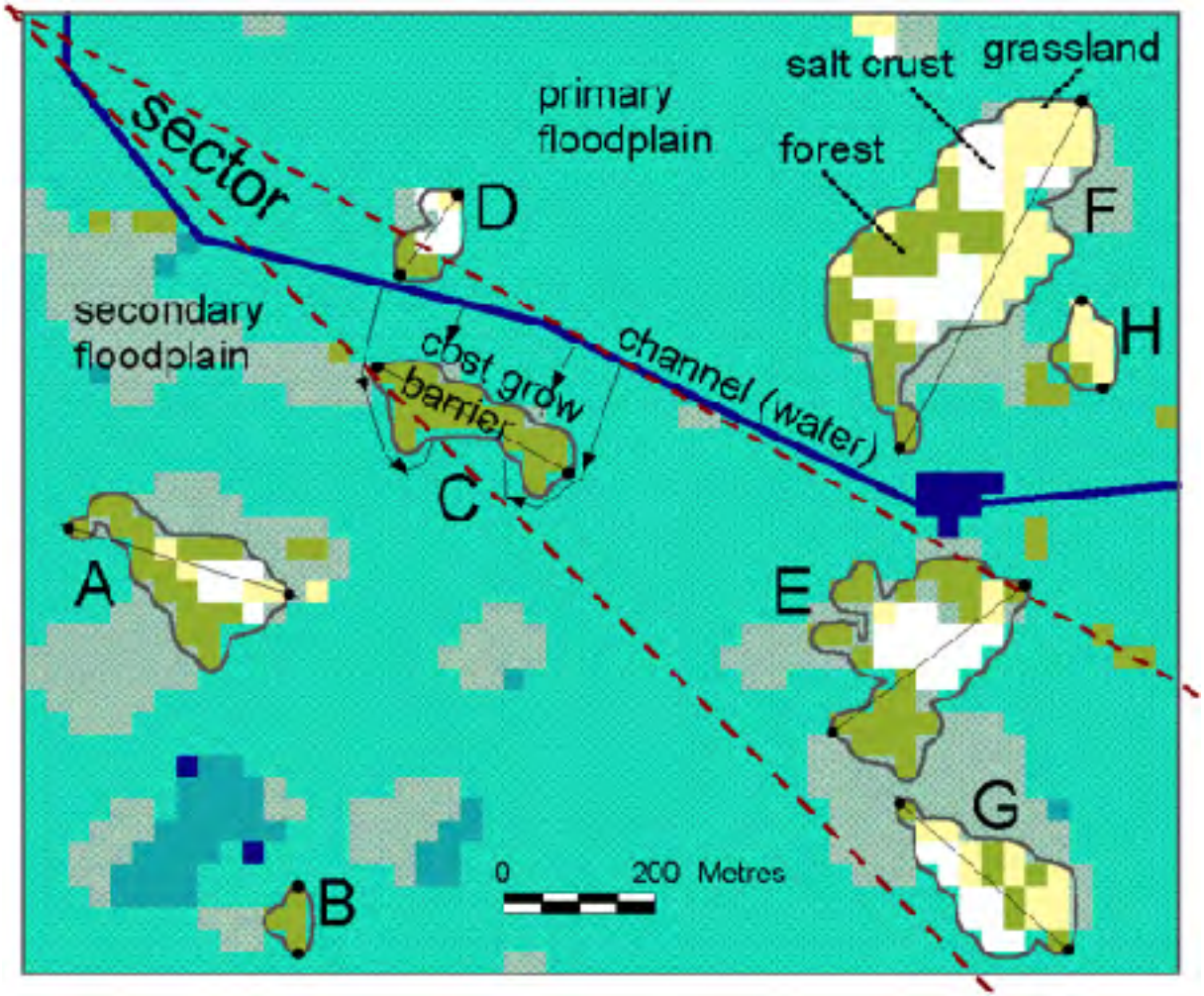


Salt Balance: Coastline from Remote Sensing



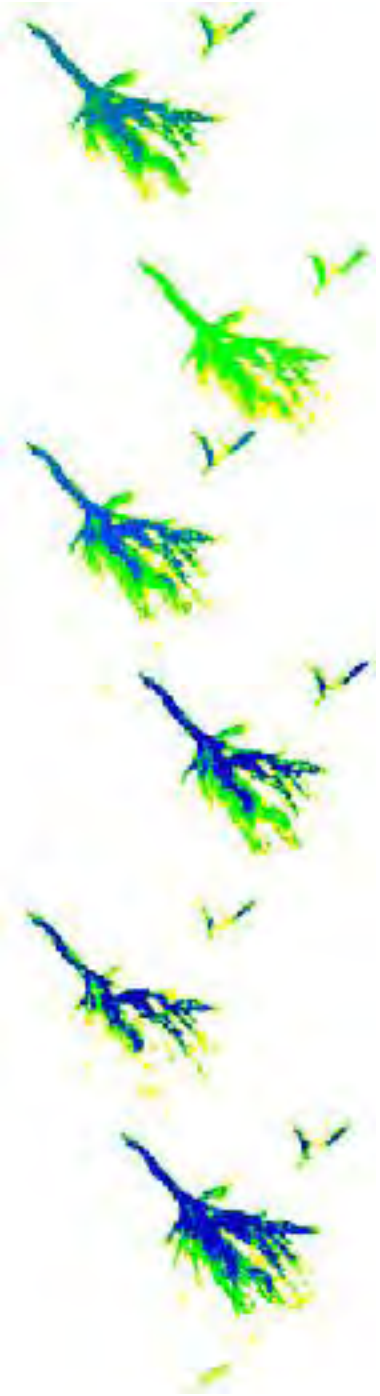
Order of magnitude correct

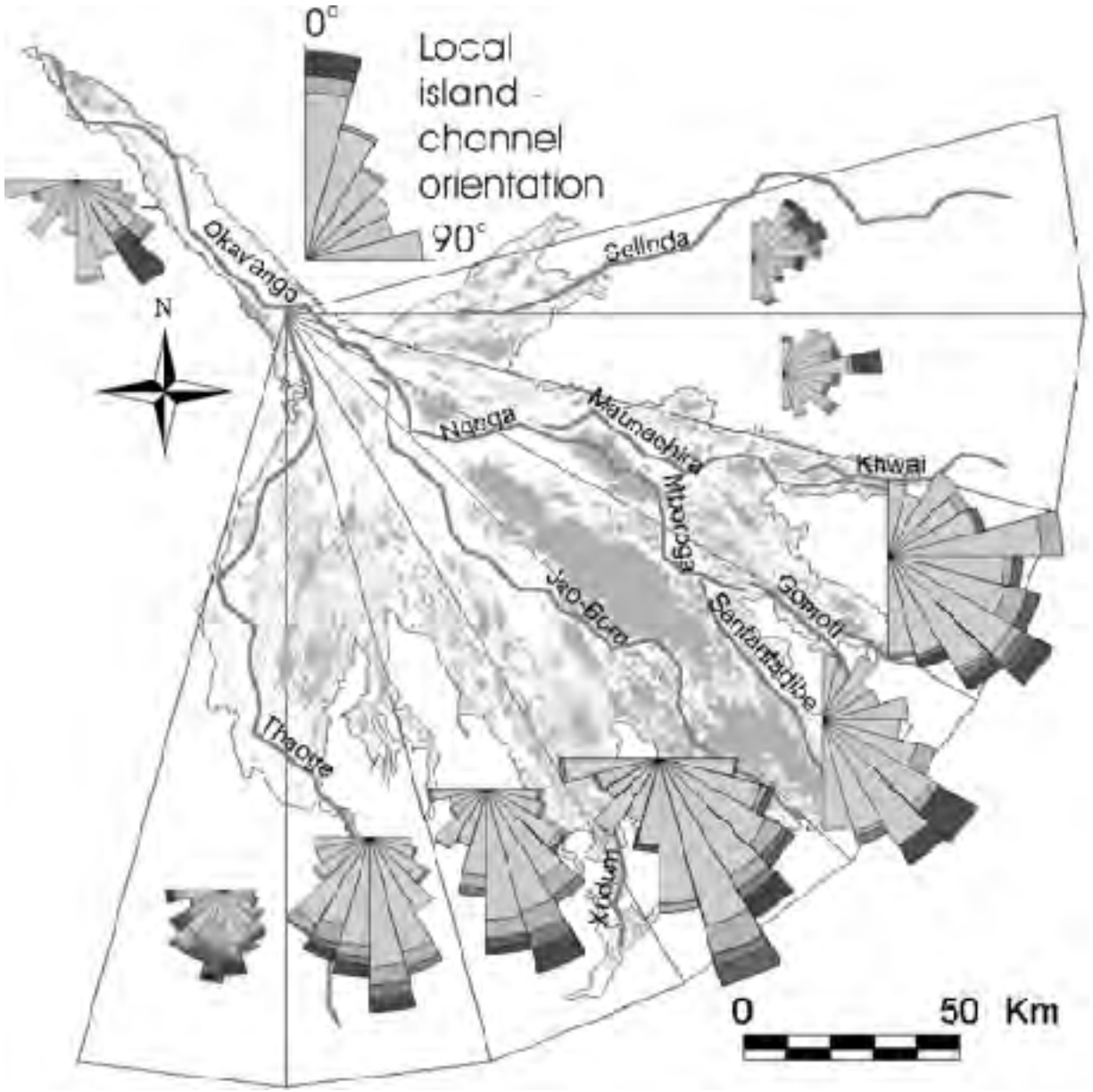
Method: Exploring island orientation

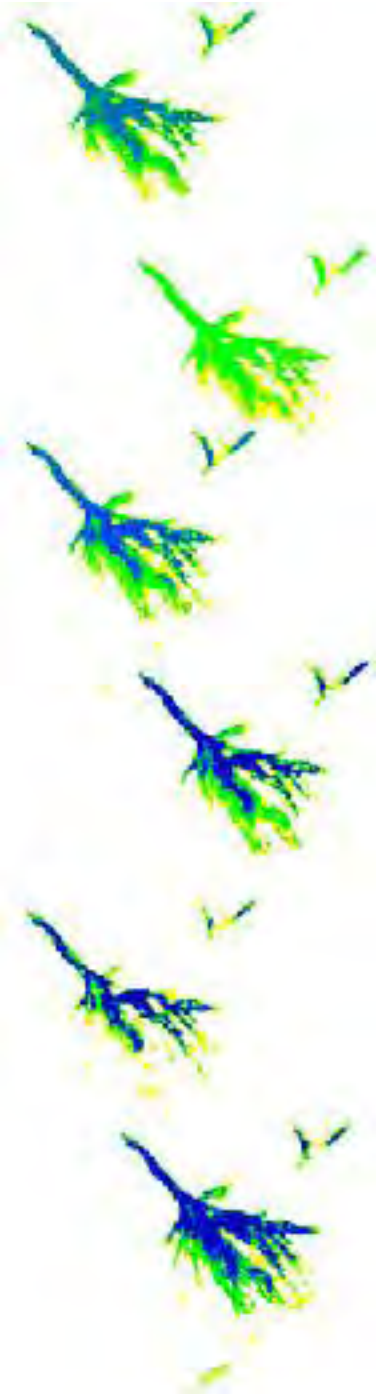


	A	B	C	D	E	F	G	H
Roundness	0.49	0.91	0.51	0.48	0.36	0.47	0.58	0.92
Regional salt position	distal*	na	na	proximal	distal	equal	proximal	na
Channel salt position	front	na	na	back	back	back	back*	na

Result: Island orientation

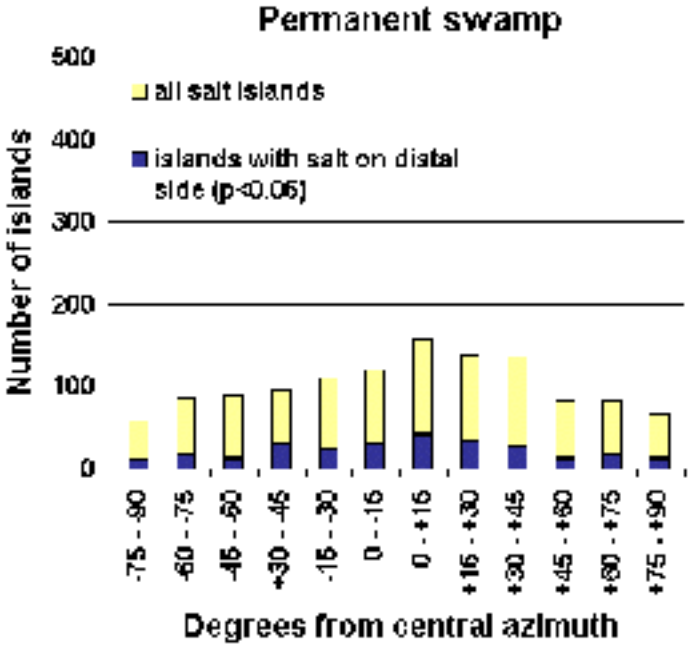


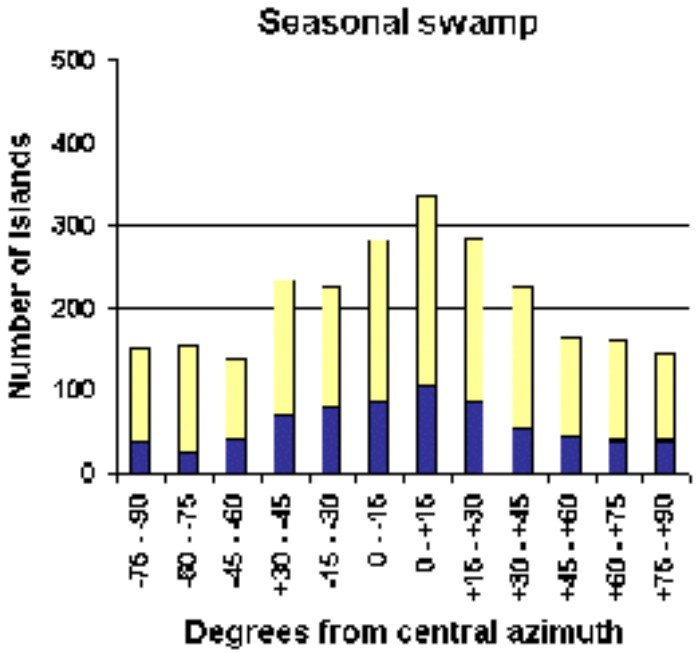


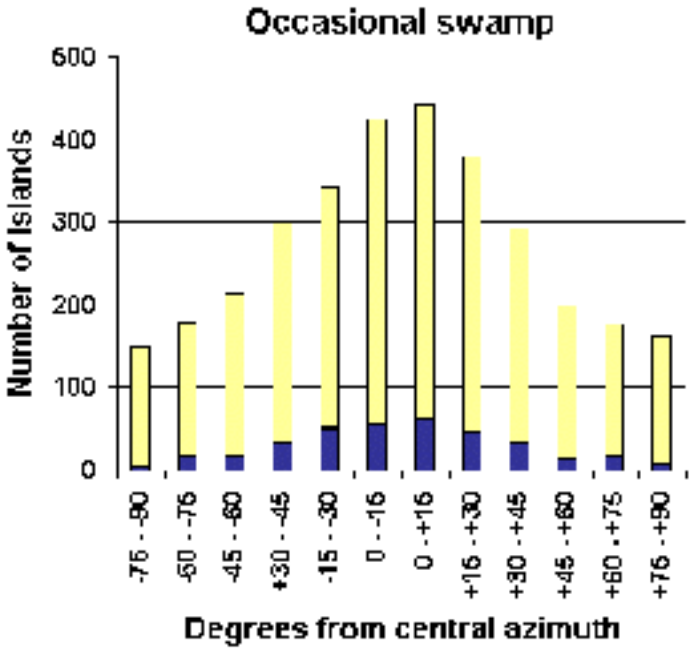


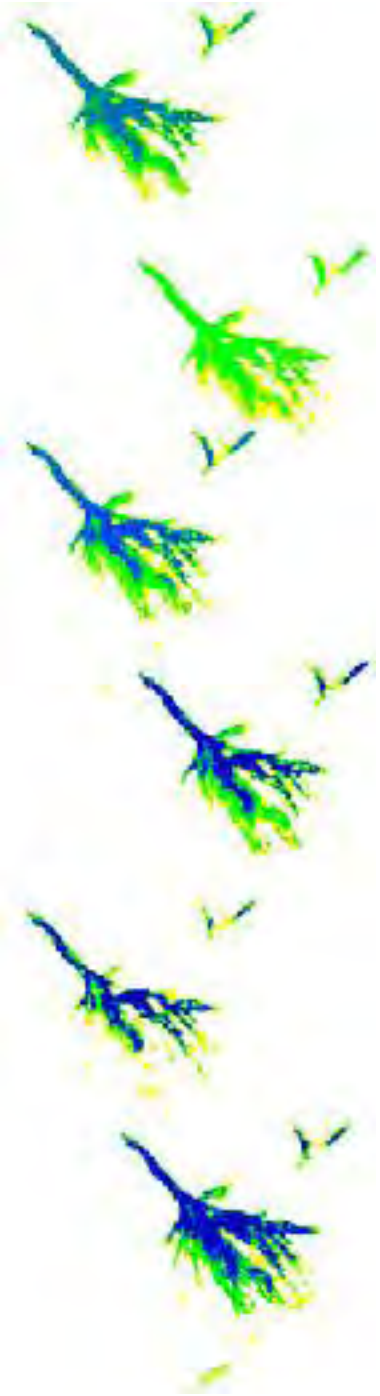
Result:

Island orientation







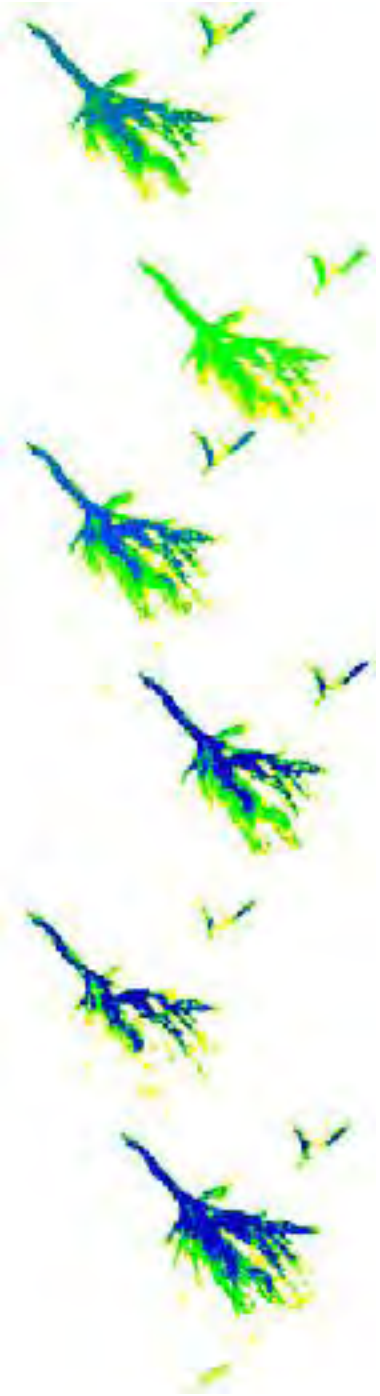


Conculsion

➢Islands in the Okavango Delta are oriented along the azimuth of the Delta surface

➢Distribution of salt crusts suggests that this partly is due to secondary island growth

➢The un-isotropic orientation of islands influences water flow and sediment distribution, and plays a role in the channel switching on the Delta



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