



Mainland

Wadden Sea

Sylt

North Sea

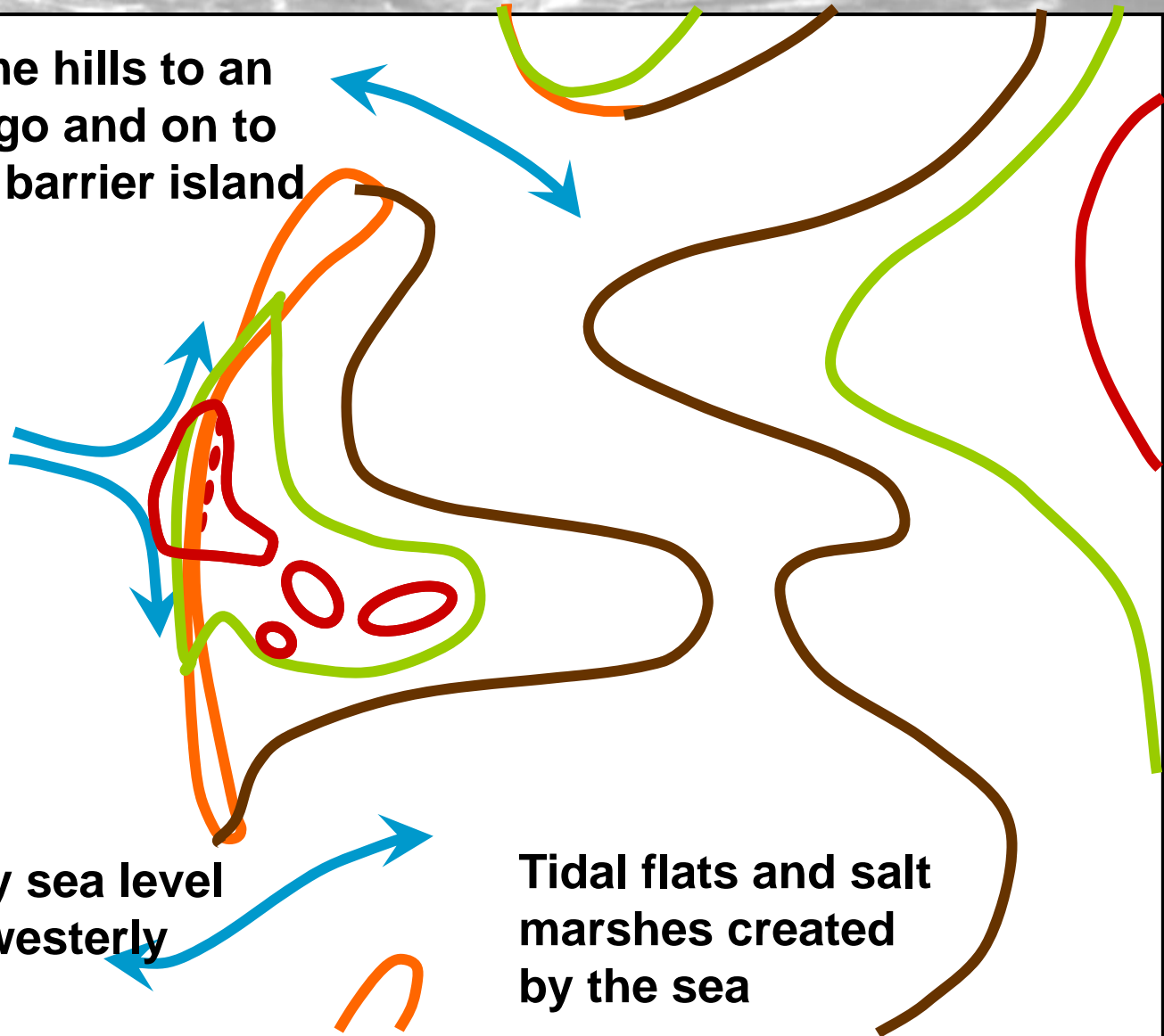
GAF (euromap)

Geological development of Sylt

From some hills to an archipelago and on to a slender barrier island

formed by sea level rise and westerly winds

Tidal flats and salt marshes created by the sea




Sylt in the face of climate change

A common vision for coastal and nature protection in the Wadden Sea

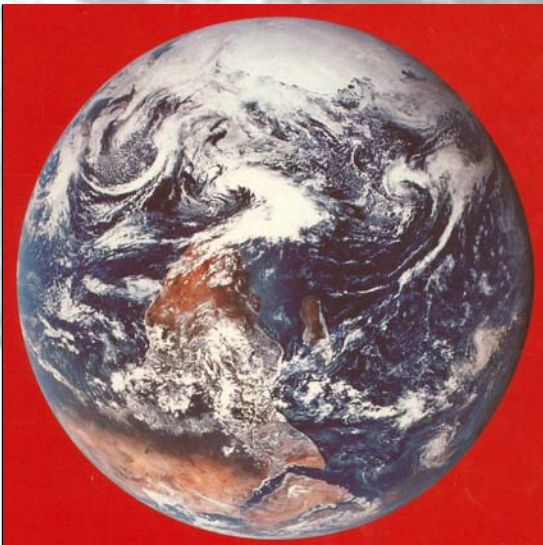
The rising sea

Coastal squeeze and the hunger for sand

Adapting the marsh to sea level

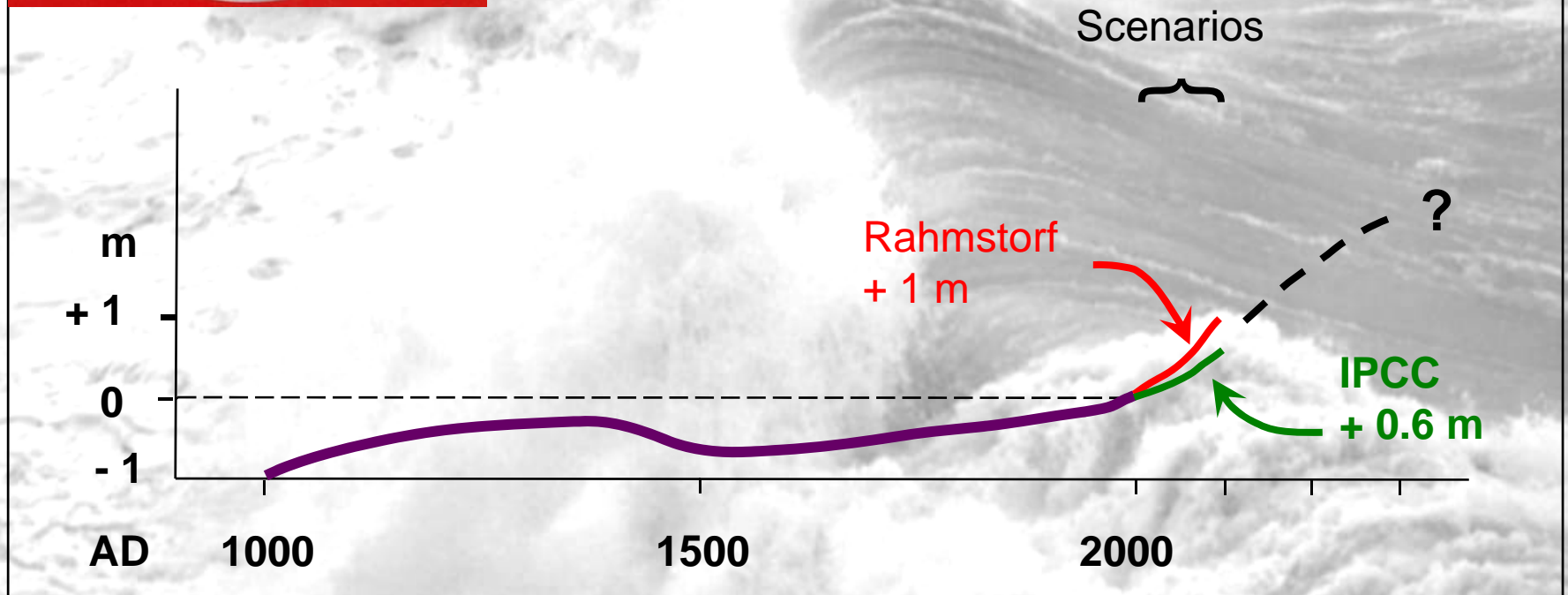
Karsten Reise AWI-Sylt 

René Magritte

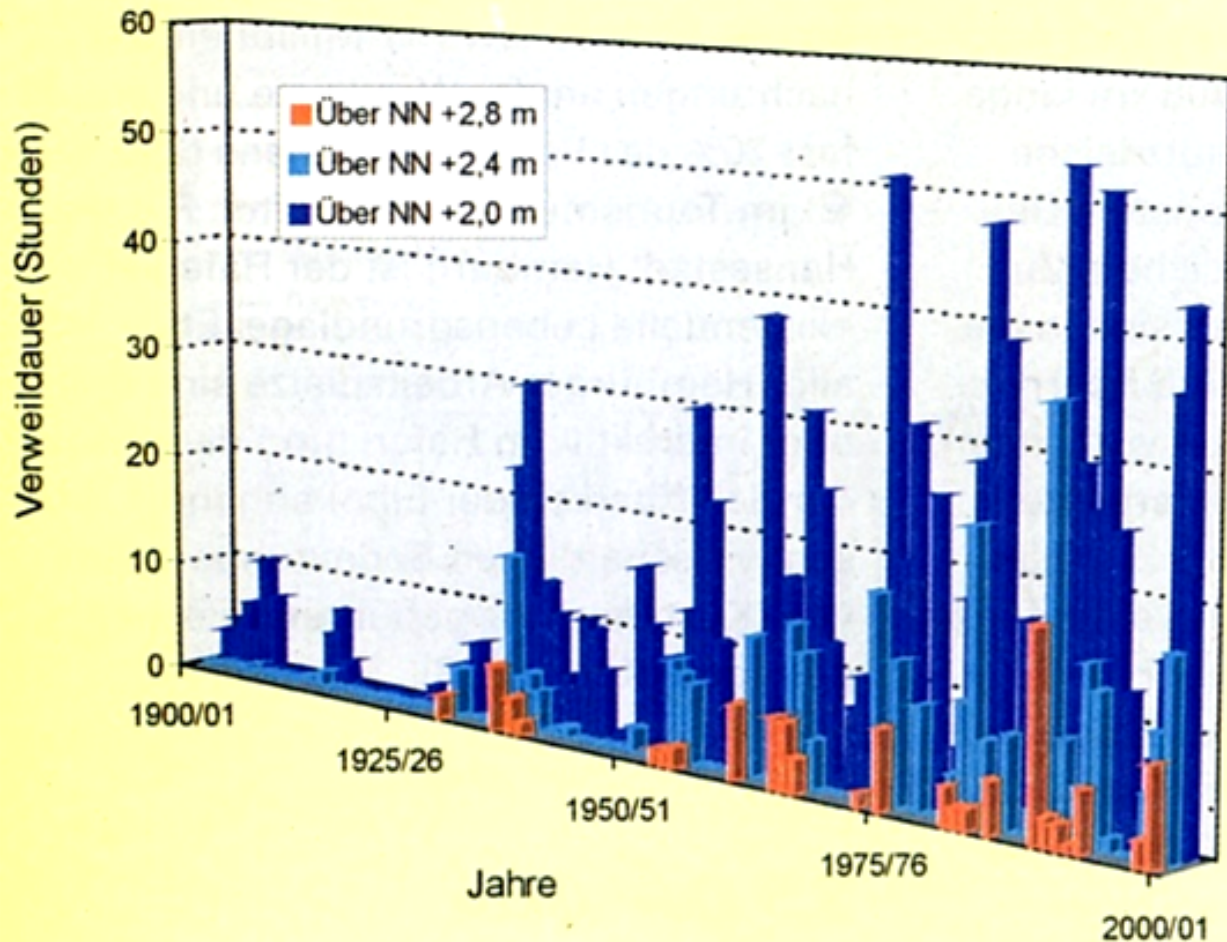


The rising sea

+ ca. 25% German Bight



Stormy North Sea



Duration of storm surge water levels at List tidal gauge since 1900

aus: Generalplan Küstenschutz SH 2001



Mean high tide level in mm per year since 1939

GAF (euromap)



**Sylt needs more
sand from the sea**

**High tide level may rise up to 1 m in this century
because of global warming,
onshore winds, and
seawalls and causeways.**

A black and white photograph of a turbulent ocean. In the foreground, a large, swirling wave is breaking, creating a dense, white foam. The water in the background is dark and choppy, with many small waves and ripples. The overall mood is one of power and intensity.

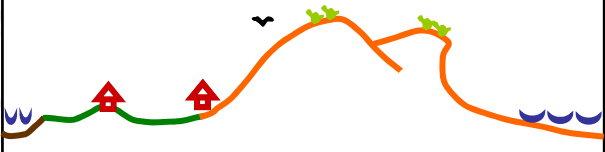
History of Rantum

**Luxury for some but
many have to pay.**

Alt – Rantum 1

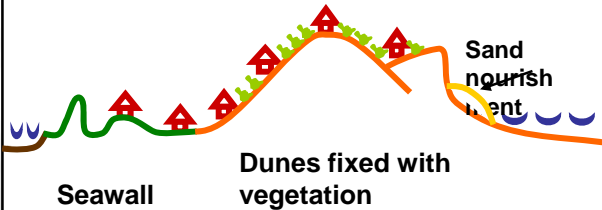


Alt – Rantum 2



Rantum - today

The diagram shows a cross-section of a coastal profile. From left to right, it features a seawall, a series of dunes fixed with vegetation (indicated by green dots), and a sand nourishment area (indicated by a yellow circle). The sea is represented by blue wavy lines on the left, and the land is shown in brown. The dunes are marked with red house icons, and the sand nourishment area is marked with blue wavy lines.



**Luxury for some but
many have to pay.**

An aerial photograph of Sylt, Germany, showing the coastline, beach, dunes, and the town of Westerland. The beach is crowded with people, and the dunes are green. The town is built on the dunes, with many buildings and roads. The sea is visible on the left.

The hard core of Sylt

**Sand nourishment
for Sylt**

**since 1972
36 Mill. m³
for
146 Mill. €**

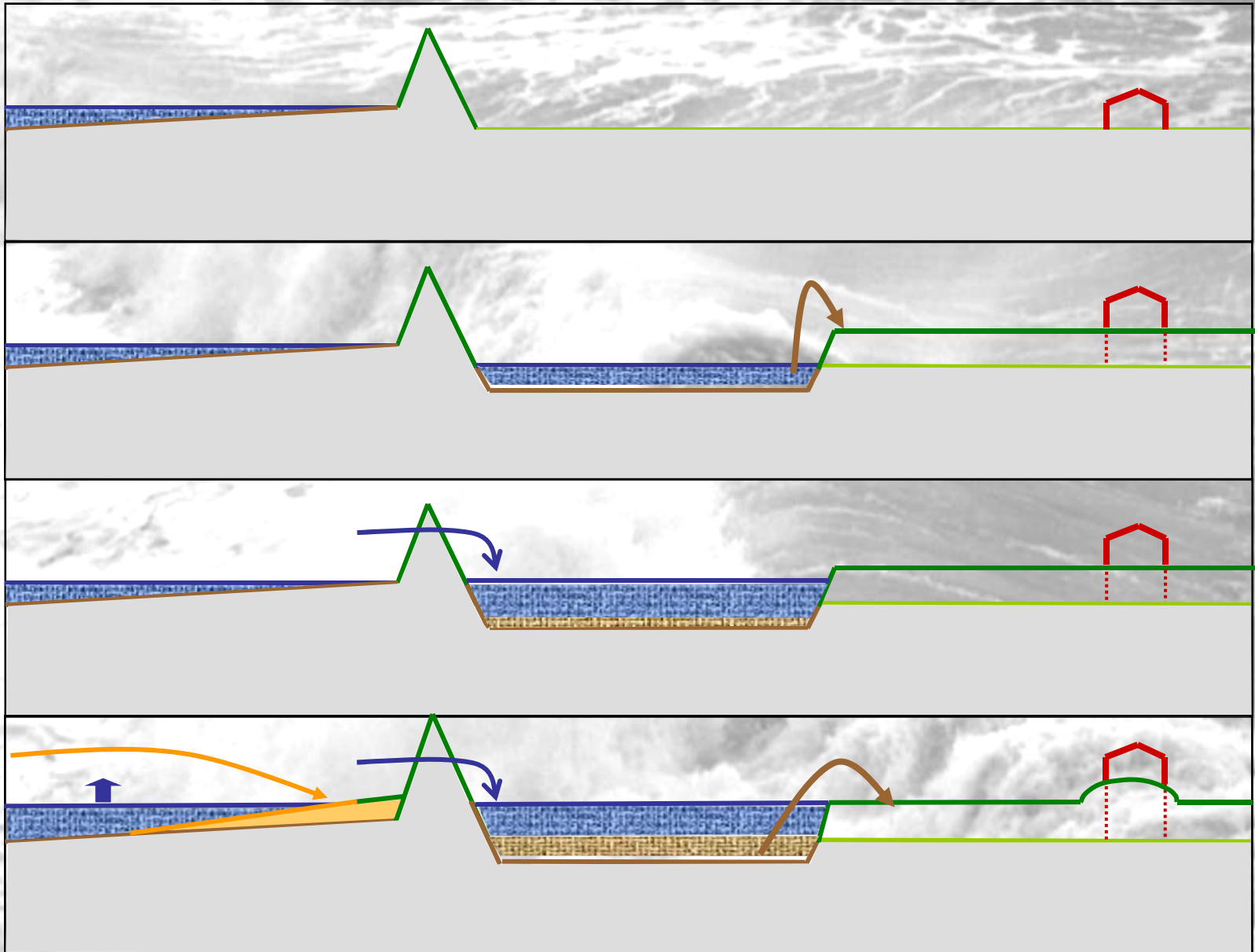
**200-m zone without buildings:
Would 100 years of coastal
defence cost more than new
buildings >200 m away from the
beach ?**

Rantumer Bucht with sandy islets from 1972

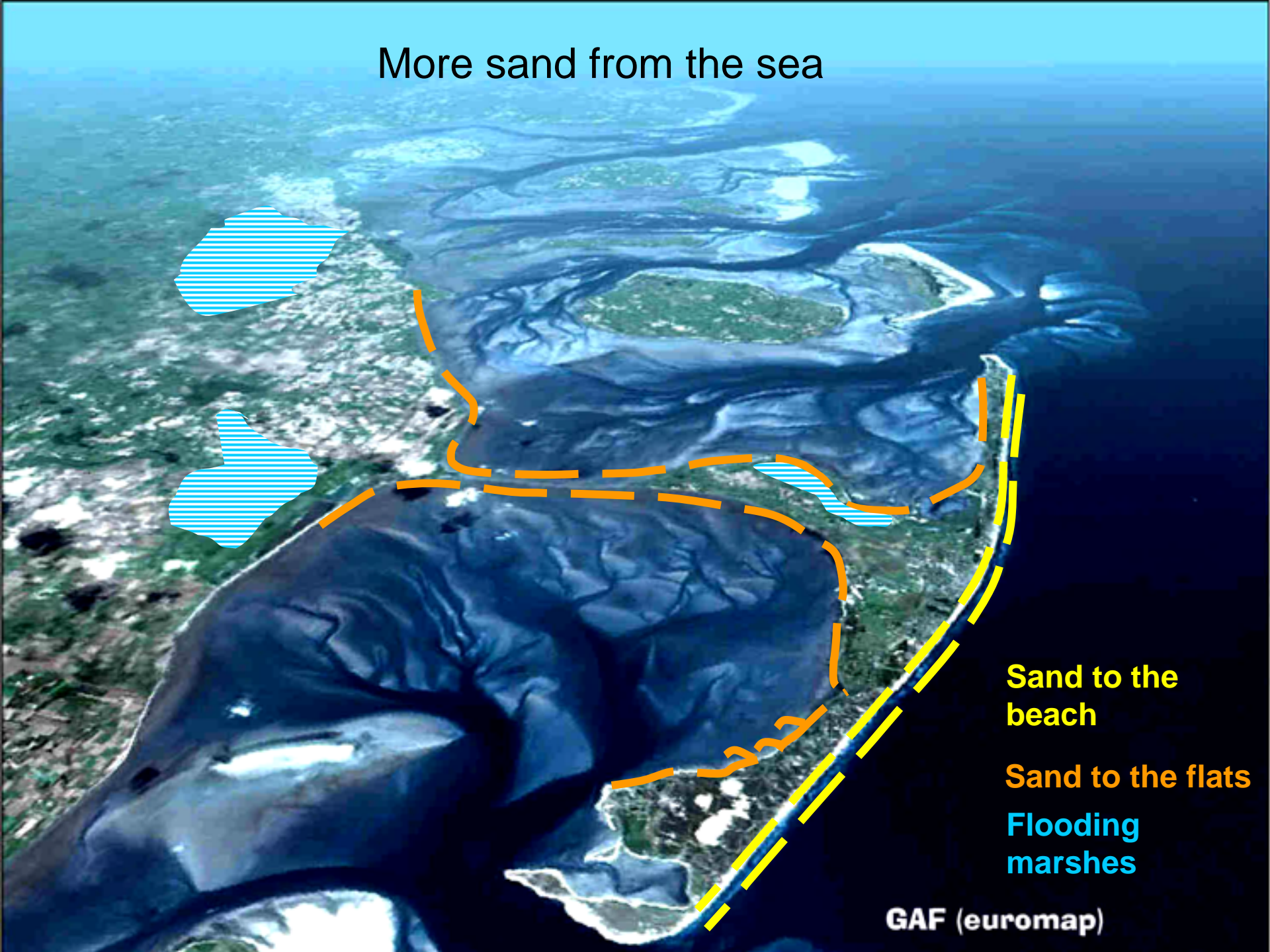


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Marshes need to rise with the sea



More sand from the sea



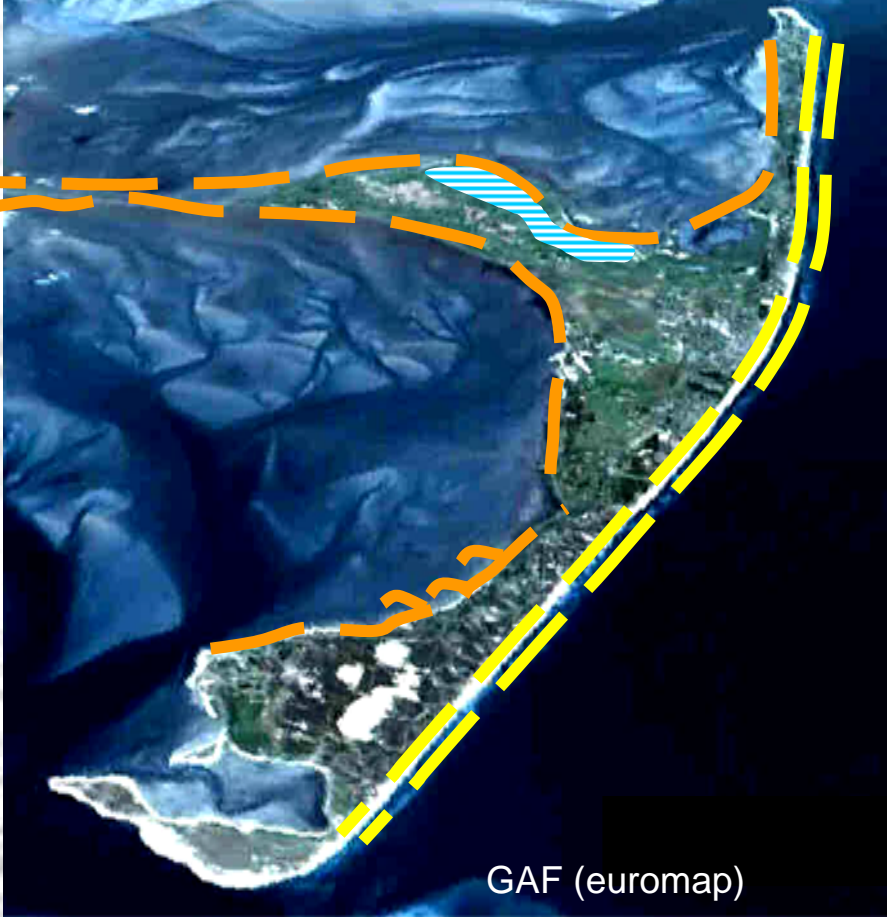
Sand to the beach

Sand to the flats

Flooding marshes

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Silt and climate change: a chance ?



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**Reducing greenhouse gas
emissions**

More sand from the sea

Buildings for a limited time

Sea-landscape without barriers