# WP6 Spanish
# Costa Brava site

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E.T. Mendoza, A. Sánchez-Arcilla

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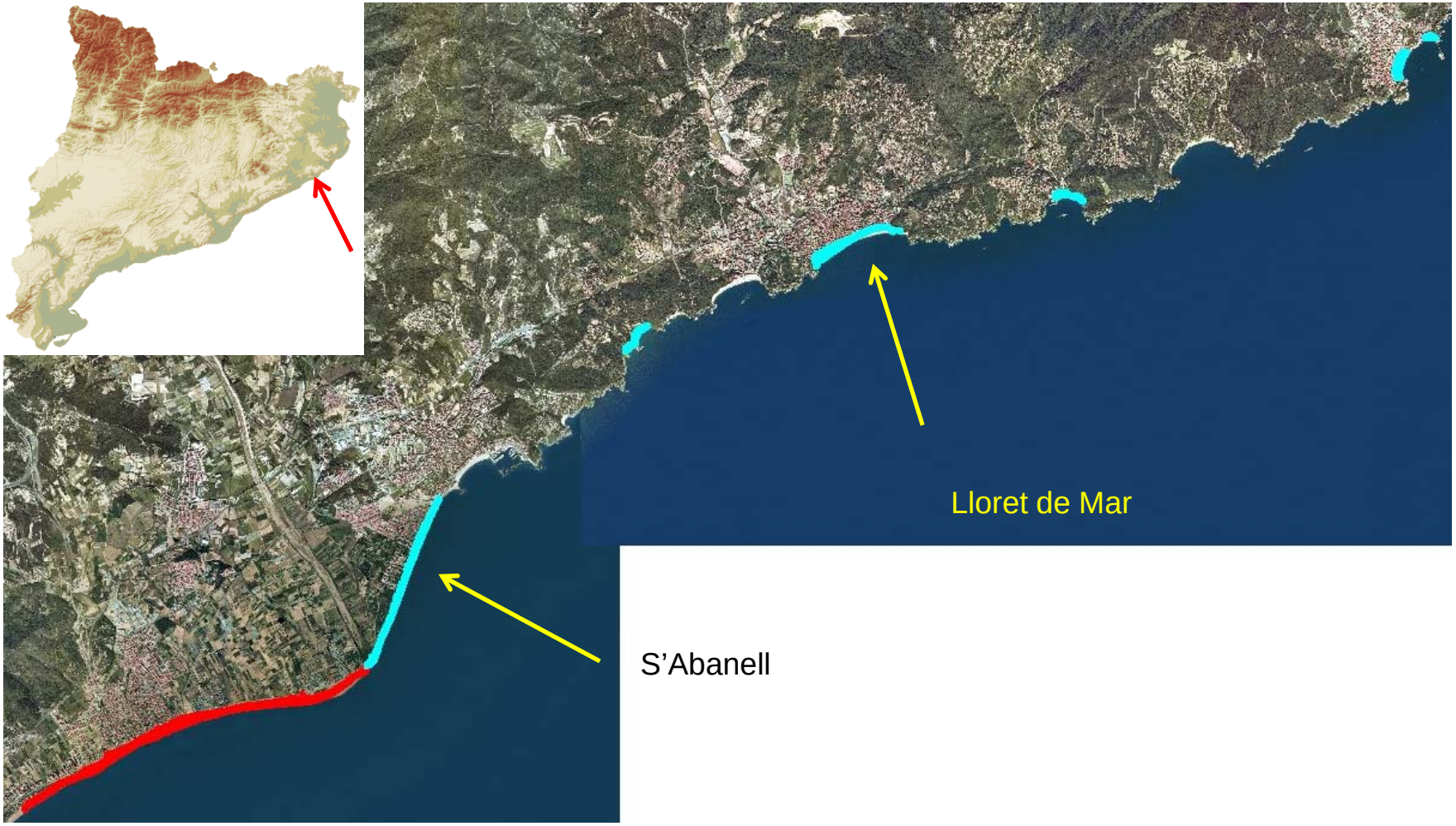
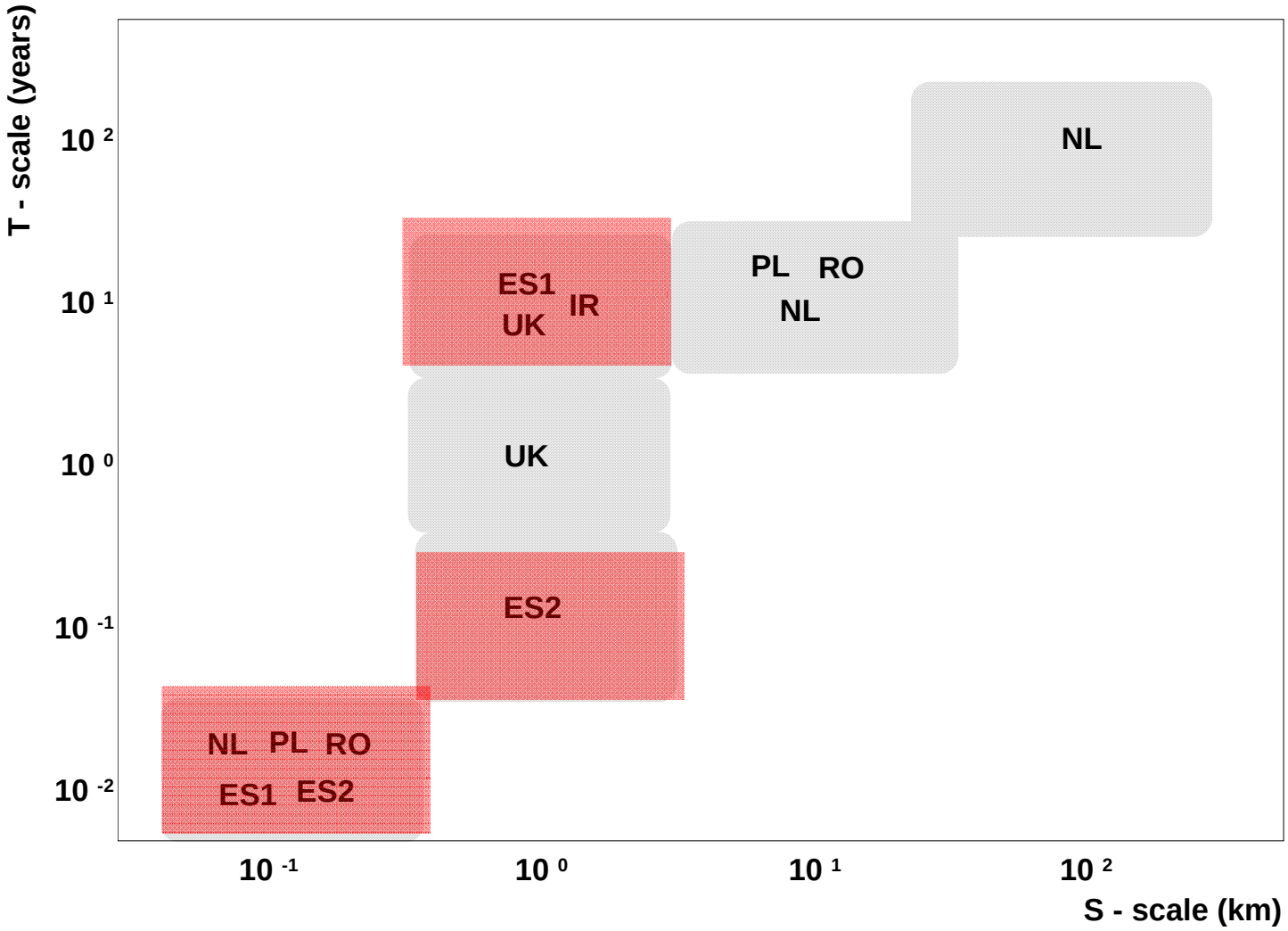
***ETSECCPB***
***Universitat Politècnica de Catalunya***


Lloret de Mar
S’Abanell


T - scale (years)
10 2
10 1
10 0
10 -1
10 -2
NL
ES1
UK
IR
PL
RO
NL
UK
ES2
NL
PL
RO
ES1
ES2
10 -1
10 0
10 1
10 2
S - scale (km)

# Site 1 S'Abanell beach - Spain

Length – 2.5 km
Width – 40 m

**Processes**

Long-term (decadal) erosion

Storm-induced erosion

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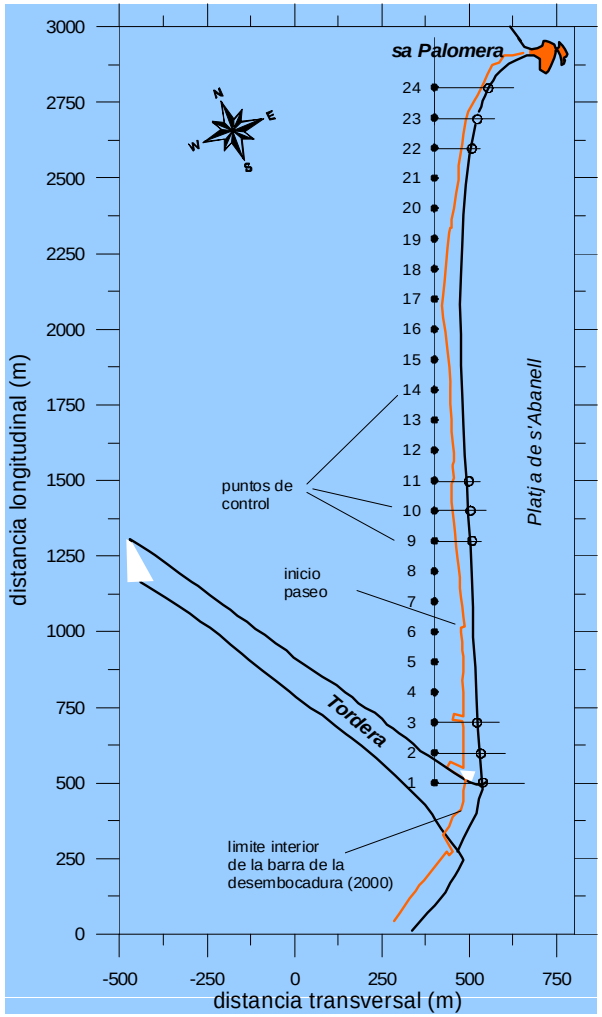
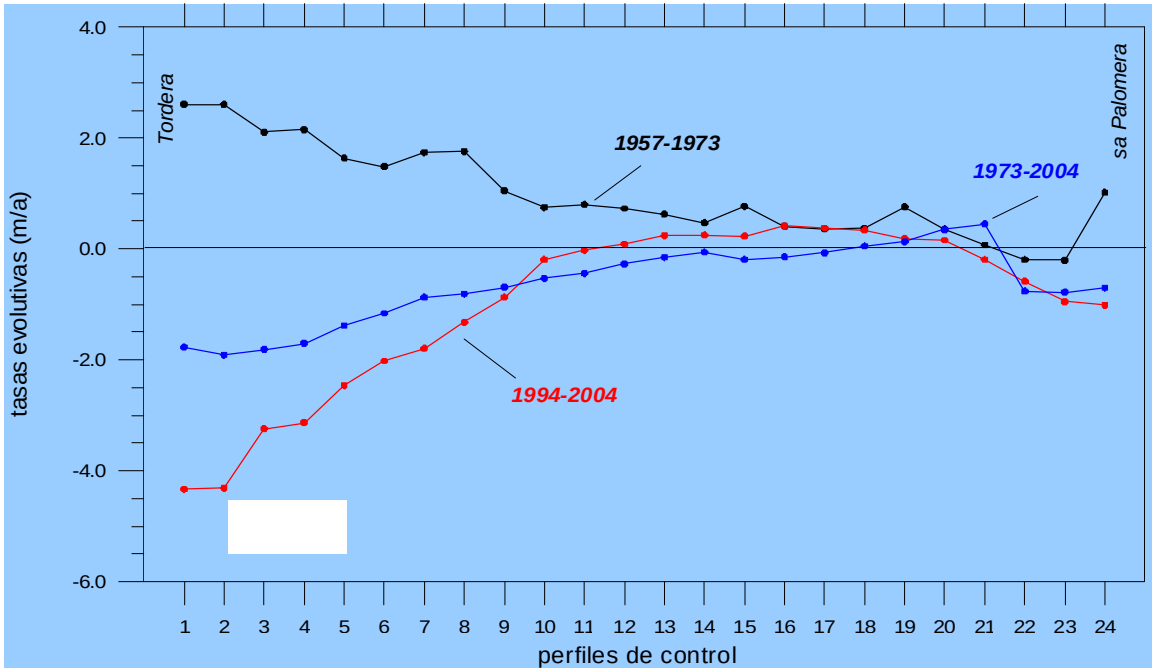
# Beach long-term (decadal) evolution



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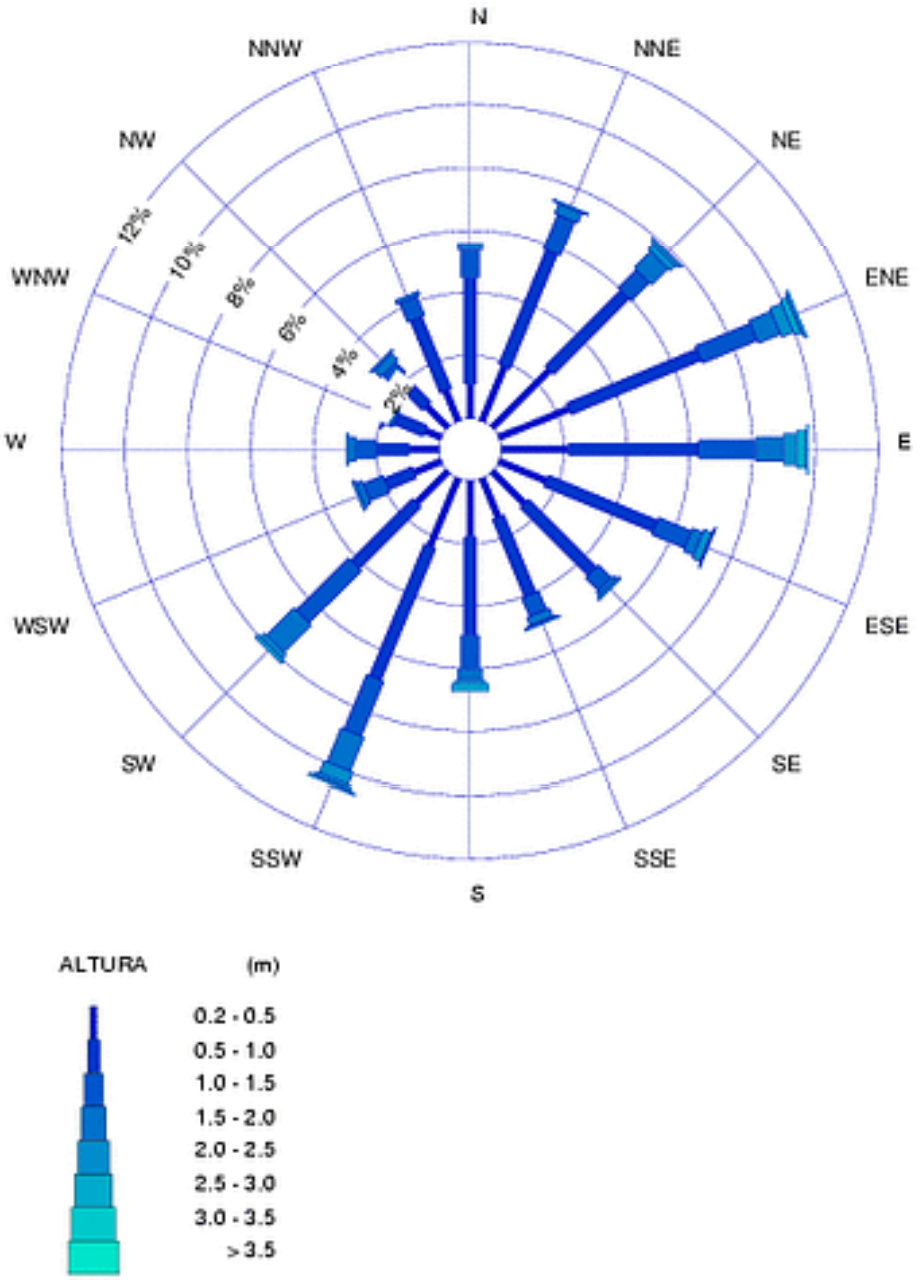


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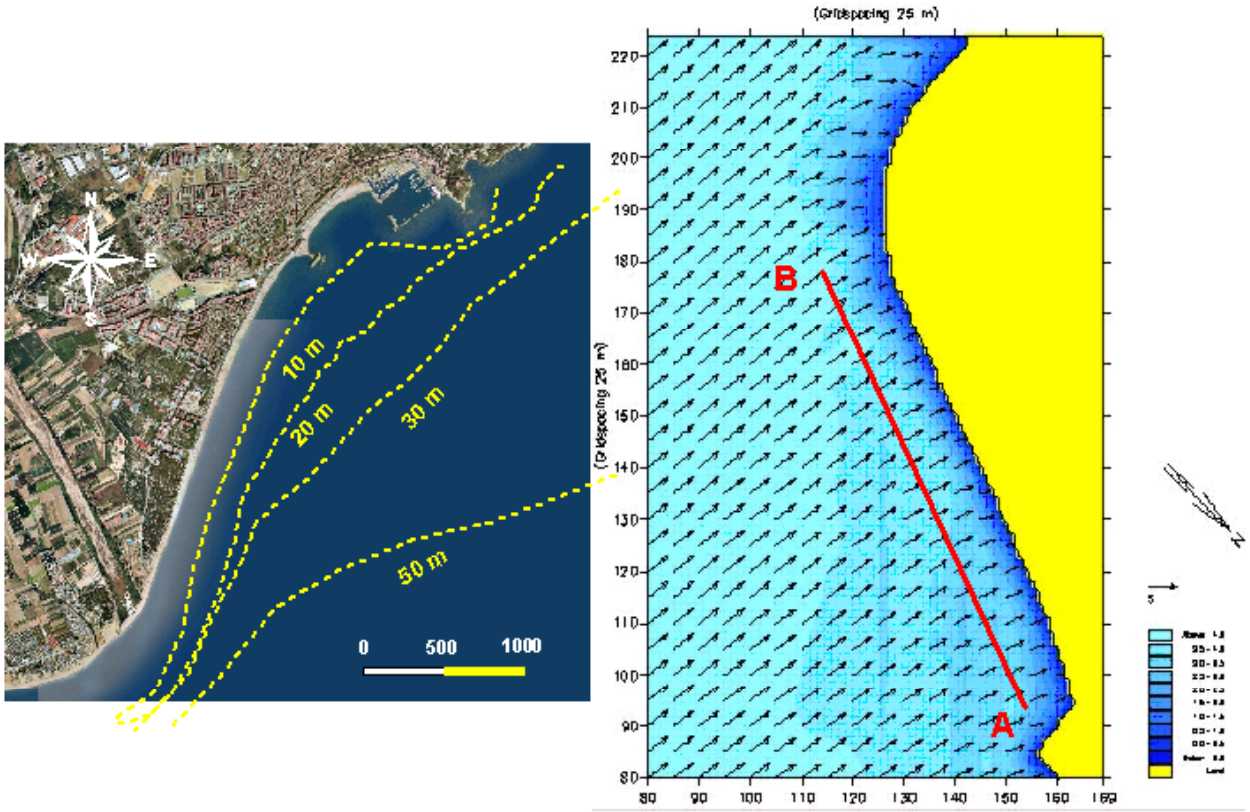


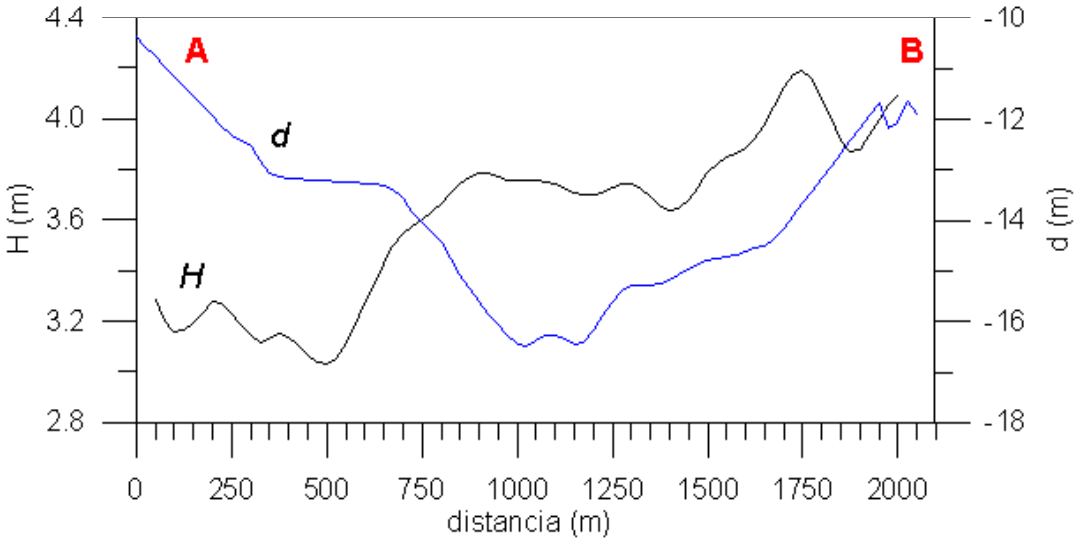


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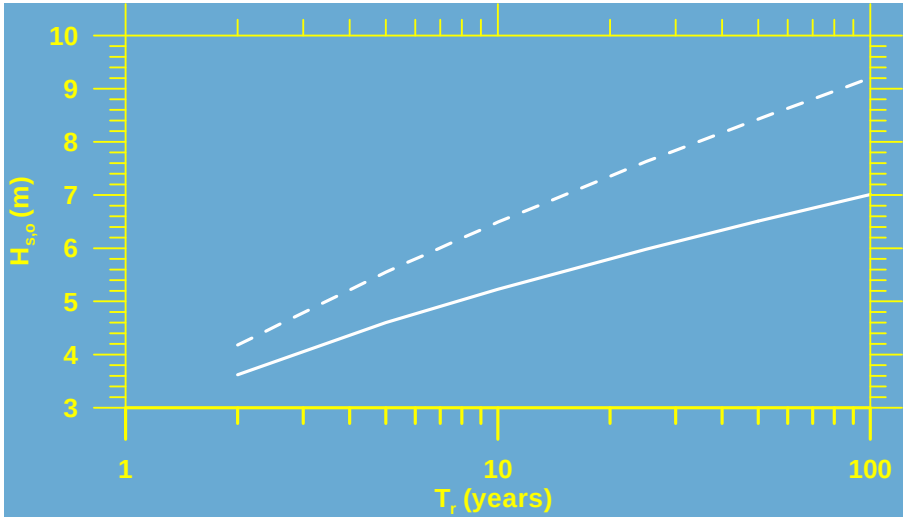
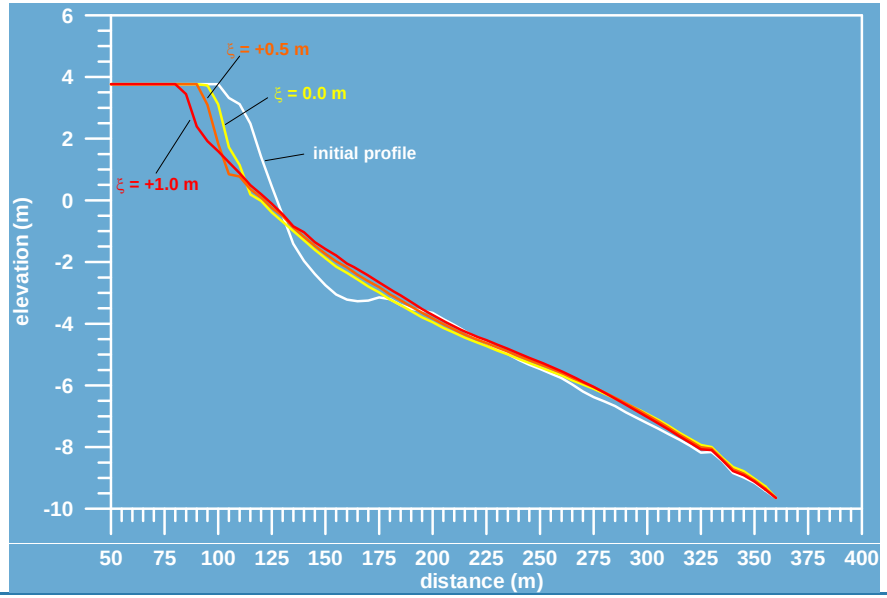
## Storm induced erosion

- Extreme wave climate




- Beach erosion modelling



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**Problem:** Damage of Infrastructures

**Objective:** Enhance safety of infrastructures

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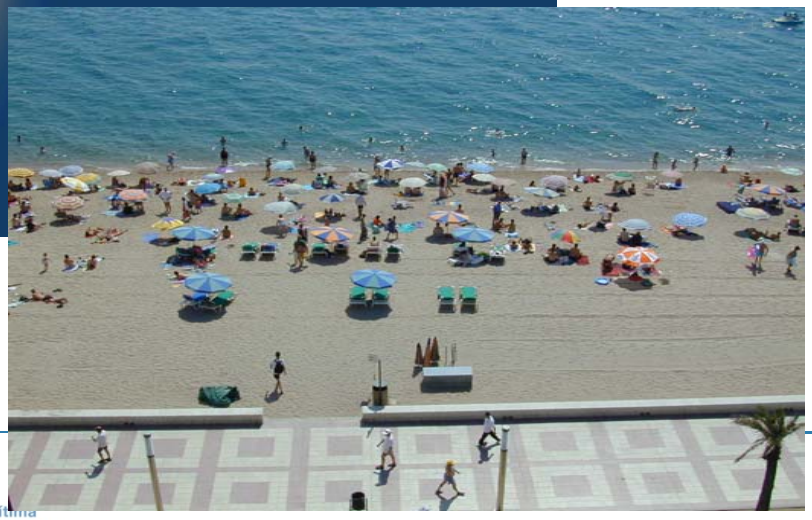
**Problem:** Affectation of beach use

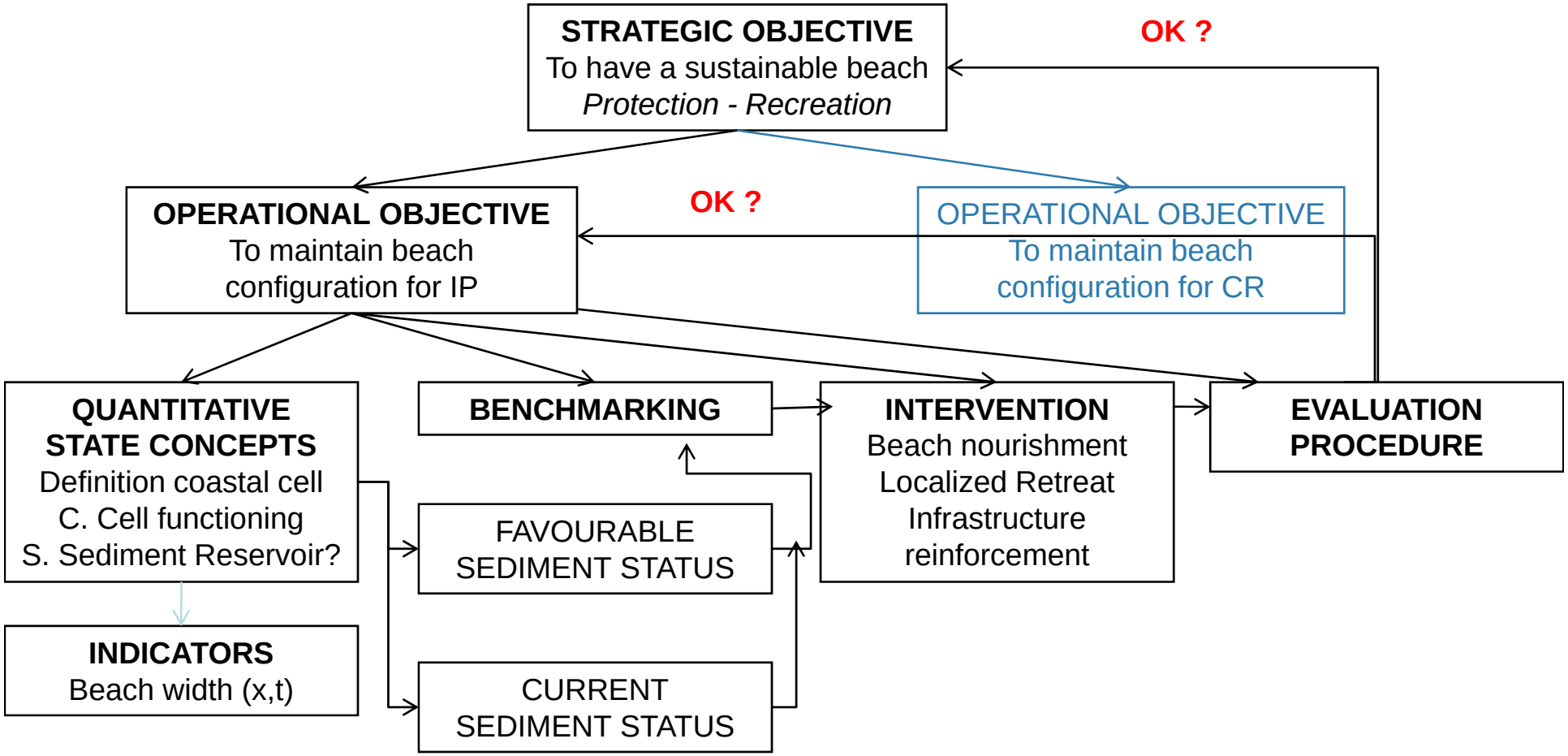
**Objective:** Maintain recreational carrying capacity



## FAVOURABLE SEDIMENT STATUS

- WINTER (stormy period) – ***Protecting infrastructures***:
  Volume of sediment required to generate a beach wider than the one to be eroded by storms (Tr to be selected ).

- SUMMER (calm period) – ***Recreational carrying capacity***:
  Volume of sediment required to generate a beach wide enough to accomodate users (~ 30 m ).


STRATEGIC OBJECTIVE
To have a sustainable beach
Protection - Recreation
OK ?
OPERATIONAL OBJECTIVE
To maintain beach configuration for IP
OK ?
OPERATIONAL OBJECTIVE
To maintain beach configuration for CR
QUANTITATIVE STATE CONCEPTS
Definition coastal cell
C. Cell functioning
S. Sediment Reservoir?
BENCHMARKING
INTERVENTION
Beach nourishment
Localized Retreat
Infrastructure reinforcement
EVALUATION PROCEDURE
INDICATORS
Beach width (x,t)
FAVOURABLE SEDIMENT STATUS
CURRENT SEDIMENT STATUS

ep. de 2006
2009
Image © 2009 Institut Cartogràfic de Catalunya
Image © 2009 DigitalGlobe
31 T 481987.47 m E 4612088.86 m N elev. 1 m

Image © 2009 Institut Cartogràfic de Catalunya
Image © 2009 DigitalGlobe

**Nov 2007**
**~ 180,000 m3**

# Site 2 Lloret de Mar beach- Spain

Length –1.2 km
Width – 50 m

**Processes**

Long-term (decadal) equilibrium
+ shoreline seasonal fluctuations (sediment redistribution within the cell)
+ storm-induced erosion

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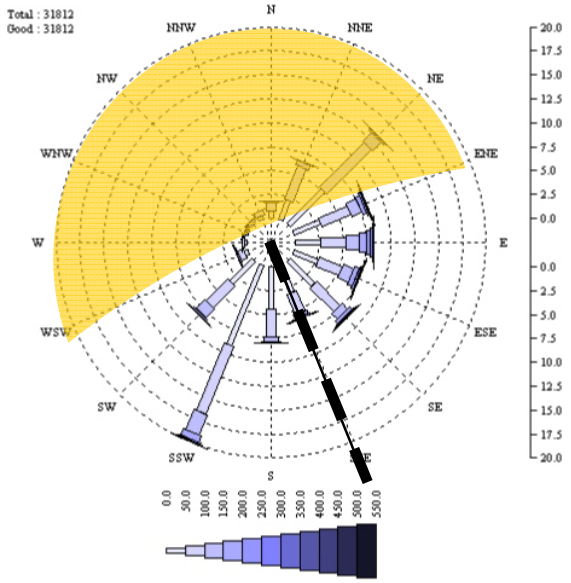


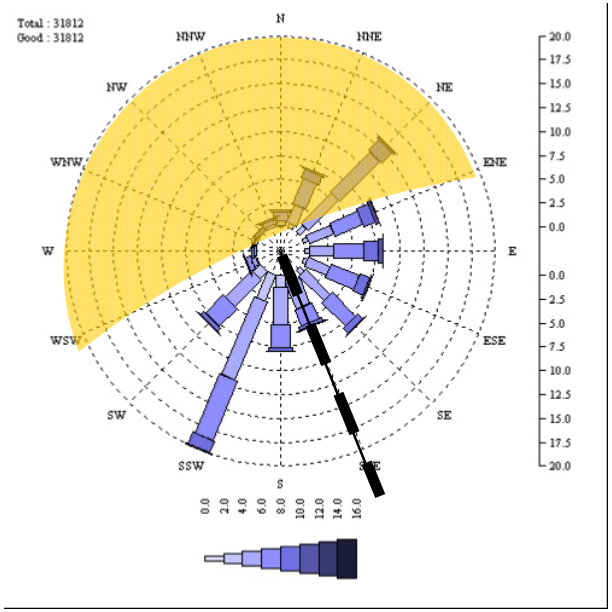


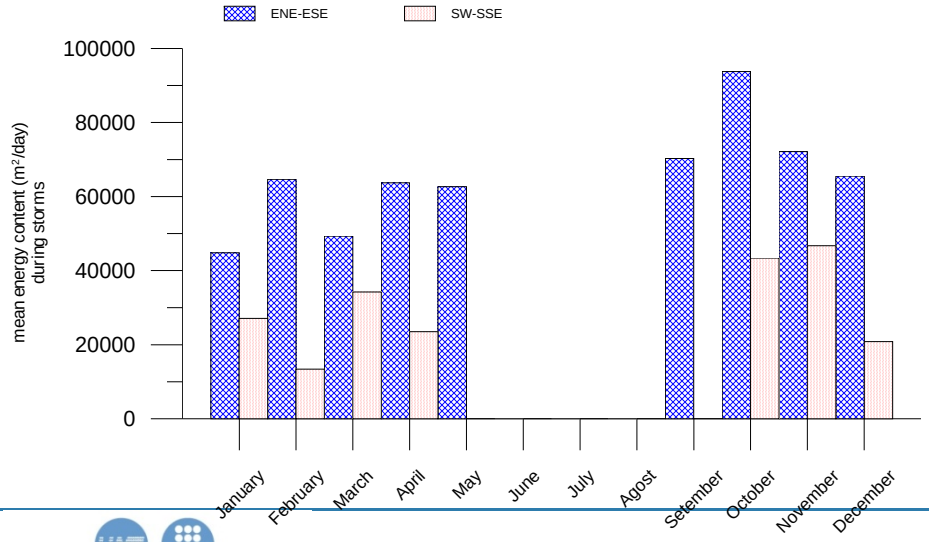


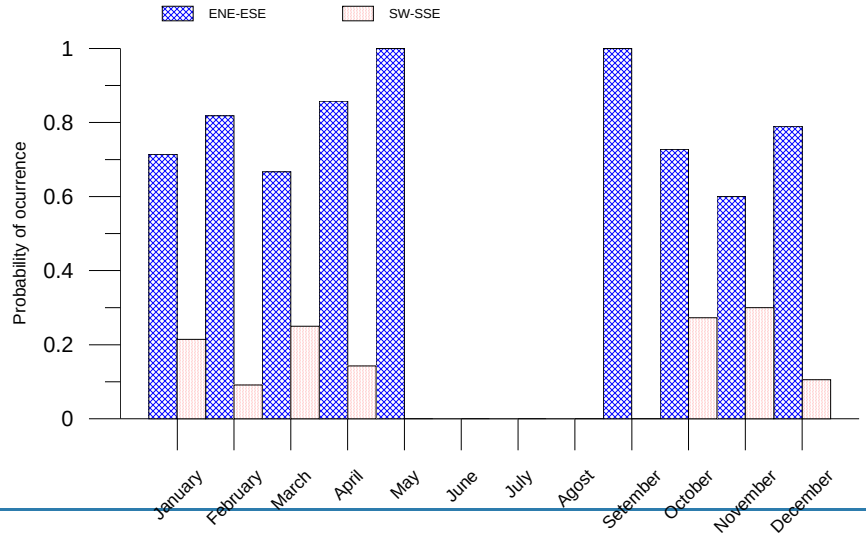


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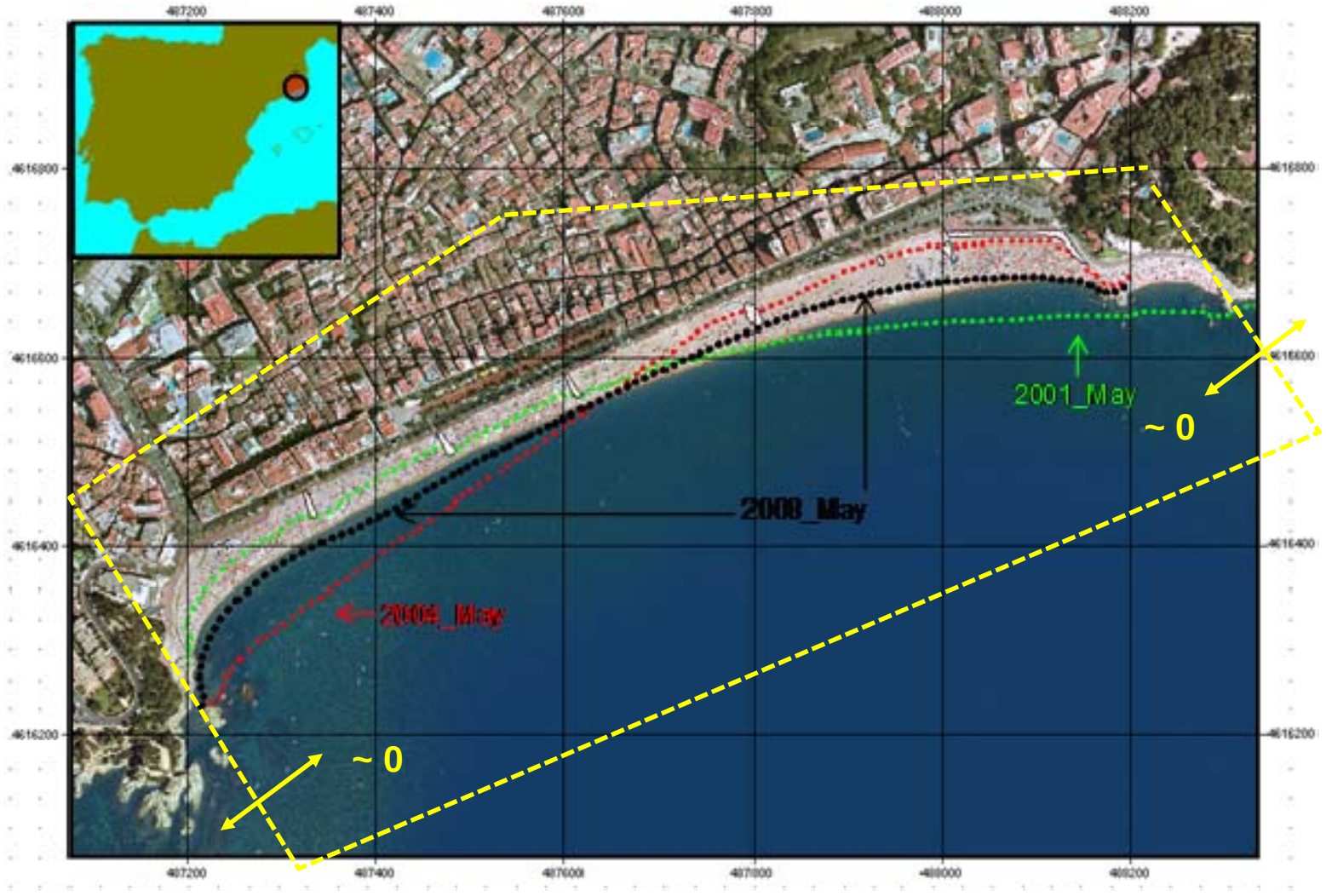
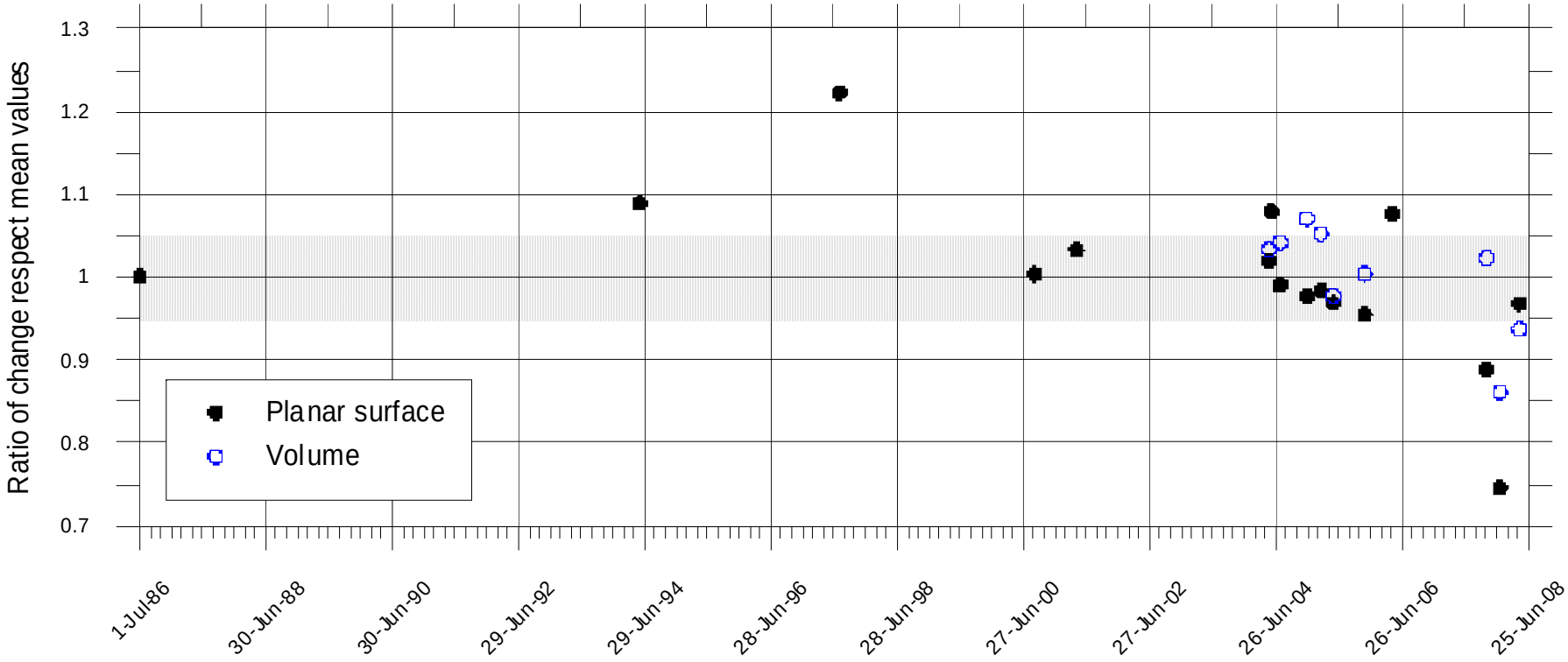


# Beach long-term (decadal) evolution



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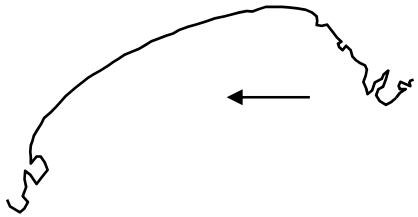
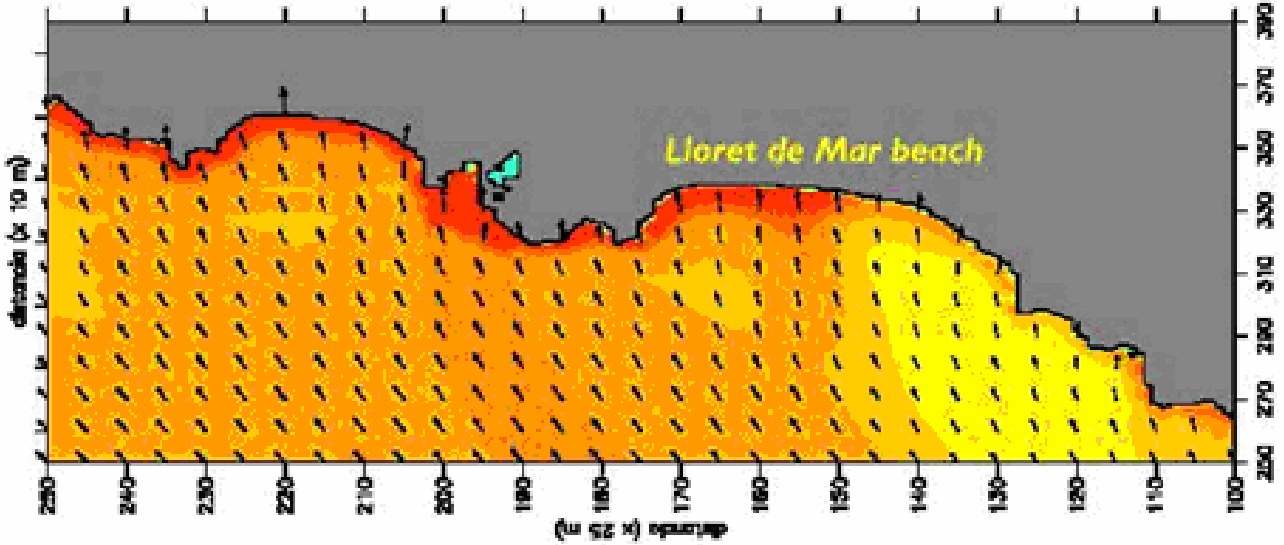
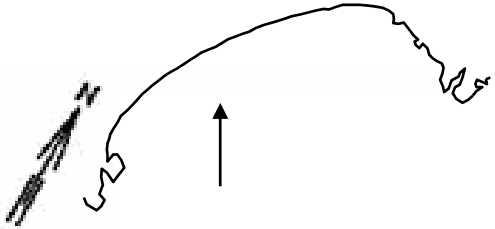
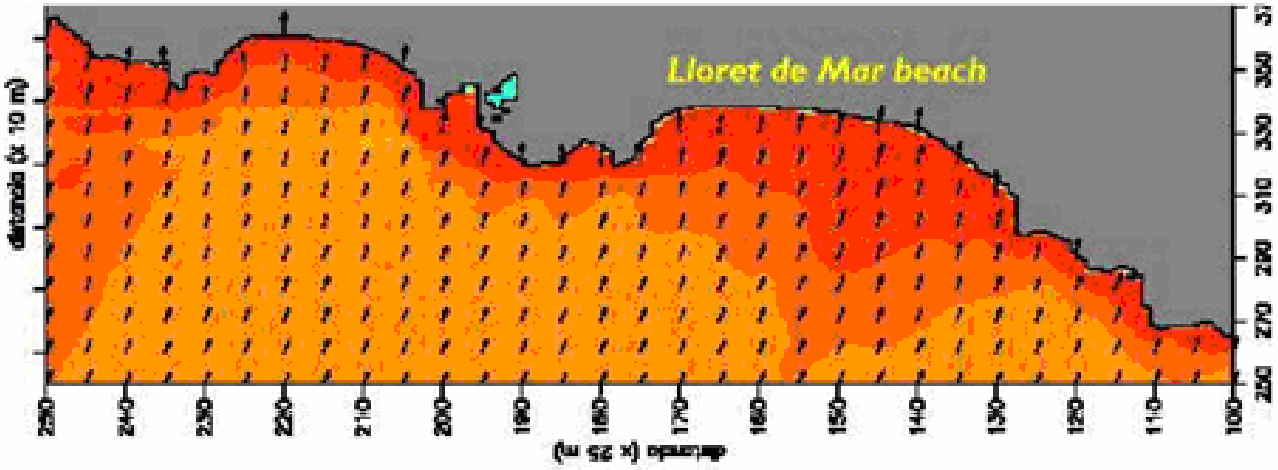
East






South



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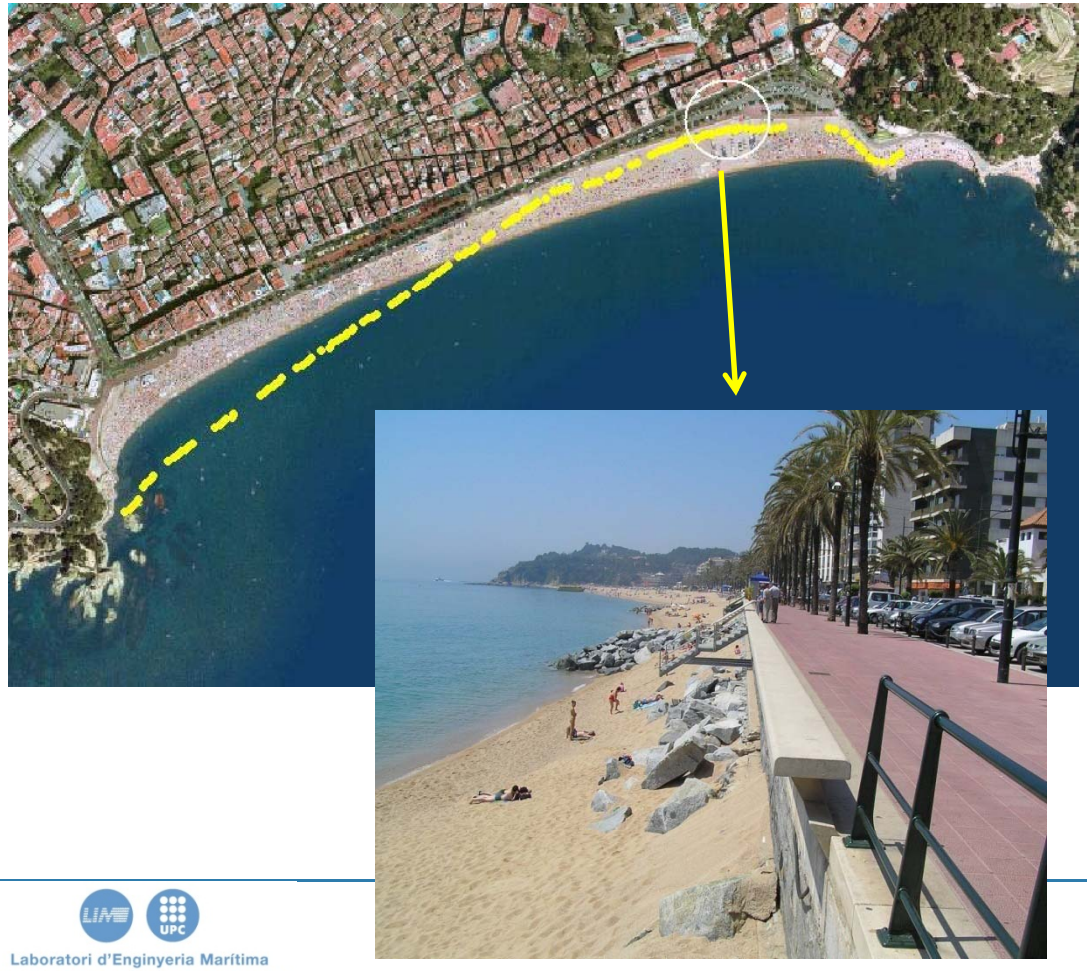
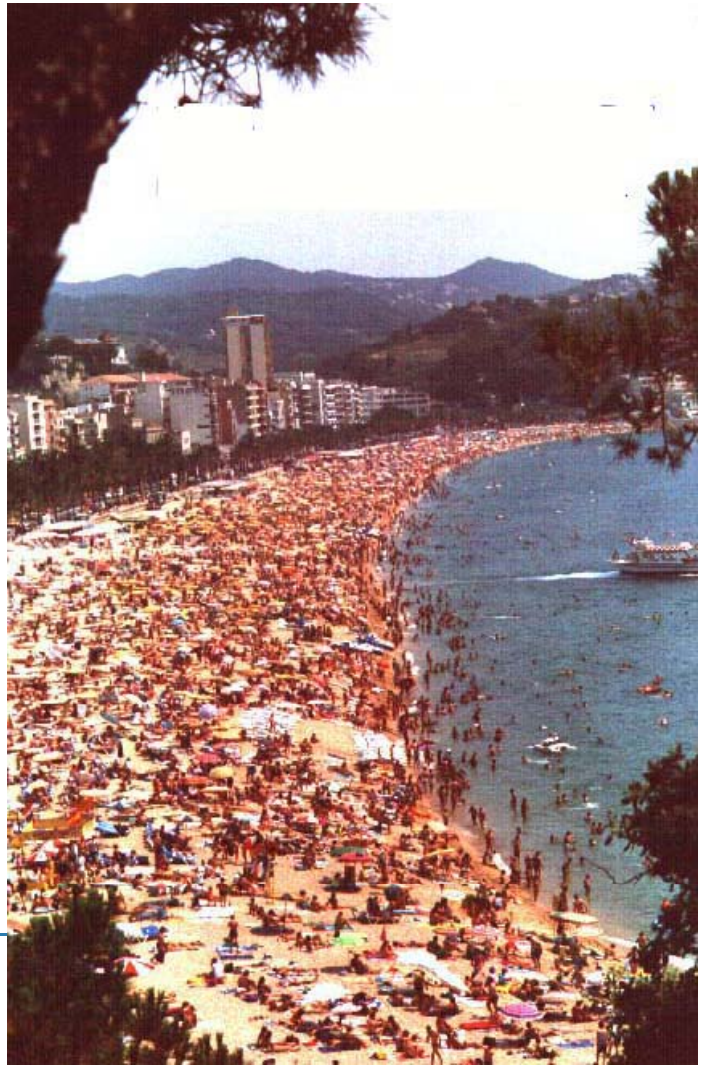
**Objective:** Maintain recreational carrying capacity





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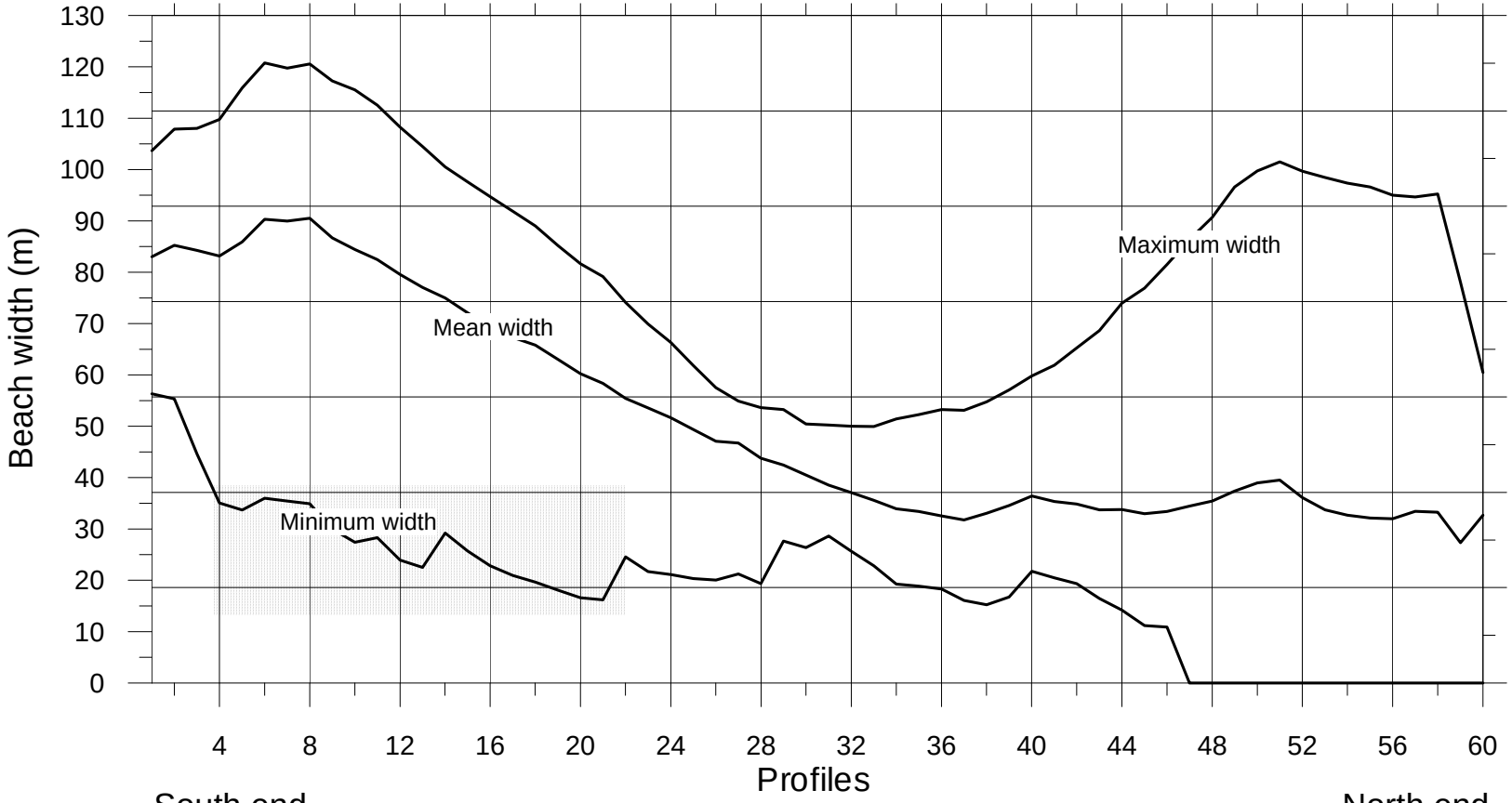
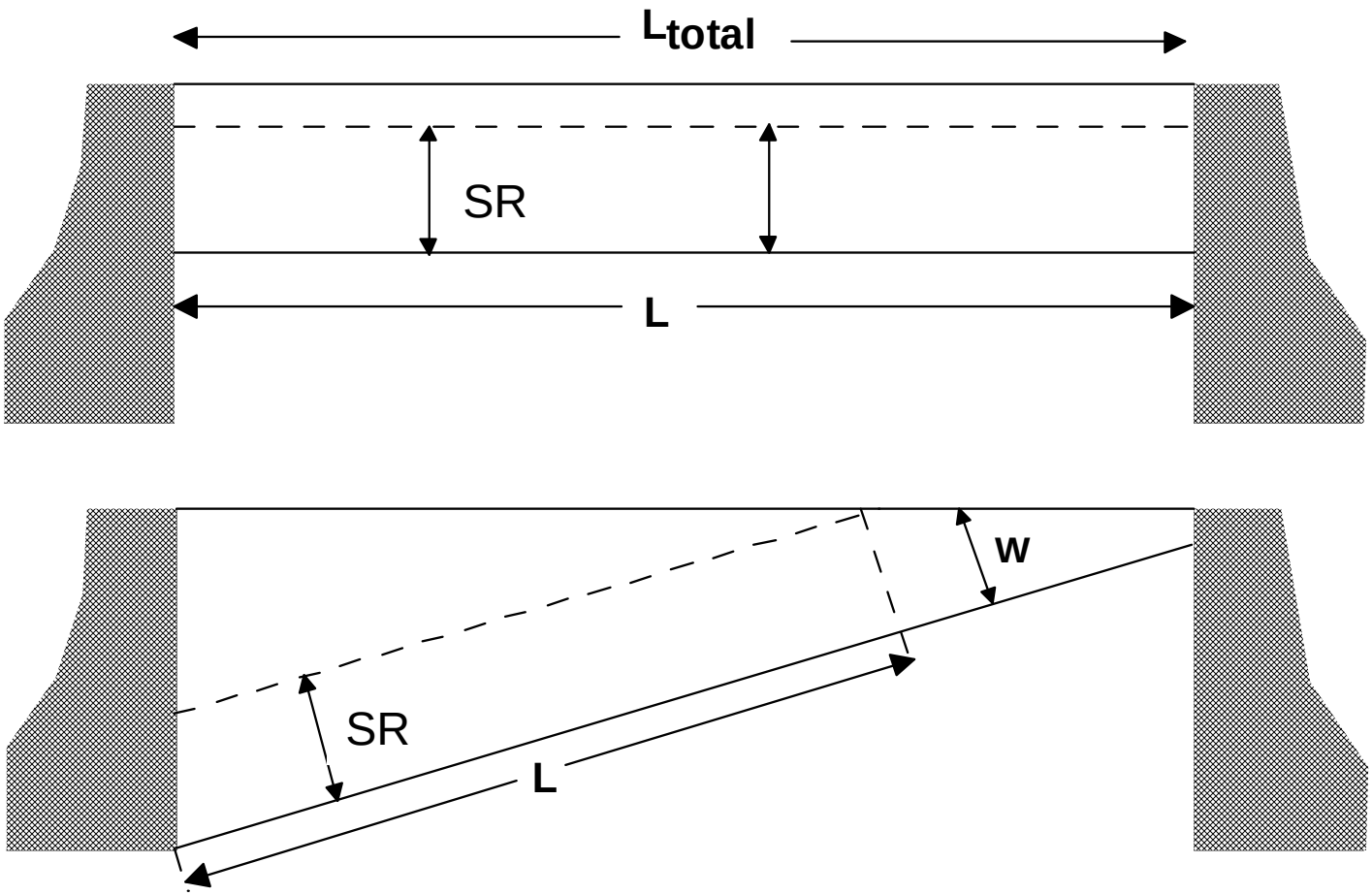
## FAVOURABLE SEDIMENT STATUS

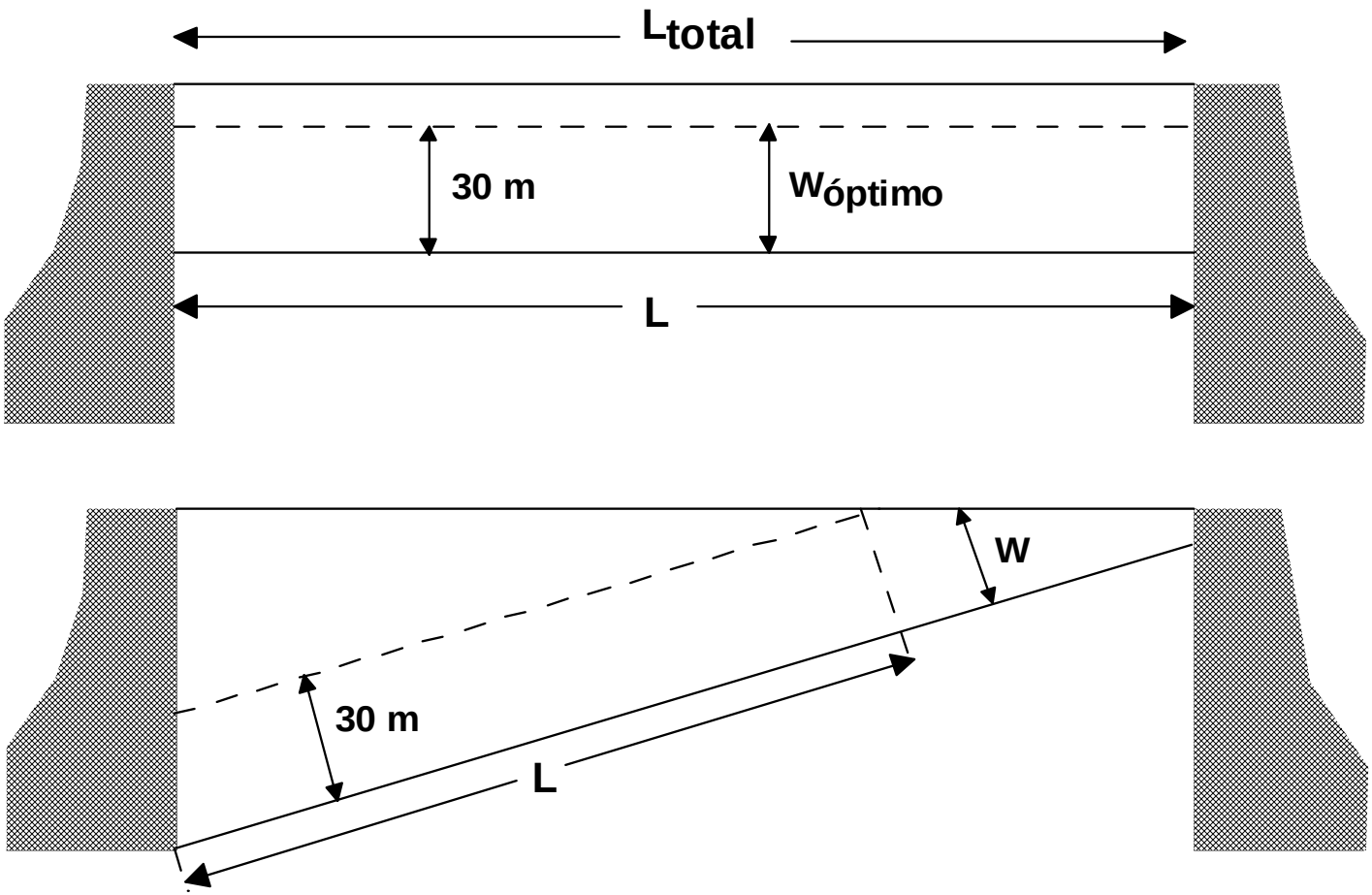
- WINTER (stormy period) – ***Protecting infrastructures***: Volume of sediment “properly” distributed along the beach in such a way that the beach is wider than the reach associated to storm impacts (Tr to be selected ).

- SUMMER (calm period) – ***Recreational carrying capacity***: Volume of sediment “properly” distributed along the beach in such a way that the beach is wider than a minimum recreational width (~ 30 m ).

# Beach width range.




Ltotal
SR
L
W
SR
L


Ltotal
30 m
Wóptimo
L
W
30 m
L

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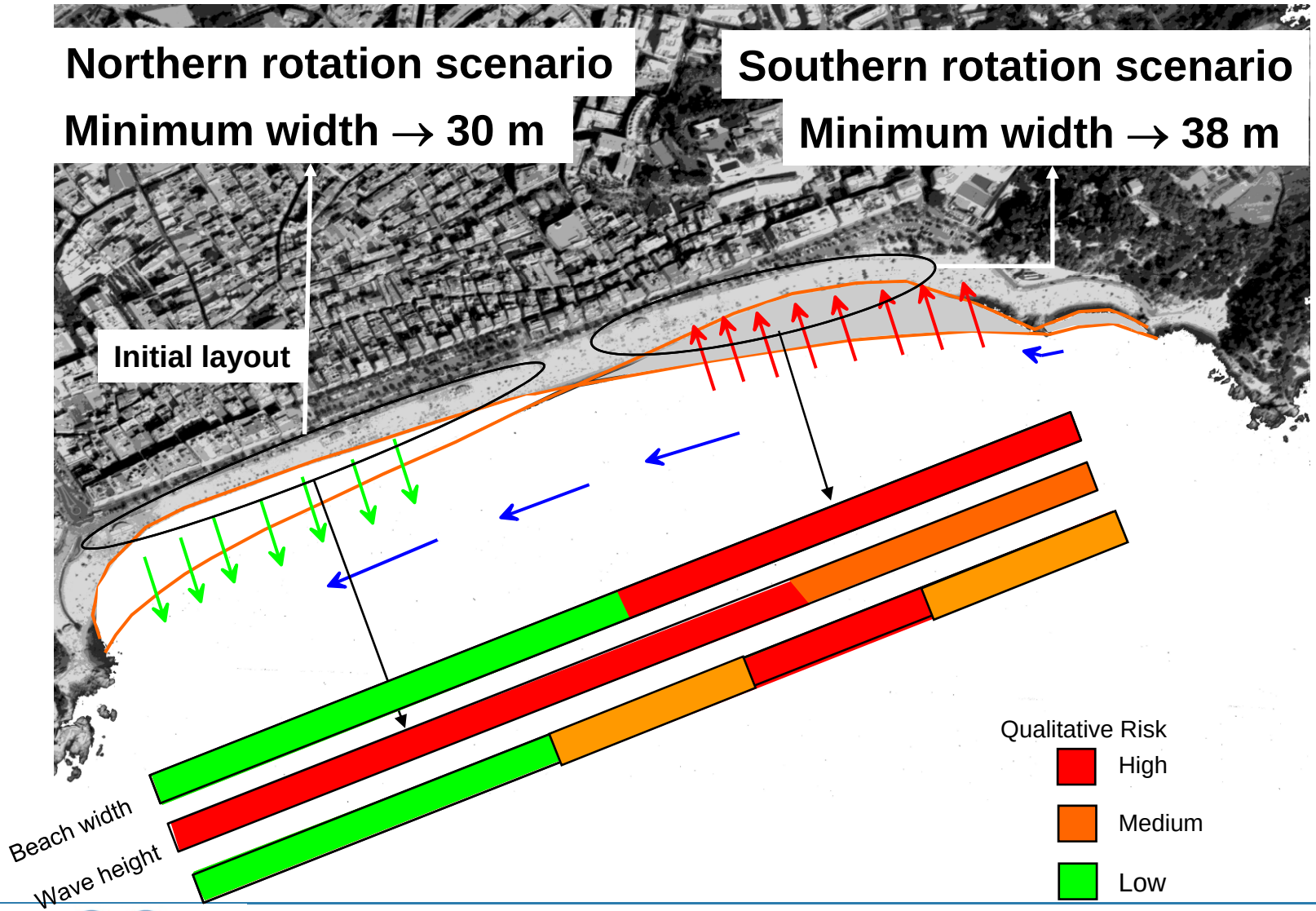
# Behaviour Model - Eastern storms

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