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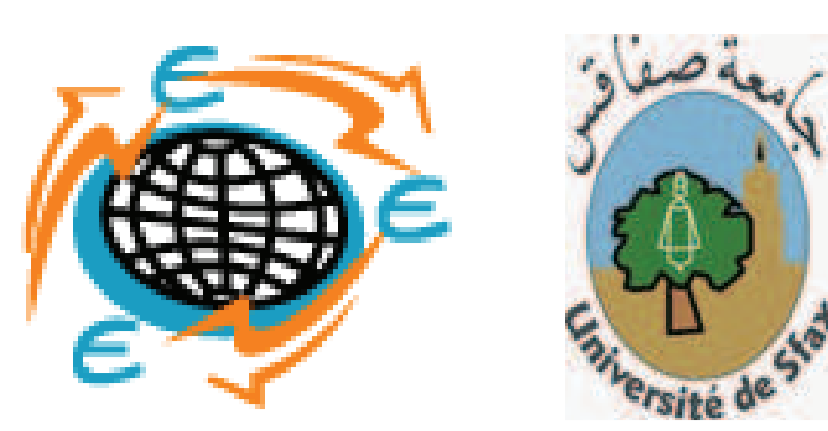
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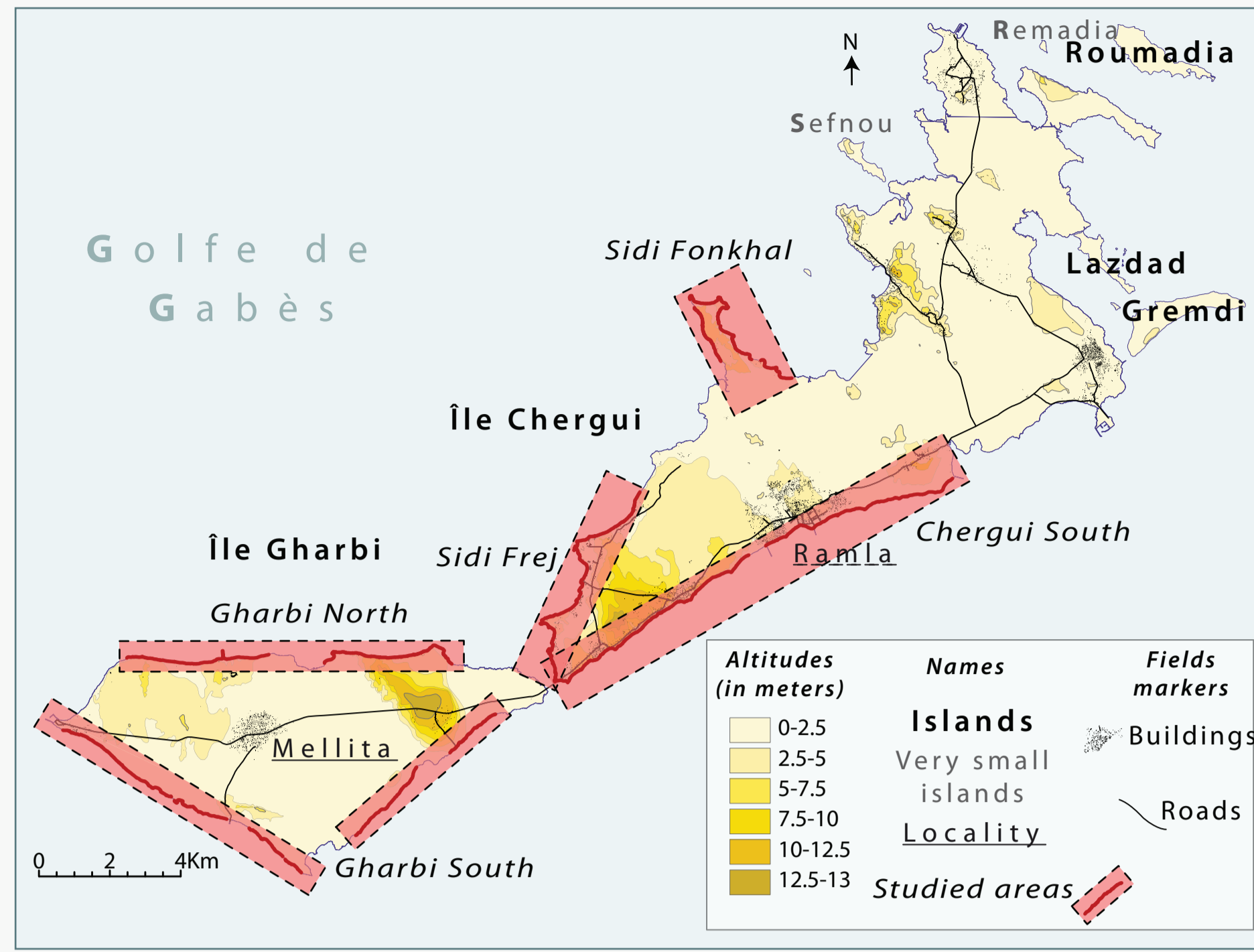
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Introduction

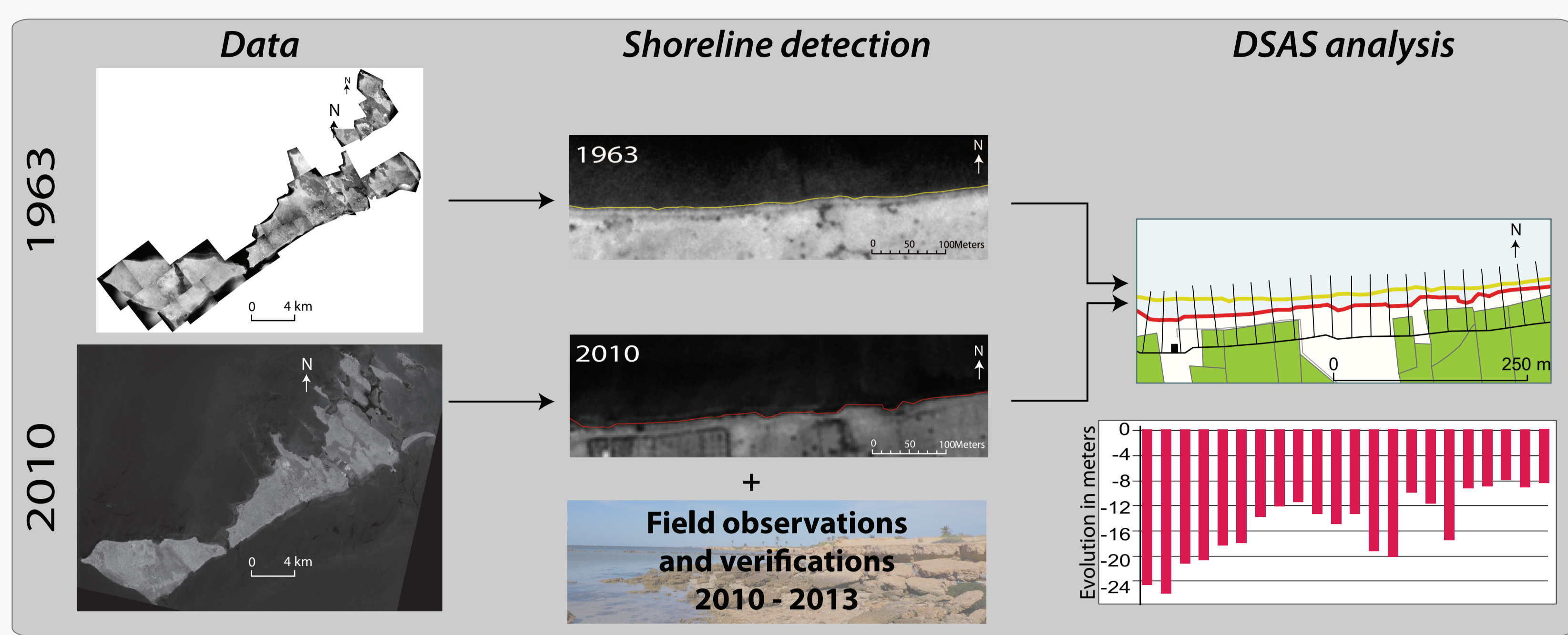


The consequences of the fragility of the Kerkennah archipelago and of the changes in regional and local scales are (i) the coastline erosion and (ii) the increase of the coastal vulnerability.

To better understand that vulnerability we need to measure the evolution of the coastline position and to identify the factors that influence this evolution.

The aim of this presentation is to understand the human influence on the erosion rates

Data and methods



Data used

- 59 aerial photographs from 1963 combined in a mosaic. Scale 1:25000
- 1 Spot 5 image from 2010. Scale 1:25000. Level of treatment: 3 (orthorectified)

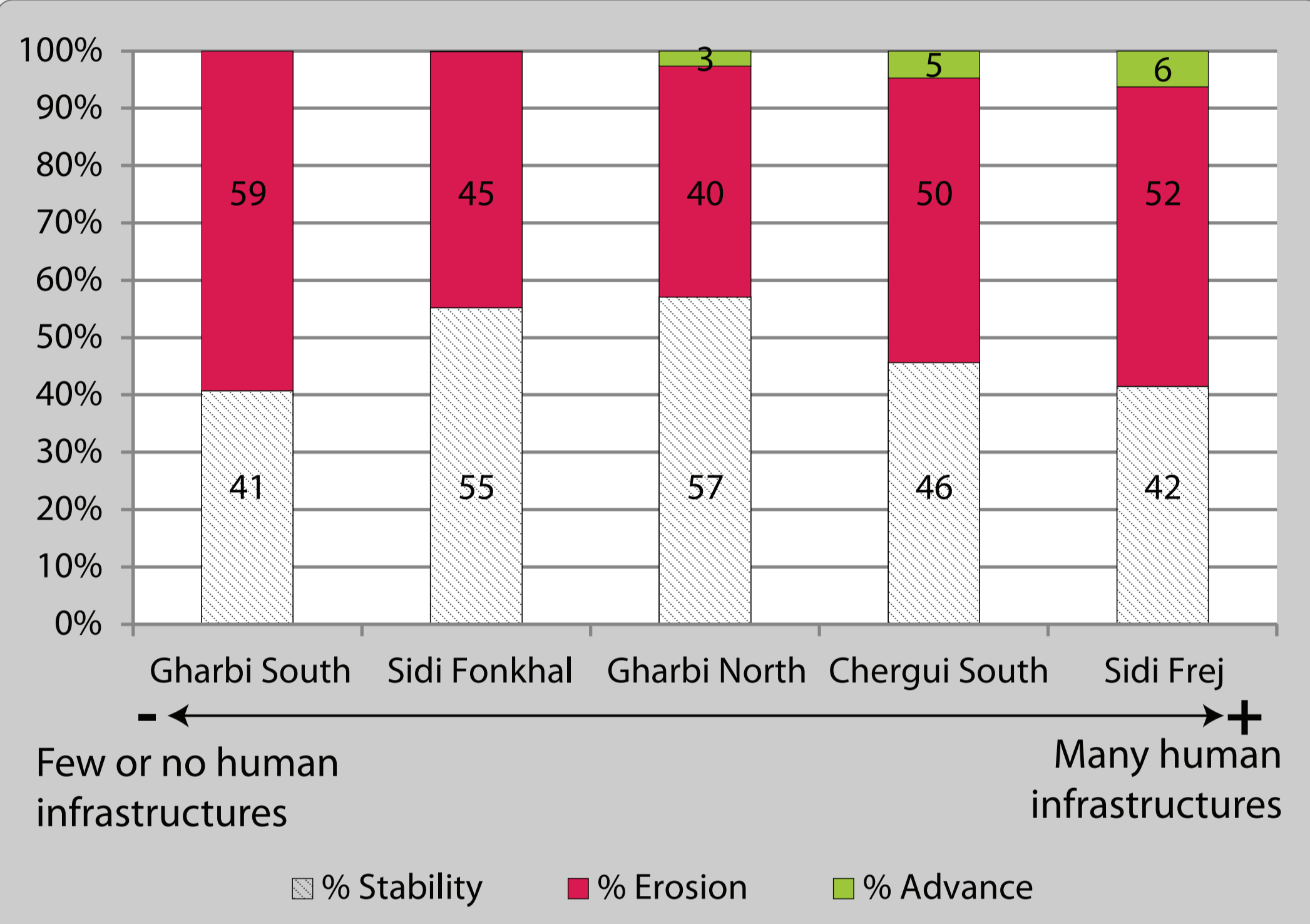
- Shoreline identification at both dates by using the top of cliffs and vegetation limits
- Shoreline evolution rates identified in the areas where the error margin is lowest than $\pm 6m$: identification of the 6 studied areas

DSAS 4.3 (Digital Shoreline Analysis System) analysis:

- Transect every 10 meters
- Net Shoreline Movement
- Identification of 6 studied areas

Results

Evolution of the coast (in %)



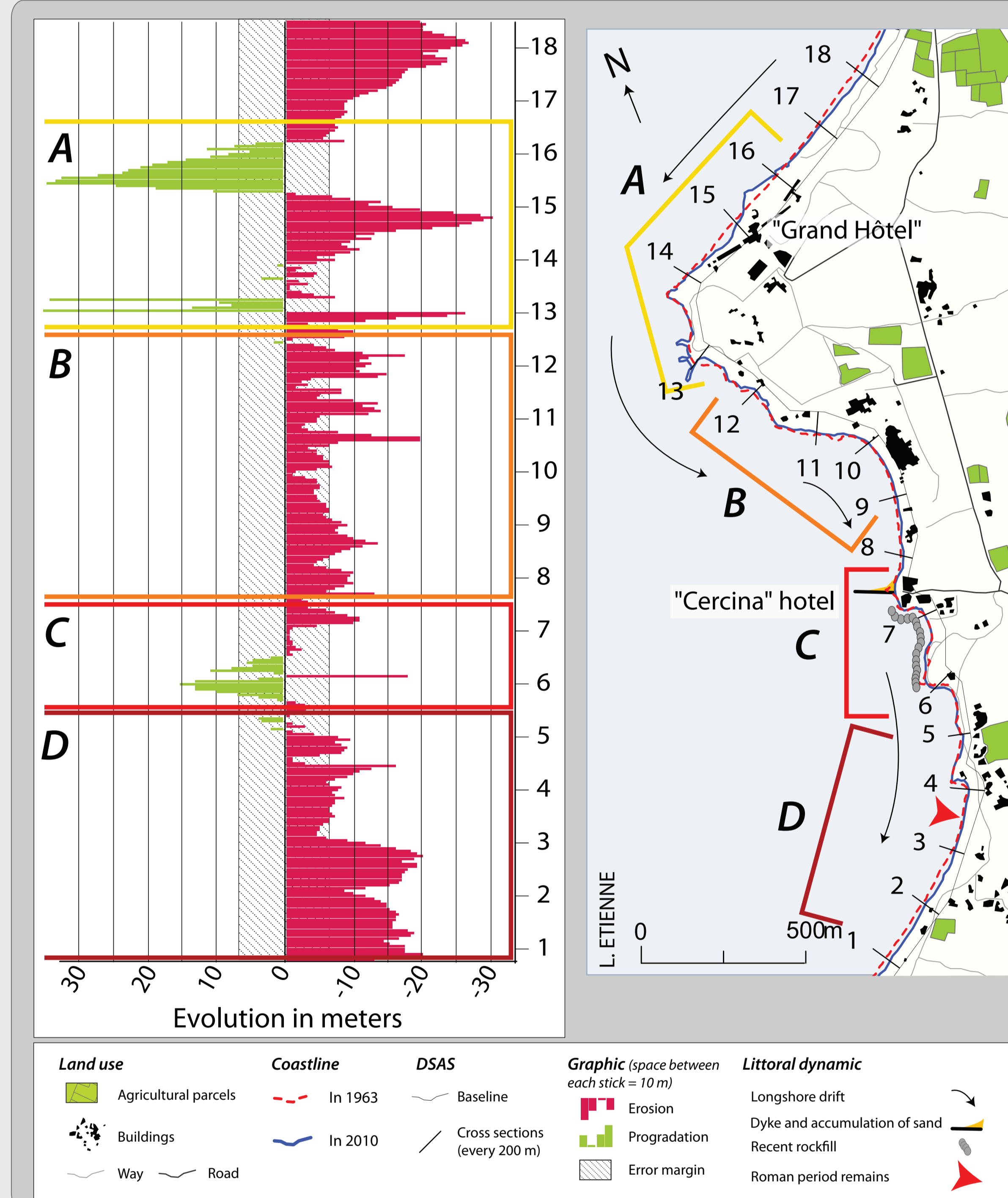
- No advance measured in the areas free of human infrastructures

- Erosion affects more the coastline south of the archipelago

- In the areas where the human intervention is important, the erosion seems to be more important and stability less important

The coasts of the archipelago are susceptible to erosion (or stability). Human intervention destabilize the natural dynamics of the coastline.

Example of human perturbation: The touristic area of Sidi Frej



A Longshore drift perturbation with the touristic development of the beach



B Erosion more important = individual protections = strengthening of the perturbation



C Recent rockfill sometimes built by moving forward the coastline (artificial progradation) = strengthening of the perturbation



D Unprotected or low protected area = High erosion rates or very obvious actual erosion evidences : Archeological, geomorphological...



Conclusion

- The rapid alternation between protected and unprotected areas generates (i) the perturbation of the coastal dynamics and (ii) the acceleration of the UMR erosion.

- The evidences are obvious and recent and may be (i) geomorphological, (ii) archeological, (iii) botanical and (iii) due to the destruction of recent buildings especially the individual protections.

- For the moment and despite some efforts, there is no global and integrated management to counteract the erosion of the coast the small islands of the Kerkennah archipelago

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