WAVE RUN-UP LIMITS
MAPPING MARITIME PUBLIC DOMAIN IN PORTUGAL

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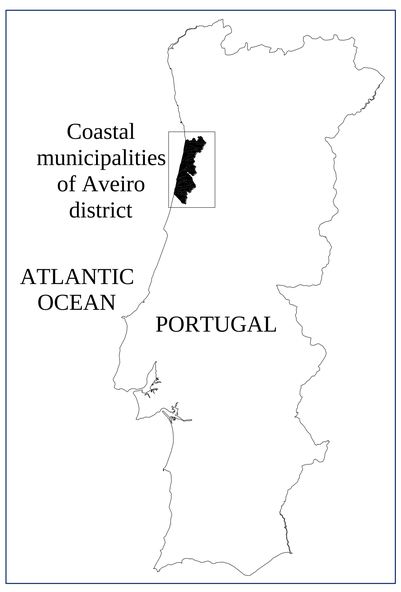
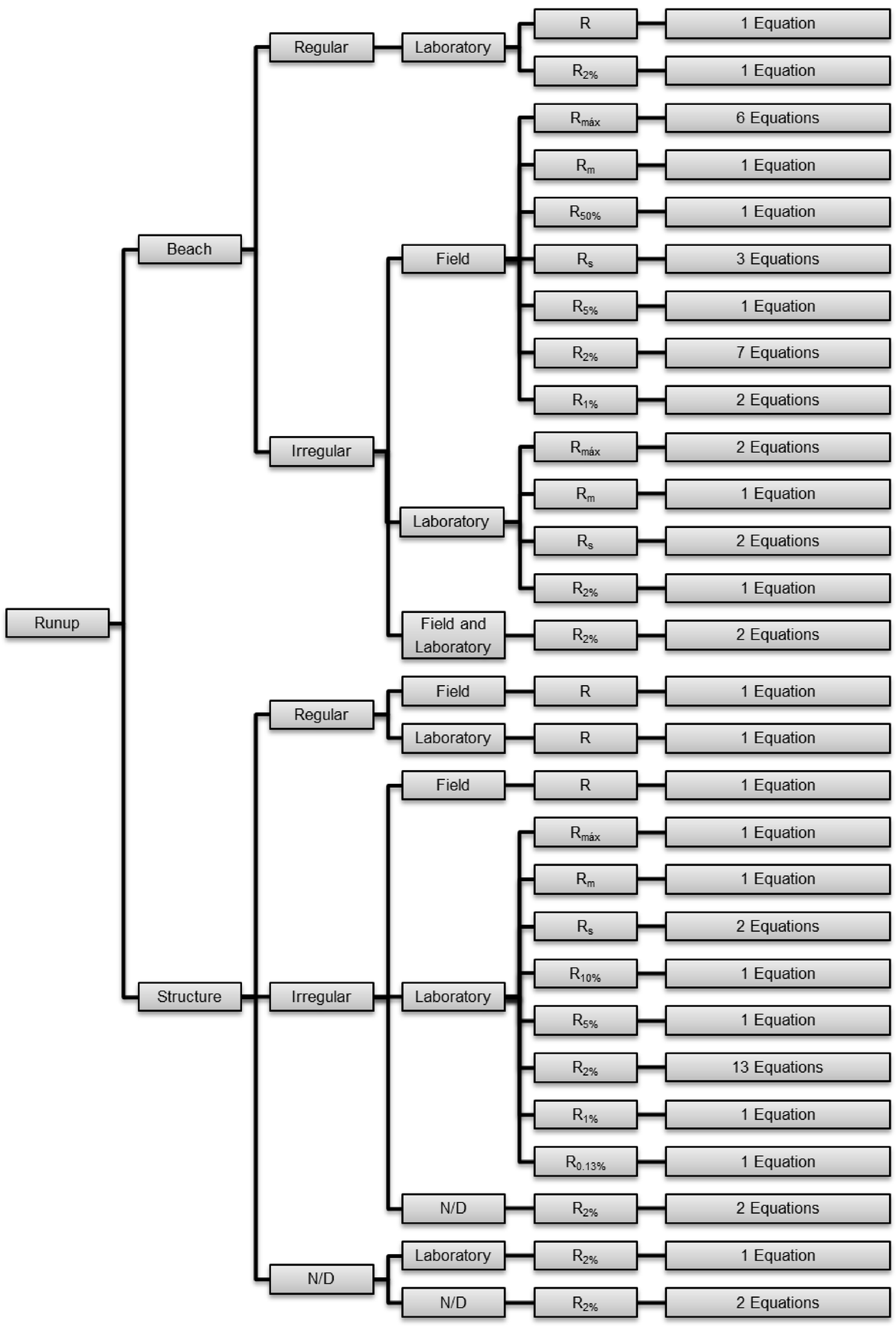
1. Mapping the Maritime Public Domain Aveiro coast, Portugal

- Identify the existing formulations to estimate wave run-up;
- Evaluate the parameters involved (sensitive analysis);
- Define adequate formulas for natural beaches and artificial structures, at the Aveiro coast;
- Represent in a map the Maritime Public Domain of the Aveiro coast.



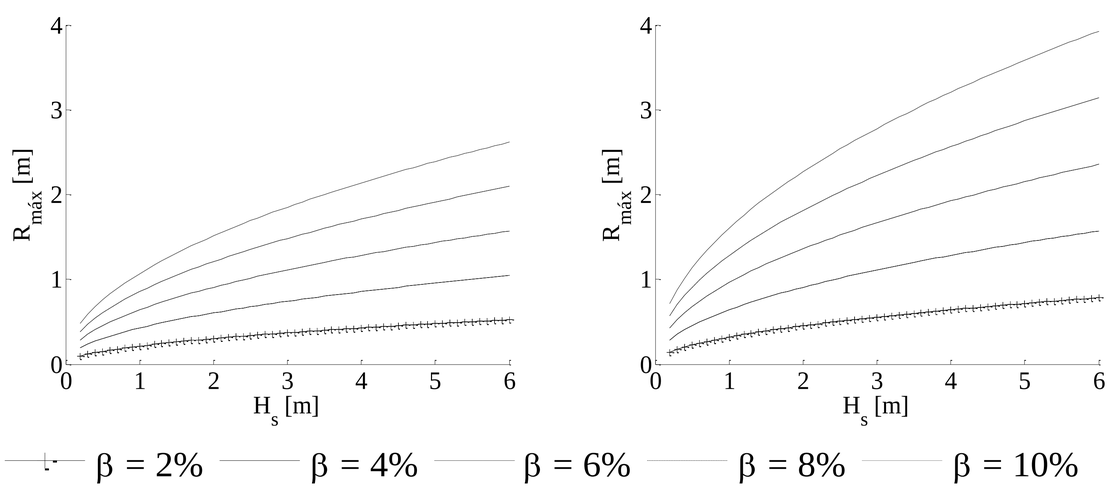
2. Wave run-up formulations (60 different proposals)



Natural beaches and artificial structures; Regular and irregular waves;
Formulas based in laboratory and field work (N/D - not defined); Type of run-up (maximum, significant, n%).

3. Sensitive analysis

$$R_{max} = c H_S \xi$$



Example of maximum wave run-up (R_{max}), for different significant wave heights, beach slopes (β) and wave periods: T = 8s (left) and T = 12s (right).

4. Adopted formulas for Aveiro

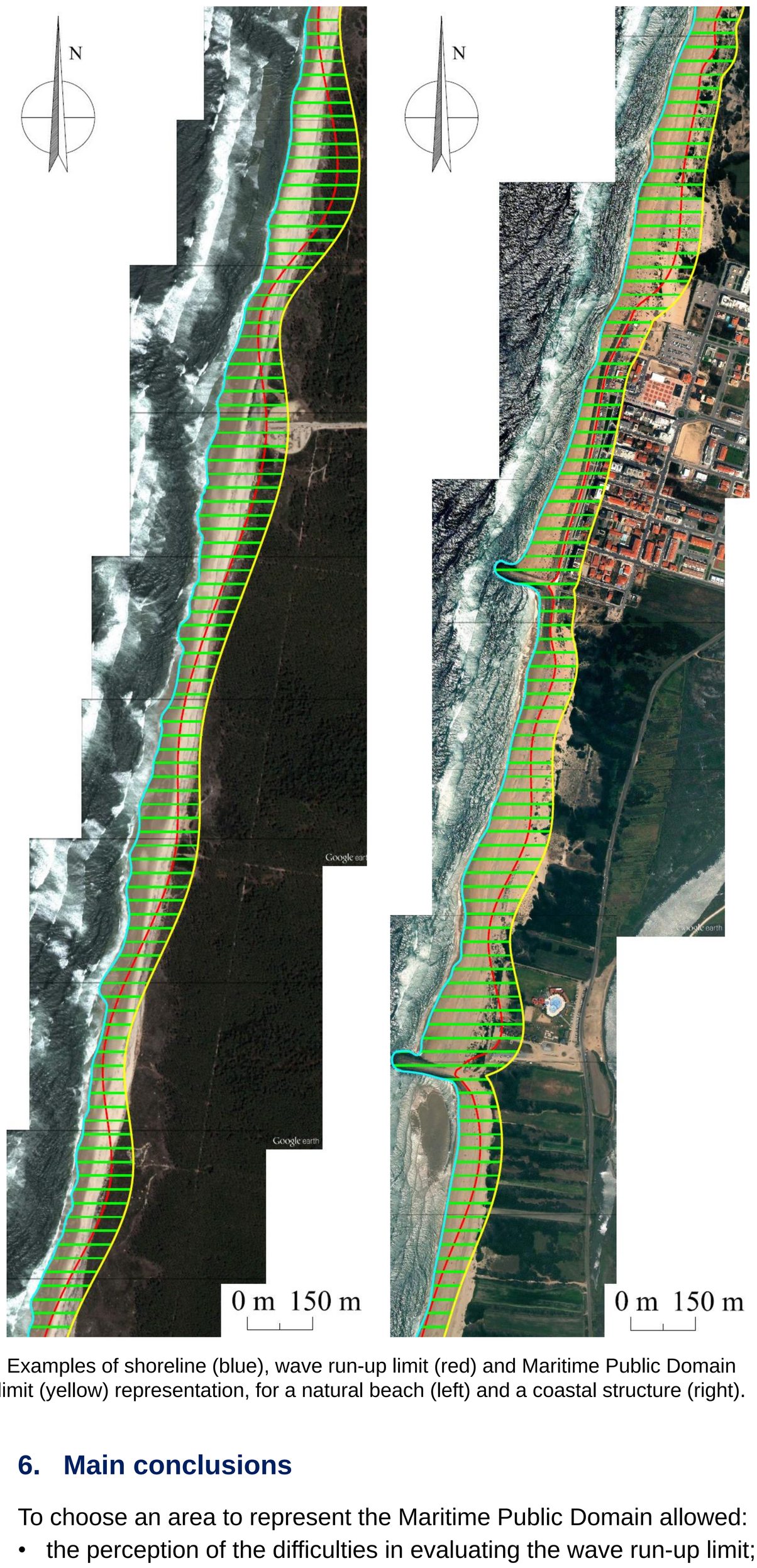
Natural beaches: $R_{max} = 2.90 H_S \quad \xi = 59.80 \tan\beta$

Coastal structures: $R_{max} = 0.41 H_S \quad \xi = 8.49 \tan\beta$

Typical wave characteristics considered for the Aveiro region:

H_S = 2.11m;
T_{max}= 11.4s;
L_{max}= 201.8m.

5. Aveiro map of the Maritime Public Domain



Examples of shoreline (blue), wave run-up limit (red) and Maritime Public Domain limit (yellow) representation, for a natural beach (left) and a coastal structure (right).

6. Main conclusions

To choose an area to represent the Maritime Public Domain allowed:

- the perception of the difficulties in evaluating the wave run-up limit;
- the definition of a suitable method to estimate wave run-up;
- the definition and representation of the effective boundary in the field.