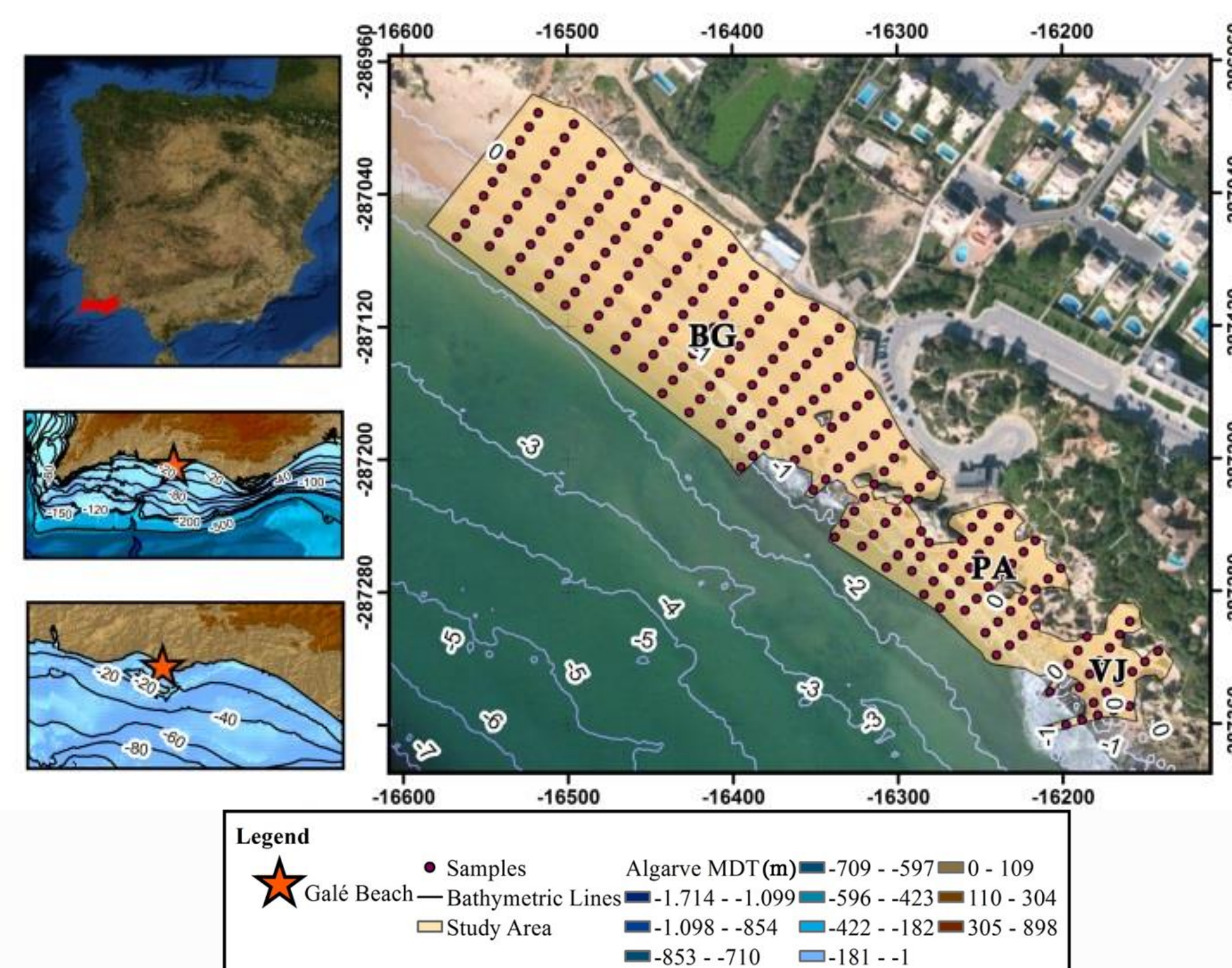


Introduction

The resilience of the embayed and pocket beaches in southern Algarve is currently an important issue for coastal management in the region. The morpho-climatic context of the region does not favor the development of a network of surface drainage, so the main sediment source of the beaches is afforded by longilitoral drift. This work aims to assess the sedimentary contribute, provided by the alongshore transport, to feed embayed beaches.

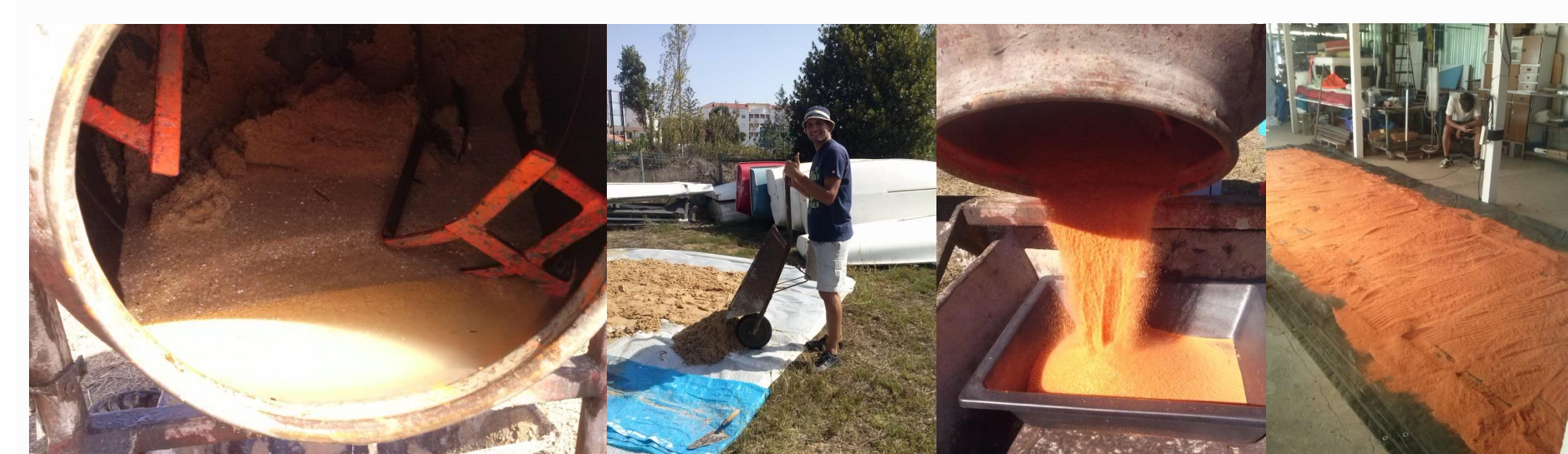
Study Area

Very indented rocky coast of the Algarve region (Southern Portugal)



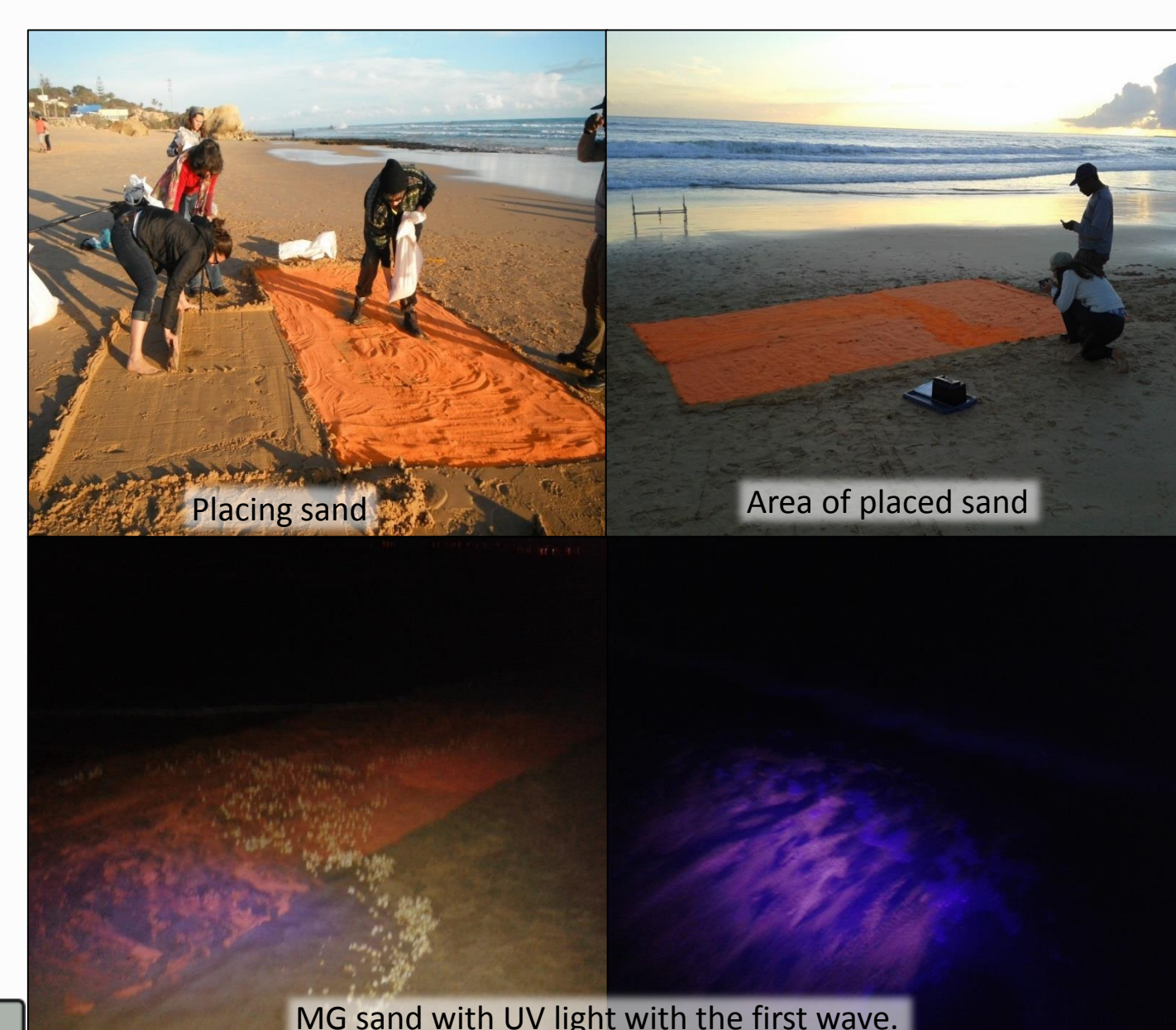
Methology

➤ Washing and Painting - 300 kg of sand



➤ Placement

100kg for March's campaign and 200kg for November's placed on the lower beach face of the westernmost beach of the study area during the first low tide of each campaign.

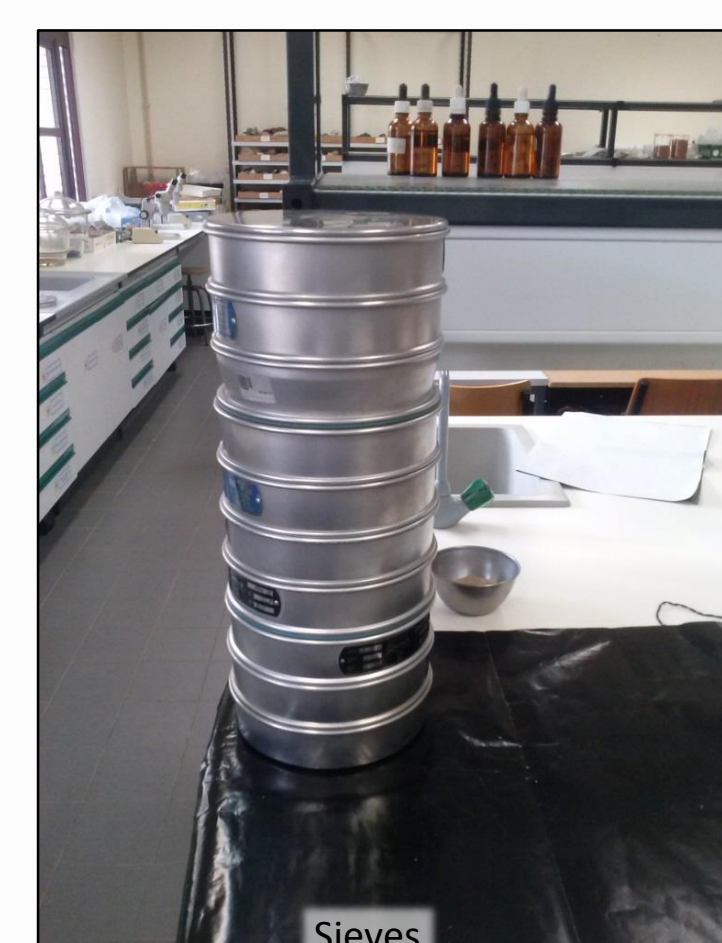
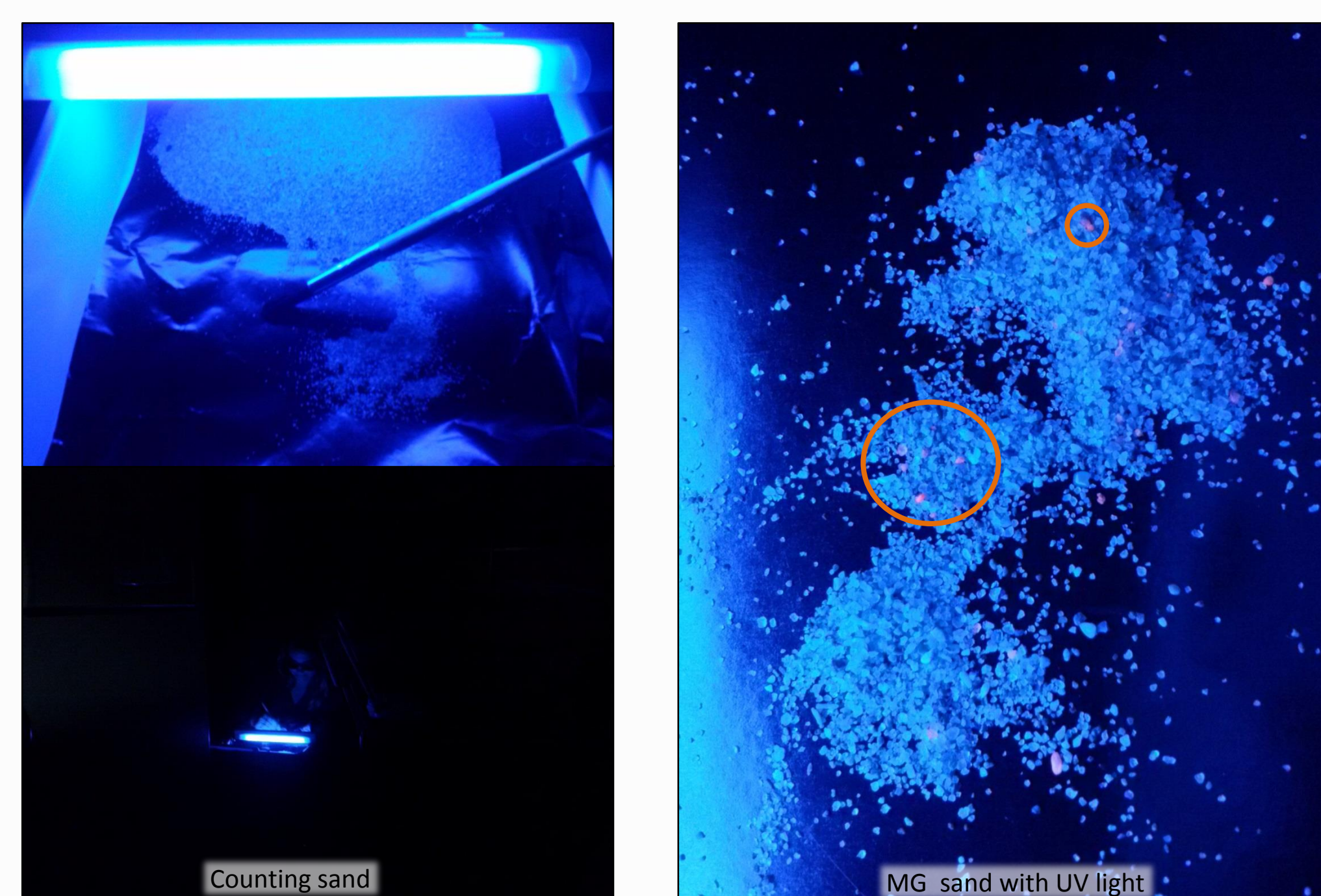


➤ Sampling



Sediment samples were collected during low tide, through the monitored period, in the nodes of a georeferenced square mesh of 10 x 20 m covering three embayed beaches.

➤ Laboratory Counting and Sieving



	March	November
1st Sampling	112	177
2nd Sampling	99	141
Total	211	318

Sediment was characterized concerning the grain size distribution and the marked grains (MG) which were identified and counted with the use of a black light.

➤ Data Processing

After normalization of data for 500 g and statistical analysis, several maps were developed in a Geographical Information System using IDW (Geostatistical Analyst) in order to quantify and interpret the direction and velocity of the movement of the sand induced by the observed waves and currents.

During the field experiences the waves approached the coast from WSW (243°- 263° March and November respectively) and the mean significant wave height ranged from 1.1 m- 1.5 m.

The morphodynamic state of the beaches was mainly reflective.

The most different morphodynamic aspect between the two field campaigns was the topographic continuity between the shore platform and the beach surface.

In opposition to November conditions, during the first campaign in March, the surface of the rocky platform was at least 50 cm higher than the beach surface.

The pattern of the grain size distribution was always parallel to the shoreline ranging from coarse sand at the backshore and high tide terrace to medium sand at the beach face with patches of fine sand close to the low water level of spring tide.

The results of this work showed that:

(i) when the existing shore platforms between adjacent embayed beaches are exposed, their surface is topographically higher than the beach face and strongly dissected by channels (e.g., joints) and karstic cavities, and thus the transference of sand between the adjacent beaches is almost nil.

(ii) When a topographic continuity was observed between the beach face and the surface of the shore platforms, as observed in November, the transference of sand between adjacent cells is effective.

Final remarks

In such embayed environments the efficiency of alongshore drift depends primarily on the beach morphosedimentary processes, driven by the angle between the waves and the shoreline, with the main obstacles to this drift being shore platforms.

Any questions? Contact me!
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Results/Discussion

