



Seagrass berm accumulation and dismantling on microtidal Mediterranean beaches: a 7-year record

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Mediterranean nearshore sandy and rocky bottoms are colonized by the endemic reef-building seagrass *Posidonia oceanica*. This species loses leaves in autumn and form large litter patches in the surf zone and huge litter banks on adjacent beaches, resulting in wedge and layered structures of a few centimetres to several meters in thickness (seagrass berms). Some authors have highlighted the importance of those banquettes for the protection of sandy beaches because they dissipate wave energy. By contrast other authors state that this effect is almost negligible.

This work deals with a 7-year dataset (2011-2018) on seagrass berm accumulation by means of coastal video-monitoring and field wave profiler records at Cala Millor, a microtidal carbonate sandy beach (NW Mallorca, Western Mediterranean). Additionally the mechanisms of seagrass berm accumulation and dismantling are addressed by means of wave propagation. Results show that banquettes are common beach features at the study sites although they are not persistent and experience complex construction and destruction dynamics throughout the year. There is a clear seasonality in seagrass berm accumulation and residence on the beach face, as well as, on seagrass berm type.

Two different types of banquette construction can be differentiated over the year: one related to the reworking of older seagrass beach cast by alongshore currents and a second as a response to the incorporation of new volumes of dead leaves after energetic winter storms ($H_s \sim 2$ to 3 m). In both cases, seagrass cast accumulations are continuously built up and destroyed and rarely persist before the arrival of new sea storms. Therefore, at least for semi-enclosed sandy beaches, the protection role of seagrass banquettes should be reconsidered.