

# ***Interactive comment on “Biogenic sediments from coastal ecosystems to Beach-Dune Systems: implications for the adaptation of mixed and carbonate beaches to future sea level rise” by Giovanni De Falco et al.***

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We agree that the role of seagrass as carbonate producer ecosystems can not be extended to all temperate coastal areas. The carbonate production associated to seagrass in temperate sea was particularly related to the *Posidonia* sp., in the Mediterranean Sea and south Australia. We will modify the manuscript according this observation.

In the previous studies the evaluation of biogenic carbonate sediments production associated to seagrass meadow was based on different approaches. Canal and Balles-

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teros (1997) considered the production related to the epiphytes, which were scraped from the blades using a razor blade. Their method clearly underestimates the bulk production because they did not take in account the fauna associated to the rhizome compartment which is generally composed by many carbonate-producer organisms (see Como et al. 2008, Marine Biology for a description of fauna associated to *Posidonia oceanica* meadow). On the other hand it is true that the other estimates (Serrano et al., 2012, De Falco et al., 2008, Mazarassa et al. 2015) are burial rates that can be influenced by the deposition of carbonate particles of geological provenance. However, Serrano et al. (2012) reported that the sediment beneath *Posidonia* meadow in the site of Portlligat Bay (NW Mediterranean), are mainly composed of siliciclastic (46%) and biogenic carbonated (46%). The biogenic carbonated are produced in situ, and they are not lithic grains deriving from carbonate rocks. In the case reported by De Falco et al. (2008), the sediments of terrestrial origin derive from the fluvial inflow and they are siliciclastic, whereas the carbonate sediments are biogenic particles which derive from the intrabasinal production associated to the *Posidonia* meadow. Following those considerations we think that the carbonate production rates estimated by Serrano et al. and De Falco et al. are more realistic than the data provided by Canals and Ballesteros (2008).

We use the reservoir of the Mediterranean Sea for radiocarbon data calibration . More details will be added in the revised manuscript.

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