Biogeosciences Discuss., 12, C1487–C1488, 2015
www.biogeosciences-discuss.net/12/C1487/2015/

Biogeosciences
Discussions
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Interactive comment on "Seagrass meadows as a globally significant carbonate reservoir" *by* I. Mazarrasa et al.

Anonymous Referee #1

Received and published: 20 April 2015

Mazarrasa et al. compiled a large data-set of particulate inorganic carbon (PIC) in seagrass meadows and discuss the potential significance of this reservoir globally. The figures are of high-quality, text is well written.

My major concern is to determine if seagrass meadows develop in areas with hydrodynamic conditions that are favorable for sediment deposition, and that these areas are naturally favorable for shell debris deposition. If this was correct, then these areas would anyway have sediments enriched in PIC even in the absence of seagrasses. In this case seagrasses would not be an additional and so far not accounted reservoir of PIC, and in fact this was already accounted in the budgets of PIC for coastal/continental shelf sediments by Milliman et al. (1993) and others. Figure 6A strongly suggests that this is the case since there is no significant difference in the PIC content between the

seagrass sediments and adjacent unvegetated sediments.

Minor comments:

4117 – L15/23 : Please also compare the deposition fluxes per surface area (gPIC/m2/yr) in addition to the integrated fluxes.

4121 – L14/15 : The cited studies measured CO2 fixation into organic carbon with chambers. However, these techniques under-estimate GPP because of photorespiration and also due to the discrete nature of measurements they miss "peak" production events (Champenois & Borges 2012). The biased GPP measurements by chambers could affect the estimates of the balance between organic and inorganic production.

Champenois W. & A.V. Borges (2012) Seasonal and inter-annual variations of community metabolism rates of a Posidonia oceanica seagrass meadow, Limnology and Oceanography, 57(1), 347–361

Interactive comment on Biogeosciences Discuss., 12, 4107, 2015.