

Interactive
Comment

Interactive comment on “Mangroves facing climate change: landward migration potential in response to projected scenarios of sea level rise” by D. Di Nitto et al.

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Anonymous Referee #2

The authors of this manuscript fully understand the importance of sediment and morphological change to the adaptive capacity of mangroves, as stated in the manuscript. However we disagree with the comment of the referee stating that the projections of propagule dispersal and tidal range effects are flawed from the outset, as both of these factors will be influenced by any future changes in geomorphology. First of all, in the

C4445

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case of mangrove vegetation dynamics, the importance of sediment supply becomes important only from the scenarios of SLR higher than 20cm/100y (relative scenario) and onwards. Whether mangroves can be resilient to SLR strongly depends on the physiographic setting in which these ecosystems occur, human activities that are carried out in the wetland and on how species-specific competition and adaptation will unfold. This has been recorded in detailed manner by our DGPS measurements and vegetation related fieldwork and will in the case of coastal squeeze be most important to make predictions for future management and policy. Secondly, in view of species response to SLR, it is imperative to understand which species will be forced to compete with each other. Species-specific competition may allow some species to outcompete others and to become more dominant within the newly formed species composition. As this manuscript was published in a special issue dedicated to mangrove ecosystems, we feel that a focus on species response prior to the equally important geomorphologic influence cannot be described as overly simplistic. Regarding the comment on the use of TAR, We based our analysis on SLR scenarios of the IPCC Third Assessment Report (TAR) (2001) and not on those of the Fourth Assessment Report (AR4) (2007), which respectively forecast a range from 9cm - 88cm by 2100 and a range from 18cm-59cm by 2090-2099. The reason is the following: due to lacking of published literature, AR4 models do not include uncertainties in climate-carbon cycle feedback nor do they include the full effects of changes in ice sheet flow. The AR4 projections however include a contribution due to increased ice flow from Greenland and Antarctica at the rates observed for 1993-2003, but these flow rates could increase or decrease in the future. The AR4 could have similar ranges to those of TAR if uncertainties were treated in the same way. The additional recommended references on geomorphologic change, will be added additional references in the introduction. Other textual comments will be addressed after second revision.

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