

Review of: "[Perspective] Combatting Relative Sea-Level Rise at a Global Scale: Presenting the International Panel on Land Subsidence (IPLS)"

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Potential competing interests: No potential competing interests to declare.

Philip, Manoo, Pietro:

As you probably already know, I am very supportive of your plans to organize the global coastal subsidence community, with the eventual goal of incorporating vertical land motion in future IPCC sea-level projections. Here are a few suggestions that may help to further strengthen your case.

First, perhaps you can emphasize at the outset of your piece the timeliness of the subject matter by including a compelling example of how coastal subsidence already has major detrimental societal impacts. Something that comes to mind here is the presently ongoing move of Indonesia's government away from Jakarta onto higher ground.

Arguably the most important (and ambitious) aspect of your piece concerns the link to the IPCC efforts. Here, you may want to rephrase things a little bit. Rather than stating "similar in scope to the IPCC," it may be preferable to present IPLS as complementary to the IPCC. The scope of the IPCC is enormous, in terms of the "United Nations scale" of its meetings, the number of authors, and an annual budget in the neighborhood of \$10 million.

Somewhat along these lines, please try to be realistic about the extent to which VLM can be incorporated in AR7. In my estimation, and looking at your roadmap, IPLS is currently at the beginning of Step 1, with tangible/usable outcomes likely not expected until Step 5 or later. Close coordination with lead authors on the forthcoming AR7 chapter that includes sea-level projections would be essential. Note, however, that CMIP7 is already underway (<https://wcrp-cmip.org/cmip7/>). These are highly complex undertakings that involve hundreds of individuals; therefore, the objective of full-blown VLM projections in AR7, along the lines of what you envision, doesn't seem very realistic. Perhaps a more feasible path is to aim for an intermediate step of sorts (i.e., something that goes beyond what was done for AR6) and then a comprehensive integration of VLM projections in AR8.

And finally, what I felt was missing is a brief discussion of how exactly VLM has been treated in AR6 (and in SROCC, for that matter). I partly say this because I don't believe it is quite correct that the IPCC refers to subsidence as a "local phenomenon." And what exactly is IPCC (2022), which, by the way, is not in the reference list? AR6 (notably the chapter by Fox-Kemper et al., which would be the relevant reference here) did in fact attempt to incorporate VLM (from tide-gauge data), and while I agree that this approach had major limitations, it was a global-scale approach. Therefore, it would be

helpful to share a few details, which would further clarify why the IPLS is needed. You mention Hinkel et al. (2013) and appear to be critical about this paper, but it isn't quite clear why – so maybe better to just leave it out? (Also, unlike all the other references, this one is 10+ years old.) On the other hand, note that Oelsmann et al. (2024, *Nat Geosci*) have done something that may not be unlike what you envision.

Note that land elevation change projections imply that, in addition to VLM, morphodynamic processes would have to be included. This is an incredibly ambitious goal that is still in its infancy. It may be a good thing to mention this as a long-term objective, but quite frankly, as presently stated, I would be worried about overpromising.

As you may notice, I would also urge you to use VLM rather than subsidence – especially within the context of IPCC-style projections – given that there are substantial coastal regions that experience uplift. And finally, in your first sentence and elsewhere, note that subsidence (or VLM, for that matter) is a component of relative sea-level rise. In other words, in cases like these, you would mention subsidence in addition to geocentric sea-level rise.

You mention the desire to reach the socio-economic and humanities communities, but would it be possible to say a few more things about what this would entail (I imagine the former is easier than the latter)? I'm sure you're aware that this is all the more important because your piece comes from three scientists/engineers. And assuming that the intent is that this gets published eventually, will it be in a venue that also reaches those other communities?

With regard to the high population numbers in the coastal zone (including deltas), I suggest you cite Edmonds et al. (2020, *Nat Comm*) in addition to Nicholls et al. (2021). Since global gatherings are an important goal (Step 4), I would also recommend mentioning Allison et al. (2016, *Eos*), who reported on earlier international workshops on coastal subsidence. And can Dinar et al. (2021) be added to the reference list?

Finally, I realize that IPLS was first announced a while back, but I would still ask you to consider changing the name to IPCS (i.e., substituting “coastal” for “land”). Absent that, it is not clear how this is different from related efforts, such as the UNESCO initiative that you mention.

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