

***Interactive comment on* “Technical note:
Optimizing the utility of combined GPR, OSL, and
LiDAR (GOaL) to extract paleoenvironmental
records and decipher shoreline evolution” by
Amy J. Dougherty et al.**

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Nice paper about how the evolution of beach-ridges can be studied. A few general remarks: - The paper focuses on beach ridges, but could easily include chenier plains as well where similar methods are applicable and have been used - With respect to LiDAR: you could highlight that converting the data to hillshade images and 3D-surfaces (like with ArcScene) is also very helpful - GPR: please inform the reader if it is possible to distinguish between storm surfaces with and without a lot of shells. Do shells have their own specific reflection? - OSL-dating is very useful of course, and I have

used in the Chenier Plain of Louisiana. The existing chronology was based on dating juvenile shells in the 1950's. To my surprise the new OSL-data matched the existing chronology very well, showing that dating juvenile shells was and is still a very useful method and superior to dating scarce organic matter. - OSL-dating should always be done after extensive fieldwork so that is known what facies is being dated. Maybe that could be stressed a little more in the paper. Especially dating aeolian facies is tricky, since it could post data beach-ridge formation significantly. - For OSL-dating is also important to have some idea about groundwater levels since depositing. If the sand was always below average groundwater level or always above makes quite a difference for the final age - With respect to storm events: dating washover deposits with OSL is also very informative about large storm events. In addition, on chenier plains the washover deposits rest directly on marshland that formed very close to sea level. So at least on chenier plain washover deposits can also be used as sea-level indicators

Section 3.2: it reads a little bit like discussion of a single paper (Olivier et al., 2017b). The authors provide many arguments why some parts of that paper are not so strong. I would prefer a bit more general discussion about dating storm events, including some other papers as well. That would make this section a little bit stronger.

Cheers,

Marc.

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Discussion paper

