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DISCUSSION

Discussion of: Parcharidis, I.; Kourkouli, P.; Karymbalis, E.; Foumelis, M., and Karathanassi, V., Time Series Synthetic Aperture Radar Interferometry for Ground Deformation Monitoring over a Small Scale Tectonically Active Deltaic Environment (Mornos, Central Greece). *Journal of Coastal Research*, 29(2), 325–338.

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On the basis of a satellite-based persistent scatterers interferometric (PSI) study, Parcharidis *et al*. (2013) document the rapid active subsidence of a small delta. This subsidence is not an isolated effect (see below) and its amplitude is compatible with the resolution of tide gauges. Hence this article sheds light on a very important, though poorly known, coastal process, the rapid subsidence of major and smaller deltas, especially in the vicinity of abandoned streams. Still, there are two points that deserve a further analysis.

First, whether subsidence is combined with horizontal dislocations—a question to be answered if the geometry of the available satellite images permits, and second, which are the possible implications of their findings concerning the geotechnical noise in tide-gauge data, another ignored problem.

This last point is point is very important because rapid subsidence of deltaic sediments, though at a larger scale, is known for instance from Louisiana (Dixon *et al*., 2006; Morton and Bernier, 2010), the Po plain in Italy (Baldi *et al*., 2009; Stramondo *et al*., 2007), and the Axios (Vardar) delta in northern Greece (Psimoulis *et al*., 2007; Stiros, 2001). In the Mississippi and Axios deltas, subsidence seems to be associated with deformation of ground strata leading to horizontal displacements toward the depocenter (Dokka, Sella, and Dixon, 2006; Morton and Bernier, 2010; Psimoulis *et a l*., 2007).

An obvious implication of the results of Parcharidis *et al*. is that rapid ground subsidence may characterize both large and smaller deltas and introduce some geotechnical bias in the estimations of the sea-level rise (*cf*. Venice; Pirazzoli and Tomassin, 2002; Zanello *et al.,* 2011). This is because studies of sea-level changes based on tide gauges (Jevrejeva *et al*. 2008) do not examine this problem since global tide-gauge data sets (http://www.ioc-sealevelmonitoring.org/; http://www.psmsl.org/data/) do not contain information on the geological/geotechnical background of their stations, and most of these stations are not collocated with Global Positioning System (GPS) stations. Hence it is not easy at present to estimate this bias, which may be important, given the percentage of tide gauges in deltaic sediments in a global scale.

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