



Rapid Environmental Assessment in the coastal zone from Small Unmanned Aerial Vehicles (SUAV)

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Video monitoring in the nearshore zone has been shown to be a source of invaluable quantitative information (e.g. for beach morphology, hydrodynamics, beach carrying capacity), mainly through the time-average image (**see Coastal Engineering, 54, Special Issue**). In the present contribution a new semi-automatic technique is presented, to create such images from video imagery acquired from Small Unmanned Aerial Vehicles (SUAVs). Two separate field exercises were performed, to extensively test and identify the SUAV geometry, meta-data reliability and video camera properties, during which over 18 hours of imagery were collected. Due to the non-stationary point of view, geo-referencing of the collected images must be performed for each frame separately and this is usually achieved on the grounds of known control points. Such an approach is not practical for the current application and is applied only for the initial frame. Subsequently, georectification takes place through an automatic procedure, based on the automatic identification of common features between consecutive frames, by an image processing algorithm. The resulting time-averaged images are of high quality and the estimated projection errors are within acceptable limits for such applications.