Marine litter and plastic detection on Black Sea beaches by using unmanned aerial vehicle (UAV)

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Abstract. Plastic and marine litter is one of the current growing issues worldwide, affecting the unique Black Sea ecosystem as well. Litter is yearly monitored for assessing ecological status across the Romanian beaches. We tested aerial drone-inspection or UAV method versus visual census for efficiency of litter monitoring on two Black Sea beaches, located in the Danube Delta area. The detection probability varied between size-category of items, with 71 – 100% accuracy of visual screening of drone images. Our pilot study showed the successful combination of the traditional visual census method with the new emerging UAV techniques for marine litter monitoring in the selected areas. To the best of our knowledge, this is the first study evaluating the UAV method for fast-screening of not-easily accessible sites at the Romanian coast of the Black Sea.

Keywords: UAV; marine litter; macrolitter; plastic pollution; Black Sea.

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