

Evaluation of geomorphological changes on Kujukuri beach from 2015 to 2018 based on UAV SfM

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Structure from Motion (SfM) photogrammetry became a powerful tool in the hands of researchers. In combination with development of unmanned aerial vehicles (UAV), this allows for coastal researches to be carried out quickly and inexpensively. In 2015 area between Nabaki and Magame rivers on Kujukuri beach in Chiba Prefecture was surveyed by using UAV carrying mirrorless digital camera. In February 2018, 4 km long beach area to the north of Nabaki river was resurveyed. The resurvey was carried out using small consumer class UAV, and coordinates of Ground Control Points were determined by using lowcost Real Time Kinematics GNSS (Emlid Reach). UAV images were processed through the SfM workflow in Agisoft Photoscan software, which generates 3D spatial data to be used in GIS applications. Comparison of 3D spatial data from 2015 with newer one from 2018 will allow us understand dynamics of beach geomorphology at the research area. Also, combination of these data with meteorological data will give us better insight of processes occurring in the coastal area.

Keywords: UAV SfM, coastal geomorphology, Kujukuri beach