UAV SfM monitoring of coastal morphology on Kujukuri beach

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During 2018-2020 we conducted several UAV SfM surveys on the 3.2 km long stretch of Kujukuri beach between Nabakigawa and Horikawa rivers, Chiba Prefecture. These 2 rivers separate the research area from the rest of the 60-km long Kujukuri beach, forming separate morpho- and lithodynamical unit. The results of the research were high-resolution digital elevation models (DEM) and orthomosaics representing 2 years of change. Based on DEM and orhomosaics we were able to evaluate that from February 2018 to September 2018 we recorded active accumulation along the entire length of the beach. But accumulation intensity varied in different zones of the beach as if foreshore, backshore or dunes. Also, the accumulation processes did not occur evenly for 7 months but mostly intensified in the summer. From September 2018 to February 2019 erosional processes were not observed, respectively, summer profile at the survey area remained stable. Thus, during winter season 2018-2019 we were not able to record the process of transition back to winter profile from summer profile. In June 2019 we again observe summer profile. But autumn 2019 was marked by 2 typhoons hitting Japan: Faxai (#15, Sep 2019) and Hagibis (#19, Oct 2019). In the case of Kujukuri beach most impactful was Faxai, hence we conducted a survey on the 28th of September 2019. But we were not able to fix any erosion due to Faxai typhoon. Re-survey was conducted on December 6, 2019. At that moment, we are already seeing a complete transition to winter profile. Is it delayed reaction to more impactful Faxai typhoon, or Hagibis also might be a reason for transition to winter profile?

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