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Temporal carbon discharge from coastal erosion and bog burst of tropical coastal peatland in Indonesia

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Coastal erosion is one of the new but serious problems in the coastal tropical peatlands of Riau. This coastal erosion occurs on the Malacca Strait side of the peatland in Sumatra Island and fringed small islands. This coastal erosion is a combination of peat collapse, or bog burst. The study area is located on Bengkalis Island, Riau Province, Republic of Indonesia. The region is located at 1.6 degrees north latitude and 102 degrees east longitude and has a tropical rainforest climate. Temporary UAV observations of the coastal areas of Benkalis Island were carried out, and chemical analysis of peat core samples was performed at several points to estimate carbon storage. As a result of observation, the annual carbon emission per coastline from coastal peatland is estimated to be 7.8-10tCm⁻¹. We also used the Sentinel-1 image to assess the number of peaty debris fans appearing as a result of the bog bursts. The appearance of peaty debris fans showed a clear increase with increasing precipitation.