



## **Coastal peat failure in the tropical coastal peatlands in Riau, Indonesia**

Koichi Yamamoto (1), Hiroki Kagawa (1), Syota Sasaki (1), Ariyo Kanno (1), Atsushi Koyama (2), Motoyuki Suzuki (1), Sigit Sutiko (3), Noerdin Basir (4), and Muhammad Haidar (5)

(1) Yamaguchi University, Graduate school of Sciences and Technology for Innovation, Japan (k\_yama@yamaguchi-u.ac.jp), (2) University of Miyazaki, Faculty of Engineering, Japan, (3) University of Riau, Faculty of Engineering, Indonesia, (4) Bengkalis State Polytechnic, Indonesia, (5) Geospatial Information Agency of Indonesia

Tropical coastal peatland has large area in Indonesia and Malaysia. Some of the tropical coastal peatland faces to the sea because of the coastal setback. In the tropical peat coast, there we found the coastal peat failure. In Bengkalis Island, rapid coastal retreat is continuously observed for over 30 years, around 30 m per year at the maximum. Because of the coastal retreat, peat cliffs are established around the coastal peatland. However, these peat cliffs could easily fail by the gravity. We continuously observed this coastal peat failure for 5 years (2013-2018) using RTK-GNSS, UAV and Satellite Imagery. We found that coastal peat failure can divided into two groups, bog burst and bog flow. Former happens just around the coastal line and latter happens inside of the peatland. Especially, as for bog flow, large amount of peat debris discharges to the sea with groundwater. This phenomena transport particulate organic carbon to the sea. Bog burst and bog flow also make temporal tidal flats. These tidal flat disappears rapidly. It means that the peat debris are transported to the sea bed or the other shore.