Massive bog burst along the coastal oil palm plantation in the tropical peatland and importance of the groundwater management

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Continuous topography survey and continuous groundwater level measurement were carried out on Benkalis Island, Riau Province, Indonesia where bog burst frequently occurred. We identified that the cause of the peat failure and reproduced numerically calculated that the region that the failure has happened. The safety factor of peat soil was calculated by in situ soil test and calculation of the groundwater table. From the local rainfall data and continuous groundwater level measurement results, the peat soil collapse occurred in December in Bengkalis Island. The peat ground collapse confirmed at December 27, 2014 from the observation result of the groundwater table. Groundwater level was maintained near to the ground surface. The factor of safety for the landslide showed that the value was almost 1 at that time. Water level control throughout the year in coastal oil palm plantation is essential.

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