Contribution ID: **29**   Type: **Oral Presenter (Online)**

Peat soil characterization for anticipation of peat fire mitigation: A case study in Siak area, Indonesia

Peat soil is found abundantly on the surface of the Central Sumatra basin. In fact, for coastal areas, peat dominates at depths of up to several meters. In the dry season, fires are the most frequent natural disasters in peatlands, especially in Riau Province. Several significant problems have developed in the process of extinguishing peatland fires, so that peatland fires are difficult to prevent at this time. The purpose of this study was to determine whether early mitigation of peatland fire disasters can be predicted by utilizing groundwater as a water source. The depth of the aquifer and the thickness of the peat are included in the subsurface geological data predicted using a geoelectric resistivity survey. The peat soil in the study area has variations in the percentage of organic content so that it provides a different electrical character response from 20 ohm.m to 80 ohm.m. Based on the analysis of geoelectric resistivity data used to calculate the geometry of the peatland, the thickness of the peat soil ranges from 4.5 meters in the north and decreases in the south. At this depth there are shallow and deep aquifers so that if a peatland fire occurs, the water resources to meet the peatland are sufficient to stop the fire disaster.

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Session Classification: Parallel Session

Track Classification: Environmental, Conservation and Biodiversity