

# Thinking Environmental Management of Tropical Peatlands Through Rain Monitoring in East Sumatra, Indonesia



Thursday 16 December 2021 13:30-15:00

Mid-sized Meeting Room, Inamori Building

No  
Reservation  
required

 Zoom link <https://kyoto-u-edu.zoom.us/j/84387732651?pwd=NC93VWNscGNhbitHS1g5UU9NdE52dz09>



**Mariko Ogawa**

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Mariko Ogawa is an assistant professor at the Center for Southeast Asian Studies, Kyoto University. While earning a PhD in Engineering from Kobe University and working at the university until 2019, she has been observing the particle size distribution of rain and snow in Japan to improve the accuracy of rainfall estimation using remote sensing. Currently, she is mainly studying rainfall estimation using weather radar in tropical peatlands of Indonesia, which stores a large amount of carbon in underground. She is exploring the utilization of hydrological and meteorological disaster prevention information to minimize the spread of peat fires and flood risks.

Peatlands are widespread in the lowlands of Southeast Asia. In Indonesia, due to plantation development since 1970, these have been drying out and it is where forest fires often occur during the dry seasons of El Niño years. In 1997, there was almost no rain for some months during a period of haze, and groundwater levels dropped by about 50 cm. In flat areas of tropical peatlands with almost no water table gradient, the fluctuation of groundwater levels are mostly due to evapotranspiration except a rise during heavy rains. In some land managed by companies, water gates are operated to keep the groundwater level constant. The Indonesian maritime continent has a strong regular diurnal cycle of rainfall caused by land-sea breeze circulation and precipitation are a major factor that raises groundwater levels, preventing and mitigating forest fires. As such, in the lowlands of the island region of Southeast Asia, flood risk and forest fire risk are interlinked.

This presentation introduces and aims to help understanding of the characteristics of the surface distribution of rainfall in the peatlands of East Sumatra, and the fluctuation of groundwater level in terms of the presence or absence of rainfall, topography, and land use. In February 2020, a study project installed a weather radar device with high spatiotemporal resolution in Bengkalis Island, East Sumatra. This talk focuses on the possibility of estimating groundwater level information by using rain information for management in peatland areas. It will show how hydrological information obtained by this survey can be used by companies to control groundwater levels on a pilot basis.