DAG4PEAT&SKYTEAM

INDONESIAN PEAT PRIZE

# HIGH-ACCURACY, COUNTRY-WIDE MAPPING OF PEAT THICKNESS AND DISTRIBUTION WITH AIRBORNE ELECTROMAGNETICS

## THE CHALLENGE

Indonesia is home of the largest tropical peatlands in the world, which not only form some of the most important ecosystems for Indonesia, but which also significantly contribute to greenhouse gas emissions reduction if managed well. To do so, mapping the distribution and thickness of peatlands is one of the key factors. There's no accepted methodology for measuring peat thickness. The challenge is to find the: • **most accurate**, • **affordable**, and • **timely method**, of mapping the extent and thickness of Indonesian peatlands.

## THE TEAM


### DAG4PEAT

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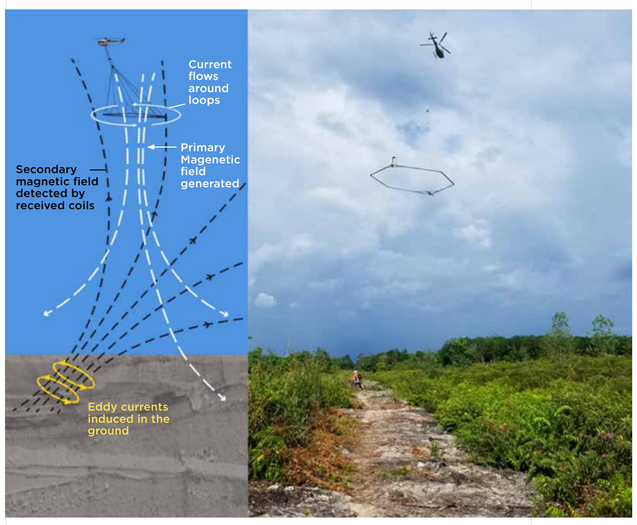
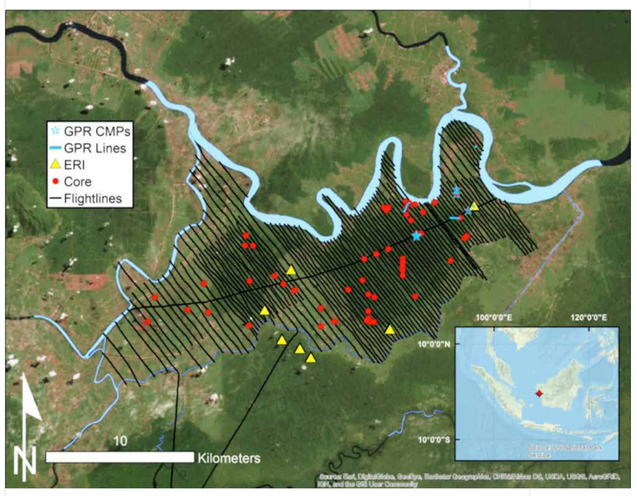
## THE METHODOLOGY



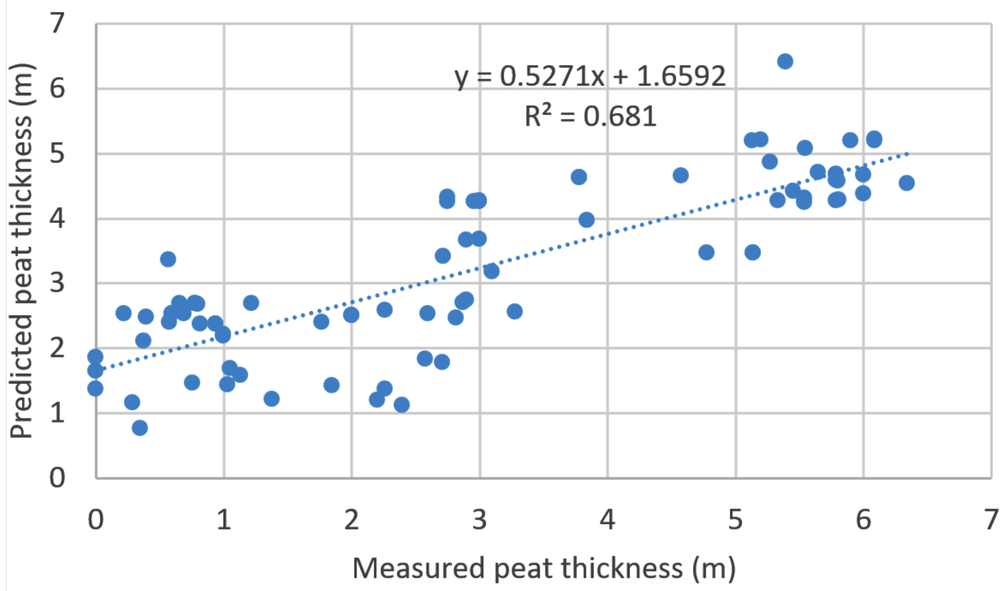

We committed to developing a new methodology centered on the use of an airborne geophysical technique–**the airborne electromagnetic** (AEM) method. This method utilizes the contrast between the electrical resistivity of peat and the underlying substrate to image the distribution of peat. Using a helicopter-deployed system, 250 to 300 line kilometers can be flown every day, acquiring the data needed to determine peat thickness every 30 m along the flight lines. We are convinced that this is the only method that can provide cost-effective mapping at the required scale and accuracy.

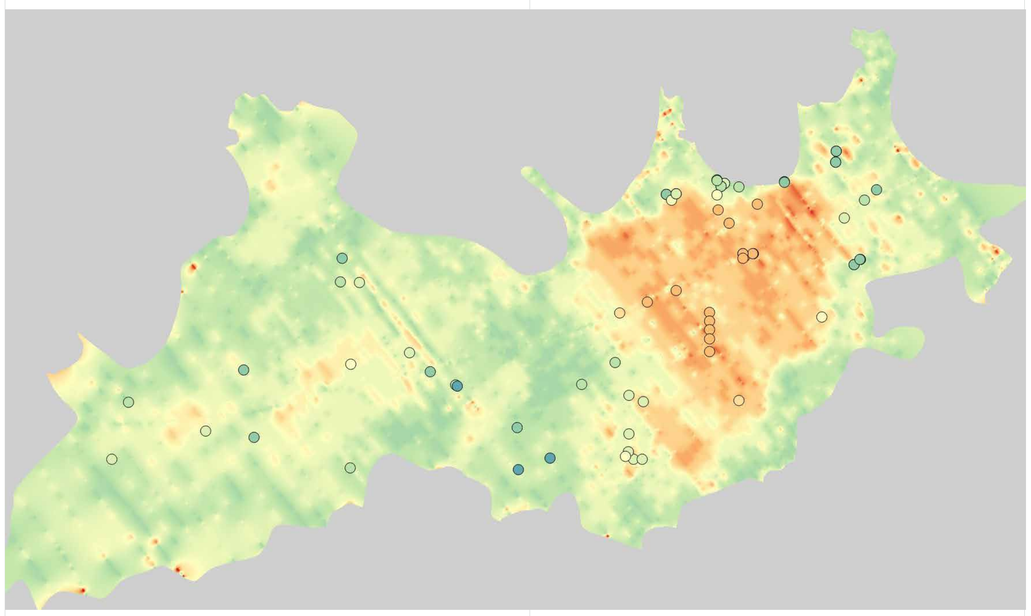
## THE CASE STUDY




The AEM methodology was tested at a selected peatland in West Kalimantan. Field work involved:
• planning flight lines using satellite imagery analysis;
• acquiring airborne electro-magnetic data for the entire study area;
• coring to confirm peat depth;
• testing electrical resistivity in the field and in the laboratory on core samples to determine electrical-resistivity contrasts between peat and underlying materials;
• imaging electrical resistivity to confirm understanding of electrical resistivity contrasts;
and
• acquiring ground-penetrating radar data along lines perpendicular to flight lines to assess the variability in peat thickness between flight lines.

## THE BENEFITS




We conclude, based on the results shown and the accuracy analysis performed, that our methodology, centered on the SkyTEM system, can be used to accurately map peat thickness in Indonesia.

**We are unaware of any other method that can provide the same level of areal coverage, accuracy, and speed of data acquisition for comparable costs.**

Stanford University • Aarhus Geophysics • SkyTEM • ESC Indonesia • Florida Atlantic University • Duke University • University of Wyoming • Universitas Tanjungpura • Badan Perencanaan Pembangunan Daerah • Kabupaten Tegal RPA

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