Climate Change Mitigation Project in LULUCF sector

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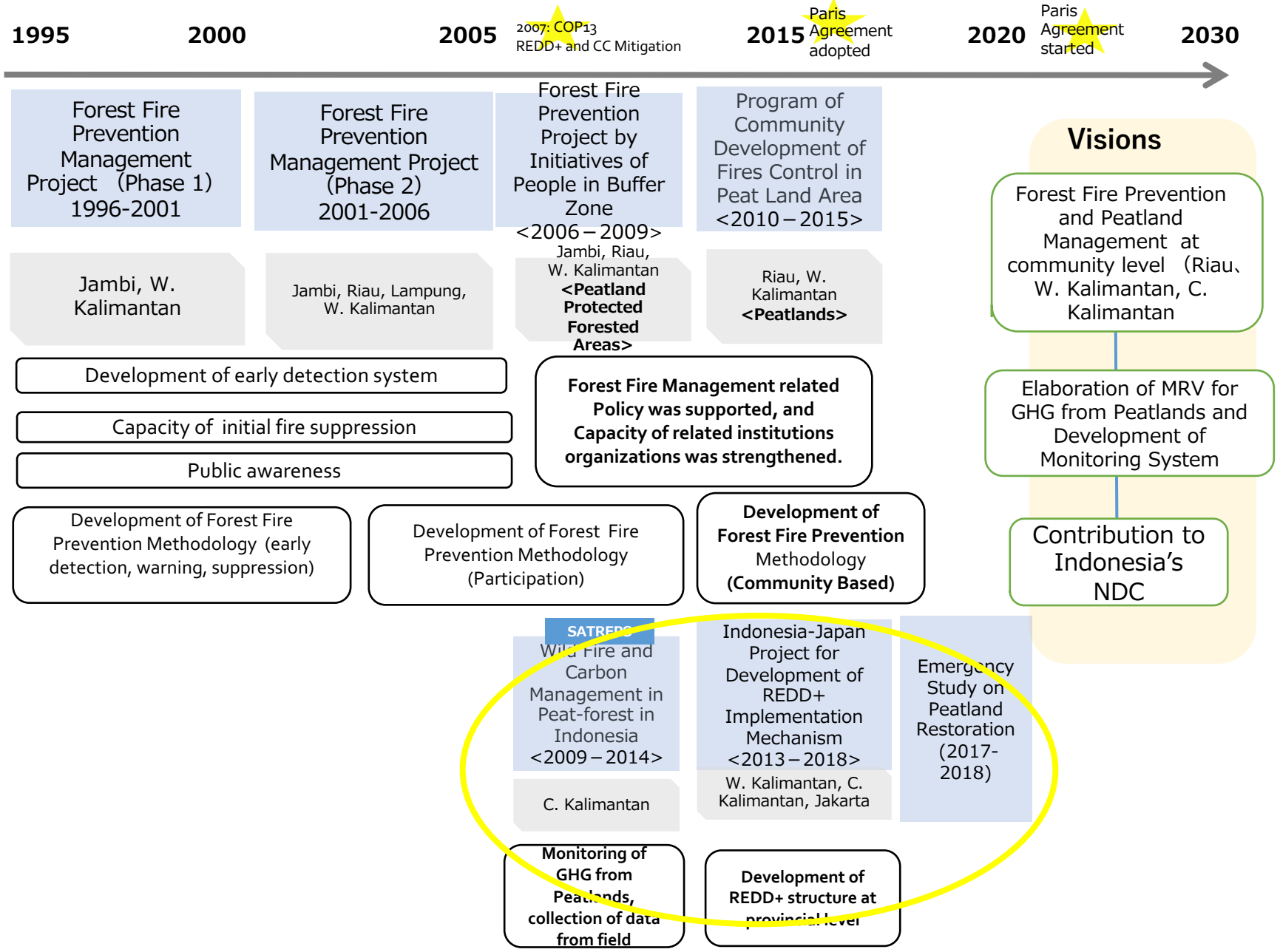
Outline

1. History of JICA's collaboration in the peatland sector

2. Project outline

1. Two key contributions

1. History of JICA's collaboration in the peatland sector (1)



1. History of JICA's collaboration in the peatland sector (2)

2008-2013
Wild Fire and Carbon Management in Peat-forest in Indonesia (SATREPS research)

2013-2018
Indonesia-Japan Project for Development of REDD+ Implementation Mechanism (Technical Cooperation)

2017-2018
Elaboration of Peatland Restoration (Emergency study)

2. Project outline

Duration: 2024 – 2027 for 3 years

Implementing Agency:

Directorate of GHG Inventory and MRV
Directorate General of Climate Change
Ministry of Environment and Forestry

Project site: South Sumatra province

Project Purpose:
Strengthening the sustainable land management for contributing to climate change mitigation to achieve Indonesia's NDC in LULUCF sector.

3. Key Contributions

I. Operationalization of the Tier 3 monitoring system of GHG emissions from peatlands

II. Sustainable ecosystem & water management of oil palm plantations at peatlands

I. Operationalization of Tier 3 monitoring system of GHG emissions from peatlands

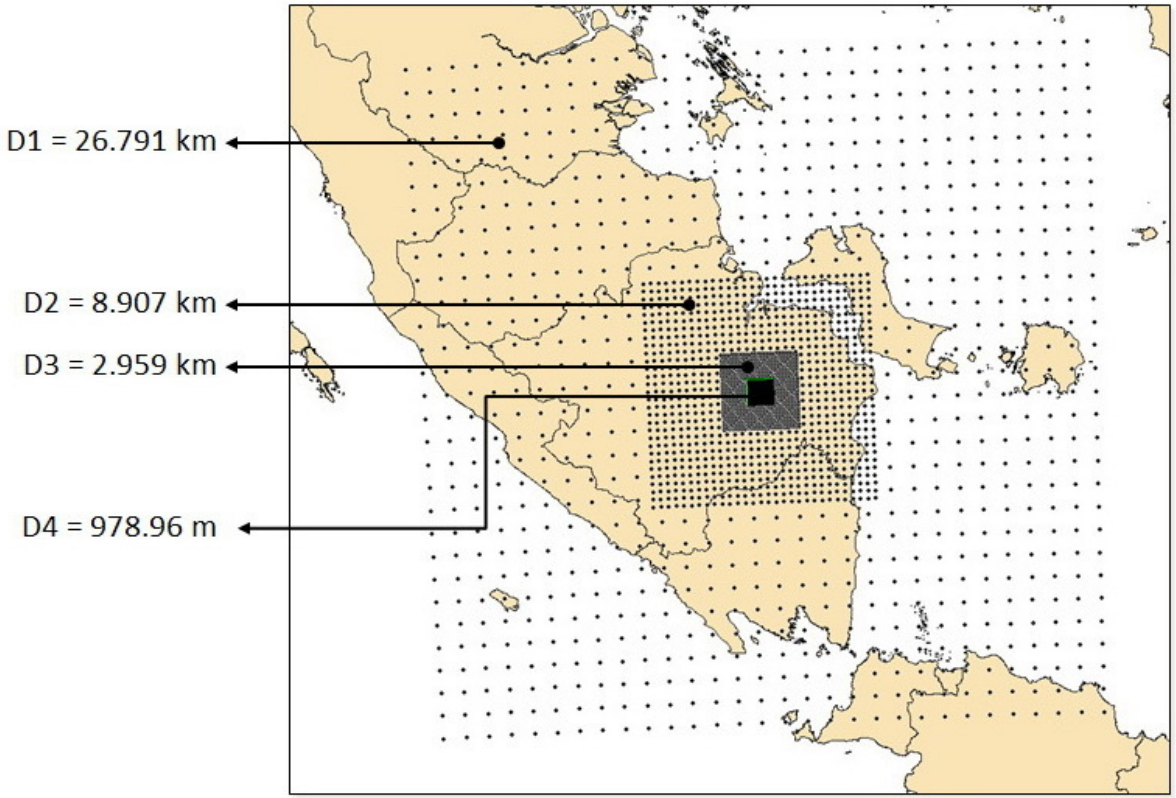
1) Automated soil moisture/GWL prediction system

< Past development >

- Model is already developed based on the WRF (Weather Research and Forecasting) simulation and installed at BRIN

- Verification results of WRF simulation and field data
  $R^2 > 0.6$ (81%), $R^2 > 0.7$ (68%)

WRF Land Surface Model with Insitu Measurement



WEATHE RESEARCH AND FORECASTING MODEL

W R F

0.25 Deg

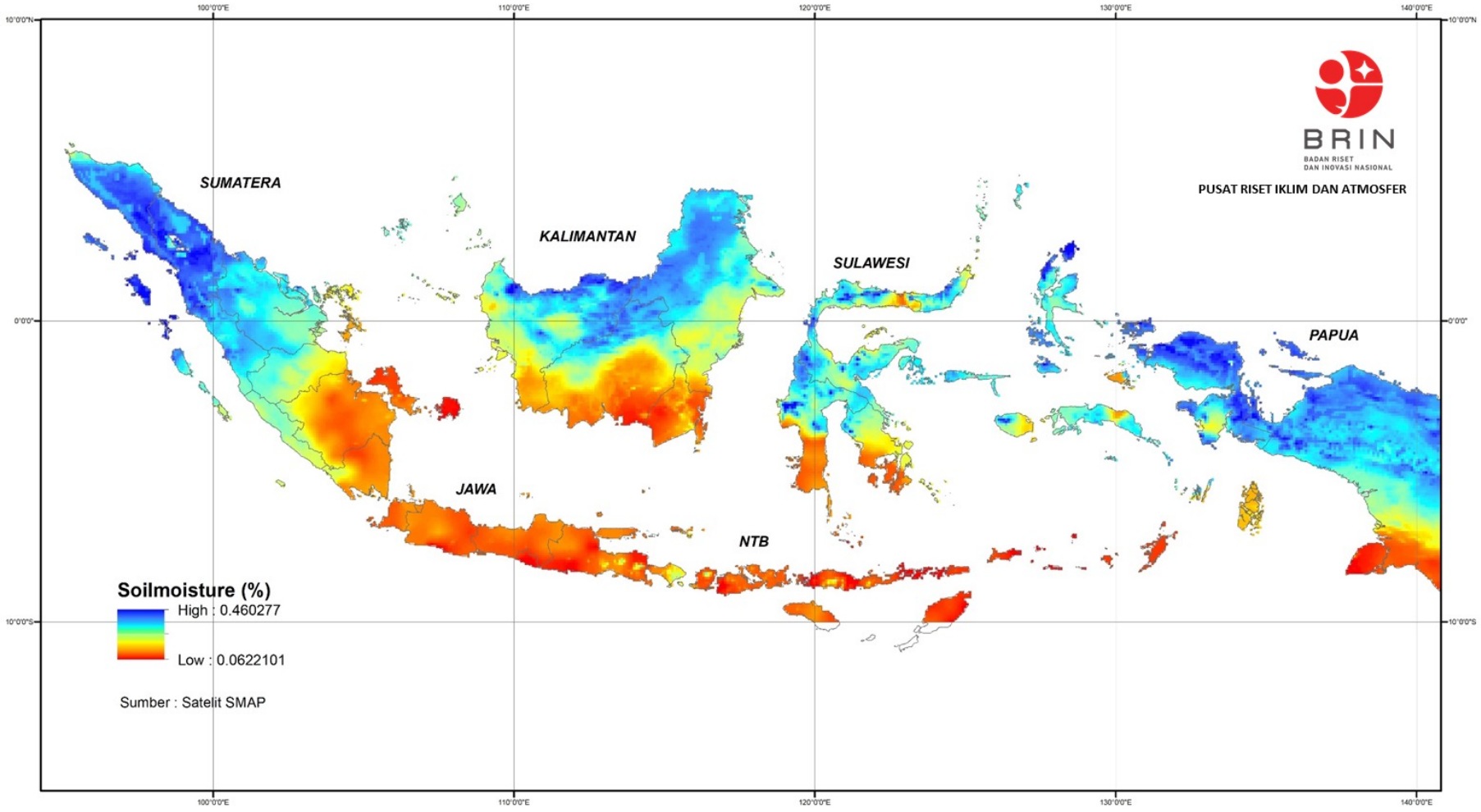
WRF

1 km x 1 km

Atmosphere-Ocean Modeling at BRIN

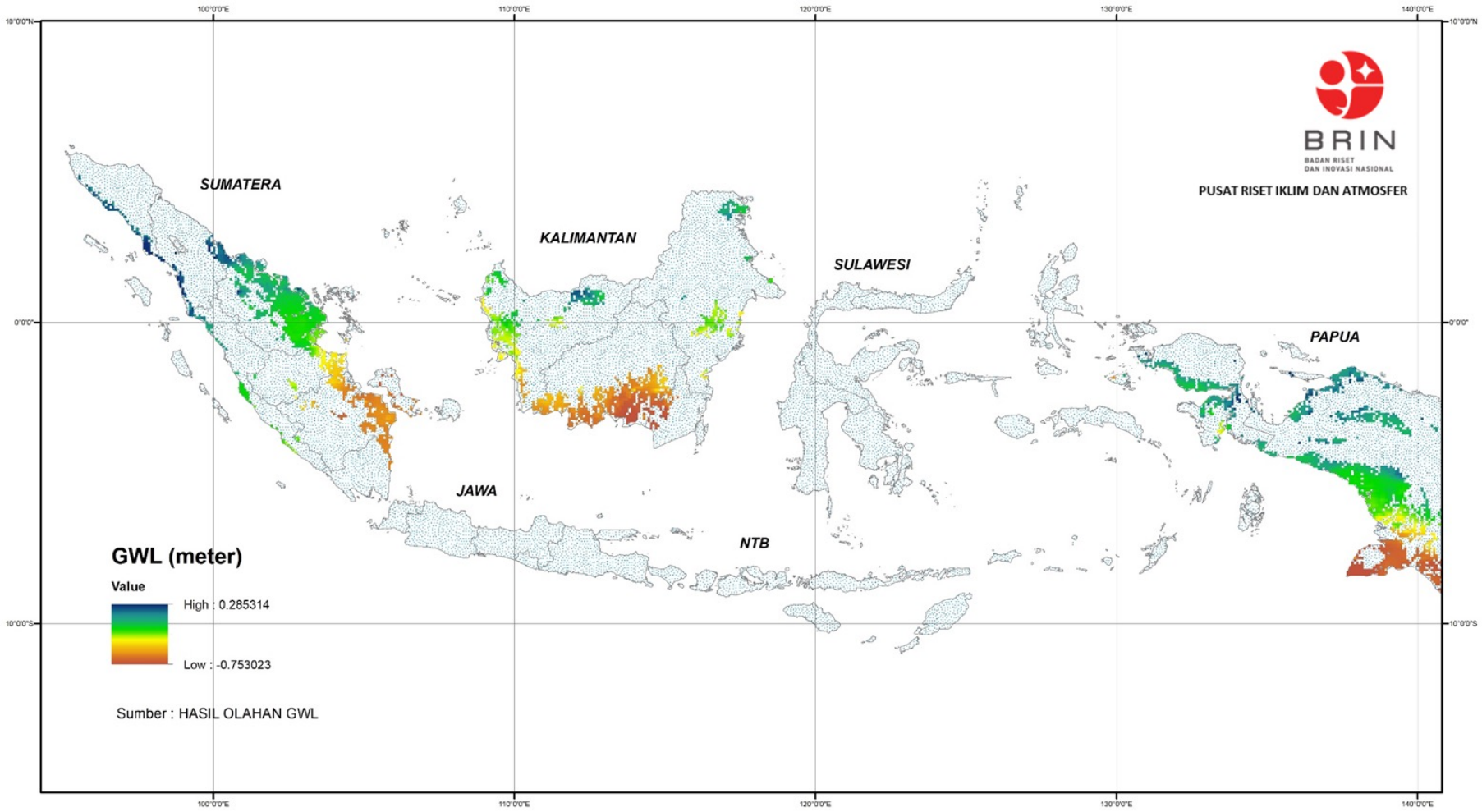
SOIL MOISTURE

WRF 25 September 2023



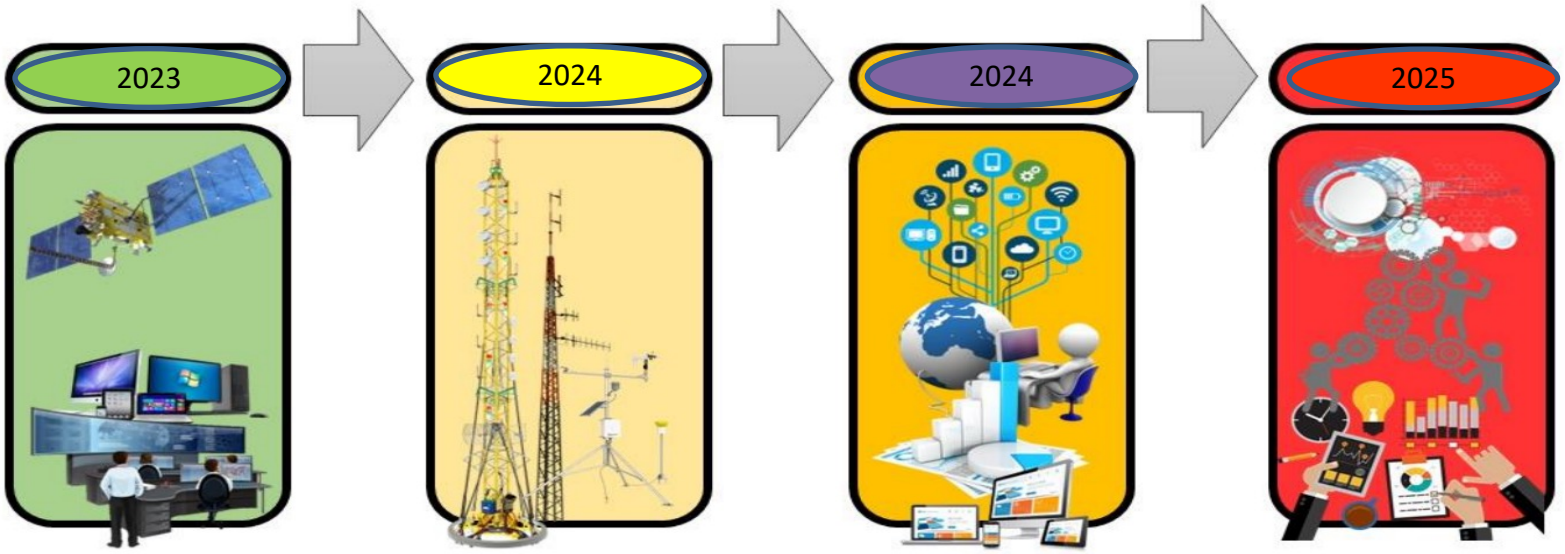
GROUND WATER LEVEL

Based on the analysis of WRF 25 September 2023



< What to achieve through the LULUCF project >

Roadmap

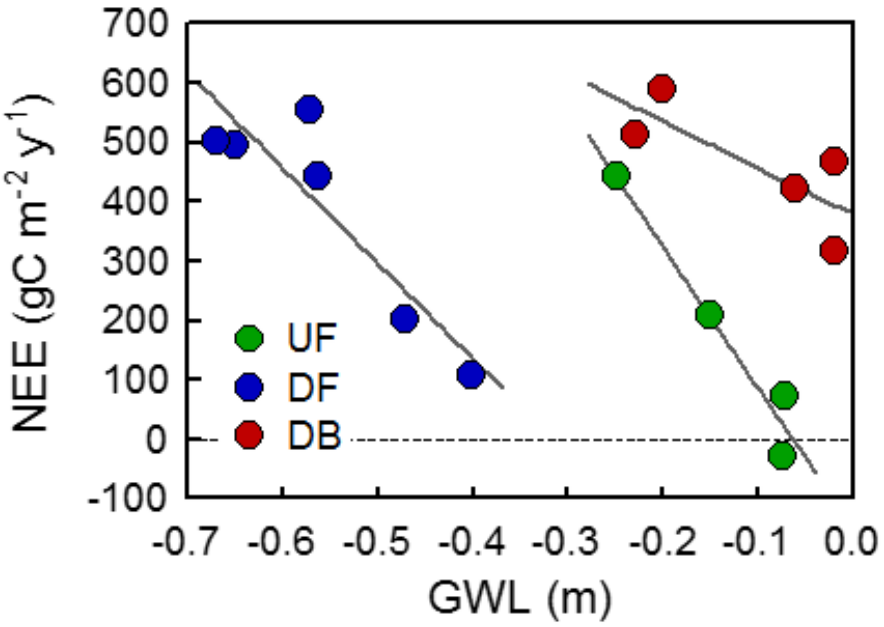


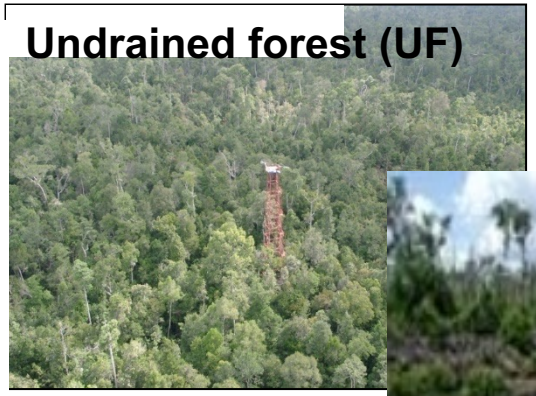
✓ GWL assessment with 1 km mesh and daily update

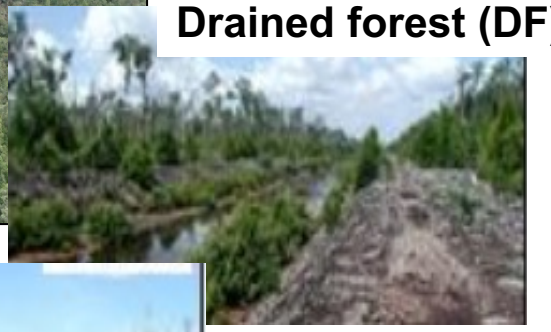
2) Mapping of CO_2 emissions due to soil decomposition based on GWL data

< Past development >

- GWL – NEE (Net Ecosystem Exchange) formula is already developed at the UNPAR sites







Drained Burned (DB)

< What to achieve through the LULUCF project >

- ✓ GWL – NEE formula is to be assessed through the monitoring of CO_2 & CH_4 flux and GWL in South Sumatra

- ✓ Tier 3 method (combination of measurement and model approaches) of the emission monitoring for CO_2 & CH_4 flux is to be elaborated.

II. Sustainable ecosystem & water management of oil palm plantations at peatlands (AeroHydro system)

< Past development >

- Experimentation of the AeroHydro system in Riau showed a good result

< What to achieve through the LULUCF project >

✓ Endorsement of effectiveness of application of AeroHydro system through scientific data

✓ Experimentation of the AeroHydro system at plantation concessions

Thank you very much.