



Spatio-temporally continuous evaluation on CH₄ emission from tropical rice production

- 熱帯水稲栽培由来のメタン発生量を時空間連続的に評価する手法の開発 -

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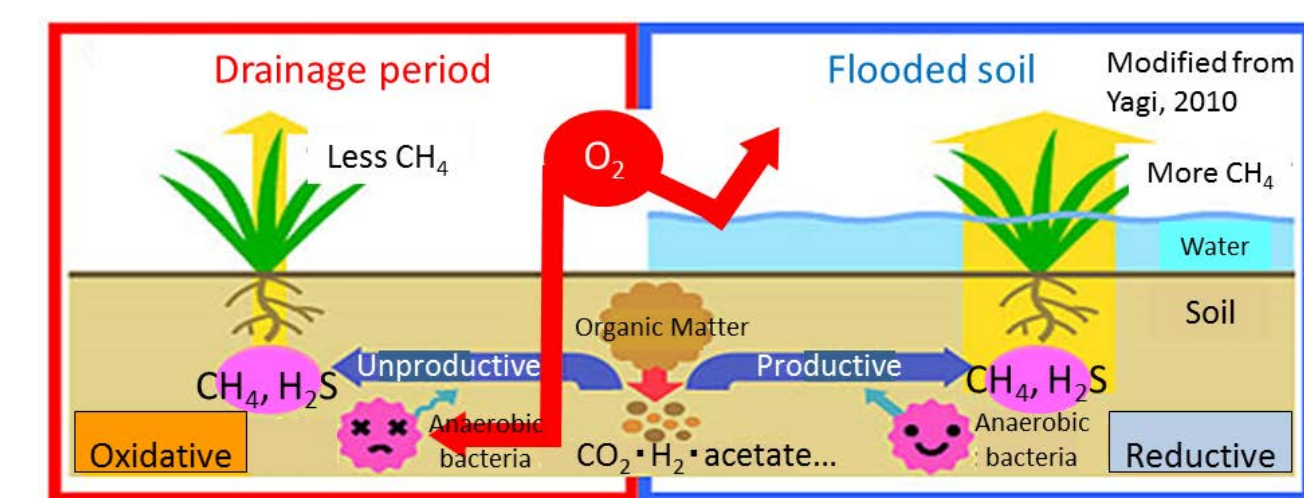
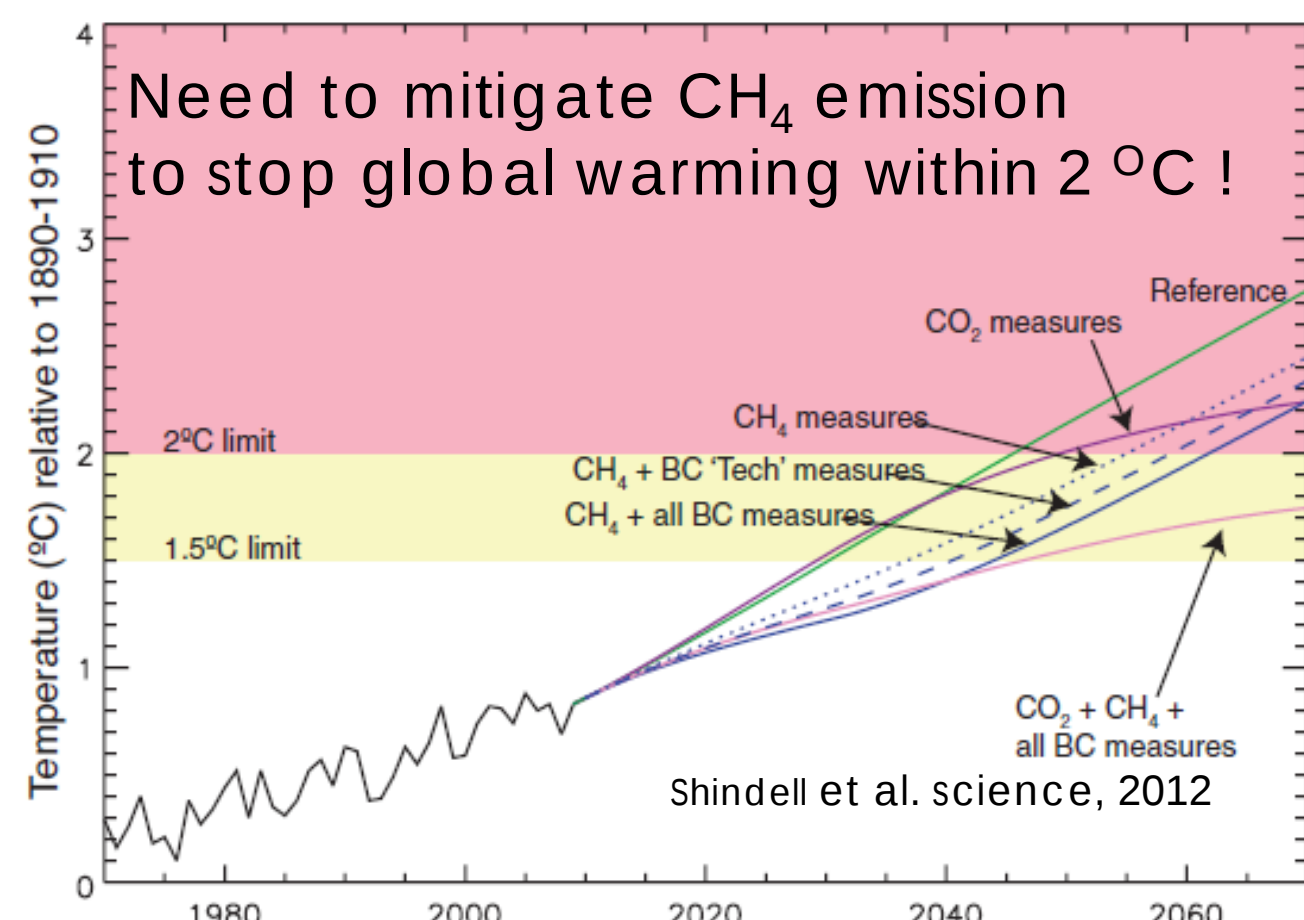


CLIMATE
ACTION

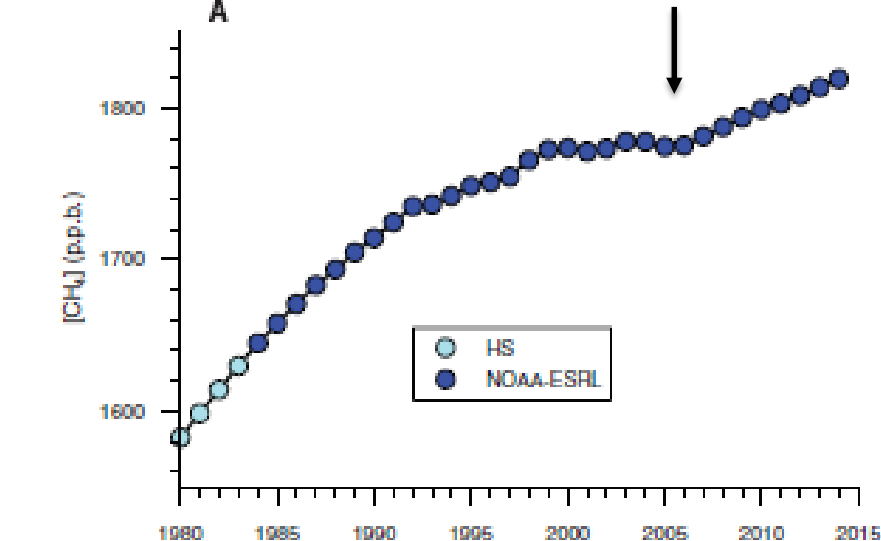


Introduction

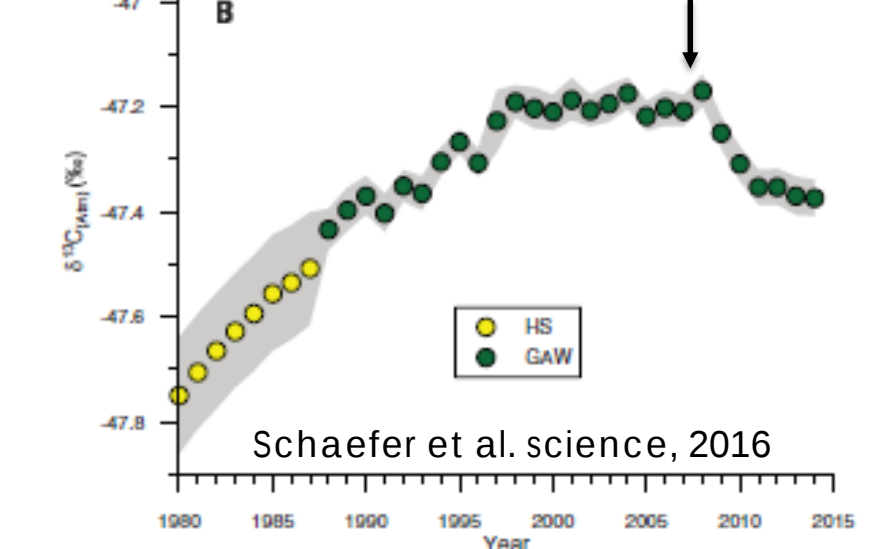
How much rice production contributes to global warming?



Drastic CH₄ concentration increase in the atmosphere!

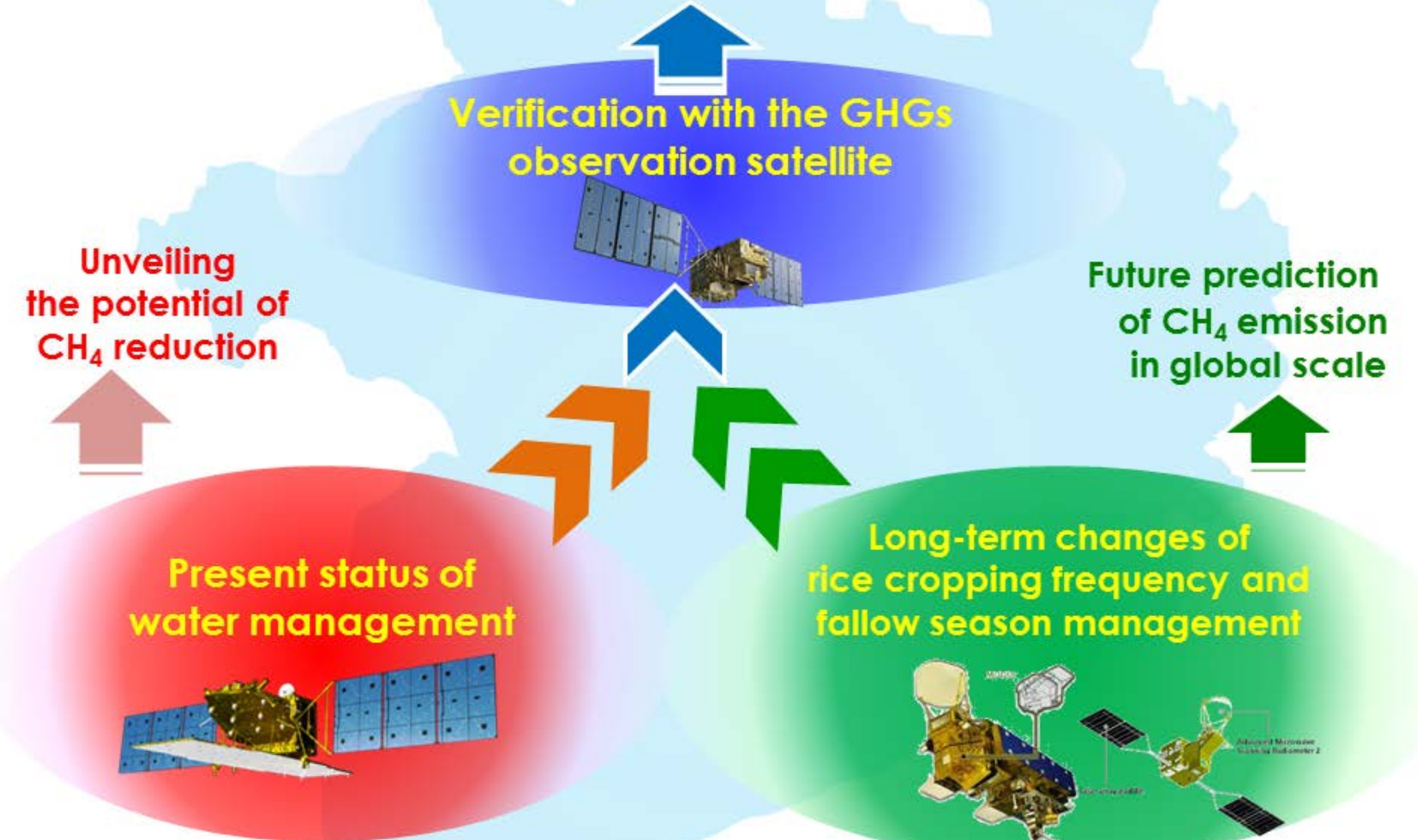


The drastic increase is derived from bacteria!

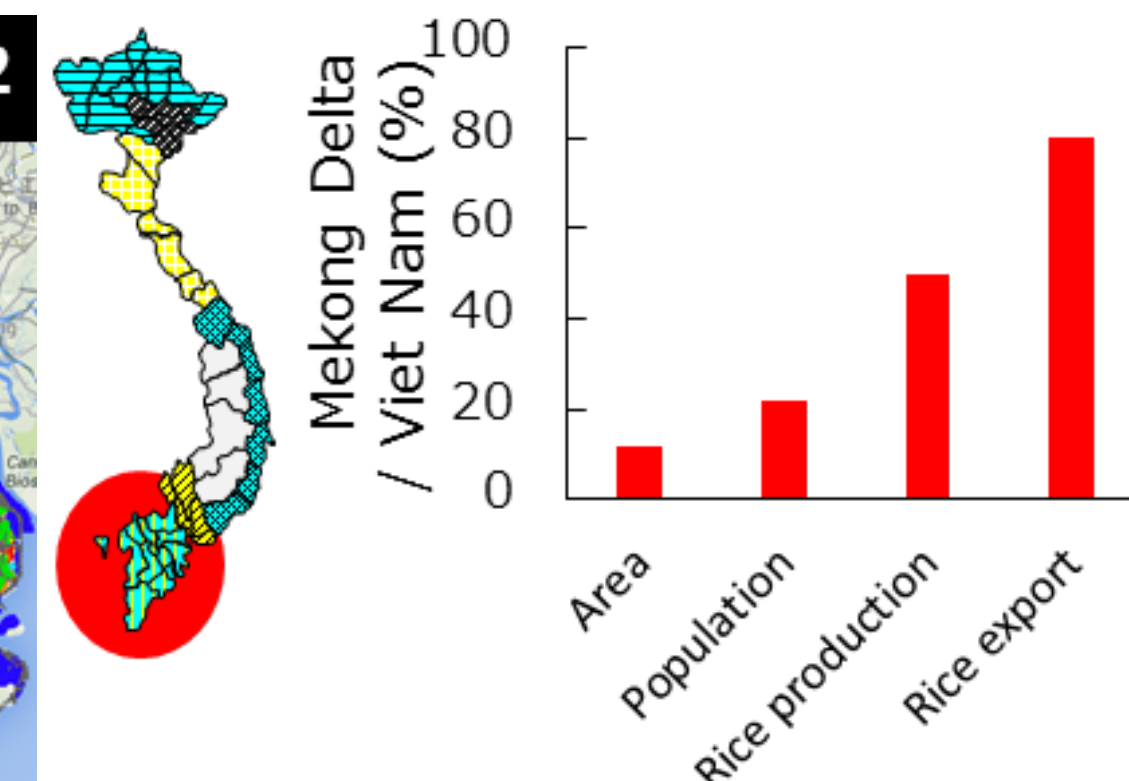
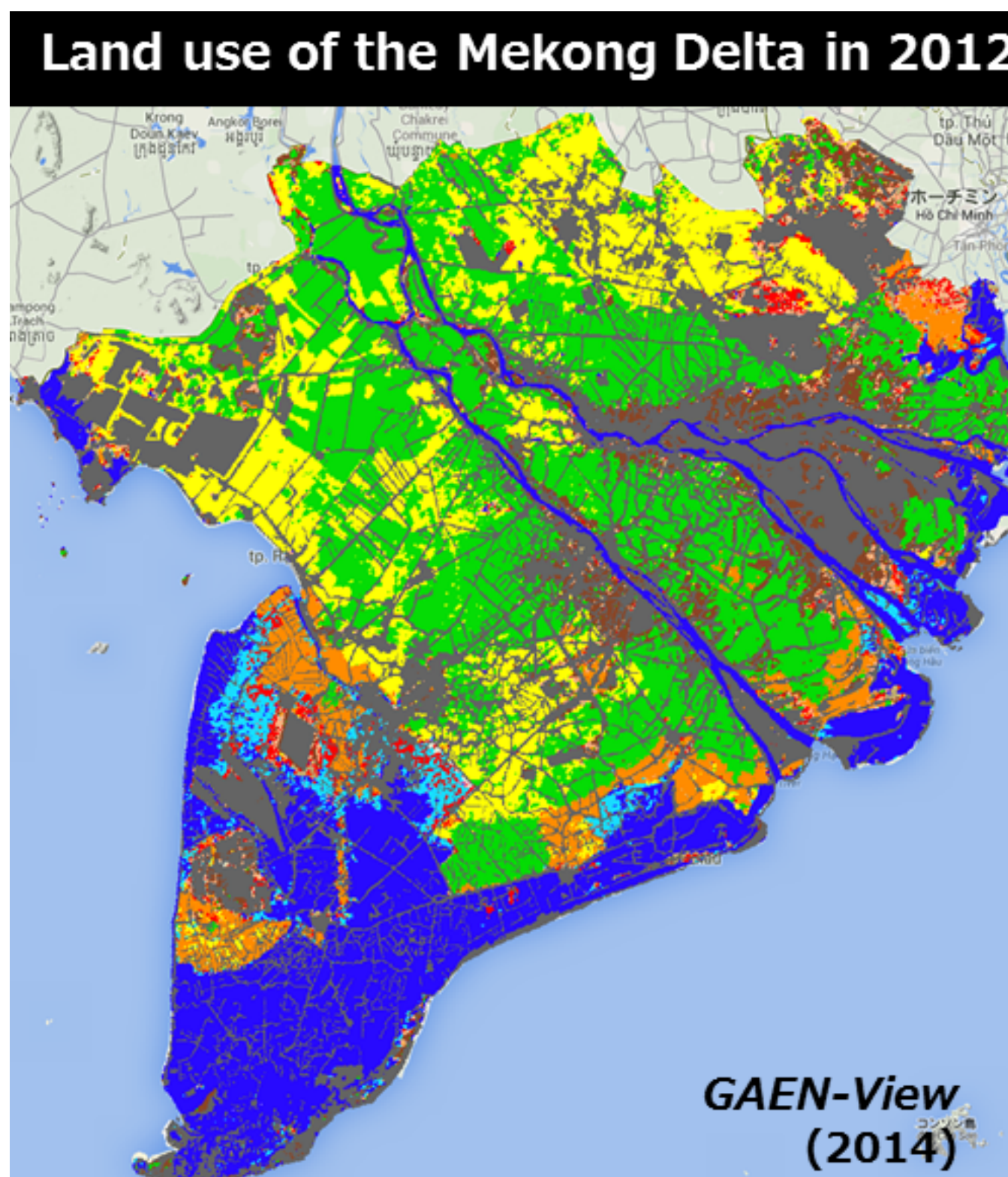


Outline

Scientific decision making of the whole delta management



Sites and data collection



Multipoint & continuous ground data collection

• Statistical modeling for CH₄ emission estimation with remote-sensible parameters and GIS data

• Train high spatial-resolution satellites data



Preliminary results

Hierarchical Bayesian modeling

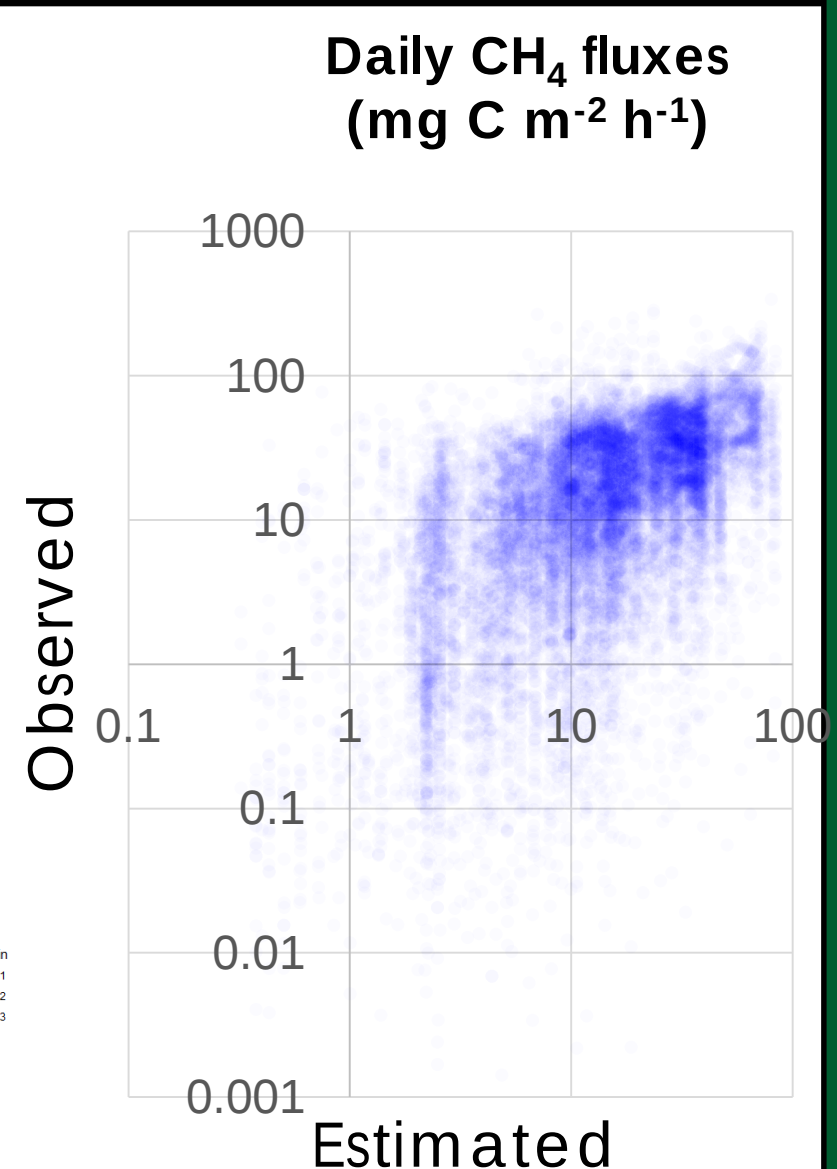
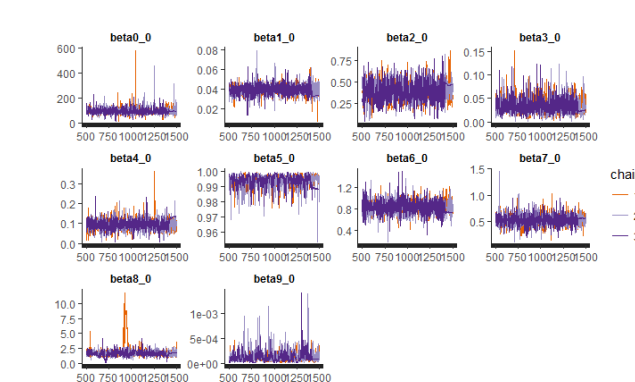
Dependent variables to estimate daily CH₄ fluxes in a pixel

Fixed effects (Remote sensible parameters or GIS data)

- Land Surface Water Coverage
- Days after sowing
- Fallow seasons' water regime
- Fallow seasons' length
- Soil type
- Straw burning detection

Random effects

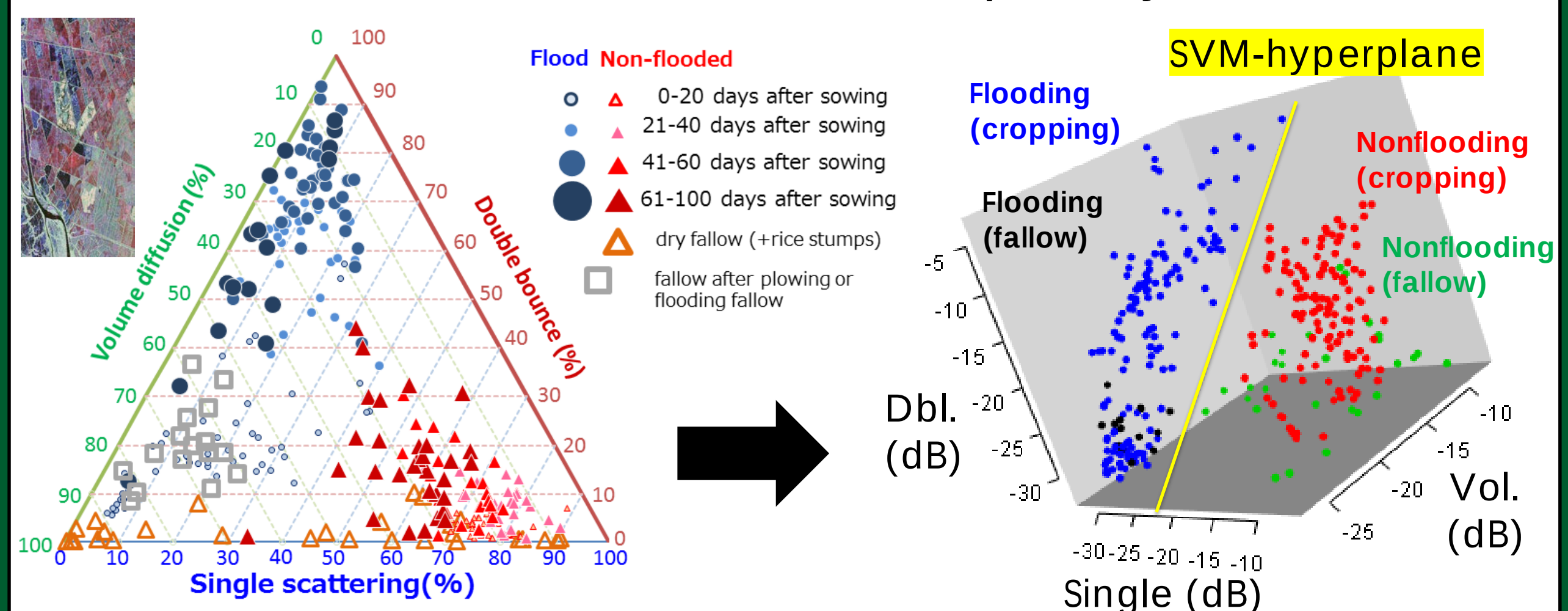
- Observation year
- Season
- Location
- Water management



L-band Synthetic Aperture RADAR -ALOS/PALSAR2-

• High-spatial resolution full polarimetric data

→ flooded and non-flooded paddy classification



• SCAN-SAR data

→ Correction of the incidence angle bias

