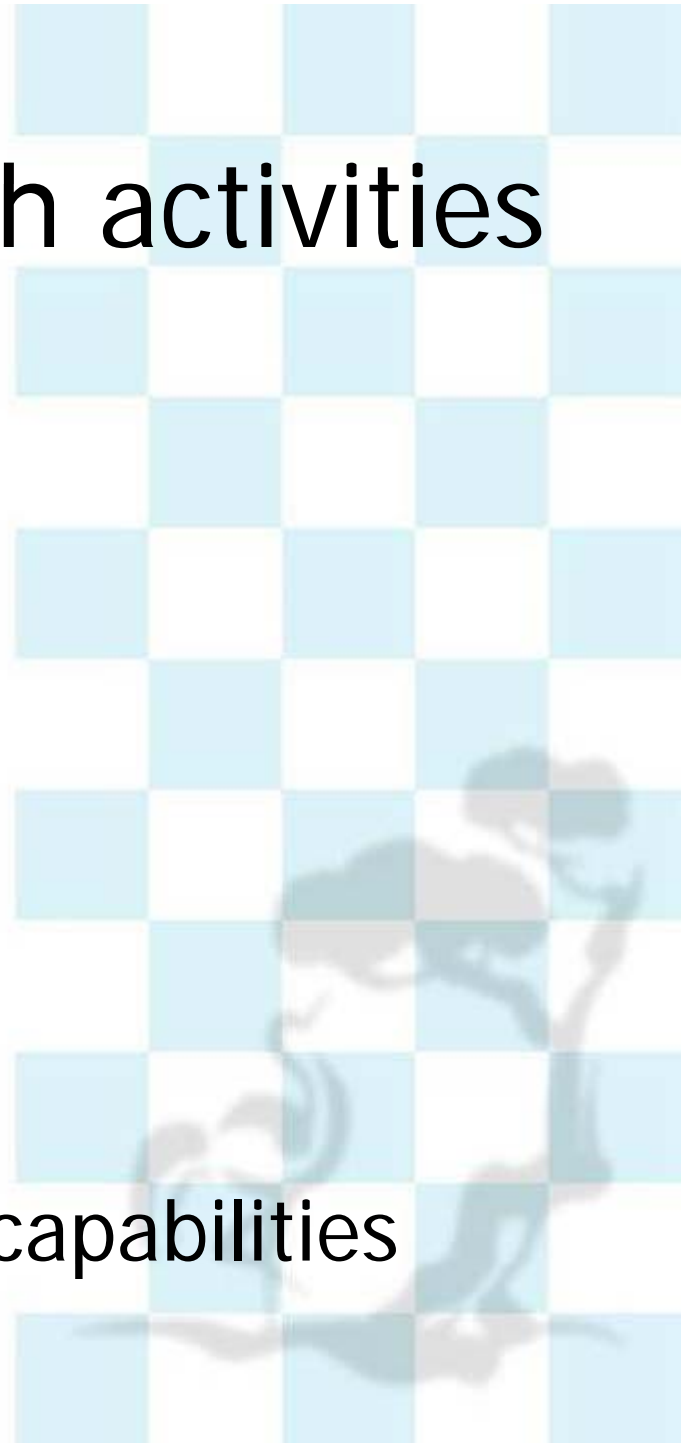


# Stock-take of research activities in Japan

NIAES

Kazunori MINAMIKAWA

- Introduction
- Contact persons
- Research priorities & capabilities



# Rice cultivation in Japan

- occupies 7% of land surface area
- almost completely irrigated
- mainly transplanting & single cropping
- machinery operations

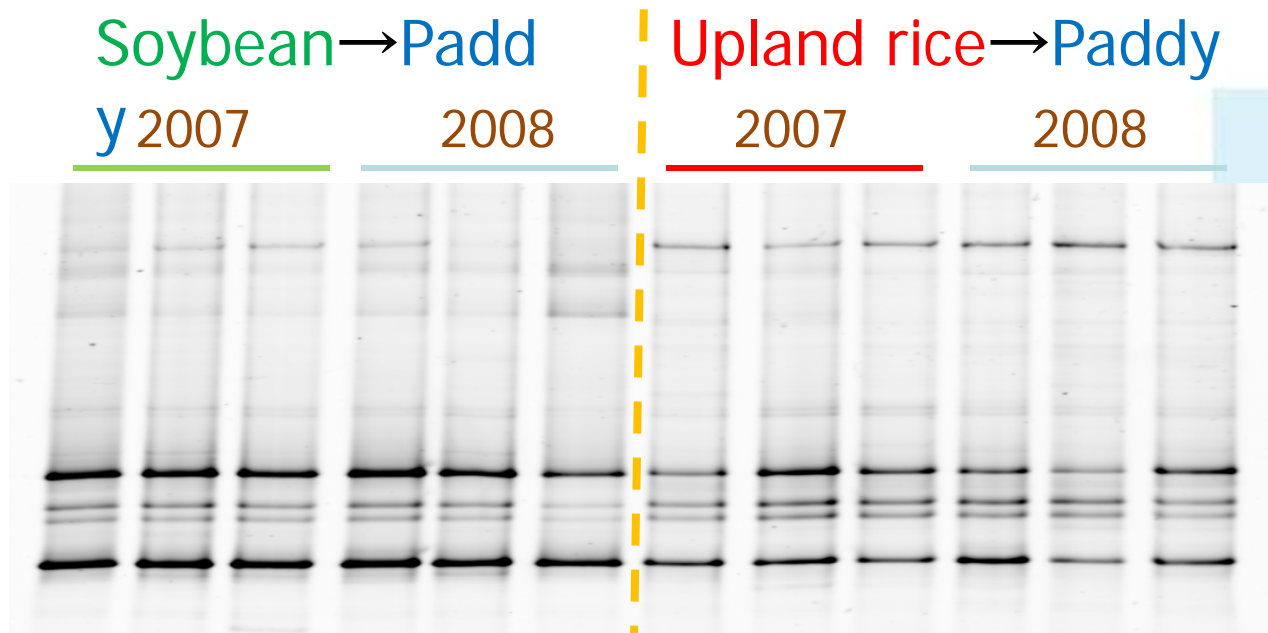


# Stock-take for irrigated rice

Gas	Focus	Subject	Topic
CH <sub>4</sub>	Process understanding/ manipulation	Microbial ecology	Community structure study
		Soil biology	Processes related to mitigation
	Quantifying emissions	System interactions & integration	Quantifying various mitigation options
		Modeling	DNDC-Rice model
	Measurement techniques	Engineering/ technology	Automated GHG flux monitoring
	Accounting methodologies	Modeling	Tier 3 methodology
	Socio-economic	Agronomy	Mitigation options acceptable for farmers
N <sub>2</sub> O inorgN	Process understanding/ manipulation	Soil biology	Mechanisms of N <sub>2</sub> O emissions
	Accounting methodologies	GHG accounting/ life cycle analysis	Accounting emission factors
Soil C (CO <sub>2</sub> )	Quantifying emissions	System interactions & integration	Eddy covariance flux measurement
	Accounting methodologies	Modeling	RothC model for paddy soils

# Masahito HAYATSU / NIAES

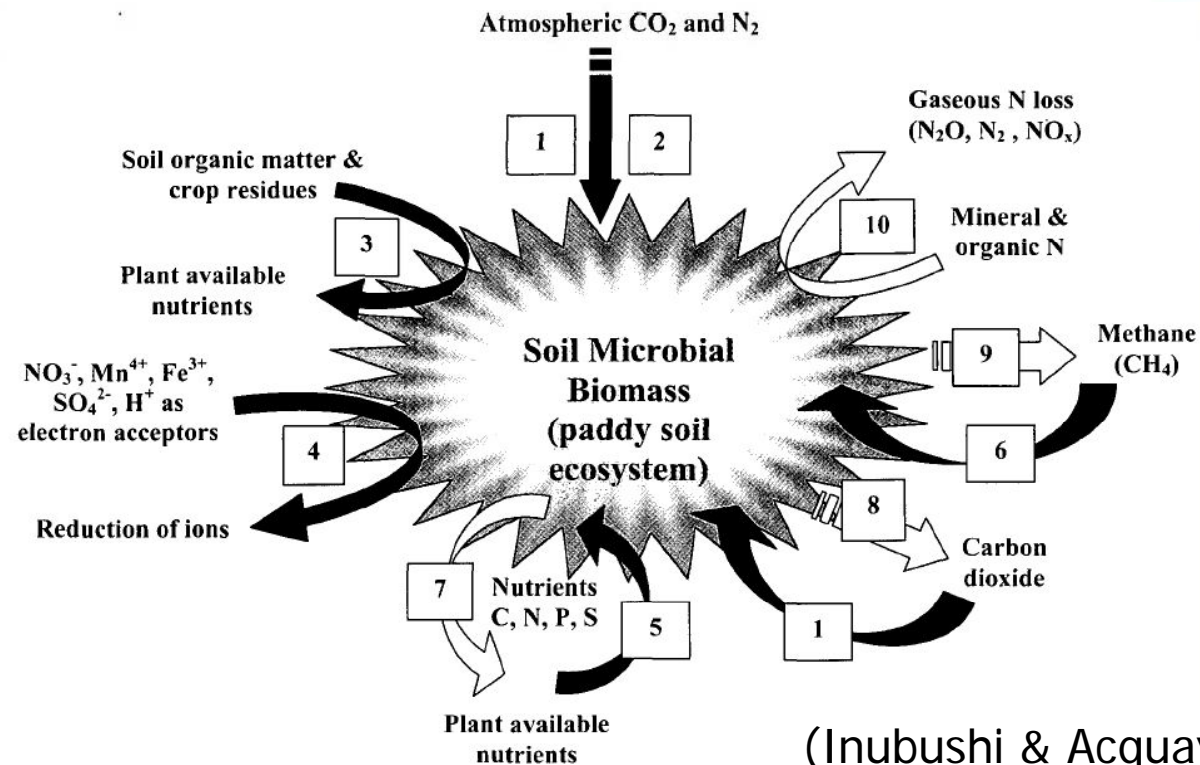
- Process understanding/manipulation
- Microbial ecology
- Community structure study



No shift in the DGGE pattern of AOB (*-amoA*) during paddy-upland rotation

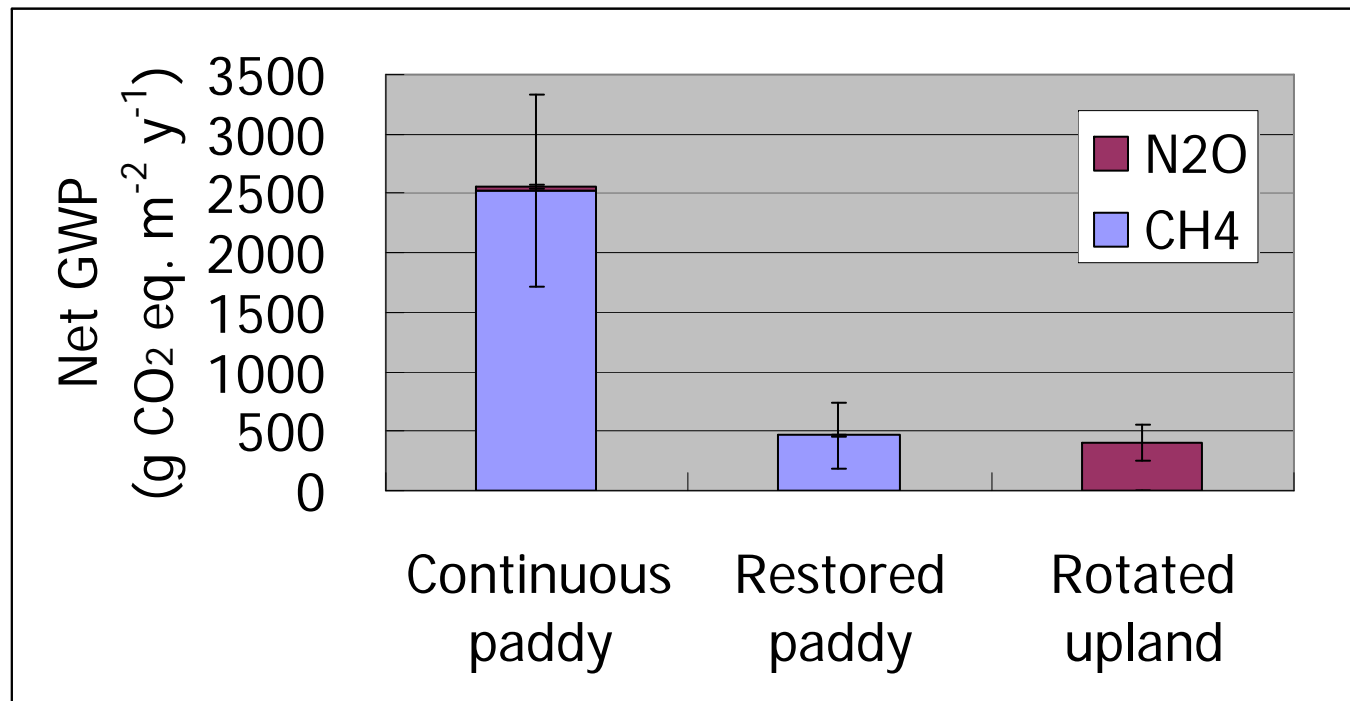
# Kazuyuki INUBUSHI / Chiba Univ.

- Process understanding/manipulation
- Soil biology
- Processes related to mitigation



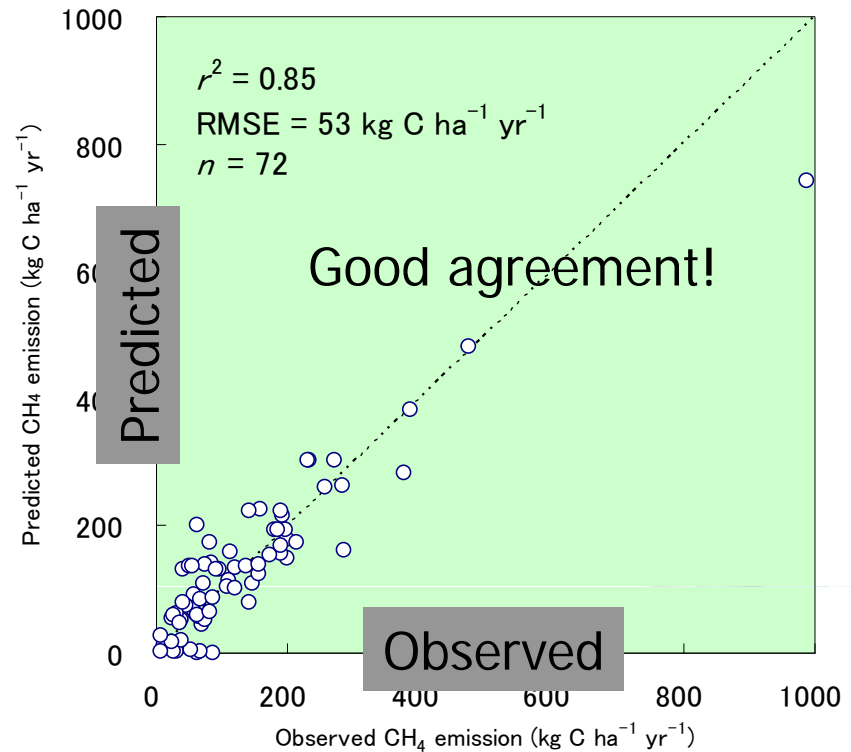
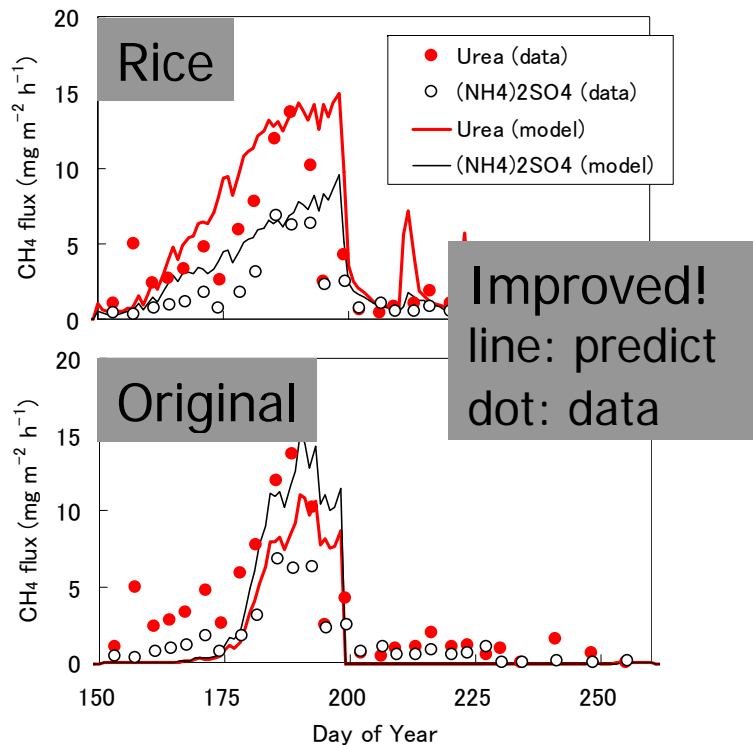
# Osamu NAGATA / NARCH

- Quantifying emissions
- System interactions & integration
- Quantifying various mitigation options



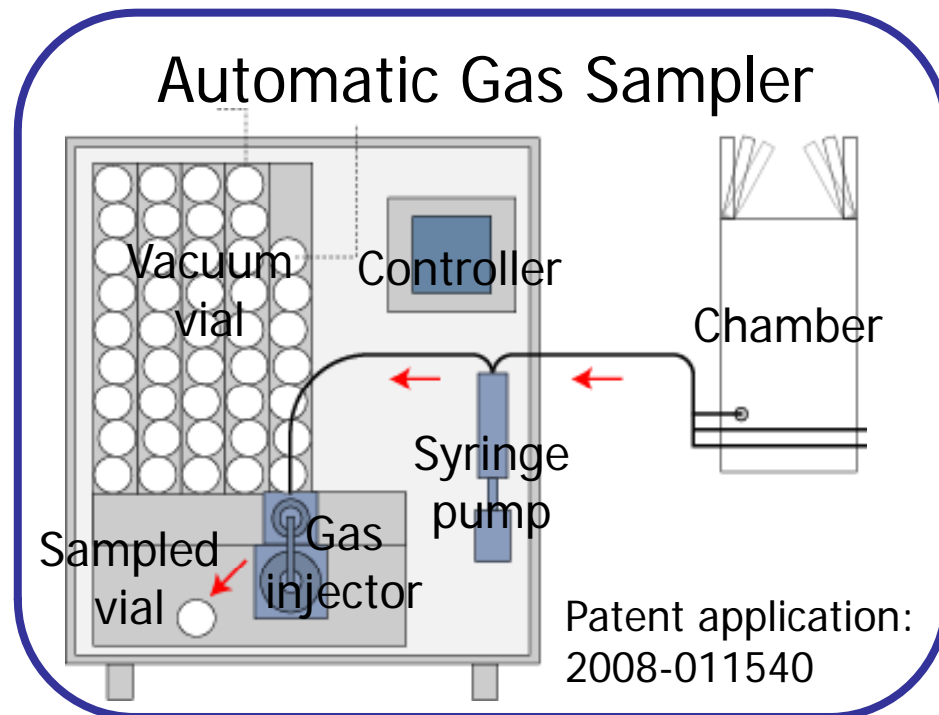
# Tamon FUMOTO / NIAES

- Quantifying emissions
- Modeling
- DNDC-Rice model



# Shigeto SUDO / NIAES

- Measurement techniques
- Engineering/technology
- Automated GHG flux monitoring

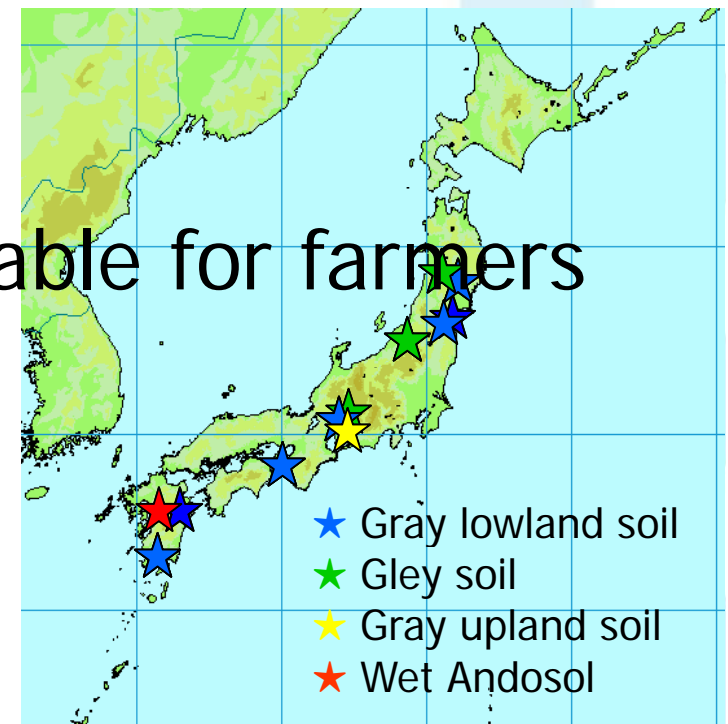




# Kazuyuki YAGI / NIAES

- Accounting methodologies
- Modeling
- Tier 3 methodology
- Socio-economic
- Agronomy
- Mitigation options acceptable for farmers

National Campaign to Test the Effects of *Elongated Mid-season Aeration* on Mitigating CH<sub>4</sub> (in FY2008-2009)



# Hiroko AKIYAMA / NIAES

- Process understanding/manipulation
- Soil biology
- Mechanisms of N<sub>2</sub>O emissions
- Accounting methodologies
- GHG accounting/Life cycle Analysis
- Accounting emission factors

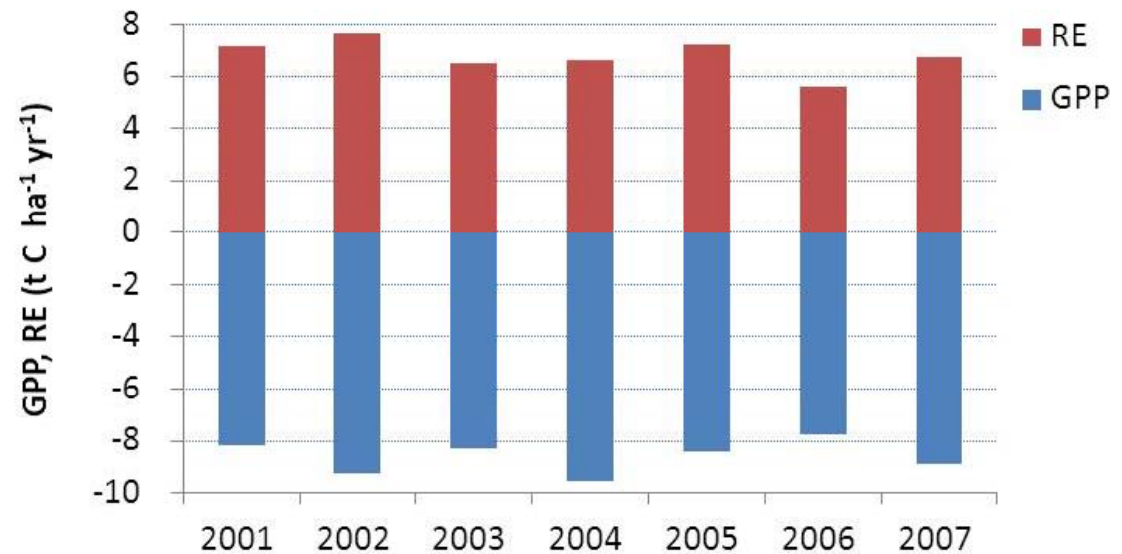
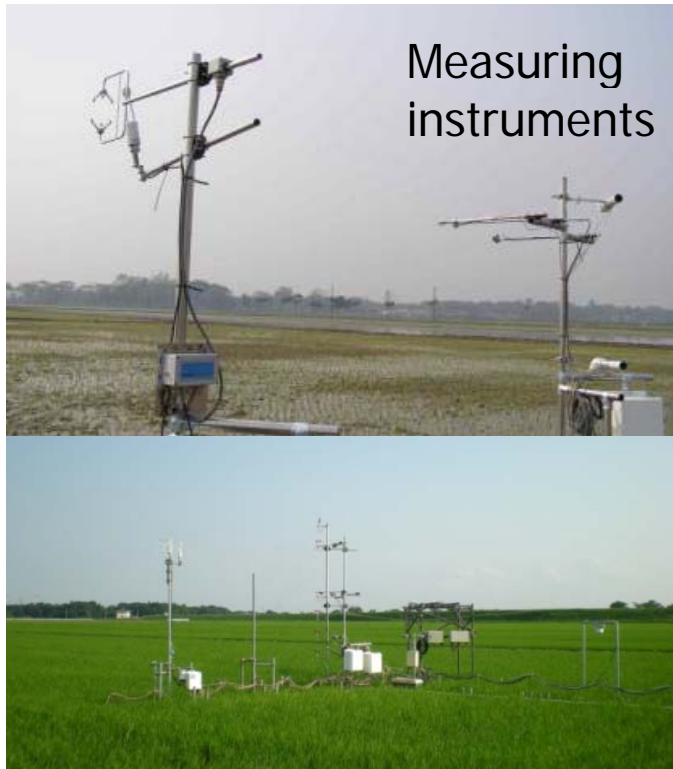
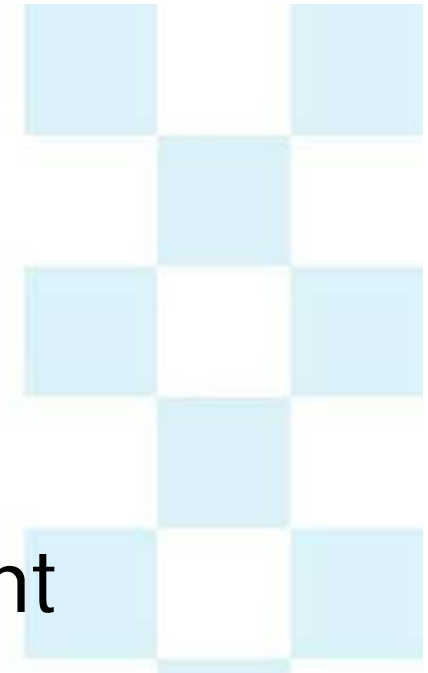
Table 6-31 N<sub>2</sub>O emission factor for synthetic fertilizer to agricultural soil

Crop species	Emission Factor (kgN <sub>2</sub> O-N/kgN)
Paddy rice	0.31 % (Data from
Tea	2.9 % Akiyama et al.,
Other species	0.62 % 2006)

(National Greenhouse Gas Inventory Report of Japan, 2010)

# Akira MIYATA / NIAES

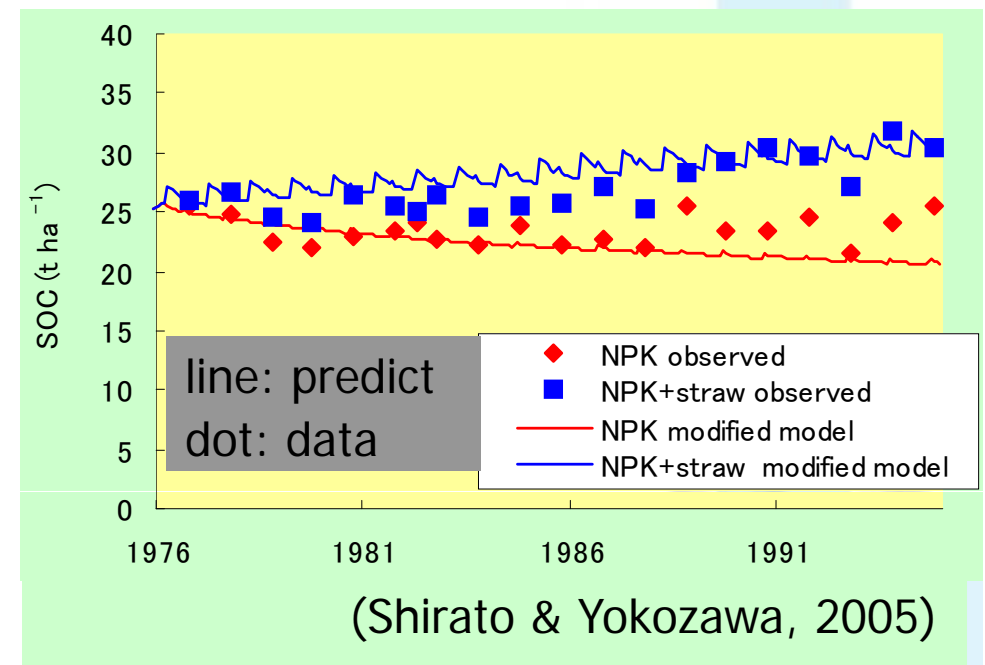
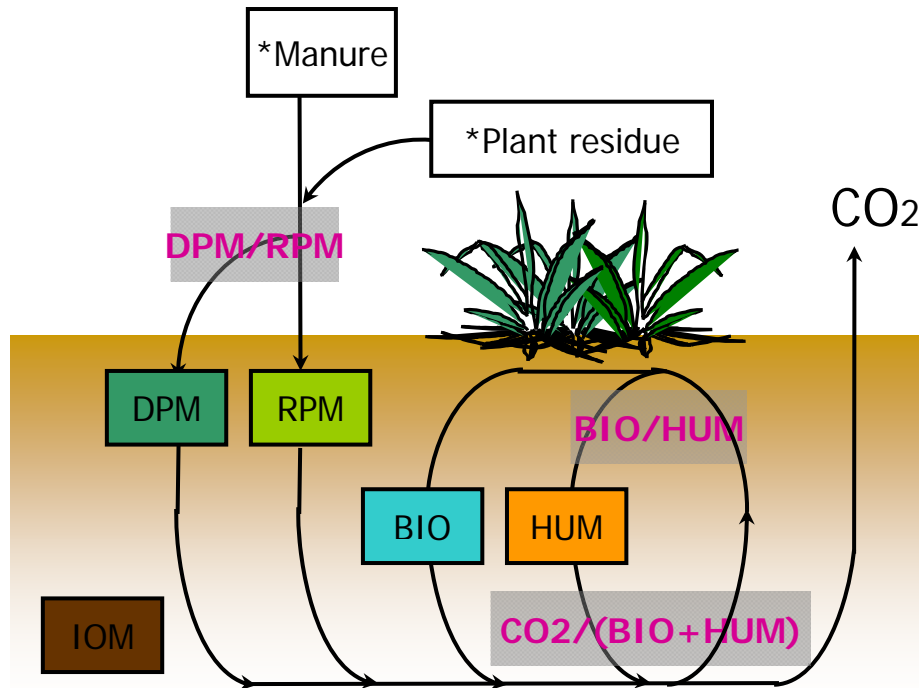
- Quantifying emissions
- System interactions & integration
- Eddy covariance flux measurement



Long term trend in Gross Primary Production (GPP) & Ecosystem Respiration (RE)

# Yasuhiro SHIRATO / NIAAES

- Accounting methodologies
- Modeling
- RothC model for paddy soils



# Research priorities & Capabilities

- Developing feasible mitigation options, such as water & straw management
- Modeling with using DNDC-Rice
- Many studies on monitoring, modeling, and inventory
- but mainly focused on irrigated paddies

