

<Keynote lecture>

Prof. Rice suggested:

- Importance of up-scaling
- Research gaps between mechanism study and modeling

<Oral presentations>

- DNDC for CH₄ and N₂O in rice-based cropping system in India.
- DNDC for CH₄ from rice paddy in Japan.
- RothC for SOC in agricultural land of Japan
(CENTURY model application in China)

<Key note>

Prof. Rees suggested: DNDC is more mechanistic than the RothC or CENTURY.

<3 oral presentations>

- Use of plot-scale model at regional scale after validation at plot scale.
- Plot scale Validation is still needed.
- Preparation of spatial input data (weather, soil, land use, management) would contribute more for reducing total uncertainty in regional scale.

Soil - Modeling

Research Gaps

- Up-scaling: Change model in different scale **VS.** Using plot scale model in regional scale after validation at plot scale
- Detailed mechanism **VS.** benefit of simple model
- Uncertainty analysis
- Initialization method

<Plot scale, understanding mechanisms>

- Develop models which capture important process (composition of microorganisms, aggregate, etc.)

- Validation using long-term data:
Cooperation study, data sharing,

<Regional scale (accounting, prediction)>

- Data preparation (Soil, weather, land use, management)

- Synthesis evaluation (trade-off among 3GHGs, Life cycle assessment (LCA))