

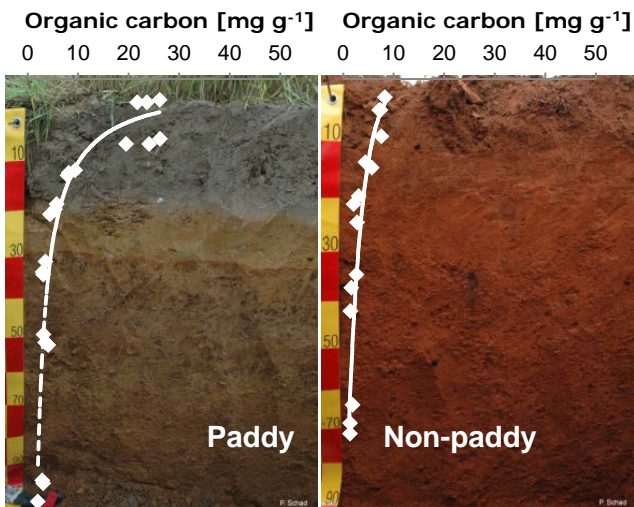
From soil pit to field scale

Management factors like tillage, fertilization and crop rotation are key drivers for biogeochemical cycles in submerged agro-ecosystems...



International Rice Research Institute (Los Baños, Philippines)

... and thus crucial for soil development and the resulting biogeochemical soil properties.



Yingtian Red Soil Ecological Experiment Station (Jiangxi Province, PR China)

Organizing committee



Angelika Kölbl
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Contact and information

Further information can be obtained from
<http://www.soil-science.com/paddy-workshop>

To participate in the workshop, please send a short mail to:

paddy-workshop@wzw.tum.de

Registration fee: 390,- Euro

This includes accommodation and all meals at the Kardinal-Döpfner-Haus from Sunday evening (21/09) to Wednesday afternoon (24/09). Additional overnight stay till Thursday (25/09): 50,- Euro

Accommodation:

Kardinal-Döpfner-Haus
Domberg 27
85354 Freising
Germany

First Circular



Workshop

Biogeochemistry of
submerged agro-
ecosystems:
Properties, processes,
cycles and functions



21 - 25 September, 2014

Kardinal - Döpfner - Haus
Freising, Germany

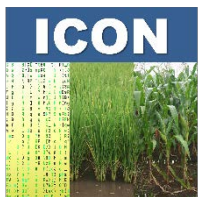
Rationale

Paddy soils originate from different soil types.

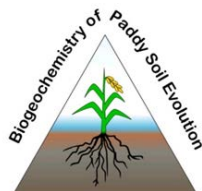
The mostly submerged conditions lead to a unique agro-ecosystem in terms of element cycling.

Climate change and competition from other sectors will severely affect water availability for rice cropping.

A joint international workshop, organized by two DFG Research Units focusing on crop diversification and paddy soil development, aims at gaining more insight into processes of C and N balances due to different management systems.



DFG FOR 1701



DFG FOR 995

Collaboration partners



Faculty of Agriculture,
Brawijaya University,
Malang, Indonesia



International Rice Research
Institute, Los Baños,
Philippines



The Institute of Soil Science,
Chinese Academy of Sciences,
Nanjing, China

Background

Different initial natural conditions may require different management practices for rice cultivation. To understand paddy soil evolution, we have to consider

- the dynamics of soil minerals and soil organic matter as well as hydrologically and microbially mediated redox processes.
- the microbial accessibility of organic carbon (OC), nitrogen (N) and iron (Fe), forming stable organo-mineral associations.
- a specific pedogenetic biogeo-chemistry and contrasting mineralogy of different paddy rice soil types.

Comparing paddy soils to non-flooded agricultural soils allows to identify and quantify management-induced differences of biogeochemical properties in different soil types. Incorporating non-flooded crops in rice-rotations entails severe implications in terms of hydrology, element cycling and ecosystem functioning:

- higher OC content in rice–rice rotations only partially compensates for higher methane (CH₄) emissions.
- reduced CH₄ emissions in non-flooded crops are partly offset by increased N₂O emissions (“pollution swapping”).
- non-flooded crops increase water losses including dissolved organic and inorganic carbon by crack formation.
- modification of the soil microbiota and fauna further affects biogenic cycling of C and N.

Topics of the workshop

1. Soil organisms: microbial communities, soil fauna and function
2. Greenhouse gas emissions
3. Soil organic matter: composition, stabilisation and turnover
4. Paddy management (incl. nutrients, nitrogen) and soil-plant interactions
5. Matter fluxes, hydrology and modelling

Guest speakers

- Roland Buresh (*IRRI, Philippines*)
- Zhi-Hong Cao, Ganlin Zhang (*CAS, China*)
- Sri Rahayu Utami (*Brawijaya Univ., Indonesia*)
- Thilo Eickhorst (*Univ. Bremen, Germany*)
- Bernd Lennartz (*Univ. Rostock, Germany*)
- Genxing Pan (*Nanjing Agricult. Univ., China*)
- Daniel Said-Pullicino (*Univ. Turin, Italy*)
- Marco Romani (*Ente Nazionale Risi, Italy*)
- Steven Sleutel (*Ghent University, Belgium*)
- Takeshi Watanabe (*Nagoya University, Japan*)

Financial support

