

MARCO Symposium 2015 Satellite Workshop; the kick-off meeting on
**“ MINCERnet: Multi-site monitoring network of canopy
micrometeorology and heat stresses of rice under the
climate change ”**

Date: 24 ~ 26 November, 2015

Venue: Tsukuba Center for Institutes

(http://www.mext.go.jp/a_menu/kokusai/kouryucenter/english/005.htm)

Hosted by

National Institute for Agro-Environmental Sciences (NIAES)

Co-hosted by

Japan International Research Center for Agricultural Sciences (JIRCAS)

Supported by

Agriculture, Forestry and Fisheries Research Council Secretariat, MAFF

National Agriculture and Food Research Organization (NARO)

The Society of Agricultural Meteorology of Japan

Crop Science Society of Japan

Funded by

The Global Environmental Research Fund of MOE

The Grants-in-Aid for Scientific Research Program of JSPS, MEXT

Rationale and Scope

Rice yield may be reduced substantially when the crop is exposed to the excessive heat predicted under future climate conditions, but the magnitudes of the yield losses under open-field conditions are difficult to predict because of the ‘gap’ between micro-meteorology inside and above the plant canopy. To better understand the occurrence of heat stress under field conditions, we had established a monitoring network of rice canopy thermal environment in paddy fields and heat stresses (MINCERnet) in the MARCO Symposium 2009, targeting 8 rice growing regions in the world. Since then, the MINCERnet has been extended to wider ranges of climate by adding 3 regions and been starting to the new phase of research aspect standing on the genetic adaptation to climate change or elucidation of multiple stresses mechanism.

In this workshop, country reports are presented on the monitoring of the canopy thermal environment and heat stresses by all the MINCERnet participants, based on which we attempt to summarize the results so far and discuss about the research plan and collaboration strategy for the new phase development of MINCERnet.



Program (tentative)

November 24th

9:00 Registration

9:30 Rationalization of MINCERnet Mayumi Yoshimoto (NIAES, Japan)

Country reports from MINCERnet participants

10:00 Recent heat issues and the micro-meteorological characteristics of rice canopy under heat in the middle Yangtze, China

Xiaohai Tian (Yangtze University, China)

10:30 Effects of planting density and canopy microclimate on yield and quality of rice

Chwen-Ming Yang (Taiwan Agricultural Research Institute, Taiwan)

and Hsu-Sheng Lur (National Taiwan University, Taiwan)

11:00 Elevated CO₂ might exacerbate the heat stress of rice via micrometeorological change -MINCER in FACE experiment

Mayumi Yoshimoto, Minehiko Fukuoka, Yasuhiro Usui,

Toshihiro Hasegawa and Hirofumi Nakamura (NIAES, Japan)

11:30 Genotype yield performance under high temperature conditions in PhilRice, Nueva Ecija, Philippines

Norvie L. Manigbas (Philippine Rice Research Institute, Philippines)

12:00 Lunch

13:15 Current situation on rice yield and heat stress in Myanmar

Tin Tin Myint (Department of Agricultural Research, Myanmar)

13:45 Interaction of heat and drought stresses in rice: Physiological dissection of tolerance mechanisms using MINCER data

Chenniappan Vijayalakshmi and Dhashnamurthi Vijayalakshmi

(Tamil Nadu Agriculture University, India)

14:15 Impact of heat and drought stress on rice in Sri Lanka

W.M.W. Weerakoon

(Field Crop Research and Development Institute, Sri Lanka)

14:45 Break

15:00 Current situation in the US rice industry and the nature of night temperature effects

Lee Tarpley and A. R. Mohammed (Texas AgriLife Research, USA)

15:30 MINCERnet observations at AfricaRice

Elke Vandamme, Kokou Ahouanton, Abdoulaye Sow, Kazuki Saito

and Pepijn A.J. van Oort (Africa Rice Center)

16:00 Geographical dynamics of rice yield and field environment in a floodplain ecosystem of Northern Ghana

Yasuhiro Tsujimoto (JIRCAS, Japan) and Wilson Dogbe

(Savanna Agricultural Research Institute, Ghana)

16:30 General discussion

17:30-19:30 Welcome mixer at Azuma Community Center

November 25th

9:00 Summarize of monitoring results and proposal of the next phase MINCERnet
Mayumi Yoshimoto (NIAES, Japan)

Problems to be solved in the next phase MINCERnet

9:30 Genetic difference of heat-tolerance
Tsutomu Matsui (Gifu University, Japan)

9:50 Multiple stresses of heat and drought
Mayumi Yoshimoto (NIAES, Japan)

10:10 Heat avoidance by early morning flowering
Kazuhiro Kobayasi (Shimane University, Japan)

10:30 Heat stress risk model with distribution of flowering spikelets in the field
Toshihiro Hasegawa, Mayumi Yoshimoto, Hidemitsu Sakai and
Minehiko Fukuoka (NIAES, Japan)

10:50 General discussion

12:00 Lunch

13:00-17:00

Guidance of monitoring protocols in the next phase MINCERnet

Micrometeorology measurement inside the canopy by MINCER
Minehiko Fukuoka (NIAES, Japan)

Weather station for general meteorological components
Mayumi Yoshimoto (NIAES, Japan)

Soil water content monitoring in heat and drought experiment
Mayumi Yoshimoto (NIAES, Japan)

Monitoring of flower opening time by interval shot
Kazuhiro Kobayasi (Shimane University, Japan)

Observation of sterility and yield components
Mayumi Yoshimoto (NIAES, Japan)

18:30 Banquet at Menyuu, Japanese ram BBQ restaurant

November 26th

9:00-12:00 Discussion and finalization of research plans and protocols

12:00 Lunch

13:00-17:00 Excursion (Mase flux measurement paddy fields, FACE)

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