

Monday, November 4, 2013

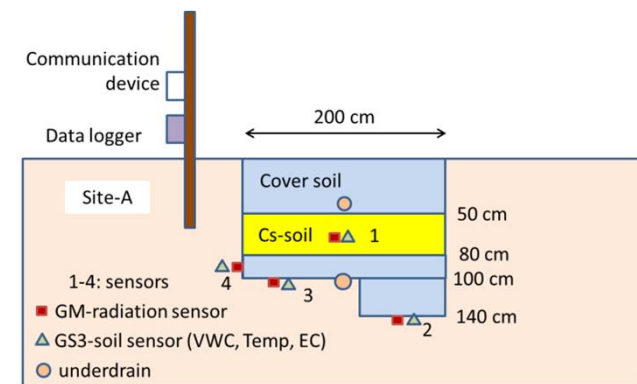
1:00 PM-4:00 PM

Marriott Tampa Waterside, Room 8

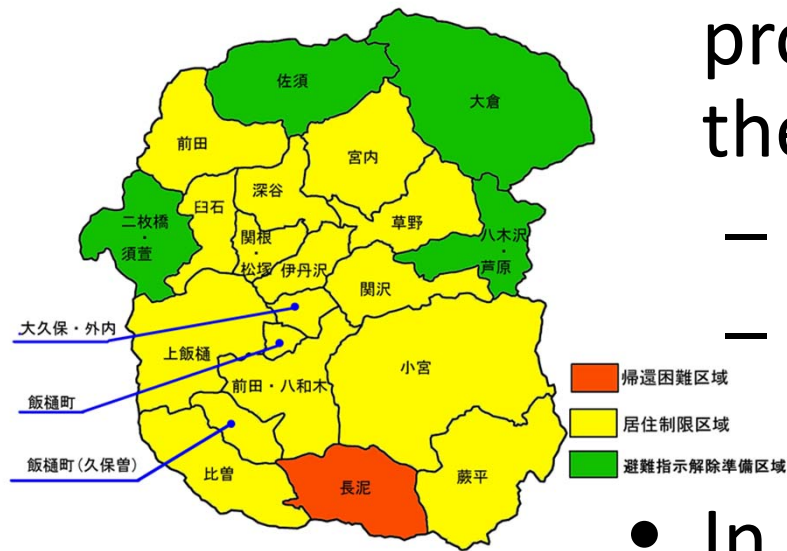
# Burial Experiment of Soil Contaminated By Radiocaesium at a Paddy Field in Iitate Village, Fukushima Prefecture



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Univ. of Tokyo



# Current status of Iitate village



- Decontamination of soil is progressing by government with the stripped topsoil method
  - Risk of missed
  - Risk of re-contamination
- In the re-decontamination
  - Re-decontamination should be done by villagers participatory
  - We need to prepare a variety of decontamination method

# Objectives of these experiments

- **Madei-method testing**

- Development of a combination decontamination method that farmers can do by themselves

- Stripping topsoil + Deep plowing method (1)
- Soil puddling + Deep plowing method (2)

- **Madei-monitoring**

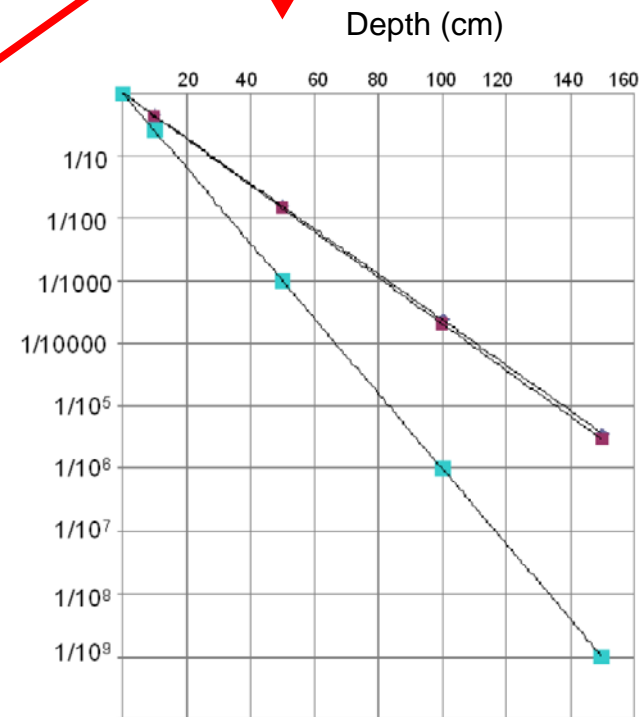
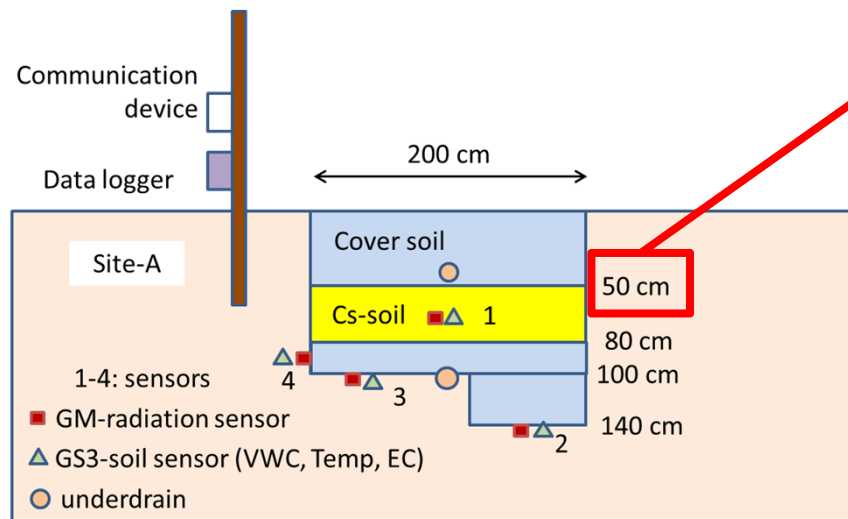
- Monitoring of farmland for

- Crop cultivation after decontamination
- Related to environmental change and weather conditions
- Soil radiation dose

Madei means "carefully" and "heartfully" in the dialect of Iitate village, Fukushima

# Proposal: Contaminated soil should be buried in the bare hole!

Radiation dose is 1/100 to 1/1000 just bury 50cm deep!



(Miyazaki, 2012)

# Made-method-1

## Stripping topsoil + Deep plowing method



Strip contaminated soil of 5cm thick and expose uncontaminated ground surface  
Dig a hole of 80cm in depth and buries the contaminated soil  
Cover non-contaminated soil on the contaminated soil

2012.12.1

# Made-method-1 (continued)

## Stripping topsoil + Deep plowing method

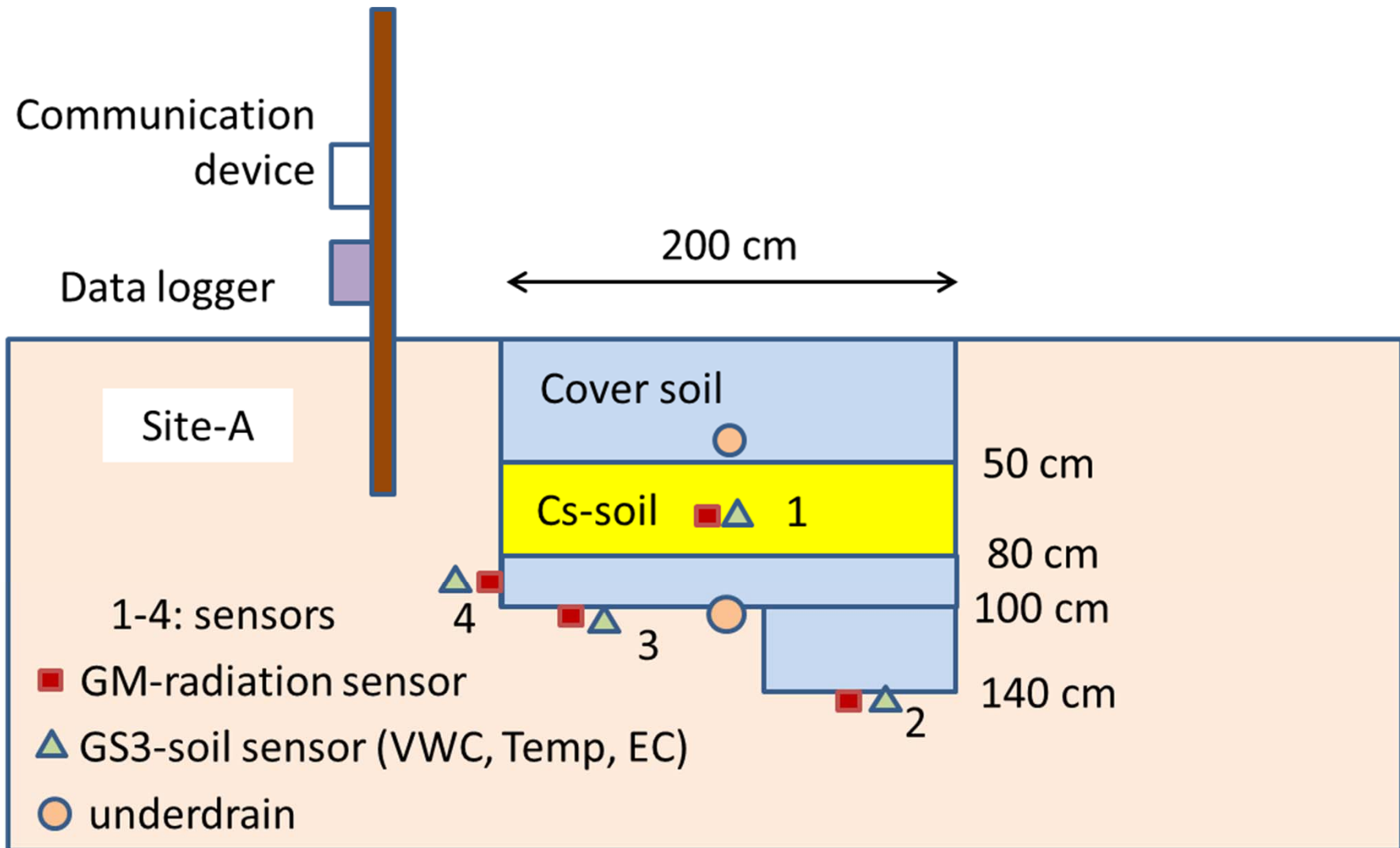


Burial of contaminated soil

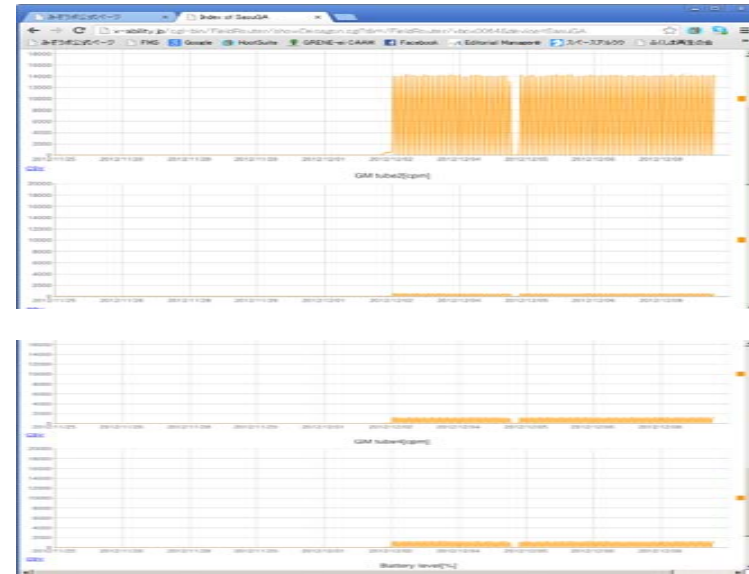
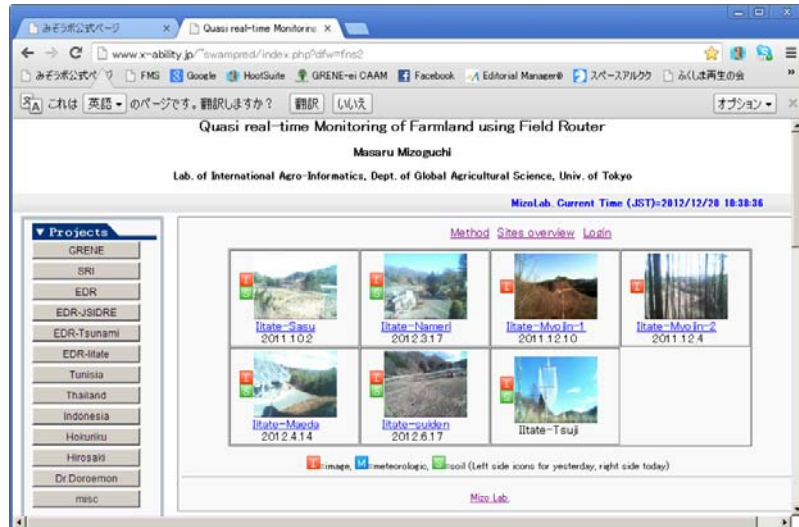
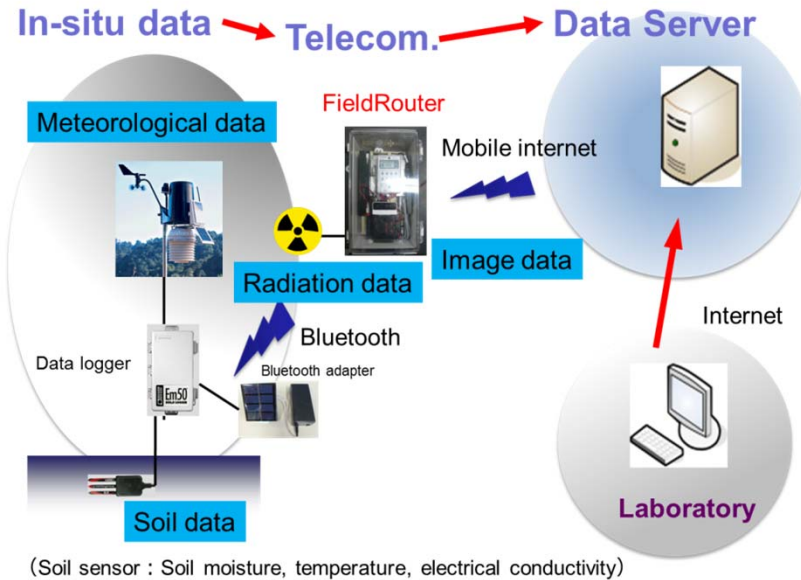
Compaction of soil

2012.12.1

# Figure of buried contaminated soil and sensors

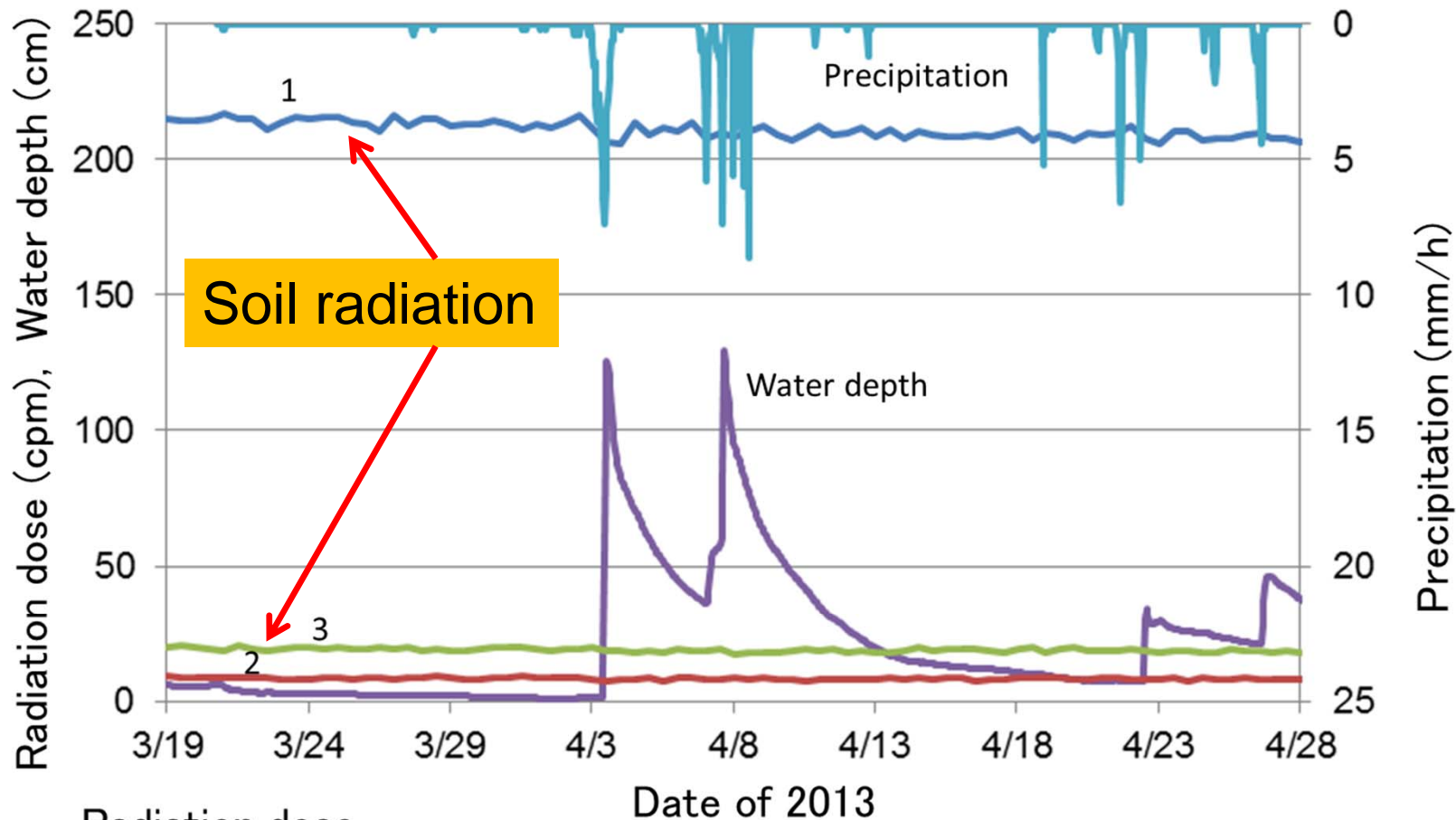


# Radiation dose monitoring in soil by FMS





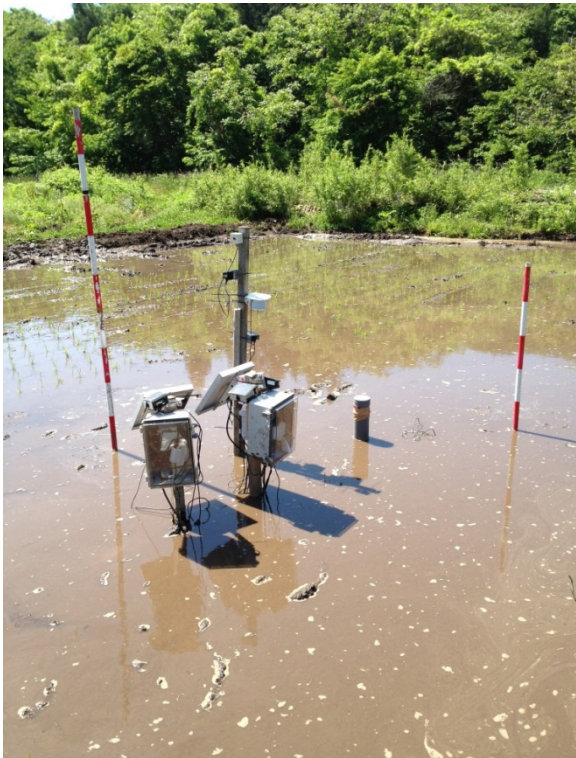
# Changes in the groundwater level and precipitation before rice planting



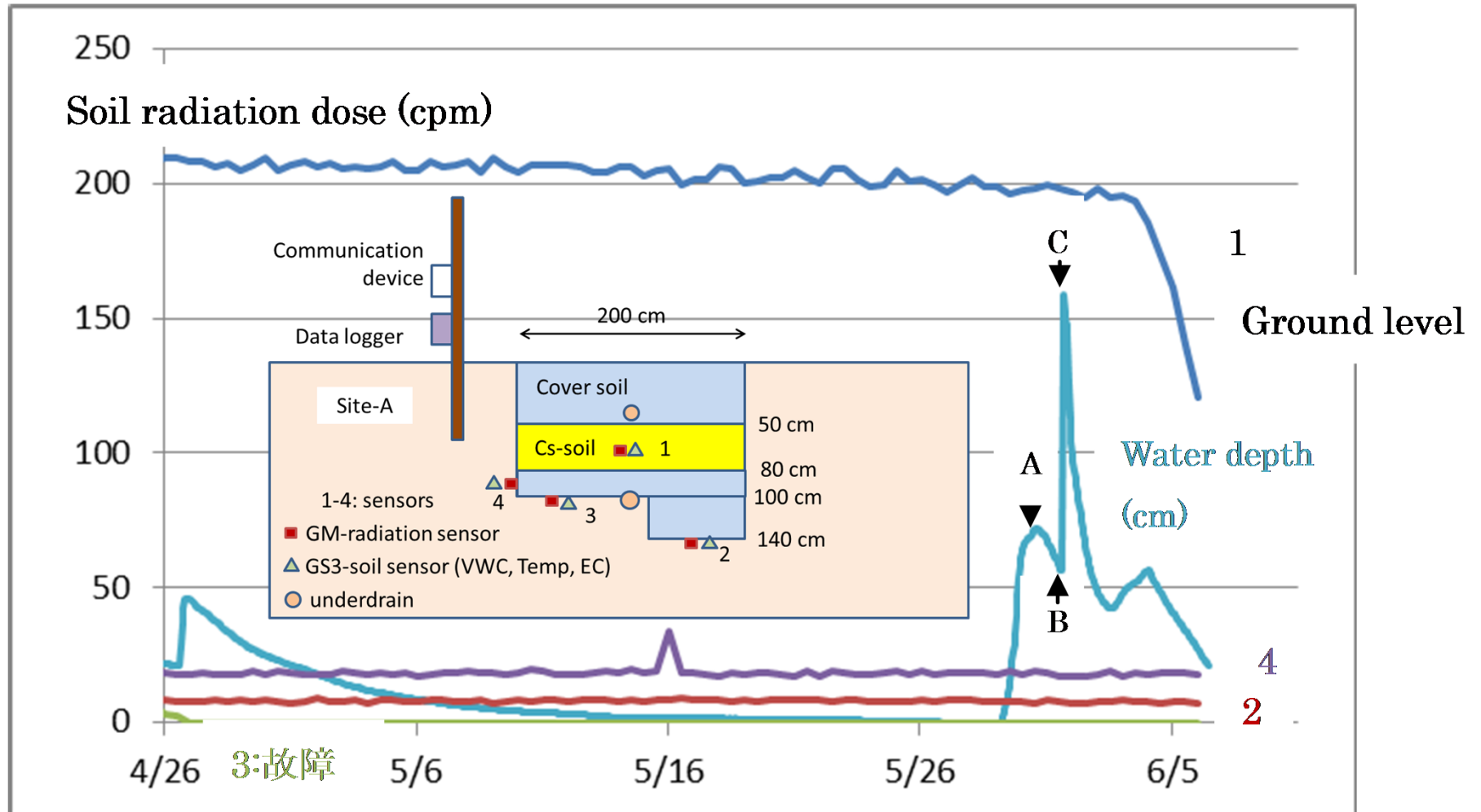
Radiation dose

1: in Cs-soil 2: under 60cm of Cs-soil 3: under 20cm of Cs-soil

# Rice planting on the field contaminated soil was buried (Susu, 2013.6.8)

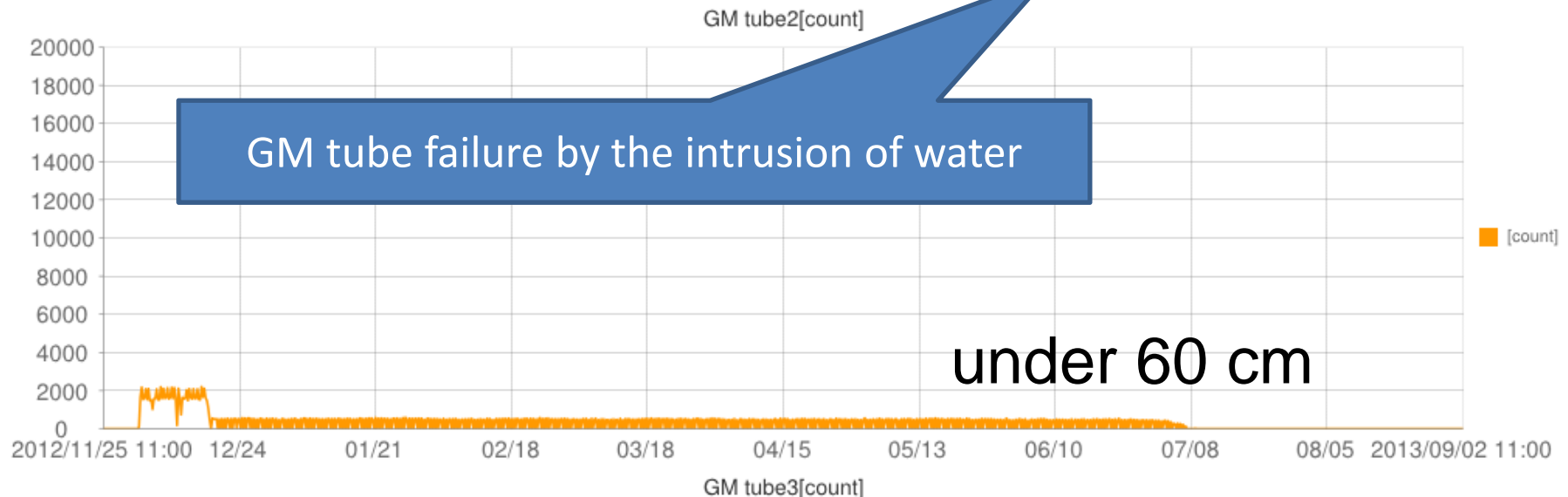
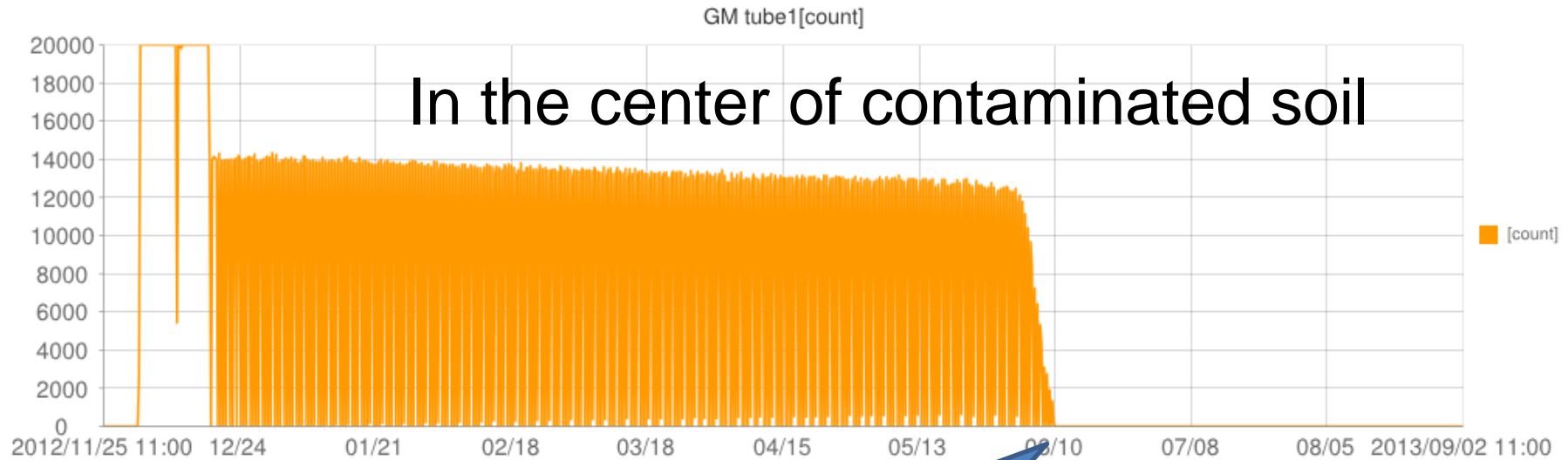


# Changes in the groundwater level and soil radiation after rice planting



Radiocaesium is not moved even if water penetrates!

# Long-term (?) monitoring of soil radiation



# Made-method-2 (Komiya method)

## Soil puddling + Deep plowing method



Flush out muddy water by tractor



(2013.5.18)

Two American guys worked together under the Aggie upper class man on the previous day



(2013.5.17)

# Collaborative work among researchers, NPO and Residents



Rice planting (2013.5.26)



Rice harvesting (2013.10.6)

We are awaiting your contribution to Fukushima!

Thank you for your kind attention



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Google

mizo lab

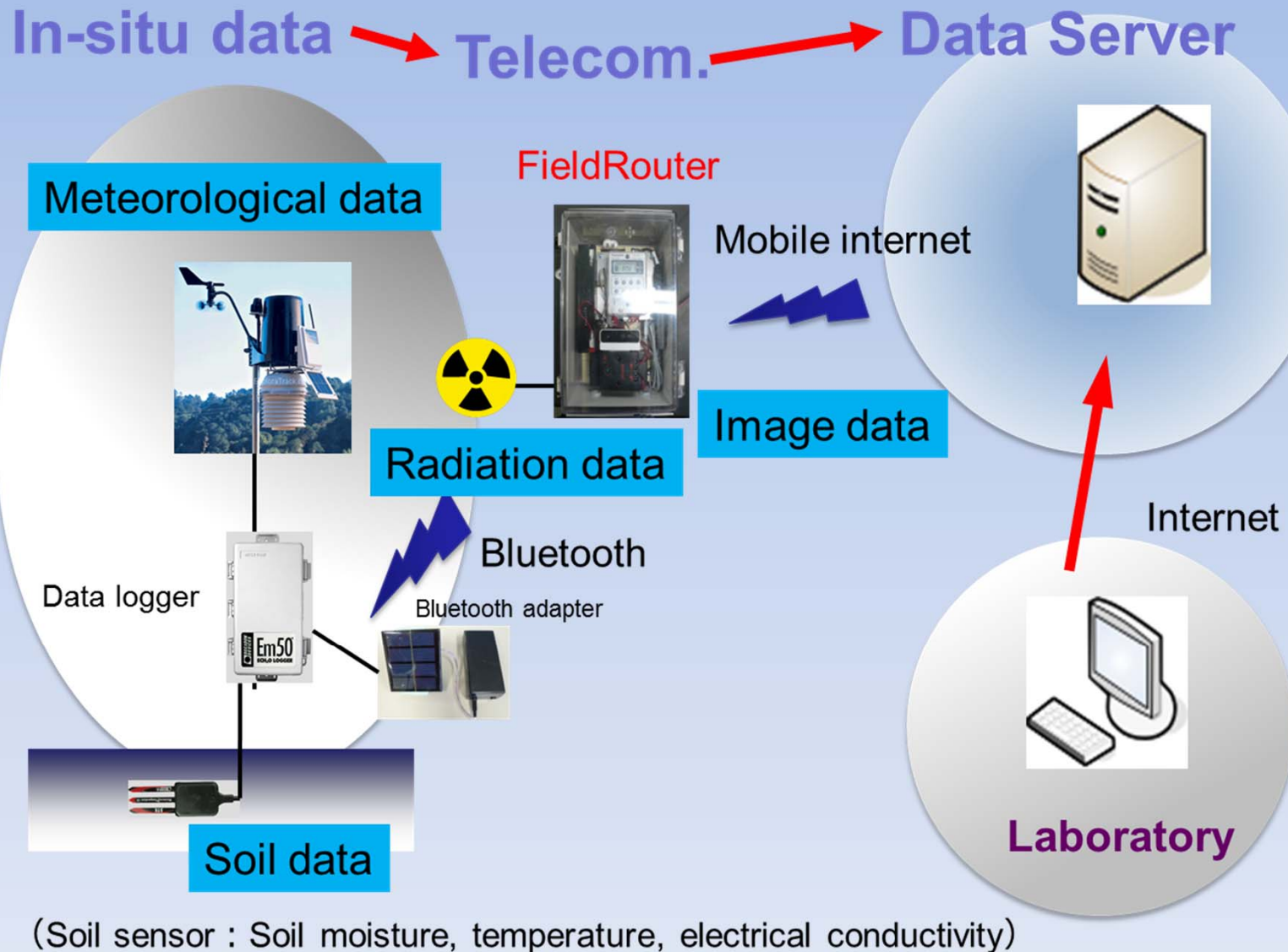




# Acknowledgments

- Mr. Muneo Kanno, Agriculture Committee in Iitate village
- Members of “Resurrection of Fukushima”
- "Agricultural engineering team for reconstruction Fukushima at University of Tokyo"
- "Early return to village Project at Meiji University"
- The Japanese Society of Irrigation, Drainage, and Rural Engineering (JSIDRE)
  - Decagon Devices, Inc., AINEX Co., Ltd, and X-Ability Co., Ltd.
- All the people around the world for their prompt assistance just after the earthquake

# The FMS with a radiation sensor



# Environmental monitoring of litate village



1.2 m high Radiation dose  
Air temperature  
Relative humidity  
Precipitation  
Solar radiation  
Wind direction, wind speed  
Soil moisture, soil temperature,  
and electrical conductivity



In Forest



Out of forest  
(deforest area)

# 6-monitoring sites in litate village

Quasi real-time Monitoring of Farmland using Field Router

Masaru Mizoguchi

Lab. of International Agro-Informatics, Dept. of Global Agricultural Science, Univ. of Tokyo

MizoLab. Current Time (JST)=2012/07/23 12:26:58

▼ **Projects**

- GRENE
- SRI
- EDR
- EDR-JSIDRE
- EDR-Tsunami
- EDR-Iitate
- Tunisia
- Thailand
- Indonesia
- Hokuriku
- Hirosaki
- Dr.Doroemon
- misc

[Method](#) [Sites overview](#) [Login](#)

 <a href="#">Iitate-Sasu</a> 2011.10.2	 <a href="#">Iitate-Nameri</a> 2012.3.17	<p>Site Info</p>  <a href="#">Iitate-Myojin-1</a> 2011.12.10	 <a href="#">Iitate-Myojin-2</a> 2011.12.4
 <a href="#">Iitate-Maeda</a> 2012.4.14	 <a href="#">Iitate-suiden</a> 2012.6.17		

=image, =meteorologic, =soil (Left side icons for yesterday, right side today)

[Mizo Lab.](#)

# An example of monitoring data

Index of vbox0045 - Windows Internet Explorer

http://x-ability.jp/FieldRout

QR-code


Images

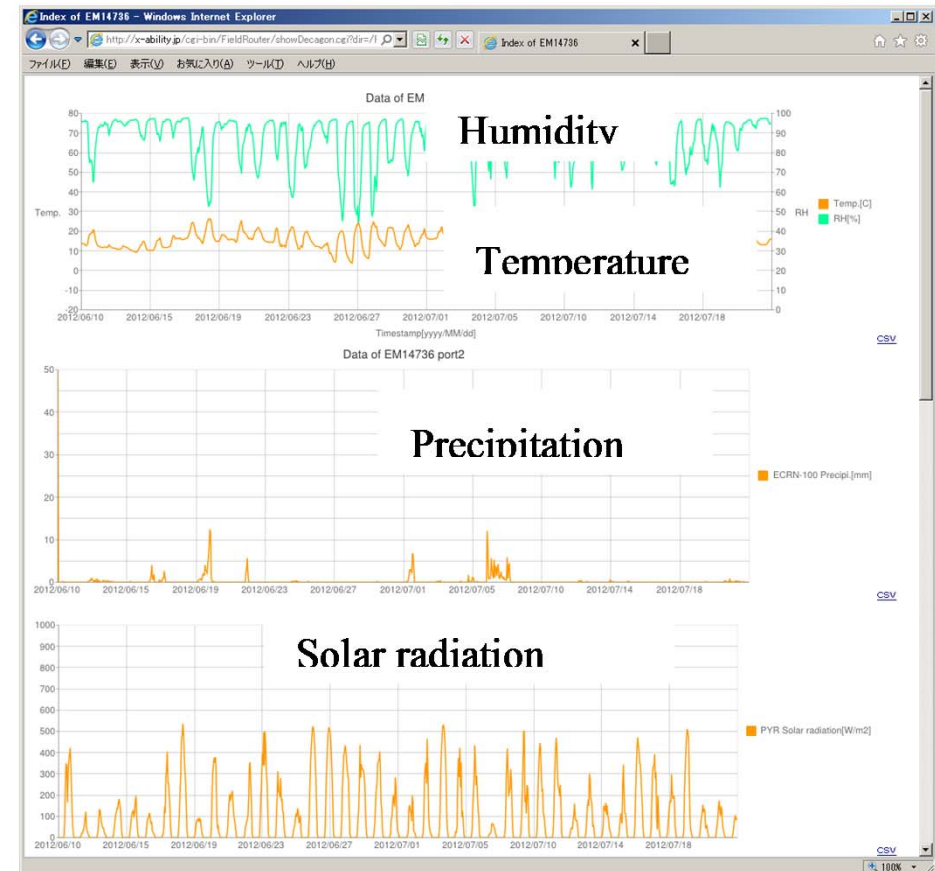
[image0]2011/10/18 12:06 (98.8K) [image calendar](#)



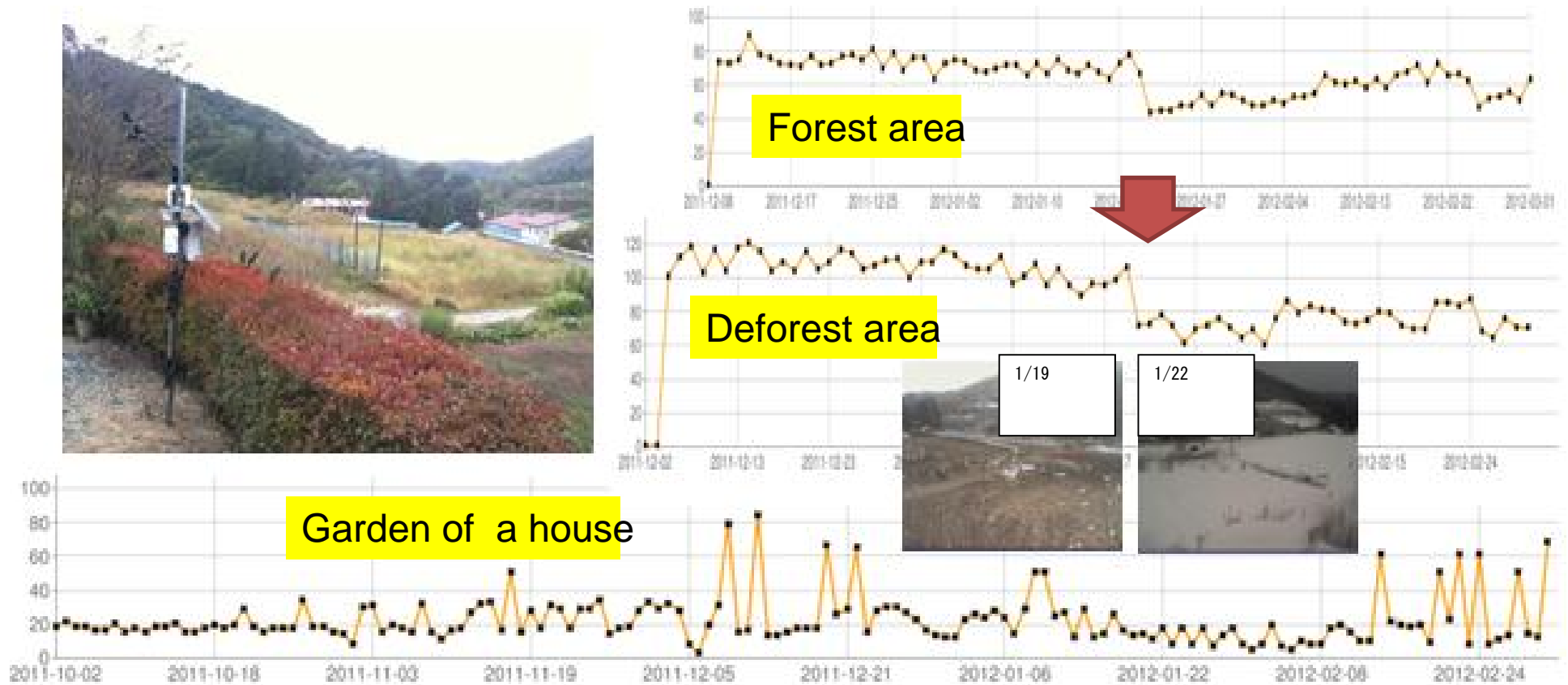
Image

Data

EM14736	2011/10/18 12:08 battery:100 logger time:2011-10-18 12:8:5 +36	  (23.1K)
Phocos	2011/10/17 12:06 battery:12.74 logger time:	  (1.6K)
SimpleCounter	2011/10/18 12:12 battery: logger time:2011-10-18 12:06	  (0.2K)



# Radiation watch in the village



Field monitoring reveals:

1. Snow cover decreases radioactive dose of village
2. Radioactive dose is high on a fine and low humid day