# International workshop on dispersion and deposition modeling for nuclear accident releases
## -Transfer of science from academic to operational models-

SCOPE

Numerical models have played a significant role in investigating the total amount and the transport pathway for radio nuclides discharged from the Fukushima Daiichi Nuclear Power Plant after The 2011 Great East Japan Earthquake. However, recent studies of dispersion and deposition processes of radionuclides have revealed that there are many uncertainties to be resolved in the simulation of advection, diffusion, and deposition. A Workshop is planned for 2-4 March 2015 at Fukushima University to address these uncertainties. The first day of the workshop is planned to focus on discussions to improve the models, including both scientific research models and operational models for radiological protection, the investigation of field observations in Japan, and the planning of future research strategies. In addition to dispersion processes, the operational emergency response systems include modules for source term estimation, processing of observed data, and long term dose estimation. The second day of the workshop is planned to focus on exchange of knowledge of actual operating methods, as presented by international participants from organizations operating the emergency response system for nuclear facilities in their countries.

VENUE

Donation memorial Building, Faculty of Symbiotic System Science, Fukushima University
http://english.adb.fukushima-u.ac.jp/index.html
(Adjacent to Kanayagawa JR station:)
Fukushima city: http://www.f-kankou.jp/en/access.htm
(Present dose rate in Fukushima Prefecture: http://fukushima-radioactivity.jp/ )

REGISTRATION

Workshop fees:

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| Registration rate | ¥10,000 |
| Student | ¥ 5,000 |

(Workshop fee covers Banquet (March 2) and excursion on March 4)

Registration rate without Banquet and excursion ¥2,000

WORKSHOP WEB SITE

http://venus.iis.u-tokyo.ac.jp/english/workshop/newE.htm

PROGRAM (tentative)

March 2 (Mon)

Morning: Opening remarks, Keynote lectures I

Afternoon: Keynote lectures II, Poster session, Group discussion, Panel discussion

Evening: Banquet

March 3 (Tue)

Morning: Invited lectures, Poster session

Afternoon: Group discussion, Panel discussion, closing

March 4 (Wed)

Excursion

Tentative plan: Iizaka-onsen - JR Fukushima st. (9:00) – Iidate village – Souma city – FD1NPP – JR Iwaki st. – JR. Koriyama St. - JR. Fukushima St.
(Bus cannot stop near FD1NPP.)

CALL FOR THEMES OF GROUP DISCUSSIONS

Tentative proposed themes are as follows. We invite more potential themes to be discussed.

March 2:

- What are the types of modules used for estimating dry and wet deposition and what are the uncertainties in the parameters?
- Are data on rain from routinely-operating radars useful for calculating wet deposition?

March 3:

- What kinds of monitoring instruments (routine and special purpose) are most effective for source term estimation?
- What kinds of functions are required for mobile monitoring?
- What kinds of “Risk communications” are required for effective decision making?

ABSTRACT SUBMISSION

The deadline for abstract submission for keynote lectures, invited lectures, and poster presentations is January 30, 2015. Abstract should be sent to contact person below. (Oral presentations are limited to invited lecturers.)

CONTACT

Dr. Ryohji Ohba (ohba@iis.u-tokyo.ac.jp )

LOCAL ORGANIZING COMMITTEE

| | |
|---|---|
| Hirohiko Ishikawa | Kyoto University |
| Toshiki Iwasaki | Tohoku University |
| Ryoji Ohba | IIS, University of Tokyo |
| Hiroaki Kondo, chair | AIST |
| Koichi Sada | CRIEPI |
| Masayuki Takigawa | JAMSTEC |
| Hiromasa Nakayama | JAEA |
| Haruo Tsuruta | OARI, University of Tokyo |
| Hiromi Yamazawa | Nagoya University |
| Tetsuji Yamada | YSA |
| Akira Watanabe | Fukushima University |

Appendix-1:1st day Session

March 2 (Mon)
9:00-9:15 Opening remarks H. Kondo (AIST)
- Objectives and schedule of the workshop
- Why is deposition important?
- Can we transfer scientific knowledge to operational models?

9:15-10:15 T. Kitada (National Institute of Technology,Gifu)
- Introduction to basic concept both of dry and wet deposition models

10:15-10:30 Break

10:30-10:55 M Takigawa (JAMSTEC)
- Summary of the activity of SCJ, mainly on comparison of deposition process

10:55-11:20 Y. Morino （NIES)
- Difference of deposition results obtained from different wet deposition models

11:20-11:45 T. Iwasaki (Tohoku Univ.)
- Introduction of activity of MSJ for utilization of numerical models on nuclear accident
(This might be shifted on March 3: TBD)

11:45- 13:00 Lunch break

13:00-13:25 N. Kaneyasu (AIST)
- Estimated carrier of Cs from the observation. Can we explain deposition in mountain area by previous deposition models?

13:25-13:50 delegate from IRSN
- Wet deposition process observed in Europe or introduction of models developed in IRSN (TBD)

13:50-14:15 H Tsuruta (Univ. of Tokyo)
- Importance of concentration of radionuclide in atmosphere for estimation of deposition. Observed result.

14:15-14:40　S. Hanna　（Harvard University, School of Public Health）

- Introduction of operational models. What is required to operational models?

14:40-16:00 Poster session with coffee

- Poster presentations of observation, model results and others related to the discussion on March 2.

16:00-17:00 Group discussion

Tentative themes,

Theme 1: What are the types of modules used for estimating dry and wet deposition and what are the uncertainties in the parameters?

Theme 2: Are data on rain from routinely-operating radars useful for calculating wet deposition?

Facilitators: selected from keynote speakers on March 2.

17:00-18:00 Panel discussion and summary of the first day

Panelists: Facilitators of each group

Moderator: Dr. S. Hanna

Commentator: Dr. Ted Yamada

Appendix-2: 2nd day Session "What capabilities are necessary for an emergency response system for a nuclear accident or terrorist attack?"

Most of the emergency response systems for nuclear accidents resulting in releases to the atmosphere make use of an atmospheric transport and dispersion model, and there are currently several efforts underway to improve the existing operational models. However, during the Fukushima Dai-ichi Nuclear Power accident, the operational Japanese atmospheric transport and dispersion model, System for Prediction of Environmental Emergency Dose Information (SPEEDI), was not used for the evacuation planning. The reason for not using SPEEDI is related to the decision makers' opinions that the model outputs were not the absolute value of radiation dose based on the source term estimation method, and that the uncertainties in the model were not evaluated by the observed data. The Japanese government therefore modified their procedures for evacuation planning so that the evacuation decision was determined mainly based on observed data, rather than the calculations of SPEEDI.

The special session on 3 March 2015 is being organized as described below. The listed invited speeches and poster presentations are being made by experts who are engaged in the development and operation of atmospheric transport and dispersion models that are incorporated in emergency response systems throughout the world.

Chairman: Dr. Steven Hanna* (Harvard University, School of Public Health, US)

International participants

US: Dr. Ted Yamada (YSA), Dr. Kevin R Quinlan (NRC) Mr. J. Van. Ramsdell (Ramsdell Environmental Consulting), Dr. Paul Bieringer (NCAR) and Dr. Ron Meris (DTRA)

UK: Dr. Susan Leadbetter (UK-Met office) and Mr. Peter Bedwell(UK-Health Protection England)

Denmark: Dr. Bent Lauritzen(Riso), Mr. Jan Pehrsson(PDC)

Australia: Dr. Murcus Gurzednick (ARPANSA)

Germany: Dr. Harmut Walter (Federal Office for Radiation Protection)

France: Dr. Patrick Armand (CEA), Dr Anne Mathieu and Dr..Damien Didier (IRSN)

Sweden: Dr. Pontus von Schoenberg (Swedish Defence Research Agency)

Taiwan: Dr. Jen-Hain Teng (Central Meteorological Agency), Dr. Chun-Hsin Lu (Institute of Nuclear Energy Rearch)

Japan: Dr. Haruyasu Nagai (Japan Atomic Energy Agency) and others

Program for 3 March

1. 9:00-9:15 – Dr. Steven Hanna - Overview of Goals

2. Invited presentation: Introduction of activities conducted during Fukushima accident

2.1 (9:15-9:30) Dr. Teturou Ito (The University of Tokyo)

2.2 (9:30-9:45) Dr. Haruyasu Nagai（Japan Atomic Energy Agency）

2.3 (9:45-10:00) Mr. J. V. Ramsdell (Ramsdell Environmental Consulting)

2.4 (10:00-10:15) Dr. Ron Meris (Defense Threat Reduction Agency)

2.5 (10:15-10:30) Dr. Susan Leadbetter (UK-Met office)

2.6 (10:30-10:45) Dr. Bent Lauritzen* (Riso) and Mr. Jan Pehrsson (PDC)

2.7 (10:45-11:00) Dr..Damien Didier (IRSN)

2.8 (11:00-11:15) Dr. Harmut Walter (Federal Office for Radiation Protection, Germany)

2. (11:15-12:00) Poster presentations: Technical description of the emergency response system operated by each organization. Posters will be prepared by the above persons plus other participants.

12:00-13:00 Lunch

The afternoon session will consist of discussions by the invited speakers and other participants on topics listed below:

3. Subgroup discussions (13:00-15:00) (Moderator: Steven Hanna)

Tentative title and Co-chairmen

3.1) what kinds of monitoring instruments (routine and special purpose) and modelling procedures are most effective for source term estimation?

Facilitators: Dr. Paul Bieringer and Dr. Ryohji Ohba

3.2) what kinds of instruments and methods are required for mobile monitoring?

Facilitators: Dr. Hiromi Yamazawa and Dr. Bent Lauritzen

3.3) what kinds of “Risk communications” are required for effective decision making?

Facilitators: Mr. J.V. Ramsdell and Dr. Susan Leadbetter

4. Panel discussion: Report of the group discussions by the Facilitators, comments by entire group, and attempt to reach consensus (led by Dr. Steven Hanna)

(15:00-16:00)

5. Closing remarks (R. Ohba and other organizers of workshop (16:00-16:15)

Appendix-2: The excursion tour on the 3rd day (Optional)

Tentative plan: Iizaka-onsen - JR Fukushima st. (9:00) – Iidate village – Souma city – FD1NPP – JR Iwaki st. – JR. Koriyama St. - JR. Fukushima St.
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