A new perspective on the Fukushima releases brought by newly available air concentration observations and reliable meteorological fields.

O. Saunier[1], A. Mathieu[1], T. Sekiyama[2], M. Kajino[2], K. Adachi[2], M. Bocquet[3], Y. Igarashi[3], T. Maki[2], D. Didier[1]

[1]IRSN, PRP-CRI, SESUC, BMCA, avenue de la Division Leclerc, B.P. 17, 92262 Fontenay-aux-roses, France
(*correspondence: olivier.saunier@irsn.fr, anne.mathieu@irsn.fr; damien.didier@irsn.fr)
[2]MRI, Meteorological Research Institute, Tsukuba, Japan (kajino@mri-jma.go.jp, tsekiyam@mri-jma.go.jp, adachik@mri-jma.go.jp, yigarash@mri-jma.go.jp, tmaki@mri-jma.go.jp)
[3]CEREA, Joint Laboratory École des Ponts ParisTech and EDF R&D, Champs-sur-Marne, France
(bocquet@cerea.fr)

IRSN has developed an operational tool based on inverse modeling techniques to evaluate the source term of a radioactive release. The method has been applied on the Fukushima accident using dose rate observations (Saunier et al. 2013). Five years after the accident, many estimations of the source term based on the use of observations in the environment have been published. There is not yet consensus on the magnitudes on the releases rates, mainly due to the high uncertainties on meteorological fields used to assess the source term.

Within the framework of cooperation between IRSN and Meteorological Research Institute (MRI) of Japan Meteorological Agency (JMA), meteorological fields with higher spatial resolution have been used (Sekiyama et al. 2013) to improve the simulation of the atmospheric dispersion from the Fukushima accident.

Besides, new dataset of ^{137}Cs atmospheric concentration obtained from the sampling tapes of the Suspended Particle Matter (SPM) monitoring network by the method of Tsuruta et al. (2014) are available. These data are very useful since several plumes can be identified in addition with the two major plumes on March 15 and March 21

Therefore, the inverse modeling method has been applied to assess a new source term using Tsuruta air concentration measurements, dose rate measurements and meteorological fields provided by MRI. The simulations performed using this new inverted source term help enhance our knowledge about the contamination events.