

Atmospheric dispersion and ground deposition induced by the Fukushima Nuclear Power Plant accident

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Following the Fukushima nuclear accident, large amounts of radionuclides were released into the atmosphere and deposited in the environment over a wide area [Kawamura et al. 2011; Morino et al. (2011), Aoyama et al. (2012), Korsakissok et al. (2013), Groëll et al. (2014)]. Both environmental observations and atmospheric deposition modelling have been used to improve the understanding of airborne transport of plumes and their deposition leading to significant progress. However, many uncertainties remain, and important issues are still to be investigated. The current state of knowledge will be presented by highlighting the main difficulties which limit our understanding and the joint efforts that have to be made in an attempt to deepen our knowledge.

Milestone has been recently reached with the analysis of hourly air concentrations retrieved from filter tapes of air quality monitoring sites [Tsuruta et al. (2014)]. Those data are a valuable complement to the other measurements but understanding the formation process of contaminated areas cannot be achieved through measurements only. Thus, improving atmospheric dispersion simulations remains a key issue. It requires reliable input data. Therefore, important topics include source term assessment [Chino et al. (2011), Stohl et al. (2011), Mathieu et al. (2012), Terada et al. (2012), Saunier et al. (2013), Winiarek et al. (2014), Katata et al. (2015)], modelling of meteorological conditions [WMO (2011), Arnold et al. (2015), Sekiyama et al. (2015)], modelling of radionuclides transport in the atmosphere and deposition processes [Leadbetter et al. (2015), Katata et al. (2015)], and modelling of uncertainties.