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Studies for environmental impact of released radioactive materials under their mitigation measures in both inside and outside FDNPP harbor area using a nested CFD simulation code

Susumu Yamada and Masahiko Machida

Japan Atomic Energy Agency, Center for Computational Science & e-Systems, Kashiwa, Japan (yamada.susumu@jaea.go.jp)

Since the direct release of contaminated water into the harbor area occurred immediately after Fukushima Daiichi nuclear power plant (FDNPP) accident, the concentration of radioactive materials inside and outside the harbor area show very high value while a few months after the release. After such a highly-contaminated period, Japanese government and Tokyo Electric Power Company carried out several mitigation measures to reduce the concentration and resulting radionuclide release into sea. Thus, nowadays, the level of their concentration is low enough compared to the initial period after the accident. In this presentation, we evaluate some mitigation measures from viewpoints of their environmental impacts by using a nested CFD code. Our research strategy is that we perform CFD simulation in meter resolution level inside the FDNPP harbor area while we extend the simulation results into the area outside the harbor in lower spatial resolution by using the nesting technique. These results are compared with the monitoring data available for public in both inside and outside the harbor. Thus, we clarify how some mitigation measures changed environmental situations in both inside and outside the harbor together with comparison between before and after some typical mitigation measures.