

Temporal and spatial variations of radiocaesium in the East China Sea and Sea of Japan until 2018

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The temporal and spatial variations of radiocaesium activity concentrations in the Sea of Japan (SOJ) and the East China Sea were investigated. We also investigated transport process from the North Pacific Ocean to the SOJ through the East China Sea (ECS) during 2012–2018. Since 2012, increase of Fukushima Dai-ichi Nuclear Power Plant derived ^{137}Cs activity concentrations were observed in the East China Sea (ECS) and Sea of Japan (SOJ) and reached maxima in 2014/2015 in the ECS and in 2015/2016 in the SOJ. In the ECS, the FNPP1- ^{137}Cs activity concentrations tend to decrease after 2016. In 2017 and 2018, decreasing trend of FNPP1- ^{137}Cs activity concentrations were also found in the SOJ. The propagation of Fukushima-derived radiocaesium in surface seawater from the ECS into the SOJ required approximately one year. The maximum FNPP1- ^{137}Cs activity concentration at each monitoring station was 0.9-1.4 Bq m^{-3} , which contribute to about 40-49% increase against those to the ^{137}Cs activity concentration derived from the global fallout. It appeared that $^{134}\text{Cs}/^{137}\text{Cs}$ activity ratios indicated that part of the FNPP1-derived ^{137}Cs and ^{134}Cs was transported with 4-5 years-time scale to the ECS and then to the SOJ via Subtropical Mode Water from the North Pacific southern part of Japan (Inomata et al., 2018). In the ECS, clear meridional distribution of radiocaesium was observed in 2018. ^{137}Cs activity concentrations was low at Yonaguni and Ishigaki, south of ECS and high at west of Kyushu, north of ECS.

Keywords: Radiocaesium, Fukushima Dai-ichi Nuclear Power Plant accident, Sea of Japan, East China Sea