

South Pacific Ocean suggests that the distribution of ^{99}Tc follows the pattern of global fallout.

The ^{137}Cs concentrations determined on the coastal seawater sample in the summer were comparable to the samples collected at other locations of the general environment in Japan [6]. The $^{99}\text{Tc}/^{137}\text{Cs}$ activity ratios were, thus, calculated to be $(2.7 \pm 0.6) \times 10^{-4}$ [6]. The activity ratio of ^{99}Tc and ^{137}Cs in the present seawater would depend on the fission yield of the nuclides in the course of nuclear explosion, physical decay by elapsed time after detonation, and chemical and physical fractionation of the nuclides in seawater. The observed activity ratio shows in good agreement with that calculated theoretically without considering the chemical and physical fractionation of the nuclides in seawater [6], suggesting conservative nature of both radionuclides and a similar behavior in the marine environment.

Table 1 Concentrations of ^{99}Tc in the coastal and open seawater samples.

Sample	Collection Date	Concentration ($\mu\text{Bq/l}$)	Volume (l)	Analytical Yield (%)
1993				
TSU93-1	Jan. 27-29	7.4 ± 2.1	1390	52.2 ± 1.1
TSU93-2	Jan. 27-29	1.1 ± 0.6	1390	44.0 ± 0.8
TSU93-3	Feb. 1-8	3.3 ± 1.0	2750	47.1 ± 1.0
TSU93-4	Feb. 1-8	1.1 ± 0.3	2750	54.7 ± 0.9
TSU93-5	Jul. 19-22	1.0 ± 0.2	1375	45.2 ± 0.4
TSU93-6	Jul. 19-22	1.0 ± 0.2	1375	35.6 ± 0.3
TSU93-7	Jul. 23-Aug. 2	1.1 ± 0.2	2750	25.1 ± 0.2
TSU93-8	Jul. 23-Aug. 2	1.0 ± 0.2	2750	34.9 ± 0.3
1992				
KH92-4-T1	Sep. 19-20	0.77 ± 0.07	3300	53.0 ± 1.5
KH92-4-T2	Sep. 22-25	0.63 ± 0.04	6450	51.0 ± 1.2
KH92-4-T3	Sep. 27-Oct 1	0.62 ± 0.03	6500	56.0 ± 1.5
KH92-4-T4	Oct. 5-7	0.76 ± 0.07	4025	51.4 ± 1.7
KH92-4-T5	Oct. 16-20	0.49 ± 0.07	5650	54.4 ± 1.4
KH92-4-T6	Oct. 21-22	3.33 ± 0.18	2490	50.6 ± 1.3

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