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RADIOACTIVITY SURVEY DATA in Japan

Part 1
= Environmental Materials =

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National Institute of Radiological Sciences
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Contents

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Environmental and Dietary Materials*

(Japan Chemical Analysis Center)

1. Collection and pretreatment of samples

(1) Rain and dry fallout

Rain and dry fallout was collected monthly on asampling tray, approximately 5000cm^2 in area, which was filled with water to a depth of 1 cm at the beginning of every month.

Strontium and cesium carrier solutions were added after the sample was filtered. Thetray was washed with 5ℓ of distilled water and the washing was combined to the filtrate.

The sample was passed through a cation exchange column (500mℓ of Dowex 50W X8, 50~100 mesh, Na form) at a rate flow of 80mℓ/min.

(2) Airborne dust

Airborne dust was collected by an electrostatic precipitator or a filter air sampler for every three-months at a rate of more than 3000m^3 per month.

The sampling was done 1 to 1.5 meters above the ground.

(3) Service water and freshwater

Service water, 100ℓ each, was collected at the intake of the water-treatment plant and at the tap after water was left running for five minutes. Strontium andcesium carriers were added to the filtered water sample. The subsequent process was the same as that describedin thesection (1). Freshwater was treated inthe sameway as the service water.

(4) Soil

Soil was collected from the location in the spacious and flat area without past surface disturbance caused by duststorms, inflow and out flow due to precipitation, etc.. Any places located under trees in a forest, in astony area or inside of river banks were avoided. Soil was taken from two layers of different depths, 0-5cm and 5-20cm. The soil lumps were crushed by hands and driedin a drying oven regulated 105℃ . The soil was then passed through a 2mm sieve to remove plant roots and pebbles.

(5) Sea water

Sea water was collected at the fixed stations where the effect of terrestrial fresh water from rivers was expected to be negligibly small. A special consideration was also givento weather conditions.

The sampling was carried out when there was no rainfall for the last few days. To prevent contamination, water samples were collected at the bow of a sampling boat just before she stood still by scooping surface water using a polyethylene bucket.

Immediately after the collection, the samples were acidified to a pH lower than 3 by adding concentrated hydrochloric acid in a ratio of 1mℓ to 1 ℓ of sea water, and then stored in 20ℓ polyethylene containers. The sampling equipments as well as containers were thoroughly rinsed with dilute hydrochloric acid and then with distilled water before use. Two hundred milliliters of sea water was also collected at the same stations for the determination of chlorinity.

(6) Sea sediments

Sediment was collected in the same area as that for the sea water sample, taking the following criteria into account:

a. The depth of water exceeds 1m at low tide.
b. No significant sedimental movement is observed in the vicinity of concern.
c. Mud, silt and fine sand are preferable.

A conventional sediment sampling device was used for collecting the top few centimeters of surface sediment. Approximately 4kg of thesample in wet weight was spread on a stainless steel dish after removed of the pebbles, shells and other foreign materials, and ried in a drying oven regulated at 105 ℃.

(7) Total diet

A full one day ordinary diet including three meals, water, tea and otherin-between snacks for five persons was collected as a sample of "total diet".

The sample in a large stainless steel pan was carbonized carefully by direct application of gas flame, and was transfered to a porcelain dish and then ashed at 450℃ in an electric muffle furnace.

(8) Rice

Polished rice was collected in producing districts at the harvest and in consuming areaswhen new crops were first put on sale. The sample was carbonized and ashed in a porcelain dish.

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* Samples were sent to the Center from 46 contracted prefectures.

(9) Milk

Raw milk was collected in producing districts and commercial milk was purchased in consuming districts. Milk in a stainless steel pan or a porcelain dish was evaporated to dryness followed by carbonization and ashing.

(10) Vegetables

Spinach and Japanese radish were selected as the representatives for left vegetables and for nonstarch roots, respectively. After removing soil, the edible part of vegetable samplewas dried and carbonized in a stainless steelpan or a porcelain dish.

(11) Tea

Five hundred grams of manufactured green tea was collected, carbonized and ashed in a stainless steel pan or a porcelain dish.

(12) Fish, shellfish and seaweeds

a. Sea fish and freshwater fish

Fish was rinsed with water and blotted with a filter paper. Only the edible part wasused in case of larger sized fish, and the whole part was used in case of smaller ones. Each sample was weighed and placed in a stainless steel pan or a porcelain dish. After carbonized, the sample was ashed in an electric muffle furnace.

b. Shellfish

Approximately 4kg of shellfish including the shells was collected or purchased. Afterremoving the shells, it was treated in the same way as that for the sea fish.

c. Seaweeds

Edible seaweeds were collected and rinsed with water to remove sand and other adhering matters on the surface. These were removed of excess water, weighed dried and ashed.

Table 1 shows detailes of sample collection.

Table 1 Details of sample collection

Sample	Frequency of sampling	Quantity of sample
=Environmental materials=		
(1) Rain and dry fallout		
1. For domestic program	monthly	
2. For WHO program	monthly	
(2) Airborne dust	quarterly	>3000 m^3/month
(3) Service water and freshwater		
1. Service water (source water)	semiyearly	100 ℓ
2. Service water (tap water)	semiyearly	100 ℓ
3. Freshwater	yearly (fishing season)	100 ℓ
(4) Soil		
1. 0～ 5 cm	yearly	4 kg
2. 5～ 20cm	yearly	4 kg
(5) Sea water	yearly	40 ℓ
(6) Sea sediments	yearly	4 kg
=Dietary materials=		
(7) Total diet	semiyearly	daily amount for 5 persons
(8) Rice		
1. Producing districts	yearly (harvesting season)	5 kg (polished rice)
2. Consuming districts	yaerly (harvesting season)	5 kg (polished rice)
(9) Milk		
1. Producing districts for WHO program	quarterly (February, May, August and November)	3 ℓ
2. Producing districts for domestic program	semiyearly (February and August)	3 ℓ

Sample	Frequency of sampling	Quantity of sample
3. Consuming districts	semiyearly (February and August)	3 ℓ
4. Powdered milk	semiyearly (April and October)	2~ 3 kg
(10) Vegetables		
1. Producing districts	yearly (harvesting season)	4 kg
2. Consuming districts	yearly (harvesting season)	4 kg
(11) Tea	yearly (the first harvesting season)	500g (manufactured tea)
(12) Fish, shellfish and seaweeds		
1. Sea fish	yearly (fishing season)	4 kg
2. Freshwater fish	yearly (fishing season)	4 kg
3. Shellfish	yearly (fishing season)	4 kg
4. Seaweeds	yearly (fishing season)	2~ 3 kg

2. Preparation of samples for analysis

(1) Rain, service water and freshwater

Strontium and cesium were eluted with hydrochloric acid from the cation exchange column. The residue of rain sample on the filter paper was ashed in an electric muffle furnace and the ash was dissolved in hydrochloric acid. The insoluble part was filtered and washed. The filtrate and the washings were combined to the previous eluate and used for radiochemical analysis.

(2) Soil and Sea sediment

Dried soil was crushed to smaller ones than 0.25 mm in size by a crusher. The sieved sample was ashed in an electric muffle furnace regulated at 450 ℃. The sample was then heated with hydrochloric acid, strontium and cesium carrier solutions and the mixture washeated. The insoluble constituent was filtered off and washed with water.

The dried sample was crushed to smaller ones than 0.25mm by a crushing machine. The further preparation of the sample was the same as that described in the section 2-(2).

(3) Rice

The ashed sample was pulverized with a porcelain mortar and passed through a 0.35mm sieve. The sievedsample to which both strontium and cesium carriers were added, was digested with nitric acid by heating. After the sample was heated again with nitric acid to dryness, strontium and cesium were extracted with hydrochloric acid and water. The insoluble constituent was filtered and washed. The filtrate and washings were combined for subsequent radiochemical analysis.

(4) Airborne dust, diet, milk, vegetables, fish and shellfish, seaweeds, tea and others

These ashed samples were treated with thesame procedure as that described in the section 2-(4).

3. Separation of strontium-90 and cesium-137

(1) Strontium-90

Sample solutions, prepared as in the foregoing sections 2-(1) through 2-(4), were neutralized with sodium hydroxide. After sodium carbonate was added, the precipitate of strontium and calcium carbonates was separated. Thesupernatant solution was retainedfor cesium-137 determination. The carbonates weredissolved in hydrochloric acid and strontium and calcium were precipitated as oxalates. The precipitate was dissolved in nitric acid and strontium was separated from calcium by successive fuming nitric acid separation. Iron scavenge was made after addition of ferric iron carrier followed by barium chromate separation after addition of barium carrier to remove radium, its daughters and lead. Strontium was recovered as carbonate, and the precipitate was dried and weighed to determine strontium recovery. The strontium carbonate was dissolved in hydrochloric acid and iron carrier was added. The solution was allowed to stand for two weeks for strontium-90 and yttrium-90 to attain equilibrium. Yttrium-90 was coprecipitated with ferric hydroxide andthe precipitate was filtered off, washed and counted.

(2) Cesium-137

The supernatant separated from the strontium fraction was acidified with hydrochloricacid. While stirring, cesium was adsorbed on the ammonium molybdophosphate added.

After filtered off and washed with hydrochlotric acid the precipitate was dissolved in 2.5N sodium hydroxide solution. The solution was adjusted to pH 8.2 with hydrochloric acid and allowed to cool. Resultant molybdenum hydroxide which separated out in the solution, was filtered off and washed with

water. EDTA was added to the filtrate and washings. Cesium and rubidium were adsorbed on a cation exchange column and cesiumwas separated from rubidium by eluting with hydrochloric acid.

The eluate was evaporated to dryness and was dissolved. The solution was filtered.
Chloroplatinic acid was added to precipitate cesium. The precipitate was filtered onto a tared paper using a demountable filter and washed with water and then ethanol. After drying, the chemical yield of cesium was determined by weighing the precipitate. Cesium-137 radioactivity was measured for this precipitate.

4. Determination of stable strontium, calcium and potassium

A weighed amount of soil or sea sediment was heated in a electric muffle furnace at 450℃ and then treated with hydrochloric acid forextraction.
A weighed aliquot of ashed samples of total diet, vegetables, milk, fish, shellfish or seaweeds was digested with hydrofluoric acid and nitric acid.
The extract was made up to an appropriate volume with dilute hydrochloric acid. The sample solution was analyzed for calcium by titration with standard potassium permanganate solution after separating calcium as oxalate. Atomic absorption spectroscopy was applied when appropriate. Stable strontium andpotassium were determined by atomic absorption andflame emission spectrometry, respectively.

5. Counting

After the radiochemical separation the mounted precipitates were counted for activity using low background beta counters normally for 60 to 90min. Net sample counting rates were corrected for counter efficiency, recovery, self-absorption and decay to obtain the content of strontium-90 and cesium-137 per sample aliquot. From theresults, concentrations of these nuclides in the original samples were calculated.

6. Results

(1)-1 Strontuim-90 and Cesium-137 in Rain and Dry Fallout (for domestic program) (from Apr. 1993 to Sep. 1993)

-continued from No, 104 of this publication-

Table (1)-1 : Strontium-90 and Cesium-137 in Rain and Dry Fallout

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
April, 1993				
Sapporo, HOKKAIDOU	30	57.5	0.023 ± 0.018	0.096 ± 0.020
Aomori, AOMORI	30	47.5	0.066 ± 0.018	0.18 ± 0.027
Morioka, IWATE	36	32.1	0.071 ± 0.013	0.24 ± 0.025
Onagawa-machi, MIYAGI	36	87.0	0.030 ± 0.0099	0.059 ± 0.018
Yamagata, YAMAGATA	31	26.4	0.076 ± 0.022	0.19 ± 0.023
Ookuma-machi, FUKUSHIMA	36	52.9	0.051 ± 0.010	0.18 ± 0.025
Mito, IBARAKI	36	78.0	0.023 ± 0.0085	0.15 ± 0.023
Utsunomiya, TOCHIGI	30	22.5	0.074 ± 0.024	0.16 ± 0.024
Maebashi, GUNMA	30	21.5	0.032 ± 0.020	0.050 ± 0.014
Urawa, SAITAMA	30	50.9	0.016 ± 0.0098	0.15 ± 0.017
Ichihara, CHIBA	31	62.8	0.018 ± 0.0097	0.10 ± 0.019
Shinjuku, TOKYO	36	65.8	0.020 ± 0.019	0.13 ± 0.022
Yokohama, KANAGAWA	31	60.1	0.029 ± 0.022	0.069 ± 0.020
Kosugi-machi, TOYAMA	30	80.4	0.036 ± 0.022	0.33 ± 0.031
Fukui, FUKUI	36	174.6	0.069 ± 0.090	0.14 ± 0.067
Koufu, YAMANASHI	36	61.0	0.015 ± 0.020	0.036 ± 0.013
Gifu, GIFU	36	145.0	0.022 ± 0.017	0.054 ± 0.016
Shizuoka, SHIZUOKA	30	85.5	0.045 ± 0.0097	0.077 ± 0.017
Nagoya, AICHI	36	79.8	0.036 ± 0.019	0.091 ± 0.018
Tsu, MIE	30	104.5	0.042 ± 0.020	0.060 ± 0.015
Ootsu, SHIGA	30	111.0	0.044 ± 0.031	0.20 ± 0.026
Kyoto, KYOTO	30	114.0	0.046 ± 0.011	0.048 ± 0.018
Kobe, HYOUGO	31	71.0	0.000 ± 0.026	0.013 ± 0.015
Nara, NARA	30	109.1	0.031 ± 0.0089	0.023 ± 0.014
Wakayama, WAKAYAMA	37	66.0	0.007 ± 0.012	0.000 ± 0.021
Tottori, TOTTORI	36	97.5	0.15 ± 0.025	0.12 ± 0.020

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Matsue, SHIMANE	31	51.9	0.038 ± 0.019	0.15 ± 0.016
Hiroshima, HIROSHIMA	31	61.2	0.040 ± 0.019	0.017 ± 0.013
Ishii-machi, TOKUSHIMA	31	61.5	0.014 ± 0.0078	0.058 ± 0.016
Takamatsu, KAGAWA	30	47.5	0.053 ± 0.021	0.040 ± 0.014
Matsuyama, EHIME	30	90.0	0.016 ± 0.022	0.041 ± 0.013
Dazaifu, FUKUOKA	36	147.8	0.058 ± 0.021	0.075 ± 0.016
Saga, SAGA	36	228.9	0.043 ± 0.021	0.052 ± 0.015
Nagasaki, NAGASAKI	30	194.5	0.011 ± 0.020	0.022 ± 0.015
Kumamoto, KUMAMOTO	36	210.0	0.034 ± 0.020	0.037 ± 0.013
Ooita, OOITA	36	248.3	0.028 ± 0.011	0.026 ± 0.014
Miyazaki, MIYAZAKI	36	124.2	0.023 ± 0.021	0.066 ± 0.016
Yonagusuku-mura, Okinawa	31	61.0	0.043 ± 0.025	0.045 ± 0.018
May, 1993				
Sapporo, HOKKAIDOU	33	37.5	0.028 ± 0.041	0.034 ± 0.014
Aomori, AOMORI	33	74.0	0.049 ± 0.0093	0.070 ± 0.019
Morioka, IWATE	26	114.4	0.009 ± 0.018	0.074 ± 0.017
Onagawa-machi, MIYAGI	26	83.5	0.0019 ± 0.0084	0.059 ± 0.018
Yamagata, YAMAGATA	32	114.1	0.000 ± 0.018	0.037 ± 0.014
Ookuma-machi, FUKUSHIMA	27	108.7	0.048 ± 0.019	0.000 ± 0.016
Mito, IBARAKI	27	78.0	0.009 ± 0.020	0.030 ± 0.014
Utsunomiya, TOCHIGI	33	110.2	0.029 ± 0.0095	0.22 ± 0.025
Maebashi, GUNMA	33	81.5	0.064 ± 0.022	0.064 ± 0.017
Urawa, SAITAMA	33	72.8	0.0021 ± 0.0062	0.056 ± 0.012
Ichihara, CHIBA	32	60.0	0.016 ± 0.0085	0.024 ± 0.013
Shinjuku, TOKYO	27	48.2	0.019 ± 0.0091	0.049 ± 0.017
Yokohama, KANAGAWA	32	72.9	0.022 ± 0.019	0.065 ± 0.019
Kosugi-machi, TOYAMA	33	196.2	0.021 ± 0.019	0.095 ± 0.020

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Fukui, FUKUI	30	114.4	0.030 ± 0.090	0.000 ± 0.059
Koufu, YAMANASHI	27	60.5	0.013 ± 0.019	0.026 ± 0.013
Gifu, GIFU	27	85.0	0.030 ± 0.035	0.022 ± 0.012
Shizuoka, SHIZUOKA	33	135.5	0.0095 ± 0.0078	0.041 ± 0.015
Nagoya, AICHI	27	103.3	0.014 ± 0.017	0.010 ± 0.013
Tsu, MIE	33	117.5	0.036 ± 0.019	0.17 ± 0.021
Ootsu, SHIGA	33	119.0	0.000 ± 0.035	0.022 ± 0.013
Kyoto, KYOTO	33	92.0	0.000 ± 0.020	0.011 ± 0.014
Kobe, HYOUGO	32	79.6	0.023 ± 0.019	0.008 ± 0.012
Nara, NARA	33	114.1	0.0064 ± 0.0073	0.0000 ± 0.0093
Wakayama, WAKAYAMA	35	122.0	0.029 ± 0.0080	0.081 ± 0.020
Tottori, TOTTORI	27	79.0	0.051 ± 0.022	0.012 ± 0.012
Matsue, SHIMANE	32	144.2	0.013 ± 0.014	0.044 ± 0.0094
Hiroshima, HIROSHIMA	32	154.2	0.064 ± 0.078	0.042 ± 0.015
Ishii-machi, TOKUSHIMA	32	122.0	0.0000 ± 0.0079	0.011 ± 0.011
Takamatsu, KAGAWA	33	65.5	0.000 ± 0.058	0.054 ± 0.015
Matsuyama, EHIME	33	115.5	0.000 ± 0.038	0.000 ± 0.011
Dazaifu, FUKUOKA	27	115.0	0.010 ± 0.019	0.026 ± 0.014
Saga, SAGA	27	84.3	0.017 ± 0.022	0.040 ± 0.014
Nagasaki, NAGASAKI	32	108.5	0.0042 ± 0.0087	0.024 ± 0.013
Kumamoto, KUMAMOTO	27	67.4	0.017 ± 0.045	0.038 ± 0.014
Ooita, OOITA	27	79.7	0.012 ± 0.0085	0.000 ± 0.013
Miyazaki, MIYAZAKI	27	314.2	0.019 ± 0.025	0.004 ± 0.013
Yonagusuku-mura, Okinawa	32	158.5	0.015 ± 0.023	0.021 ± 0.014
June, 1993				
Sapporo, HOKKAIDOU	31	74.5	0.0053 ± 0.0087	0.022 ± 0.012
Aomori, AOMORI	31	56.5	0.032 ± 0.0083	0.044 ± 0.017

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Morioka, IWATE	31	129.6	0.002 ± 0.018	0.025 ± 0.013
Onagawa-machi, MIYAGI	31	123.5	0.0032 ± 0.0086	0.032 ± 0.015
Yamagata, YAMAGATA	31	93.2	0.000 ± 0.018	0.016 ± 0.013
Ookuma-machi, FUKUSHIMA	31	126.6	0.032 ± 0.019	0.016 ± 0.015
Mito, IBARAKI	31	95.0	0.011 ± 0.0075	0.022 ± 0.013
Utsunomiya, TOCHIGI	31	277.2	0.000 ± 0.051	0.062 ± 0.017
Maebashi, GUNMA	31	205.5	0.000 ± 0.017	0.003 ± 0.013
Urawa, SAITAMA	31	182.9	0.000 ± 0.018	0.028 ± 0.011
Ichihara, CHIBA	31	199.0	0.019 ± 0.0074	0.000 ± 0.012
Shinjuku, TOKYO	31	229.5	0.000 ± 0.020	0.016 ± 0.016
Yokohama, KANAGAWA	31	182.9	0.058 ± 0.027	0.027 ± 0.014
Kosugi-machi, TOYAMA	31	189.6	0.005 ± 0.018	0.088 ± 0.020
Fukui, FUKUI	28	205.3	0.08 ± 0.10	0.030 ± 0.064
Koufu, YAMANASHI	31	172.0	0.007 ± 0.040	0.039 ± 0.018
Gifu, GIFU	31	413.0	0.032 ± 0.038	0.024 ± 0.013
Shizuoka, SHIZUOKA	31	273.0	0.017 ± 0.0086	0.041 ± 0.014
Nagoya, AICHI	31	309.0	0.000 ± 0.048	0.025 ± 0.014
Tsu, MIE	31	255.0	0.000 ± 0.086	0.042 ± 0.014
Ootsu, SHIGA	31	314.5	0.026 ± 0.013	0.019 ± 0.013
Kyoto, KYOTO	32	311.5	0.000 ± 0.021	0.002 ± 0.013
Kobe, HYOUGO	31	210.0	0.000 ± 0.032	0.023 ± 0.013
Nara, NARA	31	351.1	0.0000 ± 0.0080	0.012 ± 0.011
Wakayama, WAKAYAMA	26	351.0	0.34 ± 0.048	0.006 ± 0.039
Tottori, TOTTORI	31	167.6	0.11 ± 0.026	0.044 ± 0.016
Matsue, SHIMANE	31	320.3	0.012 ± 0.013	0.029 ± 0.012
Hiroshima, HIROSHIMA	32	360.2	0.06 ± 0.11	0.006 ± 0.011
Ishii-machi, TOKUSHIMA	31	255.5	0.029 ± 0.0089	0.015 ± 0.013

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Takamatsu, KAGAWA	31	282.5	0.011 ± 0.016	0.030 ± 0.014
Matsuyama, EHIME	31	393.5	0.000 ± 0.053	0.020 ± 0.013
Dazaifu, FUKUOKA	31	293.6	0.000 ± 0.019	0.019 ± 0.013
Saga, SAGA	31	418.3	0.000 ± 0.057	0.003 ± 0.012
Nagasaki, NAGASAKI	32	516.5	0.0080 ± 0.0091	0.036 ± 0.012
Kumamoto, KUMAMOTO	31	866.3	0.010 ± 0.025	0.011 ± 0.012
Ooita, OOITA	31	626.3	0.12 ± 0.096	0.013 ± 0.013
Miyazaki, MIYAZAKI	31	538.1	0.006 ± 0.025	0.011 ± 0.015
Yonagusuku-mura, Okinawa	31	127.5	0.0071 ± 0.0087	0.011 ± 0.013
July, 1993				
Sapporo, HOKKAIDOU	33	48.5	0.015 ± 0.0094	0.019 ± 0.011
Aomori, AOMORI	33	117.0	0.034 ± 0.0089	0.022 ± 0.016
Morioka, IWATE	33	196.8	0.011 ± 0.019	0.015 ± 0.013
Onagawa-machi, MIYAGI	33	235.0	0.000 ± 0.016	0.008 ± 0.015
Yamagata, YAMAGATA	33	222.0	0.0000 ± 0.0078	0.002 ± 0.012
Ookuma-machi, FUKUSHIMA	33	246.6	0.019 ± 0.019	0.013 ± 0.014
Mito, IBARAKI	33	222.5	0.014 ± 0.0076	0.031 ± 0.014
Utsunomiya, TOCHIGI	33	228.1	0.000 ± 0.019	0.013 ± 0.012
Maebashi, GUNMA	33	267.0	0.0000 ± 0.0095	0.008 ± 0.011
Urawa, SAITAMA	33	204.9	0.014 ± 0.015	0.0000 ± 0.0077
Ichihara, CHIBA	33	343.2	0.017 ± 0.0092	0.016 ± 0.014
Shinjuku, TOKYO	33	345.9	0.019 ± 0.018	0.019 ± 0.016
Yokohama, KANAGAWA	31	319.0	0.061 ± 0.022	0.073 ± 0.016
Kosugi-machi, TOYAMA	33	295.6	0.045 ± 0.020	0.012 ± 0.016
Fukui, FUKUI	33	357.2	0.064 ± 0.044	0.053 ± 0.058
Koufu, YAMANASHI	32	269.5	0.0000 ± 0.0066	0.001 ± 0.011
Gifu, GIFU	33	395.5	0.043 ± 0.027	0.003 ± 0.011

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Shizuoka, SHIZUOKA	33	567.5	0.018 ± 0.0087	0.0000 ± 0.0097
Nagoya, AICHI	33	198.4	0.016 ± 0.027	0.003 ± 0.012
Tsu, MIE	33	337.0	0.0000 ± 0.0079	0.012 ± 0.012
Ootsu, SHIGA	33	288.6	0.017 ± 0.011	0.000 ± 0.011
Kyoto, KYOTO	29	200.0	0.006 ± 0.020	0.012 ± 0.012
Kobe, HYOUGO	31	349.9	0.0053 ± 0.0072	0.000 ± 0.012
Nara, NARA	33	299.3	0.0063 ± 0.0084	0.014 ± 0.013
Wakayama, WAKAYAMA	33	153.5	0.033 ± 0.012	0.002 ± 0.023
Tottori, TOTTORI	33	290.5	0.084 ± 0.012	0.004 ± 0.017
Matsue, SHIMANE	33	410.3	0.021 ± 0.014	0.017 ± 0.010
Hiroshima, HIROSHIMA	35	707.2	0.017 ± 0.0080	0.001 ± 0.010
Ishii-machi, TOKUSHIMA	33	274.5	0.015 ± 0.0095	0.000 ± 0.010
Takamatsu, KAGAWA	30	260.5	0.021 ± 0.026	0.002 ± 0.011
Matsuyama, EHIME	33	481.0	0.0069 ± 0.0083	0.000 ± 0.011
Dazaifu, FUKUOKA	33	351.2	0.0000 ± 0.0083	0.0034 ± 0.0097
Saga, SAGA	34	414.7	0.0000 ± 0.0073	0.000 ± 0.011
Nagasaki, NAGASAKI	33	693.0	0.010 ± 0.012	0.012 ± 0.011
Kumamoto, KUMAMOTO	33	555.7	0.0094 ± 0.0093	0.012 ± 0.013
Ooita, OOITA	33	753.1	0.034 ± 0.0096	0.006 ± 0.016
Miyazaki, MIYAZAKI	33	939.3	0.000 ± 0.021	0.000 ± 0.012
Yonagusuku-mura, Okinawa	31	90.0	0.030 ± 0.021	0.000 ± 0.014
August,1993				
Sapporo, HOKKAIDOU	31	66.0	0.0000 ± 0.0076	0.000 ± 0.012
Aomori, AOMORI	31	62.0	0.034 ± 0.0087	0.000 ± 0.015
Morioka, IWATE	31	130.9	0.014 ± 0.019	0.000 ± 0.012
Onagawa-machi, MIYAGI	31	146.0	0.046 ± 0.019	0.013 ± 0.014
Yamagata, YAMAGATA	31	181.2	0.0000 ± 0.0076	0.0000 ± 0.0093

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Ookuma-machi, FUKUSHIMA	31	212.3	0.000 ± 0.016	0.004 ± 0.016
Mito, IBARAKI	31	159.5	0.0080 ± 0.0070	0.028 ± 0.014
Utsunomiya, TOCHIGI	31	227.7	0.005 ± 0.017	0.000 ± 0.016
Maebashi, GUNMA	31	175.0	0.000 ± 0.019	0.029 ± 0.016
Urawa, SAITAMA	31	345.6	0.015 ± 0.015	0.052 ± 0.015
Ichihara, CHIBA	31	299.2	0.016 ± 0.0095	0.009 ± 0.013
Shinjuku, TOKYO	31	455.7	0.015 ± 0.0094	0.001 ± 0.015
Yokohama, KANAGAWA	32	426.2	0.023 ± 0.021	0.032 ± 0.014
Kosugi-machi, TOYAMA	31	337.9	0.000 ± 0.018	0.010 ± 0.016
Fukui, FUKUI	31	243.1	0.13 ± 0.11	0.030 ± 0.055
Koufu, YAMANASHI	32	140.0	0.0083 ± 0.0069	0.004 ± 0.011
Gifu, GIFU	31	280.0	0.050 ± 0.028	0.006 ± 0.011
Shizuoka, SHIZUOKA	32	149.5	0.0052 ± 0.0080	0.012 ± 0.016
Nagoya, AICHI	31	182.7	0.000 ± 0.021	0.027 ± 0.015
Tsu, MIE	31	180.0	0.017 ± 0.0096	0.008 ± 0.012
Ootsu, SHIGA	31	478.1	0.011 ± 0.0088	0.009 ± 0.012
Kyoto, KYOTO	32	297.0	0.000 ± 0.022	0.010 ± 0.011
Kobe, HYOUGO	33	216.7	0.013 ± 0.0080	0.0000 ± 0.0098
Nara, NARA	31	256.1	0.023 ± 0.010	0.032 ± 0.018
Wakayama, WAKAYAMA	33	155.5	0.000 ± 0.011	0.004 ± 0.029
Tottori, TOTTORI	31	211.8	0.075 ± 0.012	0.000 ± 0.016
Matsue, SHIMANE	31	255.6	0.030 ± 0.012	0.000 ± 0.017
Hiroshima, HIROSHIMA	28	275.6	0.0094 ± 0.0098	0.000 ± 0.012
Ishii-machi, TOKUSHIMA	31	377.0	0.0000 ± 0.0077	0.007 ± 0.012
Takamatsu, KAGAWA	34	146.0	0.000 ± 0.014	0.035 ± 0.013
Matsuyama, EHIME	31	202.5	0.022 ± 0.0091	0.007 ± 0.013
Dazaifu, FUKUOKA	31	464.4	0.0000 ± 0.0083	0.018 ± 0.012

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Saga, SAGA	30	487.9	0.029 ± 0.0084	0.001 ± 0.013
Nagasaki, NAGASAKI	31	545.0	0.0082 ± 0.0066	0.009 ± 0.017
Kumamoto, KUMAMOTO	31	481.0	0.017 ± 0.0078	0.000 ± 0.012
Ooita, OOITA	31	236.9	0.020 ± 0.0082	0.008 ± 0.015
Miyazaki, MIYAZAKI	31	655.5	0.016 ± 0.032	0.000 ± 0.011
Yonagusuku-mura, Okinawa	33	57.0	0.0089 ± 0.0087	0.013 ± 0.022
September, 1993				
Sapporo, HOKKAIDOU	31	58.5	0.005 ± 0.017	0.006 ± 0.018
Aomori, AOMORI	31	81.0	0.007 ± 0.012	0.014 ± 0.011
Morioka, IWATE	31	103.0	0.000 ± 0.018	0.000 ± 0.013
Onagawa-machi, MIYAGI	31	230.0	0.0097 ± 0.0090	0.012 ± 0.011
Yamagata, YAMAGATA	31	75.7	0.021 ± 0.0085	0.000 ± 0.013
Ookuma-machi, FUKUSHIMA	31	263.9	0.000 ± 0.017	0.015 ± 0.016
Mito, IBARAKI	31	139.0	0.0079 ± 0.0077	0.022 ± 0.013
Utsunomiya, TOCHIGI	31	222.9	0.004 ± 0.017	0.027 ± 0.013
Maebashi, GUNMA	31	282.0	0.005 ± 0.018	0.024 ± 0.016
Urawa, SAITAMA	31	160.6	0.004 ± 0.013	0.000 ± 0.011
Ichihara, CHIBA	31	150.4	0.014 ± 0.0073	0.009 ± 0.013
Shinjuku, TOKYO	31	150.4	0.0000 ± 0.0094	0.000 ± 0.013
Yokohama, KANAGAWA	32	167.4	0.014 ± 0.018	0.022 ± 0.017
Kosugi-machi, TOYAMA	31	235.4	0.000 ± 0.018	0.003 ± 0.017
Fukui, FUKUI	31	333.2	0.13 ± 0.17	0.000 ± 0.076
Koufu, YAMANASHI	31	232.0	0.001 ± 0.011	0.0000 ± 0.0090
Gifu, GIFU	31	395.0	0.014 ± 0.021	0.003 ± 0.011
Shizuoka, SHIZUOKA	30	264.0	0.014 ± 0.0088	0.000 ± 0.015
Nagoya, AICHI	31	307.4	0.037 ± 0.010	0.000 ± 0.015
Tsu, MIE	31	351.5	0.001 ± 0.019	0.000 ± 0.015

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Ootsu, SHIGA	31	179.8	0.002 ± 0.026	0.000 ± 0.015
Kyoto, KYOTO	31	115.5	0.000 ± 0.023	0.000 ± 0.011
Kobe, HYOUGO	31	141.3	0.000 ± 0.022	0.037 ± 0.017
Nara, NARA	31	256.0	0.014 ± 0.011	0.023 ± 0.019
Wakayama, WAKAYAMA	43	278.5	0.012 ± 0.016	0.030 ± 0.023
Tottori, TOTTORI	31	192.1	0.050 ± 0.010	0.000 ± 0.015
Matsue, SHIMANE	31	255.0	0.018 ± 0.0055	0.019 ± 0.011
Hiroshima, HIROSHIMA	36	203.2	0.017 ± 0.0082	0.009 ± 0.013
Ishii-machi, TOKUSHIMA	31	261.5	0.024 ± 0.0095	0.013 ± 0.011
Takamatsu, KAGAWA	31	170.5	0.0092 ± 0.0069	0.000 ± 0.011
Matsuyama, EHIME	31	223.5	0.018 ± 0.0092	0.000 ± 0.011
Dazaifu, FUKUOKA	31	222.8	0.0098 ± 0.0094	0.030 ± 0.015
Saga, SAGA	31	193.8	0.0026 ± 0.0064	0.006 ± 0.013
Nagasaki, NAGASAKI	31	215.5	0.019 ± 0.0076	0.000 ± 0.015
Kumamoto, KUMAMOTO	31	360.4	0.0077 ± 0.0083	0.000 ± 0.010
Ooita, OOITA	31	610.4	0.008 ± 0.021	0.042 ± 0.012
Miyazaki, MIYAZAKI	31	461.5	0.002 ± 0.038	0.000 ± 0.016
Yonagusuku-mura, Okinawa	31	71.5	0.000 ± 0.023	0.016 ± 0.023

(1)-2 Strontuim-90 and Cesium-137 in Rain and Dry Fallout (for WHO program)
(from Apr. 1993 to Sep. 1993)

-continued from No, 104 of this publication-

Table (1)-2 : Strontium-90 and Cesium-137 in Rain and Dry Fallout

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
April, 1993				
Akita, AKITA	30	102.3	0.043 ± 0.019	0.17 ± 0.025
Chiba, CHIBA	30	39.7	0.028 ± 0.020	0.099 ± 0.017
Niigata, NIIGATA	30	69.4	0.26 ± 0.031	0.29 ± 0.028
Kanazawa, ISHIKAWA	29	97.5	0.11 ± 0.025	0.25 ± 0.028
Nagano, NAGANO	30	24.6	0.010 ± 0.023	0.078 ± 0.017
Osaka, OSAKA	37	121.4	0.048 ± 0.024	0.029 ± 0.018
Okayama, OKAYAMA	36	85.7	0.017 ± 0.0087	0.034 ± 0.015
Yamaguchi, YAMAGUCHI	30	95.5	0.059 ± 0.021	0.012 ± 0.015
Kochi, KOCHI	36	290.9	0.13 ± 0.036	0.051 ± 0.015
Kagoshima, KAGOSHIMA	31	136.5	0.13 ± 0.025	0.029 ± 0.017
May, 1993				
Akita, AKITA	33	158.4	0.073 ± 0.031	0.087 ± 0.019
Chiba, CHIBA	33	69.9	0.000 ± 0.016	0.012 ± 0.010
Niigata, NIIGATA	33	168.9	0.21 ± 0.030	0.067 ± 0.018
Kanazawa, ISHIKAWA	33	240.5	0.042 ± 0.021	0.032 ± 0.012
Nagano, NAGANO	33	79.0	0.000 ± 0.032	0.025 ± 0.015
Osaka, OSAKA	26	60.1	0.009 ± 0.018	0.018 ± 0.012
Okayama, OKAYAMA	27	62.7	0.0000 ± 0.0090	0.000 ± 0.012
Yamaguchi, YAMAGUCHI	33	195.5	0.000 ± 0.031	0.057 ± 0.015
Kochi, KOCHI	27	139.5	0.062 ± 0.025	0.009 ± 0.013
Kagoshima, KAGOSHIMA	29	160.0	0.034 ± 0.022	0.023 ± 0.016
June, 1993				
Akita, AKITA	31	147.8	0.0047 ± 0.0085	0.012 ± 0.012
Chiba, CHIBA	31	221.0	0.000 ± 0.021	0.018 ± 0.010
Niigata, NIIGATA	31	145.1	0.18 ± 0.035	0.044 ± 0.017
Kanazawa, ISHIKAWA	30	217.0	0.025 ± 0.031	0.001 ± 0.013

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Nagano, NAGANO	31	122.0	0.000 ± 0.018	0.018 ± 0.017
Osaka, OSAKA	32	313.1	0.000 ± 0.036	0.039 ± 0.018
Okayama, OKAYAMA	31	234.4	0.014 ± 0.0091	0.009 ± 0.013
Yamaguchi, YAMAGUCHI	31	424.5	0.000 ± 0.044	0.030 ± 0.013
Kochi, KOCHI	31	623.7	0.040 ± 0.014	0.052 ± 0.023
Kagoshima, KAGOSHIMA	33	743.5	0.026 ± 0.0075	0.045 ± 0.018
July, 1993				
Akita, AKITA	33	255.5	0.029 ± 0.011	0.000 ± 0.011
Chiba, CHIBA	33	326.8	0.011 ± 0.023	0.0000 ± 0.0089
Niigata, NIIGATA	33	175.4	0.27 ± 0.029	0.030 ± 0.018
Kanazawa, ISHIKAWA	31	310.0	0.014 ± 0.021	0.011 ± 0.011
Nagano, NAGANO	33	130.8	0.019 ± 0.018	0.015 ± 0.017
Osaka, OSAKA	33	343.7	0.013 ± 0.0082	0.000 ± 0.013
Okayama, OKAYAMA	33	416.0	0.0050 ± 0.0076	0.025 ± 0.017
Yamaguchi, YAMAGUCHI	33	695.5	0.011 ± 0.0085	0.000 ± 0.011
Kochi, KOCHI	33	729.7	0.097 ± 0.015	0.042 ± 0.018
Kagoshima, KAGOSHIMA	31	820.0	0.021 ± 0.0084	0.022 ± 0.016
August, 1993				
Akita, AKITA	31	189.5	0.15 ± 0.017	0.024 ± 0.012
Chiba, CHIBA	31	253.9	0.000 ± 0.018	0.0086 ± 0.0077
Niigata, NIIGATA	31	170.1	0.26 ± 0.028	0.013 ± 0.015
Kanazawa, ISHIKAWA	32	361.5	0.000 ± 0.027	0.013 ± 0.013
Nagano, NAGANO	31	138.6	0.008 ± 0.018	0.000 ± 0.013
Osaka, OSAKA	31	175.6	0.037 ± 0.010	0.002 ± 0.011
Okayama, OKAYAMA	31	174.5	0.0036 ± 0.0079	0.000 ± 0.012
Yamaguchi, YAMAGUCHI	31	467.5	0.0000 ± 0.0068	0.020 ± 0.011
Kochi, KOCHI	33	187.7	0.065 ± 0.012	0.011 ± 0.014

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Kagoshima, KAGOSHIMA	33	786.5	0.028 ± 0.014	0.006 ± 0.014
September, 1993				
Akita, AKITA	31	148.7	0.027 ± 0.0088	0.060 ± 0.017
Chiba, CHIBA	31	110.4	0.000 ± 0.018	0.022 ± 0.0086
Niigata, NIIGATA	31	102.3	0.011 ± 0.013	0.11 ± 0.021
Kanazawa, ISHIKAWA	32	205.0	0.035 ± 0.022	0.008 ± 0.016
Osaka, OSAKA	31	264.7	0.15 ± 0.026	0.000 ± 0.013
Okayama, OKAYAMA	31	209.3	0.0084 ± 0.0081	0.026 ± 0.014
Yamaguchi, YAMAGUCHI	31	224.5	0.0062 ± 0.0075	0.019 ± 0.012
Kochi, KOCHI	29	319.9	0.077 ± 0.022	0.000 ± 0.016
Kagoshima, KAGOSHIMA	31	368.0	0.032 ± 0.015	0.053 ± 0.018

(2) Strontium-90 and Cesium-137 in Airborne Dust
(from Apr. 1993 to Sep. 1993)

-continued from No. 104 of this publication-

Table (2) :Strontium-90 and Cesium-137 in Airborne Dust

Location	Sampling period	Absorption volume (m^2)	^{90}Sr (mBq/m^3)	^{137}Cs (mBq/m^3)
April~June, 1993				
Morioka, IWATE	4~ 6	10,941.0	0.00000 ± 0.00082	0.00000 ± 0.00055
Akita, AKITA	4~ 6	10,800.0	0.0016 ± 0.00070	0.00063 ± 0.00046
Yamagata, YAMAGATA	4~ 6	12,960.0	0.0016 ± 0.00067	0.00054 ± 0.00040
Ookuma-machi, FUKUSHIMA	4~ 6	8,368.0	0.00042 ± 0.00043	0.0033 ± 0.00085
Mito, IBARAKI	4~ 6	9,278.8	0.0016 ± 0.0011	0.00000 ± 0.00036
Utsunomiya, TOCHIGI	4~ 6	15,028.0	0.00046 ± 0.00062	0.00082 ± 0.00041
Maebashi, GUNMA	4~ 6	13,070.0	0.00067 ± 0.00058	0.00043 ± 0.00035
Ichihara, CHIBA	4~ 6	12,960.0	0.00047 ± 0.00030	0.00000 ± 0.00047
Yokohama, KANAGAWA	4~ 6	11,167.0	0.00082 ± 0.00072	0.0013 ± 0.00047
Niigata, NIIGATA	4~ 6	10,717.0	0.00000 ± 0.00032	0.00000 ± 0.00039
Kosugi-machi, TOYAMA	4~ 6	18,846.0	0.00000 ± 0.00044	0.00069 ± 0.00030
Fukui, FUKUI	4~ 6	10,305.0	0.0023 ± 0.00092	0.00000 ± 0.00042
Koufu, YAMANASHI	4~ 6	19,947.0	0.00039 ± 0.00046	0.00064 ± 0.00031
Gifu, GIFU	4~ 6	10,719.0	0.00051 ± 0.00030	0.00082 ± 0.00042
Hamaoka-machi, SHIZUOKA	4~ 6	10,080.0	0.00000 ± 0.00038	0.0016 ± 0.00062
Nagoya, AICHI	4~ 6	9,963.0	0.0018 ± 0.00087	0.00080 ± 0.00054
Tsu, MIE	4~ 6	14,160.0	0.00095 ± 0.00064	0.00000 ± 0.00031
Ootsu, SHIGA	4~ 6	11,682.0	0.00000 ± 0.00066	0.00003 ± 0.00043
Kyoto, KYOTO	4~ 6	11,840.0	0.0010 ± 0.00036	0.00076 ± 0.00055
Osaka, OSAKA	4~ 6	16,474.0	0.00000 ± 0.00048	0.00030 ± 0.00034
Kobe, HYOUGO	4~ 6	10,051.0	0.00057 ± 0.00083	0.00043 ± 0.00049
Nara, NARA	4~ 6	11,898.2	0.00000 ± 0.00063	0.0011 ± 0.00045
Wakayama, WAKAYAMA	4~ 6	10,158.0	0.00055 ± 0.00098	0.00008 ± 0.00039
Tottori, TOTTORI	4~ 6	13,500.0	0.00061 ± 0.00061	0.0021 ± 0.00050

Location	Sampling period	Absorption volume (m^2)	^{90}Sr (mBq/m^3)	^{137}Cs (mBq/m^3)
Okayama, OKAYAMA	4～ 6	12,000.0	0.00096 ± 0.00032	0.0049 ± 0.00069
Hiroshima, HIROSHIMA	4～ 6	10,759.0	0.00047 ± 0.00030	0.00015 ± 0.00044
Yamaguchi, YAMAGUCHI	4～ 6	20,248.0	0.00063 ± 0.00043	0.00014 ± 0.00024
Tokushima, TOKUSHIMA	4～ 6	10,980.0	0.00009 ± 0.00026	0.00095 ± 0.00046
Takamatsu, KAGAWA	4～ 6	15,879.0	0.00022 ± 0.00051	0.00018 ± 0.00031
Saga, SAGA	4～ 6	11,803.4	0.00038 ± 0.00068	0.0015 ± 0.00047
Nagasaki, NAGASAKI	4～ 6	10,113.0	0.00048 ± 0.00091	0.0012 ± 0.00063
Kumamoto, KUMAMOTO	4～ 6	11,097.0	0.0011 ± 0.00084	0.00053 ± 0.00042
Ooita, OOITA	4～ 6	10,565.0	0.00078 ± 0.00035	0.00056 ± 0.00050
Miyazaki, MIYAZAKI	4～ 6	13,259.0	0.00069 ± 0.00032	0.0011 ± 0.00042
May~June, 1993				
Nagano, NAGANO	5～ 6	10,797.0	0.00000 ± 0.00082	0.00000 ± 0.00044
July~September, 1993				
Morioka, IWATE	7～ 9	10,367.0	0.00000 ± 0.00036	0.00071 ± 0.00039
Akita, AKITA	7～ 9	10,920.0	0.00032 ± 0.00085	0.00016 ± 0.00044
Yamagata, YAMAGATA	7～ 9	12,960.0	0.00000 ± 0.00074	0.00004 ± 0.00042
Ookuma-machi, FUKUSHIMA	7～ 9	9,602.0	0.00000 ± 0.00035	0.00000 ± 0.00057
Mito, IBARAKI	7～ 9	9,904.1	0.00000 ± 0.00089	0.00000 ± 0.00041
Utsunomiya, TOCHIGI	7～ 9	15,379.0	0.00081 ± 0.00071	0.00000 ± 0.00029
Maebashi, GUNMA	7～ 9	13,571.0	0.00031 ± 0.00031	0.00078 ± 0.00045
Ichihara, CHIBA	7～ 9	12,960.0	0.00050 ± 0.00029	0.00014 ± 0.00049
Yokohama, KANAGAWA	7～ 9	10,861.0	0.00000 ± 0.00082	0.00096 ± 0.00051
Niigata, NIIGATA	7～ 9	10,574.0	0.00011 ± 0.00085	0.00015 ± 0.00038
Kosugi-machi, TOYAMA	7～ 9	18,766.0	0.00000 ± 0.00049	0.00000 ± 0.00024
Fukui, FUKUI	7～ 9	9,900.0	0.0010 ± 0.0010	0.00010 ± 0.00052

Location	Sampling period	Absorption volume (m^2)	^{90}Sr (mBq/m^3)		^{137}Cs (mBq/m^3)	
Koufu, YAMANASHI	7～ 9	19,452.0	0.00084	± 0.00049	0.00000	± 0.00021
Nagano, NAGANO	7～ 9	14,295.0	0.00000	± 0.00064	0.00000	± 0.00032
Gifu, GIFU	7～ 9	10,707.0	0.00013	± 0.00061	0.00037	± 0.00034
Hamaoka-machi, SHIZUOKA	7～ 9	9,976.0	0.0006	± 0.0010	0.00004	± 0.00057
Nagoya, AICHI	7～ 9	10,250.0	0.00000	± 0.00037	0.00054	± 0.00054
Tsu, MIE	7～ 9	14,310.0	0.00039	± 0.00064	0.00020	± 0.00027
Ootsu, SHIGA	7～ 9	10,758.0	0.00000	± 0.00082	0.00060	± 0.00059
Kyoto, KYOTO	7～ 9	9,991.0	0.00028	± 0.00033	0.00027	± 0.00058
Osaka, OSAKA	7～ 9	16,068.0	0.00000	± 0.00055	0.00026	± 0.00038
Kobe, HYOUGO	7～ 9	9,878.0	0.00042	± 0.00097	0.00045	± 0.00046
Nara, NARA	7～ 9	12,526.7	0.00067	± 0.00033	0.00014	± 0.00038
Wakayama, WAKAYAMA	7～ 9	10,215.0	0.00000	± 0.00090	0.00075	± 0.00048
Tottori, TOTTORI	7～ 9	14,589.0	0.00000	± 0.00023	0.00008	± 0.00029
Okayama, OKAYAMA	7～ 9	13,435.0	0.00028	± 0.00028	0.00000	± 0.00029
Hiroshima, HIROSHIMA	7～ 9	10,925.0	0.00039	± 0.00031	0.00000	± 0.00045
Yamaguchi, YAMAGUCHI	7～ 9	19,764.0	0.00042	± 0.00020	0.00000	± 0.00020
Tokushima, TOKUSHIMA	7～ 9	10,080.0	0.00000	± 0.00086	0.00000	± 0.00039
Takamatsu, KAGAWA	7～ 9	15,358.0	0.00014	± 0.00021	0.00008	± 0.00031
Saga, SAGA	7～ 9	13,833.5	0.00084	± 0.00071	0.00011	± 0.00031
Nagasaki, NAGASAKI	7～ 9	10,317.0	0.00016	± 0.00088	0.00000	± 0.00054
Ooita, OOITA	7～ 9	10,353.0	0.00027	± 0.00033	0.00033	± 0.00051
Miyazaki, MIYAZAKI	7～ 9	13,130.0	0.00000	± 0.00025	0.00000	± 0.00029
August--September, 1993						
Kumamoto, KUMAMOTO	8～ 9	10,700.0	0.00035	± 0.00036	0.00004	± 0.00048

(3) Strontium-90 and cesium-137 in Service Water
(from Apr. 1993 to Sep. 1993)

-continued from No. 104 of this publication-

Table (3) :Strontium-90 and cesium-137 in Service Water

Location	pH	^{90}Sr (mBq/ ℓ)	^{137}Cs (mBq/ ℓ)
(Source Water)			
June, 1993			
Urawa, SAITAMA	7.6	0.050 ± 0.042	0.000 ± 0.053
Kisarazu, CHIBA	7.6	2.3 ± 0.19	0.18 ± 0.070
Katsushika, TOKYO	7.1	1.7 ± 0.25	0.21 ± 0.10
Tsukui-machi, KANAGAWA	6.9	0.49 ± 0.10	0.11 ± 0.072
Nagano, NAGANO	7.0	1.1 ± 0.16	0.054 ± 0.052
Inuyama, AICHI	6.7	2.0 ± 0.13	0.12 ± 0.093
Moriguchi, OSAKA	7.2	3.4 ± 0.22	0.20 ± 0.078
Fukuoka, FUKUOKA	10.5	2.1 ± 0.17	0.093 ± 0.066
July, 1993			
Sapporo, HOKKAIDOU	6.9	1.8 ± 0.16	0.23 ± 0.072
August, 1993			
Kyoto, KYOTO	7.13	3.6 ± 0.23	0.031 ± 0.080
(Tap Water)			
May, 1993			
Yamagata, YAMAGATA	7.4	1.7 ± 0.19	0.000 ± 0.066
Nagano, NAGANO	6.9	0.89 ± 0.16	0.000 ± 0.051
June, 1993			
Wakkanai, HOKKAIDOU	6.7	0.99 ± 0.14	0.061 ± 0.061
Aomori, AOMORI	7.0	0.86 ± 0.12	0.36 ± 0.099
Morioka, IWATE	6.4	1.1 ± 0.09	0.055 ± 0.083
Fukushima, FUKUSHIMA	7.51	3.1 ± 0.14	0.000 ± 0.080
Mito, IBARAKI	7.6	1.5 ± 0.17	0.067 ± 0.065
Utsunomiya, TOCHIGI	7.5	0.50 ± 0.061	0.068 ± 0.061
Maebashi, GUNMA	6.8	1.5 ± 0.18	0.12 ± 0.068

Location	pH	^{90}Sr (mBq/ ℓ)		^{137}Cs (mBq/ ℓ)	
Urawa, SAITAMA	7.0	2.3	± 0.13	0.071	± 0.061
Ichihara, CHIBA	7.42	2.4	± 0.20	0.000	± 0.053
Katsushika, TOKYO	7.3	1.2	± 0.18	0.21	± 0.094
Yokohama, KANAGAWA	6.9	0.57	± 0.11	0.022	± 0.058
Niigata, NIIGATA	7.67	3.0	± 0.13	0.13	± 0.077
Kosugi-machi, TOYAMA	6.9	1.8	± 0.21	0.12	± 0.081
Kanazawa, ISHIKAWA	8.32	1.8	± 0.16	0.085	± 0.047
Fukui, FUKUI	6.79	0.56	± 0.12	0.016	± 0.057
Koufu, YAMANASHI	7.2	1.1	± 0.13	0.000	± 0.082
Gifu, GIFU	6.77	1.2	± 0.17	0.022	± 0.057
Shizuoka, SHIZUOKA	7.34	1.1	± 0.11	0.000	± 0.076
Nagoya, AICHI	6.7	2.2	± 0.17	0.11	± 0.077
Tsu, MIE	7.0	2.5	± 0.19	0.000	± 0.050
Ootsu, SHIGA	6.7	3.9	± 0.18	0.083	± 0.064
Osaka, OSAKA	7.2	3.6	± 0.26	0.034	± 0.077
Kobe, HYOUGO	7.49	3.1	± 0.19	0.071	± 0.056
Nara, NARA	7.0	2.9	± 0.16	0.000	± 0.088
Tottori, TOTTORI	7.4	2.0	± 0.11	0.000	± 0.047
Matsue, SHIMANE	—	2.9	± 0.14	0.051	± 0.062
Okayama, OKAYAMA	6.7	2.2	± 0.12	0.000	± 0.052
Hiroshima, HIROSHIMA	6.65	2.3	± 0.12	0.000	± 0.048
Tokushima, TOKUSHIMA	7.1	1.8	± 0.11	0.023	± 0.063
Takamatsu, KAGAWA	7.3	2.1	± 0.14	0.055	± 0.051
Matsuyama, EHIME	7.4	1.8	± 0.11	0.028	± 0.059
Kochi, KOCHI	7.2	1.6	± 0.18	0.000	± 0.051
Fukuoka, FUKUOKA	6.6	2.5	± 0.18	0.050	± 0.064

Location	pH	^{90}Sr (mBq/ ℓ)		^{137}Cs (mBq/ ℓ)	
Saga, SAGA	7.34	1.6	± 0.17	0.000	± 0.055
Nagasaki, NAGASAKI	7.3	1.7	± 0.11	0.000	± 0.079
Kumamoto, KUMAMOTO	6.78	0.000	± 0.034	0.000	± 0.052
Ooita, OOITA	6.8	1.2	± 0.14	0.33	± 0.11
Miyazaki, MIYAZAKI	7.04	1.3	± 0.15	0.067	± 0.082
Kagoshima, KAGOSHIMA	6.9	0.44	± 0.065	0.022	± 0.063
Naha, Okinawa	7.60	4.5	± 0.25	0.060	± 0.092
July, 1993					
Sendai, MIYAGI	−	1.7	± 0.17	0.000	± 0.078
Akita, AKITA	6.28	2.8	± 0.15	0.000	± 0.059
Ube, YAMAGUCHI	6.8	2.5	± 0.23	0.031	± 0.080
August, 1993					
Kyoto, KYOTO	6.85	3.5	± 0.22	0.049	± 0.077
Shinguu, WAKAYAMA	6.8	1.3	± 0.10	0.17	± 0.075

(4) Strontium-90 and cesium-137 in Freshwater
(from Apr. 1993 to Sep. 1993)

-continued from No. 104 of this publication-

Table (4) :Strontium-90 and cesium-137 in Freshwater

Location	pH	^{90}Sr (mBq/ ℓ)	^{137}Cs (mBq/ ℓ)
(FreshWater)			
May, 1993			
Kasumigaura-lake, IBARAKI	8.8	2.8 ± 0.19	0.31 ± 0.081
July, 1993			
Ishikari-machi, HOKKAIDOU	8.6	2.1 ± 0.17	0.45 ± 0.092
August, 1993			
Akita, AKITA	6.18	3.8 ± 0.25	0.45 ± 0.089
Tsuruga, FUKUI	6.59	3.6 ± 0.24	1.8 ± 0.15
September, 1993			
Fukushima, FUKUSHIMA	7.28	1.8 ± 0.17	0.25 ± 0.068

(5) Strontium-90 and Cesium-137 in Soil
(from May. 1993 to Sep. 1993)
-continued from No, 104 of this publication-
Table (5) Strontium-90 and Cesium-137 in Soil

Location	Sampling Depth (cm)	^{90}Sr (Bq/kg) (dried Soil)	^{90}Sr (MBq/km²)	^{137}Cs (Bq/kg) (dried Soil)	^{137}Cs (MBq/km²)
May, 1993					
Tokai-mura, IBARAKI	0～ 5	7.3 ± 0.20	310 ± 9	51 ± 0.8	2100 ± 30
〃	5～20	9.3 ± 0.23	940 ± 24	8.7 ± 0.33	880 ± 34
Akabane-machi, AICHI	0～ 5	0.41 ± 0.060	23 ± 3.3	3.1 ± 0.20	170 ± 11
〃	5～20	0.21 ± 0.053	40 ± 9.9	1.7 ± 0.16	320 ± 30
Shinguu, WAKAYAMA	0～ 5	0.18 ± 0.047	7.9 ± 2.0	3.4 ± 0.21	150 ± 9
〃	5～20	0.11 ± 0.045	16 ± 6.2	0.99 ± 0.13	140 ± 17
June, 1993					
Fukushima, FUKUSHIMA	0～ 5	3.1 ± 0.13	80 ± 3.4	13 ± 0.4	330 ± 10
〃	5～20	1.1 ± 0.08	56 ± 4.2	1.9 ± 0.17	94 ± 8.2
Katsushika, TOKYO	0～ 5	0.52 ± 0.10	30 ± 6.1	2.8 ± 0.18	170 ± 11
〃	5～20	0.70 ± 0.11	110 ± 16	2.3 ± 0.17	350 ± 25
Oota, SHIMANE	0～ 5	19 ± 0.5	390 ± 10	51 ± 0.7	1000 ± 10
〃	5～20	7.6 ± 0.31	640 ± 26	21 ± 0.5	1800 ± 40
July, 1993					
Aomori, AOMORI	0～ 5	1.3 ± 0.09	36 ± 2.4	1.8 ± 0.15	50 ± 4.2
〃	5～20	0.47 ± 0.056	50 ± 5.9	0.079 ± 0.061	8.3 ± 6.5
Yamagata, YAMAGATA	0～ 5	2.9 ± 0.13	170 ± 8	18 ± 0.5	1100 ± 30
〃	5～20	0.55 ± 0.064	65 ± 7.5	1.2 ± 0.15	150 ± 18
Imaichi, TOCHIGI	0～ 5	26 ± 0.4	400 ± 6	61 ± 0.8	940 ± 13
〃	5～20	4.2 ± 0.16	200 ± 8	4.4 ± 0.23	210 ± 11
Maebashi, GUNMA	0～ 5	1.3 ± 0.09	84 ± 5.9	3.3 ± 0.20	210 ± 13
〃	5～20	1.3 ± 0.09	160 ± 11	2.7 ± 0.18	320 ± 21
Urawa, SAITAMA	0～ 5	2.0 ± 0.11	50 ± 2.8	8.6 ± 0.32	220 ± 8
〃	5～20	0.88 ± 0.091	96 ± 9.8	0.90 ± 0.15	98 ± 16
Kashiwazaki, NIIGATA	0～ 5	0.83 ± 0.075	49 ± 4.4	16 ± 0.4	930 ± 25
〃	5～20	0.69 ± 0.069	150 ± 15	7.7 ± 0.29	1600 ± 60

Location	Sampling Depth (cm)	^{90}Sr (Bq/kg) (dried Soil)	^{90}Sr (MBq/km²)	^{137}Cs (Bq/kg) (dried Soil)	^{137}Cs (MBq/km²)
Nagano, NAGANO	0～ 5	4.2 ± 0.16	110 ± 4	54 ± 0.8	1400 ± 20
〃	5～20	4.4 ± 0.16	230 ± 9	7.2 ± 0.30	370 ± 15
Gifu, GIFU	0～ 5	0.72 ± 0.071	29 ± 2.9	12 ± 0.4	480 ± 15
〃	5～20	1.3 ± 0.09	190 ± 13	8.6 ± 0.32	1300 ± 50
Tsu, MIE	0～ 5	1.0 ± 0.09	54 ± 4.7	2.5 ± 0.19	130 ± 10
〃	5～20	0.085 ± 0.042	16 ± 7.6	0.63 ± 0.12	120 ± 21
Yasu-machi, FUKUOKA	0～ 5	0.59 ± 0.11	38 ± 7.0	7.9 ± 0.30	500 ± 19
〃	5～20	0.20 ± 0.089	29 ± 13	0.14 ± 0.072	19 ± 10
Miyazu, KYOTO	0～ 5	0.71 ± 0.13	25 ± 4.5	10 ± 0.3	360 ± 12
〃	5～20	0.88 ± 0.14	170 ± 27	18 ± 0.5	3600 ± 90
Osaka, OSAKA	0～ 5	1.2 ± 0.09	39 ± 3.2	6.0 ± 0.27	200 ± 9
〃	5～20	1.1 ± 0.08	170 ± 13	4.1 ± 0.23	650 ± 36
Kashihara, NARA	0～ 5	0.98 ± 0.13	76 ± 10	4.7 ± 0.24	360 ± 19
〃	5～20	1.3 ± 0.15	110 ± 13	5.7 ± 0.26	490 ± 22
Kokufu-machi, TOTTORI	0～ 5	0.12 ± 0.093	8.5 ± 6.5	1.7 ± 0.16	120 ± 11
〃	5～20	0.34 ± 0.10	31 ± 9.1	0.80 ± 0.12	72 ± 11
Asahi-machi, OKAYAMA	0～ 5	0.27 ± 0.088	10 ± 3.3	0.23 ± 0.075	8.8 ± 2.8
〃	5～20	0.16 ± 0.044	17 ± 4.9	0.15 ± 0.075	17 ± 8.3
Kamiita-machi, TOKUSHIMA	0～ 5	0.72 ± 0.12	34 ± 5.8	4.1 ± 0.23	200 ± 11
〃	5～20	0.94 ± 0.13	160 ± 23	2.9 ± 0.20	490 ± 34
Sakaide, KAGAWA	0～ 5	2.5 ± 0.19	100 ± 8	20 ± 0.5	830 ± 20
〃	5～20	2.3 ± 0.19	160 ± 12	1.3 ± 0.14	89 ± 9.4
Matsuyama, EHIME	0～ 5	1.0 ± 0.08	38 ± 3.0	23 ± 0.5	840 ± 18
〃	5～20	0.39 ± 0.057	28 ± 4.0	13 ± 0.4	950 ± 27
Fukuoka, FUKUOKA	0～ 5	5.8 ± 0.28	320 ± 15	4.6 ± 0.23	260 ± 13
〃	5～20	4.7 ± 0.26	660 ± 37	0.80 ± 0.10	110 ± 14
Saga, SAGA	0～ 5	0.57 ± 0.065	13 ± 1.5	2.8 ± 0.19	63 ± 4.4
〃					

Location	Sampling Depth (cm)	^{90}Sr (Bq/kg) (dried Soil)	^{90}Sr (MBq/km²)	^{137}Cs (Bq/kg) (dried Soil)	^{137}Cs (MBq/km²)
	5～20	0.49 ± 0.11	79 ± 17	2.9 ± 0.20	470 ± 32
Obama-machi, NAGASAKI	0～ 5	1.7 ± 0.16	50 ± 4.7	62 ± 0.8	1800 ± 20
〃	5～20	1.6 ± 0.16	190 ± 18	11 ± 0.4	1300 ± 40
Nishihara-mura, KUMAMOTO	0～ 5	6.9 ± 0.20	180 ± 5	88 ± 1.0	2300 ± 30
〃	5～20	6.8 ± 0.20	390 ± 12	12 ± 0.4	660 ± 21
Sadohara-machi, MIYAZAKI	0～ 5	0.92 ± 0.13	53 ± 7.4	5.6 ± 0.27	320 ± 15
〃	5～20	0.87 ± 0.12	110 ± 15	5.4 ± 0.26	680 ± 33
Naha, Okinawa	0～ 5	1.5 ± 0.10	89 ± 5.8	6.9 ± 0.29	410 ± 17
〃	5～20	1.9 ± 0.11	350 ± 21	4.6 ± 0.24	860 ± 45
August, 1993					
Sapporo, HOKKAIDOU	0～ 5	11 ± 0.2	370 ± 8	32 ± 0.6	1100 ± 20
〃	5～20	6.6 ± 0.19	920 ± 27	13 ± 0.4	1800 ± 50
Mutsu, AOMORI	0～ 5	4.7 ± 0.17	160 ± 6	20 ± 0.5	700 ± 17
〃	5～20	3.8 ± 0.15	430 ± 17	3.9 ± 0.21	440 ± 24
Takizawa-mura, IWATE	0～ 5	21 ± 0.3	660 ± 11	70 ± 0.9	2200 ± 30
〃	5～20	9.9 ± 0.24	870 ± 21	4.0 ± 0.23	350 ± 20
Yokohama, KANAGAWA	0～ 5	8.2 ± 0.23	210 ± 6	25 ± 0.6	650 ± 14
〃	5～20	8.8 ± 0.22	890 ± 22	15 ± 0.4	1500 ± 40
Kosugi-machi, TOYAMA	0～ 5	4.2 ± 0.16	210 ± 8	7.1 ± 0.30	360 ± 15
〃	5～20	5.1 ± 0.18	850 ± 30	0.69 ± 0.12	110 ± 20
Kanazawa, ISHIKAWA	0～ 5	10 ± 0.2	460 ± 11	36 ± 0.6	1600 ± 30
〃	5～20	9.4 ± 0.23	1500 ± 40	32 ± 0.6	5100 ± 90
Fukui, FUKUI	0～ 5	0.11 ± 0.089	5.5 ± 4.6	7.6 ± 0.31	390 ± 16
〃	5～20	0.82 ± 0.12	93 ± 14	3.9 ± 0.23	440 ± 26
Takane-machi, YAMANASHI	0～ 5	13 ± 0.3	340 ± 7	37 ± 0.6	960 ± 17
〃	5～20	7.9 ± 0.22	710 ± 20	13 ± 0.4	1200 ± 30
Gotenba, SHIZUOKA	0～ 5	0.42 ± 0.059	14 ± 2.0	4.6 ± 0.24	150 ± 8
〃					

Location	Sampling Depth (cm)	^{90}Sr (Bq/kg) (dried Soil)	^{90}Sr (MBq/km²)	^{137}Cs (Bq/kg) (dried Soil)	^{137}Cs (MBq/km²)
	5～20	0.13 ± 0.041	10 ± 3.2	1.5 ± 0.15	110 ± 12
Kasai, HYOUGO	0～ 5	3.3 ± 0.21	90 ± 5.9	33 ± 0.6	910 ± 16
〃	5～20	0.42 ± 0.12	37 ± 10	10 ± 0.3	890 ± 30
Hiroshima, HIROSHIMA	0～ 5	0.16 ± 0.045	8.8 ± 2.6	0.29 ± 0.089	16 ± 5.0
〃	5～20	1.6 ± 0.10	340 ± 22	9.8 ± 0.33	2100 ± 70
Kochi, KOCHI	0～ 5	7.4 ± 0.30	360 ± 15	30 ± 0.6	1500 ± 30
〃	5～20	5.9 ± 0.27	710 ± 33	13 ± 0.4	1600 ± 50
Kujuu-machi, OOITA	0～ 5	5.5 ± 0.18	71 ± 2.4	84 ± 1.0	1100 ± 10
〃	5～20	4.0 ± 0.16	170 ± 7	28 ± 0.6	1200 ± 20
Kaimon-machi, KAGOSHIMA	0～ 5	0.49 ± 0.098	34 ± 6.7	0.76 ± 0.12	52 ± 8.5
〃	5～20	0.50 ± 0.090	59 ± 11	1.9 ± 0.17	220 ± 20
September, 1993					
Iwatesan-machi, IWATE	0～ 5	2.4 ± 0.20	83 ± 6.8	5.3 ± 0.26	180 ± 9
〃	5～20	1.4 ± 0.15	170 ± 19	1.2 ± 0.14	160 ± 18
Akita, AKITA	0～ 5	6.4 ± 0.19	130 ± 4	19 ± 0.5	380 ± 9
〃	5～20	7.3 ± 0.21	570 ± 16	47 ± 0.7	3700 ± 50
Ichihara, CHIBA	0～ 5	0.10 ± 0.037	5.9 ± 2.2	1.9 ± 0.16	110 ± 9
〃	5～20	0.23 ± 0.049	46 ± 9.7	1.4 ± 0.14	280 ± 27

(6) Strontium-90 and Cesium-137 in Sea Water
(from Jul. 1993 to Sep. 1993)
-continued from No. 104 of this publication-

Table (6) Strontium-90 and Cesium-137 in Sea Water

Location	Sample volume analyzed (ℓ)	Cl (ℓ)	^{90}Sr (mBq/ℓ)		^{137}Cs (mBq/ℓ)	
May, 1993						
Mutsu, AOMORI	20.0	16.8	1.9	± 0.31	3.5	± 0.49
July, 1993						
Yoichi-bay, HOKKAIDOU	40.0	–	1.9	± 0.19	3.7	± 0.40
Tokai, IBARAKI	40.0	16.52	2.0	± 0.19	2.8	± 0.34
Niigata, NIIGATA	38.0	18.46	1.8	± 0.19	2.8	± 0.35
Moji-Port, FUKUOKA	40.0	18.24	1.9	± 0.19	2.6	± 0.35
Kaseda, KAGOSHIMA	40.0	14.50	1.8	± 0.19	1.9	± 0.25
August, 1993						
Mutsu, AOMORI	40.0	16.5	2.6	± 0.23	2.8	± 0.31
Souma, FUKUSHIMA	36.0	–	2.1	± 0.20	2.4	± 0.33
Ichihara, CHIBA	40.0	20.29	2.2	± 0.20	2.5	± 0.30
Yokosuka, KANAGAWA	40.0	17.0	2.1	± 0.21	2.9	± 0.34
Tokoname, AICHI	40.0	12.3	2.2	± 0.19	2.3	± 0.31
Osaka-Port, OSAKA	40.0	9.27	2.3	± 0.19	1.7	± 0.29
September, 1993						
Yamaguchi-bay, YAMAGUCHI	39.0	16.6	2.0	± 0.19	2.8	± 0.35
Katsuren-machi, Okinawa	38.5	19.98	2.1	± 0.20	3.2	± 0.37

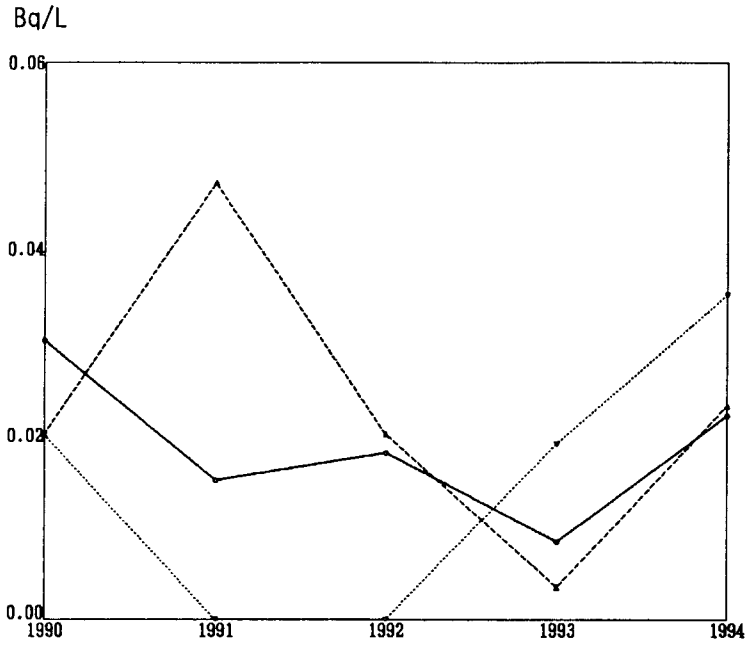
(7) Strontium-90 and Cesium-137 in Sea Sediments
(from May. 1993 to Sep. 1993)
-continued from No. 104 of this publication-

Table (7) Strontium-90 and Cesium-137 in Sea Sediments

Location	Depth (m)	^{90}Sr (Bq/kg·dried Soil)	^{137}Cs (Bq/kg·dried Soil)
May, 1993			
Mutsu, AOMORI	15	0.028 ± 0.088	0.10 ± 0.066
July, 1993			
Yoichi-bay, HOKKAIDOU	13	0.034 ± 0.035	0.73 ± 0.10
Tokai-mura, IBARAKI	7	0.028 ± 0.033	0.21 ± 0.081
Niigata, NIIGATA	27	0.13 ± 0.041	2.2 ± 0.17
Moji-Port, FUKUOKA	8	0.020 ± 0.036	2.1 ± 0.16
Kaseda, KAGOSHIMA	14	0.038 ± 0.085	1.2 ± 0.13
August, 1993			
Mutsu, AOMORI	13	0.57 ± 0.11	6.6 ± 0.28
Souma, FUKUSHIMA	0.5	0.064 ± 0.036	0.27 ± 0.079
Ichihara, CHIBA	17.0	0.27 ± 0.096	4.8 ± 0.24
Yokosuka, KANAGAWA	8.0	0.089 ± 0.037	3.0 ± 0.19
Tokoname, AICHI	22.0	0.33 ± 0.096	4.3 ± 0.22
Osaka-Port, OSAKA	11.7	0.074 ± 0.039	3.7 ± 0.21
September, 1993			
Yamaguchi-bay, YAMAGUCHI	10	0.18 ± 0.044	4.5 ± 0.23
Katsuren-machi, Okinawa	14.0	0.059 ± 0.086	0.22 ± 0.072

＊＊ Rain and Dry Fallout (for domestic program) ＊＊

<Strontium-90>



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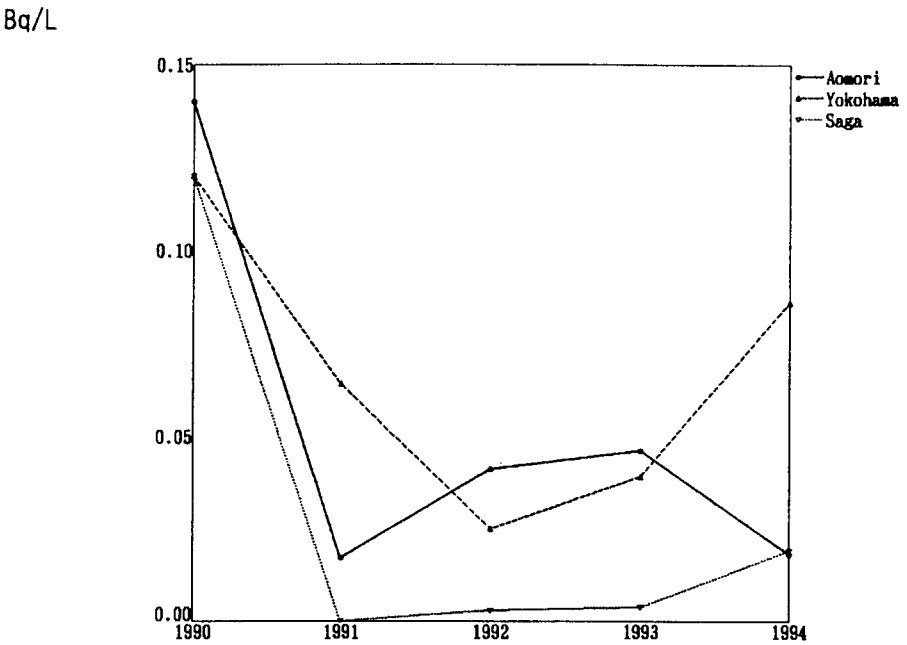

Fig. 1—1

＊ ＊ Rain and Dry Fallout (for WHO program) ＊ ＊

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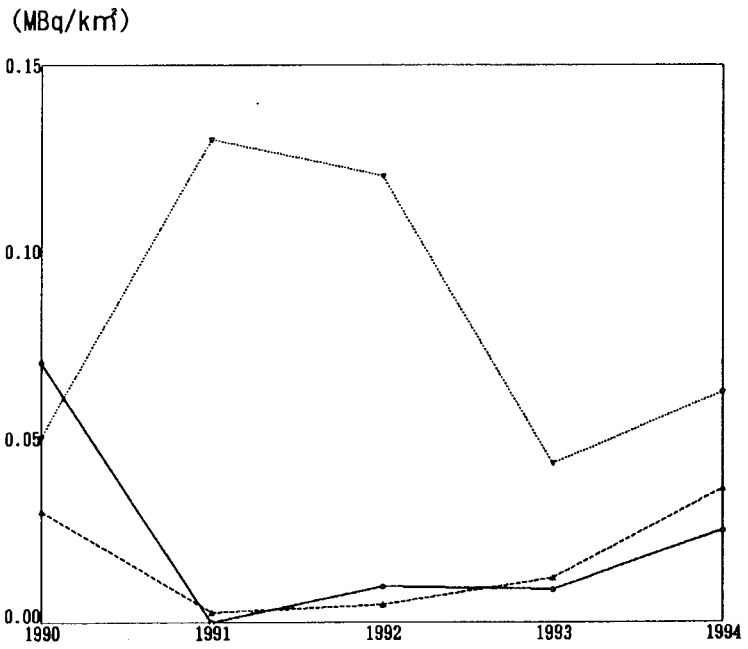

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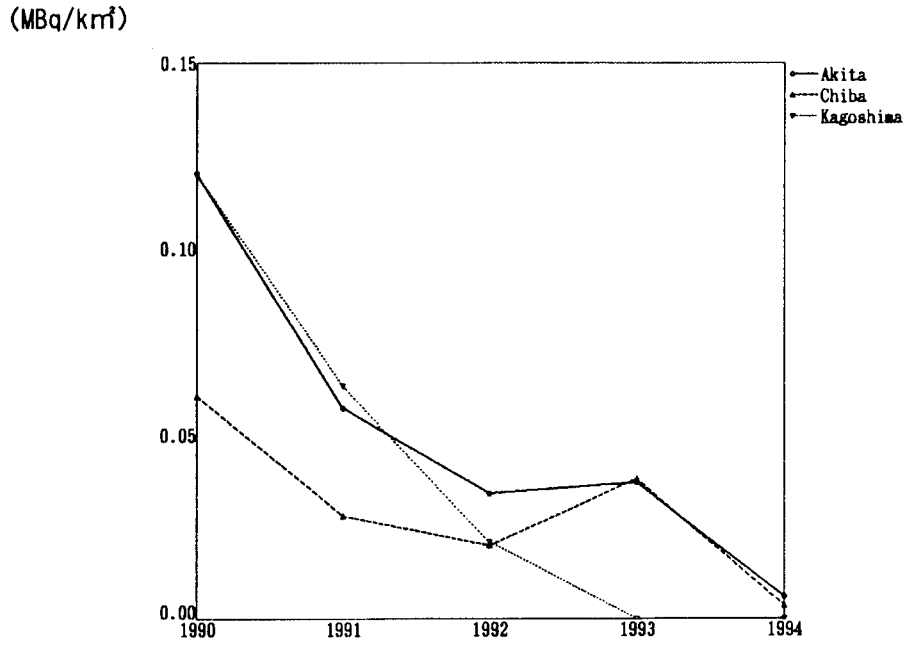
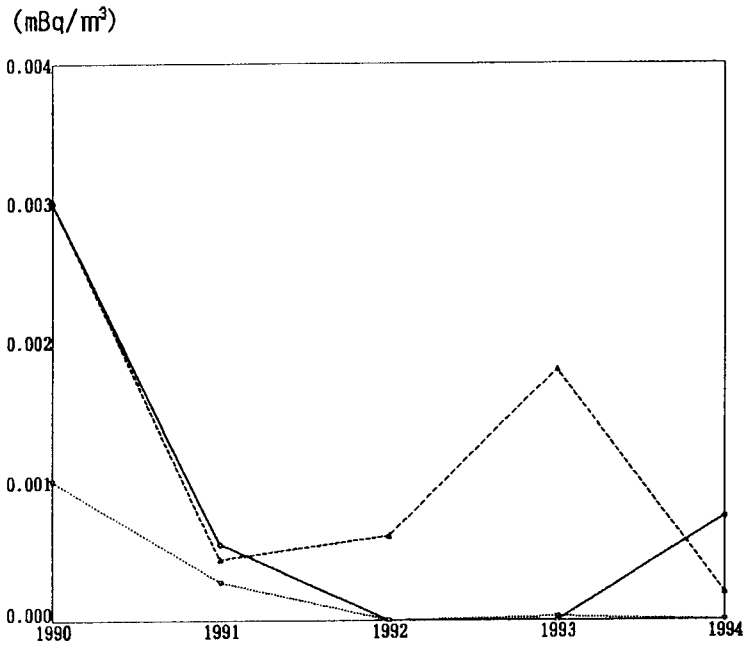


Fig. 1—2

* * Airborne Dust * *

<Strontium-90>



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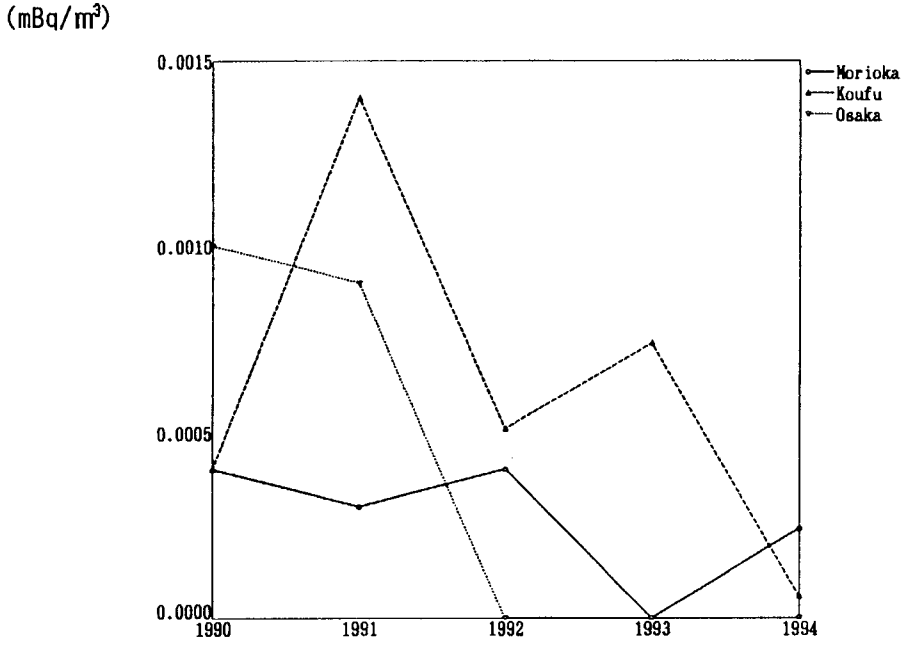
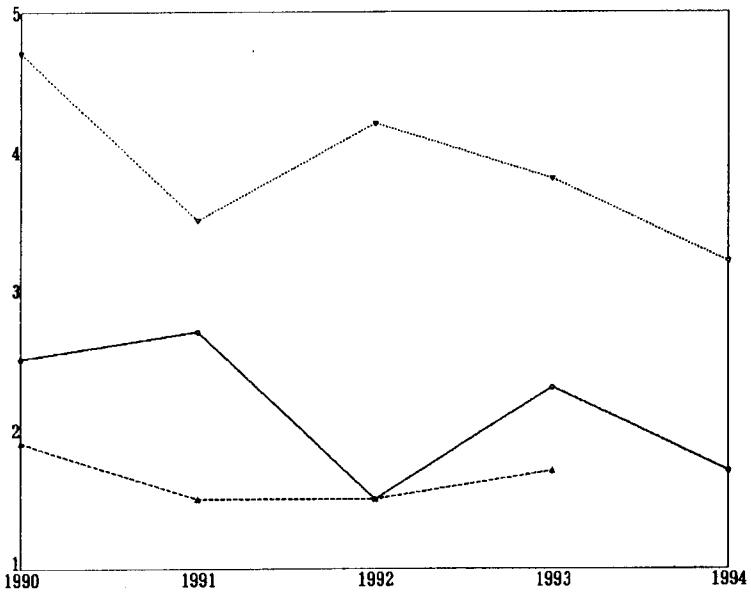


Fig. 2

＊ ＊ Service Water (Source Water) ＊ ＊

<Strontium-90>

(mBq/ ℓ)



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(mBq/ ℓ)

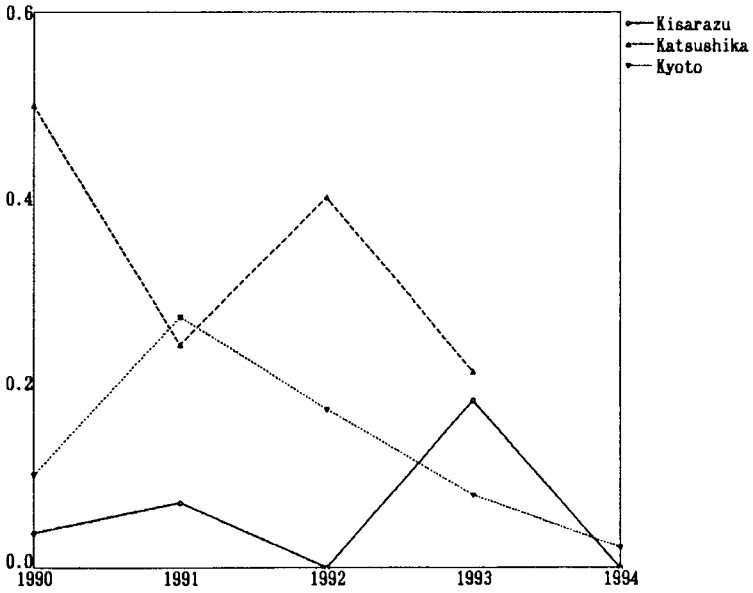

Fig. 3—1

* * Service Water (Tap Water) * *

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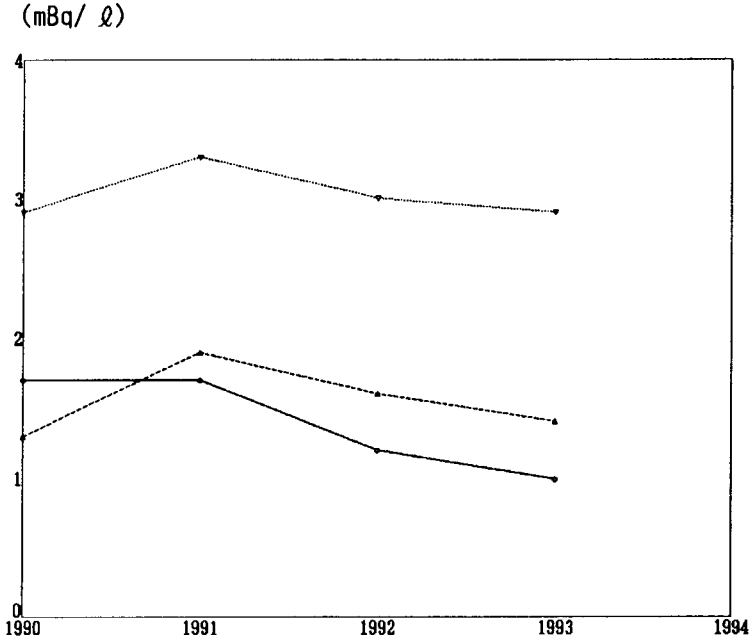

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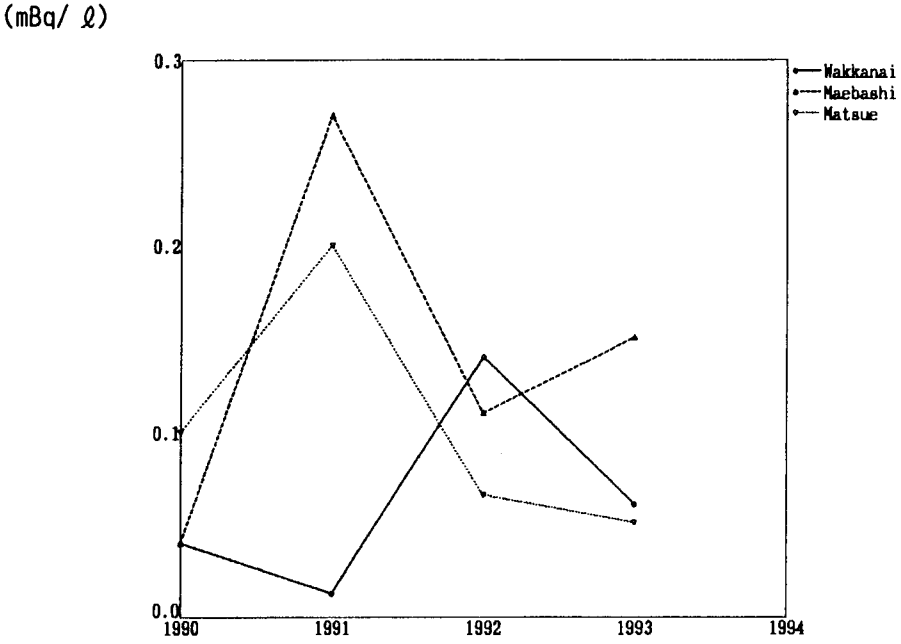

Fig. 3—2

＊ ＊ Fresh Water ＊ ＊

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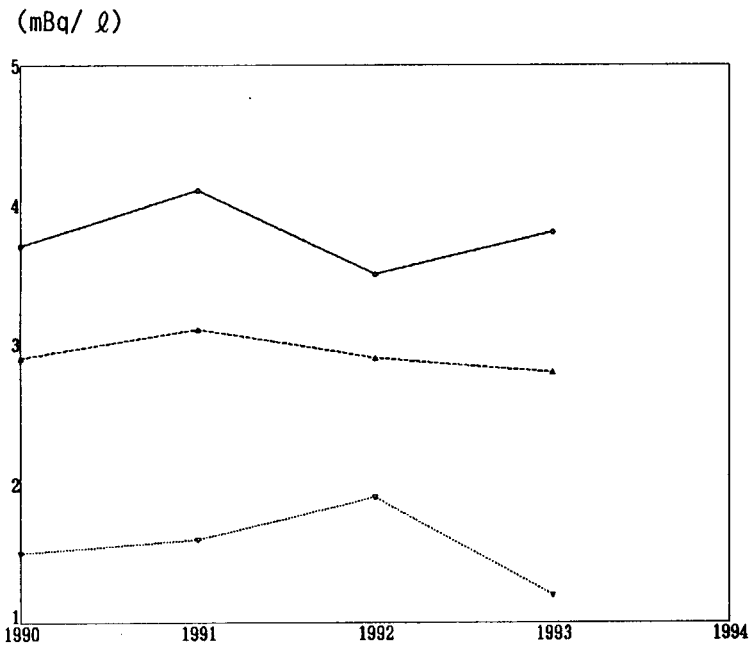

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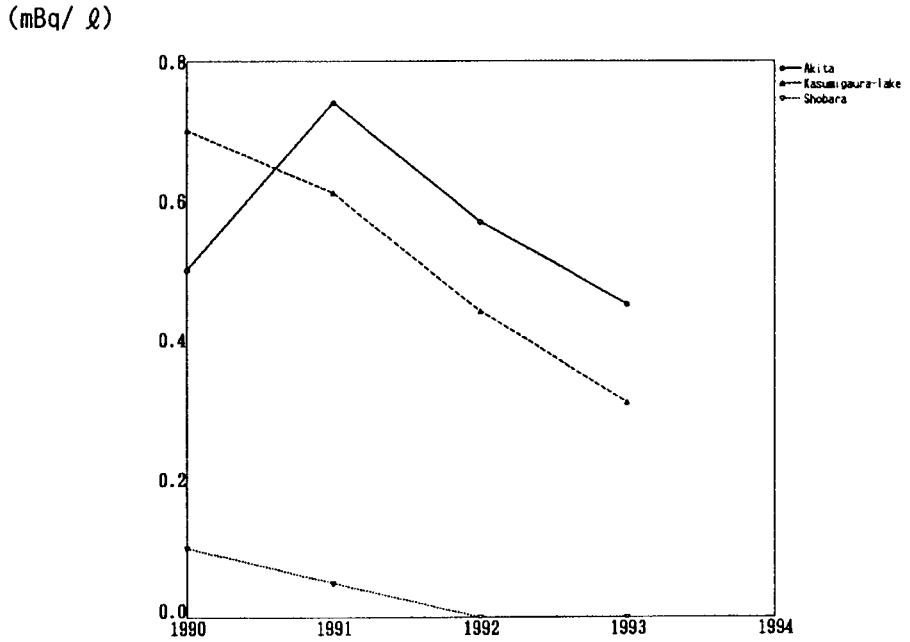
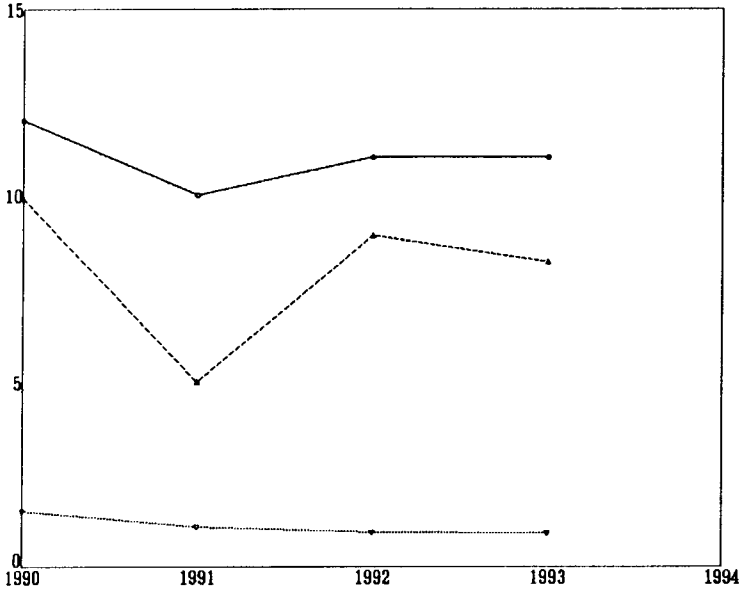


Fig. 4

* * Soil * *

<Strontium-90>

(Bq/kg)(dried So



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(Bq/kg)(dried So

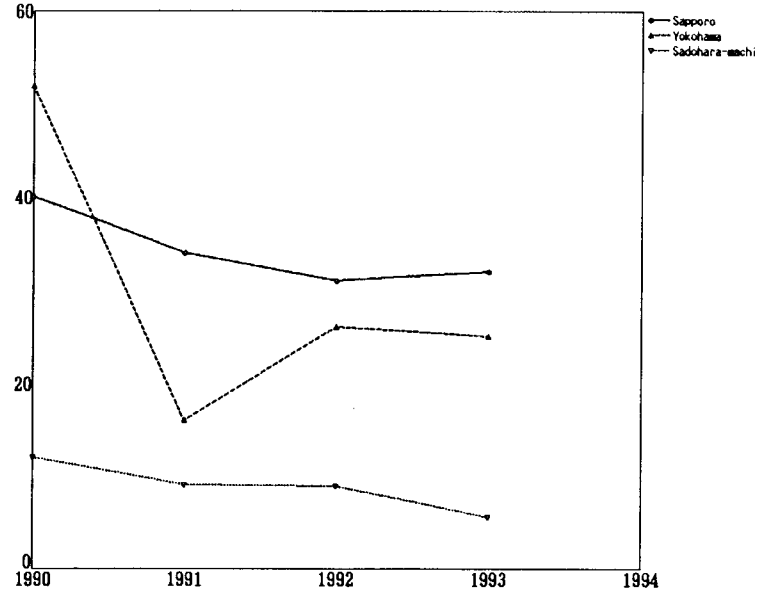

Fig. 5

* * Sea Water * *

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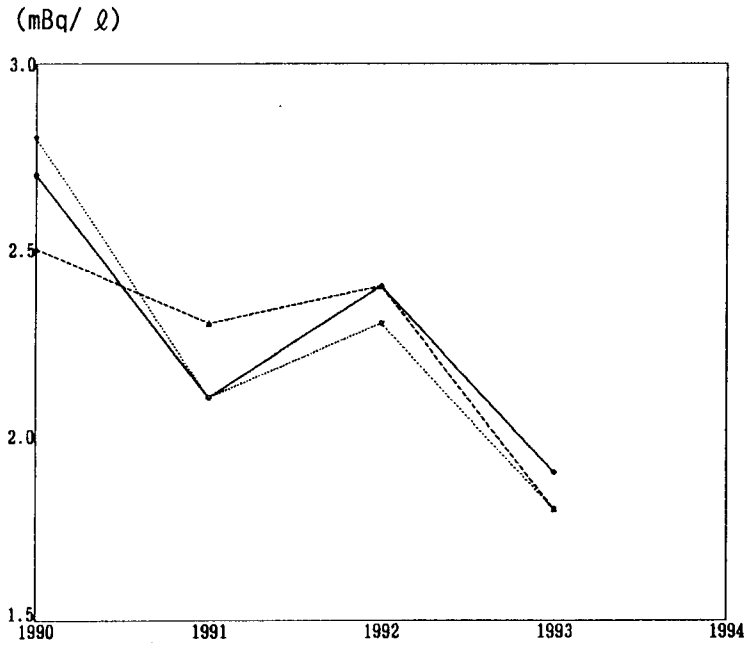

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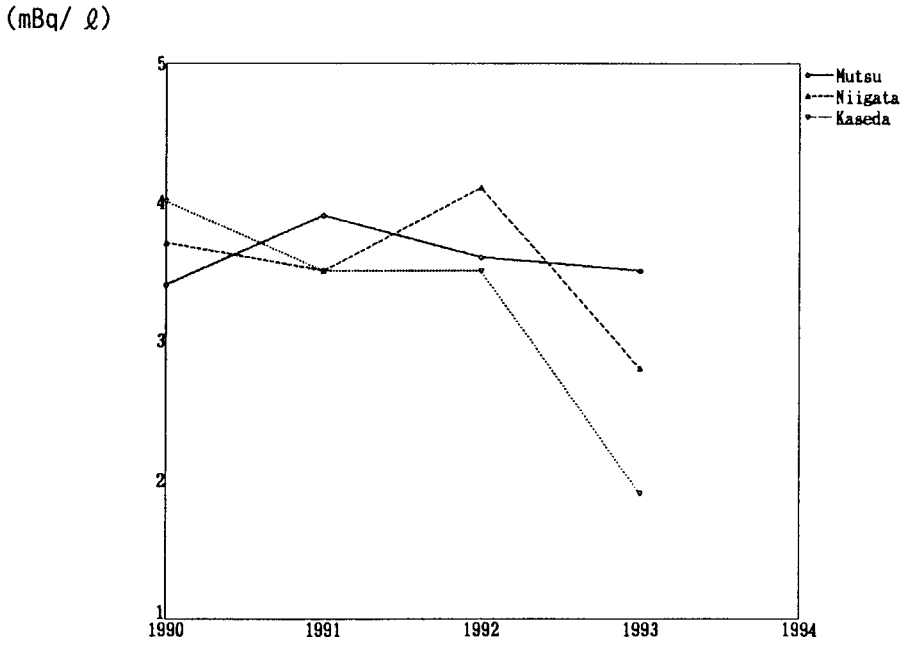
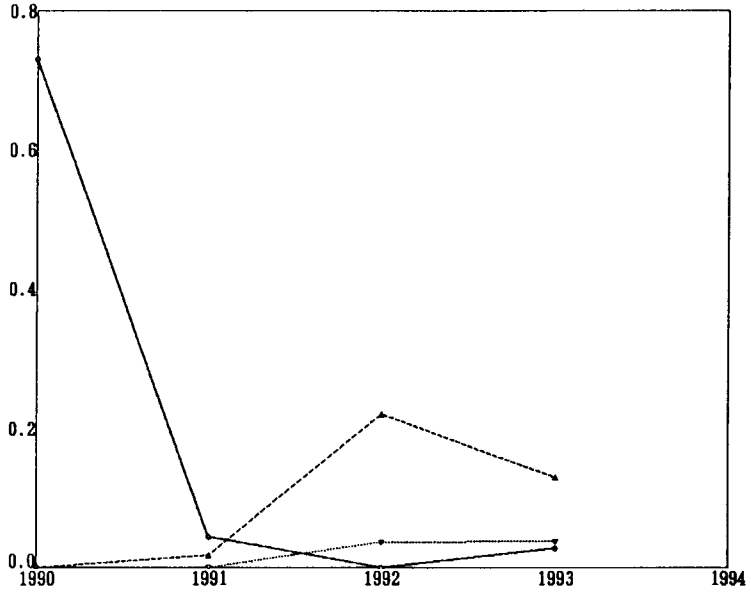


Fig. 6

* * Sea Sediments * *

<Strontium-90>

(Bq/kg·dried Soi



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(Bq/kg·dried Soi

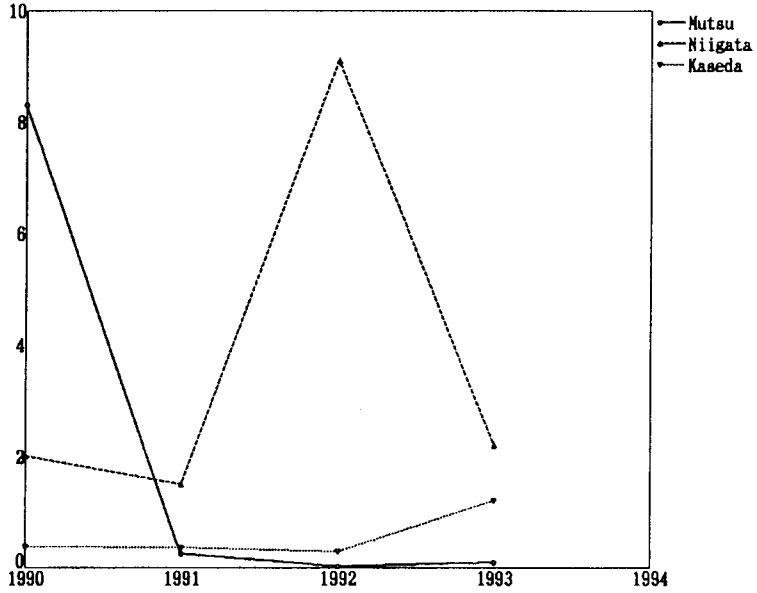

Fig. 7

* * Sampling Locations in Japan * *

1: Sapporo
2: Aomori
3: Morioka
4: Akita
5: Sendai
6: Yamagata
7: Fukushima
8: Niigata
9: Mito
10: Utsunomiya
11: Chiba
12: Urawa
13: Shinjuku
14: Maebashi
15: Nagano
16: Yokohama
17: Toyama
18: Kouhu
19: Kanazawa
20: Shizuoka
21: Gifu
22: Fukui
23: Nagoya
24: Tsu
25: Ootsu
26: Kyoto
27: Nara
28: Osaka
29: Tottori
30: Kobe
31: Wakayama
32: Okayama
33: Matsue
34: Tokushima
35: Takamatsu
36: Hiroshima
37: Kochi
38: Matsuyama
39: Yamaguchi
40: Ooita
41: Fukuoka
42: Saga
43: Kumamoto
44: Miyazaki
45: Nagasaki
46: Kagoshima
47: Naha