ISSN 0441–2516
NIRS–RSD–118

RADIOACTIVITY SURVEY DATA in Japan

Part 1
= Environmental Materials =

NUMBER 118
February 1999

National Institute of Radiological Sciences
Chiba, Japan

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Contents

Editted by National Institute of Radiological Sciences, under the supervision of Science and Technology Agency of Japanese Government.

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 a sampling 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. The tray 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 and cesium carriers were added to the filtered water sample. The subsequent process was the same as that described in the section (1). Freshwater was treated in the same way as the service water.

(4) Soil

Soil was collected from the location in the spacious and flat area without past surface disturbance caused by dust storms, inflow and out flow due to precipitation, etc.. Any places located under trees in a forest, in a stony 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 dried in 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 given to 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 1ℓ 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 the sample in wet weight was spread on a stainless steel dish after removed of the pebbles, shells and other foreign materials, and dried in a drying oven regulated at 105℃.

(7) Total diet

A full one day ordinary diet including three meals, water, tea and other in-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 transferred 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 areas when 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 sample was dried and carbonized in a stainless steel pan 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 was used 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. After removing 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 details 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	yearly (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 0.25mm 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 was heated. 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 sieved sample 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 the same 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. The supernatant solution was retained for cesium-137 determination.

The carbonates were dissolved 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 and the precipitate was filtered off, washed and counted.

(2) Cesium-137

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

After filtered off and washed with hydrochloric 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 cesium was 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°C and then treated with hydrochloric acid for extraction.
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 and potassium were determined by atomic absorption and flame 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-137per sample aliquot. From the results, 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. 1996 to Sep. 1996)

-continued from No. 116 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, 1996				
Sapporo, HOKKAIDOU	31	28.5	0.022 ± 0.0074	0.027 ± 0.014
Aomori, AOMORI	31	72.8	0.029 ± 0.0087	0.045 ± 0.015
Morioka, IWATE	31	50.8	0.039 ± 0.0098	0.025 ± 0.011
Onagawa-machi, MIYAGI	31	39.5	0.030 ± 0.013	0.015 ± 0.012
Yamagata, YAMAGATA	31	48.6	0.033 ± 0.0089	0.072 ± 0.016
Ookuma-machi, FUKUSHIMA	31	63.0	0.024 ± 0.0099	0.041 ± 0.015
Mito, IBARAKI	31	65.0	0.031 ± 0.0075	0.056 ± 0.014
Kawachi-machi, TOCHIGI	31	52.4	0.024 ± 0.0095	0.064 ± 0.017
Maebashi, GUNMA	31	38.5	0.088 ± 0.011	0.079 ± 0.018
Urawa, SAITAMA	31	90.7	0.023 ± 0.012	0.037 ± 0.012
Ichihara, CHIBA	31	57.8	0.055 ± 0.019	0.030 ± 0.018
Shinjuku, TOKYO	31	116.4	0.035 ± 0.0099	0.023 ± 0.013
Yokohama, KANAGAWA	33	112.8	0.045 ± 0.010	0.083 ± 0.017
Kosugi-machi, TOYAMA	31	61.9	0.030 ± 0.015	0.079 ± 0.016
Fukui, FUKUI	31	56.2	0.097 ± 0.040	0.059 ± 0.057
Koufu, YAMANASHI	31	32.5	0.019 ± 0.0075	0.051 ± 0.015
Gifu, GIFU	31	30.5	0.004 ± 0.016	0.0023 ± 0.0098
Shizuoka, SHIZUOKA	32	54.0	0.010 ± 0.0095	0.057 ± 0.016
Nagoya, AICHI	31	28.4	0.019 ± 0.013	0.019 ± 0.013
Tsu, MIE	31	45.5	0.011 ± 0.0075	0.12 ± 0.020
Ootsu, SHIGA	31	82.6	0.026 ± 0.0099	0.036 ± 0.014
Kyoto, KYOTO	30	42.5	0.035 ± 0.014	0.061 ± 0.015
Kobe, HYOUGO	33	61.4	0.028 ± 0.0083	0.051 ± 0.016
Nara, NARA	32	110.2	0.0072 ± 0.0092	0.034 ± 0.013
Wakayama, WAKAYAMA	31	69.5	0.016 ± 0.0095	0.008 ± 0.013
Tottori, TOTTORI	31	45.7	0.12 ± 0.014	0.13 ± 0.020

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Matsue, SHIMANE	31	32.6	0.025 ± 0.0091	0.086 ± 0.013
Hiroshima, HIROSHIMA	31	72.4	0.053 ± 0.015	0.065 ± 0.023
Ishii-machi, TOKUSHIMA	34	29.5	0.041 ± 0.013	0.062 ± 0.019
Takamatsu, KAGAWA	31	52.5	0.034 ± 0.012	0.013 ± 0.013
Matsuyama, EHIME	31	82.5	0.009 ± 0.013	0.010 ± 0.012
Dazaifu, FUKUOKA	31	101.2	0.027 ± 0.0088	0.037 ± 0.013
Saga, SAGA	31	110.5	0.018 ± 0.0092	0.026 ± 0.013
Nagasaki, NAGASAKI	31	82.0	0.037 ± 0.0099	0.017 ± 0.011
Uto, KUMAMOTO	31	106.1	0.016 ± 0.0084	0.025 ± 0.013
Ooita, OOITA	31	135.0	0.022 ± 0.0091	0.056 ± 0.014
Miyazaki, MIYAZAKI	31	240.4	0.029 ± 0.0097	0.039 ± 0.013
Yonagusuku-machi, Okinawa	29	155.0	0.019 ± 0.0098	0.000 ± 0.013
May,1996				
Sapporo, HOKKAIDOU	31	79.0	0.034 ± 0.0081	0.036 ± 0.013
Aomori, AOMORI	34	88.9	0.035 ± 0.0089	0.056 ± 0.015
Morioka, IWATE	34	108.6	0.028 ± 0.0081	0.030 ± 0.012
Onagawa-machi, MIYAGI	34	126.5	0.011 ± 0.010	0.040 ± 0.015
Yamagata, YAMAGATA	34	139.2	0.041 ± 0.0092	0.062 ± 0.016
Ookuma-machi, FUKUSHIMA	34	110.5	0.028 ± 0.0089	0.020 ± 0.012
Mito, IBARAKI	32	145.5	0.011 ± 0.0072	0.018 ± 0.013
Kawachi-machi, TOCHIGI	34	128.8	0.022 ± 0.0091	0.013 ± 0.012
Maebashi, GUNMA	34	77.5	0.060 ± 0.010	0.057 ± 0.015
Urawa, SAITAMA	34	119.2	0.015 ± 0.012	0.042 ± 0.012
Ichihara, CHIBA	34	121.9	0.036 ± 0.018	0.009 ± 0.017
Shinjuku, TOKYO	34	135.4	0.017 ± 0.0085	0.028 ± 0.015
Yokohama, KANAGAWA	35	151.4	0.025 ± 0.0069	0.064 ± 0.016
Kosugi-machi, TOYAMA	34	107.7	0.018 ± 0.016	0.036 ± 0.012

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Fukui, FUKUI	34	117.4	0.060 ± 0.032	0.000 ± 0.056
Koufu, YAMANASHI	34	58.5	0.0080 ± 0.0071	0.014 ± 0.011
Gifu, GIFU	34	100.5	0.000 ± 0.025	0.079 ± 0.021
Shizuoka, SHIZUOKA	33	89.0	0.0040 ± 0.0077	0.010 ± 0.012
Nagoya, AICHI	34	93.8	0.002 ± 0.014	0.018 ± 0.018
Tsu, MIE	34	114.0	0.014 ± 0.0090	0.11 ± 0.019
Ootsu, SHIGA	34	132.3	0.018 ± 0.012	0.012 ± 0.012
Kyoto, KYOTO	31	123.5	0.044 ± 0.015	0.035 ± 0.013
Kobe, HYOUGO	32	58.3	0.0017 ± 0.0079	0.028 ± 0.014
Nara, NARA	33	128.4	0.031 ± 0.014	0.010 ± 0.011
Wakayama, WAKAYAMA	34	79.0	0.019 ± 0.0086	0.037 ± 0.014
Tottori, TOTTORI	34	127.2	0.089 ± 0.013	0.10 ± 0.020
Matsue, SHIMANE	34	95.0	0.034 ± 0.0099	0.029 ± 0.0095
Hiroshima, HIROSHIMA	34	105.2	0.17 ± 0.021	0.048 ± 0.017
Ishii-machi, TOKUSHIMA	34	67.0	0.0087 ± 0.0087	0.009 ± 0.018
Takamatsu, KAGAWA	29	37.0	0.014 ± 0.0086	0.013 ± 0.011
Matsuyama, EHIME	34	60.5	0.012 ± 0.013	0.007 ± 0.012
Dazaifu, FUKUOKA	34	76.4	0.015 ± 0.0072	0.010 ± 0.013
Saga, SAGA	34	82.9	0.016 ± 0.0080	0.013 ± 0.013
Nagasaki, NAGASAKI	34	50.5	0.028 ± 0.0098	0.015 ± 0.011
Uto, KUMAMOTO	34	35.2	0.0033 ± 0.0077	0.024 ± 0.014
Ooita, OOITA	34	81.0	0.0078 ± 0.0078	0.024 ± 0.012
Miyazaki, MIYAZAKI	34	202.5	0.024 ± 0.0097	0.030 ± 0.013
Yonagusuku-machi, Okinawa	35	397.0	0.0082 ± 0.0075	0.004 ± 0.014
June, 1996				
Sapporo, HOKKAIDOU	32	31.5	0.078 ± 0.012	0.085 ± 0.019
Aomori, AOMORI	29	110.3	0.030 ± 0.0088	0.042 ± 0.017

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Morioka, IWATE	29	160.8	0.018 ± 0.0072	0.023 ± 0.010
Onagawa-machi, MIYAGI	29	100.0	0.020 ± 0.012	0.0000 ± 0.0089
Yamagata, YAMAGATA	29	99.7	0.045 ± 0.012	0.010 ± 0.010
Ookuma-machi, FUKUSHIMA	29	56.5	0.012 ± 0.0069	0.009 ± 0.012
Mito, IBARAKI	31	56.0	0.0017 ± 0.0066	0.014 ± 0.011
Kawachi-machi, TOCHIGI	29	119.2	0.0000 ± 0.0068	0.010 ± 0.011
Maebashi, GUNMA	29	93.5	0.027 ± 0.0081	0.039 ± 0.014
Urawa, SAITAMA	29	35.4	0.025 ± 0.014	0.0000 ± 0.0082
Ichihara, CHIBA	29	47.2	0.011 ± 0.0094	0.025 ± 0.012
Shinjuku, TOKYO	29	36.6	0.015 ± 0.0084	0.008 ± 0.011
Yokohama, KANAGAWA	26	72.0	0.021 ± 0.0070	0.011 ± 0.011
Kosugi-machi, TOYAMA	29	304.2	0.013 ± 0.014	0.043 ± 0.013
Fukui, FUKUI	26	239.4	0.15 ± 0.22	0.041 ± 0.062
Koufu, YAMANASHI	29	89.5	0.030 ± 0.013	0.044 ± 0.019
Gifu, GIFU	29	251.5	0.019 ± 0.015	0.010 ± 0.012
Shizuoka, SHIZUOKA	29	219.5	0.014 ± 0.012	0.022 ± 0.012
Nagoya, AICHI	29	176.7	0.044 ± 0.019	0.049 ± 0.015
Tsu, MIE	29	162.0	0.0080 ± 0.0091	0.013 ± 0.011
Ootsu, SHIGA	29	276.6	0.024 ± 0.0092	0.000 ± 0.011
Kyoto, KYOTO	34	246.0	0.053 ± 0.018	0.015 ± 0.017
Kobe, HYOUGO	29	222.7	0.0019 ± 0.0059	0.013 ± 0.013
Nara, NARA	29	331.2	0.021 ± 0.0094	0.008 ± 0.010
Wakayama, WAKAYAMA	29	177.0	0.037 ± 0.011	0.026 ± 0.012
Tottori, TOTTORI	29	169.6	0.069 ± 0.011	0.032 ± 0.014
Matsue, SHIMANE	29	365.7	0.018 ± 0.0087	0.0031 ± 0.0075
Hiroshima, HIROSHIMA	29	290.5	0.18 ± 0.040	0.000 ± 0.011
Ishii-machi, TOKUSHIMA	29	126.0	0.030 ± 0.012	0.000 ± 0.016

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km^2)	^{137}Cs (MBq/km^2)
Takamatsu, KAGAWA	34	254.0	0.004 ± 0.016	0.013 ± 0.012
Matsuyama, EHIME	29	328.0	0.031 ± 0.016	0.032 ± 0.013
Dazaifu, FUKUOKA	29	446.3	0.0031 ± 0.0099	0.005 ± 0.011
Saga, SAGA	29	504.9	0.010 ± 0.0076	0.0000 ± 0.0086
Nagasaki, NAGASAKI	29	370.5	0.000 ± 0.011	0.000 ± 0.014
Uto, KUMAMOTO	29	529.4	0.0059 ± 0.0069	0.007 ± 0.012
Ooita, OOITA	29	366.3	0.0071 ± 0.0076	0.000 ± 0.011
Miyazaki, MIYAZAKI	29	329.5	0.0034 ± 0.0069	0.007 ± 0.011
Yonagusuku-machi, Okinawa	29	24.5	0.010 ± 0.0099	0.000 ± 0.012
July, 1996				
Sapporo, HOKKAIDOU	32	93.5	0.037 ± 0.010	0.012 ± 0.012
Aomori, AOMORI	32	97.4	0.020 ± 0.0080	0.000 ± 0.014
Morioka, IWATE	32	105.7	0.0083 ± 0.0067	0.0034 ± 0.0086
Onagawa-machi, MIYAGI	31	134.0	0.030 ± 0.013	0.003 ± 0.011
Yamagata, YAMAGATA	32	101.0	0.0000 ± 0.0085	0.000 ± 0.010
Ookuma-machi, FUKUSHIMA	32	138.0	0.092 ± 0.013	0.012 ± 0.012
Mito, IBARAKI	32	205.0	0.025 ± 0.012	0.0000 ± 0.0099
Kawachi-machi, TOCHIGI	32	171.2	0.008 ± 0.010	0.007 ± 0.010
Maebashi, GUNMA	32	130.5	0.021 ± 0.016	0.000 ± 0.011
Urawa, SAITAMA	32	184.2	0.016 ± 0.012	0.0000 ± 0.0089
Ichihara, CHIBA	32	411.1	0.003 ± 0.011	0.0000 ± 0.0094
Shinjuku, TOKYO	32	311.1	0.045 ± 0.019	0.025 ± 0.012
Yokohama, KANAGAWA	34	436.8	0.015 ± 0.012	0.002 ± 0.011
Kosugi-machi, TOYAMA	32	42.2	0.014 ± 0.020	0.14 ± 0.020
Fukui, FUKUI	35	62.7	0.036 ± 0.056	0.000 ± 0.055
Koufu, YAMANASHI	32	131.0	0.019 ± 0.012	0.002 ± 0.011
Gifu, GIFU	32	165.5	0.0087 ± 0.0083	0.0000 ± 0.0096

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km^2)	^{137}Cs (MBq/km^2)
Shizuoka, SHIZUOKA	32	330.5	0.022 ± 0.014	0.010 ± 0.012
Nagoya, AICHI	32	130.3	0.027 ± 0.0084	0.039 ± 0.015
Tsu, MIE	32	135.5	0.029 ± 0.0084	0.0000 ± 0.0085
Ootsu, SHIGA	32	108.5	0.0060 ± 0.0090	0.000 ± 0.011
Kyoto, KYOTO	32	108.0	0.044 ± 0.017	0.035 ± 0.016
Kobe, HYOUGO	34	87.8	0.007 ± 0.011	0.024 ± 0.012
Nara, NARA	32	179.3	0.0045 ± 0.0092	0.006 ± 0.010
Wakayama, WAKAYAMA	36	124.0	0.002 ± 0.012	0.014 ± 0.011
Tottori, TOTTORI	32	135.5	0.059 ± 0.019	0.017 ± 0.012
Matsue, SHIMANE	32	95.5	0.0095 ± 0.0080	0.013 ± 0.0082
Hiroshima, HIROSHIMA	32	99.1	0.19 ± 0.062	0.002 ± 0.018
Ishii-machi, TOKUSHIMA	32	70.0	0.024 ± 0.011	0.039 ± 0.016
Takamatsu, KAGAWA	32	59.5	0.013 ± 0.0095	0.0000 ± 0.0097
Matsuyama, EHIME	32	170.0	0.030 ± 0.0088	0.009 ± 0.011
Dazaifu, FUKUOKA	32	143.1	0.018 ± 0.011	0.002 ± 0.012
Saga, SAGA	32	92.5	0.0074 ± 0.0071	0.0000 ± 0.0091
Nagasaki, NAGASAKI	32	93.0	0.012 ± 0.013	0.000 ± 0.011
Uto, KUMAMOTO	32	449.5	0.0071 ± 0.0069	0.007 ± 0.011
Ooita, OOITA	32	254.5	0.012 ± 0.0080	0.000 ± 0.012
Miyazaki, MIYAZAKI	32	428.0	0.056 ± 0.010	0.008 ± 0.011
Yonagusuku-machi, Okinawa	32	44.5	0.019 ± 0.011	0.000 ± 0.013
August, 1996				
Sapporo, HOKKAIDOU	33	119.5	0.017 ± 0.0090	0.052 ± 0.016
Aomori, AOMORI	33	69.6	0.036 ± 0.0094	0.000 ± 0.016
Morioka, IWATE	33	62.2	0.015 ± 0.0078	0.0095 ± 0.0099
Onagawa-machi, MIYAGI	34	86.5	0.016 ± 0.015	0.023 ± 0.011
Yamagata, YAMAGATA	33	99.3	0.029 ± 0.0092	0.000 ± 0.010

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km^2)	^{137}Cs (MBq/km^2)
Ookuma-machi, FUKUSHIMA	33	30.5	0.063 ± 0.011	0.008 ± 0.011
Mito, IBARAKI	32	28.5	0.021 ± 0.013	0.029 ± 0.012
Kawachi-machi, TOCHIGI	33	26.2	0.014 ± 0.011	0.0000 ± 0.0098
Maebashi, GUNMA	33	65.0	0.015 ± 0.013	0.034 ± 0.015
Urawa, SAITAMA	32	11.0	0.021 ± 0.010	0.010 ± 0.011
Ichihara, CHIBA	33	58.6	0.020 ± 0.013	0.010 ± 0.012
Shinjuku, TOKYO	33	38.8	0.031 ± 0.015	0.006 ± 0.010
Yokohama, KANAGAWA	31	82.9	0.040 ± 0.0090	0.011 ± 0.012
Kosugi-machi, TOYAMA	33	150.3	0.0046 ± 0.0073	0.013 ± 0.011
Fukui, FUKUI	33	243.5	0.042 ± 0.037	0.000 ± 0.050
Koufu, YAMANASHI	33	46.5	0.022 ± 0.012	0.010 ± 0.011
Gifu, GIFU	33	258.5	0.011 ± 0.0094	0.016 ± 0.012
Shizuoka, SHIZUOKA	33	146.5	0.007 ± 0.012	0.000 ± 0.010
Nagoya, AICHI	33	140.3	0.020 ± 0.010	0.029 ± 0.013
Tsu, MIE	33	211.5	0.0091 ± 0.0069	0.015 ± 0.012
Ootsu, SHIGA	33	357.1	0.018 ± 0.010	0.023 ± 0.012
Kyoto, KYOTO	33	242.5	0.021 ± 0.016	0.007 ± 0.011
Kobe, HYOUGO	31	103.7	0.015 ± 0.011	0.028 ± 0.013
Nara, NARA	33	183.5	0.020 ± 0.0088	0.015 ± 0.012
Wakayama, WAKAYAMA	29	44.0	0.024 ± 0.015	0.000 ± 0.012
Tottori, TOTTORI	33	103.4	0.22 ± 0.020	0.059 ± 0.016
Matsue, SHIMANE	33	143.1	0.023 ± 0.0092	0.0053 ± 0.0071
Hiroshima, HIROSHIMA	33	147.9	0.12 ± 0.019	0.000 ± 0.013
Ishii-machi, TOKUSHIMA	34	140.0	0.016 ± 0.010	0.047 ± 0.017
Takamatsu, KAGAWA	30	42.0	0.0075 ± 0.0085	0.013 ± 0.012
Matsuyama, EHIME	33	61.5	0.017 ± 0.0073	0.0000 ± 0.0082
Dazaifu, FUKUOKA	33	164.8	0.0075 ± 0.0078	0.008 ± 0.010

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Saga, SAGA	33	314.7	0.006 ± 0.014	0.013 ± 0.018
Nagasaki, NAGASAKI	33	256.5	0.011 ± 0.017	0.012 ± 0.017
Uto, KUMAMOTO	33	146.6	0.0036 ± 0.0062	0.0079 ± 0.0099
Ooita, OOITA	33	128.7	0.0098 ± 0.0081	0.001 ± 0.010
Miyazaki, MIYAZAKI	33	248.8	0.021 ± 0.013	0.046 ± 0.020
Yonagusuku-machi, Okinawa	33	181.5	0.010 ± 0.0097	0.018 ± 0.014
September, 1996				
Sapporo, HOKKAIDOU	30	85.5	0.017 ± 0.0078	0.047 ± 0.015
Aomori, AOMORI	30	77.3	0.024 ± 0.0082	0.000 ± 0.015
Morioka, IWATE	30	64.9	0.013 ± 0.0082	0.000 ± 0.011
Onagawa-machi, MIYAGI	31	252.0	0.021 ± 0.012	0.005 ± 0.012
Yamagata, YAMAGATA	30	139.3	0.017 ± 0.0077	0.0000 ± 0.0091
Ookuma-machi, FUKUSHIMA	30	378.0	0.013 ± 0.0090	0.0089 ± 0.0097
Mito, IBARAKI	31	260.5	0.016 ± 0.0077	0.015 ± 0.012
Kawachi-machi, TOCHIGI	30	250.2	0.0005 ± 0.0062	0.000 ± 0.010
Maebashi, GUNMA	30	219.5	0.000 ± 0.012	0.022 ± 0.013
Urawa, SAITAMA	31	245.6	0.026 ± 0.015	0.010 ± 0.0099
Ichihara, CHIBA	30	267.8	0.009 ± 0.013	0.0000 ± 0.0095
Shinjuku, TOKYO	30	400.8	0.010 ± 0.015	0.020 ± 0.012
Yokohama, KANAGAWA	32	391.2	0.022 ± 0.010	0.039 ± 0.012
Kosugi-machi, TOYAMA	30	125.4	0.011 ± 0.0070	0.020 ± 0.011
Fukui, FUKUI	33	234.8	0.031 ± 0.055	0.046 ± 0.065
Koufu, YAMANASHI	30	178.0	0.021 ± 0.012	0.000 ± 0.010
Gifu, GIFU	30	144.5	0.014 ± 0.0083	0.003 ± 0.010
Shizuoka, SHIZUOKA	30	128.5	0.023 ± 0.013	0.000 ± 0.011
Nagoya, AICHI	30	98.6	0.021 ± 0.0091	0.019 ± 0.012
Tsu, MIE	30	108.5	0.0079 ± 0.0080	0.006 ± 0.010

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Ootsu, SHIGA	30	78.4	0.0000 ± 0.0099	0.0011 ± 0.0097
Kyoto, KYOTO	30	161.0	0.014 ± 0.015	0.0000 ± 0.0095
Kobe, HYOUGO	32	151.3	0.0079 ± 0.0081	0.027 ± 0.012
Nara, NARA	30	173.7	0.014 ± 0.010	0.046 ± 0.016
Wakayama, WAKAYAMA	30	99.0	0.007 ± 0.012	0.000 ± 0.012
Tottori, TOTTORI	30	170.3	0.068 ± 0.013	0.017 ± 0.012
Matsue, SHIMANE	30	106.1	0.0070 ± 0.0045	0.0023 ± 0.0070
Hiroshima, HIROSHIMA	30	185.9	0.10 ± 0.023	0.000 ± 0.013
Ishii-machi, TOKUSHIMA	30	140.0	0.003 ± 0.014	0.000 ± 0.015
Takamatsu, KAGAWA	33	98.5	0.010 ± 0.0074	0.0000 ± 0.0099
Matsuyama, EHIME	30	75.0	0.011 ± 0.013	0.0000 ± 0.0095
Dazaifu, FUKUOKA	30	67.4	0.0017 ± 0.0073	0.006 ± 0.011
Saga, SAGA	30	86.4	0.006 ± 0.013	0.000 ± 0.015
Nagasaki, NAGASAKI	30	75.5	0.022 ± 0.016	0.011 ± 0.016
Uto, KUMAMOTO	30	129.7	0.0000 ± 0.0062	0.000 ± 0.011
Ooita, OOITA	30	90.8	0.018 ± 0.0083	0.0000 ± 0.0097
Miyazaki, MIYAZAKI	30	198.4	0.028 ± 0.013	0.007 ± 0.018
Yonagusuku-machi, Okinawa	30	204.5	0.0027 ± 0.0084	0.000 ± 0.013

(1)-2 Strontuim-90 and Cesium-137 in Rain and Dry Fallout (for WHO program)
(from Apr. 1996 to Sep. 1996)

-continued from No. 116 of this publication-

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

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km^2)	^{137}Cs (MBq/km^2)
April, 1996				
Akita, AKITA	31	95.8	0.015 ± 0.0053	0.024 ± 0.012
Chiba, CHIBA	30	69.4	0.016 ± 0.014	0.061 ± 0.016
Niigata, NIIGATA	32	57.6	0.067 ± 0.011	0.11 ± 0.018
Kanazawa, ISHIKAWA	29	43.5	0.047 ± 0.0098	0.076 ± 0.018
Nagano, NAGANO	31	28.0	0.034 ± 0.0078	0.014 ± 0.012
Osaka, OSAKA	31	56.5	0.037 ± 0.010	0.029 ± 0.014
Okayama, OKAYAMA	31	48.1	0.010 ± 0.0078	0.013 ± 0.011
Yamaguchi, YAMAGUCHI	31	91.0	0.038 ± 0.0094	0.062 ± 0.014
Kochi, KOCHI	31	216.4	0.051 ± 0.010	0.042 ± 0.013
Kagoshima, KAGOSHIMA	30	155.0	0.034 ± 0.0086	0.050 ± 0.015
May, 1996				
Akita, AKITA	34	130.7	0.013 ± 0.0080	0.033 ± 0.014
Chiba, CHIBA	32	106.7	0.031 ± 0.017	0.023 ± 0.014
Niigata, NIIGATA	33	97.8	0.022 ± 0.013	0.052 ± 0.013
Kanazawa, ISHIKAWA	32	110.5	0.030 ± 0.0095	0.056 ± 0.016
Nagano, NAGANO	33	100.8	0.023 ± 0.0070	0.045 ± 0.014
Osaka, OSAKA	34	71.4	0.023 ± 0.0071	0.040 ± 0.014
Okayama, OKAYAMA	34	80.6	0.042 ± 0.0097	0.054 ± 0.015
Yamaguchi, YAMAGUCHI	31	93.5	0.019 ± 0.0065	0.016 ± 0.013
Kochi, KOCHI	34	138.8	0.041 ± 0.010	0.048 ± 0.014
Kagoshima, KAGOSHIMA	32	191.5	0.012 ± 0.0078	0.024 ± 0.012
June, 1996				
Akita, AKITA	29	192.2	0.023 ± 0.011	0.023 ± 0.016
Chiba, CHIBA	32	50.9	0.023 ± 0.014	0.027 ± 0.014
Niigata, NIIGATA	29	176.2	0.019 ± 0.0082	0.017 ± 0.011
Kanazawa, ISHIKAWA	29	356.0	0.023 ± 0.0091	0.0000 ± 0.0097

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
Nagano, NAGANO	29	138.6	0.019 ± 0.010	0.009 ± 0.011
Osaka, OSAKA	29	258.1	0.025 ± 0.0093	0.024 ± 0.013
Okayama, OKAYAMA	29	235.0	0.016 ± 0.0085	0.002 ± 0.012
Yamaguchi, YAMAGUCHI	32	437.5	0.020 ± 0.014	0.019 ± 0.012
Kochi, KOCHI	29	235.1	0.045 ± 0.011	0.076 ± 0.017
Kagoshima, KAGOSHIMA	29	104.5	0.0098 ± 0.0073	0.006 ± 0.011
July, 1996				
Akita, AKITA	32	162.7	0.032 ± 0.010	0.026 ± 0.011
Chiba, CHIBA	32	292.8	0.000 ± 0.012	0.006 ± 0.012
Niigata, NIIGATA	32	117.9	0.026 ± 0.0089	0.018 ± 0.011
Kanazawa, ISHIKAWA	33	72.5	0.011 ± 0.0085	0.0000 ± 0.0097
Nagano, NAGANO	32	87.6	0.023 ± 0.013	0.0000 ± 0.0096
Osaka, OSAKA	32	119.4	0.008 ± 0.011	0.011 ± 0.011
Okayama, OKAYAMA	32	46.2	0.0066 ± 0.0074	0.005 ± 0.011
Yamaguchi, YAMAGUCHI	32	109.0	0.0000 ± 0.0066	0.004 ± 0.011
Kochi, KOCHI	32	203.8	0.049 ± 0.011	0.0024 ± 0.0095
Kagoshima, KAGOSHIMA	35	478.5	0.031 ± 0.0088	0.021 ± 0.013
August, 1996				
Akita, AKITA	33	49.8	0.0023 ± 0.0079	0.000 ± 0.012
Chiba, CHIBA	33	42.3	0.011 ± 0.014	0.008 ± 0.014
Niigata, NIIGATA	33	116.2	0.011 ± 0.0072	0.044 ± 0.012
Kanazawa, ISHIKAWA	32	166.5	0.0053 ± 0.0092	0.019 ± 0.012
Osaka, OSAKA	33	130.1	0.027 ± 0.014	0.008 ± 0.013
Okayama, OKAYAMA	33	67.8	0.050 ± 0.011	0.000 ± 0.011
Yamaguchi, YAMAGUCHI	33	197.5	0.020 ± 0.0082	0.002 ± 0.011
Kochi, KOCHI	33	179.3	0.12 ± 0.013	0.000 ± 0.012
Kagoshima, KAGOSHIMA	30	206.5	0.030 ± 0.0096	0.000 ± 0.012

Location	Duration (days)	Precipitation (mm)	^{90}Sr (MBq/km²)	^{137}Cs (MBq/km²)
September, 1996				
Akita, AKITA	30	62.7	0.017 ± 0.010	0.007 ± 0.011
Chiba, CHIBA	30	401.6	0.002 ± 0.013	0.023 ± 0.014
Niigata, NIIGATA	30	97.4	0.032 ± 0.017	0.003 ± 0.015
Kanazawa, ISHIKAWA	33	152.0	0.0058 ± 0.0070	0.008 ± 0.011
Nagano, NAGANO	30	98.8	0.041 ± 0.011	0.0000 ± 0.0093
Osaka, OSAKA	30	167.3	0.012 ± 0.011	0.009 ± 0.012
Okayama, OKAYAMA	30	120.6	0.018 ± 0.0074	0.023 ± 0.016
Yamaguchi, YAMAGUCHI	30	59.0	0.0006 ± 0.0071	0.003 ± 0.010
Kochi, KOCHI	30	126.1	0.092 ± 0.013	0.014 ± 0.012
Kagoshima, KAGOSHIMA	33	80.5	0.019 ± 0.012	0.008 ± 0.017

(2) Strontium-90 and Cesium-137 in Airborne Dust
(from Apr. 1996 to Sep. 1996)

-continued from No.116 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,1996				
Akita, AKITA	4~ 6	10,800.0	0.00006 ± 0.00057	0.00000 ± 0.00036
Yamagata, YAMAGATA	4~ 6	12,960.0	0.00000 ± 0.00043	0.00000 ± 0.00030
Ookuma-machi, FUKUSHIMA	4~ 6	11,898.5	0.00000 ± 0.00050	0.00007 ± 0.00030
Mito, IBARAKI	4~ 6	9,317.5	0.00061 ± 0.00071	0.00069 ± 0.00050
Kawachi-machi, TOCHIGI	4~ 5	9,692.0	0.00070 ± 0.00067	0.00000 ± 0.00032
Maebashi, GUNMA	4~ 6	12,136.9	0.00005 ± 0.00046	0.00066 ± 0.00040
Ichihara, CHIBA	4~ 6	10,467.0	0.00037 ± 0.00034	0.00000 ± 0.00043
Yokohama, KANAGAWA	4~ 6	10,697.0	0.00055 ± 0.00063	0.00000 ± 0.00033
Niigata, NIIGATA	4~ 6	10,130.0	0.00058 ± 0.00039	0.00088 ± 0.00058
Kosugi-machi, TOYAMA	4~ 6	18,392.0	0.00016 ± 0.00027	0.00026 ± 0.00018
Fukui, FUKUI	4~ 6	12,984.8	0.00000 ± 0.00043	0.00000 ± 0.00030
Koufu, YAMANASHI	4~ 6	11,663.0	0.00076 ± 0.00027	0.00030 ± 0.00030
Nagano, NAGANO	4~ 6	11,757.0	0.00000 ± 0.00049	0.00071 ± 0.00033
Gifu, GIFU	4~ 6	11,130.0	0.00000 ± 0.00036	0.00014 ± 0.00032
Hamaoka-machi, SHIZUOKA	4~ 6	10,012.0	0.00000 ± 0.00051	0.00080 ± 0.00046
Nagoya, AICHI	4~ 6	10,705.0	0.00066 ± 0.00035	0.00000 ± 0.00038
Ootsu, SHIGA	4~ 6	11,946.0	0.00051 ± 0.00025	0.00016 ± 0.00029
Tsu, MIE	4~ 6	13,990.0	0.00006 ± 0.00024	0.00000 ± 0.00023
Kyoto, KYOTO	4~ 6	10,318.0	0.00040 ± 0.00034	0.00000 ± 0.00049
Osaka, OSAKA	4~ 6	15,105.0	0.00012 ± 0.00039	0.00025 ± 0.00027
Kobe, HYOUGO	4~ 6	10,283.0	0.00000 ± 0.00057	0.00077 ± 0.00042
Nara, NARA	4~ 6	10,777.0	0.0010 ± 0.00038	0.00014 ± 0.00034
Wakayama, WAKAYAMA	4~ 6	10,368.0	0.00064 ± 0.00051	0.00035 ± 0.00062
Tottori, TOTTORI	4~ 6	13,894.0	0.00040 ± 0.00047	0.00000 ± 0.00025

Location	Sampling period	Absorption volume (m^2)	^{90}Sr (mBq/m^3)	^{137}Cs (mBq/m^3)
Okayama, OKAYAMA	4～ 6	12,954.0	0.00000 ± 0.00034	0.00041 ± 0.00029
Hiroshima, HIROSHIMA	4～ 6	10,417.0	0.00029 ± 0.00040	0.00011 ± 0.00049
Yamaguchi, YAMAGUCHI	4～ 6	18,902.0	0.00057 ± 0.00037	0.00032 ± 0.00023
Tokushima, TOKUSHIMA	4～ 6	10,080.0	0.00000 ± 0.00032	0.00054 ± 0.00056
Takamatsu, KAGAWA	4～ 6	15,216.1	0.00009 ± 0.00022	0.00000 ± 0.00024
Saga, SAGA	4～ 6	9,117.7	0.0020 ± 0.00063	0.00004 ± 0.00040
Nagasaki, NAGASAKI	4～ 6	10,368.0	0.00007 ± 0.00046	0.00000 ± 0.00032
Uto, KUMAMOTO	4～ 6	11,997.0	0.00000 ± 0.00042	0.00000 ± 0.00029
Ooita, OOITA	4～ 6	10,408.0	0.00000 ± 0.00056	0.00011 ± 0.00028
Miyazaki, MIYAZAKI	4～ 6	13,026.0	0.0013 ± 0.00057	0.00056 ± 0.00032
May~June,1996				
Morioka, IWATE	5～ 6	10,042.0	0.00000 ± 0.00053	0.00000 ± 0.00036
July~September,1996				
Morioka, IWATE	7～ 9	14,114.0	0.00000 ± 0.00041	0.00047 ± 0.00037
Akita, AKITA	7～ 9	10,800.0	0.00049 ± 0.00058	0.00053 ± 0.00053
Yamagata, YAMAGATA	7～ 9	12,960.0	0.00034 ± 0.00036	0.00029 ± 0.00029
Ookuma-machi, FUKUSHIMA	7～ 9	10,814.8	0.00000 ± 0.00038	0.00000 ± 0.00026
Mito, IBARAKI	7～ 9	9,557.0	0.00028 ± 0.00028	0.00021 ± 0.00035
Maebashi, GUNMA	7～ 9	12,588.5	0.00000 ± 0.00040	0.00000 ± 0.00029
Ichihara, CHIBA	7～ 9	10,061.0	0.0024 ± 0.00070	0.00034 ± 0.00050
Yokohama, KANAGAWA	7～ 9	10,277.0	0.00068 ± 0.00045	0.00066 ± 0.00040
Niigata, NIIGATA	7～ 9	10,379.0	0.00000 ± 0.00041	0.00031 ± 0.00052
Kosugi-machi, TOYAMA	7～ 9	18,398.0	0.00039 ± 0.00031	0.00007 ± 0.00016
Fukui, FUKUI	7～ 9	12,761.9	0.0012 ± 0.00042	0.00010 ± 0.00030
Koufu, YAMANASHI	7～ 9	15,484.0	0.00046 ± 0.00034	0.00038 ± 0.00032

Location	Sampling period	Absorption volume (m^3)	^{90}Sr (mBq/m^3)		^{137}Cs (mBq/m^3)	
Nagano, NAGANO	7～ 9	10,381.0	0.00025	± 0.00024	0.00000	± 0.00030
Gifu, GIFU	7～ 9	11,096.0	0.00061	± 0.00030	0.00000	± 0.00028
Hamaoka-machi, SHIZUOKA	7～ 9	10,300.0	0.00000	± 0.00045	0.00000	± 0.00035
Nagoya, AICHI	7～ 9	10,406.0	0.00000	± 0.00041	0.00023	± 0.00032
Ootsu, SHIGA	7～ 9	12,276.0	0.00068	± 0.00056	0.00064	± 0.00045
Tsu, MIE	7～ 9	14,040.0	0.00000	± 0.00040	0.00027	± 0.00039
Kyoto, KYOTO	7～ 9	10,167.0	0.00000	± 0.00028	0.00020	± 0.00054
Osaka, OSAKA	7～ 9	15,177.0	0.00069	± 0.00021	0.00000	± 0.00021
Kobe, HYOUGO	7～ 9	10,336.0	0.00011	± 0.00035	0.00000	± 0.00031
Nara, NARA	7～ 9	10,725.0	0.0016	± 0.00060	0.00000	± 0.00048
Wakayama, WAKAYAMA	7～ 9	10,368.0	0.00000	± 0.00035	0.00004	± 0.00048
Tottori, TOTTORI	7～ 9	13,916.0	0.00043	± 0.00020	0.00000	± 0.00028
Okayama, OKAYAMA	7～ 9	12,938.0	0.00000	± 0.00035	0.00037	± 0.00030
Hiroshima, HIROSHIMA	7～ 9	10,587.0	0.00049	± 0.00038	0.00050	± 0.00060
Yamaguchi, YAMAGUCHI	7～ 9	18,942.0	0.00009	± 0.00017	0.00024	± 0.00028
Tokushima, TOKUSHIMA	7～ 9	10,080.0	0.00074	± 0.00039	0.00020	± 0.00046
Takamatsu, KAGAWA	7～ 9	16,206.9	0.00060	± 0.00020	0.00017	± 0.00025
Saga, SAGA	7～ 9	7,956.5	0.00084	± 0.00047	0.00084	± 0.00067
Nagasaki, NAGASAKI	7～ 9	10,240.0	0.00054	± 0.00036	0.00000	± 0.00052
Uto, KUMAMOTO	7～ 9	10,194.0	0.00000	± 0.00057	0.00026	± 0.00038
Ooita, OOITA	7～ 9	10,375.0	0.00092	± 0.00055	0.00060	± 0.00052
Miyazaki, MIYAZAKI	7～ 9	13,035.0	0.00032	± 0.00034	0.00018	± 0.00028
August~September,1996						
Kawachi-machi, TOCHIGI	8～ 9	10,616.0	0.00000	± 0.00053	0.00054	± 0.00051

(3) Strontium-90 and cesium-137 in Service Water
(from Apr. 1996 to Sep. 1996)

-continued from No, 116 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, 1996					
Urawa, SAITAMA	7.6	0.00	± 0.23	0.000	± 0.062
Kisarazu, CHIBA	7.4	2.0	± 0.16	0.084	± 0.077
Katsushika, TOKYO	7.1	1.6	± 0.25	0.31	± 0.095
Tsukui-machi, KANAGAWA	7.4	0.48	± 0.060	0.082	± 0.060
Nagano, NAGANO	7.24	1.0	± 0.14	0.095	± 0.060
Inuyama, AICHI	7.1	2.0	± 0.11	0.13	± 0.064
Moriguchi, OSAKA	7.0	2.8	± 0.13	0.000	± 0.056
Fukuoka, FUKUOKA	9.40	1.5	± 0.14	0.000	± 0.053
July, 1996					
Sapporo, HOKKAIDOU	7.4	1.5	± 0.10	0.23	± 0.075
August, 1996					
Kyoto, KYOTO	8.35	3.0	± 0.22	0.11	± 0.064
(Tap Water)					
June, 1996					
Wakkanai, HOKKAIDOU	6.9	1.1	± 0.09	0.000	± 0.049
Aomori, AOMORI	7.4	1.3	± 0.10	0.34	± 0.084
Morioka, IWATE	7.1	0.95	± 0.082	0.000	± 0.047
Yamagata, YAMAGATA	7.1	1.7	± 0.17	0.054	± 0.065
Fukushima, FUKUSHIMA	8.03	2.9	± 0.20	0.086	± 0.055
Mito, IBARAKI	7.5	1.6	± 0.15	0.018	± 0.056
Maebashi, GUNMA	7.1	1.2	± 0.13	0.19	± 0.081
Urawa, SAITAMA	6.9	1.4	± 0.11	0.11	± 0.079
Ichihara, CHIBA	7.8	2.1	± 0.17	0.000	± 0.076
Katsushika, TOKYO	7.1	1.8	± 0.21	0.12	± 0.079

Location	pH	^{90}Sr (mBq/ ℓ)		^{137}Cs (mBq/ ℓ)	
Yokohama, KANAGAWA	7.4	0.56	± 0.063	0.052	± 0.062
Niigata, NIIGATA	7.19	2.4	± 0.13	0.25	± 0.087
Kosugi-machi, TOYAMA	6.4	0.25	± 0.082	0.13	± 0.061
Kanazawa, ISHIKAWA	6.6	2.0	± 0.17	0.012	± 0.065
Fukui, FUKUI	6.30	0.46	± 0.096	0.000	± 0.053
Koufu, YAMANASHI	7.2	1.4	± 0.14	0.012	± 0.067
Nagano, NAGANO	7.42	0.70	± 0.12	0.012	± 0.051
Gifu, GIFU	7.03	1.6	± 0.18	0.000	± 0.045
Shizuoka, SHIZUOKA	7.4	0.78	± 0.086	0.041	± 0.074
Nagoya, AICHI	6.6	2.1	± 0.12	0.086	± 0.061
Ootsu, SHIGA	6.7	3.4	± 0.16	0.073	± 0.061
Tsu, MIE	7.1	2.6	± 0.12	0.058	± 0.068
Osaka, OSAKA	7.2	3.2	± 0.15	0.000	± 0.054
Kobe, HYOUGO	7.21	1.1	± 0.15	0.060	± 0.049
Nara, NARA	7.1	2.8	± 0.14	0.025	± 0.053
Tottori, TOTTORI	6.9	3.2	± 0.20	0.012	± 0.055
Matsue, SHIMANE	−	3.6	± 0.23	0.041	± 0.074
Okayama, OKAYAMA	6.9	2.5	± 0.19	0.060	± 0.076
Hiroshima, HIROSHIMA	7.2	2.2	± 0.15	0.053	± 0.062
Ube, YAMAGUCHI	6.0	2.6	± 0.29	0.030	± 0.054
Takamatsu, KAGAWA	7.60	2.4	± 0.12	0.14	± 0.058
Matsuyama, EHIME	7.7	1.5	± 0.09	0.078	± 0.062
Kochi, KOCHI	7.6	1.7	± 0.11	0.000	± 0.054
Fukuoka, FUKUOKA	6.95	2.6	± 0.20	0.000	± 0.058
Saga, SAGA	7.58	1.8	± 0.13	0.000	± 0.043
Nagasaki, NAGASAKI	6.9	1.0	± 0.08	0.000	± 0.051

Location	pH	^{90}Sr (mBq/m^3)		^{137}Cs (mBq/m^3)	
Uto, KUMAMOTO	7.53	0.049	± 0.032	0.030	± 0.074
Ooita, OOITA	7.81	1.0	± 0.13	0.22	± 0.076
Miyazaki, MIYAZAKI	6.86	1.3	± 0.17	0.052	± 0.053
Kagoshima, KAGOSHIMA	7.7	0.65	± 0.11	0.21	± 0.084
July, 1996					
Sendai, MIYAGI	−	1.4	± 0.16	0.24	± 0.083
Akita, AKITA	6.41	2.8	± 0.15	0.13	± 0.075
Kawachi-machi, TOCHIGI	7.32	0.28	± 0.051	0.005	± 0.054
Naha, Okinawa	7.10	3.4	± 0.15	0.000	± 0.070
August, 1996					
Kyoto, KYOTO	7.56	2.8	± 0.23	0.006	± 0.059
September, 1996					
Shinguu, WAKAYAMA	6.5	1.2	± 0.08	0.069	± 0.072

(4) Strontium-90 and cesium-137 in Freshwater
(from Apr. 1996 to Sep. 1996)

-continued from No. 116 of this publication-

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

Location	pH	^{90}Sr (mBq/ ℓ)		^{137}Cs (mBq/ ℓ)	
(FreshWater)					
May, 1996					
Kasumigaura-lake, IBARAKI	9.1	2.7	± 0.19	0.33	± 0.081
July, 1996					
Ishikari-machi, HOKKAIDOU	7.1	1.9	± 0.11	0.27	± 0.074
August, 1996					
Akita, AKITA	5.76	3.7	± 0.19	0.44	± 0.11
Tsuruga, FUKUI	7.30	4.7	± 0.27	2.9	± 0.19
September, 1996					
Fukushima, FUKUSHIMA	7.86	0.28	± 0.086	0.058	± 0.077

(5) Strontium-90 and Cesium-137 in Soil
(from Apr. 1996 to Sep. 1996)
-continued from No. 116 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, 1996					
Tokai-mura, IBARAKI	0～ 5	8.7 ± 0.36	470 ± 19	42 ± 0.7	2300 ± 40
	5～20	9.4 ± 0.35	1100 ± 40	8.2 ± 0.31	930 ± 35
Akabane-machi, AICHI	0～ 5	1.8 ± 0.11	90 ± 5.2	12 ± 0.4	610 ± 18
	5～20	1.2 ± 0.09	190 ± 14	11 ± 0.4	1700 ± 60
June, 1996					
Fukushima, FUKUSHIMA	0～ 5	1.5 ± 0.17	33 ± 3.6	6.7 ± 0.28	140 ± 6
	5～20	0.95 ± 0.12	65 ± 8.4	2.4 ± 0.17	160 ± 12
Katsushika, TOKYO	0～ 5	0.51 ± 0.058	29 ± 3.3	3.0 ± 0.19	170 ± 11
	5～20	0.60 ± 0.063	80 ± 8.4	1.1 ± 0.12	140 ± 16
July, 1996					
Aomori, AOMORI	0～ 5	1.8 ± 0.10	64 ± 3.5	4.9 ± 0.24	170 ± 8
	5～20	1.4 ± 0.09	140 ± 9	1.6 ± 0.15	160 ± 15
Mutsu, AOMORI	0～ 5	4.1 ± 0.15	150 ± 5	21 ± 0.5	760 ± 18
	5～20	3.8 ± 0.15	310 ± 12	6.9 ± 0.28	560 ± 23
Yamagata, YAMAGATA	0～ 5	3.1 ± 0.21	130 ± 8	17 ± 0.4	680 ± 18
	5～20	1.2 ± 0.13	120 ± 13	3.8 ± 0.21	390 ± 21
Urawa, SAITAMA	0～ 5	1.1 ± 0.13	21 ± 2.5	9.6 ± 0.33	180 ± 6
	5～20	1.1 ± 0.14	96 ± 12	1.1 ± 0.13	97 ± 11
Ichihara, CHIBA	0～ 5	0.066 ± 0.059	2.9 ± 2.6	2.0 ± 0.16	89 ± 6.9
	5～20	0.19 ± 0.073	35 ± 14	1.4 ± 0.13	260 ± 25
Yokohama, KANAGAWA	0～ 5	5.2 ± 0.28	200 ± 11	17 ± 0.5	640 ± 18
	5～20	5.7 ± 0.30	710 ± 37	11 ± 0.4	1300 ± 50
Kashiwazaki, NIIGATA	0～ 5	0.76 ± 0.11	98 ± 14	14 ± 0.4	1800 ± 50
	5～20	0.78 ± 0.11	160 ± 24	6.2 ± 0.27	1300 ± 60
Kanazawa, ISHIKAWA	0～ 5	6.0 ± 0.29	340 ± 17	16 ± 0.4	900 ± 24
	5～20	5.9 ± 0.30	920 ± 46	17 ± 0.4	2600 ± 70

Location	Sampling Depth (cm)	^{90}Sr (Bq/kg) (dried Soil)	^{90}Sr (MBq/km²)	^{137}Cs (Bq/kg) (dried Soil)	^{137}Cs (MBq/km²)
Takane-machi, YAMANASHI	0～ 5	5.8 ± 0.29	160 ± 8	23 ± 0.5	630 ± 14
	5～20	7.5 ± 0.33	630 ± 28	20 ± 0.5	1700 ± 40
Nagano, NAGANO	0～ 5	2.2 ± 0.19	56 ± 4.8	52 ± 0.8	1300 ± 20
	5～20	1.0 ± 0.13	71 ± 9.4	1.8 ± 0.15	130 ± 11
Gifu, GIFU	0～ 5	0.64 ± 0.065	10 ± 1.0	12 ± 0.4	180 ± 6
	5～20	1.1 ± 0.08	86 ± 6.3	8.4 ± 0.31	640 ± 24
Gotenba, SHIZUOKA	0～ 5	1.2 ± 0.13	30 ± 3.4	10 ± 0.3	260 ± 9
	5～20	1.4 ± 0.16	87 ± 10	4.2 ± 0.22	270 ± 14
Yasu-machi, FUKUOKA	0～ 5	0.025 ± 0.039	1.4 ± 2.2	0.39 ± 0.065	22 ± 3.7
	5～20	0.18 ± 0.044	35 ± 8.5	0.30 ± 0.075	58 ± 14
Tsu, MIE	0～ 5	0.22 ± 0.066	15 ± 4.5	0.34 ± 0.10	24 ± 7.2
	5～20	0.22 ± 0.068	50 ± 15	1.2 ± 0.14	270 ± 32
Kyoto, KYOTO	0～ 5	0.85 ± 0.087	31 ± 3.1	3.0 ± 0.19	110 ± 7
	5～20	0.30 ± 0.060	11 ± 2.1	1.2 ± 0.12	42 ± 4.4
Osaka, OSAKA	0～ 5	0.72 ± 0.068	40 ± 3.8	3.2 ± 0.20	180 ± 11
	5～20	1.2 ± 0.13	160 ± 18	4.0 ± 0.22	530 ± 29
Kasai, HYOUGO	0～ 5	4.2 ± 0.16	130 ± 5	39 ± 0.7	1200 ± 20
	5～20	0.64 ± 0.084	74 ± 9.7	5.3 ± 0.25	610 ± 29
Kashihara, NARA	0～ 5	0.57 ± 0.065	45 ± 5.2	3.7 ± 0.21	290 ± 17
	5～20	0.58 ± 0.072	65 ± 8.1	3.1 ± 0.20	360 ± 22
Kokufu-machi, TOTTORI	0～ 5	0.16 ± 0.063	13 ± 5.2	1.5 ± 0.15	120 ± 12
	5～20	0.14 ± 0.062	9.4 ± 4.2	0.37 ± 0.10	25 ± 6.8
Oota, SHIMANE	0～ 5	14 ± 0.4	340 ± 11	52 ± 0.8	1300 ± 20
	5～20	4.9 ± 0.25	390 ± 20	34 ± 0.6	2700 ± 50
Hagi, YAMAGUCHI	0～ 5	3.7 ± 0.23	250 ± 15	5.5 ± 0.27	360 ± 18
	5～20	4.0 ± 0.24	880 ± 52	4.0 ± 0.23	870 ± 50
Sakaide, KAGAWA	0～ 5	2.6 ± 0.19	93 ± 6.7	18 ± 0.5	650 ± 16

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	2.8 ± 0.20	210 ± 15	1.7 ± 0.14	120 ± 11
Matsuyama, EHIME	0～ 5	2.7 ± 0.20	53 ± 3.9	24 ± 0.5	480 ± 10
	5～20	0.39 ± 0.093	32 ± 7.6	13 ± 0.4	1100 ± 30
Kochi, KOCHI	0～ 5	5.6 ± 0.28	220 ± 11	22 ± 0.5	880 ± 20
	5～20	3.8 ± 0.25	630 ± 42	8.9 ± 0.32	1500 ± 50
Fukuoka, FUKUOKA	0～ 5	3.6 ± 0.23	210 ± 14	5.0 ± 0.24	300 ± 14
	5～20	2.3 ± 0.18	400 ± 30	0.81 ± 0.11	140 ± 19
Obama-machi, NAGASAKI	0～ 5	3.0 ± 0.20	54 ± 3.7	56 ± 0.8	1000 ± 10
	5～20	3.1 ± 0.21	280 ± 19	27 ± 0.6	2500 ± 50
Nishihara-mura, KUMAMOTO	0～ 5	5.2 ± 0.27	120 ± 6	71 ± 0.9	1600 ± 20
	5～20	5.7 ± 0.28	370 ± 18	14 ± 0.4	890 ± 27
Sadohara-machi, MIYAZAKI	0～ 5	0.88 ± 0.12	66 ± 9.3	6.9 ± 0.30	520 ± 22
	5～20	1.3 ± 0.15	210 ± 24	4.2 ± 0.24	690 ± 38
Naha, Okinawa	0～ 5	1.1 ± 0.09	87 ± 7.3	4.8 ± 0.24	390 ± 19
	5～20	1.6 ± 0.10	300 ± 19	4.8 ± 0.24	880 ± 43
August, 1996					
Sapporo, HOKKAIDOU	0～ 5	9.0 ± 0.33	270 ± 10	32 ± 0.6	940 ± 18
	5～20	7.6 ± 0.31	1200 ± 50	14 ± 0.4	2200 ± 60
Takizawa-mura, IWATE	0～ 5	13 ± 0.4	420 ± 13	60 ± 0.8	1900 ± 30
	5～20	8.3 ± 0.33	880 ± 35	6.4 ± 0.27	680 ± 29
Imaichi, TOCHIGI	0～ 5	3.6 ± 0.23	65 ± 4.1	22 ± 0.5	400 ± 9
	5～20	2.6 ± 0.19	130 ± 10	5.6 ± 0.26	290 ± 13
Maebashi, GUNMA	0～ 5	0.94 ± 0.080	38 ± 3.2	2.9 ± 0.19	120 ± 8
	5～20	1.6 ± 0.11	140 ± 9	2.7 ± 0.15	230 ± 13
Fukui, FUKUI	0～ 5	0.34 ± 0.098	30 ± 8.6	6.1 ± 0.27	540 ± 24
	5～20	0.52 ± 0.095	93 ± 17	2.3 ± 0.17	410 ± 30
Asahi-machi, OKAYAMA	0～ 5	0.31 ± 0.076	17 ± 4.2	0.15 ± 0.090	8.1 ± 4.9

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	0.14 ± 0.063	17 ± 7.5	0.22 ± 0.093	27 ± 11
Kujuu-machi, OOITA	0～ 5	2.8 ± 0.20	70 ± 5.0	79 ± 1.0	1900 ± 20
	5～20	2.9 ± 0.21	180 ± 13	16 ± 0.4	970 ± 27
Kaimon-machi, KAGOSHIMA	0～ 5	0.31 ± 0.080	19 ± 4.8	0.74 ± 0.10	45 ± 6.4
	5～20	0.32 ± 0.081	40 ± 10	1.3 ± 0.13	170 ± 16
September, 1996					
Iwadeyama-machi, MIYAGI	0～ 5	1.7 ± 0.11	54 ± 3.5	5.0 ± 0.24	160 ± 8
	5～20	0.98 ± 0.091	160 ± 15	1.6 ± 0.15	260 ± 24
Kosugi-machi, TOYAMA	0～ 5	0.48 ± 0.068	33 ± 4.7	1.2 ± 0.12	81 ± 8.6
	5～20	0.29 ± 0.059	56 ± 11	0.59 ± 0.093	110 ± 18
Shinguu, WAKAYAMA	0～ 5	0.21 ± 0.049	3.8 ± 0.90	2.4 ± 0.17	44 ± 3.2
	5～20	0.18 ± 0.046	15 ± 4.0	0.46 ± 0.090	40 ± 7.9
Hiroshima, HIROSHIMA	0～ 5	0.55 ± 0.098	21 ± 3.8	0.98 ± 0.12	38 ± 4.6
	5～20	1.5 ± 0.17	350 ± 38	9.0 ± 0.32	2100 ± 70
Kamiita-machi, TOKUSHIMA	0～ 5	0.46 ± 0.062	23 ± 3.1	2.2 ± 0.22	110 ± 11
	5～20	0.38 ± 0.056	38 ± 5.7	1.9 ± 0.16	190 ± 16

(6) Strontium-90 and Cesium-137 in Sea Water
(from Apr. 1996 to Sep. 1996)
-continued from No. 116 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)	
July, 1996						
Yoichi-bay, HOKKAIDOU	40.0	18.72	2.0	± 0.28	2.7	± 0.30
Mutsu, AOMORI	60.0	18.8	1.8	± 0.27	2.8	± 0.31
Souma, FUKUSHIMA	40.0	16.13	1.6	± 0.26	2.0	± 0.29
Tokai, IBARAKI	40.0	17.96	2.0	± 0.29	2.8	± 0.32
Niigata, NIIGATA	45.1	13.1	1.8	± 0.26	1.6	± 0.24
Tokoname, AICHI	40.0	16.3	1.9	± 0.28	2.2	± 0.29
Osaka-Port, OSAKA	40.0	11.50	1.9	± 0.28	2.1	± 0.27
Yamaguchi-bay, YAMAGUCHI	40.0	17.0	2.0	± 0.29	2.3	± 0.29
Moji-Port, FUKUOKA	40.0	18.3	2.2	± 0.29	2.5	± 0.31
August, 1996						
Mutsu, AOMORI	60.0	17.2	2.5	± 0.21	2.6	± 0.31
Ichihara, CHIBA	80.0	12	2.4	± 0.21	1.6	± 0.27
Yokosuka, KANAGAWA	40.0	16.8	1.6	± 0.25	2.9	± 0.32
Kaseda, KAGOSHIMA	40.0	17.0	1.7	± 0.27	1.7	± 0.27
September, 1996						
Katsuren-machi, Okinawa	40.0	20.16	2.1	± 0.30	2.3	± 0.29

(7) Strontium-90 and Cesium-137 in Sea Sediments
(from Apr. 1996 to Sep. 1996)
-continued from No. 116 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)
July, 1996			
Yoichi-bay, HOKKAIDOU	13	0.077 ± 0.057	0.71 ± 0.097
Mutsu, AOMORI	20	0.059 ± 0.059	0.20 ± 0.065
Souma, FUKUSHIMA	5	0.060 ± 0.058	1.2 ± 0.13
Tokai-mura, IBARAKI	7	0.007 ± 0.053	0.27 ± 0.082
Niigata, NIIGATA	28	0.11 ± 0.063	1.9 ± 0.16
Tokoname, AICHI	23.0	0.33 ± 0.11	3.5 ± 0.21
Osaka-Port, OSAKA	14.9	0.15 ± 0.067	2.5 ± 0.17
Yamaguchi-bay, YAMAGUCHI	10	0.19 ± 0.072	3.0 ± 0.19
Moji-Port, FUKUOKA	7.0	0.007 ± 0.052	1.1 ± 0.12
August, 1996			
Mutsu, AOMORI	11.5	0.29 ± 0.080	5.8 ± 0.26
Ichihara, CHIBA	11.0	0.28 ± 0.078	2.6 ± 0.18
Yokosuka, KANAGAWA	7	0.063 ± 0.060	2.3 ± 0.17
Kaseda, KAGOSHIMA	5	0.000 ± 0.048	0.34 ± 0.078
September, 1996			
Katsuren-machi, Okinawa	13.80	0.014 ± 0.049	0.44 ± 0.083

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

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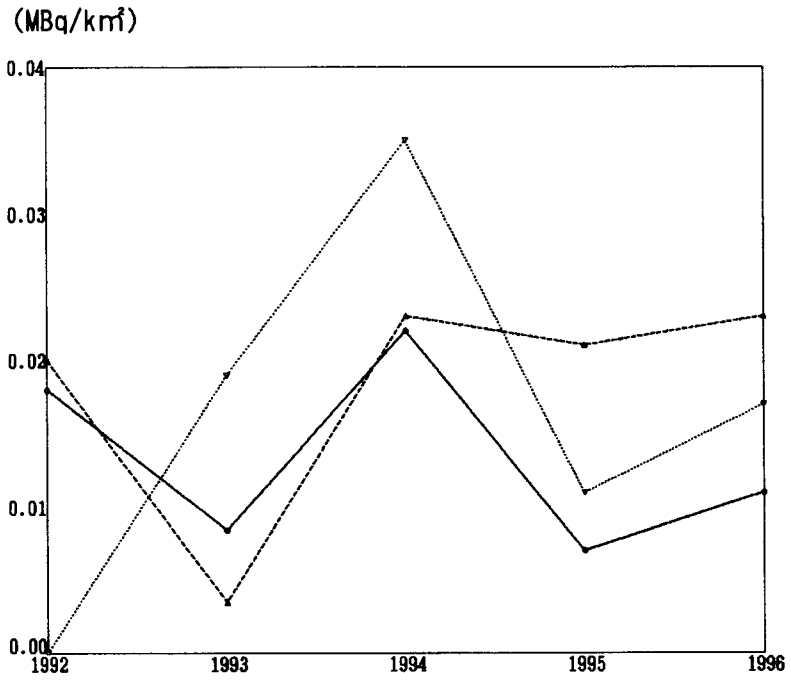

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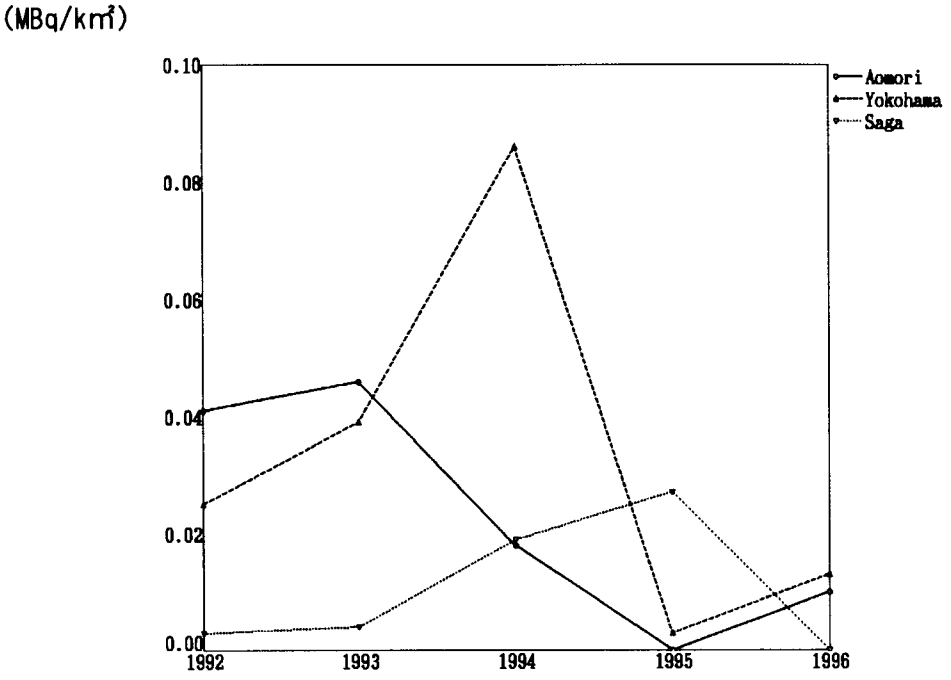
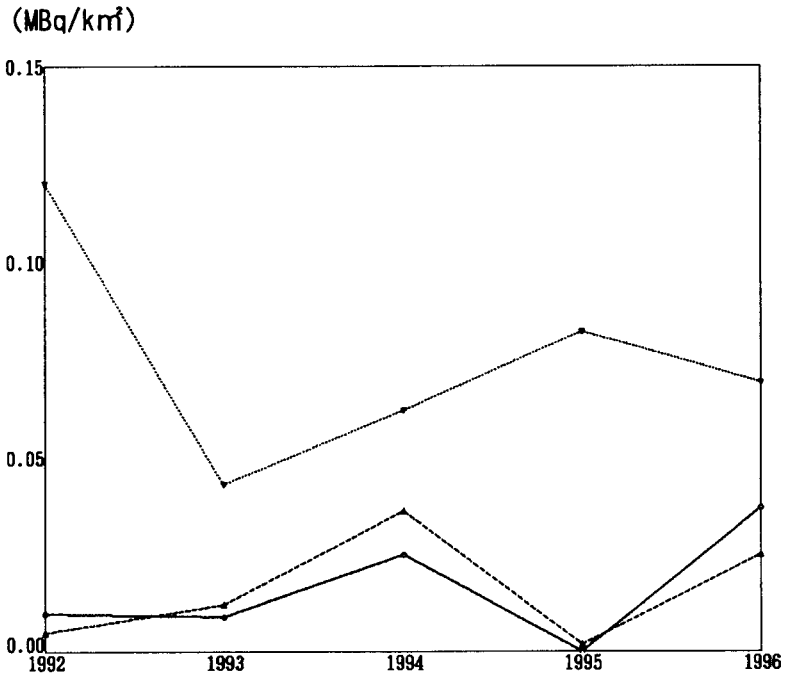


Fig. 1−1

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

<Strontium-90>



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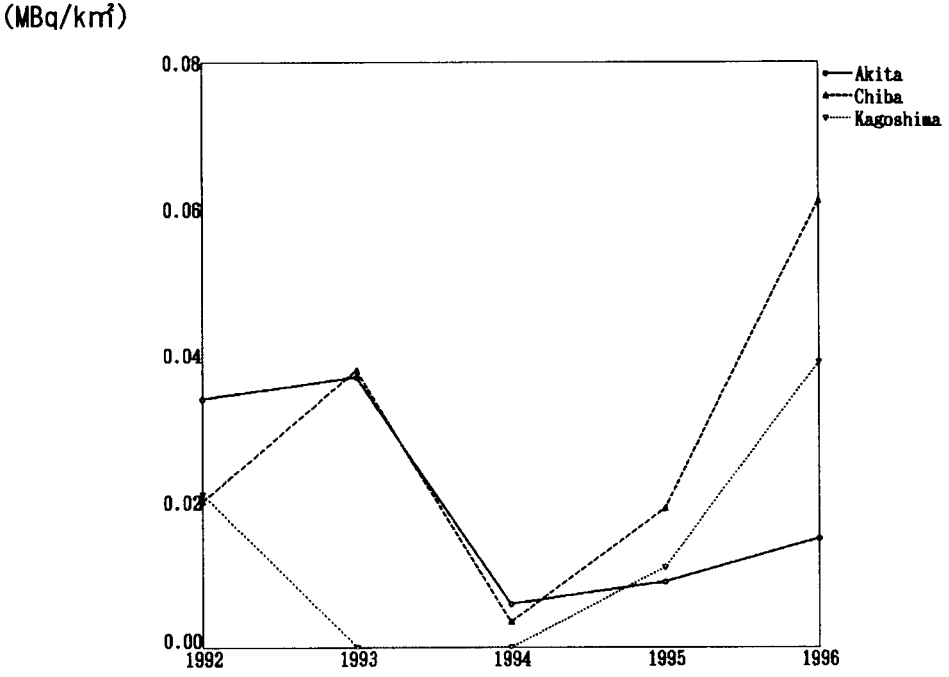

Fig. 1-2

* * Airborne Dust * *

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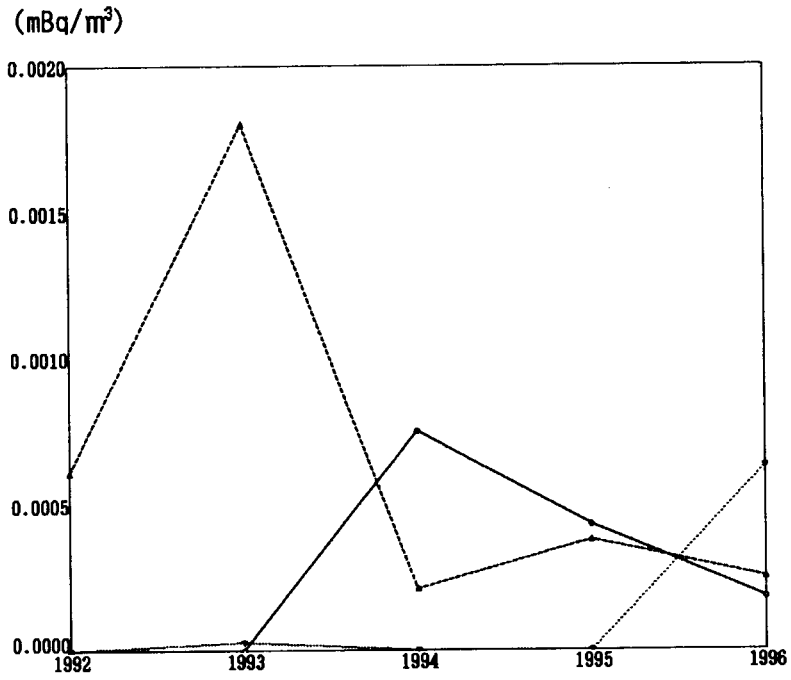

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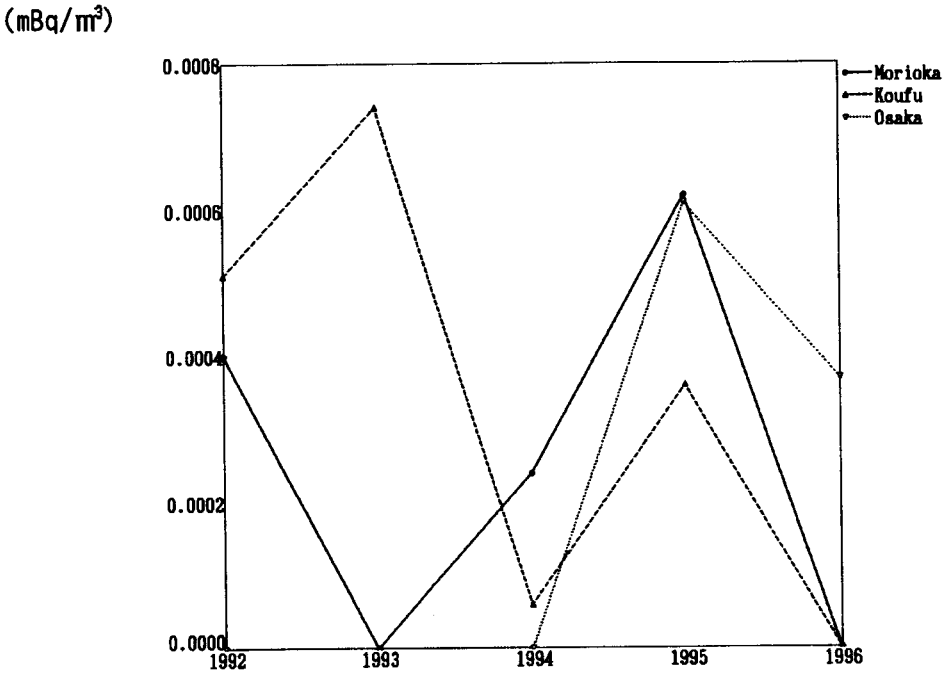
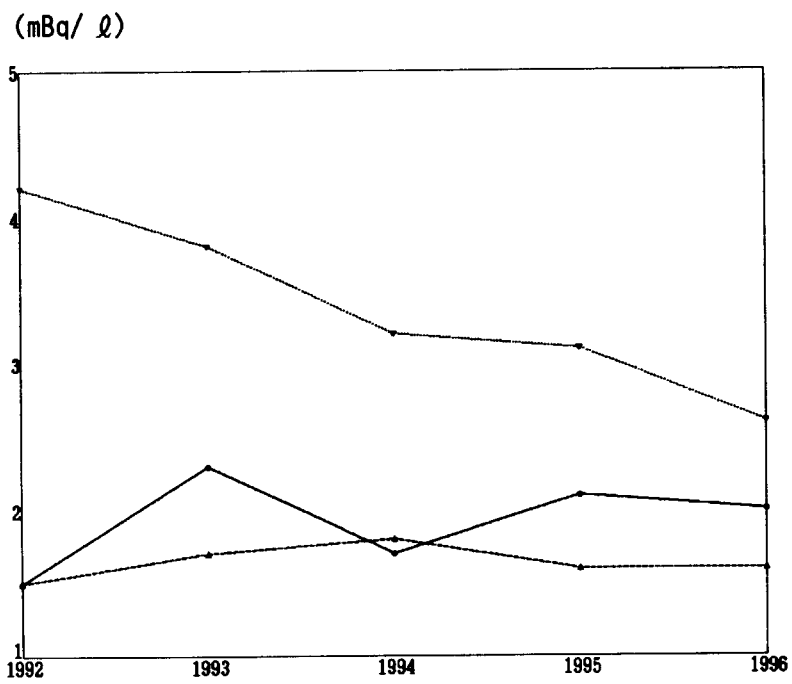


Fig. 2

* * Service Water (Source Water) * *

<Strontium-90>



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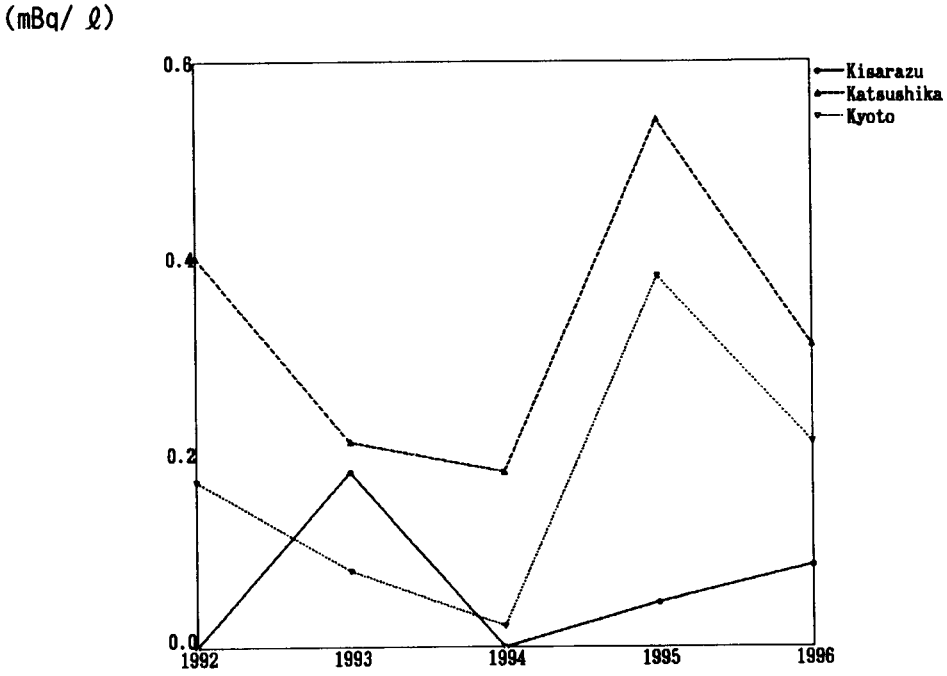

Fig. 3-1

* * Service Water (Tap Water) * *

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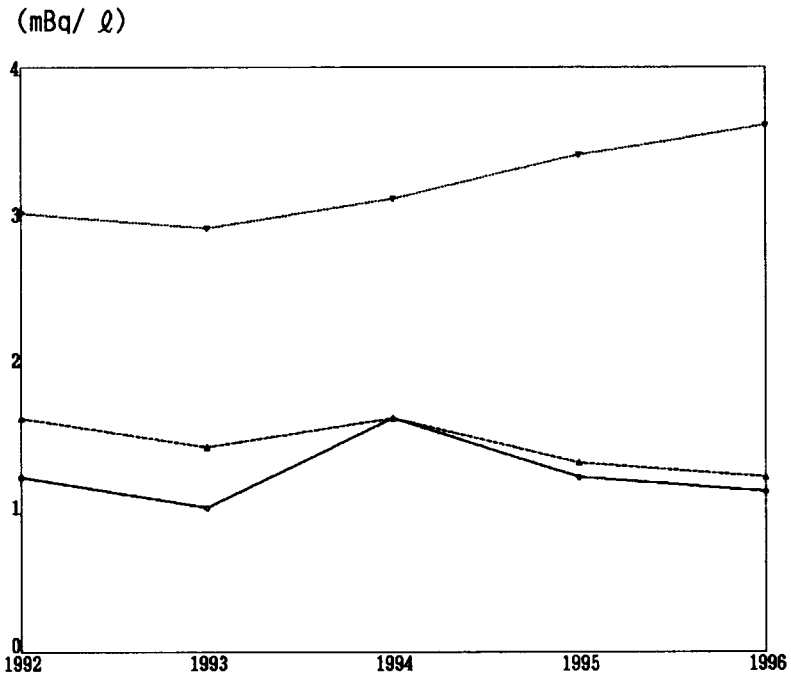

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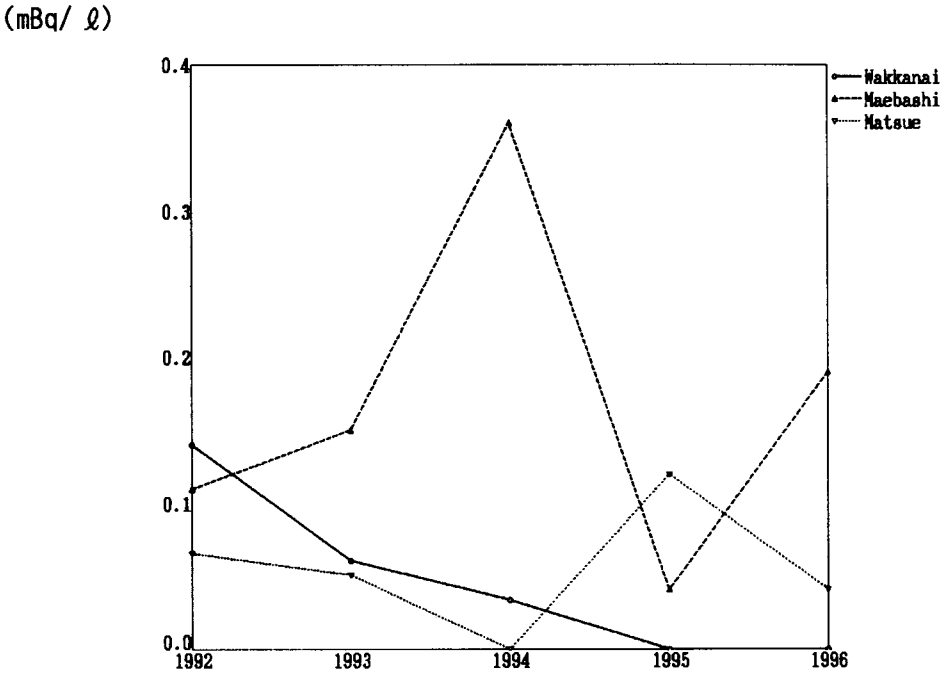

Fig. 3-2

* * Fresh Water * *

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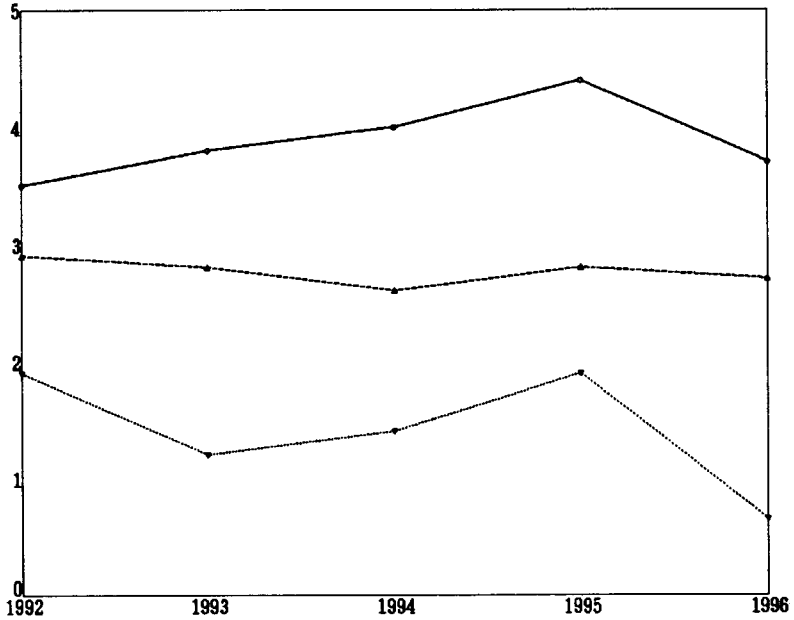
(mBq/ ℓ)



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(mBq/ ℓ)

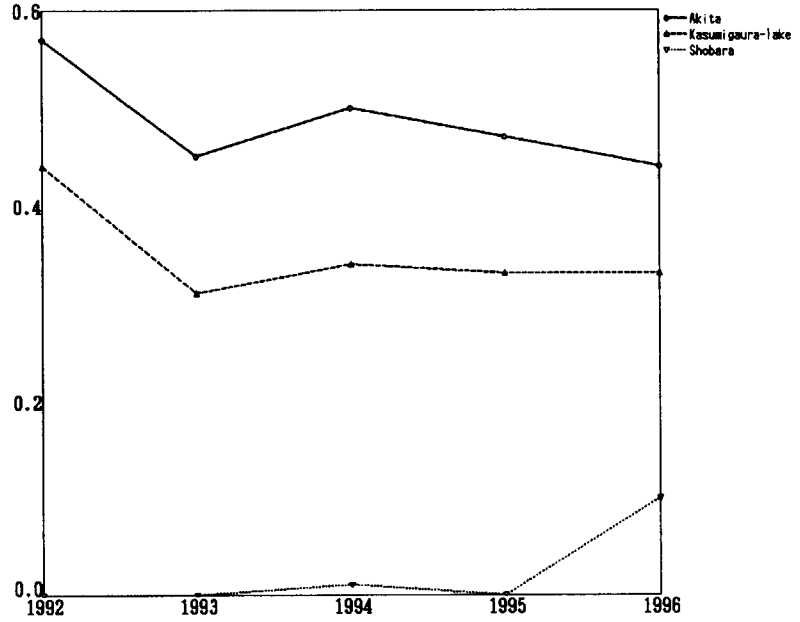
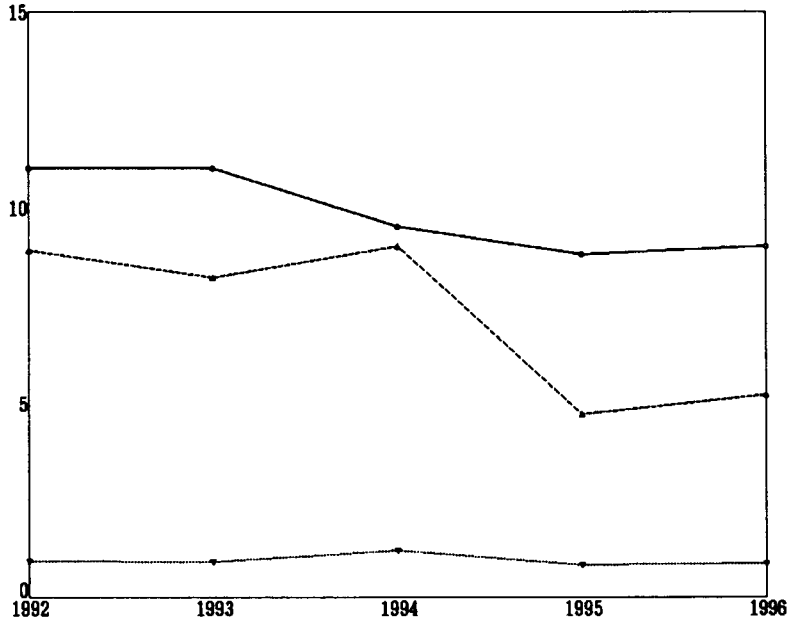


Fig. 4

* * Soil * *

<Strontium-90>

(Bq/kg)(dried So



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(Bq/kg)(dried So

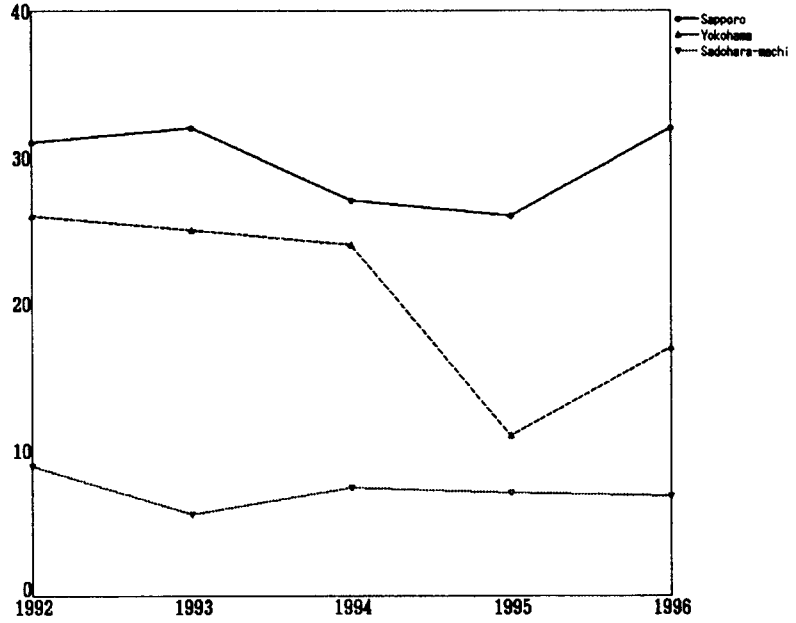

Fig. 5

＊ ＊ Sea Water ＊ ＊

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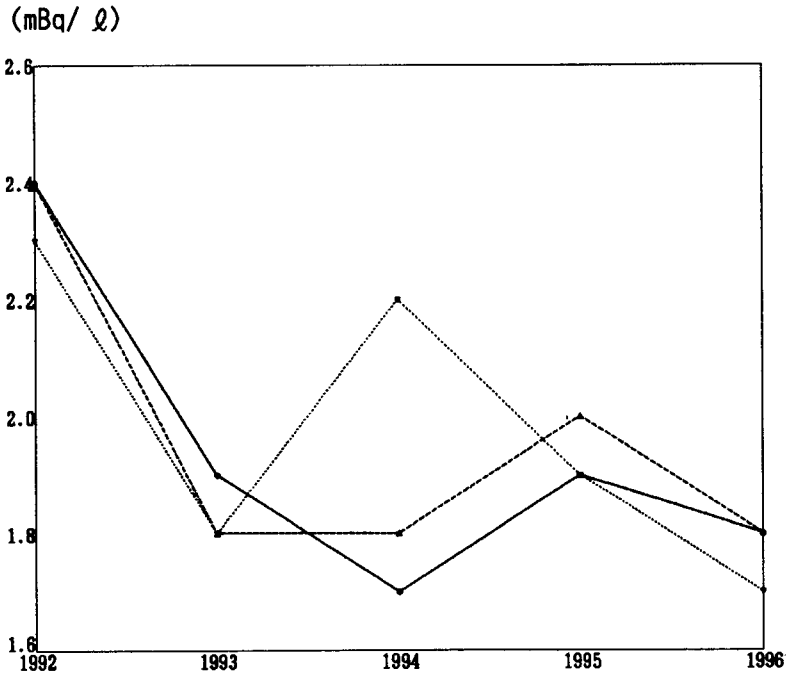

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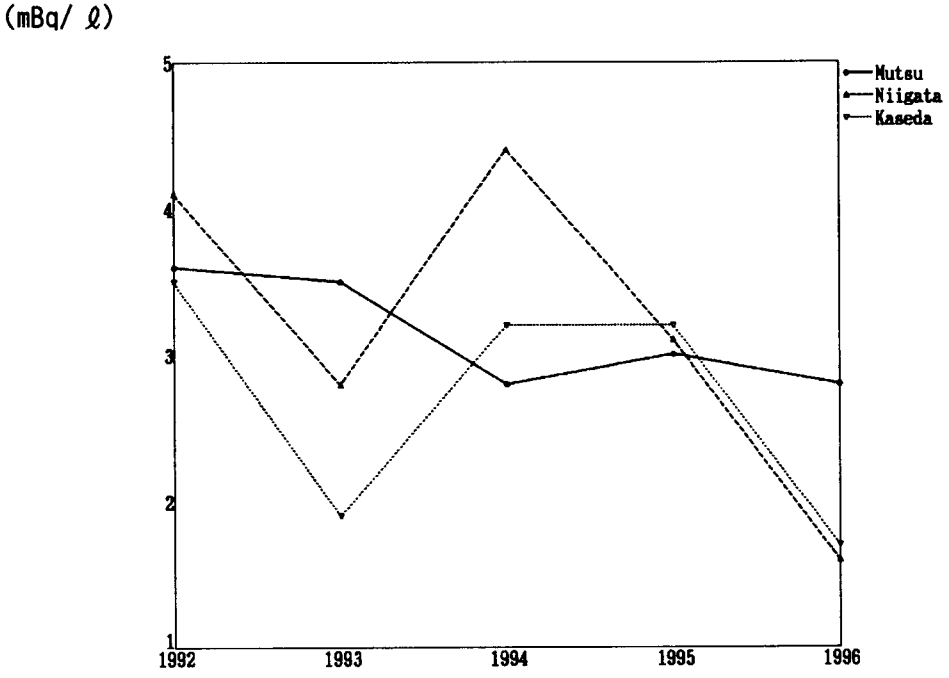
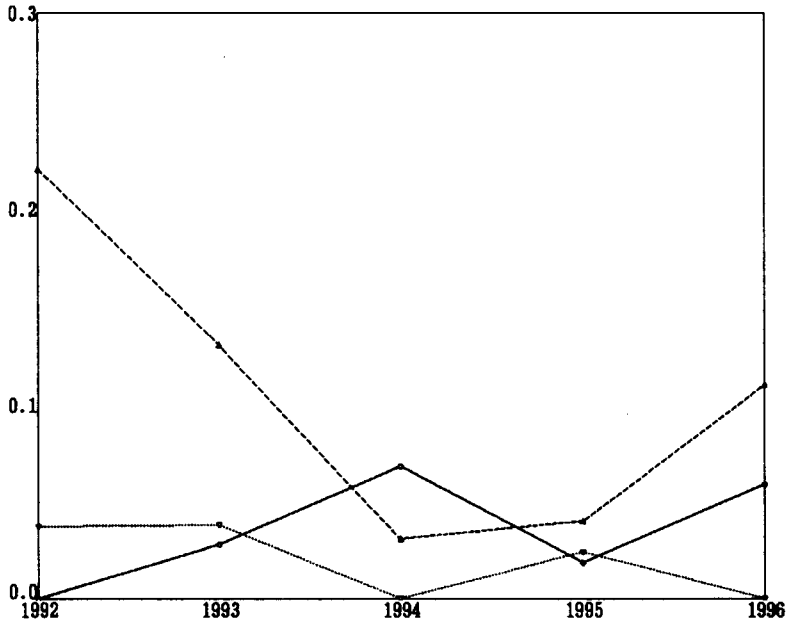


Fig. 6

* * Sea Sediments * *

<Strontium-90>

(Bq/kg･dried Soi



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(Bq/kg･dried Soi

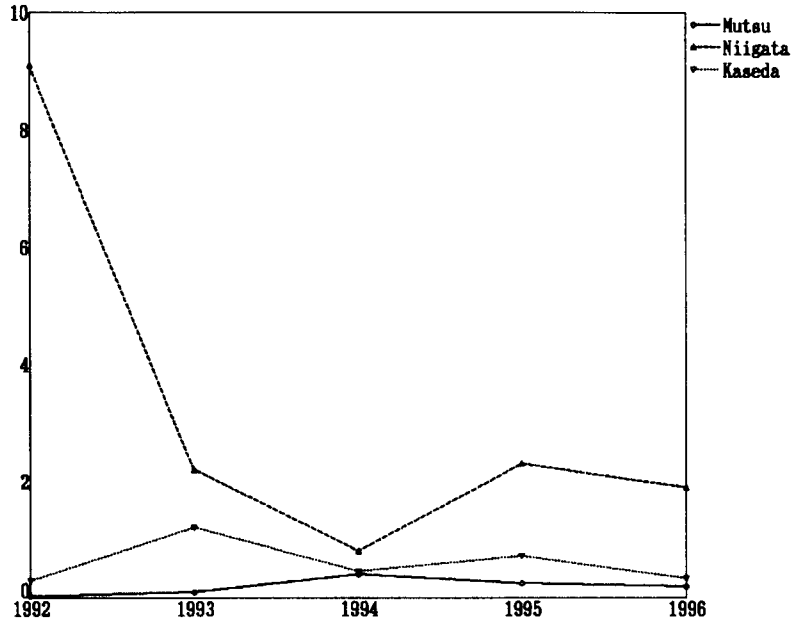

Fig. 7

* * 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