RADIOACTIVITY SURVEY DATA in Japan

NUMBER 9, NOV. 1965
NUMBER 10, FEB. 1966

National Institute of Radiological Sciences
Chiba, Japan

In April 1963, in compliance with directives set forth by the Japan Atomic Energy Commisson, the Division of Radioactivity Survey, National Institute of Radiological Sciences was directed to:

1. Collect, record and maintain information on radiation from National and International sources.
2. Analyze the information collected.
3. Establish a radiation survey information exchange center.

As a part of the assignment, data from the Nationwide Radioactivity Survey Network were assembled and compiled in this publication, which is issued on a quarterly basis.

For further information on any subject reported in this issue, readers are referred to the contributors indicated in the table headings.

Radioactivity Survey Data in Japan

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National Institute of Radiological Sciences

Meteorological Data

Monthly and Cumulative Deposits of Strontium-90 and Cesium-137

Part 1 *(Meteorological Research Institute, Tokyo)*

Since 1954, rain and fallout dust have been collected monthly, in a receiver (collection area, 1 m²), at the Meteorological Reseach Institute, Tokyo, to determine the content of strontium-90 and cesium-137. Other samples collected monthly (receiver collection area, 0.5 m²) at six stations located throughout Japan, were also analyzed.

Locations of the stations are shown in Figure 1.

The results of observation during the period from August to December 1965 are shown in Table 1. Total cumulative deposits of strontium-90 and cesium-137 reached the levels of 66.9 and 177.8 mCi/km² respectively, at the end of December 1965.

Figure 2 shows the monthly deposits of strontium-90.

Figure 1. Six Stations collected Sample

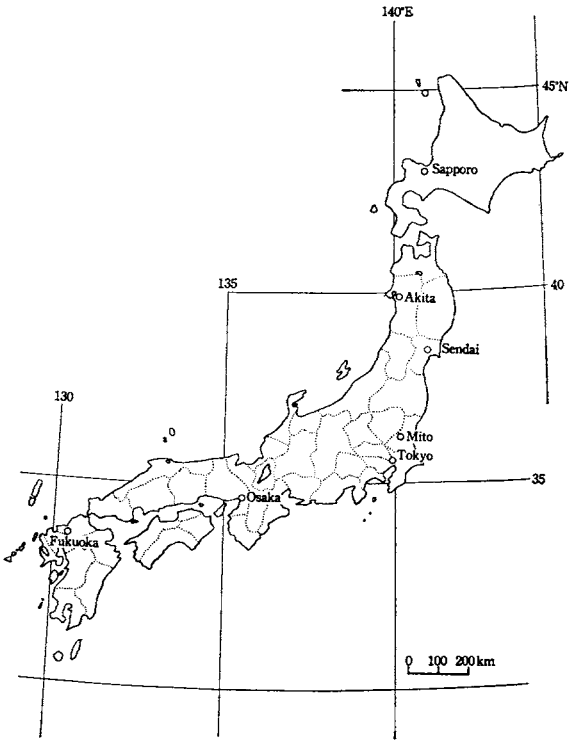


Table 1. Monthly Deposits of ^{90}Sr and ^{137}Cs —Aug. to Dec. 1965—

By Y. Miyake, K. Saruhashi, Y. Katsuragi and T. Kanazawa
(Meteorological Research Institute, Tokyo)

(Continued from Table 1, Issue No. 7, of this Publication)

Sapporo (Sapporo District Central Meteorological Observatory)
Location : 43°03′ N, 141°20′ E (16.9 m)

	1965 Aug	Sept	Oct	Nov	Dec
^{90}Sr (mCi/km²)	0.04	0.50	0.13	0.21	0.18
Precipitation (mm)	27	481	57	99	97

Akita (Akita District Central Meteorological Observatory)
Location ; 39°43′ N, 140°06 ′E (9.1 m)

	1965 Aug	Sept	Oct	Nov	Dec
^{90}Sr (mCi/km²)	0.28	0.42	0.19	0.40	0.53
Precipitation (mm)	38	194	143	227	255

Sendai (Sendai District Central Meteorological Observatory)
Location : 38°16′ N, 140°54′ E (38.4 m)

	1965 Aug	Sept	Oct	Nov	Dec
^{90}Sr (mCi/km²)	0.10	0.25	0.06	0.12	0.16
Precipitation (mm)	105	97	39	65	87

Tokyo (Meteorological Research Institute)
Location : 35°42′ N, 139°39′ E.

	1965 Aug	Sept	Oct	Nov	Dec
^{90}Sr (mCi/km²)	0.34	0.33	0.11	0.14	0.08
^{137}Cs (mCi/km²)	0.97	0.48	0.32	0.22	0.12
$^{137}Cs/^{90}Sr$	2.9	1.4	2.9	1.6	1.5
Precipitation (mm)	300	248	73	125	56

Osaka (Osaka District Central Meteorological Observatory)
Location : 34°39′ N, 135°32′ E (6.7 m)

	1965 Aug	Sept	Oct	Nov	Dec
^{90}Sr (mCi/km²)	0.04	0.23	0.06	0.12	0.13
Precipitation (mm)	8	371	74	133	51

Mito (Mito District Meteorological Observatory)
Location : 36°23′ N, 140°28′ E (29.2 m)

	1965 Aug	Sept	Oct	Nov	Dec
^{90}Sr (mCi/km²)	0.20	0.38	0.09	0.09	0.17
Precipitation (mm)	102	294	70	97	90

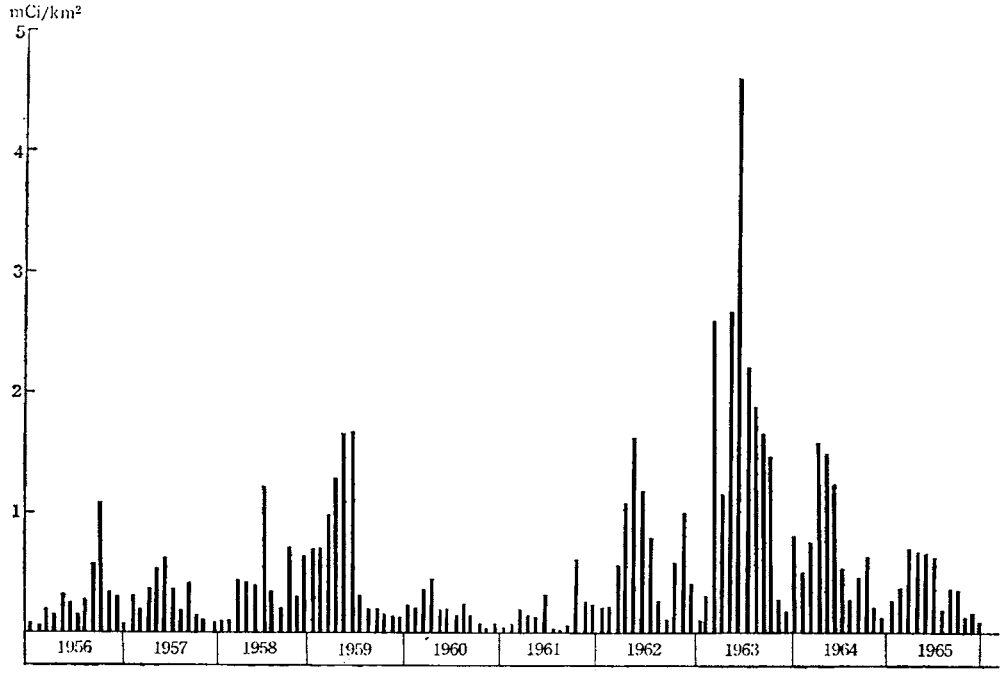
Tokyo (Tokyo District Central Meteorological Observatory)
Location : 35°41′ N, 139°46′ E (4.1 m)

	1965 Aug	Sept	Oct	Nov	Dec
^{90}Sr (mCi/km²)	0.18	0.22	0.07	0.14	0.05
Precipitation (mm)	235	205	53	132	66

Fukuoka (Fukuoka District Central Meteorological Observatory)
Location : 33°35′ N, 130°23′ E (2.1 m)

	1965 Aug	Sept	Oct	Nov	Dec
^{90}Sr (mCi/km²)	0.17	0.20	0.10	0.15	0.21
Precipitation (mm)	144	189	46	128	57

Figure 2. Monthly Deposits of ^{90}Sr —Since 1956—
—Meteorological Research Institute, Tokyo—



Part 2 *(Japan Analytical Chemistry Research Institute)*

Since May 1963, the Japan Analytical Chemistry Research Institute, on commission by the Sciences and Technology Agency, has measured the level of strontium-90 and cesium-137 in samples acquired at various locations throughout Japan. Sampling and pre-treatment for concentration were performed by 24 prefectural public health laboratories throughout Japan.

The collection tray has an area of 5,000 cm^2, and is exposed to rain and dust throughout the month. The depth of water in the tray is kept at 10 mm to prevent dust from being blown away. At the end of each month, water in the tray and water used to wash the tray are combined with strontium and cesium carriers, and passed through a column filled with sodium type cation exchange resin (Dowex 50 W-X 8, 50~100 mesh). The column is then sent to the Japan Analytical Chemistry Research Institute for analysis.

After the fraction containing both strontium -90 and cesium-137 is eluted from the resin, radiochemical analysis is carried out using the method recommended by the Science and Technology Agency.

Results obtained during the period August 1965 to March 1966 are indicated in Table 2.

Table 2. ^{90}Sr and ^{137}Cs in Rain and Dry Fallout —Aug. 1965 to Mar. 1966—

By T. Asari, M. Chiba and M. Kuroda
(Japan Analytical Chemistry Research Institute)

(Continued from Table 3, Issue No. 7, of this Publication)

Station	Duration (days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Aug 1965				
Sapporo, HOKKAIDO	31	25	0.16	0.17
Aomori, AOMORI	〃	71	0.27	0.37
Akita, AKITA	〃	38	0.17	0.16
Sendai, MIYAGI	30	105	0.16	0.43
Mito, IBARAGI	〃	111	0.21	0.28
Niiza, SAITAMA	〃	160	0.42	0.61
TOKYO	31	235	0.30	0.41
Yokohama, KANAGAWA	〃	152	0.17	0.18
Niigata, NIIGATA	〃	40	0.10	0.16
Kanazawa, ISHIKAWA	〃	24	0.15	0.13
Fukui, FUKUI	〃	12	0.09	0.13
Shizuoka, SHIZUOKA	〃	139	0.06	0.09
Nagoya, AICHI	35	1	0.12	0.12
Kyoto, KYOTO	31	49	0.12	0.15
Osaka, OSAKA	〃	9	0.06	0.05
Kobe, HYOGO	30	7	0.03	0.04
Wakayama, WAKAYAMA	31	6	0.06	0.14
Tottori, TOTTORI	30	12	0.09	0.13
Okayama, OKAYAMA	31	14	0.04	0.04
Hiroshima, HIROSHIMA	〃	53	0.07	0.12
Kochi, KOCHI	〃	73	0.29	0.42
Fukuoka, FUKUOKA	〃	98	0.18	0.20
Nagasaki, NAGASAKI	〃	134	0.15	0.28
Kagoshima, KAGOSHIMA	32	238	0.10	0.17
Sept '65				
Sapporo, HOKKAIDO	31	331	0.80	1.02
Aomori, AOMORI	30	201	0.22	0.37
Akita, AKITA	〃	194	0.40	0.48
Sendai, MIYAGI	〃	105	0.31	0.24
Mito, IBARAGI	〃	297	0.27	0.39
Niiza, SAITAMA	〃	228	0.22	0.29
TOKYO	〃	206	0.18	0.25
Yokohama, KANAGAWA	31	350	0.22	0.31
Niigata, NIIGATA	30	139	0.24	0.27
Kanazawa, ISHIKAWA	〃	348	0.25	0.33

Table 2. ^{90}Sr and ^{137}Cs in Rain and Dry Fallout —Aug. 1965 to Mar. 1966— *(continued)*

Station	Duration (days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Fukui, FUKUI	30	383	0.30	0.52
Shizuoka, SHIZUOKA	〃	250	0.10	0.17
Nagoya, AICHI	28	289	0.10	0.01
Kyoto, KYOTO	30	329	0.15	0.19
OsaKa, OSAKA	〃	371	0.12	0.17
Kobe, HYOGO	〃	568	0.23	0.34
Wakayama, WAKAYAMA	〃	1645	0.13	0.18
Tottori, TOTTORI	〃	550	0.45	0.57
Okayama, OKAYAMA	〃	464	0.16	0.24
Hiroshima, HIROSHIMA	〃	301	0.13	0.19
Kochi, KOCHI	〃	832	0.15	0.28
Fukuoka, FUKUOKA	〃	196	0.12	0.20
Nagasaki, NAGASAKI	〃	99	0.06	0.10
Kagoshima, KAGOSHIMA	〃	223	0.21	0.15
Oct '65				
Sapporo, HOKKAIDO	31	49	0.16	0.17
Aomori, AOMORI	〃	39	0.16	0.12
Akita, AKITA	〃	144	0.33	0.41
Sendai, MIYAGI	〃	20	0.08	0.02
Mito, IBARAGI	〃	70	0.09	0.20
Niiza, SAITAMA	〃	61	0.11	0.20
TOKYO	30	53	0.20	0.31
Yokohama, KANAGAWA	32	91	0.15	0.23
Niigata, NIIGATA	31	139	0.22	0.52
Kanazawa, ISHIKAWA	〃	111	0.24	0.31
Fukui, FUKUI	〃	136	0.23	0.24
Shizuoka, SHIZUOKA	〃	128	0.14	0.19
Nagoya, AICHI	〃	59	0.10	0.22
Kyoto, KYOTO	〃	86	0.08	0.09
Osaka, OSAKA	〃	75	0.06	0.15
Kobe, HYOGO	〃	77	0.10	0.18
Wakayama, WAKAYAMA	〃	607	0.02	0.15
Tottori, TOTTORI	〃	55	0.12	0.16
Okayama, OKAYAMA	〃	39	0.03	0.19
Hiroshima, HIROSHIMA	32	107	0.12	0.08
Kochi, KOCHI	31	124	0.38	0.06
Fukuoka, FUKUOKA	〃	35	0.10	0.49
Nagasaki, NAGASAKI	〃	87	0.11	0.21
Kagoshima, KAGOSHIMA	〃	52	0.06	0.11
Nov '65				
Sapporo, HOKKAIDO	30	88	0.21	0.34
Aomori, AOMORI	〃	195	0.50	0.62
Akita, AKITA	〃	226	0.13	0.73
Sendai, MIYAGI	〃	65	0.08	2.55
Mito, IBARAGI	〃	97	0.11	0.14
Niiza, SAITAMA	〃	55	0.09	0.10
TOKYO	〃	132	0.06	0.10
Yokohama, KANAGAWA	〃	159	0.14	0.14
Niigata, NIIGATA	〃	191	0.31	0.22
Kanazawa, ISHIKAWA	〃	274	0.32	0.37
Fukui, FUKUI	〃	234	0.38	0.39
Shizuoka, SHIZUOKA	〃	193	0.11	0.19
Nagoya, AICHI	〃	49	0.07	0.08
Kyoto, KYOTO	〃	133	0.10	0.10
Osaka, OSAKA	〃	86	0.11	0.13
Kobe, HYOGO	〃	140	0.08	0.20
Wakayama, WAKAYAMA	〃	473	0.11	0.20
Tottori, TOTTORI	〃	184	0.29	0.29
Okayama, OKAYAMA	〃	119	0.10	0.10
Hiroshima, HIROSHIMA	〃	217	0.23	0.24
Kochi, KOCHI	〃	160	0.16	0.19
Fukuoka, FUKUOKA	〃	106	0.12	0.19
Nagasaki, NAGASAKI	〃	168	0.18	0.28
Kagoshima, KAGOSHIMA	〃	216	0.11	0.13

Table 2. ^{90}Sr and ^{137}Cs in Rain and Dry Fallout —Aug. 1965 to Mar. 1966— *(continued)*

Station	Duration (days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Dec '65				
Sapporo, HOKKAIDO	31	104	0.14	0.21
Aomori, AOMORI	〃	122	0.53	0.78
Akita, AKITA	24	216	0.64	0.84
Sendai, MIYAGI	35	87	0.12	0.47
Mito, IBARAGI	〃	90	0.18	0.23
Niiza, SAITAMA	〃	64	0.01	0.26
TOKYO	〃	66	0.15	0.21
Yokohama, KANAGAWA	36	78	0.12	0.17
Niigata, NIIGATA	35	290	0.66	0.67
Kanazawa, ISHIKAWA	〃	390	0.61	0.84
Fukui, FUKUI	27	328	0.95	1.57
Shizuoka, SHIZUOKA	37	78	0.13	0.22
Nagoya, AICHI	36	96	0.18	0.27
Kyoto, KYOTO	31	51	0.10	0.16
Osaka, OSAKA	40	507	0.12	0.15
Kobe, HYOGO	35	58	0.11	0.24
Wakayama, WAKAYAMA	27		0.09	0.15
Tottori, TOTTORI	36	571	1.13	1.44
Okayama, OKAYAMA	〃	30	0.08	0.08
Hiroshima, HIROSHIMA	31	54	0.09	0.11
Kochi, KOCHI	36	67	0.12	0.17
Fukuoka, FUKUOKA	31	47	0.24	0.37
Nagasaki, NAGASAKI	〃	118	0.29	0.40
Kagoshima, KAGOSHIMA	36	98	0.18	0.27
Jan 1966				
Sapporo, HOKKAIDO	31	196	0.25	0.31
Aomori, AOMORI	〃		0.65	0.97
Akita, AKITA	〃	167	0.98	1.35
Sendai, MIYAGI	28	31	0.08	0.29
Mito, IBARAGI	26	27	0.01	0.04
Niiza, SAITAMA	27	41	0.03	0.04
TOKYO	28	24	0.006	0.008
Yokohama, KANAGAWA	27	30	0.02	0.04
Niigata, NIIGATA	〃	106	0.48	0.55
Kanazawa, ISHIKAWA	31	284	0.72	0.89
Fukui, FUKUI	35	327	1.63	2.75
Shizuoka, SHIZUOKA	33	51	0.11	0.23
Nagoya, AICHI	28	43	0.12	0.15
Kyoto, KYOTO	31	40	0.16	0.23
Osaka, OSAKA	22	55	0.15	0.25
Kobe, HYOGO	27	42	0.15	0.25
Wakayama, WAKAYAMA	35		0.11	0.22
Tottori, TOTTORI	27	100	0.67	1.05
Okayama, OKAYAMA	25	30	0.13	0.16
Hiroshima, HIROSHIMA	31	50	0.19	0.24
Kochi, KOCHI	27	92	0.10	0.14
Fukuoka, FUKUOKA	31	30	0.20	0.37
Nagasaki, NAGASAKI	〃	57	0.23	0.45
Kagoshima, KAGOSHIMA	33	77	0.19	0.34
Feb '66				
Sapporo, HOKKAIDO	28	112	0.09	0.18
Aomori, AOMORI	〃	152	0.71	1.04
Akita, AKITA	〃	118	0.83	1.24
Sendai, MIYAGI	〃	79	0.19	0.22
Mito, IBARAGI	〃	138	0.28	0.37
Niiza, SAITAMA	〃	99	0.22	0.25
TOKYO	〃	122	0.17	0.28
Yokohama, KANAGAWA	29	174	0.28	0.43
Niigata, NIIGATA	28	119	0.09	0.47
Kanazawa, ISHIKAWA	31	204	0.83	1.10

Table 2. ^{90}Sr and ^{137}Cs in Rain and Dry Fallout —Aug. 1965 to Mar. 1966— *(continued)*

Station	Duration (days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Fukui, FUKUI	28	189	0.77	1.02
Shizuoka, SHIZUOKA	29	182	0.27	0.45
Nagoya, AICHI	28	96	0.21	0.24
Kyoto, KYOTO	〃	103	0.21	0.24
Osaka, OSAKA	〃	97	0.24	0.27
Kobe, HYOGO	〃	63	0.16	0.18
Wakayama, WAKAYAMA	〃	79	0.20	0.24
Tottori, TOTTORI	〃	170	0.69	1.07
Okayama, OKAYAMA	〃	68	0.14	0.16
Hiroshima, HIROSHIMA	〃	74	0.21	0.39
Kochi, KOCHI	〃	113	0.31	0.42
Fukuoka, FUKUOKA	〃	55	0.21	0.33
Nagasaki, NAGASAKI	〃	55	0.23	0.37
Kagoshima, KAGOSHIMA	〃	122	0.33	0.44
Mar '66				
Sapporo, HOKKAIDO	23	129	0.24	0.45
Aomori, AOMORI	31	210	0.26	0.33
Akita, AKITA	21	107	0.39	0.57
Sendai, MIYAGI	27		0.15	0.27
Mito, IBARAGI	31	147	0.43	0.66
Niiza, SAITAMA	〃	168	0.25	0.27
TOKYO	〃	100	0.17	0.24
Yokohama, KANAGAWA	〃	123	0.30	0.44
Niigata, NIIGATA	〃	117	0.50	0.77
Kanazawa, ISHIKAWA	35	304	0.55	0.54
Fukui, FUKUI	31	247	1.01	1.91
Shizuoka, SHIZUOKA	29		0.47	0.58
Nagoya, AICHI	33	194	0.50	0.67
Kyoto, KYOTO	31	175	0.38	0.58
Osaka, OSAKA	32	145	0.40	0.47
Kobe, HYOGO	31	177	0.55	0.67
Wakayama, WAKAYAMA	29		0.24	0.57
Tottori, TOTTORI	32	277	1.02	1.47
Okayama, OKAYAMA	31	125	0.29	0.41
Hiroshima, HIROSHIMA	〃		0.47	0.67
Kochi, KOCHI	28	207	0.48	0.64
Fukuoka, FUKUOKA	31	104	0.33	0.52
Nagasaki, NAGASAKI	〃	129	0.39	0.55
Kagoshima, KAGOSHIMA	28	269	0.31	0.46

Table 3 shows the monthly mean value of strontium-90 and cesium-137 collected by the 24 stations during the period August 1965 to March 1966.

Table 4 and Figure 3 show the total amount of strontium-90 and cesium-137 deposits during the period August 1965 to March 1966.

Figure 4 shows the monthly variation of strontium-90 at the 5 stations during the August 1965 to March 1966.

Table 3. Monthly Mean Value of the 24 Collection Stations —Aug. 1965 to Mar. 1966—

Month	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)	$^{137}Cs/^{90}Sr$
Aug 65	75	0.15	0.21	1.4
Sept 〃	309	0.23	0.30	1.3
Oct 〃	102	0.14	0.21	1.5
Nov 〃	165	0.17	0.33	1.9
Dec 〃	150	0.29	0.44	1.5
Jan 66	79	0.31	0.47	1.5
Feb 〃	116	0.33	0.48	1.5
Mar 〃	148	0.42	0.62	1.5

Table 4. Total Deposits of ^{90}Sr and ^{137}Cs —Aug. 1965 to Mar. 1966—

	Station	^{90}Sr (mCi/km²)	^{137}Cs (mCi/km²)		Station	^{90}Sr (mCi/km²)	^{137}Cs (mCi/km²)
1	Hokkaido	2.05	2.85	13	Aichi	1.40	1.76
2	Aomori	3.30	4.60	14	Kyoto	1.30	1.74
3	Akita	3.87	5.78	15	Osaka	1.26	3.64
4	Miyagi	1.17	4.49	16	Hyogo	1.41	2.10
5	Ibaragi	1.58	2.30	17	Wakayama	0.96	1.85
6	Saitama	1.35	2.02	18	Tottori	4.46	6.18
7	Tokyo	1.236	1.808	19	Okayama	0.97	1.38
8	Kanagawa	1.40	1.94	20	Hiroshima	1.51	2.04
9	Niigata	2.70	3.63	21	Kochi	1.99	2.42
10	Ishikawa	3.67	4.51	22	Fukuoka	1.50	2.67
11	Fukui	5.36	8.53	23	Nagasaki	1.64	2.64
12	Shizuoka	1.39	2.12	24	Kagoshima	1.49	2.07

Figure 3. Total Deposits of ^{90}Sr and ^{137}Cs —Aug. 1965 to Mar. 1966—

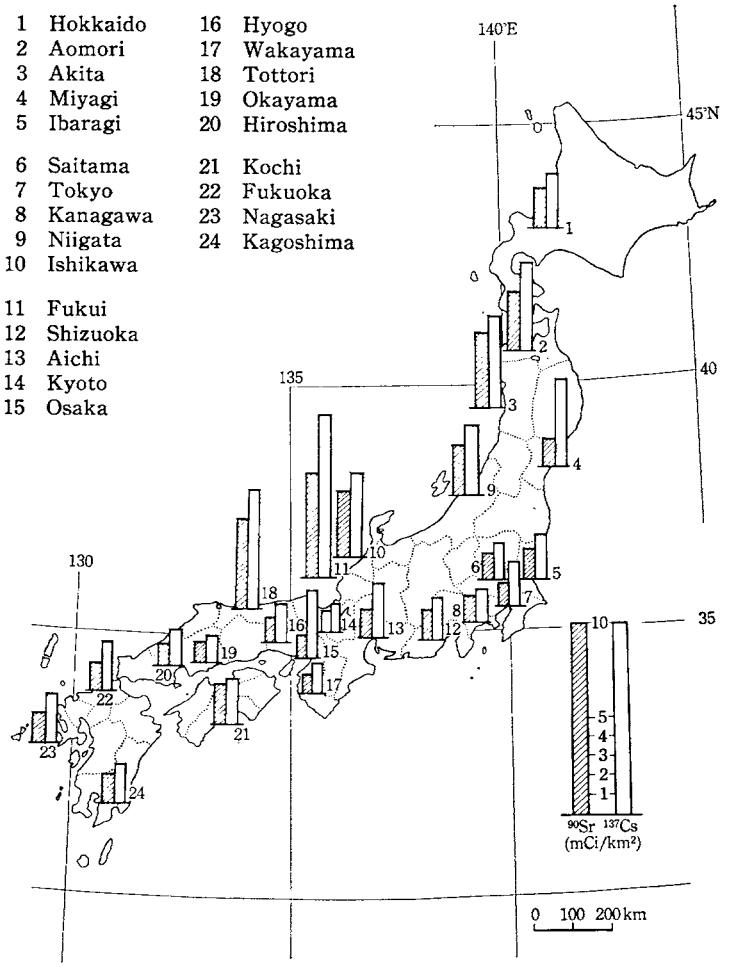
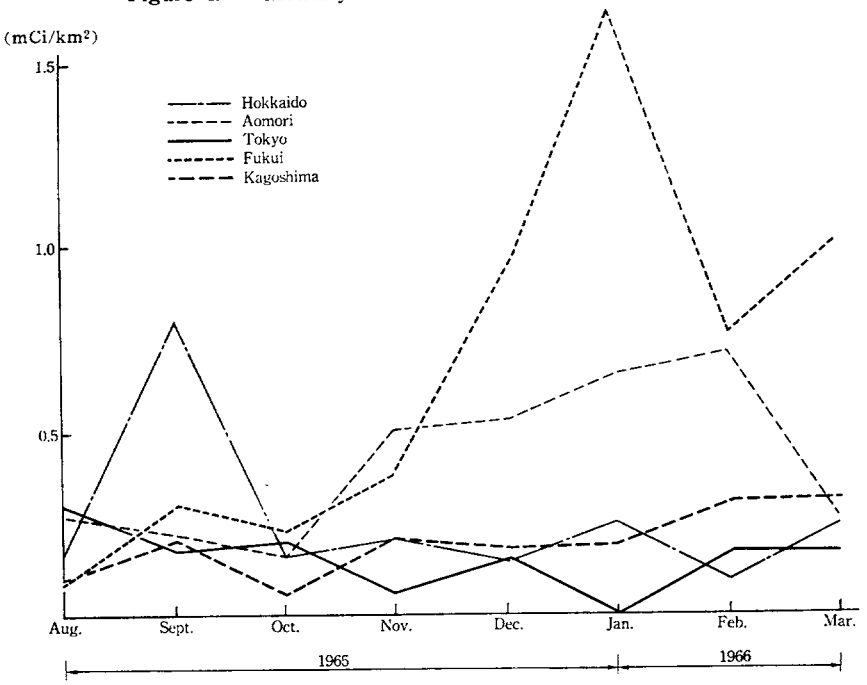


Figure 4. Monthly Variation of ^{90}Sr at the 5 Stations



Strontium-90, Cesium-137, Cerium-144, Ziruconium-95 + Niobium-95 and Ruthenium-106 in Air borne Dust

Part 1 *(National Institute of Radiological Sciences)*

Since October 1965, airborne dust samples were collected from 1-1.5 m above the ground in the campus of National Institute of Radiological Sciences in Chiba City, using a dust collector, composed of prefilter, cottrell type dust collector and spongy polyurethan filter, and that is designed to collect and deposite 99% particles up to a size of 10 mμ under flow rate of 10 m^3/min.

The samples were incinerated in a muffle furnace at 450°C, Radioactivities of cesium-137, cerium-144, ruthenium-106 and zirconium-95 + niobium-95 in ash samples were measured by gamma-ray spectrometry. Concentration of strontium-90 in HCl-extract of the ash were determined by the fuming nitric acid separation method, Results obtained are shown in Table 5.

Table 5. ^{90}Sr, ^{137}Cs, ^{144}Ce, $^{95}Zr+^{95}Nb$ and ^{106}Ru in Air borne Dust —Oct. 1965 to Jul. 1966—

by M. Saiki, H. Kamada and K. Kimura.
(National Instituta of Radiological Sciences)

Location	Month Collected	Duration (days)	Air inhaled (m^3)	^{90}Sr (pCi/m^3)$\times10^{-3}$	$^{95}Zr+^{95}Nb$ (pCi/m^3)$\times10^{-3}$	^{106}Ru (pCi/m^3)$\times10^{-3}$	^{137}Cs (pCi/m^3)$\times10^{-3}$	^{144}Ce (pCi/m^3)$\times10^{-3}$
CHIBA	Oct. 1965	21	320400	1.2	—	14.3	14.4	3.9
〃	Nov. 〃	15	216000	1.1	—	8.3	8.4	1.5
〃	Nov. to Dec. 1965	30	432000	0.3	—	2.3	1.9	0.5
〃	Dec. 1965 to Jan. 1966	31	446400	0.3	—	2.0	2.8	0.5
〃	Jan. 1966	16	230400	0.7	—	11.9	8.6	1.3
〃	Feb. 〃	15	216000	0.8	—	14.1	12.2	2.1
〃	Feb. 〃	13	187200	2.1	—	38.7	18.3	2.6
〃	Mar. 〃	15	216000	4.4	—	55.7	43.4	9.2
〃	Mar. 〃	16	230400	2.5	—	47.9	30.0	3.7

Table 5. ^{90}Sr, ^{137}Cs, ^{144}Ce, $^{95}Zr+^{95}Nb$ and ^{106}Ru in Air borne Dust —Oct. 1965 to Jul. 1966— *(continued)*

Location	Month Collected	Duration (days)	Air inhaled (m^3)	^{90}Sr (pCi/m^3)$\times10^{-3}$	$^{95}Zr+^{95}Nb$ (pCi/m^3)$\times10^{-3}$	^{106}Ru (pCi/m^3)$\times10^{-3}$	^{137}Cs (pCi/m^3)$\times10^{-3}$	^{144}Ce (pCi/m^3)$\times10^{-3}$
〃	Apr. 〃	15	216000	3.0	—	51.5	40.9	2.0
〃	Apr. 〃	15	216000	1.5	—	31.0	26.6	1.8
〃	May 〃	15	216000	2.6	—	35.7	33.0	4.8
〃	May 〃	16	230400	2.4	4.2	55.8	20.8	16.0
〃	Jun. 〃	15	216000	2.5	11.9	85.0	14.1	32.1
〃	Jun. 〃	15	216000	1.2	10.2	51.0	1.3	25.9
〃	Jul. 〃	15	216000	1.2	4.0	29.9	5.1	12.8
〃	Jul. 〃	16	230400	0.7	4.3	24.5	1.4	12.2

Since April 1964, airborne dust samples have been colleted by two prefectural public health laboratories located in Osaka ond Niigata.

Radioactivity of cesium-137 and cerium-144 in the samples and HCl-extract of ash samples incinerated at 450°C were measured by gamma-ray spectrometry, Concentrations of strontium-90 in HF-extract and HCl-extract of the ash Samples were determined by the fuming nitric acid separation method.

Results obtained are shown in Table 6.

Table 6. ^{90}Sr, ^{137}Cs and ^{144}Ce in Air borne Dust —Apr. 1964 to Mar. 1965—

by M. Saiki, H. Kamada and A. Nakano
(National Institute of Radiological Sciences)

Location	Duration (days)	Air inhaled (m^3)	^{90}Sr (pCi/m^3)$\times10^{-3}$ Determined by Radiochemical Analysis		^{137}Cs (pCi/m^3)$\times10^{-3}$ Determined by γ-ray Spectrometry		^{144}Ce (pCi/m^3)$\times10^{-3}$ Determined by γ-ray Spectrometry	
			Extracts with HF from ash sample	Extracts with HCl from ash sample	Whole Dust	Extracts with HCl from ash sample	Whole Dust	Extracts with HCl from ash sample
Apr. 1964								
OSAKA	12	12960	29	28	225	167	202	106
May '64								
OSAKA	9	9720	25	25	240	33	201	97
Jun. '64								
OSAKA	9	9720	37	37	377	48	254	165
Jul. '64								
NIIGATA	3	1296	9	8	10	9	57	24
OSAKA	9	9720	10	10	56	9	84	38
Aug. '64								
NIIGATA	5	2160	4	3	5	4	32	13
OSAKA	8	8640	6	6	37	6	37	37
Sept. '64								
NIIGATA	7	3024	8	8	36	9	34	22
OSAKA	6	6480	8	8	49	10	45	38
Oct. '64								
NIIGATA	7	3024	9	9	73	28	59	45
OSAKA	8	8640	12	12	116	12	72	35
Nov. '64								
OSAKA	10	11275	15	15	180	19	126	53
Dec. '64								
OSAKA	7	7665	1	1	55	1	53	<0.4
Jan. 1965								
NIIGATA	5	2160	11	10	15	7	28	17
OSAKA	11	11880	17	17	108	14	35	16

Table 6. ^{90}Sr, ^{137}Cs and ^{144}Ce in Air borne Dust —Apr. 1964 to Mar. 1965— *(continued)*

Location	Duration (days)	Air inhaled (m^3)	^{90}Sr (pCi/m^3)$\times 10^{-3}$ Determined by Radiochemical Analysis		^{137}Cs (pCi/m^3)$\times 10^{-3}$ Determined by γ-ray Spectrometry		^{144}Ce (pCi/m^3)$\times 10^{-3}$ Determined by γ-ray Spectrometry	
			Extracts with HF from ash sample	Extracts with HCl from ash sample	Whole Dust	Extracts with HCl from ash sample	Whole Dust	Extracts with HCl from ash sample
Feb. '65								
NIIGATA	4	1728	23	23	17	14	28	18
OSAKA	12	12960	1	1	150	3	49	2
Mar. '65								
NIIGATA	7	3024	16	15	34	17	26	23
OSAKA	11	12220	9	9	96	9	41	17

Part 2 *(Japan Analytical Chemistry Research Institute)*

The Japan Analytical Chemistry Research Institute began the analyses of strontium-90, cesium-137 and cerium-144 content in air borne dust on commission by the Science and Technology Agency in April 1964.

Samples are collected by 7 prefectural public health laboratories, using a cottrell type dust collector (1,200 liters per hour). Figure 5 shows the locations of the laboratories.

Results obtained during the period August 1965 to March 1966, are shown in Table 7.

Figure 5. Air Sampling Location

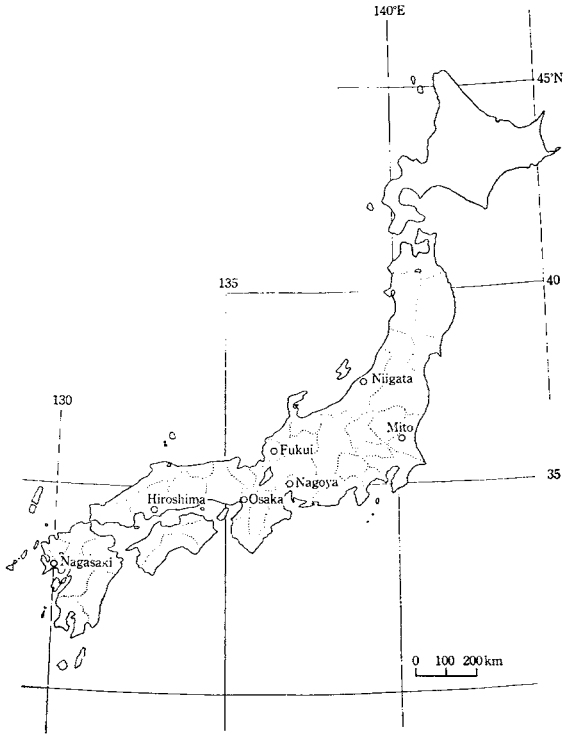


Table 7. ^{90}Sr, ^{137}Cs and ^{144}Ce in Air borne Dust —Aug. 1965 to Mar. 1966—

By T. Asari, M. Chiba and M. Kuroda
(Japan Analytical Chemistry Research Institute)

(Continued from Table 6, Issue No. 7, of this Publication)

Location	Duration (days)	Air inhaled (m^3)	Efficiency of cottrell (%)	^{90}Sr (pCi/m^3)$\times 10^{-3}$	^{137}Cs (pCi/m^3)$\times 10^{-3}$	^{144}Ce (pCi/m^3)$\times 10^{-3}$
Aug 1965						
Mito, IBARAGI	29	9360	70	5.0	0.4	3.0
Niigata, NIIGATA	27	2592	95	5.2	1.0	17.6
Fukui, FUKUI	22	960	96	2.2	32.0	3.0
Nagoya, AICHI	21	3780	95	2.9	7.6	13.1
Osaka, OSAKA	28	5400	90	3.6	3.7	22.3
Hiroshima, HIROSHIMA	25	7150	80	3.5	12.6	4.2
Nagasaki, NAGASAKI	20	2400	90	10.7	12.7	9.8

Table 7. ^{90}Sr, ^{137}Cs and ^{144}Ce in Air borne Dust —Aug. 1965 to Mar. 1966— *(continued)*

Location	Duration (days)	Air inhaled (m^3)	Efficiency of cottrell (%)	^{90}Sr (pCi/m^3) $\times 10^{-3}$	^{137}Cs (pCi/m^3) $\times 10^{-3}$	^{144}Ce (pCi/m^3) $\times 10^{-3}$
Sept 1965						
Mito, IBARAGI	29	8360	70	4.0	0.6	12.0
Niigata, NIIGATA	27	2592	95	5.9	35.9	23.2
Fukui, FUKUI	29	1286	96	1.9	13.3	5.7
Nagoya, AICHI	14	2340	95	2.0	2.9	8.3
Osaka, OSAKA	17	4320	90	4.1	5.9	13.5
Hiroshima, HIROSHIMA	27	9700	80	4.8	6.6	12.8
Nagasaki, NAGASAKI	21	1800	90	9.4	14.3	9.3
Oct '65						
Mito, IBARAGI	30	5040	70	4.3	9.2	17.5
Niigata, NIIGATA	25	2376	95	3.6	5.8	13.8
Fukui, FUKUI	22	960	96	1.5	1.7	4.1
Nagoya, AICHI	24	4380	95	2.3	3.7	10.1
Osaka, OSAKA	28	4305	90	6.1	4.3	15.2
Hiroshima, HIROSHIMA	25	7500	80	4.7	8.3	16.0
Nagasaki, NAGASAKI	19	1800	90	9.5	12.0	35.6
Nov '65						
Niigata, NIIGATA	26	2592	95	3.3	5.3	10.5
Fukui, FUKUI	21	960	96	4.9	2.1	5.4
Nagoya, AICHI	25	2700	95	0.2	1.3	4.6
Osaka, OSAKA	22	4320	90	5.3	3.6	10.0
Hiroshima, HIROSHMA	23	6450	80	4.1	6.1	13.3
Nagasaki, NAGASAKI	24	1800	90	8.2	11.3	12.6
Dec '65						
Mito, IBARAGI	24	7920	70	0.8	1.8	4.2
Niigata, NIIGATA	26	2592	95	3.1	8.5	12.8
Fukui, FUKUI	20	1260	96	0.7	1.7	6.6
Nagoya, AICHI	21	2520	95	0.9	1.2	3.8
Osaka, OSAKA	22	3246	90	3.7	5.2	16.5
Hiroshima, HIROSHIMA	26	7650	80	2.4	6.0	21.8
Nagasaki, NAGASAKI	15	1800	90	9.5	24.0	45.1
Jan 1966						
Mito, IBARAGI	27	8670	70	1.5	2.2	3.1
Niigata, NIIGATA	27	2592	95	2.9	5.4	11.5
Fukui, FUKUI	22	960	96	1.6	9.2	5.7
Nagoya, AICHI	11	2340	95	2.2	2.6	10.7
Osaka, OSAKA	24	3240	90	3.1	7.3	20.7
Hiroshima, HIROSHIMA	24	7800	80	4.7	11.4	0.9
Nagasaki, NAGASAKI	20	1800	90	16.8	23.1	60.2
Feb '66						
Mito, IBARAGI	25	5760	70	1.3	2.4	40.7
Niigata, NIIGATA	26	5475	95	22.3	57.5	89.8
Fukui, FUKUI	8	480	96	44.0	6.4	19.2
Nagoya, AICHI	17	4680	95	3.4	2.8	9.0
Osaka, OSAKA	26	3240	90	5.2	13.8	16.0
Hiroshima, HIROSHIMA		7800	80	4.6	17.4	9.3
Nagasaki, NAGASAKI	26	3500	90	9.9	20.9	9.5
Mar '66						
Mito, IBARAGI	25	5760	90	4.3	5.2	32.8
Niigata, NIIGATA	22	2160	95	3.3	13.2	40.5
Fukui, FUKUI		960	96	24.1	30.6	2.3
Nagoya, AICHI	22	4860	95	2.0	3.2	10.2
Osaka, OSAKA	18	3240	90	4.7	13.1	11.7
Hiroshima, HIROSHIMA		7800	80	2.2	10.2	5.9
Nagasaki, NAGASAKI	28	1800	90	9.93	18.8	12.7

Dietary Data

Strontium-90 and Cesium-137 in Milk

Part 1 *(National Institute of Animal Industry)*

The observation of the monthly variation in strontium-90 and cesium-137 content in milk was conducted at the National Institute of Animal Industry.

Samples were taken from the same cow, if possible, at the farm of the institute and six other prefectural agricultural experimental stations, and analyzed by the method recommended by the Science and Technology Agency.

Sampling stations are indicated by open circles in Figure 6.

Results obtained during the period August, 1965 to February, 1966 are shown in Table 8.

Figure 6. Milk Sampling Station

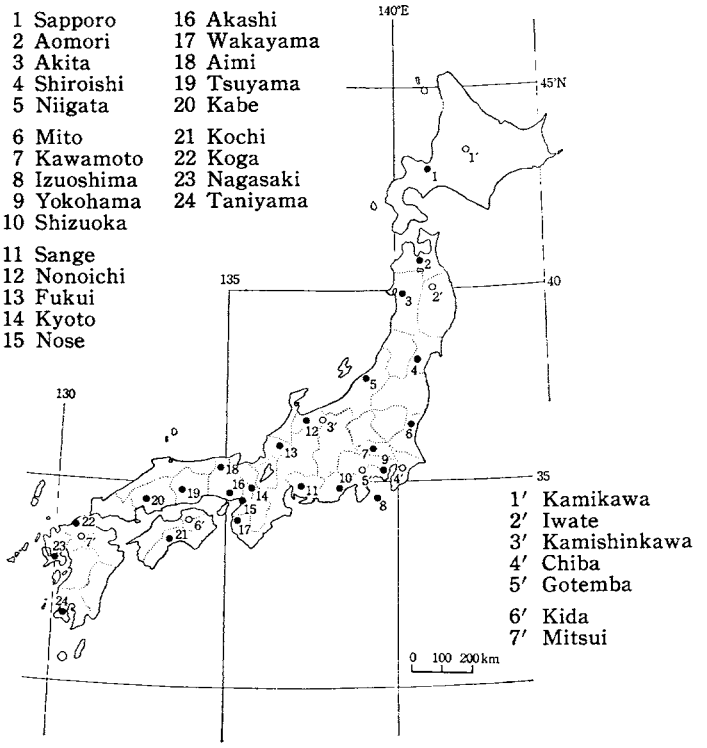


Table 8. ^{90}Sr and ^{137}Cs in Milk —Aug. 1965 to Feb. 1966—

By H. Danbara and T. Mitsuhashi
(National Institute of Animal Industry)

(Continued from Table 8, Issue No. 7 of this Publication)

Location	Component Ca (g/*l*)	Component K (g/*l*)	Strontium-90 (pCi/*l*)	Strontium-90 (pCi/gCa)	Cesium-137 (pCi/*l*)	Cesium-137 (pCi/gK)
Aug 1965						
Kamikawa, HOKKAIDO	1.0	1.4	37.7	37.7	221.9	158.5
Kamishinkawa, TOYAMA	1.1	1.4	11.9	10.8	48.4	34.6
Chiba, CHIBA	1.0	1.4	12.2	12.2	38.4	27.4
Gotemba, SHIZUOKA	0.9	1.4	7.7	8.6	136.9	97.8
Kida, KAGAWA	1.0	1.4	5.4	5.4	39.2	28.0
Mitsui, FUKUOKA	1.0	1.3	12.3	12.3	34.9	26.8
Sept '65						
Kamikawa, HOKKAIDO	1.1	1.4	21.8	19.8	—	—
Iwate, IWATE	1.3	1.4	13.2	10.2	—	—
Kamishinkawa, TOYAMA	0.9	1.4	7.9	8.8	—	—
Chiba, CHIBA	0.9	1.4	5.9	6.6	—	—
Gotemba, SHIZUOKA	0.8	1.4	5.2	6.5	—	—
Kida, KAGAWA	1.0	1.4	3.9	3.9	—	—
Mitsui, FUKUOKA	1.1	1.3	10.2	9.3	—	—
Oct '65						
Kamikawa, HOKKAIDO	1.1	1.4	13.0	11.8	228.7	163.4
Kamishinkawa, TOYAMA	1.2	1.4	4.4	3.7	26.1	18.6
Chiba, CHIBA	1.0	1.3	5.7	5.7	51.9	39.9
Gotemba, SHIZUOKA	1.1	1.4	7.9	7.2	94.8	67.7
Mitsui, FUKUOKA	1.1	1.3	3.2	2.9	23.2	17.8
Nov '65						
Kamikawa, HOKKAIDO	1.1	1.5	27.9	25.4	380.2	253.5
Iwate, IWATE	1.0	1.5	29.3	29.3	153.1	102.1
Kamishinkawa, TOYAMA	1.0	1.4	22.3	22.3	196.0	140.0
Chiba, CHIBA	1.0	1.3	6.2	6.2	41.9	32.2
Gotemba SHIZUOKA	1.1	1.4	5.9	5.4	78.0	55.7
Kida, KAGAWA	1.0	1.5	5.6	5.6	78.6	52.4
Mitsui, FUKUOKA	1.0	1.4	8.2	8.2	58.3	41.6
Dec '65						
Kamikawa, HOKKAIDO	1.1	1.5	37.8	34.4	82.1	54.7
Iwate, IWATE	1.1	1.5	19.9	18.1	60.8	40.5
Kamishinkawa, TOYAMA	1.1	1.4	19.9	18.1	124.8	89.1
Chiba, CHIBA	1.0	1.3	10.5	10.5	27.1	20.8
Gotemba, SHIZUOKA	1.0	1.4	14.1	14.1	41.5	29.6
Kida, KAGAWA	1.0	1.5	6.0	6.0	28.9	19.3
Mitsui, FUKUOKA	1.1	1.5	14.0	12.7	50.5	33.7
Jan 1966						
Kamikawa, HOKKAIDO	1.0	1.5	63.6	63.6	272.1	181.4
Iwate, IWATE	1.0	1.4	36.5	36.5	93.4	66.7
Kamishinkawa, TOYAMA	1.0	1.4	20.7	20.7	69.2	49.4
Chiba, CHIBA	1.2	1.4	9.8	8.9	30.0	21.4
Gotemba, SHIZUOKA	1.1	1.5	17.8	16.2	56.9	37.9
Kida, KAGAWA	1.0	1.4	10.9	10.9	29.6	21.2
Mitsui FUKUOKA	1.0	1.4	16.0	16.0	37.1	26.5
Feb '66						
Kamikawa, HOKKAIDO	1.1	1.4	37.7	34.2	363.0	259.0
Iwate, IWATE	1.0	1.4	13.7	13.7	88.2	63.0
Kamishinkawa, TOYAMA	1.0	1.3	12.2	12.2	48.8	29.8
Chiba, CHIBA	1.1	1.5	8.4	7.6	35.5	23.6
Gotemba, SHIZUOKA	1.0	1.4	12.9	12.9	56.2	40.1
Kida, KAGAWA	1.0	1.4	2.9	2.9	31.8	22.7
Mitsui, FUKUOKA	—	—	—	—	—	—

Part 2 *(Japan Analytical Chemistry Research Institute)*

Since December 1961, milk samples from various parts of Japan have been collected by 24 prefectural public health laboratories and analyzed for strontium-90 and cesium-137 content at the Japan Analytical Chemistry Research Institute.

Sampling stations are indicated by solid circles in Figure 6.

Three liters of fresh milk were purchased at a representative farm in each prefecture and carbonized by the public health laboratories. The carbonized samples were sent to the Japan Aanlytical Chemistry Research Institute and ashed, then analyzed using the method recommended by the Science and Technology Agency.

Results obtained during the period August 1965 to March 1966 are shown in Table 9.

Table 9. ^{90}Sr and ^{137}Cs in Milk —Aug. 1965 to Mar. 1966—

By T. Asari, M. Chiba and M. Kuroda
(Japan Analytical Chemistry Research Institute)

(Continued from Table 9, Issue No. 7, of this Publication)

Location	Component			^{90}Sr		^{137}Cs	
	Ash (g/*l*)	Ca (g/*l*)	K (g/*l*)	(pCi/*l*)	(pCi/gCa)	(pCi/*l*)	(pCi/gK)
Aug 1965							
Aomori, AOMORI	6.48	0.90	1.14	22.2	24.6	59.2	51.9
Mito, IBARAGI	8.45	2.41	1.34	3.4	1.4	13.3	9.9
Nonoichi, ISHIKAWA	7.00	1.06	1.04	16.6	15.6	74.2	71.3
Fukui FUKUI	8.62	1.28	1.64	6.6	5.2	26.4	16.1
Sanage, AICHI	6.81	1.10	1.35	5.7	5.2	22.2	16.7
OKAYAMA	6.95	1.01	1.27	6.7	6.6	29.0	22.8
Sept '65							
Sapporo, HOKKAIDO	7.14	1.10	1.47	8.0	7.3	93.0	63.3
Aomori, AOMORI	6.50	1.05	1.30	17.7	16.9	62.8	48.3
Akita, AKITA	7.23	0.96	1.48	15.6	16.2	42.3	28.6
Shiroishi, MIYAGI	7.64	1.18	1.01	41.8	35.4	78.7	77.8
NIIGATA	6.45	0.78	1.32	9.3	11.9	38.7	29.4
Kawamoto, SAITAMA	7.00	0.96	1.52	6.3	6.5	25.2	16.6
Izuoshima, TOKYO	6.78	0.97	1.38	9.2	9.5	55.2	40.8
Yokohama, KANAGAWA	7.32	1.01	1.06	5.1	5.1	40.6	38.3
SHIZUOKA	6.95	1.02	1.02	8.9	8.8	55.1	54.0
Kyoto, KYOTO	7.32	1.01	1.18	5.8	5.8	37.9	32.1
Nose, OSAKA	7.64	1.16	1.02	6.4	5.5	38.0	39.3
Akashi, HYOGO	7.50	1.09	1.56	5.2	4.7	42.2	27.1
Wakayama, WAKAYAMA	6.55	1.36	1.43	10.0	7.3	23.6	16.5
Aimi, TOTTORI	7.67	1.09	1.15	21.4	19.6	52.2	45.4
Kabe, HIROSHIMA	6.39	0.87	1.24	6.8	7.8	18.3	14.8
Kochi, KOCHI	9.73	1.19	1.44	4.9	4.1	18.7	13.0
Nagasaki, NAGASAKI	7.83	0.98	1.11	10.3	10.5	42.2	38.0
Taniyama, KAGOSHIMA	7.30	1.05	1.20	15.0	14.3	35.5	29.6
Oct '65							
Mito, IBARAGI	9.44	1.02	1.92	10.0	9.8	38.3	19.9
Ishikawa, ISHIKAWA	7.53	1.11	1.39	16.4	14.8	39.4	28.3
Fukui, FUKUI	6.92	1.08	1.08	0.9	0.9	34.7	32.1
Sanage, AICHI	6.38	0.93	1.16	6.8	7.3	18.0	15.5
Tsuyama, OKAYAMA	7.05	0.99	1.21	6.0	6.0	32.0	26.4
Nov '65							
Sapporo, HOKKAIDO	7.37	1.20	1.51	10.4	8.7	58.0	38.4
Akita, AKITA	7.31	1.23	1.39	31.9	26.1	54.9	39.5
Shiroishi, MIYAGI	7.42	1.24	0.94	10.1	8.1	41.6	44.3
Niigata, NIIGATA	7.27	1.21	1.19	6.7	5.5	34.7	29.2
Kawamoto, SAITAMA	7.17	1.00	1.98	6.3	6.3	28.9	14.6
Izuoshima, TOKYO	7.83	1.22	1.27	12.9	10.6	123.6	97.3
Yokohama, KANAGAWA	7.68	1.21	1.53	4.4	3.6	40.4	26.4
SHIZUOKA	6.59	1.12	1.26	13.9	12.4	83.7	66.4
Kyoto, KYOTO	7.72	1.24	1.40	4.1	3.3	25.4	18.1
Nose, OSAKA	7.33	1.20	0.92	6.1	5.8	25.4	27.6

Table 9. ^{90}Sr and ^{137}Cs in Milk —Aug. 1965 to Mar. 1966— *(continued)*

Location	Component			^{90}Sr		^{137}Cs	
	Ash (g/*l*)	Ca (g/*l*)	K (g/*l*)	(pCi/*l*)	(pCi/gCa)	(pCi/*l*)	(pCi/gK)
Nov '65							
Akashi, HYOGO	7.25	1.12	1.08	3.2	2.8	34.0	31.5
Wakayama, WAKAYAMA	7.22	1.13	1.08	4.9	4.3	26.8	24.8
Aimi, TOTTORI	7.25	1.06	1.09	15.0	14.2	39.3	36.1
Kabe, HIROSHIMA	6.16	0.98	1.20	8.9	9.0	30.8	25.7
Kochi, KOCHI	7.50	1.21	1.23	6.3	5.3	10.4	10.8
Koga, FUKUOKA	7.62	1.26	1.24	8.8	7.0	33.9	27.3
Nagasaki, NAGASAKI	7.19	1.08	1.07	11.5	10.6	28.5	26.6
Taniyama, KAGOSHIMA	7.37	1.22	1.26	12.7	10.4	36.7	29.1
Dec '65							
Aomori, AOMORI	6.88	1.24	1.11	12.6	10.1	45.5	41.0
Mito, IBARAGI	7.92	1.28	1.40	6.9	5.4	34.3	24.5
Nonoichi, ISHIKAWA	4.69	0.84	1.01	7.0	8.3	24.7	24.5
Fukui, FUKUI	6.78	1.04	1.21	6.8	6.6	28.4	23.5
Sanage, AICHI	7.50	0.96	1.60	6.0	6.3	16.2	10.1
Tsuyama, OKAYAMA	6.97	1.41	1.52	5.4	3.8	25.4	16.7
Koga, FUKUOKA	7.47	1.14	1.07	8.0	7.0	31.6	25.7
Jan 1966							
Sapporo, HOKKAIDO	7.20	1.15	1.17	7.3	6.4	51.2	43.8
Akita, AKITA	7.75	1.33	1.47	14.4	10.8	39.9	27.1
Shiroishi MIYAGI	7.47	1.28	1.34	10.1	7.9	38.8	29.0
NIIGATA	6.36	1.07	1.02	8.4	8.2	31.0	30.4
Kawamoto, SAITAMA	6.50	1.09	1.10	9.8	9.0	26.7	24.3
Izuoshima, TOKYO	7.23	1.22	1.03	15.0	12.3	82.9	80.4
Yokohama, KANAGAWA	7.93	1.26	1.54	6.6	5.2	32.7	21.2
SHIZUOKA	7.25	1.16	1.32	10.3	8.9	103.7	78.6
Kyoto, KYOTO	7.61	1.12	1.18	10.7	9.5	31.9	27.0
Nose, OSAKA	7.61	1.15	1.46	6.6	5.8	33.6	23.0
Akashi, HYOGO	7.59	1.16	1.26	4.1	3.5	21.9	17.4
Wakayama, WAKAYAMA	6.75	0.80	1.02	4.9	6.1	18.2	17.8
Aimi TOTTORI	6.61	0.96	1.02	15.8	16.5	60.9	59.7
Kabe, HIROSHIMA	7.37	1.63	1.27	16.2	9.9	38.1	30.0
Kochi, KOCHI	7.11	1.07	1.32	8.6	8.1	32.5	24.6
Koga, FUKUOKA	7.65	1.26	1.63	7.2	5.8	26.3	16.1
Nagasaki, NAGASAKI	7.65	1.26	1.67	8.4	6.8	33.3	20.0
Feb '66							
Aomori, AOMORI	6.80	1.15	1.48	15.4	13.3	42.6	28.8
Mito, IBARAGI	6.75	1.06	1.19	5.7	5.4	27.3	22.9
Nonoichi, ISHIKAWA	5.75	0.97	1.07	9.4	9.7	38.3	35.8
Fukui FUKUI	7.20	1.03	1.21	8.3	8.1	28.3	23.4
Sange, AICHI	7.20	1.14	1.12	6.5	5.7	18.1	17.2
Tsuyama, OKAYAMA	5.89	1.00	1.05	7.2	7.2	15.4	14.7
Taniyama, KAGOSHIMA	7.75	1.24	1.44	17.2	13.9	34.3	23.8
Mar '66							
Sapporo, HOKKAIDO	7.64	1.09	1.45	5.5	5.1	54.3	37.4
Akita, AKITA	7.80	1.29	1.41	24.6	19.1	33.2	23.5
Shiroishi, MIYAGI	7.91	1.29	1.65	11.8	9.1	50.0	30.3
NIIGATA	7.67	1.12	1.33	6.2	5.9	32.3	24.3
Kawamoto, SAITAMA	7.58	1.13	1.46	10.4	9.2	18.0	12.3
Izuoshima, TOKYO	7.89	1.22	1.44	13.2	10.8	41.9	29.9
Yokohama, KANAGAWA	7.26	1.05	1.36	4.5	4.2	34.4	25.3
SHIZUOKA	6.92	1.08	1.18	5.0	4.6	75.2	63.7
Kyoto, KYOTO	7.41	1.07	1.29	4.6	4.3	21.2	16.4
Nose, OSAKA	7.41	1.05	1.26	6.2	5.9	25.5	20.2
Akashi, HYOGO	7.75	1.21	1.29	4.6	3.8	21.7	16.8
Wakayama, WAKAYAMA	7.61	1.30	1.26	4.4	3.4	17.4	13.3
Aimi, TOTTORI	7.50	1.04	1.30	11.9	11.4	56.2	43.2
Kabe, HIROSHIMA	6.86	1.04	1.19	8.1	7.8	25.8	21.7
Kochi, KOCHI	7.38	1.18	1.30	4.9	4.1	23.6	18.2
Koga, FUKUOKA	7.44	1.11	1.23	10.8	9.8	25.2	20.5
Nagasaki, NAGASAKI	7.36	1.23	1.17	9.2	7.5	32.0	27.4
Taniyama, KAGOSHIMA	7.41	1.23	1.24	12.7	10.3	34.6	27.9

Geographical Data

Strontium-90, Cesium-137 and Cerium-144 in Soil

(Japan Analytical Chemistry Research Institute)

The Japan Analytical Chemistry Research Institute has analyzed, on commission by the Science and Technology Agency, surface soil samples from 35 prefectures, to determine the total deposition of fallout. Sampling locations are indicated in Figure 7.

Sampling procedures and the treatment method of the samples for strontium-90 and cesium-137 analyses are the same as those mentioned in the explanation of page 6~7, Issue No. 4 of this publication.

Results obtained during the period April 1964 to December 1965 are shown in Table 10.

Figure 7. Soil Sampling Location

1 Sapporo	16 Atsumi	31 Sawara
2 Aomori	17 Komatsu	32 Nagasaki
3 Akita	18 Tsuruga	33 Kagoshima
4 Miyagi	19 Mihama	34 Kaseda
5 Murata	20 Miyazu	35 Ei
6 Nakahara	21 Osaka	
7 Mito	22 Maikata	
8 Tokai	23 Wakayama	
9 Murakami	24 Akashi	
10 Tokyo	25 Tottori	
11 Konan	26 Tsuyama	
12 Yokohama	27 Ohta	
13 Shizuoka	28 Kure	
14 Hamakita	29 Hiroshima	
15 Akabane	30 Kochi	

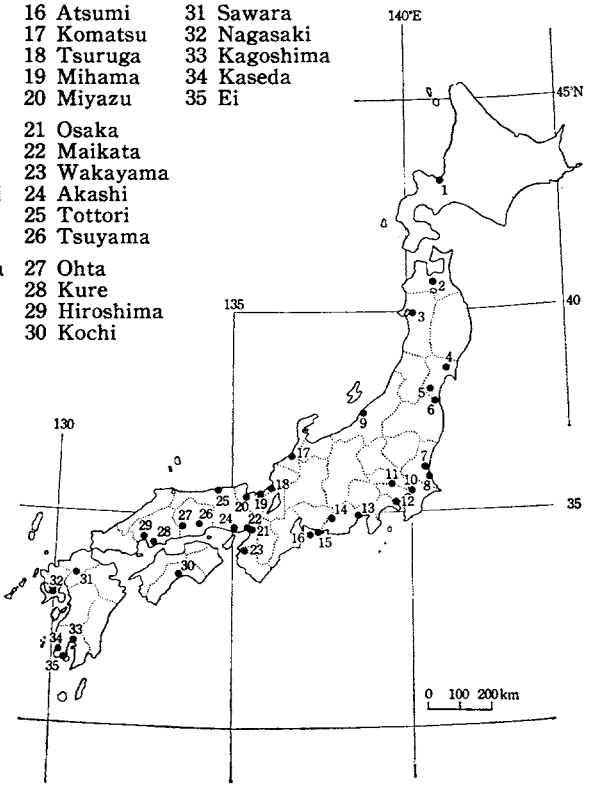


Table 10. ^{90}Sr, ^{137}Cs and ^{144}Ce in Soil —Apr. 1964 to Dec. 1965—

By T. Asari, M. Chiba and M. Kuroda
(Japan Analytical Chemistry Research Institute)

(Continued from Table 6, Issue No. 4, of this Publication)

Location	Type	Dry Soil Collected			^{90}Sr		^{137}Cs		^{144}Ce
		Weight (%)	Ca (%)	K (%)	(mCi/km²)	(mCi/gCa)	(mCi/km²)	(mCi/gK)	(mCi/km²)
Apr 1964									
Ohta, OKAYAMA	Bare	93.89	0.38	0.46	42.5	323	62.8	391	102.5
〃 〃	Green	92.46	0.52	0.25	40.8	113	15.8	178	84.7
May '64									
Murata, MIYAGI	Bare	93.69	0.63	0.20	11.6	104	13.0	367	315.8
Miyagi, MIYAGI	Green	81.54	0.38	0.20	29.7	419	23.6	809	22.3
Jun '64									
Aomori, AOMORI	Bare	96.47	0.23	0.13	57.1	382	56.1	677	428.6
〃 〃	Green	96.21	0.31	0.30	8.5	99	56.2	697	244.7
Jul '64									
Sapporo, HOKKAIDO	Bare	96.64	1.94	0.27	35.8	39	70.0	538	192.3
〃 〃	Green	88.17	0.51	0.11	16.4	156	13.7	632	65.3
Akita, AKITA	Bare	93.27	0.10	0.19	47.2	1445	26.7	452	57.1
〃 〃	Green	94.26	0.25	0.21	49.0	819	63.6	1248	170.6
Mito, IBARAGI	Bare	92.51	0.44	0.24	32.2	184	43.5	455	91.2
〃 〃	Green								
Tokai, IBARAGI	Bare	86.06	0.27	0.15	62.7	582	13.6	232	30.9
〃 〃	Green	93.30	0.41	0.11	20.6	147	30.7	603	33.5
Konan, SAITAMA	Bare	89.16	0.90	0.26	66.6	270	53.0	741	185.2
〃 〃	Green	90.63	0.59	0.18	27.9	187	30.3	614	47.8
Yokohama, KANAGAWA	Bare	92.16	1.03	0.33	26.0	63	35.2	271	261.2
〃 〃	Green	94.29	0.61	0.26	23.3	108	29.8	330	141.6
Shizuoka, SHIZUOKA	Bare	95.01	0.24	0.24	7.7	200	40.6	1195	31.8
〃 〃	Green	89.22	0.53	0.25	15.6	210	7.8	219	74.3
Hamakita, SHIZUOKA	Bare	94.25	0.07	0.23	70.0	374	18.6	341	83.4
〃 〃	Green	94.64	0.18	0.23	99.3	287	18.4	422	57.6
Tsuruga, FUKUI	Bare	97.85	0.30	0.09	34.5	358	60.8	2017	151.6
〃 〃	Green	97.45	0.04	0.11	55.4	4068	83.1	2363	154.1
Akabane, AICHI	Bare	98.04	0.17	0.11	25.0	250	38.7	599	111.9
〃 〃	Green	96.52	0.15	0.17	21.9	302	38.8	505	92.5
Miyazu, KYOTO	Bare	96.24	0.14	0.12	73.5	735	102.6	1192	253.1
〃 〃	Green	97.21	0.06	0.18	5.3	2052	67.8	981	146.6
Maikata, OSAKA	Bare	96.73	0.18	0.15	6.7	142	19.2	547	19.9
Osaka, OSAKA	Green	97.54	0.11	0.21	11.4	564	45.8	1336	79.5
Akashi, HYOGO	Bare	94.48	0.03	0.17	13.6	1297	17.1	301	79.8
〃 〃	Green	96.84	0.28	0.19	14.0	210	23.3	509	65.0
Wakayama, WAKAYAMA	Bare	99.23	0.87	0.23	28.8	12	4.9	768	13.2
〃 〃	Green	98.08	0.40	0.33	32.0	26	4.1	406	13.2
Tottori, TOTTORI	Bare	97.50	0.13	0.19	29.8	429	59.1	602	223.9
〃 〃	Green	93.04	0.25	0.13	28.2	336	45.9	1110	136.1
Tsuyama, OKAYAMA	Bare	92.17	0.13	0.25	46.5	1906	43.7	532	124.5
〃 〃	Green	87.53	0.12	0.21	26.5	459	36.3	711	109.7
Kure, HIROSHIMA	Bare	98.85	0.24	0.05	18.6	199	37.2	1797	139.8
〃 〃	Green	98.18	0.54	0.29	26.6	130	46.2	424	119.1
Kochi, KOCHI	Bare	98.08	0.42	0.28	34.3	142	35.8	223	114.3
〃 〃	Green	95.63	0.71	0.33	78.3	215	73.1	438	255.5
Sawara, FUKUOKA	Bare	97.39	0.83	0.24	60.4	80	33.6	208	86.7
〃 〃	Green	96.46	0.85	0.44	34.3	122	24.0	165	123.9
Nagasaki, NAGASAKI	Bare	95.79	0.11	0.22	20.8	473	27.4	313	153.5
〃 〃	Green	96.89	0.11	0.23	1.9	42	8.2	87	35.1
Kagoshima, KAGOSHIMA	Bare	99.08	1.19	0.07	17.2	32	9.1	278	219.6
〃 〃	Green	98.15	0.61	0.10	20.6	93	48.3	1357	67.6
Ei, KAGOSHIMA	Bare	95.59	0.41	0.23	15.1	69	33.6	275	85.6
〃 〃	Green	96.52	0.61	0.22	36.8	121	91.8	865	139.2

Table 10. ^{90}Sr, ^{137}Cs and ^{144}Ce in Soil —Apr. 1964 to Dec. 1965— *(continued)*

Location	Type	Dry Soil Collected			^{90}Sr		^{137}Cs		^{144}Ce
		Weight (%)	Ca (%)	K (%)	(mCi/ km²)	(mCi/ gCa)	(mCi/ km²)	(mCi/ gK)	(mCi/km²)
Aug '64									
TOKYO	Bare	94.99	0.24	0.15	6.3	100	7.2	189	26.5
Murakami, NIIGATA	Bare	95.61	1.02	0.22	51.9	71	80.6	500	350.5
〃 〃	Green	97.57	0.24	0.33	98.7	531	95.4	372	126.3
Oct '64									
Miyazu, KYOTO	Bare	96.24	0.32	0.14	91.0	291	30.2	2288	501.4
〃 〃	Green	95.59	0.25	0.21	82.3	504	205.6	1509	277.4
Tsuyama, OKAYAMA	Bare	97.71	2.52	0.28	34.5	34	37.6	240	135.8
〃 〃	Green	94.41	0.99	0.23	26.3	76	25.0	275	120.5
Nov '64									
Sapporo, HOKKAIDO	Bare	96.34	0.99	0.12	10.9	32	14.0	342	32.3
〃 〃	Green	93.51	0.97	0.08	18.6	71	39.6	1760	32.3
Aomori, AOMORI	Bare	94.69	0.27	0.25	26.4	232	61.6	584	91.0
〃 〃	Green	96.75	0.31	0.31	26.0	219	90.2	761	162.3
Akita, AKITA	Bare	95.99	0.48	0.21	80.9	169	129.0	584	267.0
〃 〃	Green	86.97	0.08	0.13	60.4	2137	119.0	761	141.1
Murata, MIYAGI	Bare	95.97	0.26	0.08	8.7	148	19.8	115	1900.7
Nakahara, MIYAGI	Green	87.39	0.27	0.10	15.0	210	33.8	1406	56.4
Mito, IBARAGI	Bare	63.69	0.54	0.23	60.3	274	65.1	703	174.6
〃 〃	Green	97.44	0.33	0.31	59.1	520	45.8	441	150.5
Tokai, IBARAGI	Bare	96.86	0.46	0.32	73.3	342	32.1	213	60.7
〃 〃	Green	97.59	0.31	0.20	33.4	222	44.2	451	49.6
Konan, SAITAMA	Bare	92.32	0.62	0.10	22.8	127	62.5	2151	170.6
〃 〃	Green	90.70	1.01	0.09	28.0	106	93.0	4082	54.9
Yokohama, KANAGAWA	Bare	98.05	0.75	0.31	38.0	113	49.2	350	256.8
〃 〃	Green	96.14	0.41	0.25	21.6	160	26.2	320	140.9
Shizuoka, SHIZUOKA	Bare	97.05	0.35	0.23	31.6	273	40.3	235	105.6
〃 〃	Green	98.02	0.63	0.20	32.1	174	32.1	538	99.9
Hamakita, SHIZUOKA	Bare	96.09	0.14	0.33	69.1	146	53.2	465	92.5
〃 〃	Green	95.54	0.25	0.25	26.2	320	32.3	396	84.9
Komatsu, ISHIKAMA	Bare	94.55	0.22	0.35	39.9	1003	22.4	360	60.8
〃 〃	Green	97.79	0.36	0.41	72.1	1121	38.6	525	50.1
Tsuruga, FUKUI	Bare	98.16	0.26	0.08	11.6	217	39.7	2339	150.1
〃 〃	Green	97.85	0.04	0.07	32.5	4388	62.0	3132	9.4
Akabane, AICHI	Bare	95.11	0.12	0.12	17.8	331	44.8	795	49.6
〃 〃	Green	95.20	0.19	0.10	23.1	263	65.7	1436	74.7
Osaka, OSAKA	Bare	94.48	0.14	0.24	81.0	990	177.9	1317	166.9
〃 〃	Green	96.59	0.15	0.29	31.1	773	55.1	692	106.6
Akashi, HYOGO	Bare	97.80	0.53	0.20	19.3	113	60.4	943	88.5
〃 〃	Green	96.70	0.42	0.06	14.9	106	50.4	2423	23.3
Wakayama, WAKAYAMA	Bare	99.50	0.52	0.10	7.41	31.1	4.6	527	45.3
〃 〃	Green								
Tottori, TOTTRI	Bare	95.21	0.18	0.14	13.4	257	19.7	476	3.03
〃 〃	Green	95.97	0.42	0.12	29.0	151	25.4	478	162.8
Hiroshima, HIROSHIMA	Bare	98.89	0.27	0.42	23.1	231	46.9	299	60.6
〃 〃	Green	97.79	0.64	0.29	17.6	114	36.1	527	70.0
Kochi, KOCHI	Bare	99.25	5.66	0.11	3.0		75.4	1306	202.0
〃 〃	Green	98.47	0.81	0.15	47.8	141	117.7	1893	1425
Sawara, FUKUOKA	Bare	98.51	0.05	0.02	23.9	988	82.1		56.4
〃 〃	Green	96.00	0.19	0.19	31.1	954	10.3	2228	80.0
Nagasaki, NAGASAKI	Bare	96.61	0.20	0.22	24.6	291	40.9	437	144.8
〃 〃	Green	94.53	0.28	0.21	23.6	177	36.7	356	74.0
Kagoshima, KAGOSHIMA	Bare	98.96	0.87	0.06	23.1	42	99.8	2871	130.8
〃 〃	Green	78.58	1.58	0.08	7.0	13	44.2	1752	55.1
Dec '64									
TOKYO	Bare	92.87	0.09	0.13	34.7	1362	78.2	2179	242.9
〃	Green	95.86	0.79	0.12	20.9	78	115	2943	184.0
Nagaoka, NIIGATA	Bare	98.16	0.62	0.10	19.8	69	41.1	873	262.6
Murakami, NIIGATA	Green	96.06	0.24	0.14	36.4	541	74.1	1964	57.4

Table 10. ^{90}Sr, ^{137}Cs and ^{144}Ce in Soil —Apr. 1964 to Dec. 1965— *(continued)*

Location	Type	Dry Soil Collected			^{90}Sr		^{137}Cs		^{144}Ce
		Weight (%)	Ca (%)	K (%)	(mCi/km²)	(mCi/gCa)	(mCi/km²)	(mCi/gK)	(mCi/km²)
Jan 1965									
Ohta, OKAYAMA	Bare	96.92	0.25	0.39	27.6	370	43.6	240	135.8
〃 〃	Green	85.64	0.61	0.26	26.9	150	70.6	275	120.5
Ei, KAGOSHIMA	Bare	92.74	1.04	0.03	8.3	17	12.7	827	21.3
〃 〃	Green	94.38	0.58	0.10	46.2	182	104.8	2385	97.1
Feb '65									
TOKYO	Bare	97.04	0.20	0.11	8.6	169	36.7	1257	31.8
Jun '65									
Aomori, AOMORI	Green	88.29	0.39	0.12	56.1	159	137	1230	208
Jul '65									
Sapporo, HOKKAIDO	Green	91.09	0.81	0.11	17.2	53	39.2	888	102
Murata, MIYAGI	〃	98.89	0.55	0.66	13.2	81	13.1	775	64
Fukui, FUKUI	〃	94.16	1.06	0.16	15.5	67	65.12	1890	120
〃 〃	〃	98.98	0.15	0.05	17.2	283	90.3	4430	114
Tsuruga, FUKUI	Green	98.05	0.23	0.08	20.8	331	98.5	4720	165
Atsmi, AICHI	Bare	98.22	0.22	0.13	8.0	61	39.1	520	45
Tsuyama, OKAYAMA	〃	98.22	0.39	0.15	9.0	50	16.4	239	48
Aug '65									
Yokohama, KANAGAWA	Green	97.54	0.14	0.04	7.5	204	22.5	1550	118
Miyazu, KYOTO	〃	96.21	0.10	0.19	36.7	1069	19.5	361	268
Wakayama, WAKAYAMA	〃								
Tottori, TOTTORI	〃	99.42	0.23	0.12	4.2	42	77.9	1470	130
Kure, HIROSHIMA	〃	99.60	0.26	0.26	9.5	104	28.4	309	45
Sawara, FUKUOKA	〃	99.48	0.21	0.16	5.6	106	28.7	720	39
Kaseda, KAGOSHIMA	〃	98.50	1.55	0.07	24.0	56	46.7	2530	70
Nov '65									
Sapporo, HOKKAIDO	Bare	96.73	1.74	0.29	10.2	14	5.6	48	30
Aomori, AOMORI	〃	94.58	0.41	0.12	39.1	91	79.5	648	76
Murata, MIYAGI	〃	99.02	0.43	0.16	10.9	66	22.0	370	32
Fukui, FUKUI	〃	96.38	0.10	0.21	24.8	676	50.5	660	49
Mihama, FUKUI	〃	98.39	0.36	0.40	5.6	45	15.4	110	115
Tsuruga, FUKUI	〃	98.11	0.03	0.14	8.7	1070	25.5	642	50
Akabane, AICHI	〃	97.21	0.17	0.19	15.1	196	35.1	415	51
Wakayama, WAKAYAMA	Green	96.49	0.36	0.12	2.3	17	6.0	138	15
Tottori, TOTTORI	Bare	92.35	0.22	0.14	19.3	218	81.0	1380	90
Tsuyama, OKAYAMA	〃	95.88	0.30	0.11	8.5	70	77.0	166	19
Kochi, KOCHI	〃	96.16	1.00	0.09	18.7	74	8.9	388	52
Dec '65									
Sawara, FUKUOKA	〃	97.37	0.05	0.11	13.8	700	67.4	1390	24
KAGOSHIMA	〃	97.22	0.22	0.12	13.5	142	35.8	653	48
Mito, IBARAGI	〃	96.63	0.49	0.12	34.0	129	45.8	688	112
Yokohama, KANAGAWA	〃	98.21	1.05	0.17	9.8	26	20.0	451	33
Miyazu, KYOTO	〃	95.83	0.05	0.09	22.6	1480	57.3	1920	66
Nagasaki, NAGASAKI	〃	97.72	0.10	0.11	12.3	301	7.2	154	15
Kure, HIROSHIMA	〃	98.81	0.25	0.11	13.5	127	44.0	912	82

Contributors

The results quoted in this Issue were contributed by the following Institutes.

Institute and Address	Item
Meteorological Research Institute Kita-4-Chome, Koenji, Suginami-ku, Tokyo	Fallout
National Institute of Animal Industry 959, Aoba-cho, Chiba-shi	Milk
Japan Analytical Chemistry Research Institute 17, 2-Chome, Kikukawa-cho, Sumida-ku, Tokyo	Fallout, Airborne Dust, Milk, Soil
National Institute of Radiological Sciences 9-1, 4-Chome, Anagawa, Chiba-shi	Airborne Dust