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RADIOACTIVITY SURVEY DATA in Japan

NUMBER 30
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National Institute of Radiological Sciences
Chiba, Japan

Radioactivity Survey Data in Japan

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Contents

National Institute of Radiological Sciences

Meteorological Data

Strontium-90 and Cesium-137 in Rain and Dry Fallout

(Japan Analytical Chemistry Research Institute)

Since May 1963, the Japan Analytical Chemistry Research Institute has measured the level of Strontium-90 and Cesium-137 in Rain and Dry-Fallout samples aquired at various locations throughout Japan.

Sampling and pre-treatment for concentration were performed by 25 prefectural public health laboratories throughout Japan.

Sampling locations are indicated in Figure 1.

The collection tray has an area of 5000 cm^2, and is exposed to rain and dust for about a 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 50W-X8, 50-100 mesh). The column was then sent to the Japan Analytical Chemistry Research Institute for analysis.

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

Results obtained during the period from April 1970 to March 1971 are shown in Table 1.

Table 1. ^{90}Sr and ^{137}Cs in Rain and Dry Fallout
– Apr. 1970 to Mar. 1971 –
by T. Asari, M. Chiba and M. Kuroda
(Japan Analytical Chemistry Research Institute)

(Continued from Table 1, Issue No. 26, of this Publication)

Location	Duration (days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Apl. 1970				
Sapporo HOKKAIDO	30	42.5	0.06	0.11
Aomori AOMORI	30	48	0.06	0.07
Sendai MIYAGI	30	48.8	0.09	0.15
Akita AKITA	30	103.3	0.17	0.26
Fukushima FUKUSHIMA	30	39	0.06	0.08
Mito IBARAKI	30	40.5	0.09	0.13
TOKYO	30	94.8	0.17	0.31
Yokohama KANAGAWA	32	115	0.12	0.18
Niigata NIIGATA	26	44.5	0.06	0.10
Kanazawa ISHIKAWA	30	78.5	0.19	0.18
Fukui FUKUI	31	96.2	0.22	0.31
Shizuoka SHIZUOKA	28	118	0.11	0.31
Nagoya AICHI	30	137.8	0.23	0.34
Kyoto KYOTO	31	196.8	0.17	0.26
Osaka OSAKA	30	183.1	0.16	0.20

Location	Duration (days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Kobe HYOGO	31	176.9	0.14	0.20
Wakayama WAKAYAMA	30	234.5	0.15	0.22
Tottori TOTTORI	30	108.6	0.08	0.12
Okayama OKAYAMA	30	184.5	0.12	0.20
Hiroshima HIROSHIMA	33	97.4	0.17	0.23
Yamaguchi YAMAGUCHI	30	252.9	0.17	0.29
Kochi KOCHI	35	255.9	0.25	0.43
Nagasaki NAGASAKI	30	219	0.32	0.43
Kagoshima KAGOSHIMA	31	354	0.23	0.25
May. 1970				
Sapporo HOKKAIDO	31	38	0.09	0.16
Aomori AOMORI	31	42	0.05	0.13
Sendai MIYAGI	31	183.1	0.20	0.30
Akita AKITA	31	54	0.12	0.18
Fukushima FUKUSHIMA	31	92	0.20	0.22
Mito IBARAKI	31	164.5	0.23	0.41
TOKYO	31	169.5	0.22	0.34
Yokohama KANAGAWA	33	182.5	0.23	0.41
Niigata NIIGATA	31	35	0.06	0.12
Kanazawa ISHIKAWA	31	108.9	0.09	0.15
Fukui FUKUI	31	106.6	0.12	0.22
Shizuoka SHIZUOKA	28	271.5	0.24	0.45
Nagoya AICHI	31	133	0.22	0.35
Kyoto KYOTO	31	166.5	0.19	0.26
Osaka OSAKA	31	93.3	0.14	0.21
Kobe HYOGO	33	118.1	0.19	0.32
Wakayama WAKAYAMA	31	117	0.03	0.01
Tottori TOTTORI	31	98.3	0.11	0.17
Okayama OKAYAMA	31	129.3	0.12	0.19
Hiroshima HIROSHIMA	29	143.1	0.14	0.22
Hagi YAMAGUCHI	31	192.5	0.09	0.15
Yamaguchi YAMAGUCHI	31	246.4	0.13	0.16
Kochi KOCHI	31	461.8	0.40	0.64
Fukuoka FUKUOKA	31	195	0.18	0.32
Nagasaki NAGASAKI	31	284	0.22	0.35
Kagoshima KAGOSHIMA	31	417	0.33	0.52
June 1970				
Sapporo HOKKAIDO	30	95.5	0.12	0.28
Aomori AOMORI	30	104.5	0.07	0.07
Sendai MIYAGI	30	66.4	0.23	0.32
Akita AKITA	30	52	0.19	0.26
Fukushima FUKUSHIMA	30	48.5	0.13	0.25
Mito IBARAKI	30	163	0.22	0.32
TOKYO	30	229.3	0.47	0.91
Yokohama KANAGAWA	30	278	0.42	0.69
Niigata NIIGATA	29	61	0.08	0.21
Kanazawa ISHIKAWA	30	241.9	0.16	0.34
Fukui FUKUI	30	295.9	0.28	0.45
Shizuoka SHIZUOKA	36	484.6	0.21	0.43
Nagoya AICHI	30	357	0.34	0.61
Kyoto KYOTO	30	365.9	0.16	0.36
Osaka OSAKA	29	305.9	0.25	0.41

Location	Duration (days)	Precipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Kobe HYOGO	30	294.2	0.28	0.55
Wakayama WAKAYAMA	30	301.5	0.30	0.42
Tottori TOTTORI	30	225.2	0.18	0.26
Matsue SHIMANE	30	210.9	0.08	0.25
Okayama OKAYAMA	30	325.1	0.21	0.31
Hiroshima HIROSHIMA	31	478	0.26	0.35
Hagi YAMAGUCHI	30	248.5	0.14	0.22
Yamaguchi YAMAGUCHI	30	376.7	0.27	0.47
Kochi KOCHI	30	525.4	0.38	0.75
Fukuoka FUKUOKA	30	374.2	0.20	0.35
Nagasaki NAGASAKI	30	366.5	0.25	0.45
Kagoshima KAGOSHIMA	31	429.5	0.22	0.35
July 1970				
Sapporo HOKKAIDO	31	66	0.07	0.12
Aomori AOMORI	31	64.5	0.13	0.20
Sendai MIYAGI	31	84.7	0.20	0.30
Akita AKITA	31	80.6	0.08	0.17
Fukushima FUKUSHIMA	31	55.5	0.07	0.11
Mito IBARAKI	31	67.5	0.13	0.21
TOKYO	31	133.3	0.24	0.38
Yokohama KANAGAWA	32	245.5	0.14	0.24
Niigata NIIGATA	33	167.5	0.11	0.25
Kanazawa ISHIKAWA	31	127.7	0.12	0.24
Fukui FUKUI	31	85.6	0.12	0.24
Shizuoka SHIZUOKA	36	245.5	0.15	0.17
Nagoya AICHI	33	197	0.14	0.24
Kyoto KYOTO	31	130.4	0.08	0.16
Osaka OSAKA	30	72.1	0.10	0.16
Kobe HYOGO	34	142.8	0.10	0.16
Wakayama WAKAYAMA	31	44.5	0.01	0.004
Tottori TOTTORI	31	115	0.11	0.18
Matsue SHIMANE	31	217.6	0.04	0.12
Okayama OKAYAMA	31	160.8	0.14	0.20
Hiroshima HIROSHIMA	31	250	0.20	0.29
Hagi YAMAGUCHI	31	256.5	0.08	0.12
Yamaguchi YAMAGUCHI	31	171.8	0.15	0.21
Kochi KOCHI	31	345.2	0.29	0.62
Fukuoka FUKUOKA	31	149	0.18	0.32
Nagasaki NAGASAKI	31	193	0.33	0.59
Kagoshima KAGOSHIMA	31	281.5	0.14	0.22
Aug. 1970				
Sapporo HOKKAIDO	31	99	0.06	0.11
Aomori AOMORI	31	162.5	0.12	0.20
Sendai MIYAGI	31	111.4	0.12	0.16
Akita AKITA	31	81.2	0.07	0.11
Fukushima FUKUSHIMA	31	46.5	0.05	0.08
Mito IBARAKI	31	52.5	0.04	0.06
TOKYO	31	20	0.05	0.10
Yokohama KANAGAWA	32	105	0.04	0.07
Niigata NIIGATA	28	50.5	0.03	0.07
Kanazawa ISHIKAWA	31	146.9	0.06	0.10

Location	Duration (days)	Pretipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Fukui FUKUI	31	91.1	0.09	0.14
Shizuoka SHIZUOKA	28	187.6	0.09	0.14
Nagoya AICHI	29	95.5	0.11	0.14
Kyoto KYOTO	31	83.8	0.07	0.10
Osaka OSAKA	31	77.6	0.05	0.07
Kobe HYOGO	30	80.6	0.07	0.12
Wakayama WAKAYAMA	31	123.5	0.05	0.14
Tottori TOTTORI	31	112.6	0.07	0.08
Matsue SHIMANE	31	93.6	0.07	0.10
Okayama OKAYAMA	31	148.6	0.06	0.09
Hiroshima HIROSHIMA	32	49.3	0.13	0.18
Hagi YAMAGUCHI	31	142	0.05	0.07
Yamaguchi YAMAGUCHI	31	256	0.16	0.23
Kochi KOCHI	31	432.4	0.15	0.24
Fukuoka FUKUOKA	31	144.8	0.06	0.09
Nagasaki MAGASAKI	31	232.5	0.10	0.11
Kagoshima KAGOSHIMA	31	489	0.12	0.26
Sept. 1970				
Sapporo HOKKAIDO	30	196.5	0.06	0.07
Aomori AOMORI	30	98	0.03	0.04
Sendai MIYAGI	30	84.5	0.05	0.07
Akita AKITA	30	200.2	0.15	0.21
Fukushima FUKUSHIMA	30	108.5	0.03	0.03
Mito IBARAKI	30	99	0.05	0.07
TOKYO	30	91.9	0.07	0.11
Yokohama KANAGAWA	31	123	0.04	0.06
Niigata NIIGATA	30	188	0.11	0.16
Kanazawa ISHIKAWA	30	393.6	0.21	0.21
Fukui FUKUI	30	178.9	0.07	0.09
Shizuoka SHIZUOKA	30	243.5	0.09	0.08
Nagoya AICHI	30	192.5	0.05	0.06
Kyoto KYOTO	30	223.3	0.05	0.06
Osaka OSAKA	30	166.8	0.03	0.05
Kobe HYOGO	31	162.6	0.03	0.04
Wakayama WAKAYAMA	28	109	0.04	0.11
Tottori TOTTORI	30	23.9	0.06	0.09
Matsue SHIMANE	30	133.4	0.07	0.08
Okayama OKAYAMA	30	99.6	0.02	0.03
Hiroshima HIROSHIMA	30	116.7	0.03	0.02
Hagi YAMAGUCHI	30	132	0.03	0.04
Yamaguchi YAMAGUCHI	30	181	0.03	0.04
Kochi KOCHI	30	148.3	0.04	0.05
Fukuoka FUKUOKA	30	204.8	0.05	0.08
Nagasaki NAGASAKI	30	258.5	0.08	0.09
Kagoshima KAGOSHIMA	30	295.5	0.04	0.08
Oct. 1970				
Sapporo HOKKAIDO	31	79.5	0.04	0.06
Aomori AOMORI	31	75	0.03	0.09
Sendai MIYAGI	31	74.9	0.04	0.08
Akita AKITA	32	159	0.11	0.24
Fukushima FUKUSHIMA	31	48.5	0.05	0.06

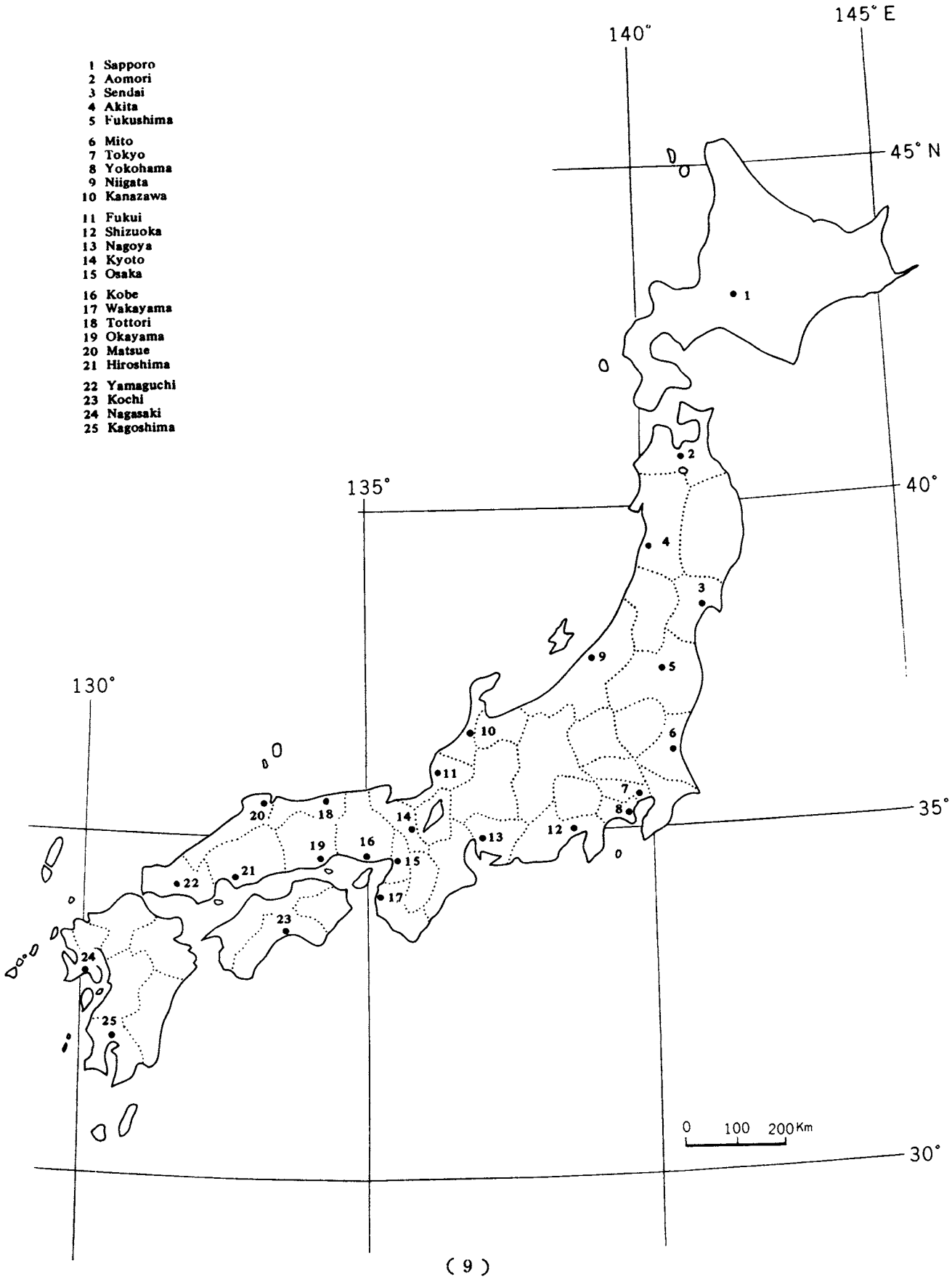
Location	Duration (days)	Pretipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Mito IBARAKI	32	77	0.02	0.05
TOKYO	31	92	0.06	0.10
Yokohama KANAGAWA	32	94.5	0.06	0.09
Niigata NIIGATA	32	161	0.08	0.16
Kanazawa ISHIKAWA	31	281.2	0.06	0.14
Fukui FUKUI	30	108.6	0.06	0.13
Shizuoka SHIZUOKA	28	111.5	0.05	0.20
Nagoya AICHI	32	84	0.03	0.04
Kyoto KYOTO	32	79.9	0.04	0.07
Osaka OSAKA	30	94.2	0.02	0.03
Kobe HYOGO	33	92	0.03	0.04
Wakayama WAKAYAMA	31	62	0.03	0.06
Tottori TOTTORI	32	129	0.05	0.09
Matsue SHIMANE	31	193.2	0.07	0.13
Okayama OKAYAMA	31	108.7	0.02	0.03
Hiroshima HIROSHIMA	31	87.8	0.02	0.04
Hagi YAMAGUCHI	31	127	0.05	0.09
Yamaguchi YAMAGUCHI	31	46.5	0.02	0.04
Kochi KOCHI	32	157.1	0.05	0.09
Fukuoka FUKUOKA	31	161.9	0.03	0.05
Nagasaki NAGASAKI	32	85.5	0.03	0.06
Kagoshima KAGOSHIMA	30	27.3	0.01	0.01
Nov. 1970				
Sapporo HOKKAIDO	30	78.5	0.07	0.09
Aomori AOMORI	30	157	0.06	0.08
Sendai MIYAGI	30	116.3	0.04	0.18
Akita AKITA	30	103.5	0.09	0.18
Fukushima FUKUSHIMA	30	132	0.04	0.05
Mito IBARAKI	29	216.5	0.04	0.06
TOKYO	30	128.6	0.06	0.08
Yokohama KANAGAWA	30	102	0.02	0.04
Niigata NIIGATA	31	268.5	0.01	0.05
Kanazawa ISHIKAWA	26	229.9	0.16	0.21
Fukui FUKUI	30	169.3	0.19	0.24
Shizuoka SHIZUOKA	29	77	0.02	0.04
Nagoya AICHI	29	138.5	0.04	0.05
Kyoto KYOTO	30	118.4	0.03	0.04
Osaka OSAKA	33	96.6	0.02	0.03
Kobe HYOGO	30	68	0.03	0.04
Wakayama WAKAYAMA	30	182.5	0.04	0.05
Tottori TOTTORI	30	123.2	0.19	0.32
Matsue SHIMANE	30	147.4	0.13	0.18
Okayama OKAYAMA	29	75.5	0.02	0.02
Hiroshima HIROSHIMA	30	32.1	0.03	0.04
Hagi YAMAGUCHI	30	69.5	0.05	0.07
Yamaguchi YAMAGUCHI	30	37	0.04	0.07
Kochi KOCHI	29	88.2	0.03	0.03
Fukuoka FUKUOKA	30	68.7	0.02	0.05
Nagasaki NAGASAKI	29	111.5	0.04	0.07
Kagoshima KAGOSHIMA	31	29.5	0.02	0.03

Location	Duration (days)	Pretipitation (mm)	^{90}Sr (mCi/km^2)	^{137}Cs (mCi/km^2)
Dec. 1970				
Sapporo HOKKAIDO	31	80.5	0.01	0.03
Aomori AOMORI	31	179.5	0.04	0.08
Sendai Miya	31	8.1	0.01	0.02
Akita AKITA	31	133.5	0.14	0.22
Fukushima FUKUSHIMA	35	32.3	0.03	0.07
Mito IBARAKI	35	26.5	0.03	0.04
TOKYO	36	64.3	0.03	0.06
Yokohama KANAGAWA	36	25	0.03	0.05
Niigata NIIGATA	34	180	0.01	0.08
Kanazawa ISHIKAWA	23	167.7	0.14	0.36
Fukui FUKUI	29	335.6	0.19	0.33
Shizuoka SHIZUOKA	36	60	0.03	0.06
Nagoya AICHI	35	15	0.03	0.04
Kyoto KYOTO	33	51.1	0.02	0.04
Osaka OSAKA	32	3.3	0.02	0.02
Kobe HYOGO	36	29	0.02	0.04
Wakayama WAKAYAMA	31	33.5	0.02	0.02
Tottori TOTTORI	34	200.6	0.23	0.38
Matsue SHIMANE	31	89	0.12	0.18
Okayama OKAYAMA	35	19	0.01	0.03
Hiroshima HIROSHIMA	26	22	0.01	0.02
Hagi YAMAGUCHI	37	40.5	0.11	0.16
Yamaguchi YAMAGUCHI	35	35	0.06	0.10
Kochi KOCHI	36	95.8	0.06	0.06
Fukuoka FUKUOKA	31	19	0.02	0.08
Nagasaki NAGASAKI	34	64.5	0.04	0.08
Kagoshima KAGOSHIMA	35	34.5	0.04	0.09
Jan. 1971				
Sapporo HOKKAIDO	31	115.5	0.03	0.05
Aomori AOMORI	31	139	0.02	0.05
Sendai MIYAGI	31	38.8	0.01	0.05
Akita AKITA	31	86.5	0.08	0.15
Fukushima FUKUSHIMA	27	46	0.02	0.04
Mito IBARAKI	27	34.5	0.02	0.03
TOKYO	27	19	0.02	0.02
Yokohama KANAGAWA	28	45.5	0.03	0.05
Niigata NIIGATA	28	148	0.02	0.08
Kanazawa ISHIKAWA	35	272	0.13	0.24
Fukui FUKUI	36	466.4	0.22	0.33
Shizuoka SHIZUOKA	28	3.5	0.03	0.07
Nagoya AICHI	28	13	0.02	0.03
Kyoto KYOTO	28	45.7	0.03	0.05
Osaka OSAKA	26	31.3	0.01	0.03
Kobe HYOGO	27	14.5	0.02	0.03
Wakayama WAKAYAMA	31	26	0.02	0.02
Tottori TOTTORI	29	67.8	0.12	0.15
Matsue SHIMANE	31	122.3	0.16	0.27
Hamada	31	117	0.13	0.27
Okayama OKAYAMA	27	23.3	0.01	0.02
Hiroshima HIROSHIMA	35	19.2	0.01	0.03

Location	Duration (days)	Pretipitation (mm)	^{90}Sr p(Ci/km^2)	^{137}Cs (pCi/km^2)
Hagi YAMAGUCHI	29	128.5	0.07	0.09
Yamaguchi YAMAGUCHI	26	88	0.06	0.08
Kochi KOCHI	26	24.8	0.01	0.03
Fukuoka FUKUOKA	31	132.2	0.11	0.17
Nagasaki NAGASAKI	28	78	0.03	0.07
Kagoshima KAGOSHIMA	29	49.2	0.03	0.05
Feb. 1971				
Sapporo HOKKAIDO	29	52.5	0.01	0.03
Aomori AOMORI	28	85	0.02	0.04
Sendai MIYAGI	28	42.7	0.03	0.08
Akita AKITA	28	112.9	0.08	0.15
Fukushima FUKUSHIMA	28	35.5	0.03	0.06
Mito IBRAKI	28	22.5	0.03	0.07
TOKYO	28	33.6	0.04	0.05
Yokohama KANAGAWA	29	97.5	0.03	0.08
Niigata NIIGATA	26	108	0.08	0.18
Kanazawa ISHIKAWA	28	164	0.14	0.23
Fukui FUKUI	28	180.5	0.14	0.25
Shizuoka SHIZUOKA	27	146	0.11	0.21
Nagoya AICHI	29	47.5	0.03	0.06
Kyoto KYOTO	29	56.6	0.02	0.08
Osaka OSAKA	28	34.7	0.02	0.07
Kobe HYOGO	29	33	0.03	0.08
Wakayama WAKAYAMA	28	34	0.02	0.02
Tottori TOTTORI	28	156.3	0.10	0.21
Matsue SHIMANE	28	214.8	0.15	0.26
Okayama OKAYAMA	28	28	0.03	0.04
Hiroshima HIROSHIMA	27	64.5	0.06	0.10
Hagi YAMAGUCHI	24	118	0.08	0.13
Yamaguchi YAMAGUCHI	29	87	0.07	0.15
Kochi KOCHI	29	55.9	0.04	0.10
Fukuoka FUKUOKA	28	69.6	0.04	0.09
Nagasaki NAGASAKI	28	107	0.09	0.15
Kagoshima KAGOSHIMA	26	76.6	0.08	0.14
Mar. 1971				
Sapporo HOKKAIDO	31	48.5	0.04	0.09
Aomori AOMORI	31	103.5	0.02	0.04
Sendai MIYAGI	31	41	0.04	0.09
Akita AKITA	31	126.5	0.13	0.18
Fukushima FUKUSHIMA	31	98.7	0.05	0.08
Mito IBRAKI	31	49	0.07	0.09
TOKYO	31	87.4	0.07	0.09
Yokohama KANAGAWA	31	111	0.09	0.13
Niigata NIIGATA	35	87.5	0.15	0.26
Kanazawa ISHIKAWA	31	125	0.18	0.26
Fukui FUKUI	28	167.4	0.23	0.36
Shizuoka SHIZUOKA	31	186	0.15	0.21
Nagoya AICHI	30	88.5	0.12	0.17
Kyoto KYOTO	29	129.5	0.11	0.20
Osaka OSAKA	30	101.6	0.16	0.23
Kobe HYOGO	33	78.7	0.16	0.25

Location	Duration (days)	Pretipitation (mm)	^{90}Sr (pCi/km^2)	^{137}Cs (pCi/km^2)
Wakayama WAKAYAMA	31	81.5	0.11	0.11
Tottori TOTTORI	31	65.2	0.16	0.31
Matsue SHIMANE	31	76	0.18	0.30
Okayama OKAYAMA	31	60.7	0.09	0.15
Hiroshima HIROSHIMA	31	77.8	0.13	0.18
Hagi YAMAGUCHI	31	128.8	0.18	0.30
Yamaguchi YAMAGUCHI	31	108.5	0.23	0.35
Kochi KOCHI	28	88.6	0.13	0.20
Fukuoka FUKUOKA	31	85.1	0.13	0.21
Nagasaki NAGASAKI	31	112	0.17	0.26
Kagoshima KAGOSHIMA	31	69	0.14	0.21

Figure 1. Rain and Dry Fallout Sampling Location



Dietary Data

Strontium-90 and Cesium-137 in milk

(Japan Analytical Chemistry Research Institute)

Since December 1961, milk samples from various parts of Japan have been collected by 28 prefectural public health laboratories and analyzed for Strontium-90 and Cesium-137 content at the Japan analytical Chemistry Research Institute. Sampling locations are indicated in Figure 2.

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 Analytical Chemistry Research Institute and ashed, then analyzed using the method recommended by Science and Technology Agency.

Results obtained durig the period from April 1970 to March 1971 are shown in Table 2.

Table 2. ^{90}Sr and ^{137}Cs in Milk
– Apr. 1970 to Mar. 1971 –
by T. Asari, M. Chiba and M. Kuroda
(Japan Analytical Chemistry Research Institute)

(Continued from Table 4, Issue No. 26, 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)
Apr. 1970							
Aomori AOMORI	7.30	1.09	1.42	14.9	13.7	23.2	16.3
Nishikanbara NIIGATA	7.00	1.07	1.46	3.0	2.8	9.3	6.4
Shiroishi MIYAGI	10.03	1.35	1.30	2.8	2.1	10.6	8.2
Futaba FUKUSHIMA	6.73	1.04	1.34	9.7	9.3	10.5	7.8
Fukushima FUKUSHIMA	7.50	1.16	1.48	3.9	3.4	17.7	12.0
Mito IBARAKI	7.50	1.10	1.51	2.1	1.9	11.9	7.9
Kanazawa ISHIKAWA	5.50	0.87	1.08	5.0	5.7	10.0	9.3
Tsuyama OKAYAMA	7.40	1.07	1.39	4.9	4.6	12.7	9.1
May 1970							
Sapporo HOKKAIDO	7.33	1.28	1.42	3.3	2.6	18.7	13.2
Asahikawa HOKKAIDO	7.57	1.34	1.53	8.3	6.2	32.3	21.1
Akita AKITA	7.60	1.11	1.59	3.8	3.4	6.4	4.0
Izuoshima TOKYO	6.00	0.91	1.23	6.3	6.9	47.7	38.8
Yokohama KANAGAWA	7.40	1.11	1.46	1.4	1.3	8.2	5.6
Gotenba SHIZUOKA	9.50	1.40	2.23	3.0	2.1	38.7	17.4
Toyota AICHI	6.77	1.19	1.42	2.5	2.1	9.5	6.7
Kyoto KYOTO	6.63	1.01	1.31	2.0	2.0	11.3	8.6
Wakayama WAKAYAMA	5.47	0.77	1.05	1.7	2.2	5.1	4.9
Toyono OSAKA	7.20	1.31	1.49	5.0	3.8	9.8	6.6
Akashi HYOGO	7.13	1.01	1.36	1.6	1.6	5.6	4.1
Kishimoto TOTTORI	7.33	1.29	1.50	6.4	5.0	29.4	19.6
Oda SHIMANE	7.17	1.12	1.37	10.5	9.1	36.6	26.7
Kabe HIROSHIMA	8.57	1.34	1.45	2.9	2.2	11.5	7.9

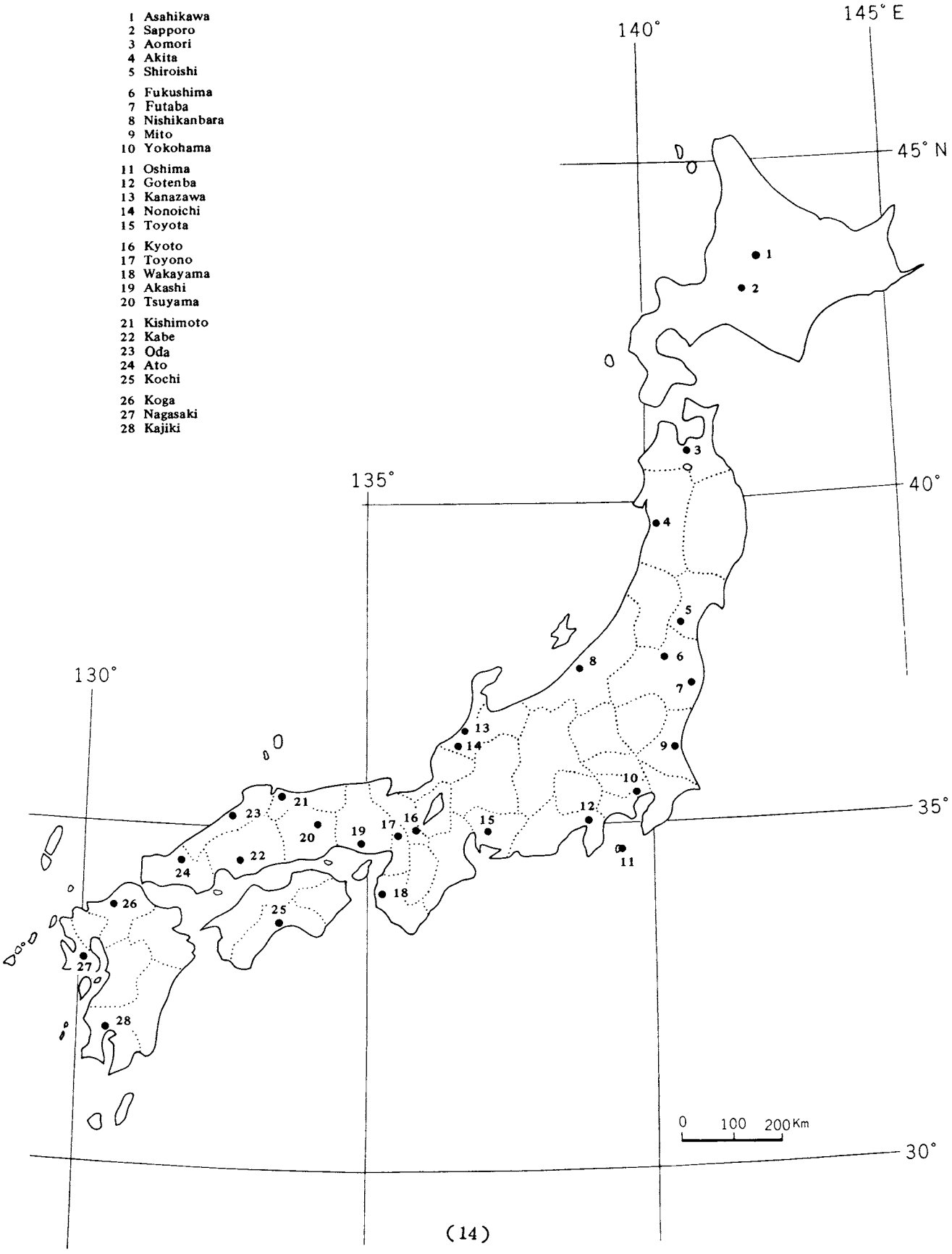
Location	Component			^{90}Sr		^{137}Cs	
	Ash (g/ℓ)	Ca (g/ℓ)	K (g/ℓ)	(pCi/ℓ)	(pCi/gCa)	(pCi/ℓ)	(pCi/gK)
Kochi KOCHI	9.30	1.30	1.56	4.4	3.4	14.1	9.0
Nagasaki NAGASAKI	7.03	1.24	1.53	5.1	2.1	22.7	14.8
June 1970							
Asahikawa HOKKAIDO	7.33	1.16	1.67	2.0	1.7	18.0	10.8
Aomori AOMORI	6.50	1.20	1.35	8.4	7.0	25.4	18.8
Shiroishi MIYAGI	6.50	1.01	1.44	2.3	2.3	15.5	10.8
Futaba FUKUSHIMA	6.83	1.07	1.40	10.1	9.4	38.3	27.4
Fukushima FUKUSHIMA	6.97	1.04	1.53	5.4	5.2	19.2	12.5
Nishikanbara NIIGATA	6.27	0.87	1.46	4.2	4.8	10.7	7.3
Mito IBARAKI	6.53	0.98	1.42	1.5	1.5	6.6	4.2
Gotenba SHIZUOKA	6.93	1.00	1.56	6.7	6.7	41.5	26.6
Kanazawa ISHIKAWA	6.83	0.98	1.51	4.0	4.1	13.7	9.1
Toyono OSAKA	7.50	1.10	1.65	5.0	4.5	9.0	5.8
Tsuyama OKAYAMA	7.33	1.06	1.72	3.2	3.0	17.7	10.3
Ato YAMAGUCHI	6.83	1.20	1.47	5.4	4.5	14.4	9.8
Koga FUKUOKA	7.53	1.06	1.55	3.8	3.6	10.1	6.5
Kajiki KAGOSHIMA	7.73	1.17	1.55	9.5	8.1	29.7	19.2
July 1970							
Sapporo HOKKAIDO	7.23	0.98	1.33	4.3	4.4	22.0	16.5
Akita AKITA	7.67	1.06	1.52	6.4	6.0	21.7	14.3
Toyota AICHI	6.83	0.94	1.50	2.5	2.7	9.5	6.3
Fukui FUKUI	7.23	1.01	1.45	5.2	5.1	12.1	8.3
Kyoto KYOTO	6.73	1.02	1.47	2.9	2.8	10.7	7.3
Akashi HYOGO	7.00	1.06	1.43	2.6	2.5	5.7	4.0
Kishimoto TOTTORI	7.03	1.09	1.52	7.1	6.5	24.0	15.8
Oda SHIMANE	6.43	0.99	1.33	11.5	11.6	79.9	60.1
Kabe HIROSHIMA	7.60	1.02	1.51	1.9	1.9	8.3	5.5
Ato YAMAGUCHI	7.47	1.02	1.66	7.1	7.0	15.2	9.2
Kochi KOCHI	8.67	1.16	1.51	4.8	4.1	12.0	7.9
Koga FUKUOKA	7.27	1.05	1.57	3.3	3.1	10.5	6.7
Nagasaki NAGASAKI	7.00	1.15	1.44	5.3	4.6	21.9	15.2
Kajiki KAGOSHIMA	6.77	1.00	1.45	5.4	5.4	17.4	12.0
Aug. 1970							
Asahikawa HOKKAIDO	7.37	1.90	1.57	10.9	9.1	28.6	18.2
Aomori AOMORI	6.60	0.94	1.51	13.5	14.4	30.9	20.5
Shiroishi MIYAGI	6.57	1.00	1.51	3.8	3.8	12.6	8.3
Fukushima FUKUSHIMA	7.63	1.17	1.68	7.9	6.8	23.3	13.9
Futaba FUKUSHIMA	6.73	0.90	1.72	7.7	8.6	21.4	12.4
Nishikanbara NIIGATA	8.23	0.98	2.01	4.2	4.3	7.2	3.6
Yokohama KANAGAWA	7.20	1.13	1.42	1.7	1.5	6.7	4.7
Gotenba SHIZUOKA	7.83	1.14	1.73	7.2	6.4	63.9	36.9
Nonoichi ISHIKAWA	5.93	0.92	1.29	3.6	3.9	12.1	9.4
Tsuyama OKAYAMA	7.10	1.01	1.71	5.0	5.0	12.9	7.5
Ato YAMAGUCHI	7.27	1.11	1.61	7.3	6.6	6.6	4.1
Sept. 1970							
Sapporo HOKKAIDO	7.33	1.12	1.49	6.1	5.4	15.2	10.2
Akita AKITA	7.33	1.13	1.43	6.1	5.4	13.3	9.3
Izuoshima TOKYO	6.64	1.03	1.34	4.9	4.8	43.2	32.2
Toyota AICHI	6.77	0.91	1.35	2.1	2.3	4.9	3.6
Fukui FUKUI	6.90	1.08	1.33	4.0	3.7	8.6	6.5

Location	Component			^{90}Sr		^{137}Cs	
	Ash (g/ℓ)	Ca (g/ℓ)	K (g/ℓ)	(pCi/ℓ)	(pCi/gCa)	(pCi/ℓ)	(pCi/gK)
Kyoto KYOTO	6.47	1.01	1.42	2.1	2.1	6.0	4.2
Wakayama WAKAYAMA	6.28	0.93	1.17	2.3	2.5	4.3	3.7
Wakayama WAKAYAMA	5.92	0.75	1.03	1.5	2.0	2.2	2.1
Toyono OSAKA	7.47	1.12	1.64	4.9	4.4	8.4	5.1
Akashi HYOGO	6.90	1.09	1.40	1.4	1.3	5.9	4.2
Kishimoto TOTTORI	7.10	1.06	1.51	6.7	6.3	22.8	15.1
Oda SHIMANE	8.27	1.49	1.47	24.2	16.2	82.6	56.2
Kabe HIROSHIMA	7.03	1.06	1.35	3.4	3.2	7.2	5.3
Kochi KOCHI	7.07	0.99	1.66	2.8	2.8	5.8	3.5
Koga FUKUOKA	7.37	1.04	1.44	2.7	2.6	8.0	5.6
Nagasaki NAGASAKI	5.83	0.88	1.17	4.5	5.1	15.4	13.2
Oct. 1970							
Asahikawa SAPPORO	7.50	1.12	1.55	12.0	10.7	22.9	14.8
Aomori AOMORI	6.67	0.97	1.46	22.9	23.6	27.8	19.0
Shiroishi MIYAGI	7.13	1.09	1.53	3.4	3.1	13.3	8.7
Nishikanbara NIIGATA	7.27	1.01	1.57	1.8	1.8	7.1	4.5
Futaba FUKUSHIMA	7.17	0.97	1.47	9.9	10.2	17.1	11.6
Fukushima FUKUSHIMA	8.10	1.16	1.58	7.2	6.2	26.1	16.5
Mito IBARAKI	7.37	1.04	1.47	2.2	2.1	10.1	6.9
Yokohama KANAGAWA	7.83	1.14	1.78	1.8	1.6	6.1	3.4
Nonoichi ISHIKAWA	7.17	1.03	1.43	4.5	4.4	12.0	8.4
Tsuyama OKAYAMA	7.07	1.08	1.44	4.0	3.7	6.2	4.3
Kajiki KAGOSHIMA	7.63	1.14	1.50	5.9	5.2	14.1	9.4
Nov. 1970							
Sapporo HOKKAIDO	7.33	1.08	1.53	4.2	3.9	17.1	11.2
Akita AKITA	7.80	1.20	1.27	5.9	4.9	9.5	7.5
Izuoshima TOKYO	7.72	1.14	1.67	6.4	5.6	49.5	29.6
Toyono OSAKA	7.80	1.17	1.56	3.0	2.6	9.0	5.8
Toyota AICHI	6.97	1.11	1.39	1.9	1.7	6.9	5.0
Kabe HIROSHIMA	6.53	0.93	1.37	4.2	4.5	5.6	4.1
Ato YAMAGUCHI	7.33	0.96	1.46	6.6	6.9	9.8	6.7
Kishimoto TOTTORI	7.37	1.10	1.55	6.6	6.0	22.4	14.5
Kochi KOCHI	7.47	1.15	1.44	5.4	4.7	9.1	6.3
Koga FUKUOKA	7.10	1.00	1.20	3.0	3.0	7.1	5.9
Nagasaki NAGASAKI	6.93	1.05	1.38	2.7	2.6	9.0	6.5
Kajiki KAGOSHIMA	7.70	1.22	1.46	8.7	7.1	13.7	9.4
Dec. 1970							
Asahikawa HOKKAIDO	7.53	1.19	1.62	13.7	11.5	18.9	11.7
Aomori AOMORI	6.57	0.97	1.39	9.7	10.0	26.7	19.2
Shiroishi MIYAGI	7.27	1.14	1.42	3.4	3.0	12.6	8.9
Futaba FUKUSHIMA	6.00	0.77	1.23	6.2	8.1	10.2	8.3
Fukushima FUKUSHIMA	7.57	1.09	1.38	10.1	9.3	11.8	8.5
Nishikanbara NIIGATA	8.05	1.34	1.68	7.5	5.6	9.0	5.4
Mito IBARAKI	7.47	1.16	1.52	2.5	2.2	11.6	7.6
Yokohama KANAGAWA	6.54	0.92	1.37	1.9	2.1	4.8	3.5
Gotenba SHIZUOKA	7.50	1.18	1.54	4.7	4.0	38.9	25.3
Fukui FUKUI	7.20	1.07	1.26	3.3	3.1	9.8	7.8
Nonoichi ISHIKAWA	6.07	0.83	1.30	3.2	3.9	9.6	7.4
Wakayama WAKAYAMA	5.72	0.82	1.08	1.4	1.7	3.0	2.8
Akashi HYOGO	7.73	1.11	1.47	1.7	1.5	6.7	4.6

Location	Component			^{90}Sr		^{137}Cs	
	Ash (g/ℓ)	Ca (g/ℓ)	K (g/ℓ)	(pCi/ℓ)	(pCi/gCa)	(pCi/ℓ)	(pCi/gK)
Tsuyama OKAYAMA	7.43	1.12	1.48	3.8	3.4	16.2	10.9
Jan. 1971							
Sapporo HOKKAIDO	7.13	1.05	1.58	4.8	4.6	14.0	8.9
Akita AKITA	7.13	1.05	1.50	6.4	6.1	13.5	9.0
Izuoshima TOKYO	6.80	1.07	1.39	6.9	6.4	20.9	15.0
Yokohama KANAGAWA	7.44	1.06	1.56	1.3	1.2	6.2	4.0
Toyota AICHI	7.03	0.96	1.63	1.1	1.7	7.7	4.7
Kyoto KYOTO	6.60	1.03	1.30	2.9	2.8	6.8	5.2
Wakayama WAKAYAMA	5.53	0.74	0.99	1.4	1.9	3.9	3.9
Toyono OSAKA	7.60	1.15	1.52	2.7	2.3	8.4	5.5
Akashi HYOGO	7.93	1.11	1.51	3.0	2.7	15.5	10.3
Kishimoto TOTTORI	7.40	1.10	1.55	5.4	4.9	12.5	8.1
Oda SHIMANE	7.10	1.10	1.38	10.2	9.3	31.8	23.0
Kabe HIROSHIMA	6.77	1.01	1.11	3.9	3.9	4.0	3.6
Ato YAMAGUCHI	7.50	1.15	1.64	1.9	1.7	11.2	6.8
Kochi KOCHI	7.43	1.04	1.56	3.5	3.4	8.7	5.6
Koga FUKUOKA	7.67	1.15	1.49	3.7	3.2	10.4	7.0
Feb. 1971							
Asahikawa HOKKAIDO	7.33	1.09	1.62	11.3	10.4	13.0	8.0
Aomori AOMORI	7.13	1.05	1.42	8.5	8.1	5.2	3.7
Shiroishi MIYAGI	7.20	1.13	1.58	2.8	2.5	12.9	8.2
Futaba FUKUSHIMA	7.70	1.14	1.71	11.5	10.1	6.2	3.6
Fukushima FUKUSHIMA	8.37	1.11	1.72	9.6	8.6	12.2	71.0
Nishikanbara NIIGATA	7.60	1.27	1.45	7.3	5.7	11.3	7.8
Mito IBARAKI	7.47	1.04	1.47	2.4	2.3	9.0	6.1
Gotenba SHIZUOKA	7.40	1.22	1.65	8.8	7.2	27.4	16.6
Fukui FUKUI	7.33	1.06	1.33	2.5	2.4	3.9	2.9
Tsuyama OKAYAMA	7.47	1.15	1.53	3.0	2.6	16.0	10.5
Mar. 1971							
Sapporo HOKKAIDO	7.43	1.12	1.48	5.6	5.0	6.5	4.4
Akita AKITA	7.60	1.06	1.71	3.4	3.2	9.9	5.8
Izuoshima TOKYO	6.72	1.02	1.36	6.2	6.1	32.6	23.9
Yokohama KANAGAWA	7.34	1.06	1.64	2.3	2.2	9.6	5.9
Nonoichi ISHIKAWA	6.27	0.97	1.33	3.4	3.6	9.8	7.4
Toyota AICHI	6.40	1.02	1.52	2.1	2.1	11.2	7.4
Fukui FUKUI	6.83	0.98	1.34	4.4	4.5	9.9	7.4
Kyoto KYOTO	6.97	1.07	1.41	4.0	3.7	10.5	7.4
Wakayama WAKAYAMA	5.22	0.71	1.03	0.7	1.0	2.5	2.4
Toyono OSAKA	7.73	1.18	1.56	2.9	2.5	6.7	4.3
Kishimoto TOTTORI	7.30	1.11	1.59	6.2	5.6	34.2	21.5
Oda SHIMANE	7.20	1.11	1.42	3.2	2.9	24.0	16.9
Oda SHIMANE	6.50	0.92	1.28	12.2	13.3	58.8	45.9
Kabe HIROSHIMA	6.70	1.19	1.31	2.5	2.1	10.0	7.6
Ato YAMAGUCHI	7.83	1.13	1.85	2.7	2.4	10.9	5.9
Koga FUKUOKA	7.47	1.11	1.51	3.5	3.2	10.3	6.8
Kochi KOCHI	7.30	1.00	1.54	1.6	1.6	7.3	4.7
Nagasaki NAGASAKI	8.30	1.20	1.45	3.7	3.1	6.4	4.4
Kajiki KAGOSHIMA	7.43	1.17	1.50	4.6	3.9	17.1	11.4

Figure 2. Milk Sampling Location

1 Asahikawa
2 Sapporo
3 Aomori
4 Akita
5 Shiroishi
6 Fukushima
7 Futaba
8 Nishikanbara
9 Mito
10 Yokohama
11 Oshima
12 Gotenba
13 Kanazawa
14 Nonoichi
15 Toyota
16 Kyoto
17 Toyono
18 Wakayama
19 Akashi
20 Tsuyama
21 Kishimoto
22 Kabe
23 Oda
24 Ato
25 Kochi
26 Koga
27 Nagasaki
28 Kajiki



Strontium-90 and Cesium-137 in Total Diet

(Japan Analytical Chemical Research Institute)

Since June 1963, the Japan Analytical Chemistry Research Institute has conducted analyses of total diet samples from the 36 prefectures shown in Figure 3.

One city and one village in each prefecture were chosen as representative of urban and rural districts of these prefectures, respectively. Five families from each family presented a normal portion of the regular diet consumed in one day by an adult or a child.

Diets at special occasions were avoided.

Compositie samples from the 5 families were ashed together and analyzed using the method recommended by the Science and Technology Agency.

Results obtained during the period from May 1970 to March 1971 are shown in Table 3.

Table 3. ^{90}Sr and ^{137}Cs in Total Diet
– May 1970 to Mar. 1971 –
by T. Asari, M. Chiba and M. Kuroda
(Japan Analytical Chemistry Research Institute)

(Continued from Table 5, Issue No. 26, of this Publication)

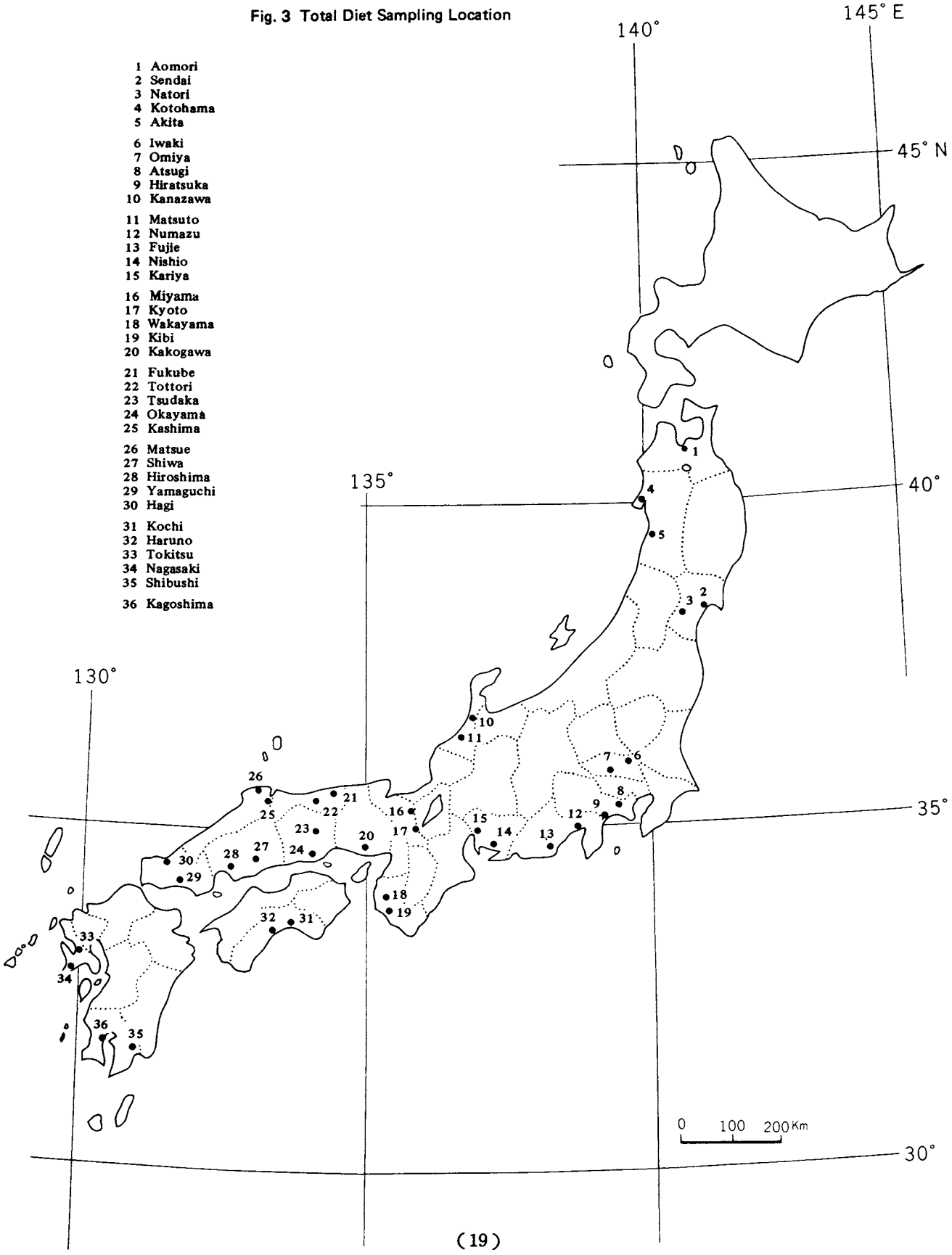
Location	Daily Intaka					^{90}Sr	^{137}Cs
	Ash (g)	Ca (mg)	K (mg)	^{90}Sr (pCi)	^{137}Cs (pCi)	(pCi/gCa)	(pCi/gK)
			URABAN ADULT DIET				
May 1970							
Kanazawa ISHIKAWA	16.8	302	1191	5.3	5.6	17.5	4.7
Kyoto KYOTO	19.5	482	1849	12.3	9.6	25.5	5.2
Okayama OKAYAMA	16.3	390	1214	3.6	9.4	9.2	7.7
Tottori TOTTORI	19.9	951	1889	10.3	15.5	10.8	8.2
Hiroshima HIROSHIMA	12.5	384	1363	1.6	7.1	4.2	5.2
Kochi KOCHI	17.8	518	1618	9.9	7.7	19.1	4.8
Nagasaki NAGASAKI	15.2	389	1239	5.8	8.2	14.9	6.6
June 1970							
Aomori AOMORI	16.3	1099	1790	11.1	8.5	10.1	4.7
Sendai MIYAGI	19.3	699	1805	6.5	10.0	9.3	5.5
Akita AKITA	19.0	559	1794	11.6	14.7	20.8	8.2
Hiratsuka KANAGAWA	17.8	317	1431	3.7	6.9	11.7	4.8
Omiya SAITAMA	21.8	750	2132	6.9	13.4	9.2	6.3
Numazu SHIZUOKA	9.6	263	966	5.7	5.5	21.7	5.7
Kariya AICHI	19.0	488	1940	8.0	10.0	16.4	5.2
Wakayama WAKAYAMA	11.2	672	707	4.1	4.9	6.1	6.9
Kakogawa HYOGO	17.7	635	1205	4.1	3.1	6.5	2.6
Yamaguchi YAMAGUCHI	13.0	298	1335	5.1	6.9	17.1	5.2
Kagoshima KAGOSHIMA	16.2	528	1821	4.6	6.4	8.7	3.5
July 1970							
Matsue SHIMANE	23.7	1882	2979	13.4	15.3	7.1	5.1
Nov. 1970							
Aomori AOMORI	20.9	773	1931	14.0	12.2	18.1	6.3
Sendai MIYAGI	23.3	857	1974	6.1	13.3	7.1	6.7

Location	Daily Intake					^{90}Sr	^{137}Cs
	Ash (g)	Ca (mg)	K (mg)	^{90}Sr (pCi)	^{137}Cs (pCi)	(pCi/gCa)	(pCi/gK)
			URABAN ADULT DIET				
Akita AKITA	22.7	645	2032	22.4	11.6	34.7	5.7
Hiratsuka KANAGAWA	20.8	539	2151	4.5	7.9	8.3	3.7
Omiya SAITAMA	21.3	882	2458	10.2	13.4	11.6	5.5
Numazu SHIZUOKA	10.7	375	1027	15.3	8.6	40.8	8.4
Kanazawa ISHIKAWA	18.1	420	1544	9.8	9.0	23.3	5.8
Kariya AICHI	51.1	486	1779	3.6	10.5	7.4	5.9
Kyoto KYOTO	18.8	602	1966	7.0	6.8	11.6	3.5
Kakogawa HYOGO	20.5	422	1396	3.9	5.4	9.2	3.9
Okayama OKAYAMA	18.0	490	1705	5.1	6.6	10.4	3.9
Tottori TOTTORI	22.8	876	2141	10.0	16.9	11.4	7.9
Hiroshima HIROSHIMA	13.1	367	1402	6.4	4.1	17.4	2.9
Yamaguchi YAMAGUCHI	10.5	273	1159	5.7	4.8	20.9	4.1
Kochi KOCHI	14.0	479	1561	9.7	6.5	20.3	4.2
Nagasaki NAGASAKI	12.9	470	1496	5.2	7.3	11.1	4.9
Dec. 1970							
Wakayama WAKAYAMA	17.7	772	1639	6.9	8.3	8.9	5.1
Kagoshima KAGOSHIMA	18.0	403	1755	11.0	10.5	27.3	6.0
Mar. 1971							
Matsue SHIMANE	17.8	696	2017	12.1	24.9	17.4	12.3
May 1970			RURAL ADULT DIET				
Matsuto ISHIKAWA	12.0	319	1012	7.5	6.7	23.5	6.6
Miyama KYOTO	25.7	619	2118	37.3	14.1	60.3	6.7
Tsudaka OKAYAMA	17.3	566	1381	5.1	7.2	9.0	5.2
Fukube TOTTORI	18.0	551	1449	7.5	8.0	13.6	5.5
Shiwa HIROSHIMA	18.1	1263	2395	7.7	10.0	6.9	4.2
Haruno KOCHI	17.6	669	1496	6.5	8.1	9.7	5.4
Tokitsu NAGASAKI	17.2	552	1600	3.2	7.1	5.8	4.4
June 1970							
Aomori AOMORI	10.2	592	1090	4.9	15.0	8.3	13.8
Natori MIYAGI	23.4	882	1947	7.2	13.9	8.2	7.1
Kotohama AKITA	20.4	687	1801	18.7	13.7	27.2	7.6
Atsugi KANAGAWA	20.1	408	1859	4.9	10.2	12.0	5.5
Iwaki SAITAMA	29.8	590	2312	6.3	16.5	10.7	7.1
Fujieda SHIZUOKA	12.2	365	1179	7.2	8.1	19.7	6.9
Nishio AICHI	18.1	534	2100	3.9	13.5	7.3	6.4
Kibi WAKAYAMA	14.8	540	1072	4.6	6.4	8.5	6.0
Kakogawa HYOGO	16.4	577	1333	3.1	7.5	5.4	5.6
Hagi YAMAGUCHI	22.9	692	1740	5.4	7.4	7.8	4.3
Shibushi KAGOSHIMA	14.7	609	1743	5.4	10.4	8.9	6.0
Nov. 1970							
Aomori AOMORI	9.4	323	970	2.0	6.6	6.2	6.8
Natori MIYAGI	29.1	4097	1912	4.1	10.5	1.0	5.5
Wakami AKITA	25.0	615	2268	9.3	16.7	15.1	7.4
Atsugi KANAGAWA	23.9	514	2400	2.4	11.7	4.7	4.9
Iwaki SAITAMA	22.4	614	2603	8.6	12.9	14.0	5.0
Fujie SHIZUOKA	11.8	310	1081	7.2	6.0	23.2	5.6

Location	Daily Intake					^{90}Sr	^{137}Cs
	Ash (g)	Ca (mg)	K (mg)	^{90}Sr (pCi)	^{137}Cs (pCi)	(pCi/gCa)	(pCi/gK)
Matsuto ISHIKAWA	24.2	649	1839	11.4	9.8	17.6	5.3
Nishio AICHI	17.5	641	2240	5.8	9.2	9.0	4.1
Miyama KYOTO	23.2	458	2438	25.8	15.6	56.3	6.4
Kakogawa HYOGO	15.3	468	1478	4.4	7.4	9.4	5.0
Tsudaka OKAYAMA	15.3	566	1311	3.0	5.7	5.3	4.2
Fukube TOTTORI	16.9	537	1489	9.6	7.2	17.9	4.8
Shiwa HIROSHIMA	20.2	699	2444	12.0	6.6	17.2	2.7
Hagi YAMAGUCHI	17.0	937	1520	5.6	5.7	6.0	3.8
Haruno KOCHI	20.3	674	1995	7.4	7.2	11.0	3.6
Tokitsu NAGASAKI	16.2	583	1403	6.0	9.9	10.3	7.1
Dec. 1970							
Yuwasamachida WAKAYAMA	18.9	556	1839	5.6	8.1	10.1	4.4
Kashima SHIMANE	11.0	922	673	2.1	3.2	2.3	4.8
Shibushi KAGOSHIMA	18.7	789	2053	7.3	16.4	9.3	8.0
May 1971							
Kashima SHIMANE	15.9	716	1404	27.2	12.4	38.0	8.8
		RURAL INFANT DIET					
May 1970							
Matsuto ISHIKAWA	7.5	194	603	4.2	4.5	21.6	7.5
Miyama KYOTO	18.3	430	1700	23.5	10.3	54.7	6.1
Tsudaka OKAYAMA	13.3	693	1358	4.3	9.1	6.2	6.7
Fukube TOTTORI	10.1	236	889	4.4	5.4	18.6	6.1
Shiwa HIROSHIMA	13.8	476	1780	4.5	6.0	9.5	3.4
Haruno KOCHI	10.0	525	1213	5.0	13.5	9.5	11.1
Tokitsu NAGASAKI	9.5	550	1208	2.2	10.1	4.0	8.4
June 1970							
Aomori AOMORI	9.3	541	941	4.2	14.6	7.8	15.5
Natori MIYAGI	15.2	561	1415	5.2	10.0	9.3	7.1
Kotohama AKITA	13.3	249	930	8.2	6.1	32.9	6.6
Atsugi KANAGAWA	8.6	432	1042	1.6	6.8	3.7	6.5
Fujie SHIZUOKA	8.2	271	724	3.6	4.3	13.3	5.9
Nishio AICHI	10.5	539	1461	3.2	10.0	5.9	6.8
Kibi WAKAYAMA	5.9	176	519	2.1	2.6	11.9	5.0
Kakogawa HYOGO	10.6	371	940	2.3	5.1	6.2	5.4
Hagi YAMAGUCHI	14.5	499	1350	6.7	12.9	13.4	9.6
Shibushi KAGOSHIMA	9.5	447	1060	2.8	17.4	6.3	16.4
Nov. 1970							
Aomori AOMORI	9.3	307	996	3.6	6.9	11.7	6.9
Natori MIYAGI	20.6	2468	1625	3.4	8.8	1.4	5.4
Wakami AKITA	11.6	406	1116	7.1	5.8	17.5	5.2
Atsugi KANAGAWA	12.3	534	1454	2.4	5.0	4.5	3.4
Fujie SHIZUOKA	8.6	353	1017	6.3	6.5	17.8	6.4
Matsuto ISHIKAWA	13.1	299	1301	3.3	5.4	11.0	4.2
Nishio AICHI	13.3	591	1822	5.0	4.3	8.5	2.4
Miyama KYOTO	20.6	523	2173	17.9	18.9	34.2	8.7
Kakogawa HYOGO	14.5	473	1266	4.0	7.0	8.5	5.5
Tsudaka OKAYAMA	6.9	380	878	2.6	11.1	6.8	12.6
Fukube TOTTORI	7.9	349	1007	6.2	7.1	17.8	7.1
Shiwa HIROSHIMA	13.3	466	1829	5.0	4.0	10.7	2.2

Location	Daily Intake					^{90}Sr	^{137}Cs
	Ash (g)	Ca (mg)	K (mg)	^{90}Sr (pCi)	^{137}Cs (pCi)	(pCi/gCa)	(pCi/gK)
Hagi YAMAGUCHI	17.8	972	1858	3.4	9.7	3.5	5.2
Haruno KOCHI	8.6	301	940	3.9	3.9	13.0	4.1
Tokitsu NAGASAKI	9.8	374	967	4.4	8.0	11.8	8.3
Dec. 1970							
Yuwasamachida WAKAYAMA	10.1	275	661	1.1	2.5	4.0	3.8
Kashima SHIMANE	8.8	204	491	2.3	1.5	11.3	3.1
Shibushi KAGOSHIMA	12.0	545	1406	5.3	13.5	9.7	9.6
Mar. 1971							
Kashima SHIMANE	9.4	405	829	9.5	6.4	23.5	7.7

Fig. 3 Total Diet Sampling Location



Human Data

Strontium-90 in Human Bone

(National Institute of Radiological Sciences)

Since 1959, human bone samples collected from various parts of Japan have been analyzed at National Institute of Radiological Sciences.

Radiochemical separation using fuming nitric acid[1] and radioactivity measurement by a low background beta-counter (Tracerlab OMNI/GUARD) was carried out for fetus, infant, adolescent and adult bones. Natural strontium content was also determined atomic absorption spectrophotometrically.[2]

The results are shown in Table 4, 5, 6 and Figure 1. The levels of Strontium-90 concentration for the four age groups were similar to those in 1969.

References:

(1) Joint WHO/FAO Expert Committee, World Health Organization Technical Report Series, No. 173. (1959).

(2) G. Tanaka *et al.*, Nippon Kagaku Zasshi, Vol. 89, No. 2 (1968).

Table 4. ^{90}Sr. in human bone in 1970 (1)
by G. Tanaka and H. Kawamura
(National Institute of Radiological Sciences)

(Continued from Table 6, Issue No. 26 of this publication)

Location	Age (months)	Sex	Month of death	Number*	Name of bone	^{90}Sr (pCi/g Ca)
Tokyo	Fetus (4)	**	1970 July	2	Whole skeleton	0.74 ± 0.01
,,	,, (5)	**	,, July	6	Whole skeleton	0.87 ± 0.01
,,	,, (5)	**	,, Sept.	6	Whole skeleton	0.87 ± 0.01
,,	,, (6)	**	,, July	5	Whole skeleton	0.81 ± 0.01
,,	,, (6)	**	,, Sept.	6	Whole skeleton	0.55 ± 0.01
,,	,, (7)	**	,, July	5	Whole skeleton	0.84 ± 0.01
,,	,, (8)	**	,, July	2	Whole skeleton	0.71 ± 0.01
,,	,, (8)	**	,, Sept.	3	Whole skeleton	0.82 ± 0.01
,,	,, (9)	**	,, July	2	Whole skeleton	0.72 ± 0.01
,,	,, (9)	**	,, Sept.	2	Whole skeleton	0.72 ± 0.01
,,	,, (10)	Male	,, July	1	Whole skeleton	0.95 ± 0.01
,,	,, (10)	Female	,, July	1	Whole skeleton	0.69 ± 0.01
,,	,, (10)	Male	,, Sept.	1	Whole skeleton	0.37 ± 0.01
,,	,, (10)	Female	,, Sept.	1	Whole skeleton	0.39 ± 0.003
,,	,, (10)	Male	,, Sept.	1	Whole skeleton	0.51 ± 0.01
,,	,, (10)	Female	,, Sept.	1	Whole skeleton	0.92 ± 0.01
,,	,, (10)	Male	,, Sept.	1	Whole skeleton	0.77 ± 0.01
,,	,, (10)	Female	,, Sept.	1	Whole skeleton	0.85 ± 0.01
,,	,, (10)	Female	,, Sept.	1	Whole skeleton	0.87 ± 0.01
,,	,, (10)	***	,, July	1	Whole skeleton	0.58 ± 0.01
,,	,, (10)	***	,, July	1	Whole skeleton	0.80 ± 0.01
,,	,, (10)	***	,, Sept.	1	Whole skeleton	0.72 ± 0.01
,,	,, (10)	Male	,, July	1	Whole skeleton	0.68 ± 0.01

*) Number of the samples pooled. **) Unidentified or pooled.

***) Unidentified.

Table 5. ^{90}Sr in Human Bone in 1971 (2)
by G. Tanaka and H. Kawamura
(National Institute of Radiological Sciences.)

Location	Age (Years)	Sex	Month of death	Number*	Name of bone	^{90}Sr pCi/g Ca
Tokyo	2	Female	1970 Aug.	1	Skull, coxa	2.47 ± 0.05
"	4	Male	" May	1	Rib	2.99 ± 0.07
"	4	Male	" May	1	Vertebra	1.32 ± 0.03
"	4	Female	" May	1	Rib, vertebral	1.75 ± 0.04
"	5	Male	" May	1	Long bone	1.21 ± 0.03
"	5	Male	" May	1	Vertebra	1.72 ± 0.03
"	9	Male	" June	1	Vertebra	1.28 ± 0.03
"	9	Male	" June	1	Whole skeleton	1.37 ± 0.03
"	10	Female	" Apr.	1	Rib, tibia	2.21 ± 0.05
"	14	Male	" Apr.	1	Whole skeleton	1.18 ± 0.03
"	15	Male	" Apr.	1	Coxa	2.90 ± 0.06
"	16	Male	" Apr.	1	Coxa	1.84 ± 0.04
"	17	Male	" Apr.	1	Whole skeleton	1.26 ± 0.04
"	17	Female	" Apr.	1	Vertebra	1.66 ± 0.03
"	18	Male	" May	1	Rib	1.57 ± 0.03
"	18	Male	" May	1	Vertebra	1.64 ± 0.03
"	19	Male	" May	1	Whole skeleton	1.89 ± 0.04
"	19	Male	" May	1	Femur	2.02 ± 0.05
"	20	Female	" July	1	Rib	1.35 ± 0.03
"	21	Female	" July	1	Rib	2.10 ± 0.04
"	23	Female	" July	1	Tibia	1.08 ± 0.05
"	25	Male	" July	1	Rib	1.00 ± 0.02
"	26	Male	" July	1	Rib	1.13 ± 0.04
"	35	Male	" Aug.	1	Vertebra	0.60 ± 0.01

Table 6. ^{90}Sr concentration in the different age groups in 1970

Age groups (years)	Number*	pCi^{90}Sr/g Ca	
		Min. – Max.	Mean ± S. d.
Fetus	23	0.37 – 0.95	0.73 ± 0.15
0 – 4	4	1.32 – 2.99	2.13 ± 0.64
5 – 19	14	1.18 – 2.90	1.70 ± 0.45
> 20	6	0.60 – 2.10	1.21 ± 0.46

*) Number of analysis.

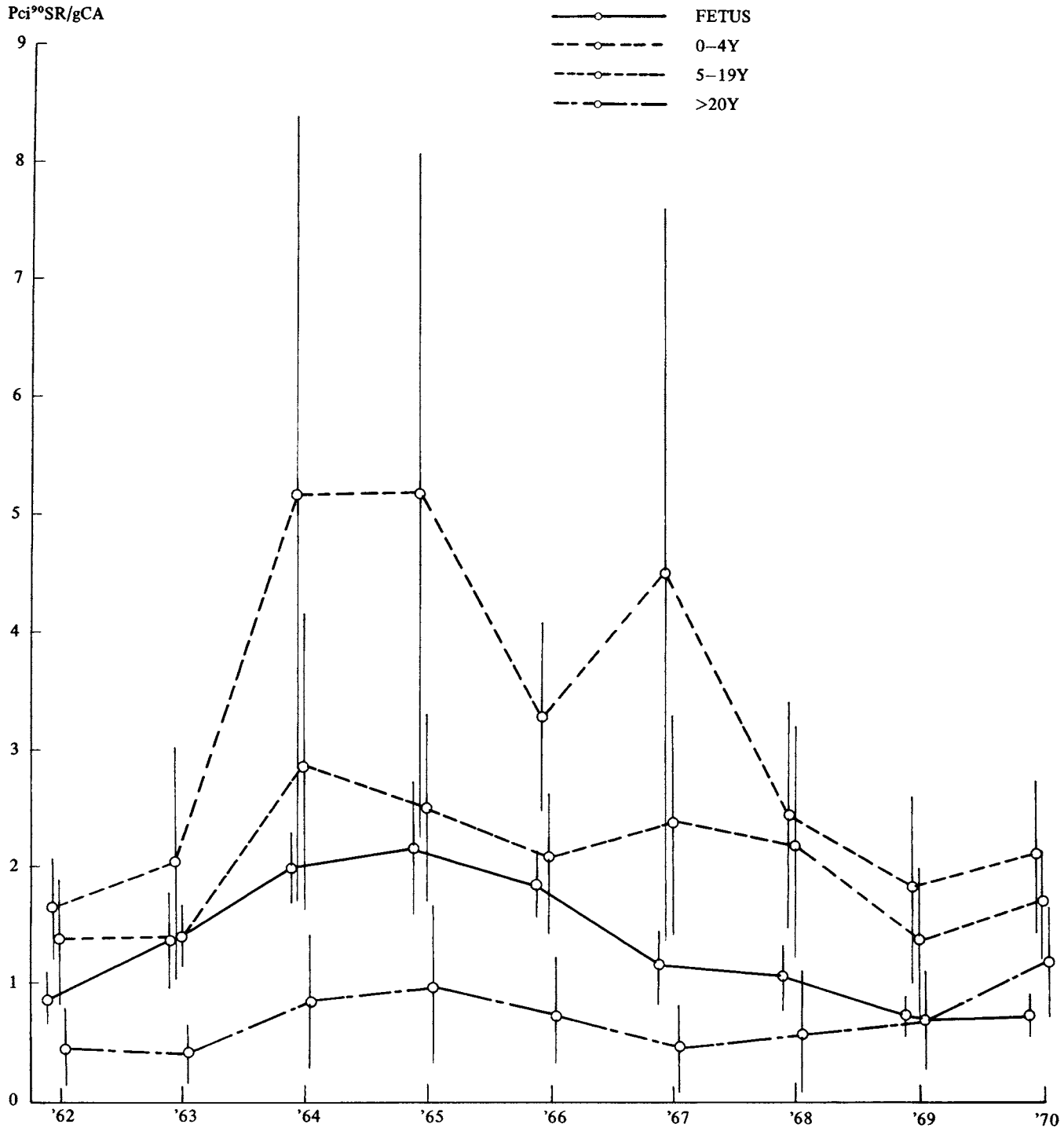


Figure 4. ^{90}Sr Concentration trends in Japan in Bone of different Age Groups

Cesium-137 Body Burden in Japanese Male Adults.

(National Institute of Radiological Scienses)

Measurment of Cesium-137 and Potassium body burden in Japanese has been continued during the period May 1970 to Feburary 1971 at the National Institute of Radiological Sciences.

A whole body counter with a plastic scintillator at this institute was used to measure total of 46 male subjects from the staff of this institute.

All the measured values were included when their average was calculated. Last time a decreasing tendency was reported on Cesium-137 body burden and it continued till May 1970. Since then it has turned an increasing trend. Average of 2.5 mμCi was observed on Feburary 1971. Results obtained in fiscal 1970 are shown in Table 7.

Table 7. Casium-137 Body Burden in Japanese Male Adults. – 1970 –
By M. Uchiyama, T.A. Iinuma and G. Tanaka.
(National Institute of Radiological Sciences)

Time of measurement	No. of subjects	Body Burden (mμCi)				Body Burden (pCi/gK)			
		Max.	Av.	S.D.	Min.	Max.	Av.	S.D.	Min.
May, 1970	13	3.3	1.5	0.9	D.L.	21	10	6	2
Aug, 1970	5	2.5	1.8	0.7	0.7	18	13	5	4
Nov. 1970	14	3.1	1.9	0.6	1.0	20	14	4	9
Feb. 1971	14	3.6	2.5	0.7	1.1	24	18	5	10