JAERI-M
86-047

SURVEY DATA OF RADIONUCLIDES IN ENVIROMENTAL MATERIALS (I)

March 1986

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編集兼発行　日本原子力研究所
印　　刷　山田軽印刷所

JAERI-M 86-047

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(Received February 5, 1986)

This report compiles the survey data of radionuclides in environmental samples acquired by the Environmental Research Laboratory II and its antecedent at the period of the Department of Health Physics, JAERI.

Measured environmental materials were dust in the atmosphere, fallout, soil, sea sediment, river water, sea water, and plants around Tokai-mura where the JAERI places. The compiled data are those acquired from 1961 to 1981. This report also includes a part of the data obtained by the detailed survey program on background radioactivities around nuclear facilities, which initiated at 1978. Most of the data are stored as computerized data bases and are retrievable in the form of lists and partly of graphs.

Keywords: Environmental Materials, Radionuclides, Fallout Radionuclides, Natural Radionuclides, Survey Data

環境試料中の放射性核種測定データ集(I)

日本原子力研究所東海研究所環境安全研究部

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天野　光・柳瀬信之・松永　武

(1986年2月5日受理)

本データ集は環境第2研究室がその前身である保健物理部時代から現在までに測定した各環境試料中の放射性核種の測定結果を集録したものである。

測定した環境試料は，大気中塵埃，降下物，土壌，海底土，河川水，海水，植物であり，集録されているデータは1961年から1981年までの21年間に得られたものである。

また1978年から開始したバックグラウンド放射能精密分布調査による測定結果の一部も集録してある。

これらのデータの多くは計算センターの計算機にファイルされており，検索及び必要な部分のデータのみの出力も可能である。

東海研究所：茨城県那珂郡東海村白方字白根2の4

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I Introduction

1. Introduction

This report compiles the currently available data acquired through the measurements of radioactivities in various environmental materials performed by the Environmental Research Labolatory II and its antecedent at the period of the Department of Health Physics, JAERI.

Natural radionuclides exist in all the natural environments. Besides them, artificial radionuclides, derived from nuclear detonations in the atmosphere, nuclear facilities operations and so on, have spread over the global and regional environment today. These radionuclides have mixed up each other. Their behaviors in natural environments are influenced greatly by many environmental factors such as localities, seasonal variations and co-existing materials. Accordingly, it is not easy to distinguish artificial radionuclides from the natural ones. To do this, however, has a basic importance for study of those migration behavior and estimation of the exposure dose to man which could arise from them.

From the point of view described above, the Laboratory has been performing the measurement of natural and artificial radionuclides in such environmental materials as dust in the atmosphere, fallout, soil, sea sediment, river water, sea water and plants around Tokai-mura where the JAERI places.

The compiled data are those acquired from 1961 to 1981. The report also includes a part of data obtained in the detailed survey program on background radioactivities around nuclear facilities, which initiated at 1978. These data are valuable because they are continuous during several or at most twenty-one years and then are available for analyses with and without inter-relationships. The report contains only measured data and brief descriptions of sampling and measurement methods. The analyses and discussions have appeared or will appear in other papers, including details of each measurement. Most of the data are stored as computerized data bases and are retrievable in the form

of lists and partly of graphs. Summary of the measured environmental materials and the measurement methods are listed in Table I-1.

The activities still goes on, so such report will be renewd time by time , with new data being added.

Table I-1 Summary of the measured environmental materials and the measurement methods

Section	Measurement	Sample	Method	Detector	Sampling date From (On)	Sampling date To	Sampling points
1.	Radionuclides in the atmosphere	Air dust	α-ray spectrometry	Si surface barrier detector	Apr. 1973	Jan. 1981	Tokai-mura
			β-ray counting	Gas flow GM-tube	Sept.1961	May 1975	Tokai-mura
			γ-ray spectrometry	NaI(Tl) scintillation	Sept.1961	Sept.1974	Tokai-mura
				Ge(Li) detector	Oct. 1974	Aug. 1981	Tokai-mura
2.	Fallout radionuclides	Fallout	α-ray spectrometry	Si surface barrier detector	Apr. 1975	Sept.1981	Tokai-mura
			γ-ray spectrometry	Ge(Li) detector	Apr. 1975	Jul. 1981	@ *)
3.	Radionuclides in pine needles	Pine needles	γ-ray spectrometry	Ge(Li) detector	Sept.21, 1977		Tokai-mura
					Jul. 11, 1978		
4.	Radionuclides in surface soil	Surface soil	γ-ray spectrometry	Ge(Li) detector	Sept.21, 1977		@
					Jul. 11, 1978		@
5.	Radionuclides in surface and deep soil	Soil	γ-ray spectrometry	Ge(Li) detector	Dec. 4, 1980		Tokai-mura
6.	Radionuclides in sea sediment	Sea sediment	γ-ray spectrometry	Ge(Li) detector	Sept.27, 1978		Off the coast of JAERI, Tokai
7.	Stable elements in sea sediment	Sea sediment	X-ray fluorescence analysis	X-ray fluorescence analyzer	Sept.27, 1978		@
					Dec. 10, 1979		@
8.	Tritium in precipitation	Precipitation	α-, β-ray counting	Liquid scintillation counter	May 1978	Dec. 1980	Tokai-mura
9.	Tritium in river water	River water	@	@	Jul. 1979	Dec. 1980	Around Tokai-mura
10.	Tritium in sea water	Sea water	@	@	Sept.1977	Dec.1980	Coast of JAERI, Tokai
11.	Radon in cave air	Cave air	@	@	Dec. 25,26, 1979		Matsushiro-cho, Nagano-ken
					Apr. 24-25, 1980		@
					Nov. 18-20, 1980		@
					Jun. 11-12, 1981		@

*) The symbol '@' denotes 'same as above'.

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II Outline of Measurement

1. Measurement of Radionuclides in the Atmosphere

1.1 Measurement of Gamma-ray Spectrum

Measurement of gamma-ray emitting radionuclides in the surface atmosphere have been continued to interprete the monitoring data collected around JAERI at Tokai-mura, and to elucidate the transport pathway and behavior of radionuclides in natural environments. This report compiles the data gathered during the period from 1961 to 1981.*)

1.1.1 Sampling Period and Points

	Period		Sampling points
	From	To	
(A)	Sept. 1961	Apr. 1975	JAERI monitoring stations No.1 and No.2
(B)	May 1975	Jul. 1978	JAERI monitoring stations No.1, No.2 and No.3
(C)	May 1978	Feb. 1981	Air sampler room (I)
(D)	Jan. 1981	Jul. 1981	Air sampler room (II)

The sampling points are shown in Fig.II-1-1 and II-1-2

1.1.2 Sampling Method

Radionuclides in the atmosphere were collected with the following materials and conditions.

Period[a]	Air sampler[b]	Flow rate (l/min)	Filter	Collection efficiency	Filter changing rate
(A)	Air sampler using continuously moving type filter	280	Hollings Worth & Vose #H-70	>99.0% for a particle with >0.2 μm dia.	2.5 cm/hour
(B)	@[c]	200-250	TOYO HE-40[d] TOYO HE-40T[e]	>99.7% for a particle with >0.1 μm dia.	@
(C),(D)	Air sampler using fixed type filter	50-60	TOYO HE-40T	@	weekly

a) Symbols are referred to those used in 1.1.1
b) Height of suction entrance was about 1.5 m above the ground.
c) The symbol @ denotes 'same as above'.
d) 87% cellulose and 12% asbestos.
e) 80% cellulose and 19% glass fibers.

*) The activities from 1961 to 1978 were performed by the Department of Health Physics, JAERI.

1.1.3 Sample Preparation

Period[a]	Procedures
(A)	Filters were ashed together monthly or bimonthly using an electric furnace at 450 ℃
(B)	@[b] (the ashing was done monthly)
(C),(D)	Filters were packed together monthly in a plastic container (60 mm diameter, 20 mm height) without ashing

a) Symbols are referred to those used in 1.1.1
b) The symbol @ denotes 'same as above'.

1.1.4 Measurement Procedures

Period		Detector	MCA	Data analysis
From	To			
(a) Sept.1961	Sept.1974	NaI(Tl) scintillation counter Well type 5in. dia. 4in. height	TMC 402 MCA 400 channels	ψ)
(b) Oct. 1974	Apr. 1976	Ge(Li) semi-conductor Detector (EG&G ORTEC) Relative efficiency : 10% Peak to compton ratio : 23 FWHM[κ] : 2.7kev	CANBERRA 8700 MCA 4096 channals	ε)
(c) May 1976	Jan. 1978	Ge(Li) semi-conductor Detector (EG&G ORTEC) Relative efficiency : 11.68% Peak to compton ratio : 39 FWHM : 1.94kev	@[μ]	ε)
(d) Feb. 1978	Nov. 1979	Ge(Li) semi-conductor Detector (EG&G ORTEC) Relative efficiency : 31.8% Peak to compton ratio : 51.5 FWHM : 2.06 kev	@	ε)
(e) Dec. 1979	Aug. 1981	@	@	λ)

ψ) Manual calculation using the ratio of a photopeak count to that of the standard.
ε) Computer assisted calculation using the gamma-ray spectrum analysis code named BOB73 available in the FACOM230-75 computer at JAERI.
λ) Computer assisted calculation using the gamma-ray spectrum analysis code prepared by the EG&G ORTEC available in the PDP11/04 computer (DEC. Co. Ltd.).
κ) Full width of half maximum.
μ) The symbol @ denotes 'same as above'.

1.2 Measurement of Alpha-ray Spectrum

It is necessary to evaluate the amount of plutonium and the exposure dose by inhalation in case of which it is released to natural environments from nuclear facilities and so on. Accordingly, the background level of fallout ^{239}Pu in natural environments should be grasped in detail.

1.2.1 Sampling Period and Points

Period a)		Sampling points
From	To	
(A) Apr. 1973	Jul. 1978	JAERI monitoring stations No.2 and No.3 (No.2 used mainly)
(B) Aug. 1978	Jan. 1981	Air sampler room (I)

a) The activities from 1961 to 1978 were performed by the Department of Health Physics, JAERI.

The sampling points are shown in Fig.II-1-1 and II-1-2.

1.2.2 Sampling Method

Radionuclides in the atmosphere were collected with the following materials and conditions.

Period[a]	Air sampler[b]	Flow rate (l/min)	Filter	Collection efficiency	Filter changing rate
(A)	Air sampler using continuously moving type filter	200-250	TOYO HE-40[d] TOYO HE-40T[e]	99.7% for a particle with >0.1 μm dia.	2.5 cm/hour
(B)	Air sampler using fixed type filter	50-60	TOYO HE-40T	@[c]	weekly

a) Symbols are referred to those used 1.2.1
b) Height of suction entrance was about 1.5 m above the ground.
c) The symbol @ denotes 'same as above'.
d) 87% cellulose and 12% asbestos.
e) 80% cellulose and 19% glass fibers.

1.2.3 Sample Preparation

Period	Procedures[a]
(A)	Filters were ashed together monthly using an elecric furnace at 450 °C. The ashed sample was packed in a plastic container Then, ^{236}Pu, Sr and Cs were added as yield tracer and carriers, respectively. The radiochemical separation and purification were carried out by solvent extraction or anion exchange. Plutonium was electrodeposited on a stainless-steel disk, and was determined by alpha-spectrometry.
(B)	@ (Filters were ashed together every three months.)

a) See Fig.II-1-3.

1.2.4 Measurement Method

Measurement of ^{239}Pu was carried out with Si Surface barrier detector. The detectors and multi-channel pulse height analyzer (MCA) used are described below.

Si surface barrier detector

[ORTEC BA-28-450-100]
Active area : 450 mm^2
Depletion depth 100 μm
FWHM : 88kev at 5.15 Mev

[ORTEC CA-19-300-100]
Active area : 300 mm^2
Depletion depth : 100 μm
FWHM : 81 kev at 5.15 Mev

[ORTEC BR-21-300-100]
Active area : 300 mm^2
Depletion depth : 100 μm
FWHM : 40 kev at 5.48 Mev

MCA

[HITACHI/RAH-403] 400 channels

[CANBERRA 8100] 1024 channels

[ORTEC 7010] 256 channels

Counting time was from 80 to 90 thousands seconds.

1.3 Measurement by Bata-counting

It is necessary to evaluate the amount of ^{90}Sr and ^{137}Cs and exposure dose by their inhalation in case of which they were released to natural environments from nuclear facilities and so on. Accordingly, the background level of those radionuclides as fallout should be grasped in detail.

1.3.1 Sampling Period and Point

Period : From Sept. 1961 to May 1975

Point : JAERI monitoring station No.1 and No.2 (see Fig. II-1-1).

1.3.2 Sampling Method

Airborne ^{90}Sr and ^{137}Cs were collected by an air sampler using continuously moving type filter at the monitoring station. Characteristics of the filter paper and the air sampler were the same as described in 1.1.2 Period (A) and (B).

1.3.3 Sample Preparation

Filters were ashed togather monthly or every three months at 450° C in an electric furnace. The ashed sample was leached twice with hydrochloric acid and after addition of Sr and Cs carrier, the solution was evaporated to dryness. After removal of silicic acid, the residue was dissolved in dil. hydrochloric acid. Then, the solution was passed through the column of cation exchange resin (Amberlite CG-120, H^+ form), and Sr and Cs were eluted by ammonium acetate solution. Sr and Cs were separated as strontium carbonate and cecium chloroplatinate precipitate, respectively. After the equilibrium of ^{90}Sr and ^{90}Y had established, the amount of ^{90}Sr was determined by measuring the radioactivity of separated ^{90}Y. Whereas, ^{137}Cs was measured directly. The sequential analytical separation of ^{90}Sr, ^{137}Cs and ^{239}Pu have been employed since 1975.

The procedures are shown in Fig. II-1-4, II-1-5 and II-1-6.

1.3.4 Measurement Method

The Measurement of ^{90}Sr and ^{137}Cs was carried out with the following detectors.

i) From Sept. 1961 to Mar. 1972

[Low background beta counter]
Tracerlab CE-14 Counter
Shield thickness : 20 cm

[Gas flow GM tubes]
Two anticoincidence type tubes
Active diameter : 5 cm

ii) From Apr. 1972 to May 1975

[Low background beta counter]
Aloka PDC-R12-2024 counter

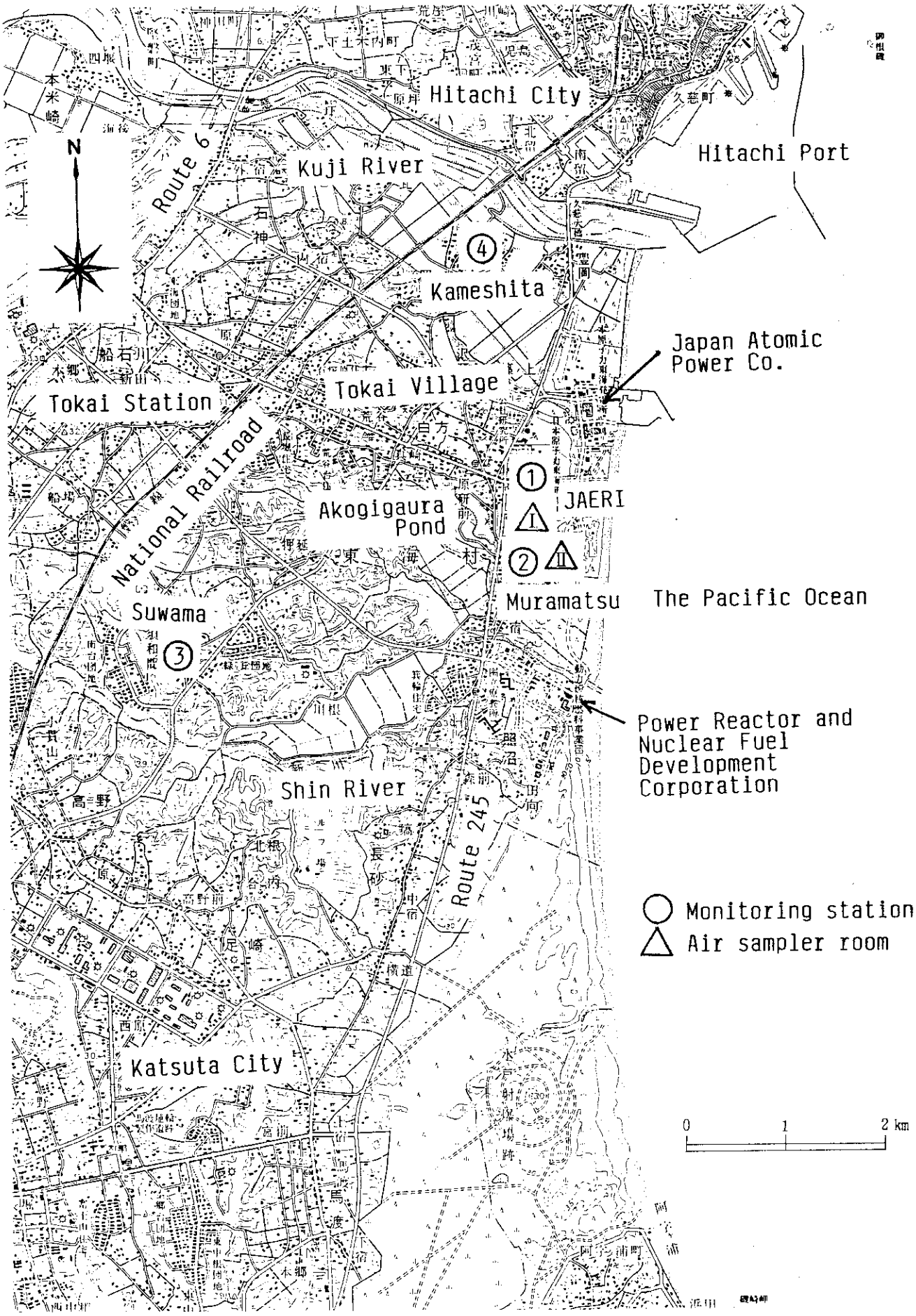


Fig. II-1-1 Locations of the monitoring stations

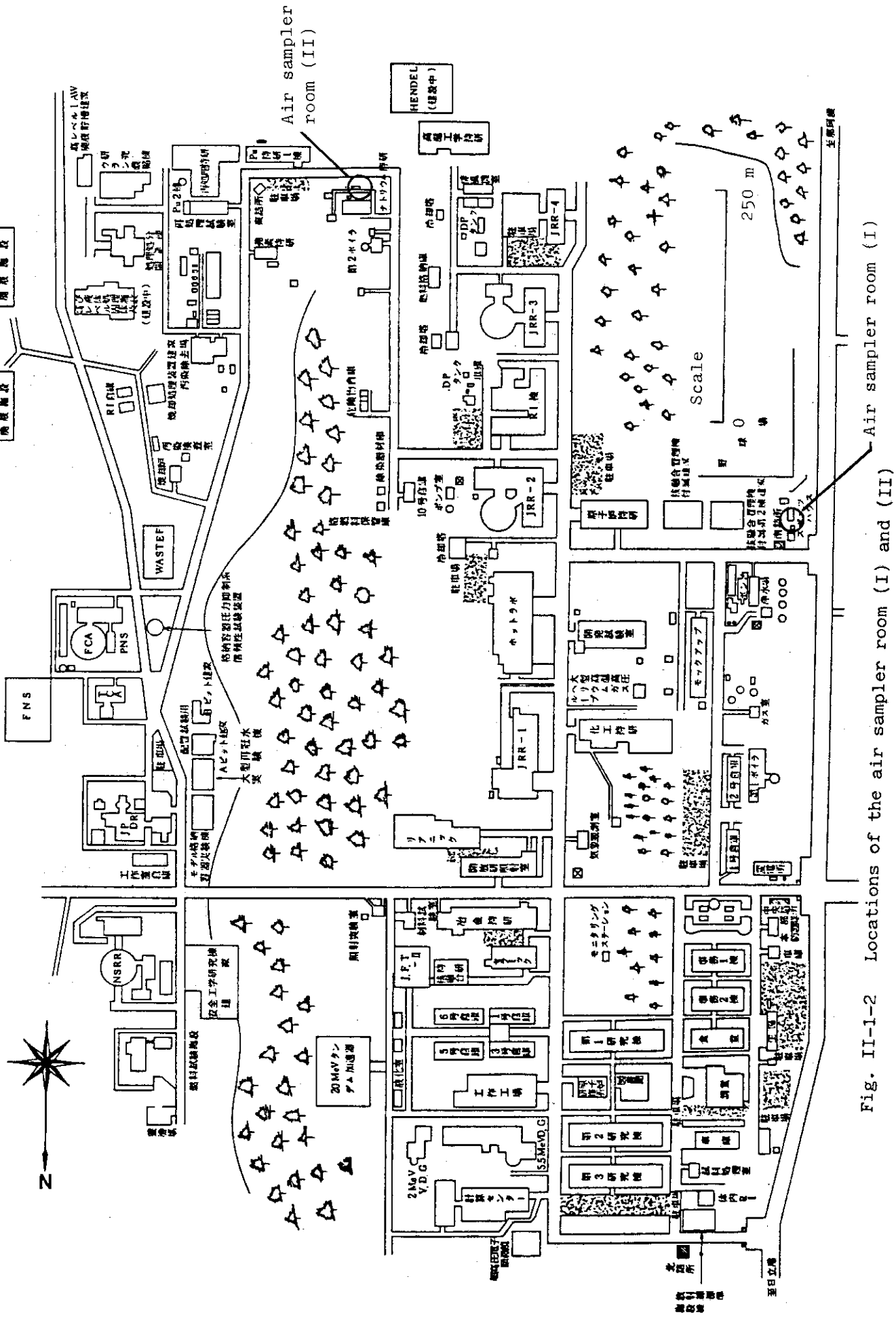


Fig. II-1-2 Locations of the air sampler room (I) and (II)

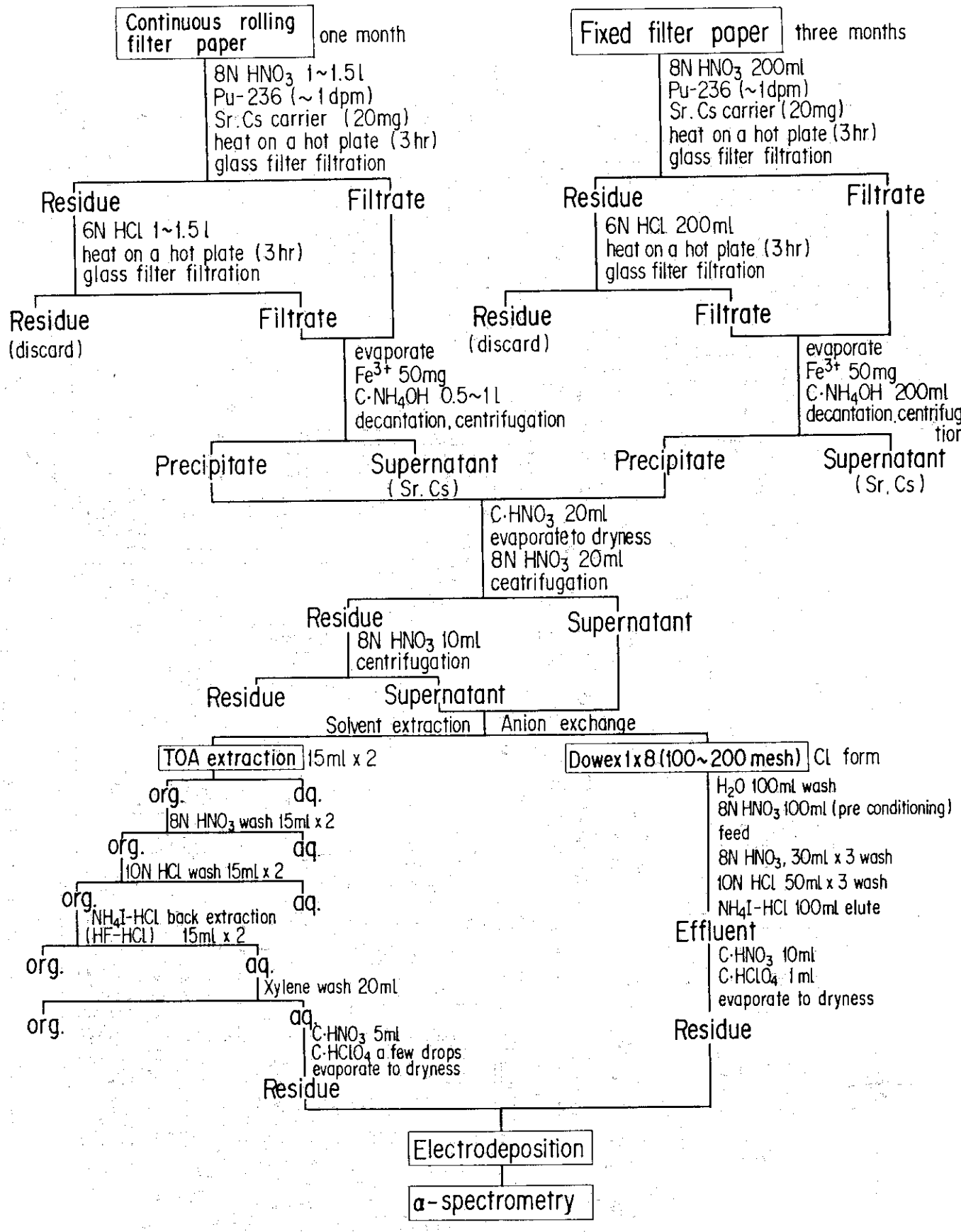


Fig. II-1-3 Analytical procedure for ^{239}Pu in air dust

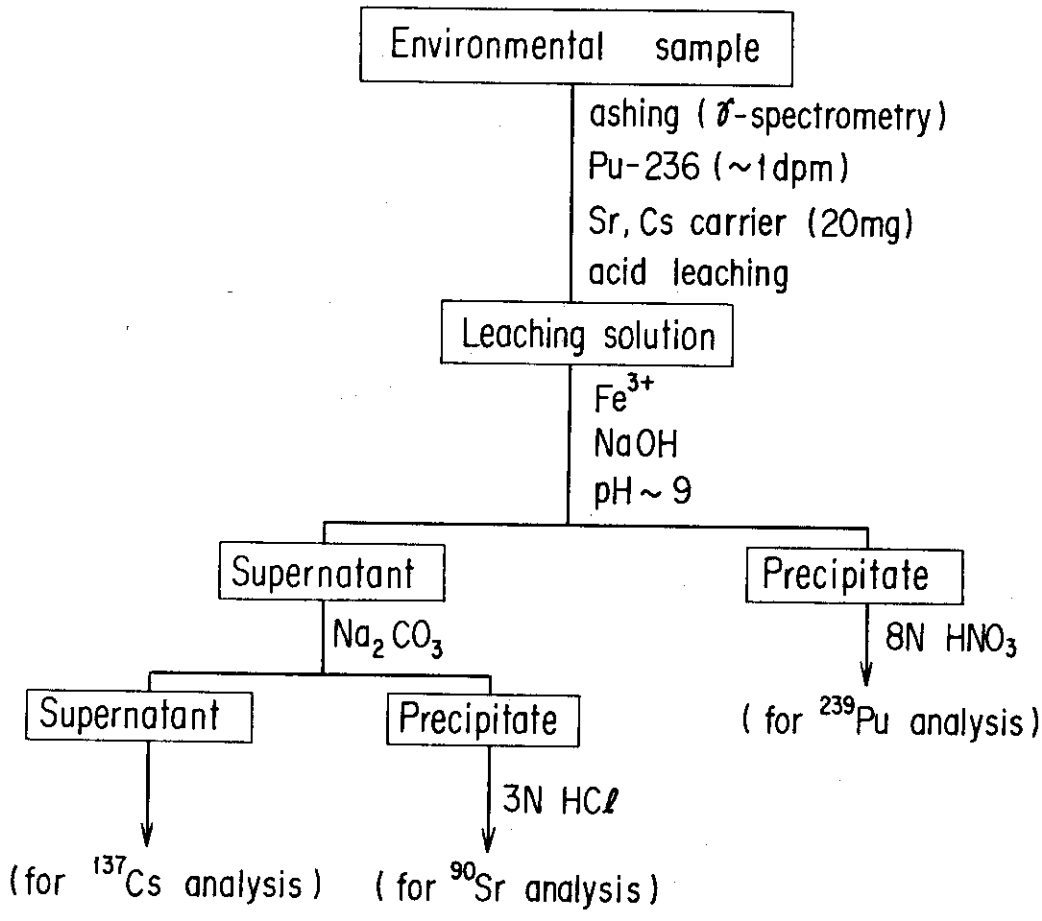


Fig. Ⅱ-1-4 Sequential analytical procedure for ^{239}Pu, ^{90}Sr and ^{137}Cs in environmental samples

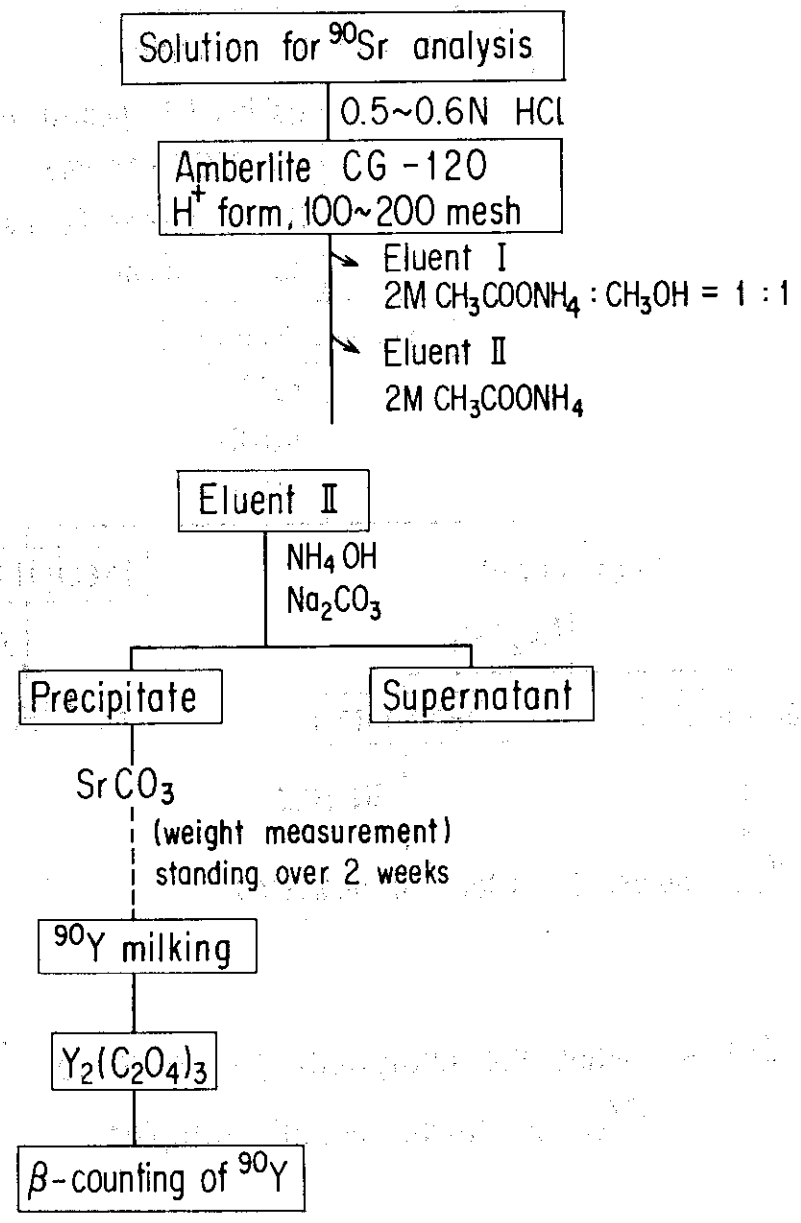


Fig.Ⅱ-1-5 Analytical procedure for ^{90}Sr

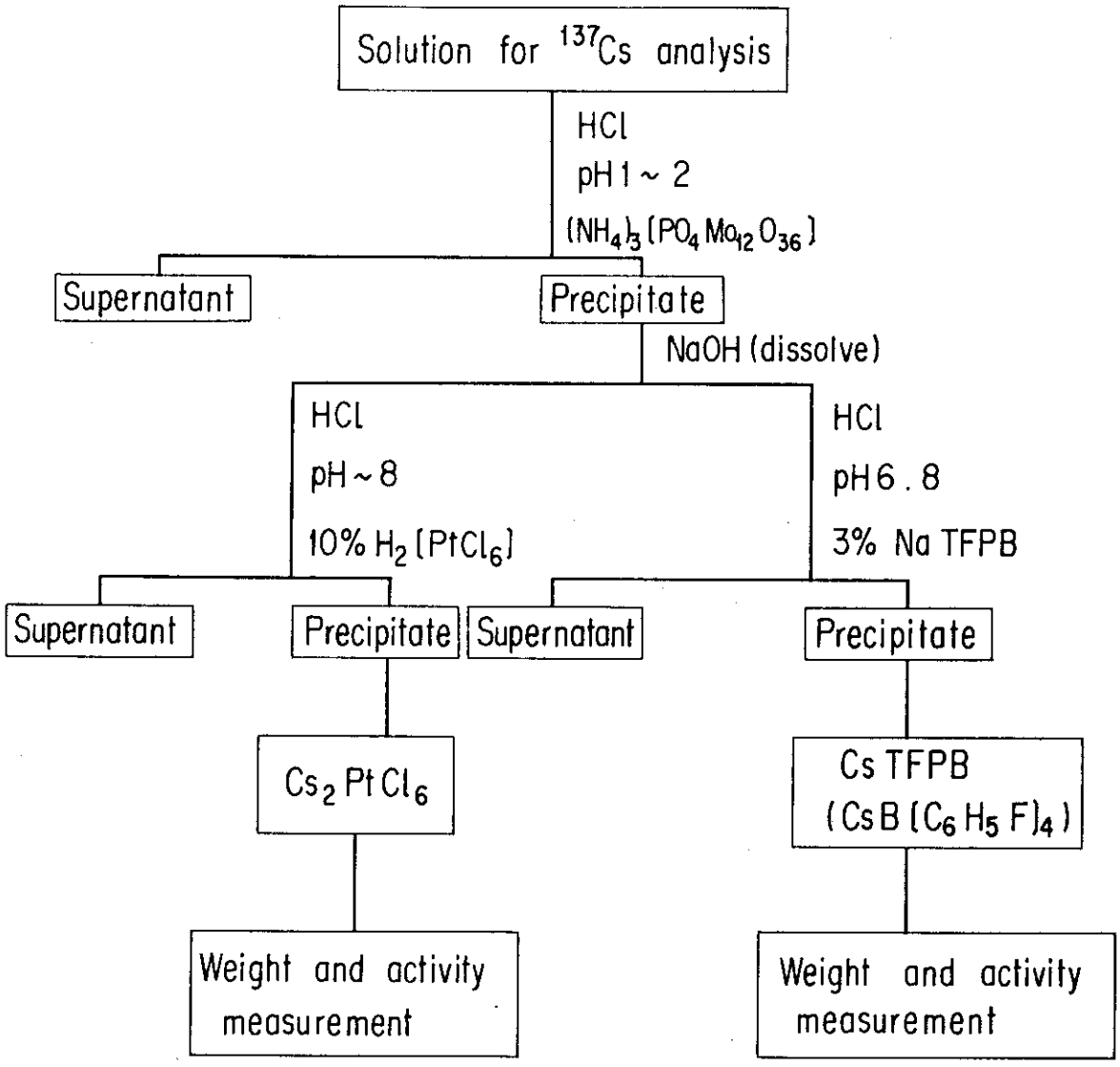


Fig.Ⅱ-1-6 Analytical procedure for ^{137}Cs

2. Measurement of Fallout Radionuclides

2.1 Measurement of Alpha-ray Spectrum

It is necessary to evaluate the exposure dose to man in case of which plutonium was released to natural environments from nuclear facilities and so on. The background level of fallout ^{239}Pu should be grasped in detail.

2.1.1 Sampling Period and Point

Period : From May 1975 to Sept. 1981
Point : The rooftop of the Sample Treatment Room in the premises of JAERI (Tokai-mura)

2.1.2 Sampling Method

Precipitations and dry fallout were collected monthly with a sampling basin (0.5 m^2), which was perpeptually covered with a small quantity of distilled water.

2.1.3 Sample Preparation

The sample collected in the basin was transferred into a large porcelain dish and was evaporated to near dryness. The residue was transfered into a plastic container (60 mm dia., 30 mm height) using distilled water and was evaporated to dryness with an infrared lump. Gamma-nuclides were measured. Then, ^{236}Pu, as an yield tracer, and Sr and Cs as carriers were added as yield tracer and the radiochemical separation and purification were carried out by solvent extraction or anion exchange. Plutonium was electrodeposited on a stainless steel disc, and its amount was determined by alpha-ray spectrometry. The analytical procedure is shown in Fig.II-2-1.

2.1.4 Measurement Method

It was same as described in 1.2.4.

2.2 Measurement of Gamma-ray Spectrum

Measurement of gamma-ray emmiting radionuclides in fallout was carried out in the same purpose as that described in 2.1.

2.2.1 Sampling Period and Point

Period : From Apr. 1975 to Jul. 1981
Point : Same as that noted in 2.1.1.

2.2.2 Sampling Method

Same as decribed in 2.1.2.

2.2.3 Sample Preparation

The dried sample in a plastic container was used, which was prepared in the course of the procedure described in 2.1.3.

2.2.4 Measurement Method

Gamma-ray spectrometry was performed by Ge(Li) detector. Specifications of the detector, MCA and data analysis are decribed below.

i) From Apr. 1975 to Sept. 1976

Same as described in 1.1.4 period (b).

ii) From Oct. 1976 to Jan. 1978

Same as described in 1.1.4 period (c).

iii) From Feb. 1978 to Nov. 1979

Same as described in 1.1.4 period (d).

iv) From Dec. 1979 to Jul. 1981

Same as described in 1.1.4 period (e).

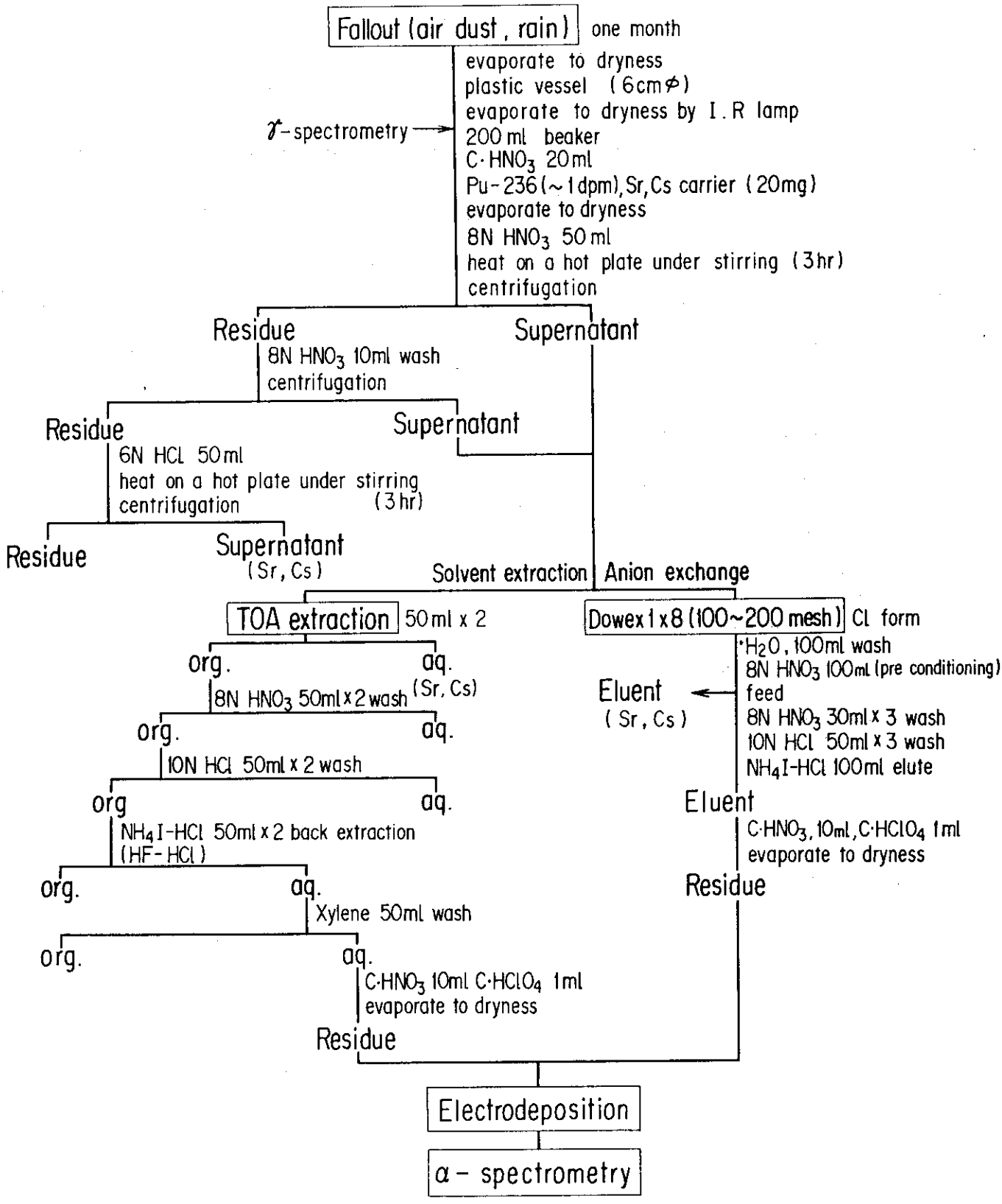


Fig. II-2-1 Analytical procedure for ^{239}Pu in fallout

3. Measurement of Radionuclides in Pine Needles

A pine tree grows everywhere in Japan in any season. So the pine needles are appropriate as indicator plants showing airborne radionuclides concentrations and an extent of uptake of such radionuclides into a plant body.

3.1 Sampling Date and Point

Date : Sept. 21, 1977 and
Jul. 11, 1978
Point : Shown in Table II-1 and Fig. II-3-1.

3.2 Sampling Method

One or two kilograms of pine needles were collected at each point.

3.3 Sample Preparation

Pine needles were dried in an oven at 110°C for several hours, and were ashed in an electric furnace at 450°C.

3.4 Measurement Method

The ashed sample in a plastic container (8 cm dia.) was measured with Ge(Li) detector using a multi-channel pulse height analyzer.

Table II-1 Sampling points of pine needles and soil at Tokai-mura

Name of point	Sampling point
S-1	Muramatsu beach
S-2	No.2 monitoring station of JAERI
S-3	Muramatsu day nursery
S-4	Minowa housing project of PNC
S-5	Terunuma primary school
S-6	Nyoirin temple
S-7	South Tamukai
S-8	East Tamukai

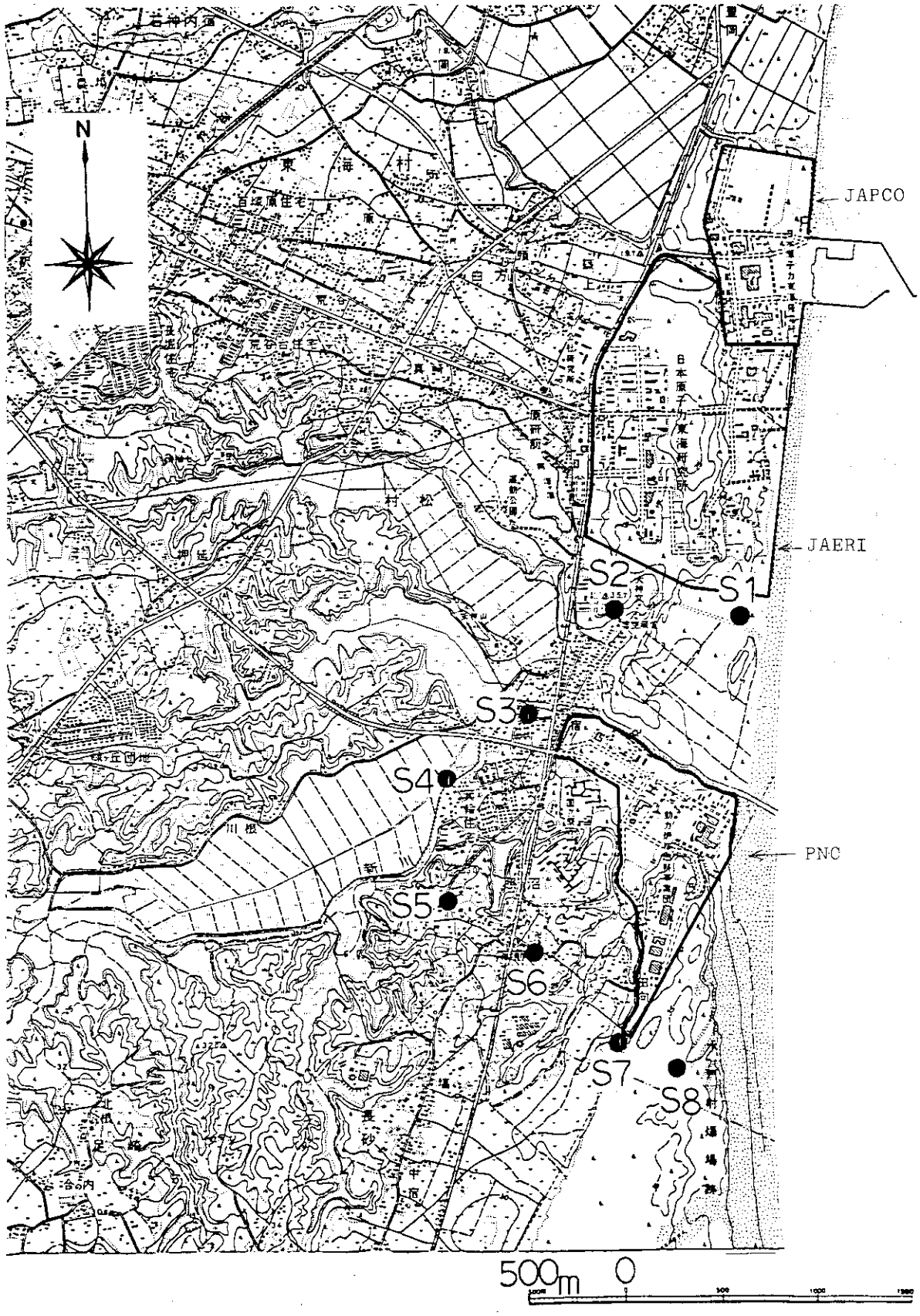


Fig. II-3-1 Sampling points of pine needles and soil at Tokai-mura

4. Measurement of Radionuclides in Surface Soil

Natural and fallout radionuclides in surface soil around Tokai-mura were measured to clavify the background level of radionuclides concentrations which are the basic data to distinguish radionuclides released from nuclear facilities from those present as background.

4.1 Sampling Date and Point

Date : Sept. 21, 1977,
Jul. 11, 1978

Point : Same points as shown in Table II-1 and Fig. II-3-1

4.2 Sampling Method

Cyrindrical plastic container (60 mm dia., 30mm height) was striked into ground directly. When the ground was so hard, the ground was dug and soil was collected with a trowel into a container.

4.3 Sample Preparation

Sample soil was dried in an drying at 110°C.

4.4 Measurement Method

Gamma-ray spectrometry was performed for both raw and dried sample. The same detector was used as described in 1.1.4 period (d). The MCA and the data analysis method were the same as employed in 1.1.4 period (b).

5. Measurement of Vertical Distribution of Radionuclides in Soil

The measurement was performed as one of the activities to survey the radionuclides distribution as a background around nuclear facilities in detail and to study its characteristics. The Kanto district, which places in the middle of Japan, has many nuclear facilities at its eastern area. The practical objectives of this investigation were to survey a vertical distribution of radionuclides in the soil at the Kanto district, which mainly consists of the Kanto loam soil, and then to clarify the relationships between the distribution and kind of soil, grain size of constituents and so on.

5.1 Sampling Date and Sampling Point

Date : Dec. 4, 1980
Point : In the field of the Nuclear Fusion Research Facilities, JAERI, Naka-machi, Ibaraki-ken, Japan (Fig.II-5-1)

5.2 Sampling Method

Cyrindrical soil samples were dug with a thin wall sampler of 74 mm diameter without using water. A driving tube sampler was used for a sand layer where a thin wall sampler tube could not be forced into the layer due to a strong sand pressure. The samples were cut into 10 cm long each along with the vertical direction.

5.3 Sample Preparation

- For gamma-ray spectrometry

The following procedures were done for each division. It was dried in air, and dried again in a drying oven at 110° C for 8 hours. Immediately after dried up, it was sealed in a plastic container (60 mm dia., 30 mm height) then its weight was measured.

- For physical classification test

The procedures were used described in the Japanese Industrial Standard (JIS A 1201).

5.4 Measurement Method

- Gamma-ray spectrometry

Concentrations of radionuclides in soil which emit gamma-rays were measured with Ge(Li) detector as described in 1.1.4 e). The measurement followed about 1 month aging after container sealing, which allowed the radioactive equilibrium among the radionuclides of the natural series.

- Physical classification tests

Following tests were carried out according to the procedures described in the Japanese Industrial Standard (JIS).

Test	JIS No.
Specific gravity	JIS A1202
Moisture content	JIS A1203
Grain size	JIS A1204

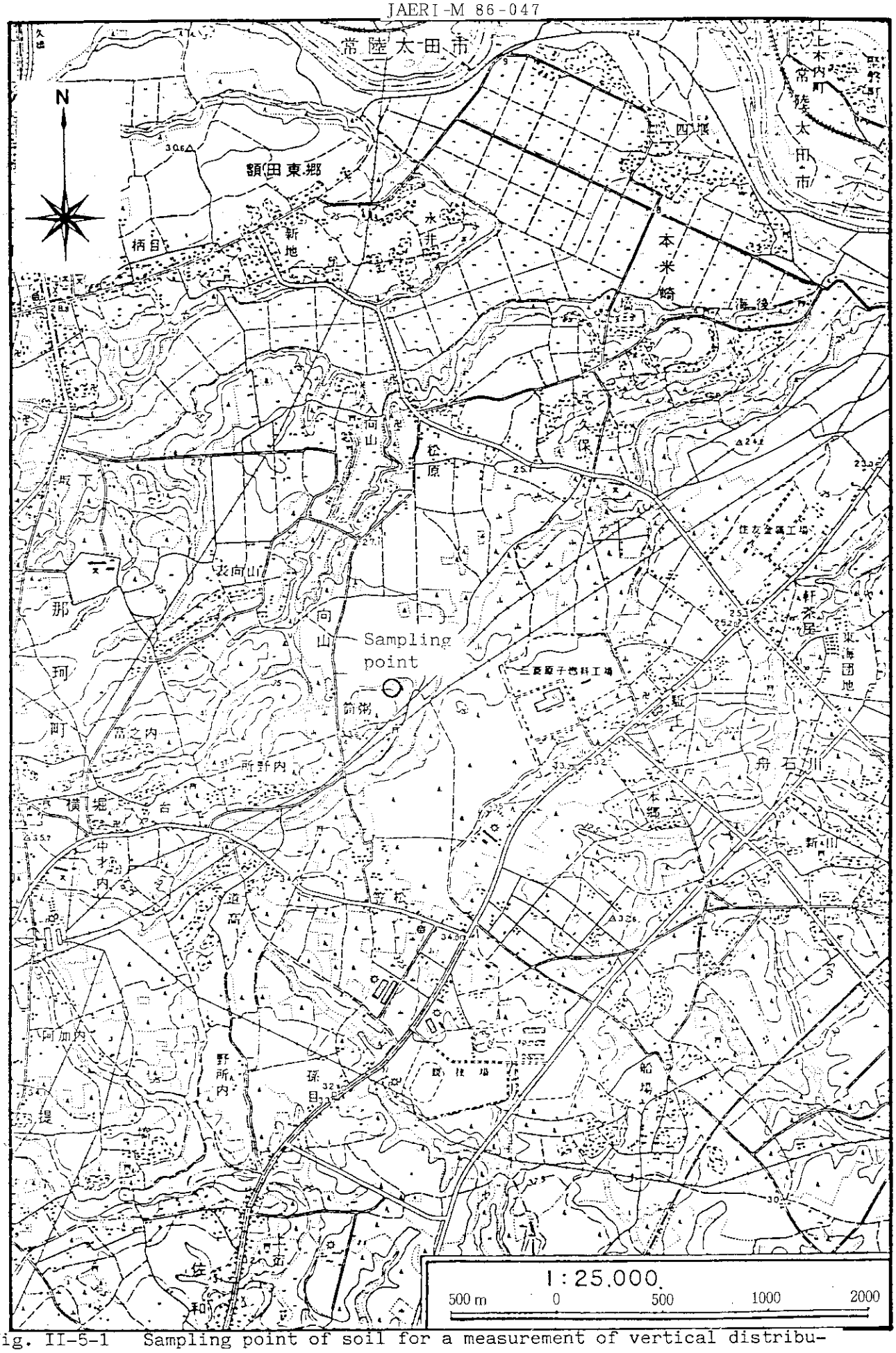


Fig. II-5-1 Sampling point of soil for a measurement of vertical distribution of radionuclides at Naka-machi

6. Measurement of Radionuclides in Sea Sediment

Distribution of radionuclides in sea sediment off the coast of JAERI was investigated to elucidate the behavior of radionuclides in sea sediment.

6.1 Sampling Date and Point

Date : Sept. 27, 1978,
Dec. 10, 1979
Point : Shown in Fig. II-6-1.

6.2 Sampling Method

A core sampler was penetrated to sea bottom and pulled out by a diver (see Fig. II-6-2). The length collected was compared with that penetrated, as shown in Table II-2. The appearences of samples just after collection are shown in Fig. II-6-3 and Fig. II-6-4.

6.3 Sample preparation

Collected samples were frozen with dry ice, and was cut in slices 5 cm thick each. Then, a sample was dried at 110 °C followed by a particle size distribution analysis. Dry weights of samples are listed in Table II-3 and II-4.

6.4 Measurement Method

A dried sample was put into a plastic container (60 mm dia., 30 mm height). Gamma-ray spectrometry for the sample was performed by Ge(Li) detectors. Two detectors were used. One was the same as described in 1.1.4 period (d). The other's specifications are described below.

[ORTEC Ge(Li) Detector]

Relative efficiency	: 30.8 %
Peak to compton ratio	: 55
FWHM	: 1.99 kev

Specifications of MCA and data analysis were the same as described in 1.1.4 period (b).

Table II-2 Comparison of collection lengths with penetrated ones of the sea sediment

Sept.27,1978

	Sampling point								
	ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
Penetrated length*(cm)	58	62	67	55	59	80	33	50	51
Collected length(cm)	55	60	57	55	58	75	33	47	49

Dec.10,1979

	Sampling point								
	ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
Penetrated length*(cm)	68.0	62.0	64.5	65.9	66.0	58.0	27.5	57.7	58.0
Collected length(cm)	63.6	55.6	63.5	64.0	62.1	55.7	23.2	58.3	57.2

* Penetrated length was indicated with the length of sampler penetrated to the sea sediment.

Table II-3 Dry weight of the sea sediment collected on Sept. 27, 1978

Depth of layer(cm)	Sampling point								
	ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0 - 5	63.33	104.54	125.81	113.03	128.68	109.55	157.68	133.20	128.52
5 - 10	131.42	146.26	149.42	153.54	145.40	137.59	137.25	141.83	129.70
10 - 15	156.64	152.55	144.74	159.90	148.95	147.69	145.86	149.76	131.67
15 - 20	145.91	139.88	149.90	151.75	151.49	139.64	135.42	153.56	139.90
20 - 25	135.11	139.14	145.68	158.62	146.39	155.61	129.92	143.30	132.70
25 - 30	129.46	150.41	146.19	145.26	144.86	127.10	131.16	154.22	133.60
30 - 35	146.18	142.22	133.95	149.02	149.48	127.10	143.21	144.72	129.17
35 - 40	126.95	149.90	142.37	149.07	143.27	139.16	(30 -)	148.47	142.31
40 - 45	147.83	154.82	131.10	151.29	147.53	141.73		143.22	128.90
45 - 50	152.67	153.46	139.96	148.17	153.84	141.33		86.78	105.70
50 - 55	148.94	146.16	132.49	151.67	140.54	135.51		(45 - 48)	(45 -)
55 - 60	142.66	139.98	84.26	49.20	100.25	157.31			
60 - 65	203.23	61.32	(55 - 57)	(55 -)	(55 - 59)	141.72			
65 - 70	139.59	(60 - 62)				144.07			
70 - 75	66.33					142.90			
75 - 80	(70 - 71.5)					45.47			

( ) ; The figure in parenthesis denotes depth(cm) of terminal layer of collected sample.

Table II-4 Dry weight of the sea sediment collected on Dec. 10, 1979

Depth of layer(cm)	Sampling point								
	ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0 - 5	139.56	154.48	121.92	133.19	147.37	138.59	140.09	136.58	131.72
5 - 10	145.67	145.75	150.20	144.95	150.92	149.11	154.72	146.31	158.80
10 - 15	148.29	149.09	144.51	141.09	155.69	142.82	156.55	146.31	162.09
15 - 20	150.80	143.58	143.59	139.86	141.40	150.89	146.27	140.29	149.88
20 - 25	154.81	153.84	146.77	142.99	150.71	149.31	77.59	142.64	151.32
25 - 30	137.10	149.98	143.59	138.29	161.71	144.39	(20 - 23)	141.50	151.63
30 - 35	145.21	149.90	138.90	136.89	138.64	153.45		138.18	147.81
35 - 40	139.74	146.67	151.51	135.22	142.90	141.00		138.91	156.51
40 - 45	144.61	144.12	139.49	141.93	136.09	166.61		133.02	150.52
45 - 50	134.72	143.02	142.91	136.74	148.60	155.51		136.40	151.18
50 - 55	138.21	170.29	142.01	137.50	138.49	200.38		137.42	127.51
55 - 60	142.81	(50 - 56)	154.68	137.09	142.59	(50 - 56)		98.69	(50 -53)
60 - 65	122.71		142.70	135.28	92.24			(55 - 58)	
	(60 - 64)		(60 - 64)	(60 -64)	(60 - 62)				

( ) ; The figure in parenthesis denotes depth(cm) of terminal layer of collected sample.

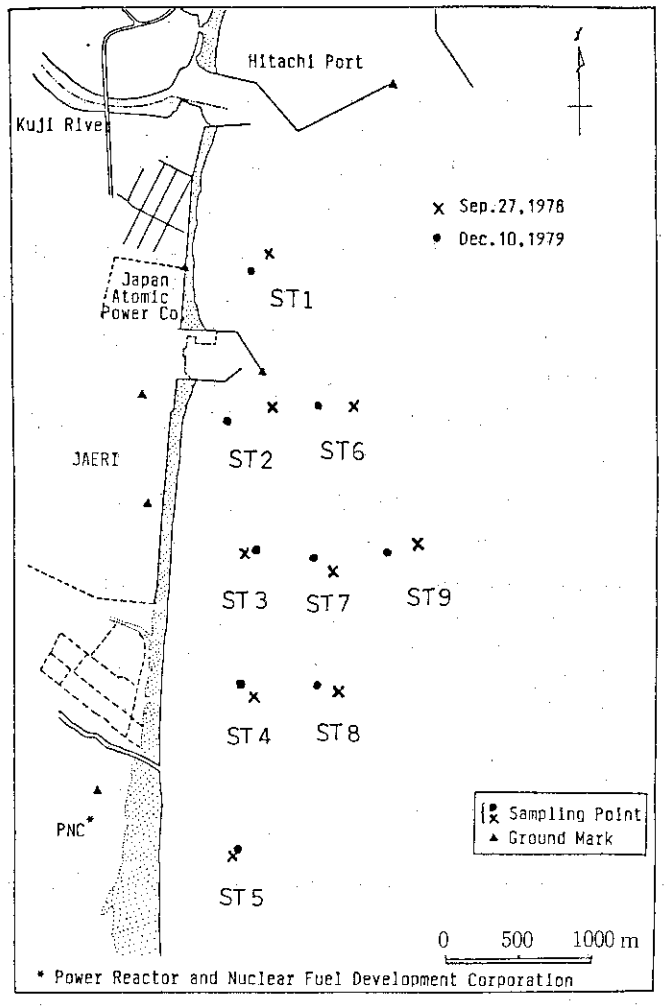


Fig. II-6-1 Sampling points of sea sediments off the coast of JAERI

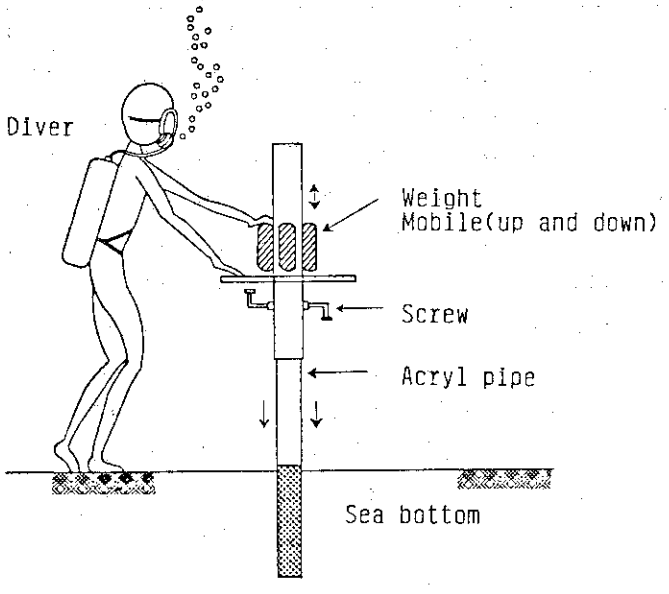


Fig. II-6-2 Illustration of sea sediment sampling

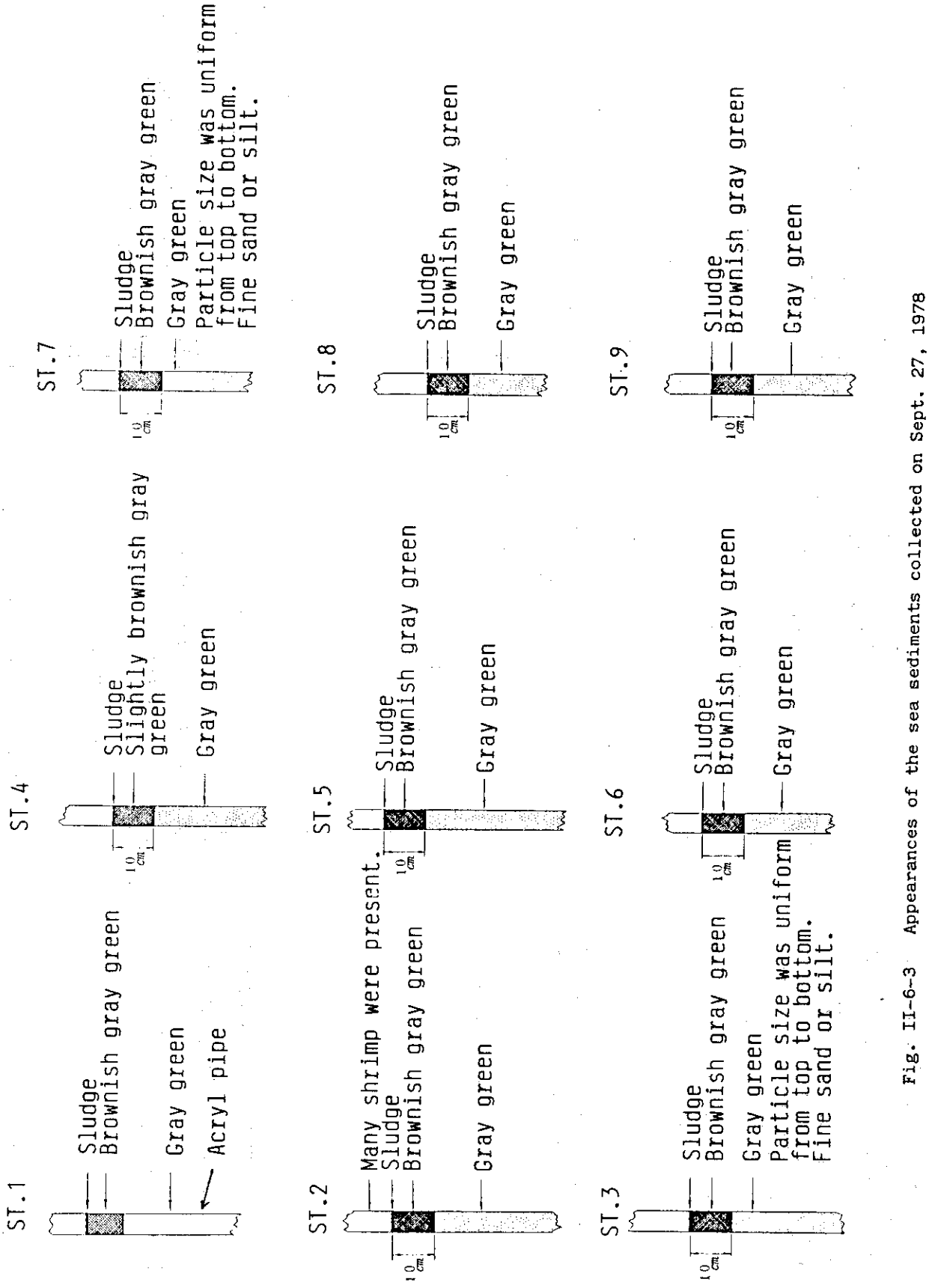


Fig. II-6-3 Appearances of the sea sediments collected on Sept. 27, 1978

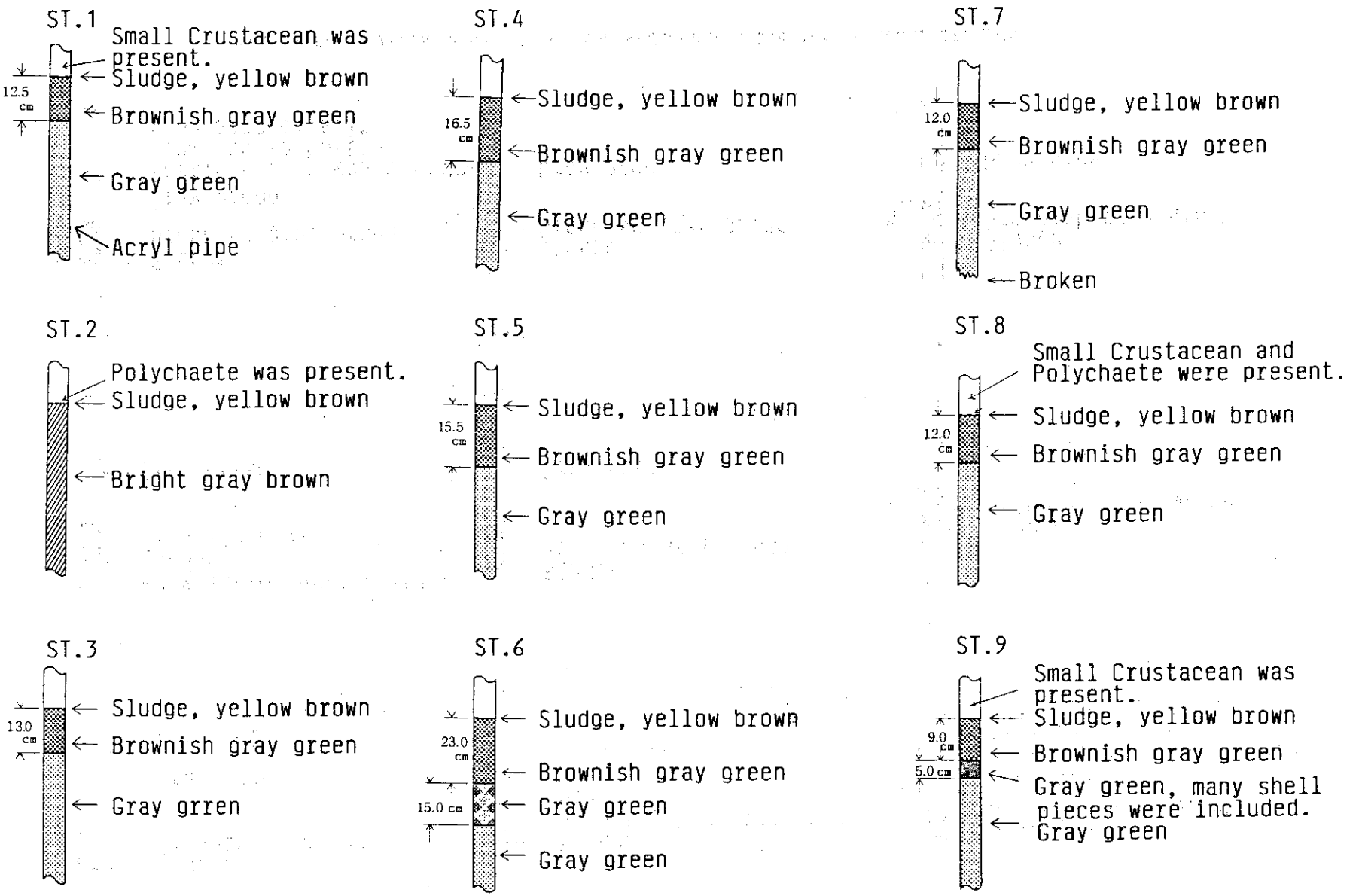


Fig. II-6-4 Appearances of the sea sediments collected on Dec. 10, 1979

7. Measurement of Stable Elements in Sea Sediment

In order to know the relation between radionuclides and stable elements in sea sediment, stable elements were determined by X-ray fluorescent method. The samples supplied were the same as described in Section 6.

7.1 Sampling Date and Point

Date : Sept. 27, 1978
Point : Shown in Fig. II-6-1.

7.2 Sampling Method

The same as described in 6.2.

7.3 Sample Preparation

The standard rock samples (Table II-5) were used as received, the grain size of which was lower than 200 mesh. A part of the sample used in its gamma-ray spectrometry was weighed by 5.5 grams and packed in a sample cup for measurement.

7.4 Measurement Method

Two samples were prepared from the same sediment segment. They were analyzed two times each. The avaraged values of these four are shown in Table III-7-1
The X-ray fluorescence analyzer used was the EG&G ORTEC TEFA III, model 6110-40.

Samples were analyzed with the following conditions.

Analyzed elements : Mg, Al, Si, K, Ca, Ti, Mn and Fe
Anode : Molybdenum
Filter : None
Tube voltage : 10 kV
Tube current : 50 μA
Preset live time : 1000 seconds
Atmosphere : Vacuum

Using the CALC code provided by the ORTEC, samples were analyzed by the calibration curve of straight line which was obtained by a least square method. The sample matrix correction was not done.

Table II-5 Certified values of the standard samples used in the analysis of stable elements in the sea sediment

Standard	Present (%)							
	MgO	$A\ell_2O_3$	SiO_2	K_2O	CaO	TiO_2	MnO	Fe_2O_3
NIM-G	0.06	12.08	75.70	4.99	0.78	0.09	0.02	2.02
NIM-P	25.33	4.18	51.10	0.09	2.66	0.20	0.22	12.76
NIM-L	0.28	13.64	52.40	5.51	3.22	0.48	0.77	9.96
JB-1	7.76	14.62	52.60	1.42	9.35	1.34	0.15	9.01
MicaFe	4.57	19.58	34.55	8.79	0.43	2.51	0.35	25.76

8. Measurement of Tritium in Precipitation

The objectives of this measurement were to clarify the important parameters in the tritium behavior in the local hydrosphere, and to present basic knowledges on the exposure model for man.

8.1 Sampling Date and Point

Date : From May 1978 to Apr. 1979 Precipitations for one week were collected and measured together.
From May 1979 to Dec. 1980 Every precipitation was measured.

Point : At the rooftop of the building in JAERI (see Fig. II-8-1).

8.2 Sampling Method

Weekly or every precipitation was collected in one or two liter(s) plastic bottle through a funnel of 25.2 cm diameter.

8.3 Sample Preparation

After filtration, 40 ml of the filtrate was mixed with 60 ml of liquid scintillator (Scintizol EX-H or Aquazol-2).

8.4 Measurement Method

The radioactivity in a sample was measured by a low background liquid scintillation counter (Aloka LB-1, Aloka Co. Ltd., Japan). One hudred mililiters of the liquid scintillator was used as a blank sample. The quenching effect in background counting was neglected.

Fig. II-8-1 Sampling points of water for tritium measurement

9. Measurement of Tritium in River Water

The objective was the same as that described in Section 8.

9.1 Sampling Date and Point

Date : From Jul. 1979 to Dec. 1980 (weekly sampling)
Point : Kuji river, Shinkawa river and Akogi-ga-ura pond

The sampling points were shown in Fig. II-8-1.

9.2 Sampling Method

River and pond water were sampled by a ladle with a long grasp.

9.3 Sample Preparation

The same as described in 8.3.

9.4 Measurement Method

The same as described in 8.4.

10. Measurement of Tritium in Sea Water

The objective was the same as that described in Section 8.

10.1 Sampling Date and Point

Date : From Sept. 1977 to Dec. 1980 (weekly sampling)
Point : At 100 meters and 550 meters south of the No.2 drain of JAERI along the sea shore. They are referred as S-100 and S-550 in the data tables, respectively.

10.2 Sampling Method

The same as described in 8.2.

10.3 Sample Preparation

The same as described in 8.3.

10.4 Measurement Method

The same as described in 8.4. It should be noted that radioactivity of K-40 in the sea water had some contribution to the tritium measurement. The quenching effect in background counting was neglected.

11. Measurement of Radon in Cave Air

Radon and its progenies are the most dominant radionuclides of the natural ones which cause internal exposure to man. The objective was to develop a reliable measurement method, to study the equilibrium state between them, and finally to evaluate the exposure dose, which arises from them, in various areas and situations.

11.1 Sampling Date and Point

Date : Dec. 25, 26, 1979,
Apr. 24, 25, 1980,
Nov. 18, 19 and 20, 1980,
Jul. 11, 12, 1981.

Point : In the cave locating at the Seismological Observatory, Matsushiro-cho, Nagano-ken, Japan.

11.2 Sampling Method

Radon in the cave air was trapped by bubbling through toluene-based liquid scintillator.

11.3 Sample Preparation

After air bubbling, the solution was sealed in a 100 ml Teflon container.

11.4 Measurement Method

The radioactivity in the sample was measured by a low background liquid scintillation counter (Aloka-LB1, Aloka Co. Ltd., Japan).

III Data

1. Concentration of Radionuclides in the Atmosphere

Table III-1-1 Monthly avarage concentration of radionuclides in air at Tokai-mura (1961-1981)

MONTHLY AVERAGE CONCENTRATION OF RADIONUCLIDES IN THE AIR AT TOKAI-VILLAGE

DATE	CONCENTRATION (PCI/M**3)						
********	MN-54	SR-90	ZR-95*NB-95	RU-103,106	SB-125	CS-137	********
1961. 9.22-10.30		0.190E-02	0.410E+01			0.140E-02	
1961.11. 1-12.31		0.210E-02	0.160E+01			0.270E-02	
1962. 1. 1- 3. 3		0.170E-02	0.120E+01			0.210E-02	
1962. 3. 4- 4.14		0.450E-02	0.160E+01			0.710E-02	
1962. 4.15- 5.14		0.129E-01	0.170E+01			0.139E-01	
1962. 5.15- 6.17		0.850E-02	0.680E+00			0.111E-01	
1962. 6.18- 7.30		0.480E-02	0.460E+00			0.870E-02	
1962. 8. 1- 9. 2		0.200E-02	0.200E+00			0.310E-02	
1962. 9. 3- 9.30			0.110E+01			0.350E-02	
1962.10. 1-10.27		0.280E-02	0.130E+01			0.320E-02	
1962.10.28-12. 3			0.150E+01			0.340E-02	
1962.12. 4-12.31		0.220E-02	0.170E+01			0.480E-02	
1963. 1. 1- 1.29		0.540E-02	0.160E+01			0.104E-01	
1963. 2. 5- 3. 3		0.940E-02	0.290E+01			0.106E-01	
1963. 3. 4- 4. 7		0.780E-02	0.340E+01			0.270E-01	
1963. 4. 8- 5. 5		0.110E-01	0.380E+01			0.331E-01	
1963. 5. 6- 6. 3			0.410E+01				
1963. 6. 4- 6.30			0.320E+01		0.180E-01		
1963. 7. 1- 7.29		0.430E-02	0.930E+00		0.120E-01	0.217E-01	
1963. 7.30- 9. 3		0.750E-02	0.690E+00		0.120E-01	0.386E-01	
1963. 9. 4- 9.29		0.189E-01	0.140E+01		0.200E-01	0.693E-01	
1963. 9.30-11. 4			0.730E+00		0.190E-01	0.592E-01	

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)						
********	MN-54	SR-90	ZR-95*NB-95	RU-103,106	SB-125	CS-137	********
1963.11. 5-12. 2			0.350E+00		0.150E-01	0.398E-01	
1963.12. 3- 1. 6		0.740E-02	0.250E+00		0.120E-01	0.387E-01	
1964. 1. 7- 3. 3		0.620E-02	0.170E+00		0.100E-01	0.345E-01	
1964. 3. 4- 3.29		0.189E-01	0.120E+00		0.180E-01	0.674E-01	
1964. 3.30- 5. 4		0.213E-01			0.160E-01	0.645E-01	
1964. 5. 5- 5.31					0.250E-01	0.936E-01	
1964. 6. 1- 7. 5		0.630E-02			0.120E-01	0.450E-01	
1964. 7. 6- 8.29		0.450E-02			0.470E-02	0.191E-01	
1964. 8.30-10. 5					0.350E-02	0.151E-01	
1964.10. 6-11. 9					0.470E-02	0.120E-01	
1965. 1. 1- 1.31							
1965. 2. 1- 2.28	0.594E-02					0.146E-01	
1965. 3. 1- 3.31	0.715E-02					0.215E-01	
1965. 4. 1- 4.30	0.117E-01		0.326E-01			0.354E-01	
1965. 5. 1- 5.31	0.835E-02		0.336E-01			0.200E-01	
1965. 6. 1- 6.30	0.485E-02		0.290E-02			0.132E-01	
1965. 7. 1- 7.31			0.180E-02	0.104E-01		0.550E-02	
1965. 8. 1- 8.31	0.270E-02			0.130E-01		0.820E-02	
1965. 9. 1- 9.30	0.232E-02			0.165E-01		0.866E-02	
1965.10. 1-10.31	0.155E-02			0.220E-01		0.890E-02	
1965.11. 1-11.30	0.120E-02			0.168E-01		0.535E-02	
1965.12. 1-12.31	0.570E-03			0.890E-02		0.257E-02	
1966. 1. 1- 1.31	0.870E-03			0.135E-01		0.576E-02	
1966. 2. 1- 2.28	0.100E-02			0.208E-01		0.870E-02	
1966. 3. 1- 3.31	0.160E-02			0.225E-01		0.122E-01	

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)						
********	MN-54	SR-90	ZR-95*NB-95	RU-103,106	SB-125	CS-137	********
1966. 4. 1- 4.30	0.190E-02			0.189E-01		0.112E-01	
1966. 5. 1- 5.31	0.246E-02		0.340E-02	0.220E-01		0.127E-01	
1966. 6. 1- 6.30	0.143E-02		0.124E-01	0.212E-01		0.540E-02	
1966. 7. 1- 7.31	0.120E-02		0.760E-02	0.130E-01		0.380E-02	
1966. 8. 1- 8.31	0.760E-03		0.288E-02	0.107E-01		0.270E-02	
1966. 9. 1- 9.30			0.210E-02	0.120E-01		0.288E-02	
1966.10. 1-10.31				0.101E-01		0.240E-02	
1966.11. 1-11.30			0.820E-01	0.796E-01			
1966.12. 1-12.31			0.635E-02	0.150E-01		0.300E-02	
1967. 1. 1- 1.31		0.300E-03	0.800E-02	0.144E-01		0.257E-02	
1967. 2. 1- 2.28		0.240E-02	0.206E-01	0.171E-01		0.430E-02	
1967. 3. 1- 3.31		0.350E-02	0.400E-01	0.260E-01		0.710E-02	
1967. 4. 1- 4.30		0.290E-02	0.270E-01	0.178E-01		0.570E-02	
1967. 5. 1- 5.31		0.350E-02	0.167E-01	0.174E-01		0.640E-02	
1967. 6. 1- 6.30		0.180E-02	0.410E-02	0.110E-01		0.420E-02	
1967. 7. 1- 7.31		0.120E-02	0.156E-02	0.610E-02		0.220E-02	
1967. 8. 1- 8.31		0.660E-03	0.246E-02	0.770E-02		0.145E-02	
1967. 9. 1- 9.30		0.540E-03 *		0.750E-02		0.113E-02	
1967.10. 1-10.31		0.540E-03 *	0.360E-02	0.130E-01		0.145E-02	
1967.11. 1-11.31		0.530E-03	0.455E-02	0.880E-02		0.118E-02	
1967.12. 1-12.31		0.620E-03	0.540E-02	0.625E-02		0.122E-02	

* MEAN VALUE DURING THE INTERVALS

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)						
********	MN-54	SR-90	ZR-95*NB-95	RU-103,106	SB-125	CS-137	********
1968. 1. 1- 1.31		0.120E-02				0.210E-02	
1968. 2. 1- 2.29		0.990E-03				0.230E-02	
1968. 3. 1- 3.31							
1968. 4. 1- 4.30			0.570E-01	0.144E-01		0.750E-02	
1968. 5. 1- 5.31			0.410E-01	0.107E-01		0.450E-02	
1968. 6. 1- 6.30			0.350E-01	0.116E-01		0.590E-02	
1968. 7. 1- 7.31			0.980E-02	0.640E-02		0.320E-02	
1968. 8. 1- 8.31			0.130E-01	0.910E-02		0.340E-02	
1968. 9. 1- 9.30			0.920E-02	0.980E-02		0.350E-02	
1968.10. 1-10.31			0.110E-01	0.130E-01		0.360E-02	
1968.11. 1-11.30							
1968.12. 1-12.31			0.450E-02	0.105E-01		0.250E-02	
1969. 1. 1- 1.31			0.920E-02	0.120E-01		0.260E-02	
1969. 2. 1- 2.28			0.140E-01	0.110E-01		0.250E-02	
1969. 3. 1- 3.31			0.310E-01	0.170E-01		0.360E-02	
1969. 4. 1- 4.31		0.240E-02 *	0.710E-01	0.320E-01		0.580E-02	
1969. 5. 1- 5.30		0.240E-02 *	0.112E+00	0.350E-01		0.660E-02	
1969. 6. 1- 6.30		0.240E-02 *	0.189E+00	0.410E-01		0.550E-02	
1969. 7. 1- 7.31		0.120E-02 *	0.870E-01	0.310E-01		0.290E-02	
1969. 8. 1- 8.31		0.120E-02 *	0.660E-01	0.150E-01		0.280E-02	
1969. 9. 1- 9.30		0.120E-02 *	0.650E-01	0.190E-01		0.410E-02	
1969.10. 1-10.31		0.100E-02 *	0.490E-01	0.180E-01		0.450E-02	

* MEAN VALUE DURING THE INTERVALS

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)					
********	MN-54	SR-90	ZR-95*NB-95	RU-103,106	SB-125	CS-137 ********
1969.11. 1-11.30		0.100E-02 *	0.230E-01	0.110E-01		0.270E-02
1969.12. 1-12.31		0.100E-02 *	0.830E-02	0.600E-02		0.150E-02
1970. 1. 1- 1.31		0.500E-03 *	0.140E-01	0.110E-01		0.250E-02
1970. 2. 1- 2.28		0.500E-03 *	0.270E-01	0.150E-01		0.310E-02
1970. 3. 1- 3.31		0.500E-03 *	0.520E-01	0.210E-01		0.470E-02
1970. 4. 1- 4.30		0.420E-02 *	0.160E+00	0.310E-01		0.910E-02
1970. 5. 1- 5.31		0.420E-02 *	0.190E+00	0.300E-01		0.150E-01
1970. 6. 1- 6.30		0.420E-02 *	0.175E+00	0.250E-01		0.120E-01
1970. 7. 1- 7.31		0.160E-02 *	0.370E-01	0.130E-01		0.650E-02
1970. 8. 1- 8.31		0.160E-02 *	0.460E-01	0.110E-01		0.500E-02
1970. 9. 1- 9.30		0.160E-02 *	0.310E-01	0.920E-02		0.440E-02
1970.10. 1-10.31		0.670E-03 *	0.260E-01	0.190E-01		0.600E-02
1970.11. 1-11.30		0.670E-03 *	0.120E-01	0.120E-01		0.250E-02
1970.12. 1-12.31		0.670E-03 *	0.800E-02	0.880E-02		0.240E-02

* MEAN VALUE DURING THE INTERVALS

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)					
********	SR-90	ZR-95*NB-95	RU-103,106	CS-137	BA-140*LA-140	PU-239 (3) ********
1971. 1. 1- 1.31		0.130E-01		0.270E-02		
1971. 2. 1- 2.28		0.240E-01		0.270E-02		
1971. 3. 1- 3.31		0.660E-01		0.500E-02		
1971. 4. 1- 4.30		0.215E+00		0.135E-01		
1971. 5. 1- 5.31		0.250E+00		0.160E-01		
1971. 6. 1- 6.30		0.160E+00		0.900E-02		
1971. 7. 1- 7.31		0.500E-01		0.120E-02		
1971. 8. 1- 8.31		0.220E-01		0.230E-02		
1971. 9. 1- 9.30		0.140E-01		0.360E-02		
1971.10. 1-10.31		0.190E-01		0.360E-02		
1971.11. 1-11.30		0.100E-01		0.320E-02		
1971.12. 1-12.31		0.400E-02				
1972. 1. 1- 1.31		0.800E-02			0.270E-01	
1972. 2. 1- 2.29		0.700E-02				
1972. 3. 1- 3.31		0.740E-02		0.250E-02		
1972. 4. 1- 4.30	0.600E-03 *	0.520E-02		0.130E-02		
1972. 5. 1- 5.31	0.600E-03 *	0.260E-01		0.470E-02		
1972. 6. 1- 6.30	0.600E-03 *	0.460E-01		0.100E-02		
1972. 7. 1- 7.31	0.720E-03 *	0.175E-01		0.110E-02		
1972. 8. 1- 8.31	0.720E-02 *	0.100E-01				
1972. 9. 1- 9.30	0.720E-03 *	0.520E-02				
1972.10. 1-10.31	0.730E-03 *	0.400E-02				

* MEAN VALUE DURING THE INTERVALS

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)						
********	SR-90	ZR-95*NB-95	RU-103,106	CS-137	BA-140*LA-140	PU-239 (3)	********
1972.11. 1-11.30	0.730E-03 *	0.200E-02					
1972.12. 1-12.31	0.730E-03 *						
1973. 1. 1- 1.31	0.270E-03 *						
1973. 2. 1- 2.28	0.270E-03 *						
1973. 3. 1- 3.31	0.270E-03 *	0.180E-01		0.550E-03			
1973. 4. 1- 4.30	0.760E-03 *	0.360E-02		0.110E-02			
1973. 5. 1- 5.31	0.760E-03 *	0.130E-02		0.230E-02			
1973. 6. 1- 6.30	0.760E-03 *	0.190E-02		0.160E-02			
1973. 7. 1- 7.31	0.560E-03 *	0.740E-02		0.810E-03			
1973. 8. 1- 8.31	0.560E-03 *	0.340E-02		0.650E-03			
1973. 9. 1- 9.30	0.560E-03 *	0.330E-02		0.560E-03			
1973.10. 1-10.31	0.290E-03 *	0.440E-02		0.360E-03			
1973.11. 1-11.30	0.290E-03 *	0.640E-02		0.380E-03			
1973.12. 1-12.31	0.290E-03 *	0.980E-02		0.780E-03			

(3) MEASURED AT THE MONITORING STATION NO.3

* MEAN VALUE DURING THE INTERVALS

Table III-1-1 (Continued)

DATE ********	CONCENTRATION (PCI/M**3) SR-90	ZR-95*NB-95	RU-103,106	CS-137	BA-140*LA-140	PU-239 (2) ********
1974. 1. 1- 1.31	0.720E-03 *	0.110E-01	0.830E-02	0.730E-03		0.980E-05
1974. 2. 1- 2.28	0.720E-03 *	0.240E-01	0.120E-01	N.D.		0.168E-04
1974. 3. 1- 3.31	0.720E-03 *	0.340E-01	0.170E-01	N.D.		0.158E-04
1974. 4. 1- 4.30	0.130E-02 *	0.830E-01	0.290E-01	0.670E-02		0.500E-04
1974. 5. 1- 5.31	0.130E-02 *	0.920E-01	0.270E-01	0.990E-02		0.113E-03
1974. 6. 1- 6.30	0.130E-02 *	0.230E-01	0.820E-02	0.270E-02		0.165E-04
1974. 7. 1- 7.31	0.450E-03 *	0.150E-01	0.110E-01	0.300E-02		0.156E-04
1974. 8. 1- 8.31	0.450E-03 *	0.100E-01	0.730E-02	0.120E-02		0.141E-04
1974. 9. 1- 9.30	0.450E-03 *	0.890E-02	0.910E-02	0.180E-02		0.940E-05
1974.10. 1-10.31	0.160E-03	0.100E-01	0.380E-02	0.130E-02		0.158E-04
1974.11. 1-11.30	N.D.	0.150E-01	0.110E-01	0.200E-02		0.720E-05
1974.12. 1-12.31	0.170E-03	0.170E-01	0.750E-02	0.380E-03		0.430E-05
1975. 1. 1- 1.31	N.D.	0.180E-01	0.660E-02	0.110E-02		0.350E-05
1975. 2. 1- 2.28	0.130E-03	0.140E-01	0.580E-02	0.130E-02		0.164E-04
1975. 3. 1- 3.31	0.580E-04	0.350E-01	0.130E-01	0.350E-02		0.172E-04
1975. 4. 1- 4.30	0.850E-03	0.350E-01	0.150E-01	0.460E-02		0.220E-04

(2) MEASURED AT THE MONITORING STATION NO.2

N.D. NOT DETECTED
* MEAN VALUE DURING THE INTERVALS

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)						
********	BE-7 (1)	BE-7 (2)	BE-7 (3)	SR-90	ZR-95*NB-95	RU-103,106	********
1975. 5. 1- 5.31		0.570E-01		0.280E-02	0.250E-01	0.188E+00	
1975. 6. 1- 6.30		N.D.			0.190E-02	0.359E-01	
1975. 7. 1- 7.31		N.D.	0.510E-01				
1975. 8. 1- 8.31		N.D.	0.760E-01				
1975. 9. 1- 9.30		N.D.	0.149E+00				
1975.10. 1-10.31		0.101E+00	N.D.				
1975.11. 1-11.30		N.D.	0.145E+00				
1975.12. 1-12.31		0.970E-01	0.143E+00				
1976. 1. 1- 1.31		0.670E-01	0.700E-01				
1976. 2. 1- 2.29		0.970E-01					
1976. 3. 1- 3.31		0.127E+00	0.104E+00				
1976. 4. 1- 4.30		0.980E-01					
1976. 5. 1- 5.31	0.990E-01						
1976. 6. 1- 6.31	0.760E-01	0.680E-01					
1976. 7. 1- 7.31	0.780E-01	N.D.					
1976. 8. 1- 8.31	0.103E+00	0.690E-01					
1976. 9. 1- 9.30	0.730E-01	0.510E-01					
1976.10. 1-10.31	0.132E+00	0.246E+00					
1976.11. 1-11.30		0.177E+00					
1976.12. 1-12.31		0.107E+00					

(1) MEASURED AT THE MONITORING STATION NO.1
(2) MEASURED AT THE MONITORING STATION NO.2
(3) MEASURED AT THE MONITORING STATION NO.3

N.D. NOT DETECTED

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)					
********	CS-137	CS-137 (1)	CS-137 (2)	PU-239 (2)	PU-239 (3)	********
1975. 5. 1- 5.31	0.420E-02		0.310E-02	0.391E-04		
1975. 6. 1- 6.30	0.500E-03		0.151E-02	0.770E-05		
1975. 7. 1- 7.31			0.302E-02	0.660E-05		
1975. 8. 1- 8.31			N.D.	0.110E-04		
1975. 9. 1- 9.30			N.D.	0.123E-04		
1975.10. 1-10.31			N.D.	0.560E-05		
1975.11. 1-11.30			N.D.	0.250E-05		
1975.12. 1-12.31			N.D.	0.490E-05		
1976. 1. 1- 1.31			N.D.	0.350E-05		
1976. 2. 1- 2.29			N.D.	0.690E-05		
1976. 3. 1- 3.31			N.D.	0.620E-05		
1976. 4. 1- 4.30			N.D.	0.690E-05		
1976. 5. 1- 5.31		0.626E-03				
1976. 6. 1- 6.31		0.344E-03	0.242E-03	0.620E-05		
1976. 7. 1- 7.31		0.292E-03	0.337E-03	0.270E-05		
1976. 8. 1- 8.31		N.D.	0.132E-03	N.D.		
1976. 9. 1- 9.30		N.D.	0.287E-03	0.150E-05		
1976.10. 1-10.31		0.303E-03	0.507E-03	0.320E-05		
1976.11. 1-11.30			0.427E-03	0.200E-05		
1976.12. 1-12.31			0.149E-03	0.200E-05		

(1) MEASURED AT THE MONITORING STATION NO.1
(2) MEASURED AT THE MONITORING STATION NO.2
(3) MEASURED AT THE MONITORING STATION NO.3

N.D. NOT DETECTED

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)						
********	BE-7 (2)	ZR-95*NB-95 (2)	RU-106 (2)	SB-125 (2)	CS-137 (2)	PU-239 (2)	********
1977. 1. 1- 1.31	0.900E-01				0.326E-03	N.D.	
1977. 2. 1- 2.28	0.143E+00				0.108E-03	0.290E-05	
1977. 3. 1- 3.31	0.174E+00				0.338E-03	0.480E-05	
1977. 4. 1- 4.30	0.185E+00				0.110E-02	0.410E-05	
1977. 5. 1- 5.31	0.147E+00				0.286E-02	0.171E-04	
1977. 6. 1- 6.30	0.700E-01				0.165E-02	0.990E-05	
1977. 7. 1- 7.31	0.111E+00				0.304E-02	0.670E-05	
1977. 8. 1- 8.31	0.108E+00				0.277E-02	0.273E-04	
1977. 9. 1- 9.30	0.200E+00				0.375E-02	0.321E-04	
1977.10. 1-10.31	0.177E+00				0.336E-02	0.220E-04	
1977.11. 1-11.30	0.134E+00				0.199E-02	0.123E-04	
1977.12. 1-12.31	0.131E+00				0.200E-02	0.106E-04	
1978. 1. 1- 1.31						0.260E-05	
1978. 2. 1- 2.28	0.130E+00	0.270E-02	0.110E-01	0.160E-02	0.260E-02	0.194E-04	
1978. 3. 1- 3.31	0.180E+00	0.380E-02	0.180E-01	0.300E-02	0.260E-02	0.422E-04	
1978. 4. 1- 4.30	0.180E+00	0.430E-02	0.240E-01	0.380E-02	0.630E-02	0.207E-04	
1978. 5. 1- 5.31	0.170E+00	0.500E-02	0.230E-01	0.410E-02	0.660E-02	0.538E-04	
1978. 6. 1- 6.30	0.110E+00	N.D.	0.110E-01	0.230E-02	0.380E-02	0.265E-04	
1978. 7. 1- 7.31	0.920E-01	N.D.	0.700E-02	0.100E-02	0.230E-02	0.176E-04	

(2) MEASURED AT THE MONITORING STATION NO.2

N.D. NOT DETECTED

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)						
********	BE-7	MN-54	ZR-95	RU-103	RU-106	SB-125	********
1978. 5. 1- 5.31	0.170E+00	N.D.	N.D.	N.D.	0.240E-01	N.D.	
1978. 6. 1- 6.30	0.930E-01	N.D.	N.D.	N.D.	0.120E-01	N.D.	
1978. 7. 1- 7.31	0.860E-01	N.D.	N.D.	N.D.	0.660E-02	N.D.	
1978. 8. 1- 8.31	0.130E+00	N.D.	N.D.	N.D.	0.610E-02	N.D.	
1978. 9. 1- 9.30	0.230E+00	N.D.	N.D.	N.D.	0.580E-02	N.D.	
1978.10. 1-10.31	0.180E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1978.11. 1-11.30	0.170E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1978.12. 1-12.31	0.150E+00	N.D.	N.D.	0.180E-02	N.D.	N.D.	
1979. 1. 1- 1.31	0.130E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979. 2. 1- 2.28	0.170E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979. 3. 1- 3.31	0.220E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979. 4. 1- 4.30	0.160E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979. 5. 1- 5.31	0.170E+00	N.D.	N.D.	N.D.	0.460E-02	N.D.	
1979. 6. 1- 6.30	0.100E+00	N.D.	N.D.	N.D.	0.240E-02	0.860E-03	
1979. 7. 1- 7.31	0.100E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979. 8. 1- 9. 2	0.131E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979. 9. 3-10. 2	0.143E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979.10. 3-11. 5	0.201E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979.11. 6-12. 2	0.107E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1979.12. 3- 1. 6	0.127E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 1. 7- 2. 3	0.940E-01	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 2. 4- 2.26	0.126E+00	N.D.	N.D.	N.D.	N.D.	N.D.	

N.D. NOT DETECTED

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)					
********	CS-137	BA-140	CE-141	CE-144	PU-239	********
1978. 5. 1- 5.31	0.620E-02	N.D.	N.D.	N.D.	0.538E-04	
1978. 6. 1- 6.30	0.370E-02	N.D.	N.D.	N.D.	0.265E-04	
1978. 7. 1- 7.31	0.240E-02	N.D.	N.D.	N.D.	0.176E-04	
1978. 8. 1- 8.31	0.200E-02	N.D.	N.D.	0.120E-01	0.153E-04 *	
1978. 9. 1- 9.30	0.230E-02	N.D.	N.D.	0.110E-01	0.153E-04 *	
1978.10. 1-10.31	0.170E-02	N.D.	N.D.	0.610E-02	0.153E-04 *	
1978.11. 1-11.30	0.130E-02	N.D.	N.D.	0.590E-02	0.212E-04 *	
1978.12. 1-12.31	0.750E-03	0.160E-01	N.D.	N.D.	0.212E-04 *	
1979. 1. 1- 1.31	0.630E-03	N.D.	N.D.	N.D.	0.212E-04 *	
1979. 2. 1- 2.28	0.150E-02	N.D.	N.D.	N.D.	0.281E-04 *	
1979. 3. 1- 3.31	0.180E-02	N.D.	N.D.	N.D.	0.281E-04 *	
1979. 4. 1- 4.30	0.240E-02	N.D.	N.D.	N.D.	0.281E-04 *	
1979. 5. 1- 5.31	0.190E-02	N.D.	N.D.	N.D.	0.135E-04 *	
1979. 6. 1- 6.30	0.130E-02	N.D.	N.D.	N.D.	0,135E-04 *	
1979. 7. 1- 7.31	0.740E-03	N.D.	N.D.	N.D.	0.135E-04 *	
1979. 8. 1- 9. 2	0.632E-03	N.D.	N.D.	N.D.	0.490E-05 *	
1979. 9. 3-10. 2	0.576E-03	N.D.	N.D.	N.D.	0.490E-05 *	
1979.10. 3-11. 5	N.D.	N.D.	N.D.	N.D.	0.490E-05 *	
1979.11. 6-12. 2	N.D.	N.D.	N.D.	N.D.	0.560E-05 *	
1979.12. 3- 1. 6	N.D.	N.D.	N.D.	N.D.	0.560E-05 *	
1980. 1. 7- 2. 3	N.D.	N.D.	N.D.	N.D.	0.560E-05 *	
1980. 2. 4- 2.26	N.D.	N.D.	N.D.	N.D.	0.660E-05 *	

N.D. NOT DETECTED

Table III-1-1 (Continued)

DATE CONCENTRATION (PCI/M**3)

********	BE-7	MN-54	ZR-95	RU-103	RU-106	SB-125	********
1980. 3.10- 4. 6	0.233E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 4. 7- 5. 6	0.197E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 5. 7- 6. 3	0.202E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 6. 4- 7. 2	0.119E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 7. 3- 8. 4	0.386E-01	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 8. 5- 9. 1	0.676E-01	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 9. 2- 9.29	0.140E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 9.30-11. 4	0.160E+00	N.D.	N.D.	N.D.	N.D.	N.D.	
1980.11. 5-12. 1	0.158E+00	N.D.	0.948E-02	0.157E-01	N.D.	N.D.	
1980.12. 2- 1. 5	0.690E-01	N.D.	0.770E-02	0.111E-01	N.D.	N.D.	
1981. 1. 6- 1.27	0.738E-01	N.D.	0.123E-01	0.117E-01	N.D.	N.D.	
1981. 1.28- 3. 3	0.109E+00	N.D.	0.280E-01	0.230E-01	0.800E-02	N.D.	
1981. 3. 4- 3.25	0.203E+00	0.200E-02	0.540E-01	0.470E-01	0.240E-01	N.D.	
1981. 3.26- 5. 7	0.125E+00	0.179E-02	0.467E-01	0.322E-01	0.233E-01	N.D.	
1981. 5. 8- 6. 1	0.840E-01	N.D.	0.246E-01	0.135E-01	0.166E-01	N.D.	
1981. 6. 2- 7. 2	0.670E-01	0.670E-03	0.158E-01	0.162E-02	0.889E-02	N.D.	
1981. 7. 3- 8. 4	0.499E-01	0.140E-03	0.310E-01	0.110E-02	0.320E-02	N.D.	
1981. 8. 5- 9. 1	0.930E-01	N.D.	0.410E-02	0.592E-03	0.584E-02	N.D.	

N.D. NOT DETECTED

Table III-1-1 (Continued)

DATE	CONCENTRATION (PCI/M**3)					
********	CS-137	BA-140	CE-141	CE-144	PU-239	********
1980. 3.10- 4. 6	0.870E-03	N.D.	N.D.	N.D.	0.660E-05 *	
1980. 4. 7- 5. 6	N.D.	N.D.	N.D.	N.D.	0.660E-05 *	
1980. 5. 7- 6. 3	0.142E-02	N.D.	N.D.	N.D.	0.580E-05 *	
1980. 6. 4- 7. 2	0.951E-03	N.D.	N.D.	N.D.	0.580E-05 *	
1980. 7. 3- 8. 4	N.D.	N.D.	N.D.	N.D.	0.580E-05 *	
1980. 8. 5- 9. 1	N.D.	N.D.	N.D.	N.D.	0.180E-05 *	
1980. 9. 2- 9.29	N.D.	N.D.	N.D.	N.D.	0.180E-05 *	
1980. 9.30-11. 4	0.718E-03	N.D.	N.D.	N.D.	0.180E-05 *	
1980.11. 5-12. 1	N.D.	0.154E-01	0.130E-01	0.377E-02	0.570E-05 *	
1980.12. 2- 1. 5	N.D.	0.910E-02	0.929E-02	0.360E-02	0.570E-05 *	
1981. 1. 6- 1.27	N.D.	N.D.	0.100E-01	N.D.	0.570E-05 *	
1981. 1.28- 3. 3	N.D.	N.D.	0.150E-01	0.150E-01	N.D.	
1981. 3. 4- 3.25	0.345E-02	N.D.	0.280E-01	0.440E-01	N.D.	
1981. 3.26- 5. 7	0.380E-02	N.D.	0.176E-01	0.488E-01	N.D.	
1981. 5. 8- 6. 1	0.290E-02	N.D.	0.670E-02	0.304E-01	N.D.	
1981. 6. 2- 7. 2	0.199E-02	N.D.	N.D.	0.225E-01	N.D.	
1981. 7. 3- 8. 4	0.360E-03	N.D.	0.760E-03	0.530E-01	N.D.	
1981. 8. 5- 9. 1	0.131E-02	N.D.	N.D.	0.933E-02	N.D.	

N.D. NOT DETECTED
* MEAN VALUE DURING THE INTERVALS

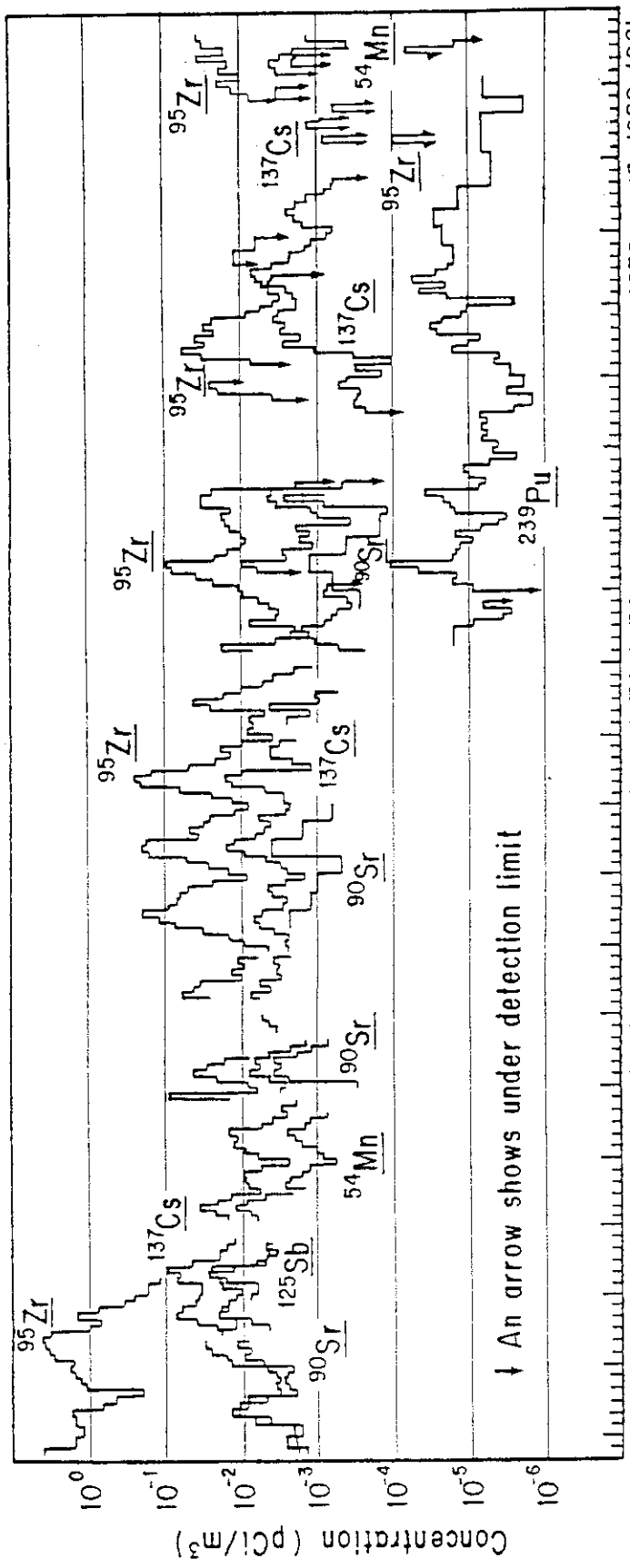


Fig. III-1-1a Monthly average concentration of radionuclides in air at Tokai-mura

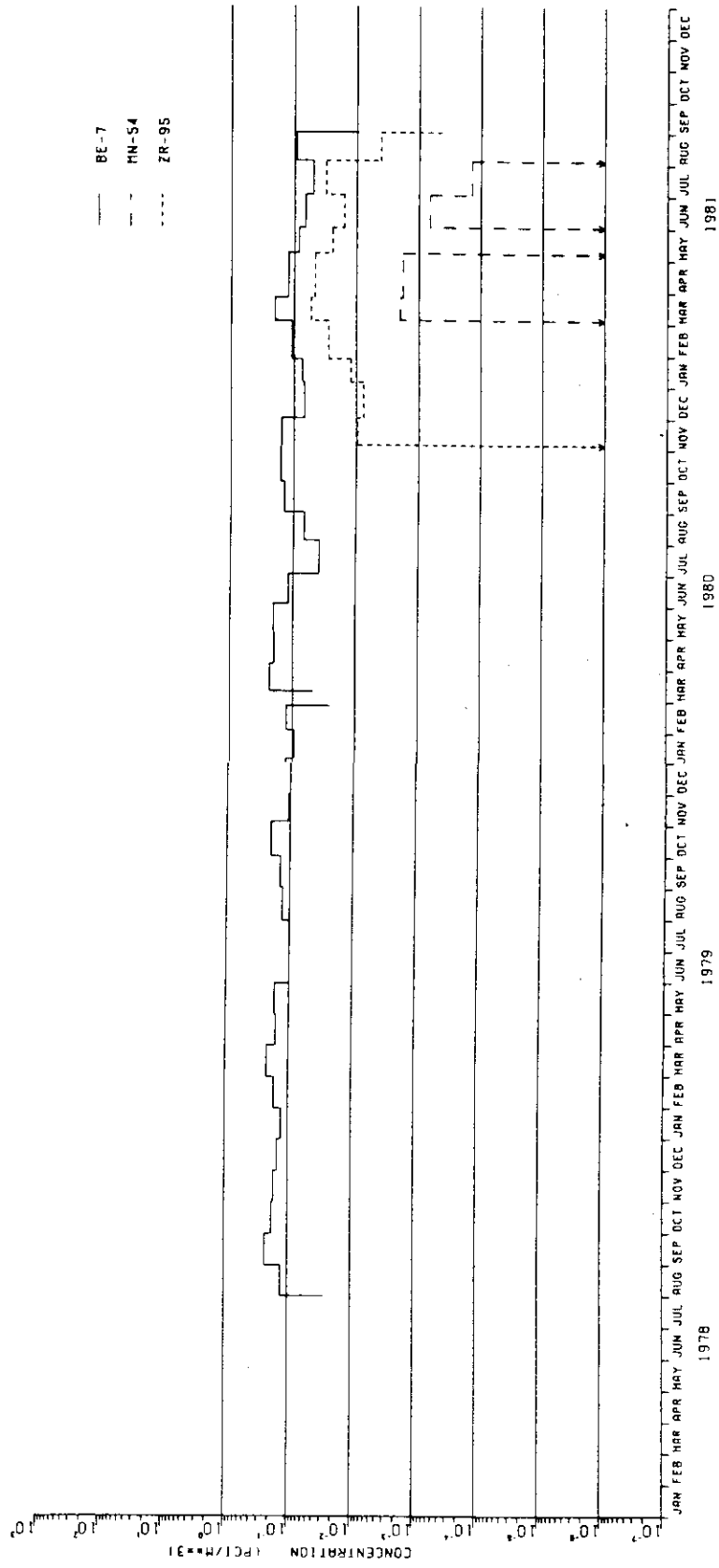

BE-7
MN-54
ZR-95
CONCENTRATION (PCI/M**3)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1978
1979
1980
1981

Fig. III-1-1b

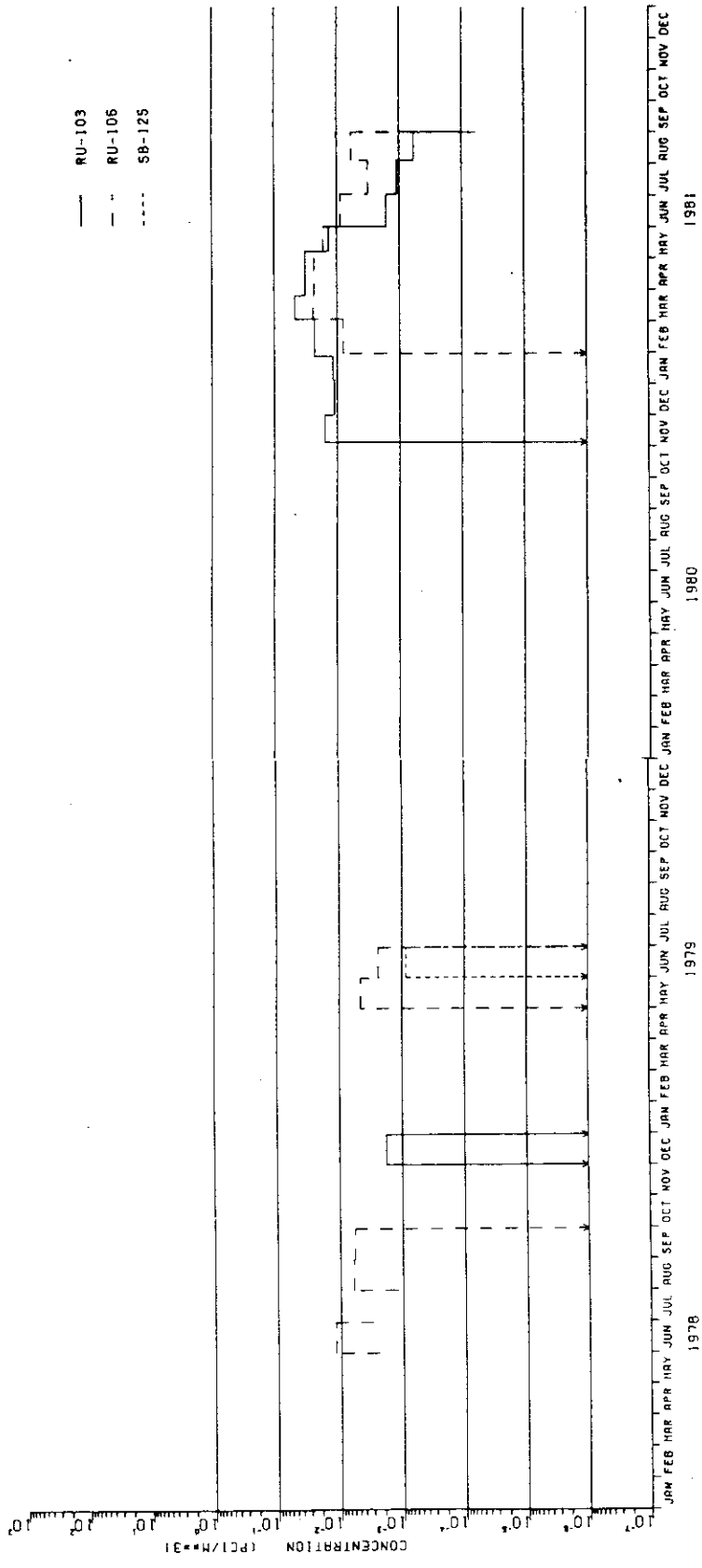

RU-103
RU-106
SB-125
CONCENTRATION (PCI/M**3)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1978
1979
1980
1981

Fig.III-1-1c

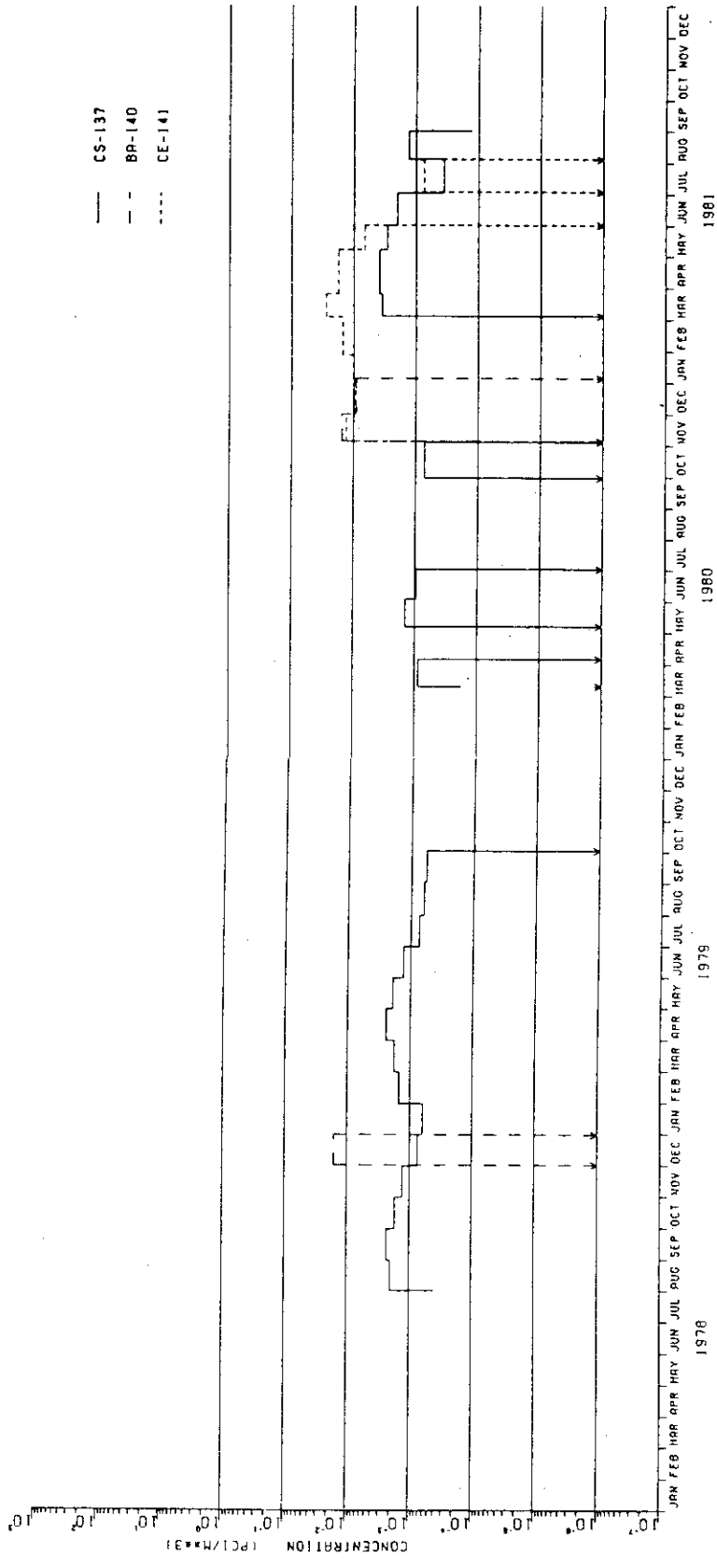

CS-137
BR-140
CE-141
CONCENTRATION (PCI/M**3)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1978
1979
1980
1981

Fig. III-1-1d

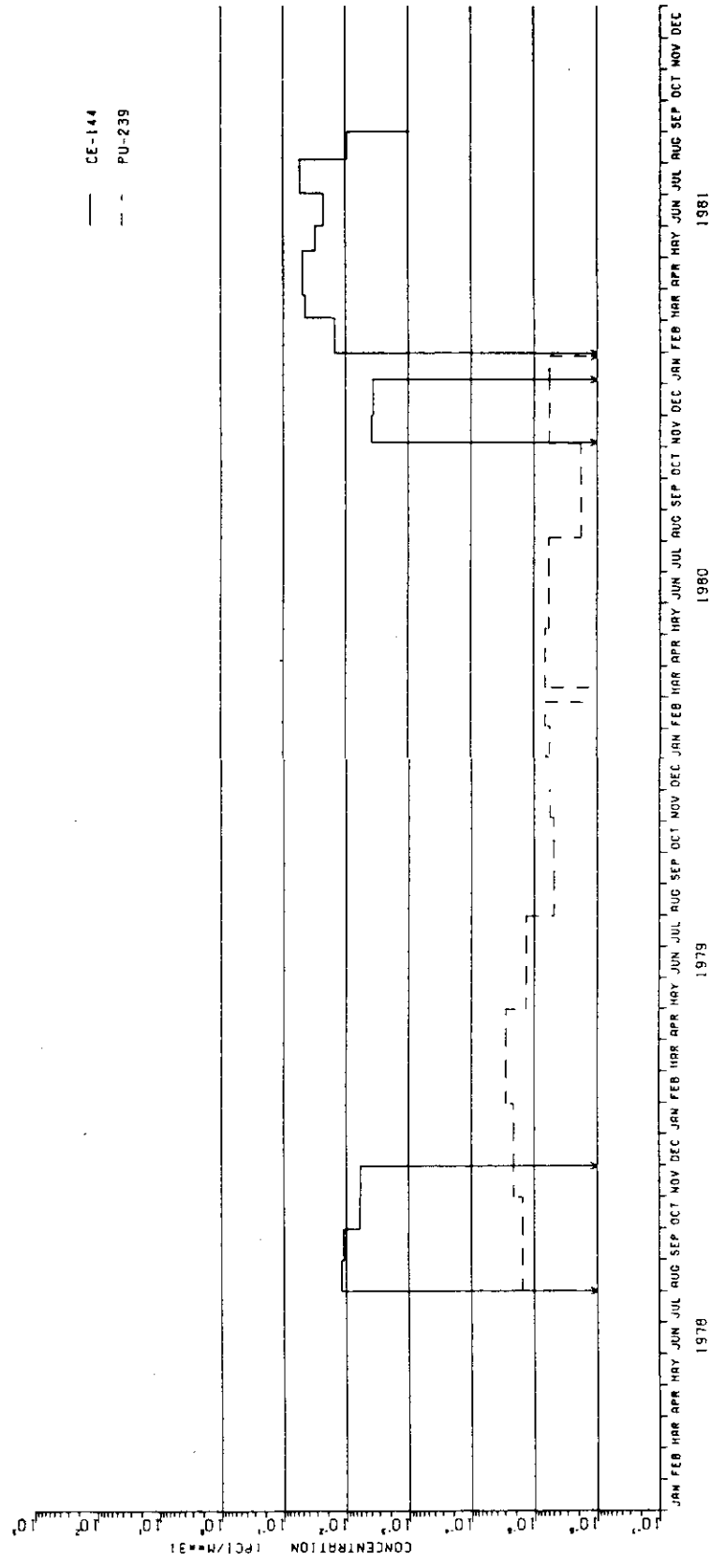

CE-144
PU-239
CONCENTRATION (PCI/M**3)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1978
1979
1980
1981

Fig. III-1-1e

2. Fallout Radionuclides

Table III-2-1 Monthly deposition of fallout at Tokai-mura (1975-1981)

****
*
* MONTHLY FALLOUT OF RADIONUCLIDES *
*
* AT TOKAI-MURA *
*
****

DATE	FALLOUT (PCI/M**2)			
********	BE-7	CS-137	PU-239	********
1975. 4. 1- 4.30	0.515E+04	0.125E+03		
1975. 5. 1- 5.31	0.391E+04	0.138E+03	0.270E+01	
1975. 6. 1- 6.30	0.299E+04	0.560E+02	0.170E+01	
1975. 7. 1- 7.31	0.192E+04	N.D.	0.800E+00	
1975. 8. 1- 8.31	0.121E+04	N.D.	0.700E+00	
1975. 9. 1- 9.30	0.370E+04	0.180E+02	0.400E+00	
1975.10. 1-10.31	0.600E+04	0.220E+02	0.300E+00	
1975.11. 1-11.30	0.350E+04	N.D.	0.300E+00	
1975.12. 1-12.31	0.109E+04	N.D.	0.200E+00	
1976. 1. 1- 1.31	N.D.	N.D.	0.100E+00	
1976. 2. 1- 2.29	0.408E+04	0.530E+02	0.400E+00	
1976. 3. 1- 3.31	0.664E+04	0.400E+02	0.500E+00	
1976. 4. 1- 4.30	0.541E+04	0.470E+02	0.500E+00	
1976. 5. 1- 5.31	0.115E+05	0.670E+02	0.100E+01	
1976. 6. 1- 6.30	0.123E+05	0.690E+02	0.130E+01	
1976. 7. 1- 7.31	0.383E+04	0.230E+02	0.800E+00	
1976. 8. 1- 8.31	0.467E+04	0.190E+02	0.800E+00	
1976. 9. 1- 9.30	0.712E+04	0.170E+02	0.400E+00	
1976.10. 1-10.31	0.900E+04	N.D.	0.300E+00	
1976.11. 1-11.30	0.244E+04	0.100E+02	0.200E+00	
1976.12. 1-12.31	0.174E+04	0.100E+02	0.100E+00	

N.D. NOT DETECTED

Table-III-2-1 (Continued)

DATE	FALLOUT (PCI/M**2)			
********	BE-7	CS-137	PU-239	********
1977. 2. 1- 2.28	0.108E+04	0.900E+01	0.100E+00	
1977. 3. 1- 3.31	0.439E+04	0.460E+02		
1977. 4. 1- 4.30	0.373E+04	0.500E+02		
1977. 5. 1- 5.31	0.481E+04	0.990E+02		
1977. 6. 1- 6.30	0.521E+04	0.153E+03		
1977. 7. 1- 7.31	0.393E+04	0.129E+03	0.100E+01	
1977. 8. 1- 8.31	0.636E+04	0.151E+03		
1977. 9. 1- 9.30	0.319E+04	0.690E+02	0.500E+00	
1977.10. 1-10.31	0.840E+03	0.190E+02	0.400E+00	
1977.11. 1-11.30	0.421E+04	0.540E+02	0.400E+00	
1977.12. 1-12.31	0.138E+04	0.330E+02	0.300E+00	

Table-III-2-1 (Continued)

DATE	FALLOUT (PCI/M**2)						
********	BE-7	MN-54	ZR-95	RU-103	RU-106	SB-125	********
1978. 1. 1- 1.31							
1978. 2. 1- 2.28							
1978. 3. 1- 3.31							
1978. 4. 1- 4.30	0.690E+04	0.200E+02	0.200E+03	0.650E+03	0.890E+03	0.130E+03	
1978. 5. 1- 5.31	0.330E+04	0.130E+02	0.390E+03	0.720E+02	0.510E+03	0.720E+02	
1978. 6. 1- 6.30	0.331E+04	0.660E+01	0.340E+02	0.260E+02	0.370E+03	0.440E+02	
1978. 7. 1- 7.31	0.740E+03	N.D.	0.950E+01	0.600E+01	0.780E+02	0.880E+01	
1978. 8. 1- 8.31	0.585E+03	N.D.	0.543E+01	N.D.	0.775E+02	0.996E+01	
1978. 9. 1- 9.30	0.467E+04	N.D.	0.868E+01	N.D.	0.979E+02	0.146E+02	
1978.10. 1-10.31	0.407E+04	N.D.	N.D.	N.D.	0.579E+02	0.907E+01	
1978.11. 1-11.30	0.272E+04	N.D.	N.D.	N.D.	0.373E+02	0.706E+01	
1978.12. 1-12.31	0.147E+04	N.D.	0.746E+02	0.356E+03	N.D.	N.D.	
1979. 1. 1- 1.31	0.248E+04	N.D.	N.D.	0.374E+02	0.361E+01	N.D.	
1979. 2. 1- 2.28	0.451E+04	N.D.	N.D.	0.123E+02	0.432E+02	0.137E+02	
1979. 3. 1- 3.31	0.643E+04	N.D.	N.D.	0.510E+02	0.933E+02	0.201E+02	
1979. 4. 1- 4.30	0.421E+04	0.320E+01	N.D.	N.D.	0.127E+03	0.331E+02	
1979. 5. 1- 5.31	0.734E+04	0.430E+01	0.164E+02	0.168E+02	0.273E+03	0.551E+02	
1979. 6. 1- 6.30	0.315E+04	N.D.	N.D.	N.D.	0.796E+02	0.116E+02	
1979. 7. 1- 7.31	0.400E+04	N.D.	N.D.	N.D.	0.575E+02	0.127E+02	
1979. 8. 1- 8.31	0.274E+04	N.D.	N.D.	N.D.	0.353E+02	N.D.	
1979. 9. 1- 9.30		N.D.	N.D.	N.D.		N.D.	
1979.10. 1-10.31	0.603E+04 *	N.D.	N.D.	N.D.	0.228E+02 *	N.D.	

N.D. NOT DETECTED
* MEAN VALUE DURING THE INTERVALS

Table III-2-1 (Continued)

DATE FALLOUT (PCI/M**2)

********	CS-137	BA-140	CE-141	CE-144	PU-239	********
1979.11. 1-11.30	0.166E+02 *	N.D.	N.D.	0.258E+02 *	0.200E+00	
1979.12. 1-12.31	0.118E+02 *	N.D.	N.D.	0.201E+02 *	0.100E+00	
1980. 1. 1- 1.31	0.785E+01	N.D.	N.D.	N.D.	0.100E+00	
1980. 2. 1- 2.29	0.742E+01	N.D.	N.D.	N.D.	0.100E+00	
1980. 3. 1- 3.31	0.242E+02	N.D.	N.D.	0.401E+02	0.200E+00	
1980. 4. 1- 4.30	0.361E+02	N.D.	N.D.	0.272E+02	0.300E+00	
1980. 5. 1- 5.31	0.346E+02	N.D.	N.D.	0.470E+01	0.400E+00	
1980. 6. 1- 6.30	0.213E+02	N.D.	N.D.	0.178E+02	0.200E+00	
1980. 7. 1- 7.31		N.D.			0.400E+00	
1980. 8. 1- 8.31	0.699E+01	N.D.	N.D.	N.D.	0.100E+00	
1980. 9. 1- 9.30	0.116E+02	N.D.	N.D.	N.D.	0.100E+00	
1980.10. 1-10.31		N.D.			0.100E+00	
1980.11. 1-11.30	0.596E+01	N.D.	N.D.	N.D.	0.100E+00	
1980.12. 1-12.31	0.127E+02	N.D.	0.281E+03	0.860E+02	0.100E+00	
1981. 1. 1- 1.31	0.590E+01	N.D.	0.914E+02	0.543E+03	0.100E+00	
1981. 2. 1- 2.28	0.156E+02	N.D.	0.177E+02	0.186E+03	0.100E+00	
1981. 3. 1- 3.31	0.663E+02	N.D.	0.540E+03	0.872E+03	0.800E+00	
1981. 4. 1- 4.30	0.134E+03	N.D.	0.578E+03	0.168E+04	0.140E+01	
1981. 5. 1- 5.31	0.201E+03	N.D.	0.485E+03	0.243E+04	0.290E+01	
1981. 6. 1- 6.30	0.732E+02	N.D.	0.206E+03	0.179E+04		
1981. 7. 1- 7.31	0.409E+02	N.D.	0.274E+02	0.400E+03		

N.D. NOT DETECTED
* MEAN VALUE DURING THE INTERVALS

Table III-2-1 (Continued)

DATE	FALLOUT (PCI/M**2)						
********	BE-7	MN-54	ZR-95	RU-103	RU-106	SB-125	********
1979.11. 1-11.30	0.603E+04 *	N.D.	N.D.	N.D.	0.228E+02 *	N.D.	
1979.12. 1-12.31	0.757E+03 *	N.D.	N.D.	N.D.	0.484E+02 *	0.555E+01 *	
1980. 1. 1- 1.31	0.715E+03	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 2. 1- 2.29	0.809E+03	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 3. 1- 3.31	0.312E+04	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 4. 1- 4.30	0.656E+04	N.D.	N.D.	N.D.	0.329E+02	0.131E+02	
1980. 5. 1- 5.31	0.571E+04	N.D.	N.D.	N.D.	0.345E+02	0.152E+02	
1980. 6. 1- 6.30	0.331E+04	N.D.	N.D.	N.D.	0.257E+02	0.672E+01	
1980. 7. 1- 7.31							
1980. 8. 1- 8.31	0.189E+04	N.D.	N.D.	N.D.	N.D.	N.D.	
1980. 9. 1- 9.30	0.426E+04	N.D.	N.D.	N.D.	N.D.	N.D.	
1980.10. 1-10.31							
1980.11. 1-11.30	0.310E+04	N.D.	N.D.	0.337E+01	N.D.	N.D.	
1980.12. 1-12.31	0.169E+04	0.441E+01	0.285E+03	0.367E+03	N.D.	N.D.	
1981. 1. 1- 1.31	0.745E+03	0.250E+01	0.101E+03	0.136E+03	N.D.	N.D.	
1981. 2. 1- 2.28	0.104E+04	0.879E+01	0.287E+03	0.336E+03	N.D.	N.D.	
1981. 3. 1- 3.31	0.301E+04	0.284E+02	0.100E+04	0.681E+03	0.375E+03	0.431E+02	
1981. 4. 1- 4.30	0.546E+04	0.559E+02	0.124E+04	0.105E+04	0.698E+03	0.736E+02	
1981. 5. 1- 5.31	0.636E+04	0.815E+02	0.149E+04	0.986E+03	0.103E+04	N.D.	
1981. 6. 1- 6.30	0.706E+04	0.550E+02	0.641E+03	0.440E+03	0.794E+03	N.D.	
1981. 7. 1- 7.31	0.209E+04	0.125E+02	0.173E+03	0.775E+02	0.221E+03	N.D.	

N.D. NOT DETECTED
* MEAN VALUE DURING THE INTERVALS

Table III-2-1 (Continued)

DATE	FALLOUT (PCI/M**2)					
********	CS-137	BA-140	CE-141	CE-144	PU-239	********
1978. 1. 1- 1.31					0.400E+00	
1978. 2. 1- 2.28					0.800E+00	
1978. 3. 1- 3.31					0.120E+01	
1978. 4. 1- 4.30	0.280E+03	0.460E+03		0.180E+04	0.280E+01	
1978. 5. 1- 5.31	0.160E+03	N.D.	N.D.	0.110E+04	0.190E+01	
1978. 6. 1- 6.30	0.120E+03	N.D.	N.D.	0.740E+03	0.120E+01	
1978. 7. 1- 7.31	0.320E+02	N.D.	N.D.	N.D.	0.200E+00	
1978. 8. 1- 8.31	0.186E+02	N.D.	N.D.	0.110E+03	0.200E+00	
1978. 9. 1- 9.30	0.390E+02	N.D.	N.D.	0.172E+03	0.400E+00	
1978.10. 1-10.31	0.286E+02	N.D.	N.D.	N.D.	0.200E+00	
1978.11. 1-11.30	0.596E+01	N.D.	N.D.	N.D.	0.100E+00	
1978.12. 1-12.31	0.189E+02	0.317E+04	0.576E+03	0.693E+02	0.100E+00	
1979. 1. 1- 1.31	0.168E+02	0.144E+03	N.D.	N.D.	0.100E+00	
1979. 2. 1- 2.28	0.158E+02	N.D.	N.D.	N.D.	0.100E+00	
1979. 3. 1- 3.31	0.343E+02	N.D.	N.D.	N.D.	0.300E+00	
1979. 4. 1- 4.30	0.593E+02	N.D.	N.D.	N.D.	0.600E+00	
1979. 5. 1- 5.31	0.160E+03	N.D.	N.D.	N.D.	0.160E+01	
1979. 6. 1- 6.30	0.396E+02	N.D.	N.D.	N.D.	0.400E+00	
1979. 7. 1- 7.31	0.409E+02	N.D.	N.D.	N.D.	0.300E+00	
1979. 8. 1- 8.31	0.195E+02	N.D.	N.D.	N.D.	0.200E+00	
1979. 9. 1- 9.30		N.D.	N.D.	N.D.	0.100E+00	
1979.10. 1-10.31	0.166E+02 *	N.D.	N.D.	0.258E+02 *	0.200E+00	

N.D. NOT DETECTED
* MEAN VALUE DURING THE INTERVALS

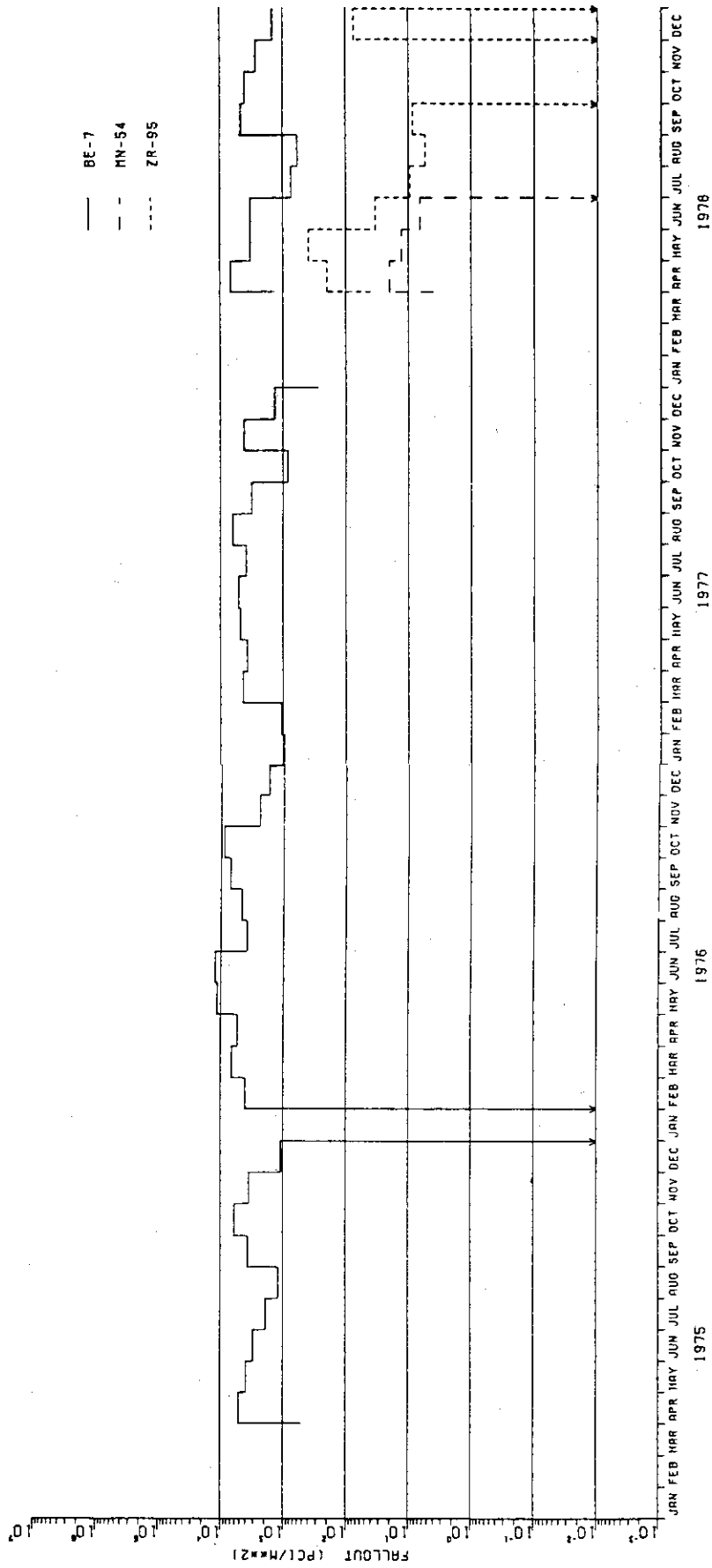


Fig. III-2-1a Monthly deposition of fallout at Tokai-mura (1975-1981)

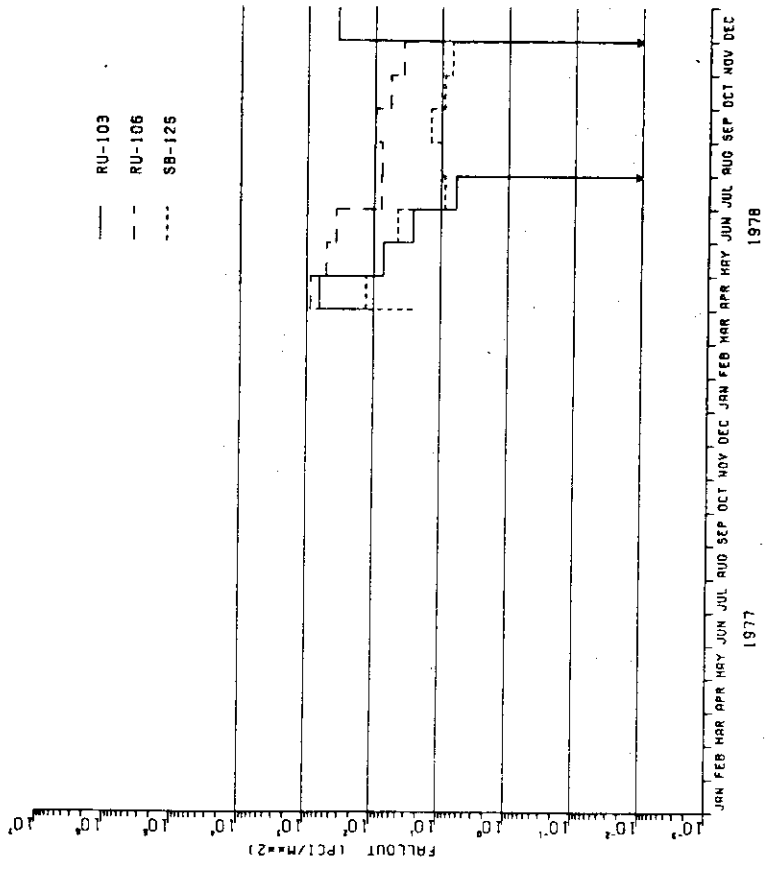

RU-103
RU-106
SB-125
FALLOUT (PCI/M**2)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1977
1978

Fig. III-2-1b

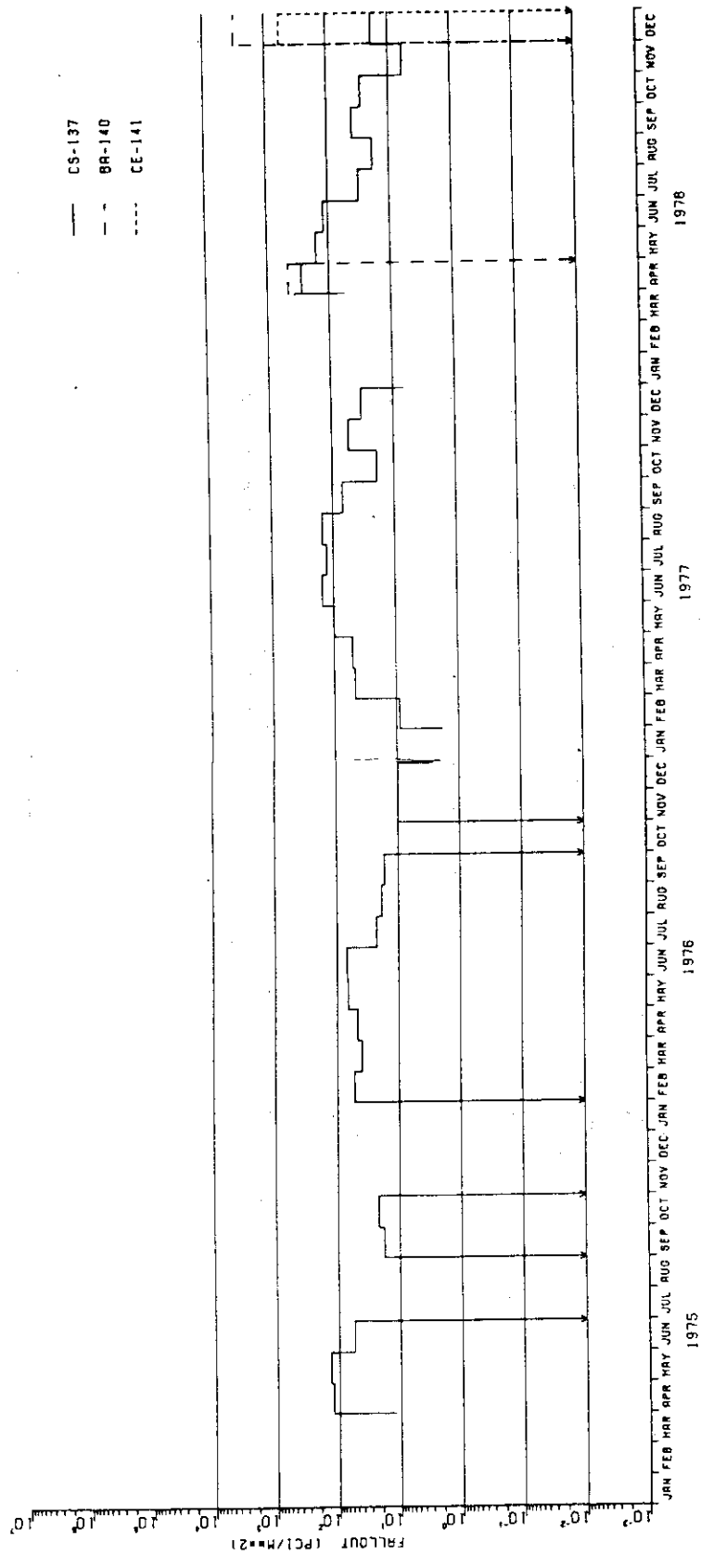

CS-137
BA-140
CE-141
FALLOUT (PCI/M**2)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1975
1976
1977
1978

Fig. III-2-1c

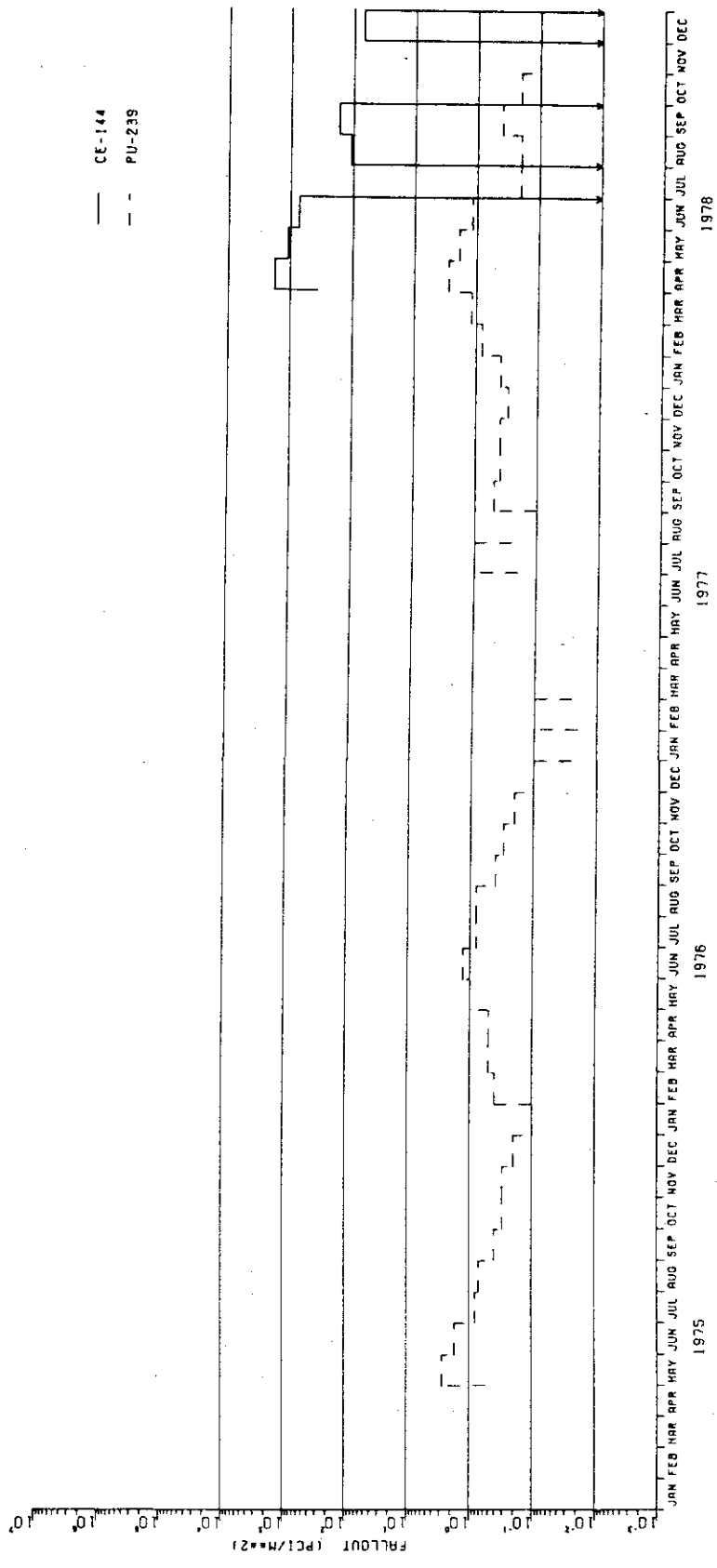

CE-144
PU-239
FALLOUT (PCI/M**2)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1975
1976
1977
1978

Fig.III-2-1d

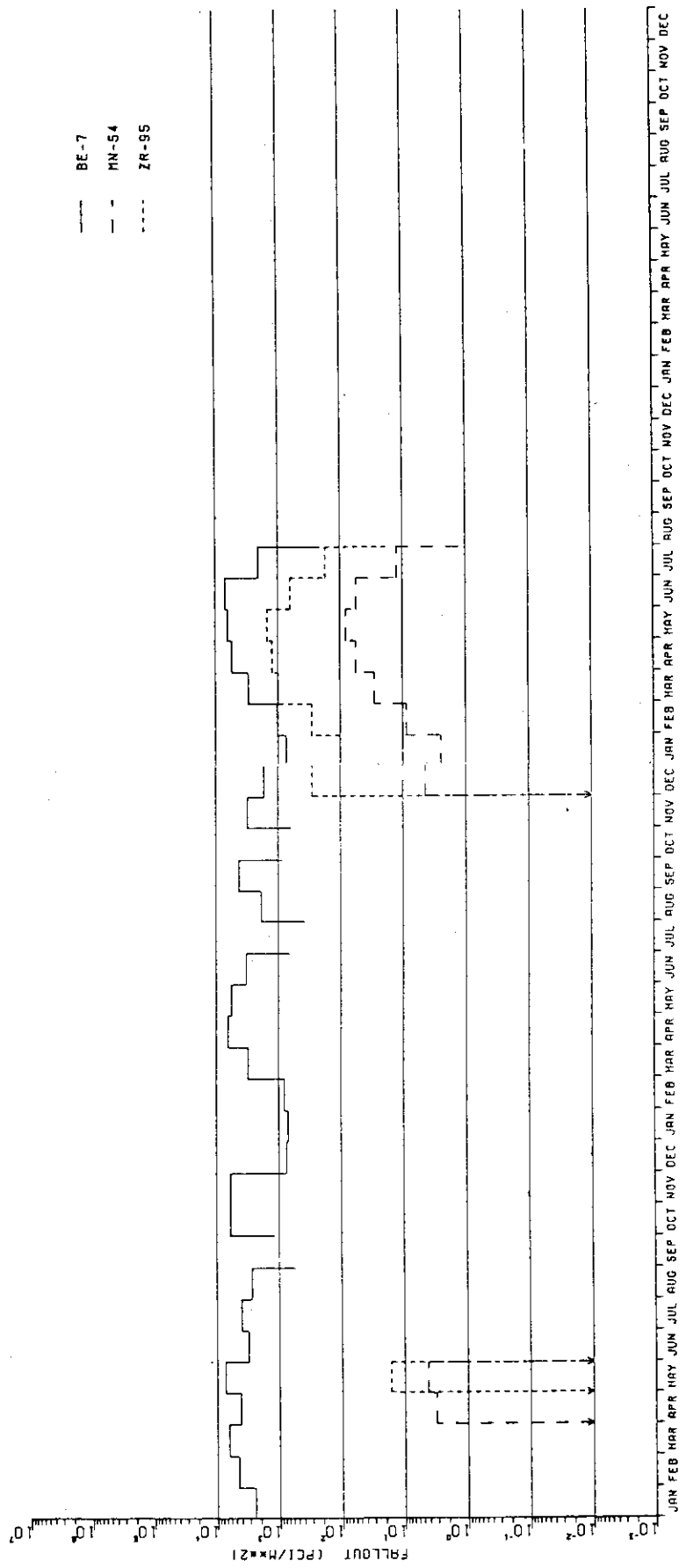

BE-7
MN-54
ZR-95
FALLOUT (PCI/M**2)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1979
1980
1981
1982

Fig. III-2-1e

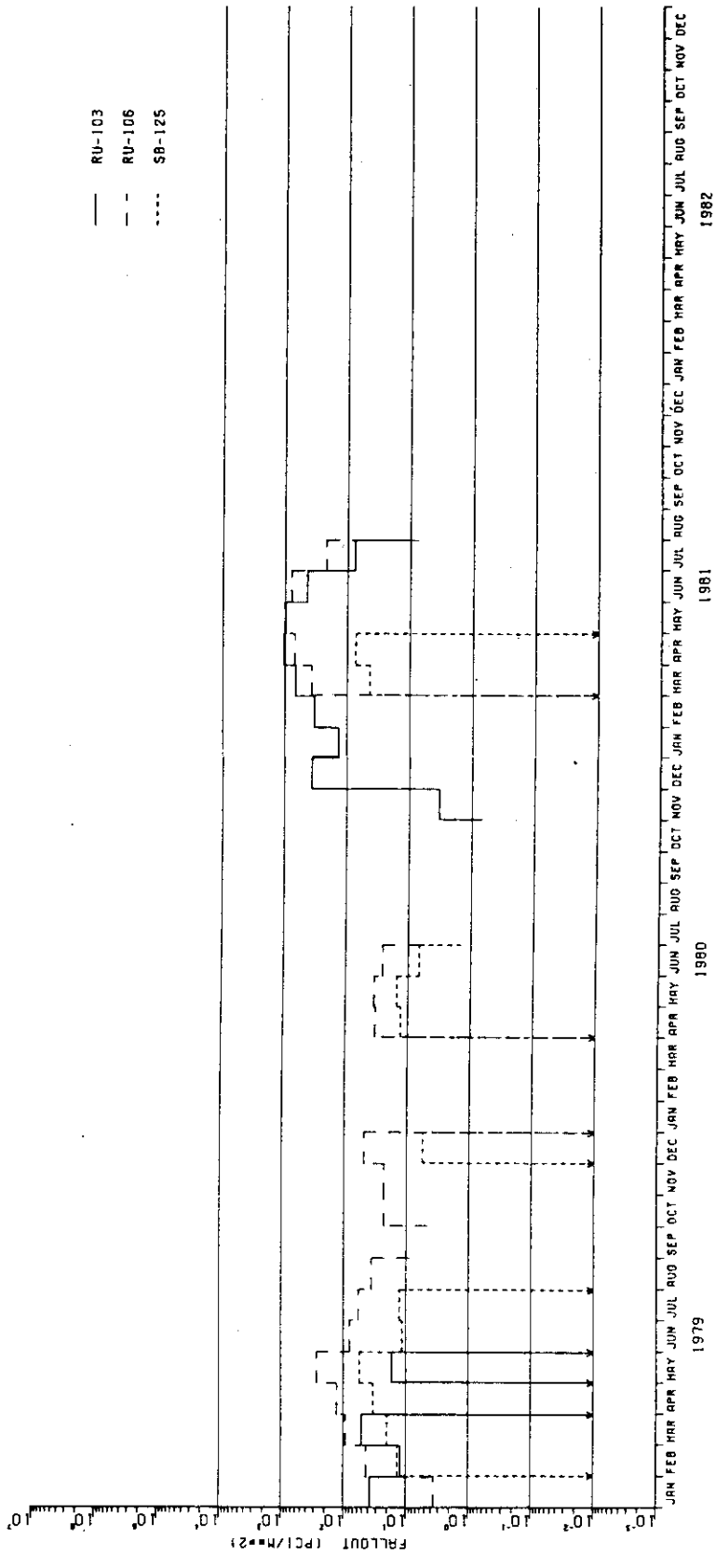

RU-103
RU-106
SB-125
FALLOUT (PCi/M**2)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1979
1980
1981
1982

Fig.III-2-1f

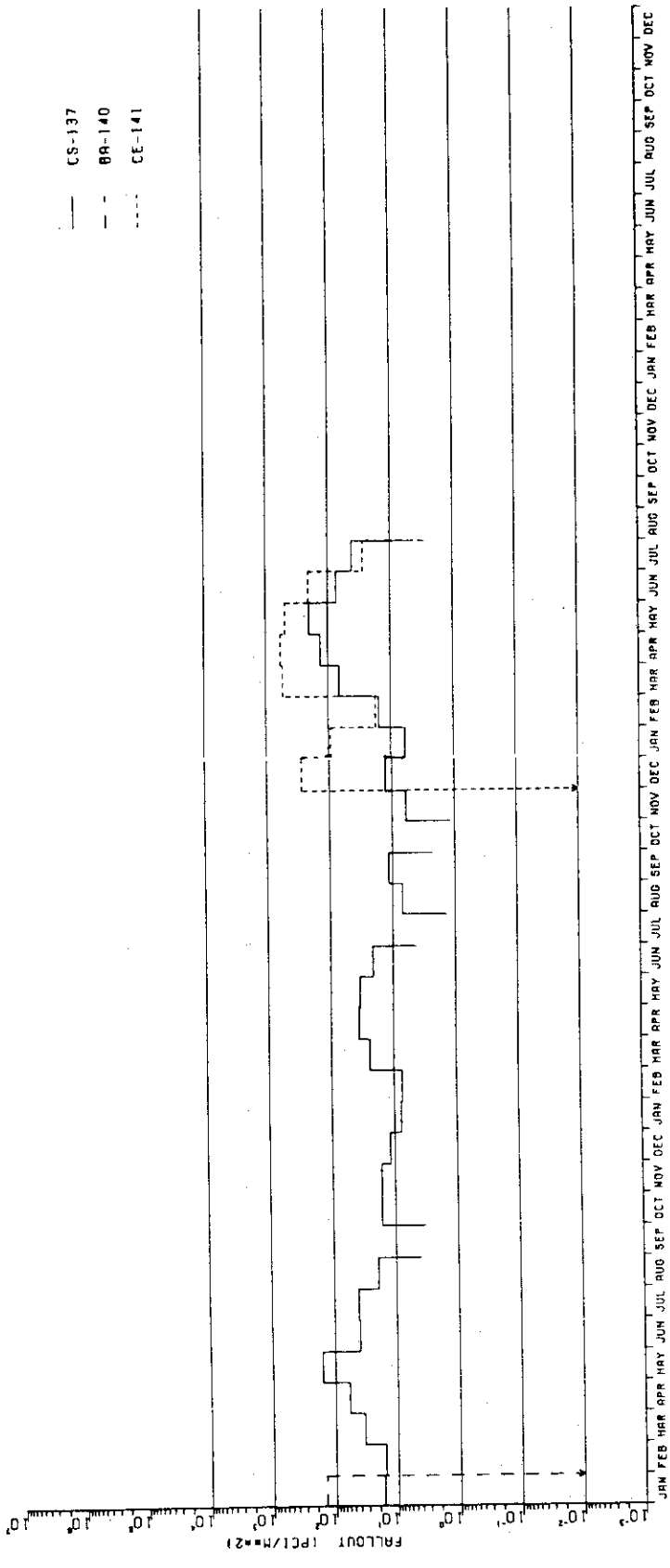

CS-137
BA-140
CE-141
FALLOUT (PCI/M**2)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1979
1980
1981
1982

Fig. II-2-1g

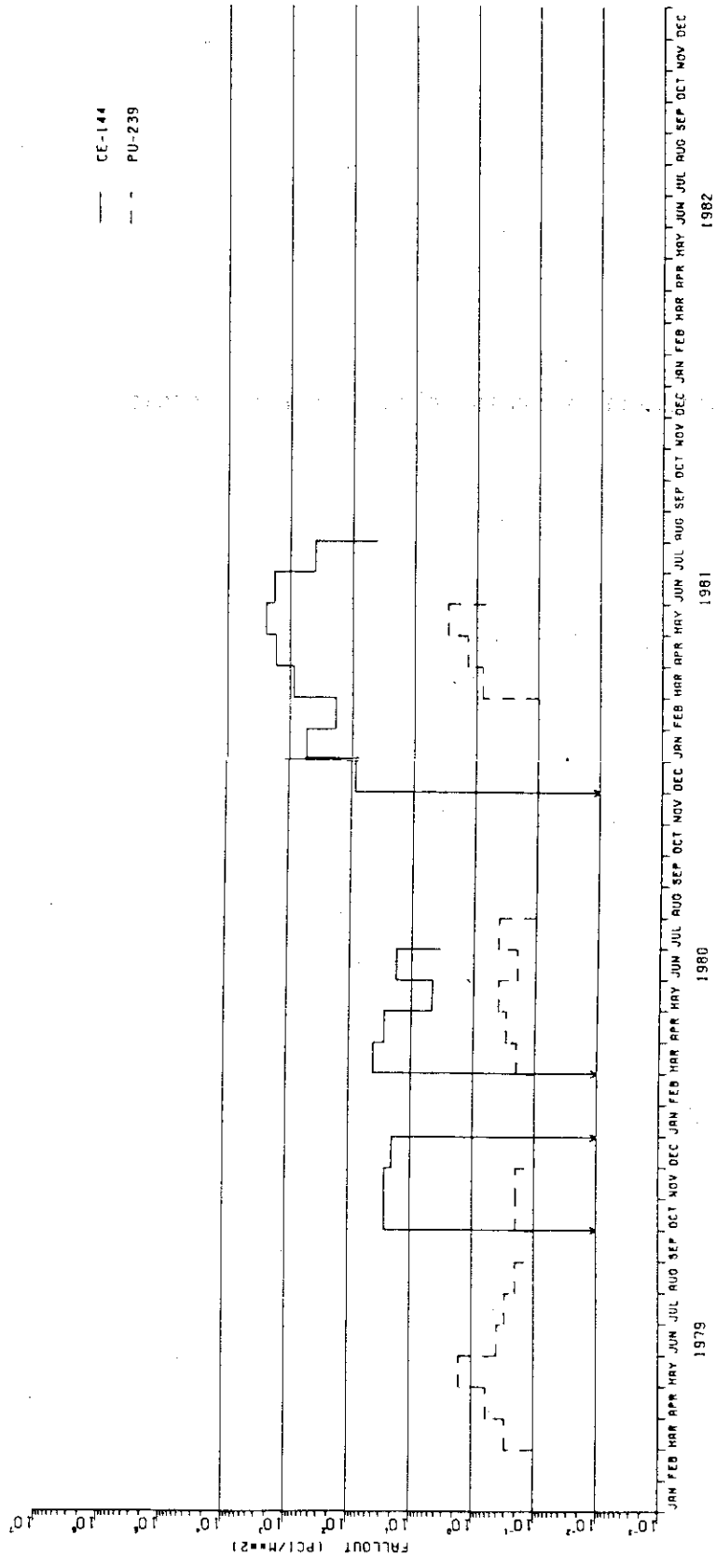

CE-144
PU-239
FALLOUT (PCi/M**2)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1979
1980
1981
1982

Fig. III-2-1h

3. Concentration of Radionuclides in Pine Needle

Table III-3-1 Condition of the measurement of the pine needles collected at Tokai-mura

Sample[1]		Measurement Date	Counting Time (sec)	Wet Weight (g)	Ash Weight (g)	Ashing Rate (%)	Density[2] (g/cm^3)
S-1	No.1	1978. 6. 5	90000	1970	24.92	1.26	0.142
	No.2	1978. 8. 2	58000	616	10.67	1.73	0.123
S-2	No.1	1978. 6. 6	70000	1780	27.81	1.56	0.138
	No.2	1978. 8.15	60000	1083	22.26	2.06	0.148
S-3	No.1	1978. 6. 7	90000	1690	29.01	1.72	0.144
	No.2	1978. 8.16	61000	886	18.49	2.09	0.123
S-4	No.1	1978. 6. 8	80000	1090	16.04	1.47	0.091
S-5	No.1	1978. 6.12	65000	1215	16.09	1.32	0.092
	No.2	1978. 8.17	54000	805	48.09	5.97	0.319
S-6	No.1	1978. 6.13	55000	1010	13.37	1.32	0.076
	No.2	1978. 7.21	52000	848	24.10	2.84	0.240
S-7	No.1	1978. 7. 5	60000	1435	17.22	1.20	0.098
	No.2	1978. 7.20	59000	814	14.32	1.75	0.142
S-8	No.1	1978. 7. 6	55000	1250	14.52	1.16	0.116
	No.2	1978. 7.22	163000	954	47.99	5.03	0.318

1) No.1 : Sample collected on Sep. 21,1977. No.2 : Sample collected on Jul. 11,1978.
2) Density : Density of measured sample.

Table III-3-2 Concentration of radionuclides in the pine needles collected at Tokai-mura

Sample[1]		Concentration(pCi/g-ash)								
		^{40}K	^{7}Be	^{144}Ce	^{137}Cs	^{106}Ru	^{95}Zr	^{125}Sb	^{103}Ru	^{54}Mn
S-1	No.1	131(1.1)	59 (15)	ND	7.6 (1.4)	9.7(6.0)	14 (8.5)	1.3 (9.6)	ND	ND
	No.2	90(2.1)	35 (3.3)	28 (2.0)	7.3 (2.0)	7.6(7.4)	1.6 (12)	2.1 (8.8)	0.68(17)	0.21 (24)
S-2	No.1	172(1.1)	23 (33)	50 (1.3)	4.4 (2.0)	8.3(7.1)	29 (5.5)	1.6 (8.7)	ND	ND
	No.2	111(1.6)	15 (5.5)	17 (2.4)	3.5 (2.7)	4.2(11)	ND	1.9 (11)	ND	0.21 (22)
S-3	No.1	152(1.0)	49 (16)	ND	3.3 (2.1)	11 (5.9)	14 (8.4)	1.2 (9.0)	ND	ND
	No.2	134(1.6)	20 (6.0)	12 (4.1)	2.6 (3.8)	2.8(19)	0.49(27)	ND	ND	ND
S-4	No.1	164(1.3)	31 (36)	ND	2.1 (4.1)	ND	45 (5.4)	ND	ND	ND
S-5	No.1	133(1.6)	ND	ND	2.1 (4.3)	6.7(11)	10 (16)	ND	ND	ND
	No.2	26(2.3)	8.4(5.2)	5.1(3.5)	0.81(4.5)	1.5(14)	0.40(20)	0.47(14)	ND	0.066(24)
S-6	No.1	77(1.6)	ND	ND	4.1 (3.5)	12 (10)	16 (18)	ND	ND	ND
	No.2	75(2.2)	19 (3.2)	19 (1.9)	3.1 (2.6)	5.6(7.3)	1.0 (10)	1.3 (9.4)	0.46(11)	0.18 (20)
S-7	No.1	179(1.4)	ND	ND	2.8 (3.9)	7.4(12)	ND	ND	ND	ND
	No.2	101(1.9)	27 (3.2)	20 (2.5)	3.1 (3.4)	7.3(7.9)	0.97(14)	1.6 (12)	0.57(13)	0.29 (24)
S-8	No.1	173(1.5)	ND	ND	4.5 (2.5)	ND	22 (14)	ND	ND	ND
	No.2	29(1.3)	13 (1.7)	9.3(1.2)	1.8 (1.5)	2.1(5.9)	0.49(6.9)	0.67(5.9)	0.16(10)	0.074(15)

1) No.1 : Sample collected on Sep. 21,1977. No.2 : Sample collected on Jul. 11,1978.
2) ( ) : Figure in parenthesis denotes counting error(%)
3) ND : not detected

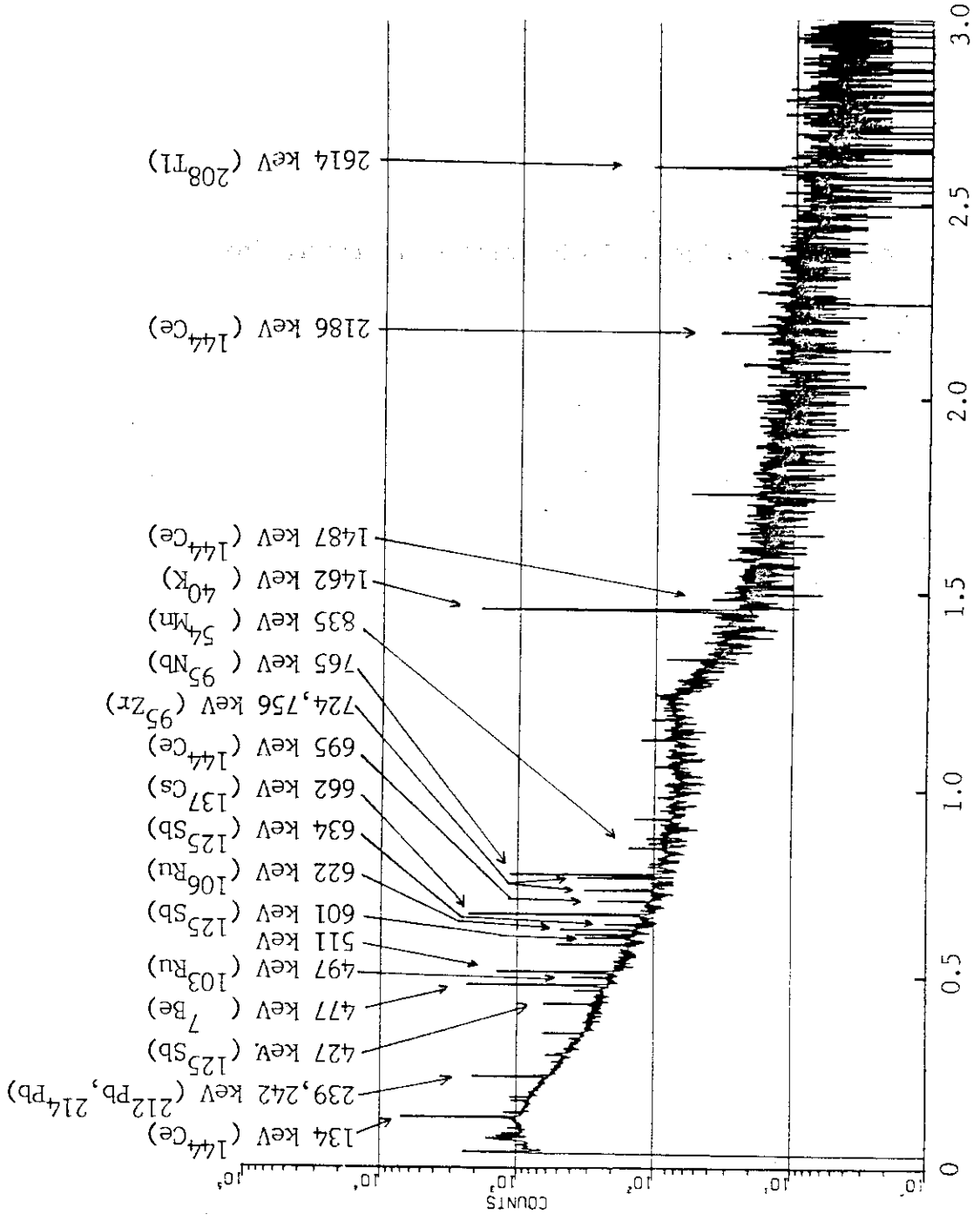


Fig. III-3-1 Gamma-ray spectrum of the pine needles collected at S-5 on Jul. 11, 1978

4. Concentration of Radionuclides in Surface Soil

Table III-4-1 Condition of the measurement of the surface soil collected at Tokai-mura on Sept. 21, 1977

Sample	Depth (cm)	Measurement Date	Counting Time (sec)	Dry Weight[1)] (g)	Density[2)] (g/cm^3)
S-1	0 - 3	1978. 4.28	80000	129	1.52
S-2	0 - 3	1978. 5. 1	90000	141	1.66
S-3	0 - 3	1978. 5. 8	90000	128	1.51
S-4	0 - 3	1978. 5. 9	80000	120	1.41
S-5	0 - 3	1978. 5.10	90000	114	1.34
S-6	0 - 3	1978. 5.11	80000	91	1.07
S-7	0 - 3	1978. 5.18	80000	105	1.24
S-8	0 - 3	1978. 6. 9	203000	126	1.49

1) Dry Weight : at 110°C drying.
2) Density : Density of measured sample.

Table III-4-2 Condition of the measurement of the surface soil collected at Tokai-mura on Jul. 11, 1978

Sample	Depth (cm)	Measurement Date	Counting Time (sec)	Dry Weight[1] (g)	Density[2] (g/cm^3)
S-1	0 - 3	1978. 7.12	79000	133.0	1.57
	3 - 6	1978. 7.14	235000	132.2	1.56
	6 - 9	1978. 8.28	84000	130.0	1.53
	9 -12	1978. 8.29	70000	128.7	1.52
	12 -15	1978. 8.30	74000	128.9	1.52
	15 -18	1978. 8.31	42000	133.1	1.57
S-2	0 - 3	1978. 7.17	55000	135.2	1.59
	3 - 6	1978. 9. 5	90000	136.1	1.61
	6 - 9	1978. 9. 6	80000	142.4	1.68
	9 -12	1978. 9. 7	80000	139.8	1.65
	12 -15	1978. 9. 8	70000	127.6	1.50
S-3	0 - 3	1978. 9. 9	70000	128.6	1.52
S-4	0 - 3	1978. 9.11	90000	126.9	1.50
S-5	0 - 3	1978. 9.12	90000	73.4	0.87
S-6	0 - 3	1978. 9.20	60000	103.2	1.22
S-7	0 - 3	1978. 9.25	50000	96.6	1.14
S-8	0 - 3	1978. 7.18	57000	114.4	1.35
	3 - 6	1978. 7.19	58000	112.8	1.33
	6 - 9	1978. 9.26	90000	116.0	1.37
	9 -12	1978. 9.27	56000	123.4	1.45
	12 -15	1978. 9.28	80000	116.4	1.37

1) Dry Weight : at 110 ^{o}C drying
2) Density : Density of measured sample

Table III-4-3 Concentration of radionuclides in the surface soil (0-3 cm) collected at Tokai-mura

Sample[1]		Concentration(pCi/g-dry soil)						
		^{40}K	^{232}Th	^{238}U	^{137}Cs	^{134}Cs	^{7}Be	^{106}Ru
S-1	No.1	17.1(1.3)	0.39(3.3)	0.24(2.9)	0.067(9.1)	ND	ND	ND
	No.2	19.1(1.4)	0.39(4.2)	0.23(3.6)	0.10 (8.4)	0.024(21)	0.34(15)	0.15(30)
S-2	No.1	17.4(1.3)	0.45(3.0)	0.25(2.8)	0.46 (2.2)	ND	ND	ND
	No.2	18.7(1.5)	0.41(5.1)	0.23(4.1)	0.75 (2.2)	ND	0.22(26)	ND
S-3	No.1	15.8(1.4)	0.53(2.8)	0.30(2.5)	0.029(17)	ND	ND	ND
	No.2	14.4(1.7)	0.53(4.0)	0.23(3.9)	0.21 (4.7)	ND	ND	ND
S-4	No.1	10.5(1.7)	0.41(3.4)	0.24(3.2)	0.40 (2.7)	ND	ND	ND
	No.2	16.7(1.4)	0.40(4.4)	0.25(3.3)	0.090(9.9)	0.022(23)	0.37(24)	0.15(30)
S-5	No.1	11.3(1.6)	0.50(2.8)	0.30(2.8)	0.25 (3.7)	ND	ND	ND
	No.2	8.2(2.5)	0.56(4.1)	0.20(4.8)	1.5 (1.6)	ND	ND	ND
S-6	No.1	11.6(1.9)	0.61(3.2)	0.32(3.1)	1.4 (1.6)	ND	ND	ND
	No.2	10.2(2.3)	0.66(3.8)	0.39(3.5)	0.27 (4.9)	0.025(29)	ND	ND
S-7	No.1	13.3(1.7)	0.34(3.8)	0.25(3.2)	0.28 (3.5)	ND	ND	ND
	No.2	11.2(2.5)	0.37(6.6)	0.25(4.8)	0.53 (3.4)	0.028(29)	ND	ND
S-8	No.1	19.2(0.81)	0.25(3.2)	0.18(2.6)	0.58 (1.3)	ND	ND	ND
	No.2	19.4(1.6)	0.23(5.4)	0.16(5.4)	0.85 (2.2)	0.020(29)	0.31(21)	ND

1) No.1 : Sample collected on Sep. 21,1977.
No.2 : Sample collected on Jul. 11,1978.
2) ( ) : Figure in parenthesis denotes counting error(%)
3) ND : not detected

Table III-4-4 Concentration of radionuclides in the surface soil collected at Tokai-mura on Jul. 11, 1978

Sample	Depth (cm)	Concentration(pCi/g-dry soil) ^{40}K	^{232}Th	^{238}U	^{137}Cs	^{134}Cs	^{7}Be	^{106}Ru
S-1	0 - 3	19.1(1.4)	0.39(4.2)	0.23(3.6)	0.10 (8.4)	0.024(21)	0.34(15)	0.15(30)
	3 - 6	18.4(0.76)	0.42(2.5)	0.23(2.2)	0.064(6.3)	0.024(14)	ND	ND
	6 - 9	18.8(1.3)	0.41(4.0)	0.23(3.6)	0.055(13)	0.020(25)	ND	ND
	9 -12	18.7(1.4)	0.34(5.1)	0.24(4.1)	0.055(16)	ND	ND	ND
	12 -15	17.6(1.4)	0.30(4.7)	0.20(4.0)	0.022(26)	ND	ND	ND
	15 -18	18.1(1.8)	0.35(6.2)	0.18(5.5)	0.060(15)	0.028(24)	ND	ND
S-2	0 - 3	18.7(1.5)	0.41(5.1)	0.23(4.1)	0.75 (2.2)	ND	0.22(26)	ND
	3 - 6	18.1(1.2)	0.44(3.9)	0.27(3.1)	0.79 (1.6)	0.026(20)	ND	ND
	6 - 9	18.1(1.3)	0.50(3.6)	0.27(3.4)	0.35 (3.1)	0.033(17)	ND	ND
	9 -12	18.5(1.5)	0.47(3.9)	0.24(3.7)	0.024(24)	0.029(19)	ND	ND
	12 -15	17.6(1.5)	0.33(5.2)	0.21(3.9)	ND	ND	ND	ND
S-8	0 - 3	19.4(1.6)	0.23(5.4)	0.16(5.4)	0.85 (2.2)	0.020(29)	0.31(21)	ND
	3 - 6	19.6(1.6)	0.27(5.5)	0.18(5.1)	0.64 (2.6)	0.022(29)	0.28(23)	ND
	6 - 9	17.7(1.4)	0.20(6.2)	0.14(4.3)	0.11 (8.3)	ND	ND	ND
	9 -12	19.0(1.6)	0.21(6.0)	0.15(5.5)	0.21 (5.5)	ND	ND	ND
	12 -15	19.7(1.4)	0.28(5.3)	0.18(4.4)	0.21 (5.1)	ND	ND	ND

1) ( ) : Figure in parenthesis denotes counting error(%)
2) ND : not detected

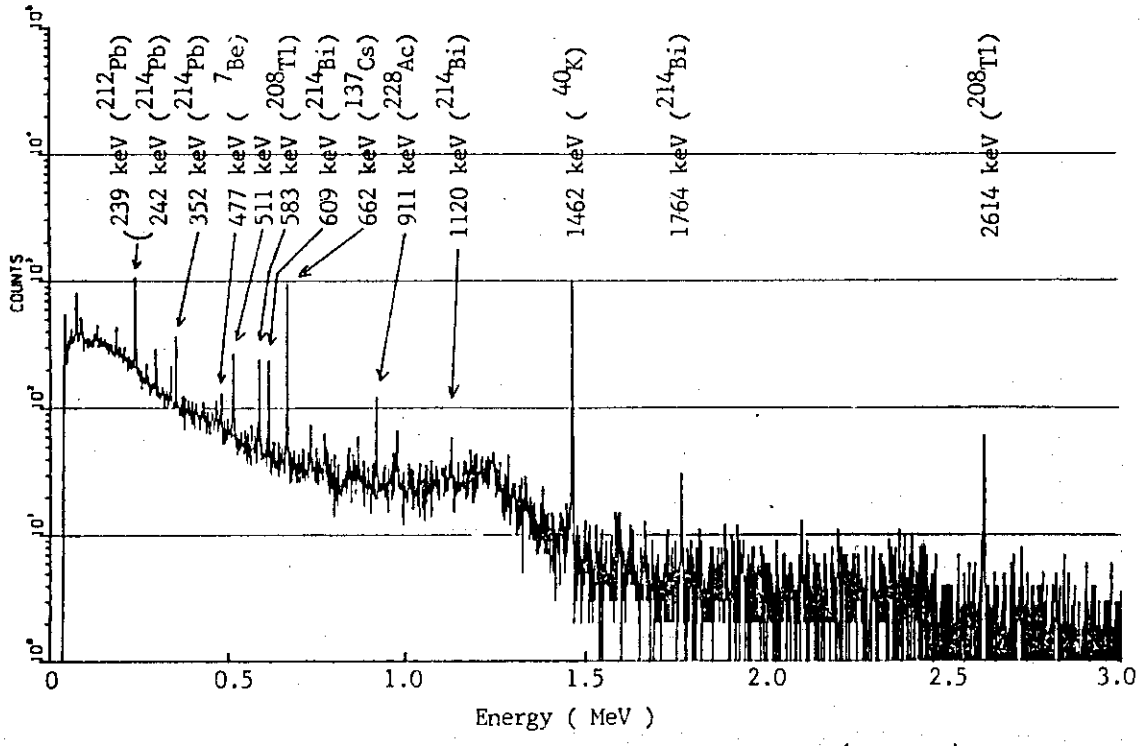


Fig. III-4-1 Gamma-ray spectrum of the surface soil (0-3 cm) collected at S-8 on Jul. 11, 1978

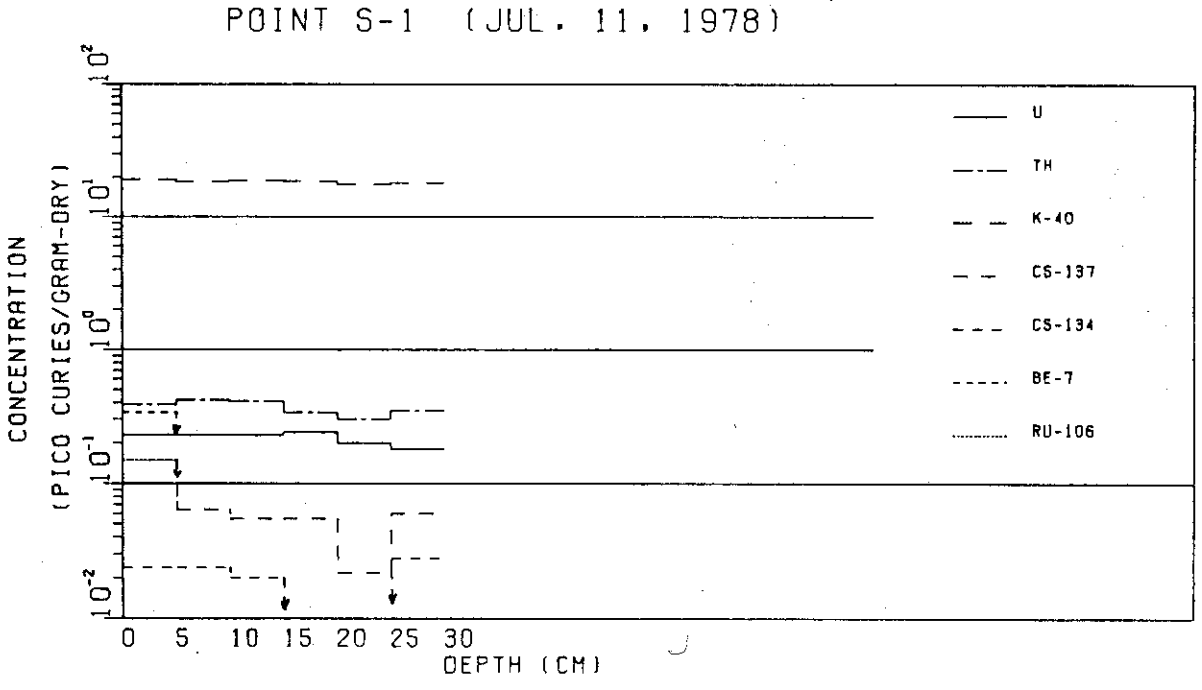


Fig. III-4-2 Depth profile of radionuclides in the surface soil collected at S-1 on Jul. 11, 1978

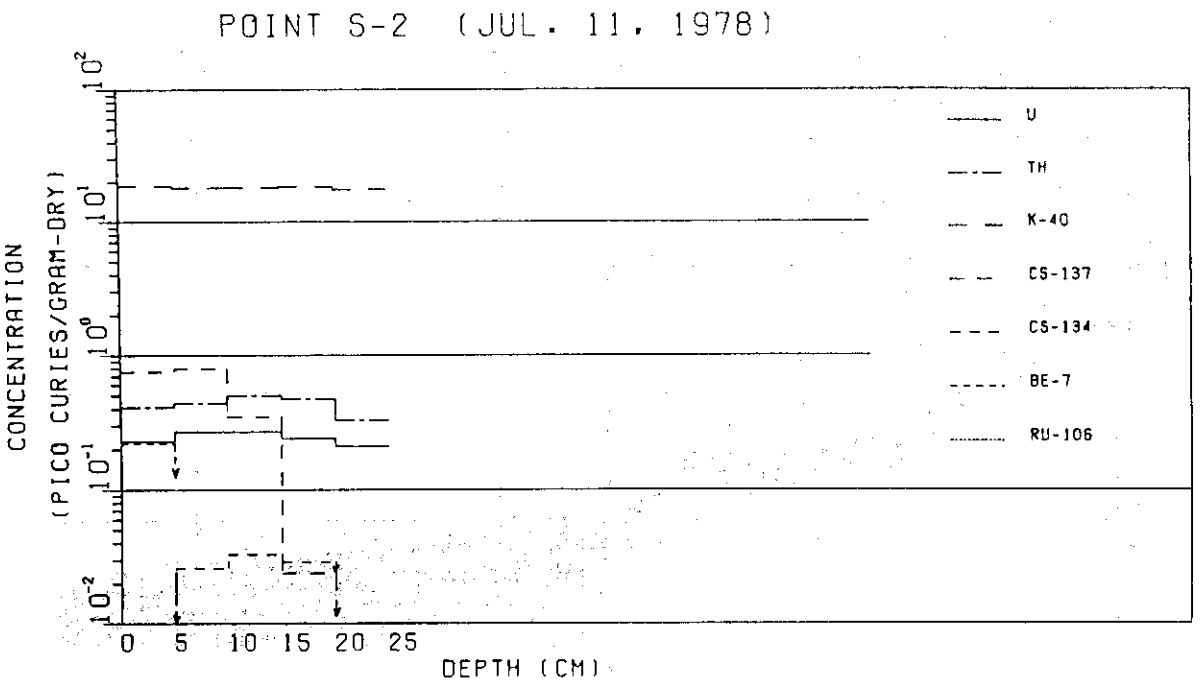


Fig. III-4-3 Depth profile of radionuclides in the surface soil collected at S-2 on Jul. 11, 1978

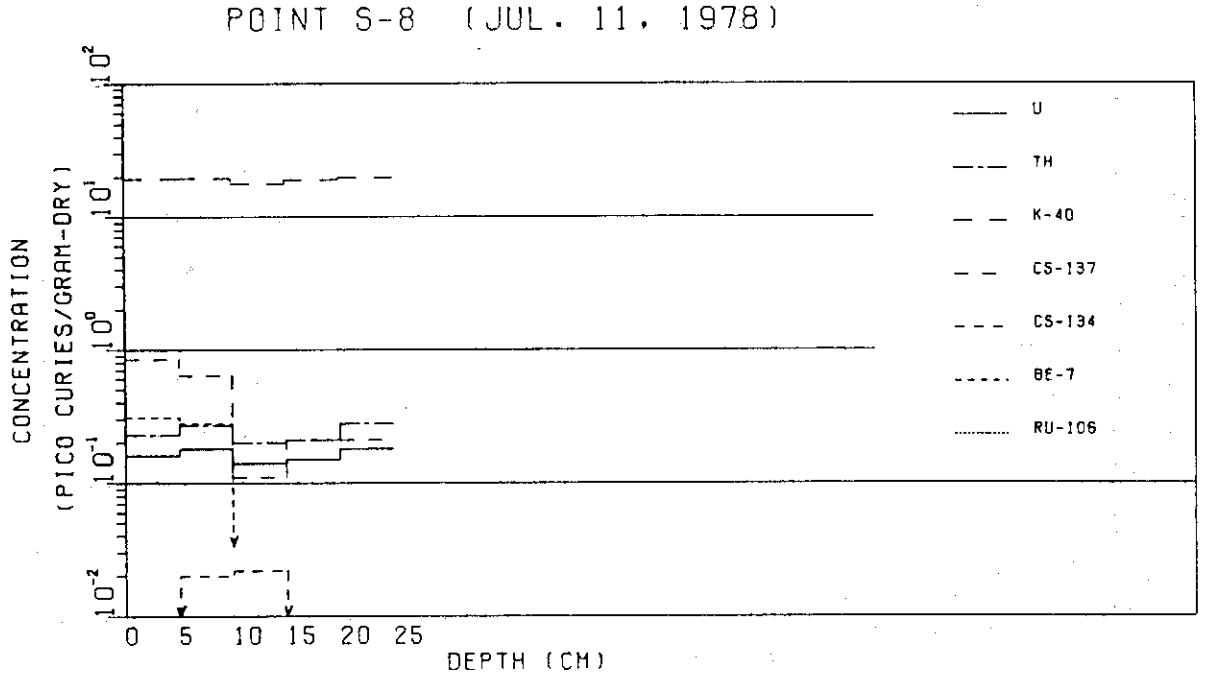
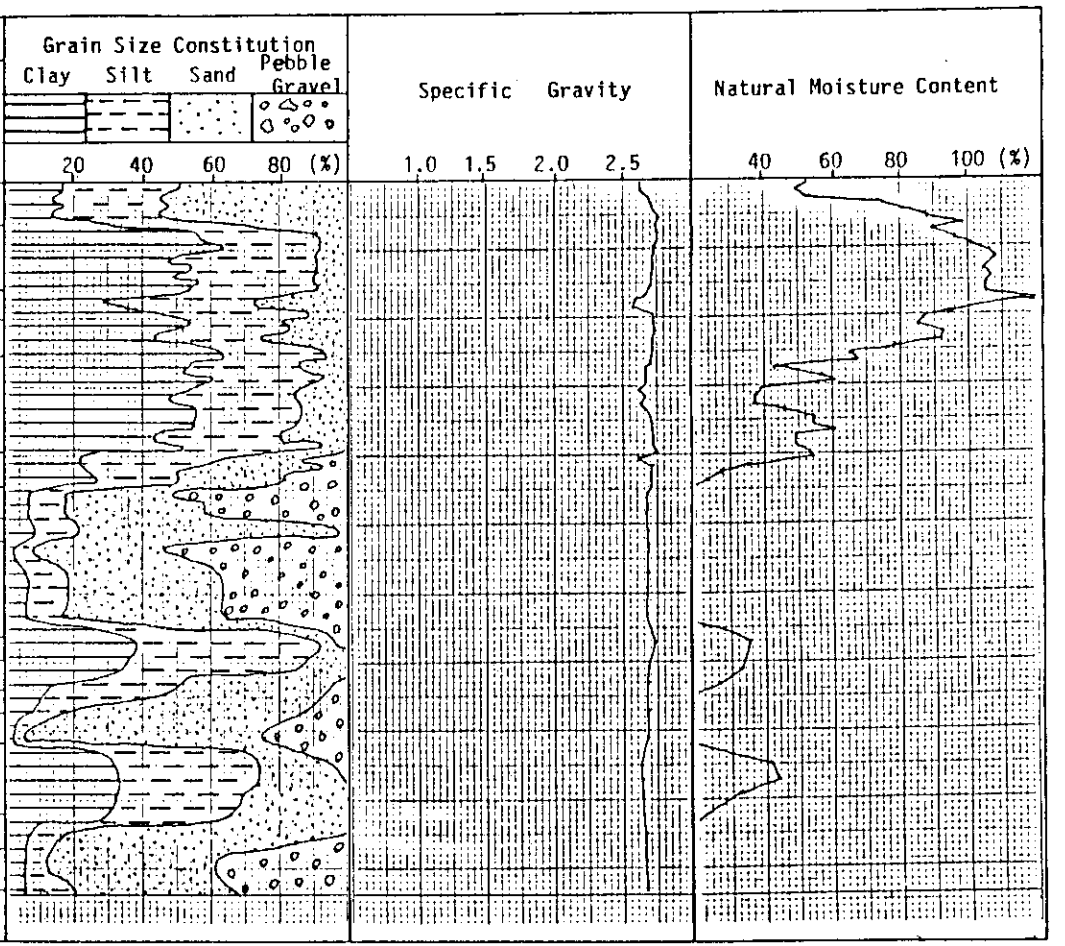


Fig. III-4-4 Depth profile of radionuclides in the surface soil collected at S-8 on Jul. 11, 1978

5. Vertical Distribution of Radionuclides in Soil

Table III-5-1 Columnar section and physical classification tests results of the soil collected at Naka-machi on Dec. 4 and 5, 1980.

Level (m)	Height above the sea (m)	Depth (m)	Layer Thickness (m)	Symbol	Classification: Class	Classification: Colour	Appearance
	32.621	0.55	0.55		Humic Layer	Black	(f)
1	31.471	1.70	1.15		Loam	Brown	(g)
	31.241	1.93	0.23		(a)	Brown	(h)
2	30.671	2.50	0.57		Loam	Brown	(i)
3	29.221	3.95	1.45		Clay	Light Brown	(j)
4	28.671	4.50	0.55		(b)	Brown	(k)
	28.141	5.03	0.53		(c)	Brown	(l)
5	27.921	5.25	0.22		Sand	(e)	(m)
6	26.521	6.65	1.40		(c)	Light Brown	(n)
	26.371	6.80	0.15		Clay	Brown	(o)
7	25.771	7.40	0.60		Silt	Dark Blue Gray	(p)
	25.421	7.75	0.35		(d)	Blue Gray	(q)
8	24.921	8.25	0.50		(c)	Brown	(r)
9	23.801	9.37	1.12		Silt	Dark Gray	(s)
	23.371	9.80	0.43		Fine Sand	Blue Gray	(t)
10	22.771	10.40	0.60		(c)	Blue Gray	(u)



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Captions of Table III-5-1

(a) Loam containing pumices.
(b) Clay Containing pebble gravels.
(c) Pebble gravels and sand.
(d) Sand containing silt.
(e) Light brown.
(f) Humic layer containing many plant roots.
(g) The layer was very uniform
(h) The layer mainly consisted of pumices like coarse sand, which is called the Kanuma soil.
(i) Some moisture was contained.
(j) The layer was a typical loam soil.
(k) Pebble gravels of 2-30 mm dia. were contained, most of which were of 20-30 mm dia.
(l) The diameter of pebble gravels was from 2 to 40 mm. A little bit of clay was also included.
(m) Several small pebbles existed. Moisture content was high and the sample was greatly degradated.
(n) Pebble gravels of 2-30 mm dia. and fine sand mixed alternately.
(o) The layer was hard due to high adhesiveness.
(p) The adhesiveness was high. Much fine sand was contained in the bottom half.
(q) Much fine sand was contained in the upper half. The moisture content was high.
(r) Pebble gravels of 2-20 mm were included with much sand.
(s) Some pumices like sand were included.
(t) The layer was highly wet and was greatly degradated.
(u) Pebble gravels of 2-40 mm and partly about 70 mm dia. were included. The sample was greatly degradated due to water and weak adhesiveness.

Table III-5-2 Concentration of radionuclides in the soil collected at Nakamachi on Dec. 4 and 5, 1980.

	DEPTH (CM)	DRY-WEIGHT (GRAM-DRY)	DENSITY (G/CM**3)	CONCENTRATION (PICO CURIES/GRAM-DRY)			
				U-238	TH-232	K-40	CS-137
1	0- 10	79.323	0.935	0.68	0.49	4.00	0.78
2	10- 20	83.316	0.982	0.67	0.45	4.15	0.66
3	20- 30	86.679	1.033	0.48	0.48	4.24	0.32
4	30- 40	85.889	1.013	0.47	0.50	3.34	0.05
5	40- 50	76.474	0.902	0.40	0.55	3.68	N.D.
6	50- 60	82.745	0.976	0.50	0.63	4.12	N.D.
7	60- 70	67.933	0.801	0.78	0.89	6.48	N.D.
8	70- 80	70.015	0.825	0.75	0.94	8.03	N.D.
9	80- 90	66.828	0.788	0.96	1.06	8.95	N.D.
10	90-100	68.725	0.811	0.85	0.84	8.65	N.D.
11	100-110	62.644	0.739	0.98	1.16	8.34	N.D.
12	110-120	64.122	0.756	0.85	1.11	8.38	N.D.
13	120-130	64.510	0.761	0.94	1.17	8.15	N.D.
14	130-140	70.724	0.834	0.81	1.07	7.04	N.D.
15	140-150	65.597	0.773	0.74	0.96	7.19	N.D.
16	150-160	62.583	0.738	0.75	0.90	7.35	N.D.
17	160-170	60.700	0.712	0.60	0.81	6.15	N.D.
18	170-180	53.301	0.628	0.54	0.76	5.21	N.D.
19	180-190	52.146	0.615	0.55	0.69	3.81	N.D.
20	190-200	76.915	0.907	0.62	0.77	6.77	N.D.
21	200-210	77.577	0.915	0.61	0.70	6.91	N.D.
22	210-220	81.582	0.962	0.66	0.74	6.21	N.D.
23	220-230	76.384	0.901	0.56	0.76	6.72	N.D.
24	230-240	77.450	0.913	0.57	0.65	5.80	N.D.
25	240-250	83.428	0.984	0.64	0.76	5.31	N.D.
26	250-260	88.359	1.042	0.67	0.87	6.25	N.D.
27	260-270	93.413	1.101	0.64	0.67	5.84	N.D.
28	270-280	110.539	1.303	0.78	0.93	8.33	N.D.
29	280-290	104.953	1.237	0.88	0.94	7.34	N.D.
30	290-300	101.877	1.201	0.86	0.90	7.07	N.D.
31	300-310	109.684	1.293	0.67	0.93	8.39	N.D.
32	310-320	110.458	1.302	0.66	0.93	8.32	N.D.
33	320-330	108.752	1.282	0.61	0.91	8.90	N.D.
34	330-340	102.630	1.210	0.72	0.90	8.03	N.D.
35	340-350	105.009	1.238	0.71	0.97	7.29	N.D.
36	350-360	101.939	1.202	0.68	0.89	6.95	N.D.
37	360-370	96.259	1.135	0.73	1.06	6.79	N.D.
38	370-380	97.543	1.150	0.79	1.17	10.53	N.D.
39	380-390	92.026	1.085	0.88	1.27	11.82	N.D.
40	390-400	94.541	1.115	0.74	1.09	9.27	N.D.

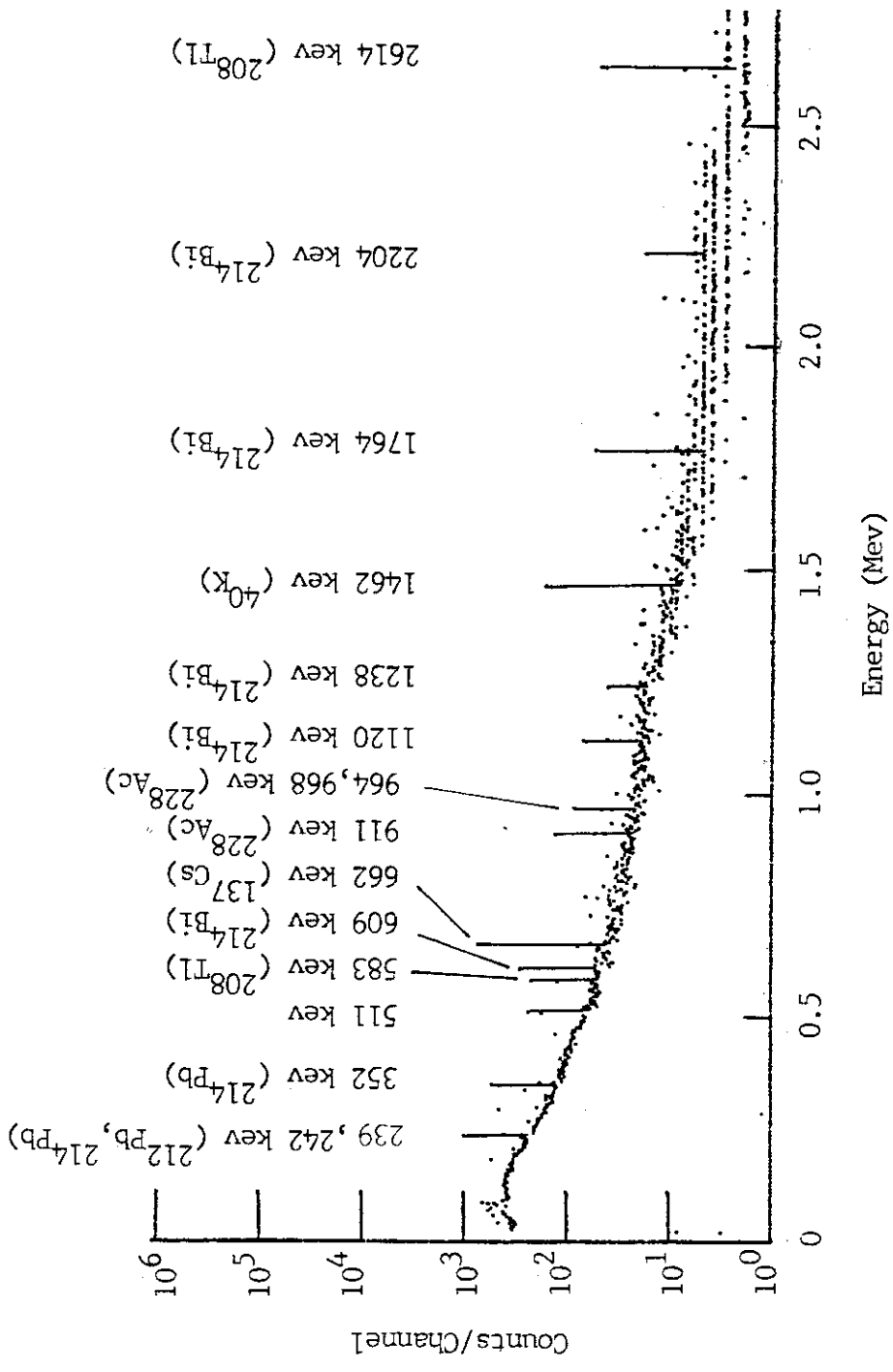

Fig. III-5-1 Gamma-ray spectrum of the soil collected at Naka-machi on Dec. 4, 1980. This spectrum shows the most remarkable peak of ^{137}Cs in the whole sample.

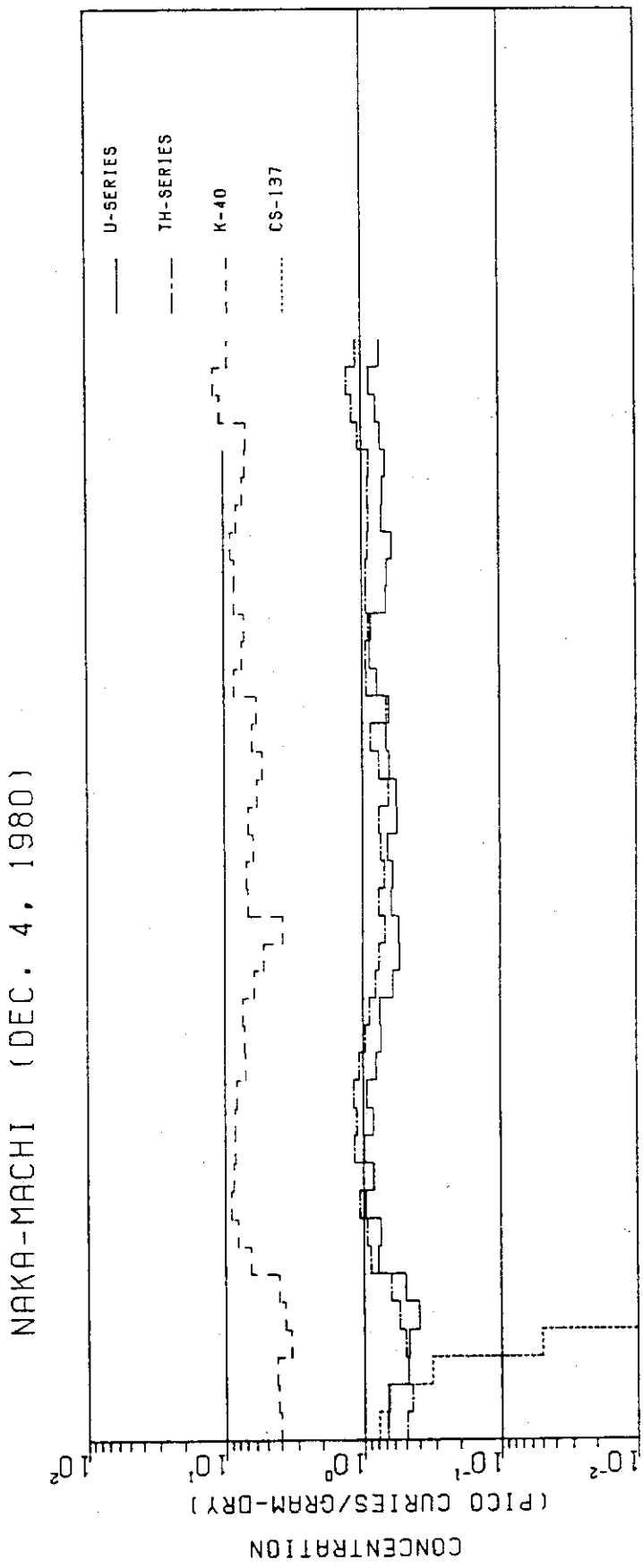

Fig. III-5-2 Depth profile of radionuclides in the soil collected at Nakamachi on Dec. 4, 1980

6. Concentration of Radionuclides in Sea Sediment

Table III-6-1 Grain sizes of the sea sediment collected off the coast of JAERI on Sept. 27, 1978

	Depth (cm)	<0.074 (mm)	Weight percent (%) 0.074 ~ 0.105 (mm)	0.105 ~ 0.25 (mm)	0.25 ~ 0.42 (mm)	0.42 ~ 0.84 (mm)	0.84 ~ 2.0 (mm)	2.0 ~ 4.76 (mm)	4.76 ~ 9.52 (mm)	9.52 ~ 19.1 (mm)
ST1	0– 5	12.0	18.4	62.6	3.7	2.1	1.0	0	0	0
	5–10	5.1	18.2	71.1	3.3	0.9	0.7	0.7	0	0
	10–15	3.4	10.8	73.4	5.3	1.3	0.8	1.5	3.5	0
	15–20	2.9	10.3	78.1	6.4	1.5	0.5	0.1	0.2	0
	20–25	1.7	9.5	79.9	6.0	1.5	1.1	0.3	0	0
	25–30	2.7	11.5	78.9	5.1	0.8	0.4	0.6	0	0
	30–35	3.6	10.7	78.8	4.9	1.2	0.6	0.2	0	0
	35–40	3.5	10.5	19.3	2.8	3.6	6.7	53.6	0	0
	40–45	2.6	13.2	78.4	3.7	1.4	0.6	0.1	0	0
	45–50	5.1	13.5	75.4	3.9	1.3	0.6	0.2	0	0
	50–55	2.7	11.2	73.5	5.1	2.4	1.6	3.5	0	0
	55–60	1.0	9.0	75.4	6.5	2.0	1.6	1.8	2.7	0
	60–65	33.9	8.3	50.7	3.5	1.2	1.2	1.2	0	0
	65–70	2.6	8.0	75.6	5.1	1.6	1.6	5.5	0	0
	70–71.5	0	7.7	84.1	6.6	0.9	0.6	0.1	0	0
ST2	0– 5	3.3	13.7	75.8	4.3	1.7	1.0	0.2	0	0
	5–10	59.1	0.3	35.4	3.8	0.6	0.7	0.1	0	0
	10–15	1.2	8.1	86.1	3.7	0.5	0.3	0.1	0	0
	15–20	13.2	28.7	55.9	1.4	0.4	0.2	0.2	0	0
	20–25	15.0	29.4	52.8	1.3	0.4	0.1	1.0	0	0
	25–30	13.0	26.9	55.9	1.7	1.0	0.7	0.4	0.4	0
	30–35	7.2	25.7	63.5	1.7	1.1	0.6	0.2	0	0
	35–40	11.6	17.9	64.8	3.5	1.4	0.6	0.2	0	0
	40–45	7.9	19.9	65.5	3.2	1.5	1.0	1.0	0	0
	45–50	9.0	12.2	68.2	6.0	1.7	1.1	1.8	0	0
	50–55	11.9	6.1	75.1	4.9	0.6	0.4	1.0	0	0
	55–60	6.5	17.7	71.9	2.8	0.6	0.4	0.1	0	0
	60–62	7.8	28.6	58.7	2.4	0.8	0.4	1.3	0	0
ST3	0– 5	6.2	20.1	67.0	3.5	1.2	1.0	1.0	0	0
	5–10	5.1	20.6	67.1	3.1	0.8	0.8	2.5	0	0
	10–15	4.9	17.2	72.4	3.8	0.9	0.6	0.2	0	0
	15–20	5.6	18.2	70.6	3.4	0.9	0.7	0.6	0	0
	20–25	1.5	15.5	74.4	3.8	1.1	1.9	1.3	0.5	0
	25–30	4.0	16.1	70.5	3.3	1.1	1.3	2.4	1.3	0
	30–35	6.1	19.8	65.9	4.3	1.6	1.4	0.4	0.5	0
	35–40	4.4	14.6	68.8	7.9	2.1	1.3	0.6	0.3	0
	40–45	3.6	13.5	72.9	6.9	1.7	0.9	0.5	0	0
	45–50	4.1	14.3	69.4	7.0	2.3	1.7	1.0	0.2	0
	50–55	3.8	11.8	67.1	9.0	2.7	1.6	0.8	3.2	0
	55–57	9.1	15.1	66.0	7.3	1.3	0.7	0.5	0	0
ST4	0– 5	8.4	22.0	53.3	4.9	3.1	4.1	3.1	1.1	0
	5–10	6.7	16.6	63.2	3.6	1.4	3.8	4.3	0.4	0
	10–15	2.3	16.5	63.9	3.2	2.2	4.4	3.4	4.1	0
	15–20	4.1	19.0	63.9	3.7	1.3	2.3	2.6	3.0	0
	20–25	6.7	19.3	62.1	4.4	2.0	2.3	1.8	1.4	0
	25–30	7.2	17.9	67.5	4.0	1.8	1.1	0.5	0	0
	30–35	3.5	13.4	74.1	5.3	1.7	1.2	0.8	0	0
	35–40	4.1	17.9	68.7	4.4	1.8	1.8	0.9	0.4	0
	40–45	6.2	10.7	72.6	7.7	1.7	0.6	0.3	0.2	0
	45–50	3.4	5.2	78.4	8.9	1.7	1.2	0.8	0.4	0
	50–55	8.4	17.9	66.3	4.4	2.1	0.6	0.3	0	0
	55–56.5	6.3	17.3	66.4	6.0	2.1	0.9	1.0	0	0

Table III-6-1 (Continued)

ST5	0– 5	3.2	20.3	64.7	4.3	2.3	1.9	3.3	0	0
	5–10	5.8	20.4	58.6	3.4	1.8	2.2	7.8	0	0
	10–15	13.3	18.9	58.3	4.3	1.8	1.9	1.4	0.1	0
	15–20	5.6	17.6	63.7	6.5	3.6	2.4	0.6	0	0
	20–25	4.7	20.6	54.1	5.1	3.9	5.9	5.7	0	0
	25–30	5.1	21.7	66.3	4.3	1.4	0.9	0.3	0	0
	30–35	5.4	19.1	68.9	4.9	1.2	0.5	0	0	0
	35–40	3.7	19.1	71.0	4.6	1.1	0.4	0.1	0	0
	40–45	5.6	17.4	71.3	4.6	0.8	0.2	0.1	0	0
	45–50	4.5	18.9	65.2	5.0	2.3	2.1	2.0	0	0
	50–55	12.0	21.1	51.8	3.5	2.0	3.8	5.8	0	0
	55–59	36.7	37.5	20.3	3.5	1.0	0.8	0.2	0	0
ST6	0– 5	12.5	29.6	52.8	2.8	1.7	0.6	0	0	0
	5–10	10.3	25.8	57.2	4.1	1.9	0.6	0.1	0	0
	10–15	14.5	26.1	55.1	3.0	1.0	0.3	0	0	0
	15–20	17.4	22.7	54.3	3.4	1.5	0.6	0.1	0	0
	20–25	5.9	22.3	66.1	4.0	1.2	0.5	0	0	0
	25–30	11.6	26.2	58.4	2.4	0.8	0.4	0.2	0	0
	30–35	5.9	20.0	68.3	3.6	1.6	0.5	0.1	0	0
	35–40	6.1	21.4	68.0	3.1	1.0	0.3	0.1	0	0
	40–45	7.0	22.1	66.6	2.8	1.0	0.4	0.1	0	0
	45–50	5.7	20.4	67.8	3.6	1.6	0.7	0.2	0	0
	50–55	5.1	20.2	68.4	3.4	1.7	1.0	0.2	0	0
	55–60	5.5	19.4	68.2	3.7	1.8	1.2	0.2	0	0
	60–65	5.5	20.7	68.5	3.5	1.2	0.5	0.1	0	0
	65–70	6.7	22.0	65.8	3.1	1.5	0.7	0.2	0	0
	70–75	7.3	21.5	67.2	2.5	1.0	0.4	0.1	0	0
	75–76.5	7.0	21.1	65.4	3.9	1.8	0.6	0.2	0	0
ST7	0– 5	10.8	31.3	51.3	3.4	1.9	0.9	0.4	0	0
	5– 10	14.3	29.2	49.4	4.0	2.0	0.8	0.3	0	0
	10– 15	8.8	29.0	56.7	3.1	1.4	0.6	0.4	0	0
	15– 20	10.1	29.8	55.3	2.3	1.2	1.0	0.3	0	0
	20– 25	10.0	29.4	55.9	2.0	1.3	0.9	0.5	0	0
	25– 30	8.6	27.7	57.2	1.7	1.0	1.1	2.7	0	0
	30– 35	1.2	8.8	83.3	4.9	1.1	0.5	0.2	0	0
ST8	0– 5	6.2	24.6	58.7	5.3	3.3	1.6	0.3	0	0
	5–10	9.3	24.4	56.0	5.5	2.5	1.1	0.8	0.4	0
	10–15	7.6	22.8	64.6	3.5	1.0	0.4	0.1	0	0
	15–20	4.8	19.5	65.7	4.8	3.0	1.6	0.5	0.1	0
	20–25	4.2	21.7	69.6	2.9	0.8	0.5	0.3	0	0
	25–30	4.2	18.4	71.0	4.7	1.2	0.5	0	0	0
	30–35	4.7	20.5	70.7	2.8	0.8	0.3	0.2	0	0
	35–40	5.5	22.7	68.0	2.5	0.6	0.4	0.3	0	0
	40–45	4.2	19.2	73.4	2.5	0.4	0.1	0.2	0	0
	45–48	5.6	26.9	64.7	1.7	0.6	0.4	0.1	0	0
ST9	0– 5	8.7	26.7	58.4	3.3	1.6	1.1	0.2	0	0
	5–10	8.4	28.3	58.1	2.8	1.4	0.8	0.2	0	0
	10–15	6.7	28.0	61.4	1.9	1.0	0.8	0.2	0	0
	15–20	7.0	21.9	60.5	6.7	2.7	1.0	0.2	0	0
	20–25	8.8	23.2	57.7	5.5	3.1	1.6	0.4	0	0
	25–30	8.3	26.5	55.2	5.0	3.5	1.4	0.1	0	0
	30–35	5.7	22.1	61.3	6.0	3.1	1.3	0.5	0	0
	35–40	5.5	18.9	53.0	8.7	7.9	5.2	0.8	0	0
	40–45	4.3	19.6	51.6	8.0	9.0	4.7	1.3	1.5	0
	45–49.5	4.1	22.0	54.2	4.2	4.4	6.7	2.6	1.8	0

Table III-6-2 Grain sizes of the sea sediment collected off the coast of JAERI on Dec. 10, 1979

	Depth (cm)	Weight percent (%) <0.074 (mm)	0.074 ~ 0.105 (mm)	0.105 ~ 0.25 (mm)	0.25 ~ 0.42 (mm)	0.42 ~ 0.84 (mm)	0.84 ~ 2.0 (mm)	2.0 ~ 4.76 (mm)	4.76 ~ 9.52 (mm)	9.52 ~ 19.1 (mm)
	0 – 5	7.2	17.7	73.8	0.8	0.4	0	0.1	0	0
	5 – 10	3.9	14.7	78.8	1.7	0.8	0.1	0	0	0
	10 – 15	2.6	7.0	86.2	2.0	2.0	0.1	0.1	0	0
	15 – 20	1.3	6.7	84.8	4.5	2.5	0.1	0.1	0	0
	20 – 25	1.4	7.0	85.9	4.4	1.2	0	0.1	0	0
	25 – 30	1.2	7.2	89.6	1.6	0.3	0.1	0	0	0
ST1	30 – 35	1.1	7.7	88.1	2.3	0.7	0	0	0.1	0
	35 – 40	1.1	5.1	88.2	4.0	1.5	0	0.1	0	0
	40 – 45	1.4	6.7	87.7	2.9	1.2	0	0.1	0	0
	45 – 50	1.3	6.2	87.5	3.0	1.8	0.1	0.1	0	0
	50 – 55	1.5	7.9	86.9	2.8	0.8	0.1	0	0	0
	55 – 60	1.9	7.1	88.2	2.2	0.5	0	0.1	0	0
	60 – 64	0.2	6.4	84.4	3.7	3.9	0.1	0.3	0	0
	0 – 5	0.4	2.5	73.4	16.7	6.4	0.5	0.1	0	0
	5 – 10	0.8	3.9	77.3	11.9	4.8	1.1	0.1	0.1	0
	10 – 15	0.9	4.3	75.7	12.8	4.6	1.1	0.6	0	0
	15 – 20	0.7	1.5	73.6	16.2	6.4	1.3	0.3	0	0
	20 – 25	0.4	1.0	62.3	19.7	10.0	5.3	1.3	0	0
ST2	25 – 30	0.4	1.1	74.4	13.2	6.7	3.4	0.8	0	0
	30 – 35	1.1	2.8	81.1	8.8	3.9	1.7	0.6	0	0
	35 – 40	2.3	9.4	79.2	6.3	2.4	0.3	0.1	0	0
	40 – 45	1.4	7.2	78.0	10.3	2.8	0.3	0	0	0
	45 – 50	0.9	2.9	69.1	13.8	9.9	3.1	0.3	0	0
	50 – 56	0.6	3.2	71.5	14.3	7.7	2.3	0.4	0	0
	0 – 5	10.8	29.3	58.3	1.0	0.5	0	0.1	0	0
	5 – 10	7.1	22.2	63.4	2.3	1.3	0.9	1.0	1.8	0
	10 – 15	3.4	18.2	74.4	2.0	0.7	0.4	0.3	0.6	0
	15 – 20	3.4	16.4	74.9	3.0	1.1	0.4	0.2	0.4	0.2
	20 – 25	3.3	12.5	79.2	3.5	0.9	0.4	0.1	0.1	0
	25 – 30	2.7	9.3	85.3	1.7	0.7	0.1	0.2	0	0
ST3	30 – 35	2.8	12.2	81.8	1.4	0.5	0.1	0.1	1.1	0
	35 – 40	3.4	14.4	80.6	1.0	0.5	0	0.1	0	0
	40 – 45	5.9	15.1	74.4	2.6	1.1	0.5	0.4	0	0
	45 – 50	6.3	16.0	76.1	1.3	0.2	0.1	0	0	0
	50 – 55	3.7	11.7	82.7	1.5	0.3	0.1	0	0	0
	55 – 60	6.8	11.9	77.9	2.2	1.0	0.1	0.1	0	0
	60 – 64	1.8	8.0	88.2	1.4	0.5	0.1	0	0	0
	0 – 5	7.5	21.4	67.4	1.6	1.4	0.4	0.3	0	0
	5 – 10	5.8	20.0	61.4	3.1	3.1	2.1	2.2	2.3	0
	10 – 15	3.2	16.7	63.1	4.1	3.0	2.4	2.9	2.5	2.1
	15 – 20	3.3	16.6	71.1	3.8	2.1	1.6	0.9	0.6	0
	20 – 25	4.2	17.5	74.3	1.6	1.3	0.4	0.4	0.3	0
	25 – 30	4.0	19.2	72.8	2.0	1.1	0.5	0.4	0	0
ST4	30 – 35	3.6	15.0	78.0	2.2	0.9	0.2	0.1	0	0
	35 – 40	3.4	9.2	83.0	3.0	1.0	0.2	0.2	0	0
	40 – 45	5.4	15.2	75.8	2.2	0.8	0.4	0.2	0	0
	45 – 50	4.3	12.0	78.8	2.3	1.3	0.1	0.3	0.9	0
	50 – 55	4.6	13.3	79.4	1.9	0.7	0	0.1	0	0
	55 – 60	5.1	18.9	68.6	2.3	4.0	0.9	0.2	0	0
	60 – 64	3.7	13.4	77.6	3.6	1.4	0.2	0.1	0	0

Table III-6-2 (Continued)

	0— 5	3.4	16.0	76.0	2.3	1.7	0.5	0.1	0	0
	5—10	3.4	13.7	78.1	2.2	1.9	0.6	0.1	0	0
	10—15	4.2	15.1	74.6	3.4	1.1	0.5	0.3	0.3	0.5
	15—20	3.1	15.0	70.5	2.5	2.3	3.5	2.4	0.7	0
	20—25	3.4	17.6	70.4	2.1	1.9	2.2	1.6	0.8	0
	25—30	3.2	16.6	73.8	1.6	1.4	2.1	1.3	0	0
ST5	30—35	3.4	18.2	72.8	1.8	1.9	1.5	0.4	0	0
	35—40	4.3	15.3	74.6	2.1	2.0	1.4	0.2	0.1	0
	40—45	3.9	13.4	70.4	4.3	4.9	3.5	0.6	0	0
	45—50	4.0	13.0	65.2	7.1	5.5	4.7	0.5	0	0
	50—55	2.5	11.6	53.5	6.0	7.0	16.7	1.8	0.9	0
	55—60	4.5	13.0	56.6	4.0	6.5	11.7	2.6	1.1	0
	60—62	5.5	14.7	56.6	5.0	8.0	7.9	1.3	1.0	0
	0— 5	2.9	10.2	77.5	7.0	2.1	0.2	0.1	0	0
	5—10	1.9	12.2	79.7	5.0	1.1	0.1	0	0	0
	10—15	2.4	11.5	82.5	2.8	0.7	0	0.1	0	0
	15—20	2.3	14.0	82.2	1.1	0.3	0.1	0	0	0
	20—25	2.9	15.7	79.9	1.1	0.3	0.1	0	0	0
ST6	25—30	5.4	23.0	70.4	0.9	0.2	0.1	0	0	0
	30—35	6.3	16.2	74.5	1.9	1.0	0.1	0	0	0
	35—40	3.5	15.2	74.2	3.5	3.2	0.3	0.1	0	0
	40—45	4.3	16.9	67.1	5.1	5.8	0.6	0.1	0.1	0
	45—50	3.1	15.5	70.1	5.4	5.1	0.7	0.1	0	0
	50—56	2.3	14.4	76.6	3.7	2.6	0.3	0.1	0	0
	0— 5	6.1	22.0	69.4	1.7	0.6	0.1	0	0.1	0
	5—10	7.1	23.3	68.5	0.6	0.4	0.1	0	0	0
ST7	10—15	5.9	26.7	62.7	2.2	1.9	0.5	0.1	0	0
	15—20	5.3	21.9	66.5	3.1	1.8	0.6	0.5	0.3	0
	20—23	4.9	26.2	65.7	1.8	1.0	0.2	0.1	0.1	0
	0— 5	6.7	25.3	62.4	3.8	1.7	0.1	0	0	0
	5—10	5.8	20.1	66.5	3.8	3.6	0.2	0	0	0
	10—15	4.4	21.7	61.7	5.3	5.9	0.8	0.1	0.1	0
	15—20	4.0	16.7	76.1	1.8	1.2	0.1	0.1	0	0
	20—25	3.7	16.9	76.5	1.8	1.0	0	0.1	0	0
	25—30	3.2	15.9	71.9	4.8	2.8	0.8	0.5	0.1	0
ST8	30—35	3.0	14.2	75.8	4.9	1.5	0.4	0.2	0	0
	35—40	3.4	20.7	72.2	2.7	0.8	0.1	0	0.1	0
	40—45	2.7	19.7	76.0	1.2	0.3	0.1	0	0	0
	45—50	2.3	14.7	81.6	1.1	0.2	0.1	0	0	0
	50—55	2.3	17.7	77.1	2.0	0.8	0.1	0	0	0
	55—58	4.3	16.1	76.5	1.9	1.1	0.1	0	0	0
	0— 5	6.8	22.3	66.0	2.1	2.6	0.2	0	0	0
	5—10	6.0	20.4	51.5	5.8	13.2	2.9	0.2	0	0
	10—15	3.0	13.3	41.1	8.0	26.5	6.9	0.9	0.3	0
	15—20	3.0	19.7	65.6	4.6	5.2	1.4	0.4	0.1	0
	20—25	2.4	15.4	59.8	5.3	13.1	3.1	0.8	0.1	0
	25—30	2.6	18.3	69.7	3.7	5.0	0.6	0.1	0	0
ST9	30—35	3.0	19.0	70.2	4.2	3.3	0.2	0.1	0	0
	35—40	2.6	17.3	68.4	4.4	6.5	0.7	0.1	0	0
	40—45	2.8	18.8	67.3	4.3	6.1	0.6	0.1	0	0
	45—50	2.6	17.3	65.8	4.2	7.0	1.5	1.0	0.6	0
	50—53	2.3	15.1	65.0	5.1	9.9	1.8	0.8	0	0

Table III-6-3 Concentration of uranium in the sea sediment collected off the coast of JAERI on Sept. 27, 1978

***** CONCENTRATION OF URANIUM (PICO CURIES/GRAM-DRY) *****

DEPTH (CM)	SAMPLING POINT ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9
0- 5	0.27(6.0)	0.25(9.8)	0.39(26)	1.09(6.5)	1.12(5.5)	0.35(10)	0.35(17)	0.92(7.7)	0.35(15)
5- 10	0.26(5.2)	0.26(17)	0.29(19)	0.63(21)	0.46(6.5)	0.39(12)	1.15(7.6)	0.49(11)	0.33(14)
10- 15	0.27(5.5)	0.21(20)	0.28(16)	0.41(15)	0.40(12)	0.66(8.0)	0.43(13)	0.40(14)	0.38(14)
15- 20	0.26(3.3)	0.29(16)	0.33(16)	0.44(13)	0.44(10)	0.46(12)	0.74(8.5)	0.31(9.3)	0.35(15)
20- 25	0.27(11)	0.36(14)	0.38(17)	0.41(13)	0.36(9.5)	0.46(8.1)	0.27(18)	0.25(19)	0.28(18)
25- 30	0.29(11)	0.62(8.5)	0.35(13)	0.34(14)	0.34(14)	0.32(14)	0.29(15)	0.27(19)	0.29(15)
30- 35	0.25(11)	0.80(7.2)	0.27(21)	0.32(18)	0.35(16)	0.27(19)	0.27(15)	0.29(18)	0.28(14)
35- 40	0.25(9.7)	0.45(7.3)	0.28(12)	0.38(15)	0.32(8.5)	0.26(22)	----------	0.29(16)	0.24(18)
40- 45	0.52(8.4)	0.83(6.3)	0.31(16)	0.25(18)	0.46(13)	0.28(25)	----------	0.32(17)	0.22(17)
45- 50	0.33(12)	0.26(11)	0.29(17)	0.26(19)	0.31(10)	0.29(13)	----------	0.29(12)	0.23(14)
50- 55	0.35(7.9)	0.33(12)	0.28(23)	0.24(12)	0.38(12)	0.30(15)	----------	----------	----------
55- 60	0.29(15)	0.32(17)	0.36(7.7)	0.26(18)	0.55(11)	0.43(14)	----------	----------	----------
60- 65	0.38(15)	0.26(16)	----------	----------	----------	0.29(17)	----------	----------	----------
65- 70	0.33(20)	----------	----------	----------	----------	0.31(15)	----------	----------	----------
70- 75	0.28(18)	----------	----------	----------	----------	0.31(15)	----------	----------	----------
75- 80	----------	----------	----------	----------	----------	0.33(16)	----------	----------	----------

( ) : THE FIGURE IN PARENTHESIS DENOTES COUNTING ERROR(%)
---------- : NO SAMPLE

Table III-6-4 Concentration of thorium in the sea sediment collected off the coast of JAERI on Sept. 27, 1978

***** CONCENTRATION OF THORIUM (PICO CURIES/GRAM-DRY) *****

DEPTH (CM)	SAMPLING POINT ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9
0- 5	0.36(12)	0.31(5.9)	0.60(11)	2.03(4.1)	1.67(4.1)	0.48(7.8)	0.51(9.7)	1.61(3.9)	0.50(8.3)
5- 10	0.36(19)	0.34(10)	0.44(10)	1.20(11)	0.77(7.3)	0.65(8.0)	1.79(4.7)	0.91(5.2)	0.51(8.1)
10- 15	0.38(11)	0.28(11)	0.41(13)	0.69(12)	0.65(14)	0.98(6.1)	0.69(7.8)	0.69(7.6)	0.54(9.0)
15- 20	0.35(8.0)	0.35(9.6)	0.52(12)	0.70(19)	0.74(9.6)	0.71(8.7)	1.18(5.5)	0.47(5.8)	0.59(7.7)
20- 25	0.37(12)	0.46(8.1)	0.60(9.4)	0.70(10)	0.64(9.3)	0.75(6.0)	0.35(12)	0.45(11)	0.43(9.1)
25- 30	0.38(12)	0.98(5.4)	0.57(8.7)	0.54(9.6)	0.56(13)	0.47(11)	0.41(8.9)	0.45(10)	0.43(8.5)
30- 35	0.40(8.5)	1.23(5.4)	0.44(16)	0.51(16)	0.58(7.6)	0.50(8.8)	0.41(8.1)	0.46(10)	0.42(8.4)
35- 40	0.42(7.4)	0.81(6.6)	0.49(18)	0.59(14)	0.55(5.0)	0.41(9.8)	----------	0.49(9.4)	0.39(9.4)
40- 45	0.87(6.9)	1.32(10)	0.50(8.8)	0.43(15)	0.73(7.8)	0.52(10)	----------	0.50(9.8)	0.38(10)
45- 50	0.49(12)	0.44(12)	0.52(11)	0.41(14)	0.51(7.5)	0.42(5.7)	----------	0.39(7.6)	0.39(7.2)
50- 55	0.52(6.9)	0.51(8.3)	0.53(9.9)	0.39(11)	0.52(10)	0.52(8.4)	----------	----------	----------
55- 60	0.45(12)	0.45(18)	0.56(5.4)	0.33(11)	0.61(7.9)	0.79(6.9)	----------	----------	----------
60- 65	0.58(9.6)	0.42(11)	----------	----------	----------	0.51(9.5)	----------	----------	----------
65- 70	0.53(9.2)	----------	----------	----------	----------	0.48(9.1)	----------	----------	----------
70- 75	0.42(11)	----------	----------	----------	----------	0.46(9.6)	----------	----------	----------
75- 80	----------	----------	----------	----------	----------	0.56(7.9)	----------	----------	----------

( ) : THE FIGURE IN PARENTHESIS DENOTES COUNTING ERROR(%)
---------- : NO SAMPLE

JAERI-M 86-047

Table III-6-5 Concentration of ^{40}K in the sea sediment collected off the coast of JAERI on Sept. 27, 1978

***** CONCENTRATION OF K-40 (PICO CURIES/GRAM-DRY) *****

DEPTH (CM)	SAMPLING POINT ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9
0- 5	16.6(2.0)	16.1(1.0)	15.4(1.6)	13.7(1.7)	12.7(1.7)	14.0(1.3)	13.4(2.2)	10.8(2.1)	13.2(1.9)
5- 10	16.0(1.9)	15.6(1.6)	15.8(2.1)	14.5(1.7)	14.1(1.1)	13.2(1.7)	13.7(2.3)	12.5(1.7)	13.1(1.8)
10- 15	15.9(2.0)	16.2(1.6)	15.3(1.7)	15.1(1.7)	14.9(1.7)	13.6(1.7)	13.0(2.0)	13.2(2.0)	13.1(1.9)
15- 20	15.9(1.2)	14.9(1.7)	15.5(1.7)	15.9(1.9)	14.1(1.6)	14.1(1.9)	13.1(2.1)	14.1(1.1)	11.6(2.1)
20- 25	16.4(1.6)	14.8(1.7)	15.1(2.2)	15.5(1.6)	15.2(1.3)	13.9(1.3)	14.3(2.0)	15.3(1.9)	14.1(1.7)
25- 30	16.3(1.6)	13.5(1.7)	15.5(1.6)	15.2(1.7)	15.8(1.7)	14.9(1.7)	15.4(1.6)	15.0(1.9)	14.1(1.8)
30- 35	16.3(1.6)	12.3(1.8)	16.8(2.0)	16.3(1.9)	16.1(1.9)	14.6(1.4)	16.3(1.5)	15.2(1.9)	14.1(1.7)
35- 40	15.3(1.3)	13.2(1.6)	17.4(1.2)	15.9(1.8)	15.7(1.0)	14.5(1.9)	----------	15.8(1.7)	13.1(1.8)
40- 45	15.7(1.6)	13.4(1.9)	16.4(1.7)	16.0(1.6)	16.3(1.5)	15.3(2.1)	----------	15.2(1.9)	13.1(1.7)
45- 50	16.2(1.6)	15.7(1.2)	16.4(1.7)	16.3(1.9)	15.8(1.2)	14.4(1.1)	----------	15.1(1.3)	15.3(1.3)
50- 55	16.0(1.1)	15.4(1.6)	17.3(2.2)	15.3(1.3)	15.6(1.6)	14.1(1.7)	----------	----------	----------
55- 60	16.0(1.6)	15.8(1.8)	17.4(1.0)	17.8(1.5)	15.7(1.7)	14.2(1.6)	----------	----------	----------
60- 65	16.1(1.8)	17.2(1.4)	----------	----------	----------	14.2(1.8)	----------	----------	----------
65- 70	16.4(2.0)	----------	----------	----------	----------	13.6(1.8)	----------	----------	----------
70- 75	16.2(1.7)	----------	----------	----------	----------	13.8(1.7)	----------	----------	----------
75- 80	----------	----------	----------	----------	----------	15.0(1.8)	----------	----------	----------

( ) : THE FIGURE IN PARENTHESIS DENOTES COUNTING ERROR(%)
---------- : NO SAMPLE

Table III-6-6 Concentration of ^{137}Cs in the sea sediment collected off the coast of JAERI on Sept. 27, 1978

***** CONCENTRATION OF CS-137 (PICO CURIES/GRAM-DRY) *****

DEPTH (CM)	SAMPLING POINT ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9
0- 5	0.042(19)	0.021(14)	ND	ND	ND	0.025(18)	ND	ND	ND
5- 10	0.027(26)	0.023(25)	ND	ND	0.015(24)	0.022(23)	0.035(23)	0.020(26)	0.018(27)
10- 15	0.027(30)	ND	ND	ND	ND	0.035(18)	ND	ND	0.011(79)
15- 20	0.020(19)	ND	ND	ND	ND	0.027(21)	ND	ND	ND
20- 25	0.022(24)	0.018(29)	ND	ND	ND	ND	ND	ND	ND
25- 30	0.018(30)	0.020(30)	ND	ND	ND	0.020(25)	0.026(44)	ND	ND
30- 35	ND	0.031(20)	ND	ND	ND	ND	0.022(29)	ND	ND
35- 40	0.020(23)	ND	ND	ND	ND	ND	----------	ND	ND
40- 45	0.025(26)	ND	ND	ND	ND	ND	----------	ND	ND
45- 50	0.022(30)	ND	ND	ND	ND	ND	----------	ND	ND
50- 55	0.017(20)	ND	ND	ND	ND	ND	----------	----------	----------
55- 60	ND	ND	ND	ND	ND	ND	----------	----------	----------
60- 65	ND	ND	----------	----------	----------	ND	----------	----------	----------
65- 70	ND	----------	----------	----------	----------	ND	----------	----------	----------
70- 75	ND	----------	----------	----------	----------	ND	----------	----------	----------
75- 80	----------	----------	----------	----------	----------	0.020(28)	----------	----------	----------

( ) : THE FIGURE IN PARENTHESIS DENOTES COUNTING ERROR(%)
---------- : NO SAMPLE
ND : NOT DETECTED

Table III-6-7 Concentration of uranium in the sea sediment collected off the coast of JAERI on Dec. 10, 1979

***** CONCENTRATION OF URANIUM (PICO CURIES/GRAM-DRY) *****

DEPTH (CM)	SAMPLING POINT ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9
0- 5	0.60(4.8)	0.25(18)	2.26(3.1)	2.69(2.7)	1.35(4.2)	0.29(9.2)	0.55(8.3)	1.48(4.2)	1.58(3.8)
5- 10	0.60(4.9)	0.27(14)	2.34(2.9)	2.85(2.5)	1.14(4.9)	0.31(11)	0.51(9.0)	1.24(4.5)	1.60(2.4)
10- 15	0.71(4.5)	0.27(17)	0.51(10)	0.98(5.6)	2.08(3.1)	0.35(7.3)	0.63(7.7)	1.17(4.9)	0.84(5.6)
15- 20	0.69(4.5)	0.17(13)	0.52(8.9)	0.74(5.6)	0.99(5.4)	0.34(14)	0.86(6.2)	0.86(6.2)	0.65(4.3)
20- 25	0.52(6.1)	0.20(15)	0.45(11)	0.74(7.0)	0.81(6.3)	0.41(6.4)	0.62(9.0)	0.70(7.3)	0.40(6.1)
25- 30	0.38(7.2)	0.22(19)	0.38(12)	0.56(9.3)	0.49(10)	0.45(5.9)	----------	0.65(8.2)	0.59(9.0)
30- 35	0.33(8.8)	0.26(19)	0.37(13)	0.47(12)	0.48(10)	0.47(6.0)	----------	0.64(8.5)	0.52(6.1)
35- 40	0.47(6.1)	0.38(12)	0.38(13)	0.42(11)	0.50(9.3)	0.57(5.1)	----------	0.51(11)	0.68(7.2)
40- 45	0.52(5.6)	0.27(17)	0.39(12)	0.48(11)	0.49(9.0)	1.65(1.9)	----------	0.49(9.9)	0.61(4.9)
45- 50	0.44(6.9)	0.21(23)	0.40(11)	0.39(13)	0.44(10)	0.72(7.2)	----------	0.43(12)	0.69(7.2)
50- 55	0.56(5.2)	0.28(16)	0.37(12)	0.46(11)	0.32(14)	0.49(10)	----------	0.43(8.3)	0.52(6.7)
55- 60	0.42(6.5)	----------	1.17(4.1)	0.59(8.6)	0.32(13)	----------	----------	0.49(8.5)	----------
60- 65	0.60(4.3)	----------	0.45(12)	0.64(8.7)	0.27(14)	----------	----------	----------	----------

( ) : THE FIGURE IN PARENTHESIS DENOTES COUNTING ERROR(%)
---------- : NO SAMPLE

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Table III-6-8 Concentration of thorium in the sea sediment collected off the coast of JAERI on Dec. 10, 1979

***** CONCENTRATION OF THORIUM (PICO CURIES/GRAM-DRY) *****

DEPTH (CM)	SAMPLING POINT ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9
0- 5	0.83(2.9)	0.33(11)	3.56(1.8)	4.23(1.7)	1.99(2.6)	0.37(5.8)	0.73(5.6)	2.28(2.5)	2.47(2.3)
5- 10	0.86(2.8)	0.37(8.5)	3.66(1.8)	4.80(1.5)	1.78(2.8)	0.44(6.3)	0.70(6.0)	1.85(2.9)	2.46(1.4)
10- 15	1.05(2.4)	0.38(9.5)	0.76(5.9)	1.58(3.3)	3.31(1.9)	0.44(5.0)	0.91(5.0)	1.86(2.9)	1.39(3.2)
15- 20	1.09(2.5)	0.22(8.8)	0.72(5.4)	1.10(3.3)	1.57(3.1)	0.46(9.0)	1.28(3.6)	1.37(3.6)	1.04(2.3)
20- 25	0.70(3.6)	0.23(12)	0.62(6.0)	1.01(4.6)	1.28(3.6)	0.57(4.2)	0.86(5.8)	1.15(4.1)	0.67(3.2)
25- 30	0.51(4.5)	0.26(14)	0.56(6.7)	0.83(5.5)	0.70(5.8)	0.60(3.7)	----------	1.08(4.3)	0.83(4.9)
30- 35	0.53(7.1)	0.29(12)	0.55(6.9)	0.73(6.1)	0.71(5.4)	0.57(4.3)	----------	1.08(4.3)	0.81(3.4)
35- 40	0.70(3.4)	0.58(7.0)	0.54(7.1)	0.62(6.6)	0.75(5.3)	0.94(3.1)	----------	0.83(5.3)	1.06(4.0)
40- 45	0.79(3.2)	0.37(10)	0.56(7.0)	0.62(7.0)	0.66(6.0)	2.61(1.1)	----------	0.71(6.3)	0.95(2.7)
45- 50	0.66(3.6)	0.27(13)	0.59(6.5)	0.52(7.5)	0.67(5.7)	1.14(4.1)	----------	0.58(7.2)	1.11(3.7)
50- 55	0.84(2.9)	0.31(12)	0.57(6.6)	0.65(6.6)	0.48(7.8)	0.76(5.9)	----------	0.59(5.2)	0.81(3.5)
55- 60	0.62(4.0)	----------	1.75(2.3)	0.88(5.0)	0.49(7.6)	----------	----------	0.68(5.2)	----------
60- 65	0.95(2.5)	----------	0.67(6.4)	0.92(5.2)	0.45(7.3)	----------	----------	----------	----------

( ) : THE FIGURE IN PARENTHESIS DENOTES COUNTING ERROR(%)
---------- : NO SAMPLE

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Table III-6-9 Concentration of ^{40}K in the sea sediment collected off the coast of JAERI on Dec. 10, 1979

***** CONCENTRATION OF K-40 (PICO CURIES/GRAM-DRY) *****

DEPTH (CM)	SAMPLING POINT ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9
0- 5	13.0(1.0)	16.7(1.6)	12.5(2.0)	11.1(2.2)	11.6(2.0)	14.5(0.9)	12.7(2.0)	10.2(2.2)	10.1(2.1)
5- 10	13.0(1.0)	16.1(1.7)	12.4(2.1)	11.7(2.1)	12.1(2.0)	14.7(1.2)	11.8(2.0)	10.1(2.2)	10.5(1.3)
10- 15	12.8(1.0)	16.5(1.7)	12.9(2.0)	13.2(1.9)	12.2(2.0)	13.9(0.9)	12.2(2.0)	10.7(2.2)	9.1(2.2)
15- 20	12.6(1.1)	17.3(1.6)	13.0(1.9)	13.3(1.5)	13.3(1.8)	13.8(1.9)	11.6(2.2)	12.5(2.0)	11.4(1.0)
20- 25	13.6(1.1)	17.4(1.6)	13.7(1.9)	13.7(1.9)	14.0(1.8)	13.6(1.3)	12.9(2.2)	12.4(2.0)	11.4(1.0)
25- 30	14.3(0.9)	17.2(1.6)	13.8(1.9)	13.9(1.9)	14.2(1.8)	13.5(0.9)	----------	12.1(2.0)	12.3(2.0)
30- 35	14.3(0.9)	17.6(1.6)	14.0(1.8)	13.9(1.9)	14.3(1.8)	13.6(1.0)	----------	12.8(2.0)	12.2(1.2)
35- 40	13.5(1.0)	14.2(1.8)	13.2(1.9)	14.0(1.9)	15.0(1.8)	12.7(1.2)	----------	13.1(2.0)	11.8(2.0)
40- 45	13.5(1.0)	15.1(1.7)	14.0(1.8)	14.8(1.8)	15.5(1.7)	10.1(1.1)	----------	13.8(1.9)	11.8(1.1)
45- 50	13.6(1.0)	16.7(1.6)	14.8(1.8)	14.2(1.8)	15.6(1.7)	11.5(2.1)	----------	13.6(1.9)	11.7(1.9)
50- 55	13.8(1.0)	16.1(1.7)	13.7(1.9)	14.1(1.9)	16.1(1.6)	12.7(2.0)	----------	13.8(1.4)	11.6(1.4)
55- 60	13.8(1.0)	----------	13.1(1.4)	13.2(2.0)	16.2(1.6)	----------	----------	14.2(1.4)	----------
60- 65	13.3(0.9)	----------	13.2(1.9)	13.7(1.9)	16.2(1.3)	----------	----------	----------	----------

( ) : THE FIGURE IN PARENTHESIS DENOTES COUNTING ERROR(%)
---------- : NO SAMPLE

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Table III-6-10 Concentration of ^{137}Cs in the sea sediment collected off the coast of JAERI on Dec. 10, 1979

***** CONCENTRATION OF CS-137 (PICO CURIES/GRAM-DRY) *****

DEPTH (CM)	SAMPLING POINT ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9
0- 5	0.034(12)	0.016(8.5)	ND	ND	ND	0.029(16)	0.024(27)	ND	0.007(99)
5- 10	0.031(10)	0.027(8.0)	ND	ND	ND	0.032(13)	0.024(30)	ND	0.021(12)
10- 15	0.033(11)	0.015(11)	ND	ND	ND	0.025(12)	0.045(14)	ND	0.007(89)
15- 20	0.016(24)	0.018(22)	ND	ND	ND	0.030(14)	0.023(30)	ND	0.012(15)
20- 25	0.016(31)	0.005(9.8)	ND	ND	ND	0.028(11)	0.066(23)	ND	0.010(40)
25- 30	0.023(19)	0.025(14)	ND	ND	ND	0.034(9.6)	----------	ND	0.009(71)
30- 35	0.020(15)	0.020(11)	ND	ND	ND	0.026(13)	----------	ND	ND
35- 40	0.023(13)	0.034(18)	ND	ND	ND	0.025(24)	----------	ND	ND
40- 45	0.034(20)	0.024(28)	ND	ND	ND	0.016(13)	----------	ND	ND
45- 50	0.019(19)	0.021(28)	ND	ND	ND	0.025(8.3)	----------	ND	ND
50- 55	0.020(23)	0.022(27)	ND	ND	ND	0.016(10)	----------	ND	ND
55- 60	0.029(12)	----------	ND	ND	ND	----------	----------	ND	----------
60- 65	0.017(20)	----------	ND	ND	ND	----------	----------	----------	----------

( ) : THE FIGURE IN PARENTHESIS DENOTES COUNTING ERROR(%)
---------- : NO SAMPLE
ND : NOT DETECTED

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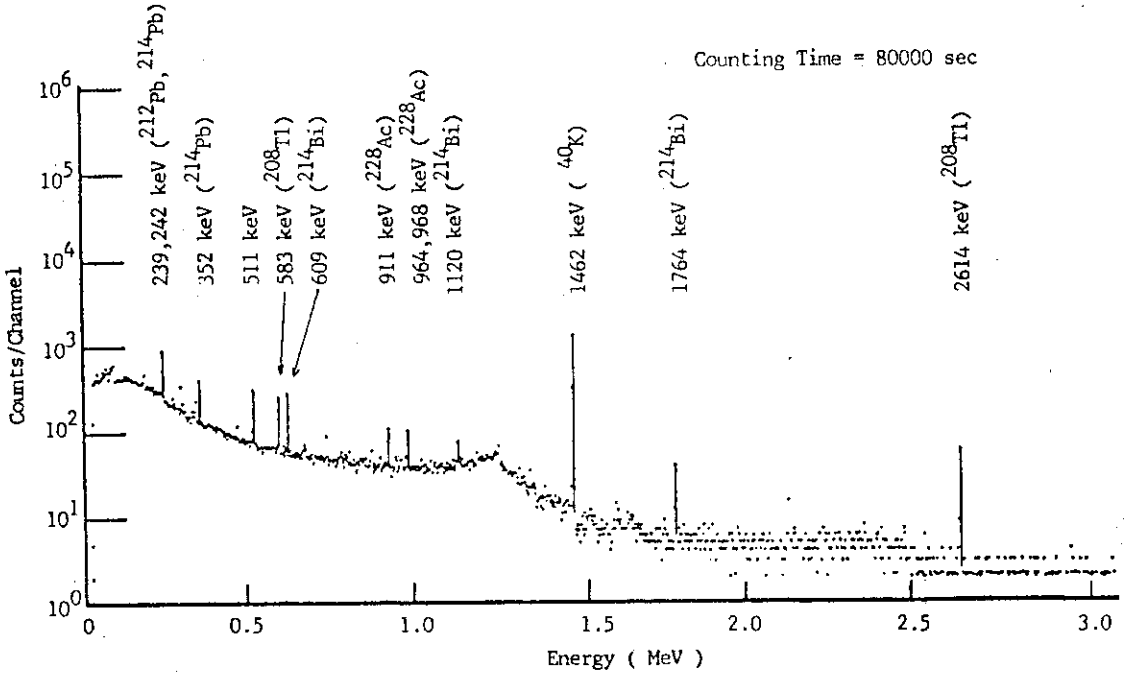


Fig. III-6-1 Gamma-ray spectrum of the sea sediment collected at the point ST 2 on Dec. 10, 1979. This shows the most remarkable peak of ^{40}K in the whole samples.

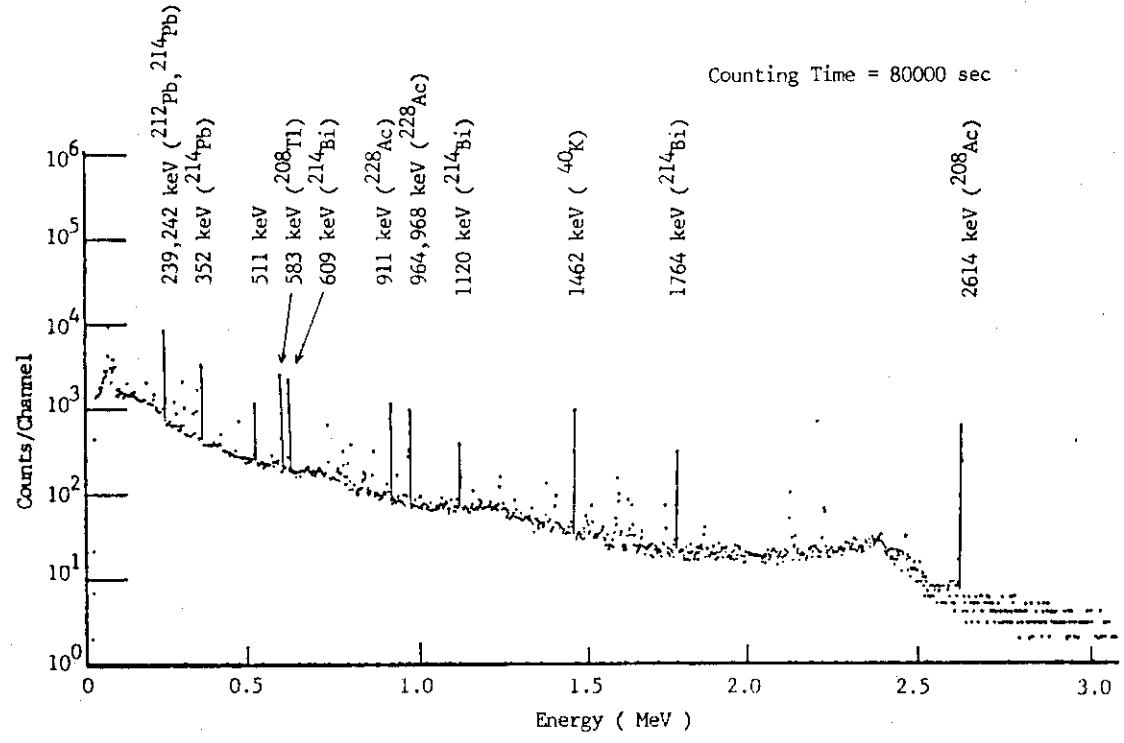


Fig. III-6-2 Gamma-ray spectrum of the sea sediment collected at the point ST 4 on Dec. 10, 1979. This shows the most remarkable peaks of the uranium and thorium series nuclides in the whole samples.

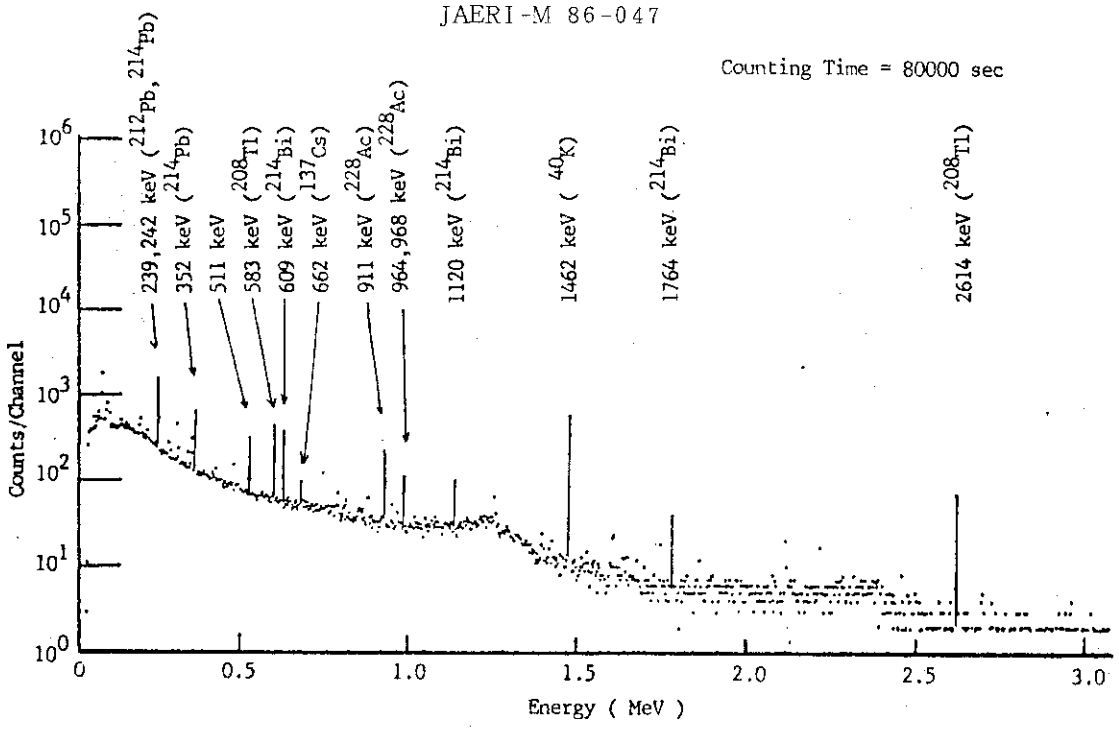


Fig. III-6-3 Gamma-ray spectrum of the sea sediment collected at the point ST 7 on Dec. 10, 1979. This shows the most remarkable peak of ^{137}Cs in the whole samples.

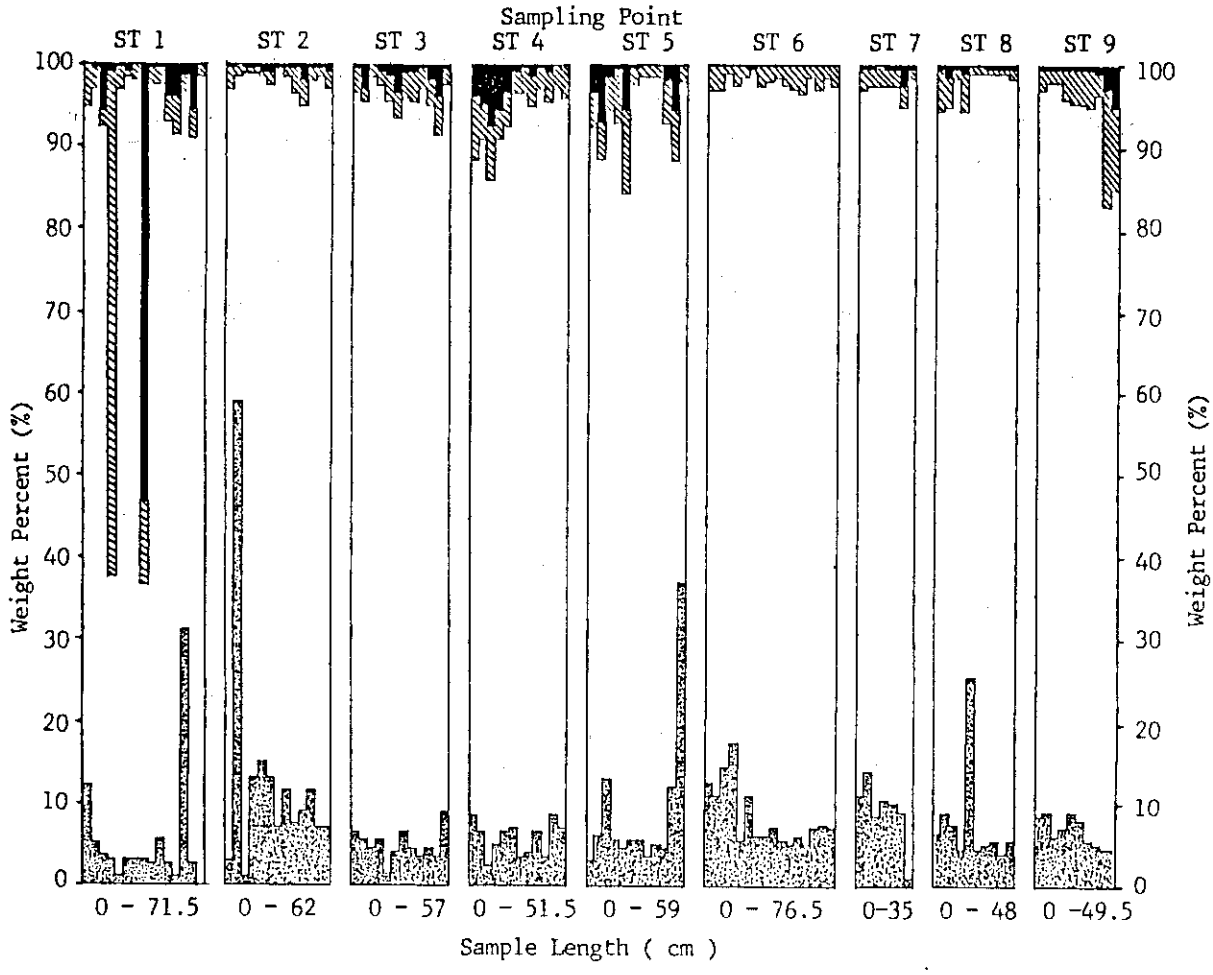


Fig. III-6-4 Depth profile of grain sizes of the sea sediment collected on Sept. 27, 1978. ■ : gravel (>2.0 mm), ▨ : coarse sand (0.42-2.0 mm), □ : fine sand (0.074-0.42 mm) and ▩ : silt (<0.074 mm)

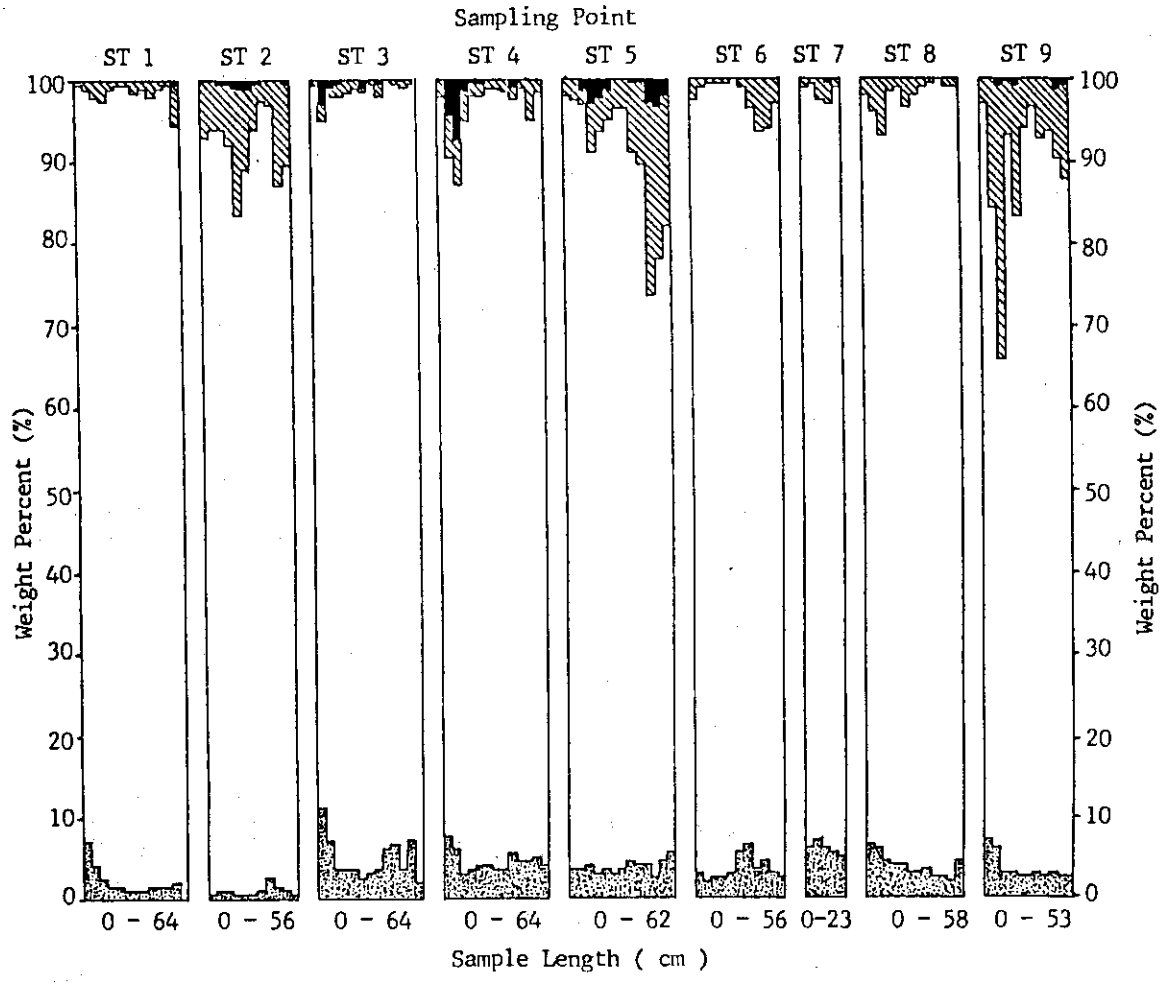
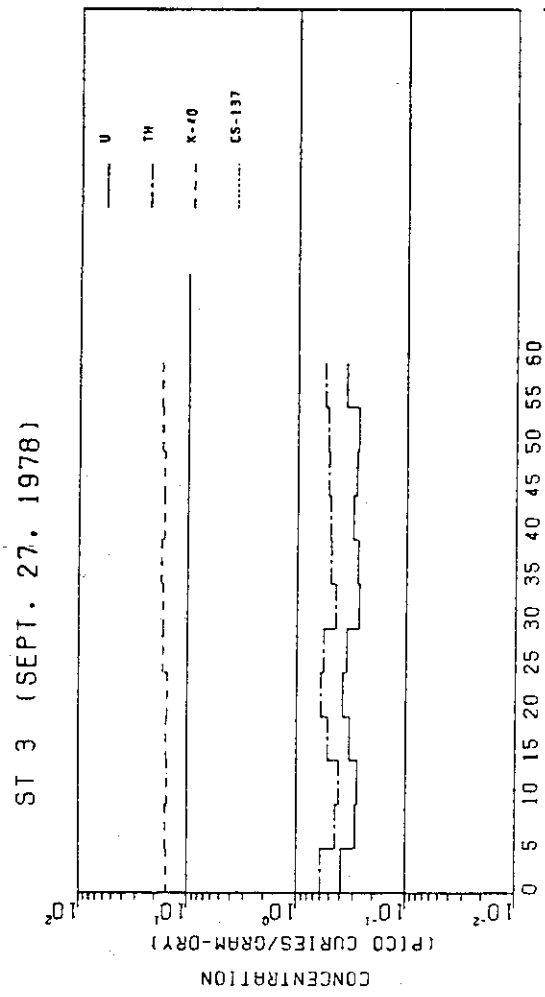


Fig. III-6-5 Depth profile of grain sizes of the sea sediment collected on Dec. 10, 1979. ■ : gravel (>2.0 mm), ▨ : coarse sand (0.42-2.0 mm), □ : fine sand (0.074-0.42 mm) and ▩ : silt (<0.074 mm)



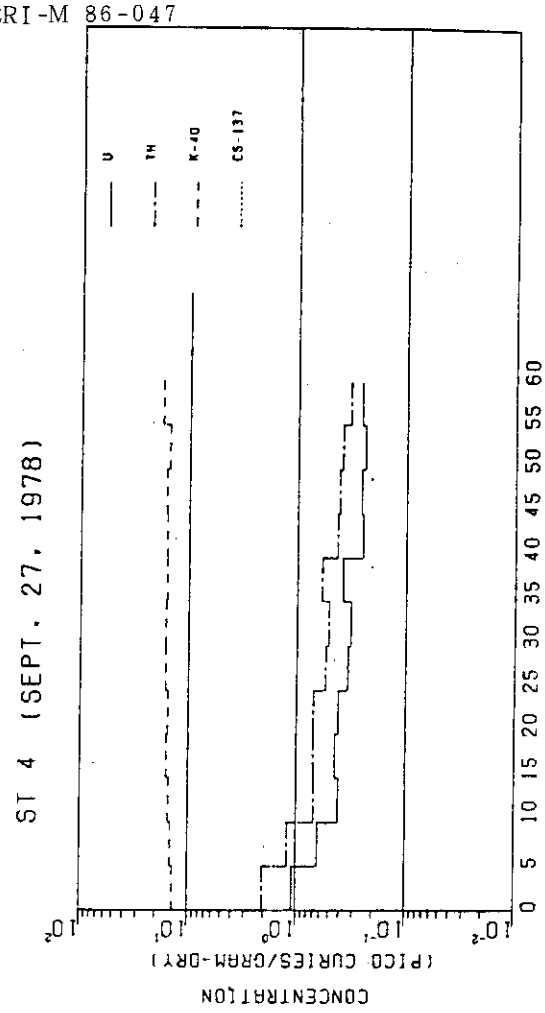
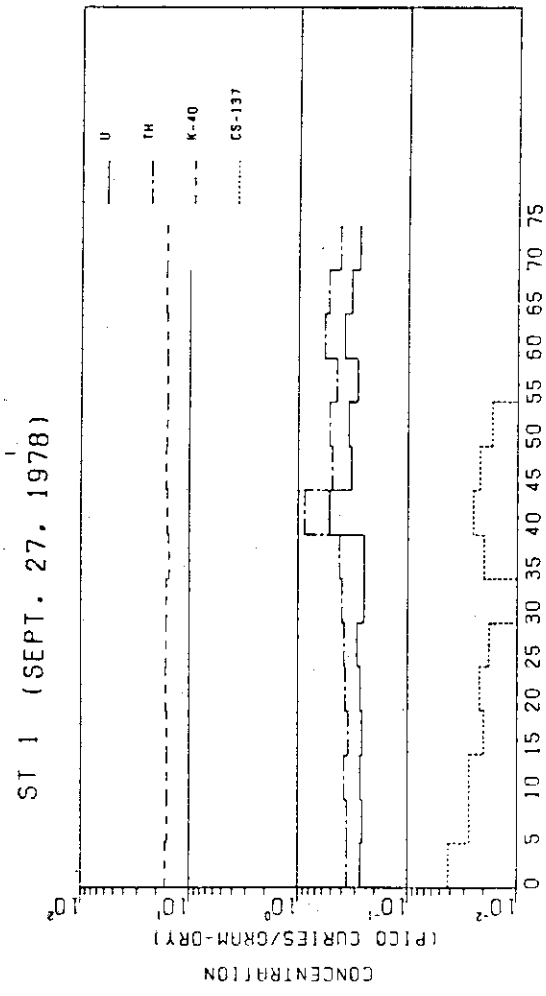


Fig. III-6-7 Depth profile of radionuclides in the sea sediment collected at ST 3 and ST 4 on Sept. 27, 1978



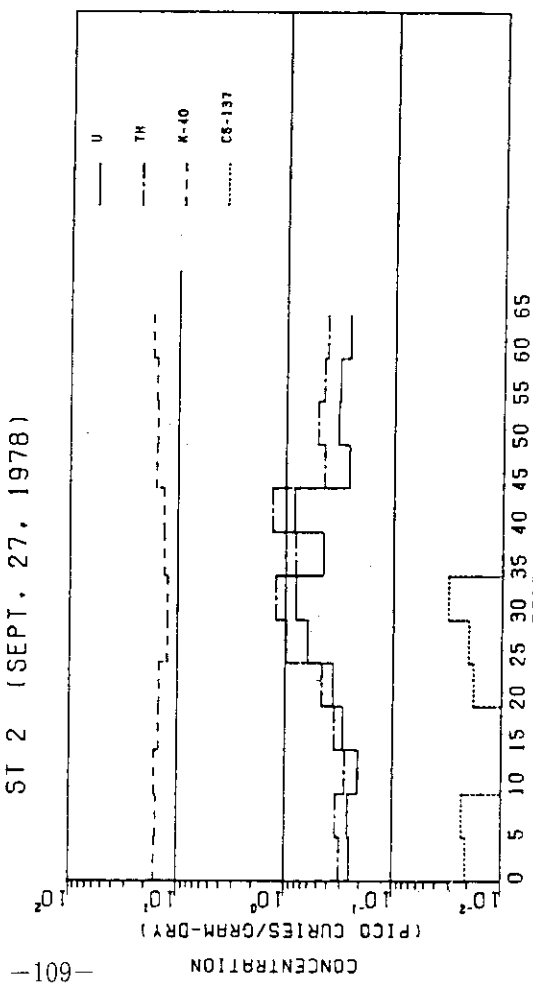
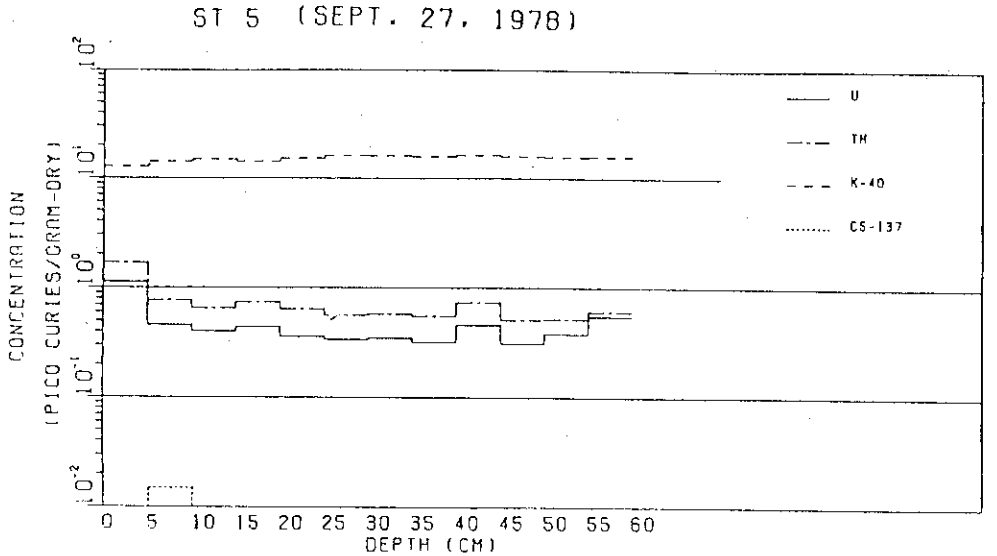
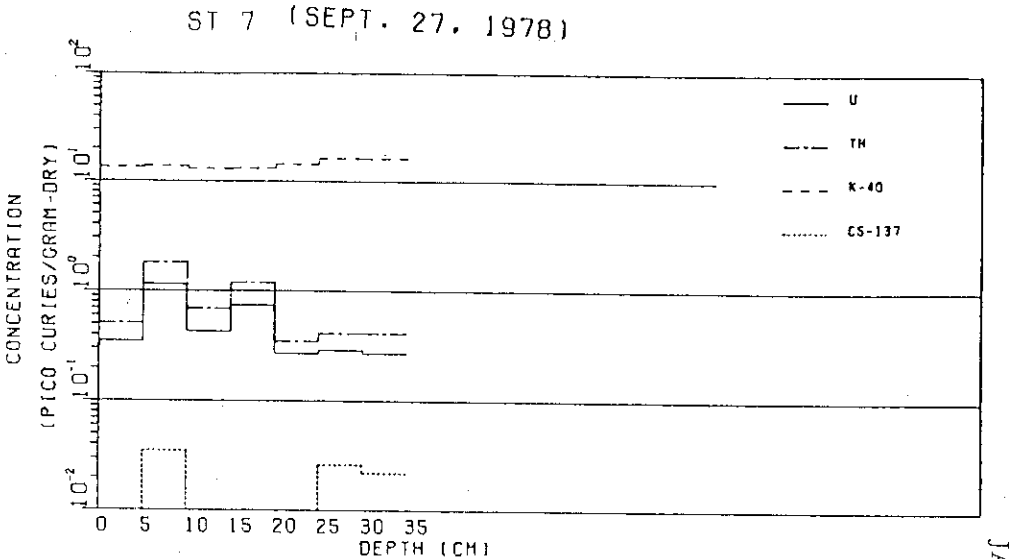
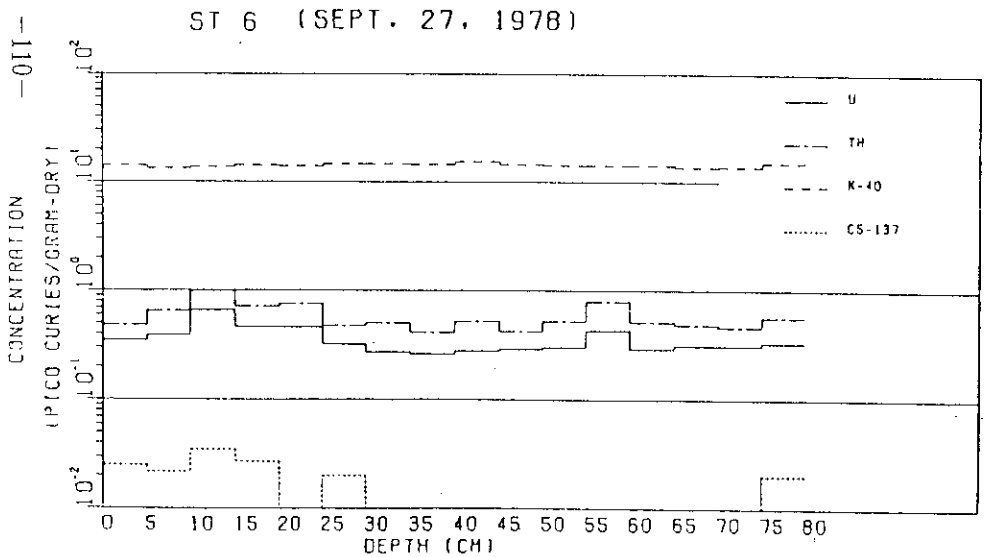


Fig. III-6-6 Depth profile of radionuclides in the sea sediment collected at ST 1 and ST 2 on Sept. 27, 1978







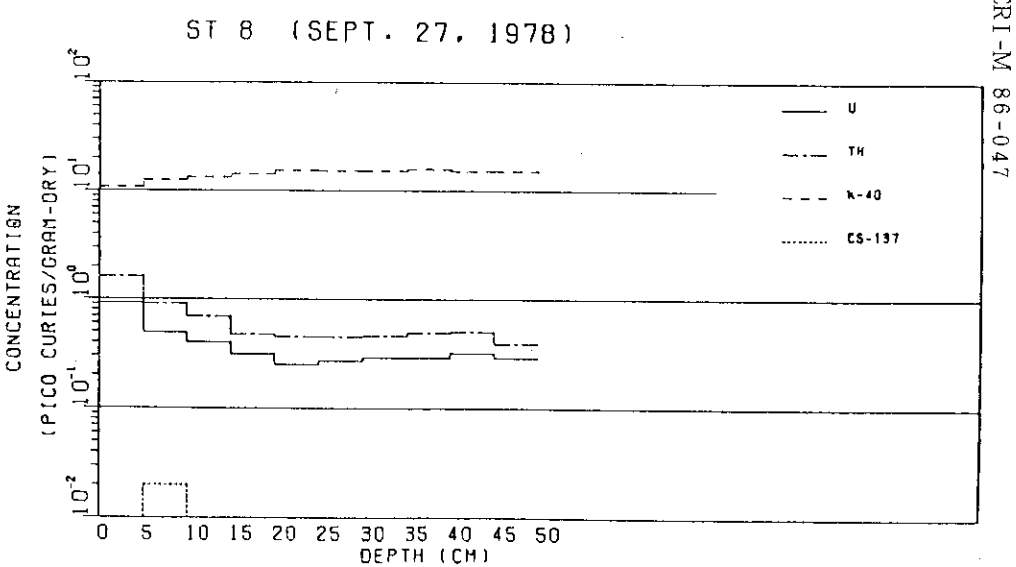


Fig. III-6-8 Depth profile of radionuclides in the sea sediment collected at ST 5 and ST 6 on Sept. 27, 1978

Fig. III-6-9 Depth profile of radionuclides in the sea sediment collected at ST 7 and ST 8 on Sept. 27, 1978

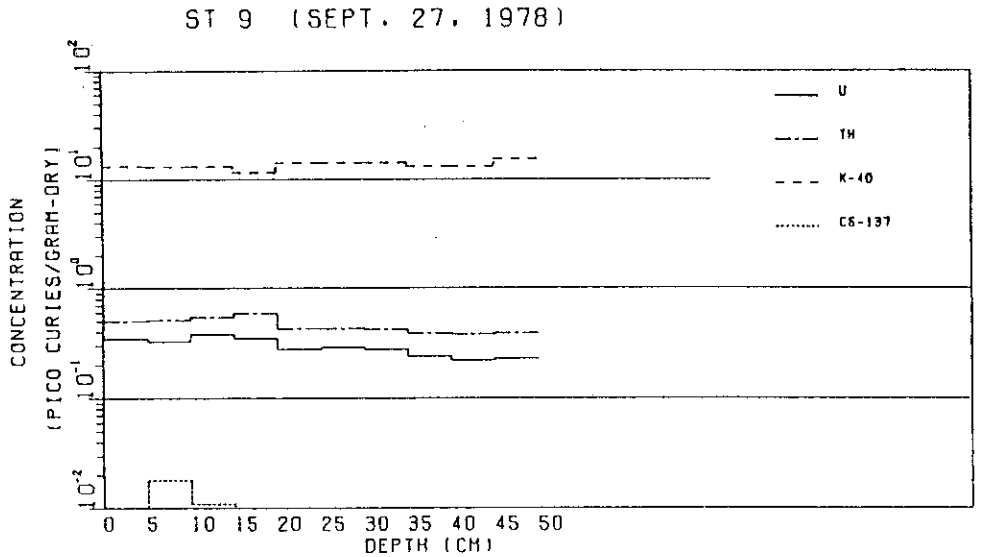
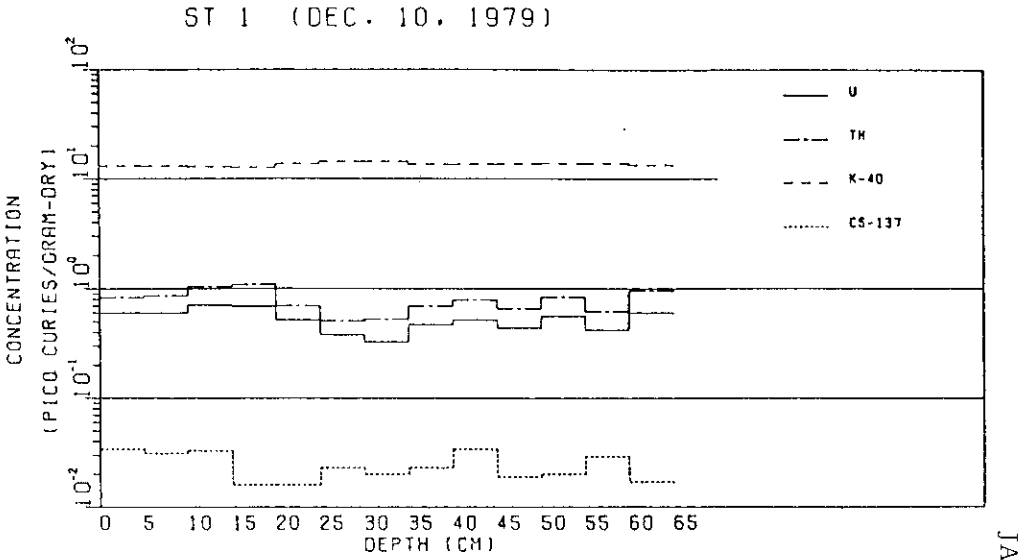


Fig. III-6-10 Depth profile of radionuclides in the sea sediment collected at ST 9 on Sept. 27, 1978



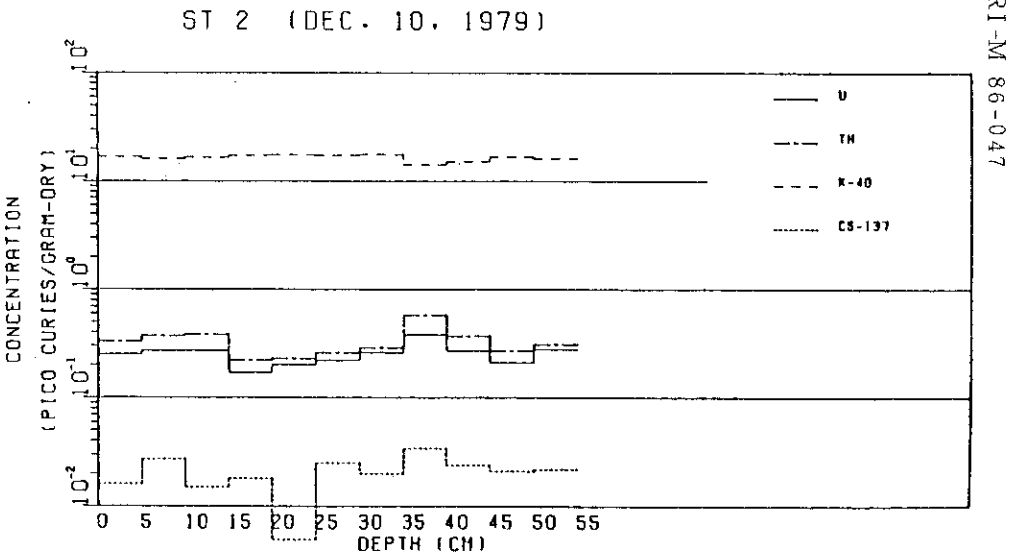
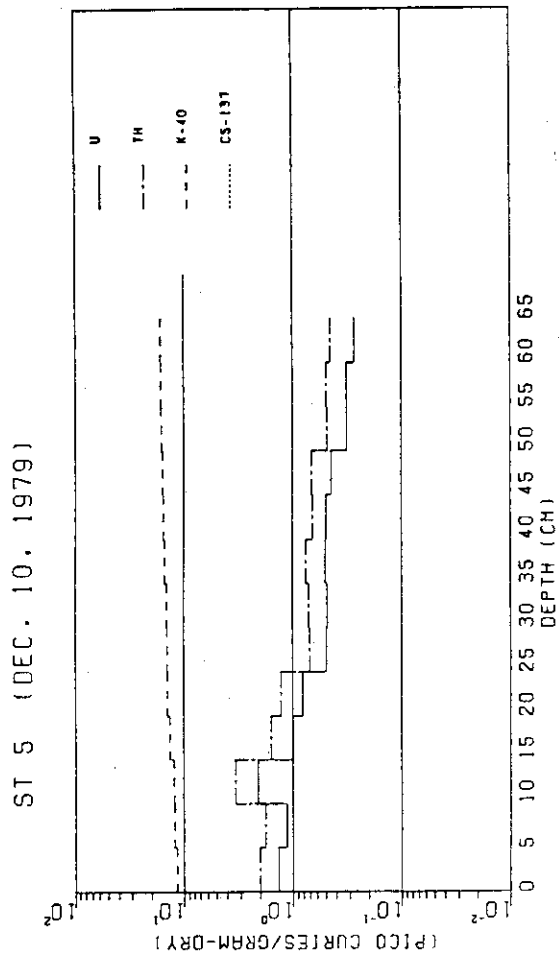


Fig. III-6-11 Depth profile of radionuclides in the sea sediment collected at ST 1 and ST 2 on Dec. 10, 1979



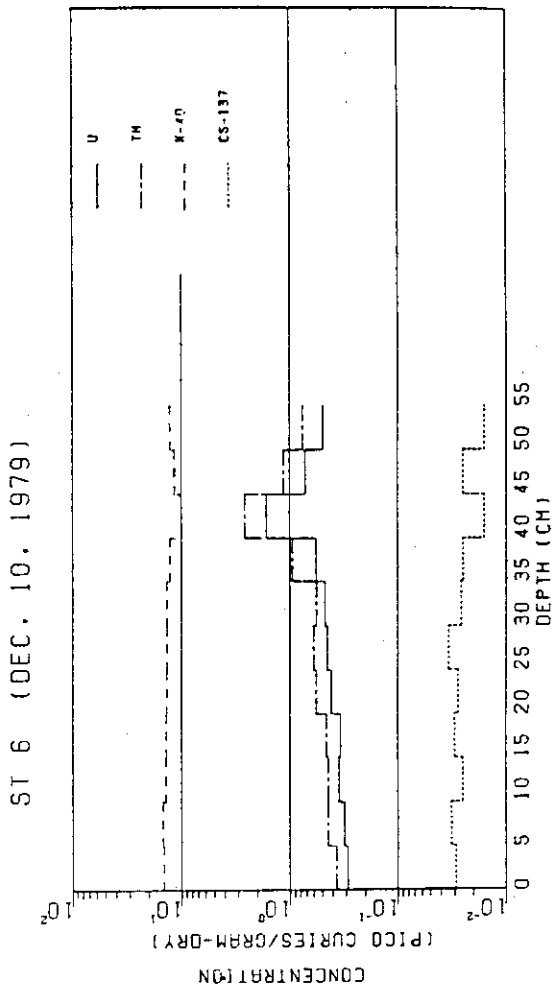
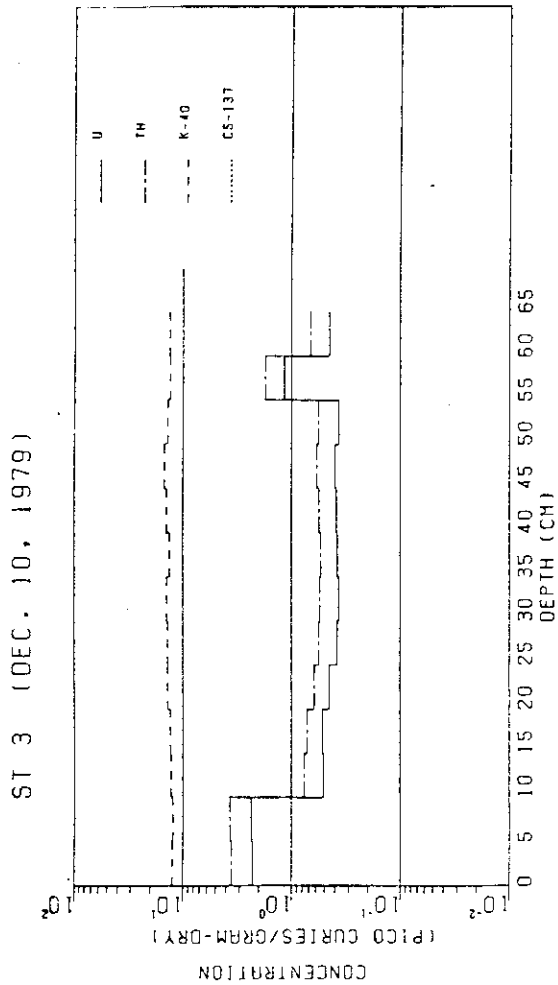


Fig. III-6-13 Depth profile of radionuclides in the sea sediment collected at ST 5 and ST 6 on Dec. 10, 1979



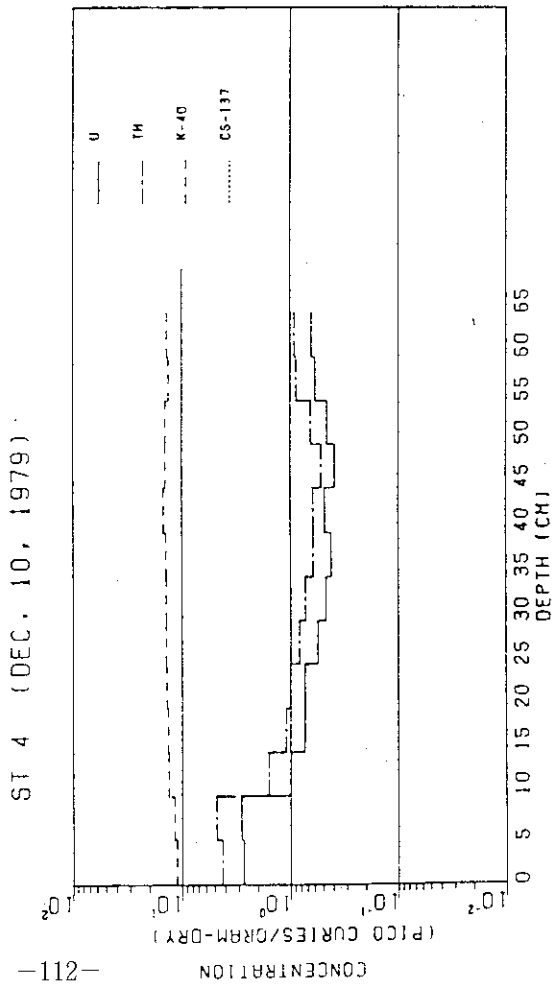
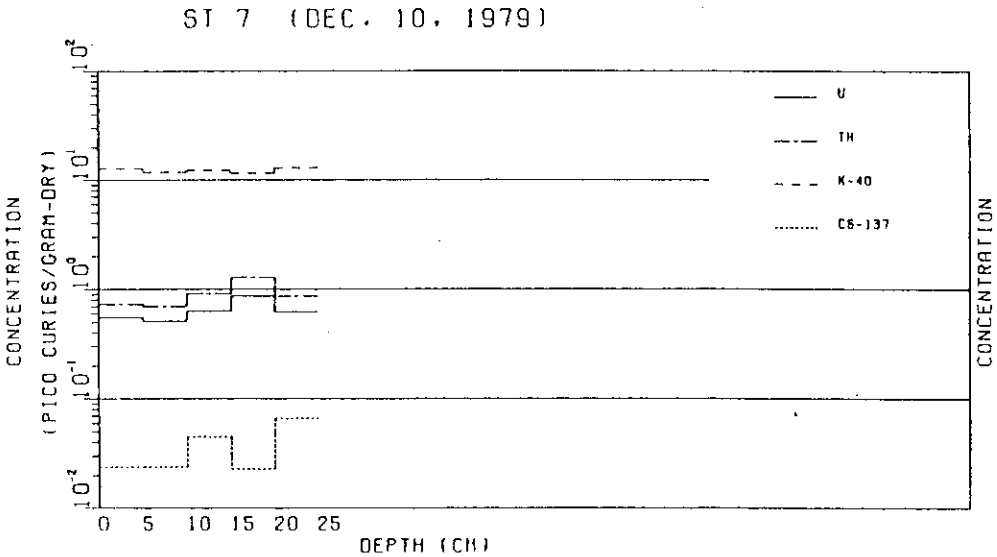


Fig. III-6-12 Depth profile of radionuclides in the sea sediment collected at ST 3 and ST 4 on Dec. 10, 1979



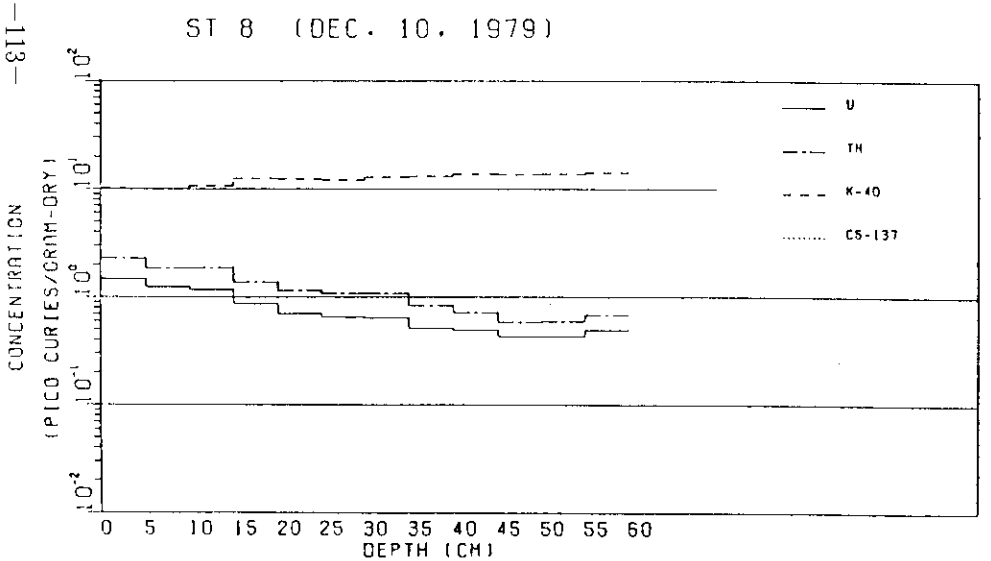


Fig. III-6-14 Depth profile of radionuclides in the sea sediment collected at ST 7 and ST 8 on Dec. 10, 1979

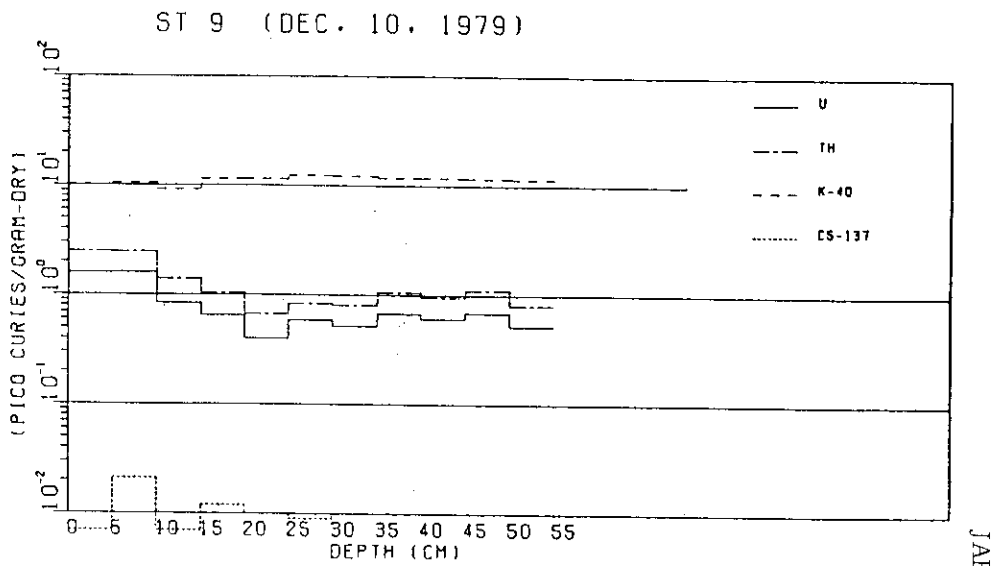


Fig. III-6-15 Depth profile of radionuclides in the sea sediment collected at ST 9 on Dec. 10, 1979

7. Concentration of Stable Elements in Sea Sediment

Table III-7-1 Analytical results of stable elements in the sea sediment collected off the coast of JAERI on Sept. 27, 1978

***** MgO FOUND (%) *****

DEPTH (CM)	SAMPLING POINT ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0- 5	2.6	2.4	2.1	2.5	2.1	2.2	3.3	3.2	2.6
5- 10	2.5	2.4	2.3	1.9	2.0	2.2	3.7	2.8	3.1
10- 15	2.3	2.3	1.9	2.5	1.9	3.2	3.1	3.0	3.0
15- 20	1.8	1.5	2.5	2.4	2.2	3.0	2.8	2.6	3.5
20- 25	1.9	2.3	2.1	2.1	2.5	2.9	2.6	2.7	3.2
25- 30	1.4	2.3	2.2	2.1	2.4	2.7	2.9	2.3	2.8
30- 35	1.8	2.3	1.9	2.0	2.1	1.9	2.5	2.6	2.7
35- 40	2.3	2.0	2.2	1.8	2.3	2.1	---	2.9	2.8
40- 45	1.9	1.8	1.7	1.6	2.2	2.8	---	2.2	2.5
45- 50	2.2	1.9	1.9	2.1	2.4	3.3	---	2.5	2.5
50- 55	2.5	1.3	2.5	1.9	2.5	3.6	---	---	---
55- 60	2.3	1.6	2.0	1.8	3.4	3.3	---	---	---
60- 65	2.7	2.3	---	---	---	3.4	---	---	---
65- 70	2.6	---	---	---	---	2.6	---	---	---
70- 75	2.4	---	---	---	---	2.8	---	---	---
75- 80	---	---	---	---	---	3.4	---	---	---

Table III-7-1 (Continued)

***** Al_2O_3 FOUND (%) *****

DEPTH (CM)	SAMPLING POINT ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0- 5	9.5	9.0	8.1	7.5	8.2	8.2	10.3	8.5	8.4
5- 10	9.1	8.7	8.5	8.1	8.4	8.3	9.8	9.1	9.0
10- 15	8.7	8.7	8.4	9.0	8.5	9.0	9.4	9.1	9.0
15- 20	8.3	8.9	9.0	9.0	8.6	9.2	9.2	8.8	8.4
20- 25	8.7	8.9	8.8	8.5	8.9	9.3	9.7	9.1	9.2
25- 30	8.7	9.5	8.7	8.5	8.9	9.1	9.9	8.9	9.3
30- 35	8.8	9.2	8.6	8.6	8.9	8.3	9.5	9.4	9.1
35- 40	8.6	8.6	8.8	9.2	8.9	8.6	---	9.3	9.0
40- 45	8.3	9.2	8.8	8.8	9.2	9.7	---	8.8	8.9
45- 50	8.3	8.6	8.7	9.2	8.9	10.1	---	8.9	9.4
50- 55	8.8	8.6	8.8	8.5	10.0	10.0	---	---	---
55- 60	9.1	9.0	8.8	9.0	10.9	9.8	---	---	---
60- 65	8.7	9.0	---	---	---	10.1	---	---	---
65- 70	9.2	---	---	---	---	9.6	---	---	---
70- 75	8.9	---	---	---	---	9.8	---	---	---
75- 80	---	---	---	---	---	9.8	---	---	---

Table III-7-1 (Continued)

***** SiO_2 FOUND (%) *****

DEPTH (CM)	SAMPLING POINT ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0- 5	50.2	53.3	51.3	48.8	50.1	48.3	57.4	53.0	52.8
5- 10	52.9	52.5	52.2	52.1	51.2	49.4	53.0	54.9	54.5
10- 15	51.4	56.4	49.8	52.7	51.9	50.4	55.3	54.7	54.1
15- 20	50.7	54.3	52.4	52.6	54.1	50.8	56.2	53.4	53.5
20- 25	50.3	51.1	52.2	52.2	53.0	53.7	56.8	54.7	54.5
25- 30	51.0	52.7	51.6	50.4	53.8	52.0	56.4	54.2	53.4
30- 35	51.0	51.8	48.9	51.3	53.3	49.2	55.0	54.4	53.8
35- 40	51.7	53.9	51.0	54.0	53.5	49.4	---	56.8	54.2
40- 45	51.5	52.9	49.6	53.9	54.0	55.8	---	52.2	53.8
45- 50	50.0	50.9	51.7	55.3	53.0	57.8	---	53.8	54.7
50- 55	54.0	54.2	50.7	51.7	51.9	55.9	---	---	---
55- 60	51.7	51.9	50.3	49.7	53.1	56.6	---	---	---
60- 65	52.4	51.2	---	---	---	57.7	---	---	---
65- 70	51.0	---	---	---	---	57.2	---	---	---
70- 75	51.9	---	---	---	---	57.3	---	---	---
75- 80	---	---	---	---	---	56.2	---	---	---

Table III-7-1 (Continued)

***** K_2O FOUND (%) *****

DEPTH (CM)	SAMPLING POINT ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0- 5	1.7	1.7	1.5	1.1	1.4	1.3	1.7	1.3	1.3
5- 10	1.6	1.6	1.6	1.4	1.4	1.4	1.6	1.5	1.5
10- 15	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4
15- 20	1.6	1.7	1.5	1.5	1.4	1.6	1.6	1.5	1.2
20- 25	1.7	1.8	1.6	1.4	1.5	1.5	1.7	1.5	1.5
25- 30	1.6	1.7	1.5	1.6	1.6	1.5	1.7	1.5	1.5
30- 35	1.5	1.6	1.6	1.7	1.6	1.4	1.8	1.6	1.5
35- 40	1.5	1.5	1.7	1.6	1.6	1.5	---	1.4	1.5
40- 45	1.5	1.6	1.9	1.6	1.6	1.7	---	1.5	1.3
45- 50	1.6	1.7	1.6	1.7	1.5	1.7	---	1.5	1.6
50- 55	1.7	1.8	1.8	1.5	1.9	1.7	---	---	---
55- 60	1.6	1.8	1.7	1.5	1.8	1.7	---	---	---
60- 65	1.6	1.8	---	---	---	1.6	---	---	---
65- 70	1.9	---	---	---	---	1.5	---	---	---
70- 75	1.8	---	---	---	---	1.7	---	---	---
75- 80	---	---	---	---	---	1.7	---	---	---

Table III-7-1 (Continued)

***** CaO FOUND (%) *****

DEPTH (CM)	SAMPLING POINT ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0- 5	4.2	6.8	5.5	4.9	4.8	4.9	4.8	5.3	4.2
5- 10	5.5	6.4	5.5	5.2	5.1	4.8	5.6	5.2	5.2
10- 15	6.6	5.2	5.6	5.0	5.5	4.8	5.5	5.7	5.0
15- 20	6.6	5.3	4.8	4.7	4.8	4.8	4.8	5.6	4.8
20- 25	7.2	5.7	5.2	5.1	4.8	5.2	4.5	5.3	5.2
25- 30	6.5	6.1	5.8	5.5	4.8	4.8	5.3	6.1	5.2
30- 35	5.3	6.1	6.6	5.9	5.6	5.5	6.6	5.4	6.0
35- 40	5.2	5.6	5.6	4.4	5.1	5.9	---	4.6	5.9
40- 45	5.9	6.4	6.2	4.5	4.8	6.2	---	5.6	5.6
45- 50	6.4	7.3	5.1	3.9	5.1	6.1	---	5.2	5.4
50- 55	5.8	6.8	5.0	4.3	4.5	5.9	---	---	---
55- 60	7.2	7.0	4.9	5.4	3.1	5.9	---	---	---
60- 65	5.9	6.1	---	---	---	5.9	---	---	---
65- 70	7.4	---	---	---	---	6.5	---	---	---
70- 75	6.9	---	---	---	---	5.8	---	---	---
75- 80	---	---	---	---	---	6.4	---	---	---

Table III-7-1 (Continued)

***** TiO_2 FOUND (%) *****

DEPTH (CM)	SAMPLING POINT ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0- 5	0.6	0.4	0.4	0.8	0.5	0.4	0.5	1.0	0.4
5- 10	0.4	0.4	0.4	0.6	0.4	0.5	0.6	0.5	0.5
10- 15	0.3	0.3	0.3	0.4	0.4	0.8	0.4	0.6	0.4
15- 20	0.3	0.4	0.3	0.4	0.4	0.5	0.6	0.4	0.5
20- 25	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4
25- 30	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4
30- 35	0.4	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4
35- 40	0.4	0.4	0.4	0.4	0.4	0.4	---	0.4	0.4
40- 45	0.4	0.5	0.4	0.3	0.4	0.4	---	0.4	0.4
45- 50	0.4	0.4	0.4	0.3	0.4	0.5	---	0.4	0.3
50- 55	0.4	0.3	0.5	0.3	0.5	0.5	---	---	---
55- 60	0.4	0.4	0.4	0.3	0.5	0.5	---	---	---
60- 65	0.5	0.4	---	---	---	0.5	---	---	---
65- 70	0.5	---	---	---	---	0.5	---	---	---
70- 75	0.4	---	---	---	---	0.4	---	---	---
75- 80	---	---	---	---	---	0.4	---	---	---

Table III-7-1 (Continued)

***** MnO FOUND (%) *****

DEPTH (CM)	SAMPLING POINT ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0- 5	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2
5- 10	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
10- 15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
15- 20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
20- 25	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1
25- 30	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
30- 35	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1
35- 40	0.1	0.2	0.1	0.1	0.1	0.1	---	0.2	0.1
40- 45	0.1	0.2	0.1	0.1	0.1	0.1	---	0.1	0.1
45- 50	0.2	0.1	0.1	0.1	0.1	0.1	---	0.1	0.1
50- 55	0.2	0.1	0.1	0.1	0.1	0.1	---	---	---
55- 60	0.2	0.1	0.1	0.1	0.1	0.1	---	---	---
60- 65	0.1	0.1	---	---	---	0.1	---	---	---
65- 70	0.1	---	---	---	---	0.1	---	---	---
70- 75	0.2	---	---	---	---	0.1	---	---	---
75- 80	---	---	---	---	---	0.1	---	---	---

Table III-7-1 (Continued)

***** Fe_2O_3 FOUND (%) *****

DEPTH (CM)	SAMPLING POINT ST1	ST2	ST3	ST4	ST5	ST6	ST7	ST8	ST9
0- 5	3.8	3.2	2.7	3.7	3.1	3.7	4.0	5.7	3.7
5- 10	3.1	3.1	2.7	3.1	2.7	3.7	4.5	4.0	4.0
10- 15	2.7	2.1	2.5	2.8	2.6	4.8	3.9	4.2	3.8
15- 20	2.6	3.2	2.4	2.7	2.9	3.9	3.8	3.1	4.3
20- 25	2.8	3.6	2.5	2.6	3.0	3.7	3.4	3.3	3.7
25- 30	2.9	3.8	2.7	2.4	2.7	3.0	3.3	3.0	3.3
30- 35	3.0	3.9	3.1	2.3	2.9	3.2	3.0	3.1	3.4
35- 40	3.3	2.9	2.5	2.4	2.7	3.4	---	3.3	3.3
40- 45	2.9	3.4	2.8	1.7	2.8	3.7	---	3.2	3.4
45- 50	3.0	2.8	2.6	1.9	2.5	3.6	---	2.9	2.8
50- 55	2.7	2.2	3.1	2.2	3.8	4.0	---	---	---
55- 60	2.8	3.0	2.7	2.5	5.2	3.9	---	---	---
60- 65	3.0	3.3	---	---	---	3.6	---	---	---
65- 70	3.7	---	---	---	---	3.5	---	---	---
70- 75	3.2	---	---	---	---	3.5	---	---	---
75- 80	---	---	---	---	---	3.4	---	---	---

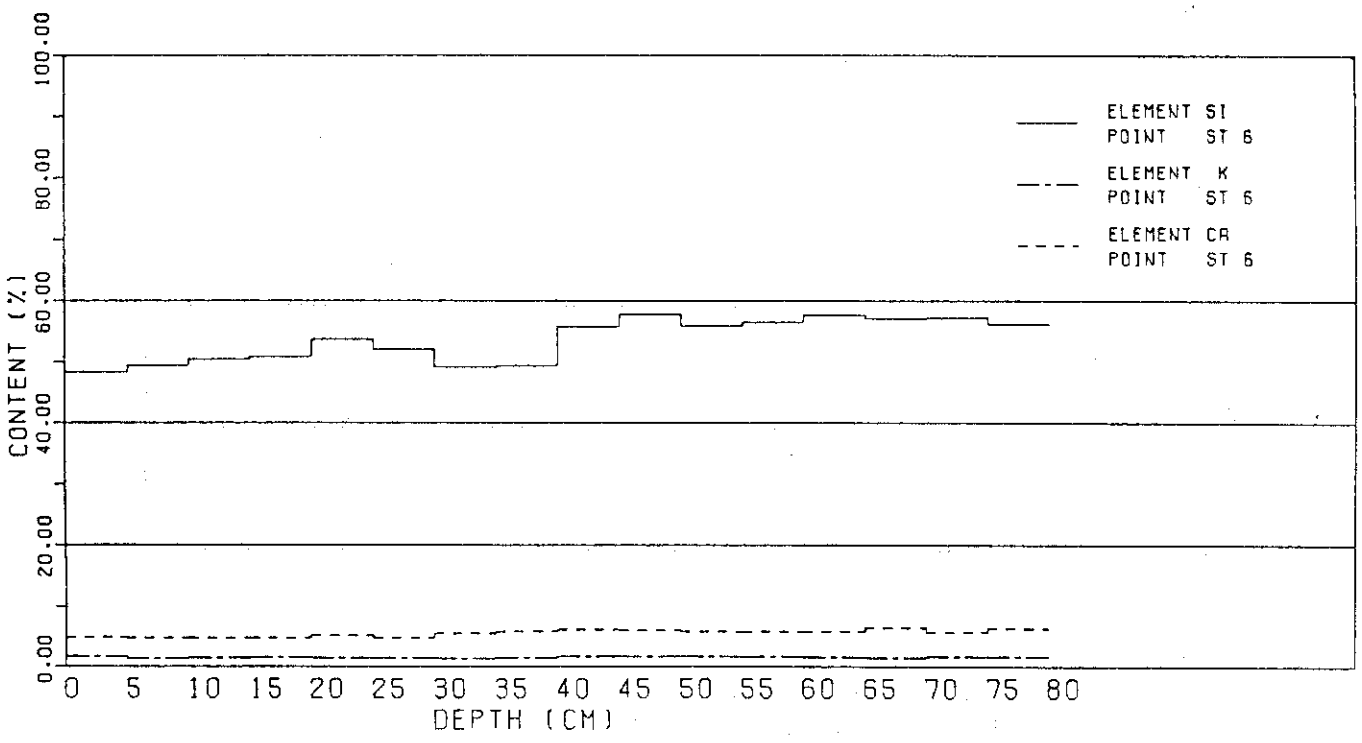


Fig. III-7-1 Vertical distribution of the contents of stable elements, expressed as their oxides, in the sea sediment collected on Sept. 27, 1978

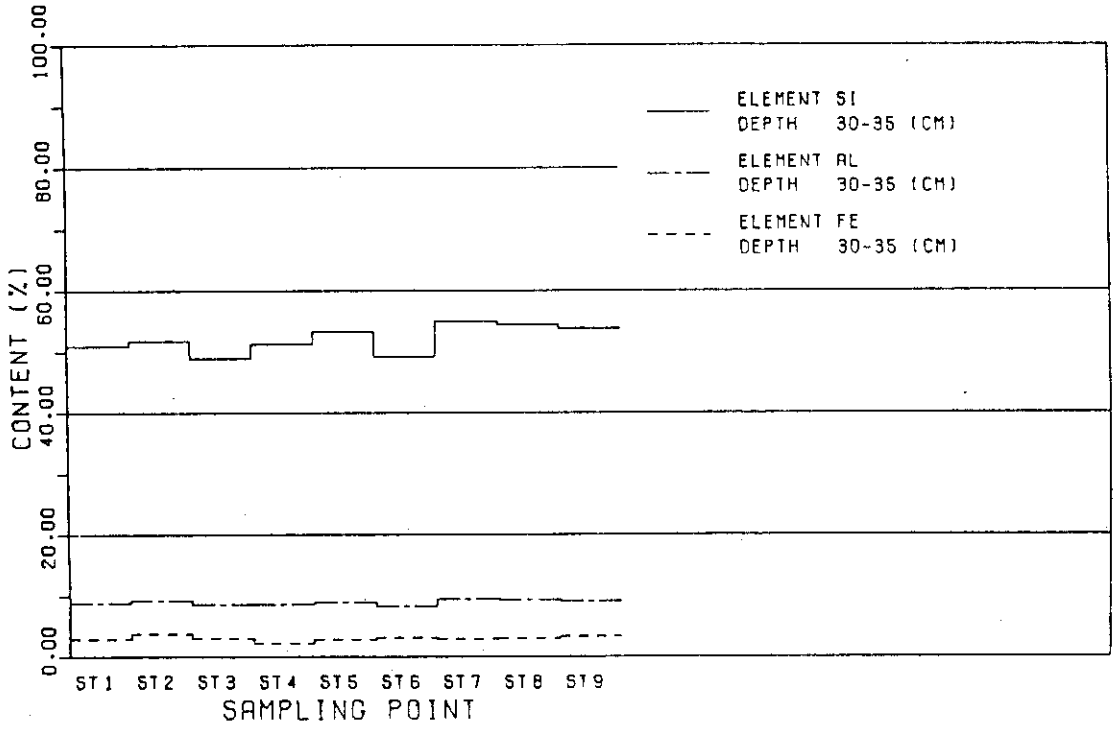


Fig. III-7-2 Variation of the contents of stable elements, expressed as their oxides, in the sea sediment collected on Sept. 27, 1978

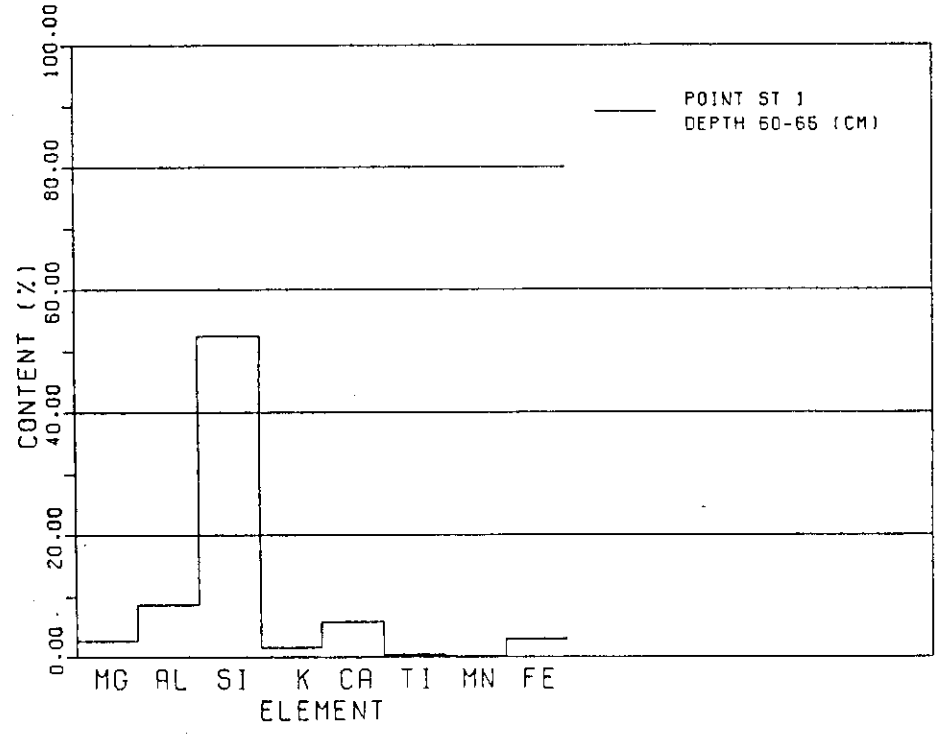


Fig. III-7-3 Contents of stable elements, expressed as their oxides, in the sea sediment collected on Sept. 27, 1978

8. Concentration of Tritium in Precipitation

Table III-8-1 Concentration of tritium in precipitation at Tokai-mura

TRITIUM CONCENTRATION
IN PRECIPITATION
IN TOKAI-MURA

======= PRECIPITATION =======

DATE	RAINFALL (MM)	CONC. (PCI/L,HTO)	FALL (PCI/M**2,HTO)	AMOUNT (ML)	
1978. 4.10- 5.15	72.7	527	38378	3635	
1978. 5.18, 5.19	61.6	389	23946	3080	
1978. 5.30, 6.04	43.0	308	13189	2150	
1978. 6.05	4.4	889	3919	218	
1978. 6.13, 6.16	2.2	646	1419	110	
1978. 6.22- 6.26	36.4	338	12270	1820	
1978. 6.27, 6.28, 7. 1	54.0	473	55405	2702	
1978. 7.03, 7.08	4.9	427	2089	245	
1978. 7.11	0.2	1216	243	12	
1978. 7.24	6.0	217	130	299	
1978. 8.01	9.8	162	1589	490	
1978. 8.15, 8.16, 8.17	13.5	508	6865	673	
1978. 9.01, 9.03	11.4	149	1700	570	
1978. 9.04, 9.05, 9.11	38.8	224	870	1940	
1978. 9.12, 9.13, 9.16	17.6	408	7189	882	
1978. 9.21	5.0	332	1659	251	
1978. 9.28, 9.29, 9.30	18.3	137	2511	915	
1978.10.05,10.06	29.2	284	8297	1458	
1978.10.10	12.2	159	1951	612	
1978.10.15,10.16	6.8	95	641	339	
1978.10.19,10.20,10.21	44.8	123	5514	2240	
1978.10.27,10.28,10.29	38.2	112	4270	1908	
1978.11.13	14.6	98	1441	732	
1978.11.13-11.20	30.4	124	3757	1522	
1978.11.27	11.8	112	1319	591	
1978.11.27	2.2	244	527	108	
1978.12.05,12.10,12.11	10.5	152	1600	525	
1978.12.18	2.9	204	584	143	
1978.12.23,12.24	12.7	162	2051	633	
1979. 1.08	0.5	159	73	23	
1979. 1.13, 1.14	4.8	242	1151	238	
1979. 1.29- 1.31, 2.01	45.7	219		2285	WITH LOSS*
1979. 2.05, 2.06, 2.08	27.4	153	4189	1370	
1979. 2.08, 2.10, 2.11	8.7	140	1230	438	
1979. 2.14, 2.17, 2.18	13.9	144	2000	696	
1979. 2.23, 2.24	35.8	129	4622	1790	
1979. 2.26, 2.27, 3.04	22.2	187	4162	1110	
1979. 3.07, 3.10, 3.12	10.5	376	3946	525	
1979. 3.24	40.2	262	15027	2010	
1979. 4.01, 4.02	25.4	316	8027	1270	
1979. 4.08	15.8	180	2838	790	
1979. 4.14	1.7	276	476	86	
1979. 4.19, 4.20, 4.21	14.0	259	3622	700	
1979. 4.24	0.1	751	120	8	
1979. 4.26, 4.27	24.2	330	7973	1210	

* WITH LOSS : Some of the precipitation was lost.

Table III-8-1 (Continued)

DATE	RAINFALL (MM)	CONC. (PCI/L,HTO)	FALL (PCI/M**2,HTO)	AMOUNT (ML)	
	======= PRECIPITATION =======				
1979. 4.27, 4.29	29.0	241	7000	1450	
1979. 5.08	46.2	503		2310	WITH LOSS*
1979. 5.08, 5.09	46.1	400	18378	2305	
1979. 5.10	6.2	303	1881	310	
1979. 5.11	5.2	268	1400	261	
1979. 5.14	5.2	254	1081	263	
1979. 5.14, 5.15	46.9	28		2347	WITH LOSS
1979. 5.15	0.4	207	99	24	
1979. 5.17	10.1	559	5649	505	
1979. 5.17	1.4	441	646	74	
1979. 5.20	1.7	543	943	87	
1979. 5.27	15.8	152	2400	790	
1979. 5.29	0.4	705	338	24	
1979. 6.03	3.6	397	1459	184	
1979. 6.04, 6.07, 6.08	12.6	600	7568	630	
1979. 6.11	2.5	741	1859	126	
1979. 6.12	19.5	522	10162	973	
1979. 6.14	9.3	454	4216	465	
1979. 6.26	0.6	245	167	34	
1979. 6.27, 6.28	1.2	108	136	63	
1979. 6.29, 6.30	31.1	514	16000	1555	
1979. 7.01	4.5	54	2451	225	
1979. 7.02, 7.03	3.6	476	1719	180	
1979. 7.10	5.5	430	2370	275	
1979. 7.11	0.7	611	427	35	
1979. 7.13, 7.14	5.9	201	1186	295	
1979. 7.14	1.0	343	357	52	
1979. 7.18- 7.19	11.6	357	4135	580	
1979. 7.20, 7.21	14.7	500	7378	737	
1979. 7.25	21.2	123	2159	1060	
1979. 7.25	23.5	108	2541	1175	
1979. 7.25	2.4	186	446	120	
1979. 7.27	2.6	603	1570	130	
1979. 7.28, 7.29, 7.30	13.0	297	3865	650	
1979. 8.03, 8.04, 8.06	5.0	427	2141	251	
1979. 8.07	2.4	1011	2430	120	
1979. 8.07	7.2	186	1341	360	
1979. 8.12	3.1	183	568	155	
1979. 8.15, 8.19-8.20	8.5	241	2051	425	
1979. 8.22	2.1	292	611	105	
1979. 8.24, 8.25	8.9	131	1170	447	
1979. 8.28	0.7	149	104	35	
1979. 8.29, 8.30	16.2	205	3216	810	
1979. 9.02	3.8	76	289	190	
1979. 9.04, 9.05	24.2	49	11892	1210	
1979. 9.07	1.4			71	N.D.*
1979. 9.09, 9.10	1.6	719	1181	83	
1979. 9.15, 9.16	4.3	286	1235	215	
1979. 9.19	1.9	84	165	98	
1979. 9.23, 9.25, 9.26	18.0	62	1124	901	
1979. 9.26, 9.27, 9.28	44.3	88	3892	2215	
1979. 9.29	3.1	55	1703	155	
1979. 9.30	65.2	47	3054	3258	
1979.10.02,10.03	8.8	27	239	440	
1979.10.06-10.08,10.11	47.2	48		2360	WITH LOSS
1979.10.13,10.17,10.18	47.4	20		2370	WITH LOSS
1979.10.18,10.19	47.4	47		2370	WITH LOSS
1979.10.19	47.2	1697		2360	WITH LOSS
1979.10.30	13.2	94	1241	660	
1979.11.04,11.05	2.5	27	66	125	
1979.11.10-11.13	47.2	160		2360	LOSS
1979.11.17-11.18	17.2	33	570	860	

* WITH LOSS : Some of the precipitation was lost.
* N.D. : Not detected

Table III-8-1 (Continued)

DATE	PRECIPITATION RAINFALL (MM)	PRECIPITATION CONC. (PCI/L,HTO)	PRECIPITATION FALL (PCI/M**2,HTO)	PRECIPITATION AMOUNT (ML)	
1979.11.22,11.23	24.4	88	2141	1220	
1979.11.24,11.25,11.26	11.3	23	260	565	*
1979.11.28,11.29	48.8	161		2440	WITH LOSS
1979.12.01,12.02	2.4	165	397	120	
1979.12.03,12.20	5.5			275	N.D.*
1979.12.21,12.22	3.8	101	389	193	
1979.12.23-12.24,12.24	22.6	52	1178	1131	
1980. 1.04	15.1			755	N.D.
1980. 1.13	20.7	63	1311	1035	
1980. 1.28, 1.29, 1.30	34.4	47	1630	1720	*
1980. 2.05, 2.19	6.9	67	465	345	SNOW
1980. 2.26, 2.27, 2.28	5.0	126	632	251	
1980. 3.01	12.7			635	N.D.
1980. 3.07, 3.08, 3.09	46.8	100		2340	WITH LOSS
1980. 3.10, 3.14, 3.15	7.4	78	581	370	
1980. 3.22, 3.23	18.7	91	1708	935	
1980. 3.29- 3.30	48.8	408	19946	2440	
1980. 4.01, 4.02	9.0	143	1292	451	
1980. 4.06, 4.07, 4.09	3.9	192	754	196	
1980. 4.13- 4.14	25.0	227	5676	1250	
1980. 4.14	43.9	69		2195	WITH LOSS
1980. 4.15, 4.16, 4.17	9.2	125	1151	460	
1980. 4.21- 4.28	26.8	207	5541	1340	
1980. 5.06, 5.08- 5.09	38.6	170	6568	1930	
1980. 5.10	12.8	160	2054	642	
1980. 5.13	11.6	381	4405	578	
1980. 5.15	1.9	113	215	95	
1980. 5.15, 5.16	29.8	140	4162	1490	
1980. 5.20, 5.21- 5.22	43.8	370		2190	WITH LOSS
1980. 5.26, 5.27	22.0	578	12730	1100	
1980. 6.02, 6.03	5.3	242	1297	268	
1980. 6.09	0.9	147	138	47	
1980. 6.09	2.9	99	289	145	
1980. 6.13, 6.20, 6.21	14.8	257	5297	740	
1980. 6.24	4.1	174	714	205	
1980. 6.25, 6.26, 6.27	4.7	215	1011	235	
1980. 6.28- 6.30, 7.02	46.0	137		2300	WITH LOSS
1980. 7.03, 7.07, 7.08	46.0	79	3622	2300	
1980. 7.08, 7.09	10.0	226	2270	502	
1980. 7.11	2.8	221	627	142	
1980. 7.11	18.6	148	2757	930	
1980. 7.12, 7.16	14.4	99	1427	720	
1980. 7.18, 7.19	11.4	193	2200	570	
1980. 7.25	15.9	106	1684	795	
1980. 7.27	5.8	146	846	290	
1980. 7.28, 7.29	47.0	164		2350	WITH LOSS
1980. 7.30, 7.31	32.4	90	2919	1620	
1980. 7.31	2.2	126	281	112	
1980. 8.02, 8.03	18.2	100	1824	912	
1980. 8.04- 8.23	25.4	121	3081	1270	
1980. 8.26- 8.27	23.8	77	1830	1190	
1980. 8.31	1.4	115	163	71	
1980. 9.03- 9.04	48.8	126		2440	WITH LOSS
1980. 9.08, 9.09	6.3	68	427	316	
1980. 9.10, 9.11	33.2	34	1151	1660	
1980. 9.12, 9.17, 9.22	3.3	93	311	167	
1980. 9.24- 9.27	21.0	64	1349	1050	
1980. 9.27	17.0	43	727	850	
1980.10.07,10.11	2.2	208	470	113	
1980.10.13,10.14	31.2	32	1014	1560	
1980.10.15,10.16,10.17	9.8	73	722	492	
1980.10.19	3.2	55	180	163	
1980.10.20	22.4	47	1049	1120	
1980.10.20,10.21	30.0	60	1795	1500	
1980.10.21	2.7	57	156	136	
1980.10.25	42.1	34	1427	2105	
1980.10.25,10.26	1.3	48	62	65	
1980.10.29-11.17	18.4	36	654	920	
1980.11.21-11.22	29.6	42	1254	1480	
1980.11.23,11.24,11.25	15.6	88	1370	780	
1980.11.28-11.29	18.9	108	2032	945	
1980.12.01,12.02-12.03	21.4	93	1997	1070	
1980.12.12	2.3	126	297	118	
1980.12.20	0.8	138	116	42	
1980.12.23,12.24	26.0	68	1765	1300	

* WITH LOSS : Some of the precipitation was lost.
* N.D. : Not detected
* SNOW : Precipitation with snow

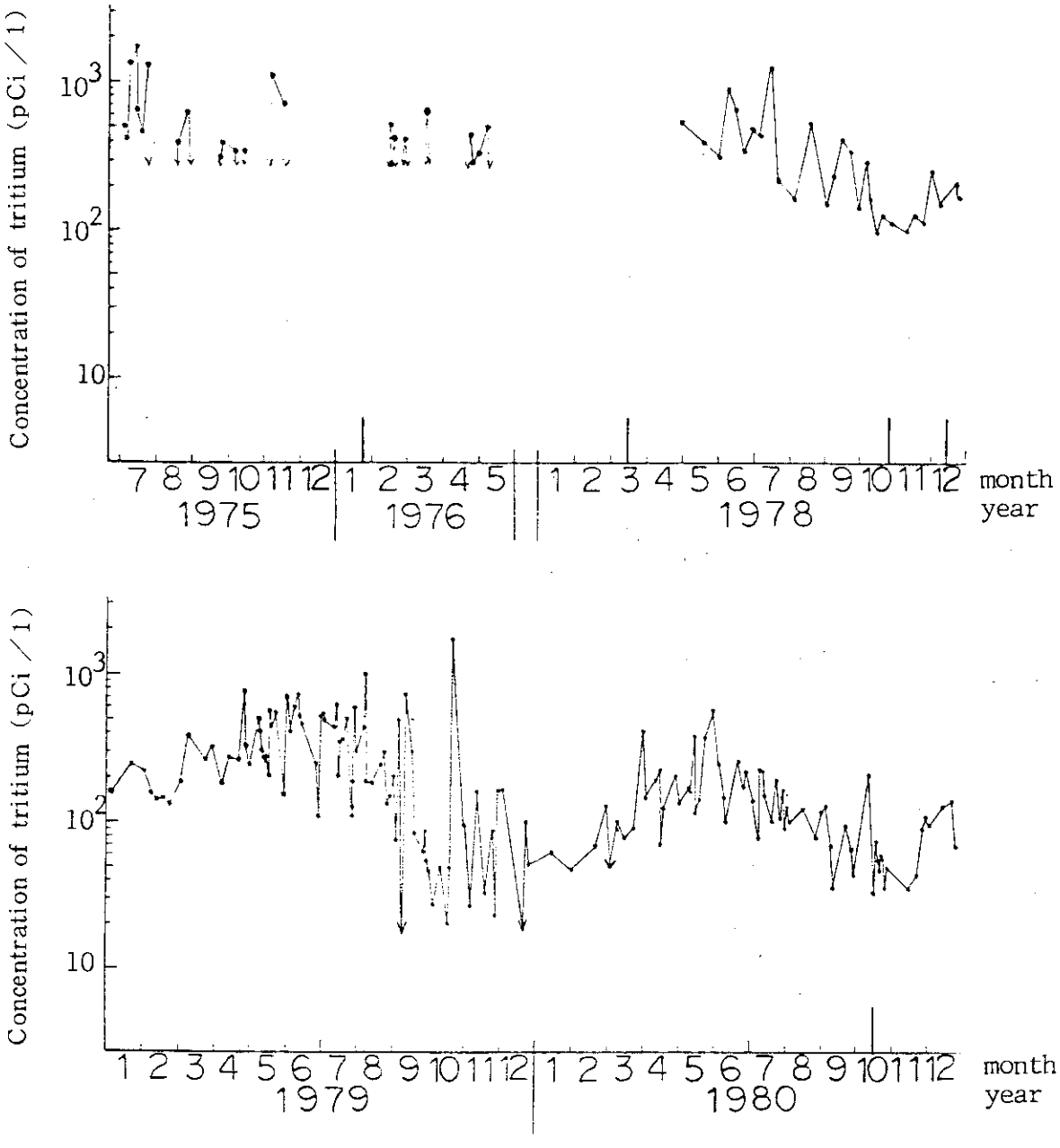


Fig. III-8-1 Concentration of tritium in precipitation at Tokai-mura

9. Concentration of Tritium in River Water

Table III-9-1 Concentration of tritium in river water around Tokai-mura

TRITIUM CONCENTRATION
IN RIVER WATER
AROUND TOKAI-MURA

======= RIVER WATER =======

DATE	*** KUJI RIVER *** TIME	TEMP. (C)	CONC. (PCI/L,HTO)	*** AKOGI POND *** TIME	TEMP. (C)	CONC. (PCI/L,HTO)	*** SHINKAWA R. *** TIME	TEMP. (C)	CONC. (PCI/L,HTO)	
1979. 7.19	14:20	25.2	158							
1979. 7.23	14:20	25.2	158				13:50	21.8	173	
1979. 7.30	14:20	25.6	152				13:57	27.9	190	
1979. 8. 6	14:15	24.3	117				13:50	27.0	205	
1979. 8.13	14:23	25.0	56				13:55	27.8	116	
1979. 8.21	14:20	22.0	85				13:55	22.0	116	
1979. 8.27	14:20	25.0	82				13:55	26.6	305	
1979. 9. 3	14:15	23.9	83				13:45	24.0	83	
1979. 9.10	14:15	22.3	84				13:45	0.0	99	
1979. 9.17	14:22	20.0	108				13:55	19.8	117	
1979. 9.25	15:15	18.5	88				14:20	17.2	93	
1979.10. 3	14:25	17.1	124				13:50	17.6	95	
1979.10.15	14:55	16.8	136				14:17	17.5	125	
1979.10.22	14:25	14.2	120				13:40	16.9	77	
1979.10.29	14:20	14.8	129				13:57	15.7	121	
1979.11. 6	14:18	15.5	118				13:50	17.2	110	
1979.11.12	14:00	13.8	105				13:35	14.1	85	
1979.11.18	14:20	9.6	107				13:50	10.5	107	
1979.12. 3	14:15	7.9	172							
1979.12.10	14:30	7.9	171				15:10	9.0	183	
1979.12.18	14:00	5.0	143				14:30	6.5	212	
1979.12.24	14:15	6.8	138				15:00	5.9	118	
1980. 1.14	14:20	3.0	168	14:00	3.9	135	13:55	3.9	145	
1980. 1.21	14:00	3.2	152	13:45	3.3	147	13:35	5.0	161	
1980. 1.28	14:20	4.9	155	14:00	4.1	126	13:50	7.1	158	
1980. 2. 4	14:10	3.7	116	13:55	5.1	146	13:45	6.0	166	
1980. 2.12	14:20	4.2	142	14:35	4.7	142	14:00	6.9	149	
1980. 2.18	16:30	3.8	198	14:15	3.9	169	14:10	6.1	171	
1980. 2.26	14:00	5.4	180	13:40	4.5	143	13:35	7.0	178	
1980. 3. 6	14:10	7.8	137	14:20	7.7	141	14:15	9.1	144	
1980. 3.11	14:05		133	13:50		145	13:45		121	
1980. 3.18	14:20	7.7	120	14:05	8.9	139	13:55	11.0	126	
1980. 3.25	14:05	5.1	147	14:20	7.0	115	14:30	7.9	136	
1980. 3.31	14:25	8.5	105	14:05	10.3	174	14:00	10.0	97	
1980. 4. 7	16:30	12.1	152	16:10	13.0	152	16:00	13.4	133	
1980. 4.17	13:40	13.1	147	14:00	14.2	145	14:05	14.9	102	RAIN*
1980. 4.21	14:05	10.2	129	14:25	11.3	132	14:30	10.0	148	RAIN
1980. 4.28	13:45	14.7	99	14:10	16.8	129	14:15	15.9	116	AFTER RAIN*
1980. 5. 7	14:10	14.5	98	14:25	18.0	136	14:30	19.0	147	
1980. 5.13	14:20	16.0	116	14:00	17.5	132	13:55	15.5	133	RAIN
1980. 5.20	14:35	18.5	111	14:55	21.0	138	15:00	20.0	101	
1980. 5.27	14:25	21.0	116	14:05	23.0	117	14:00	24.5	102	
1980. 6. 4	13:40	20.2	126	14:00	23.2	127	14:10	20.9	116	
1980. 6.10	14:10	19.7	140	14:27	22.8	142	14:35	21.9	137	

* RAIN : It was just raining.
* AFTER RAIN : It was just after raining.

Table III-9-1 (Continued)

	======= RIVER WATER =======									
	*** KUJI RIVER ***			*** AKOGI POND ***			*** SHINKAWA R. ***			
DATE	TIME	TEMP. (C)	CONC. (PCI/L,HTO)	TIME	TEMP. (C)	CONC. (PCI/L,HTO)	TIME	TEMP. (C)	CONC. (PCI/L,HTO)	
1980. 6.17	13:55	22.0	136	13:40	23.7	179	13:30	21.4	264	
1980. 6.24	13:45	22.9	139	14:00	23.2	144	14:05	24.0	221	
1980. 7. 3	13:25	19.0	110	13:10	21.0	147	13:00	18.5	148	
1980. 7. 8	14:25	19.0	119	14:05	21.0	160	14:00	19.0	100	
1980. 7.15	14:10	23.0	133	14:30	26.5	155	14:40	26.0	134	
1980. 7.22	14:25	25.0	151	14:05	26.5	141	14:00	27.0	167	
1980. 7.31	14:09	22.2	146	13:51	27.2	140	13:43	24.5	113	
1980. 8. 5	14:30	21.4	157	14:10	21.2	149	14:00	21.7	137	
1980. 8.12	15:35	22.5	104	11:20	24.0	110	11:30	21.9	125	
1980. 8.26	16:05	19.2	97	16:25	20.7	104	16:30	17.7	134	
1980. 9. 2	14:10	21.0	94	14:30	24.5	102	14:40	22.0	117	
1980. 9.10	16:40	20.0	101	16:20	21.0	108	16:15	20.6	60	
1980. 9.17	14:20	20.8	77	14:00	24.3	72	13:55	21.5	130	
1980. 9.25	14:15	16.0	109	14:00	18.5	126	13:50	16.5	103	RAIN BEGAN*
1980. 9.30	14:20	17.0	127	14:00	19.0	111	13:55	19.0	142	
1980.10. 8	14:10	18.2	107	14:30	20.0	120	14:40	20.8	120	
1980.10.14	14:30	18.2	115	14:15	20.0	105	14:10	20.3	92	
1980.10.21	14:05	13.9	61	14:25	15.9	78	14:30	14.9	51	
1980.10.28	14:25	11.8	91	14:05	14.6	87	14:00	14.0	101	
1980.11. 5	14:20	10.0	100	14:35	12.0	113	14:45	13.5	116	
1980.11.11	14:30	10.0	95	14:10	12.0	102	14:05	13.5	111	
1980.11.27	14:30	9.0	91	14:05	11.1	95	14:05	10.7	110	
1980.12. 2	14:20	8.1	103	14:05	10.3	93	14:00	9.4	90	
1980.12.10	14:05	5.9	92	15:05	8.0	93	15:15	8.5	100	
1980.12.16	14:05	5.0	92	13:50	7.7	95	13:40	7.2	123	
1980.12.23	14:35	4.5	114	14:15	5.3	80	14:05	6.8	128	

* RAIN BEGAN : It started raining.

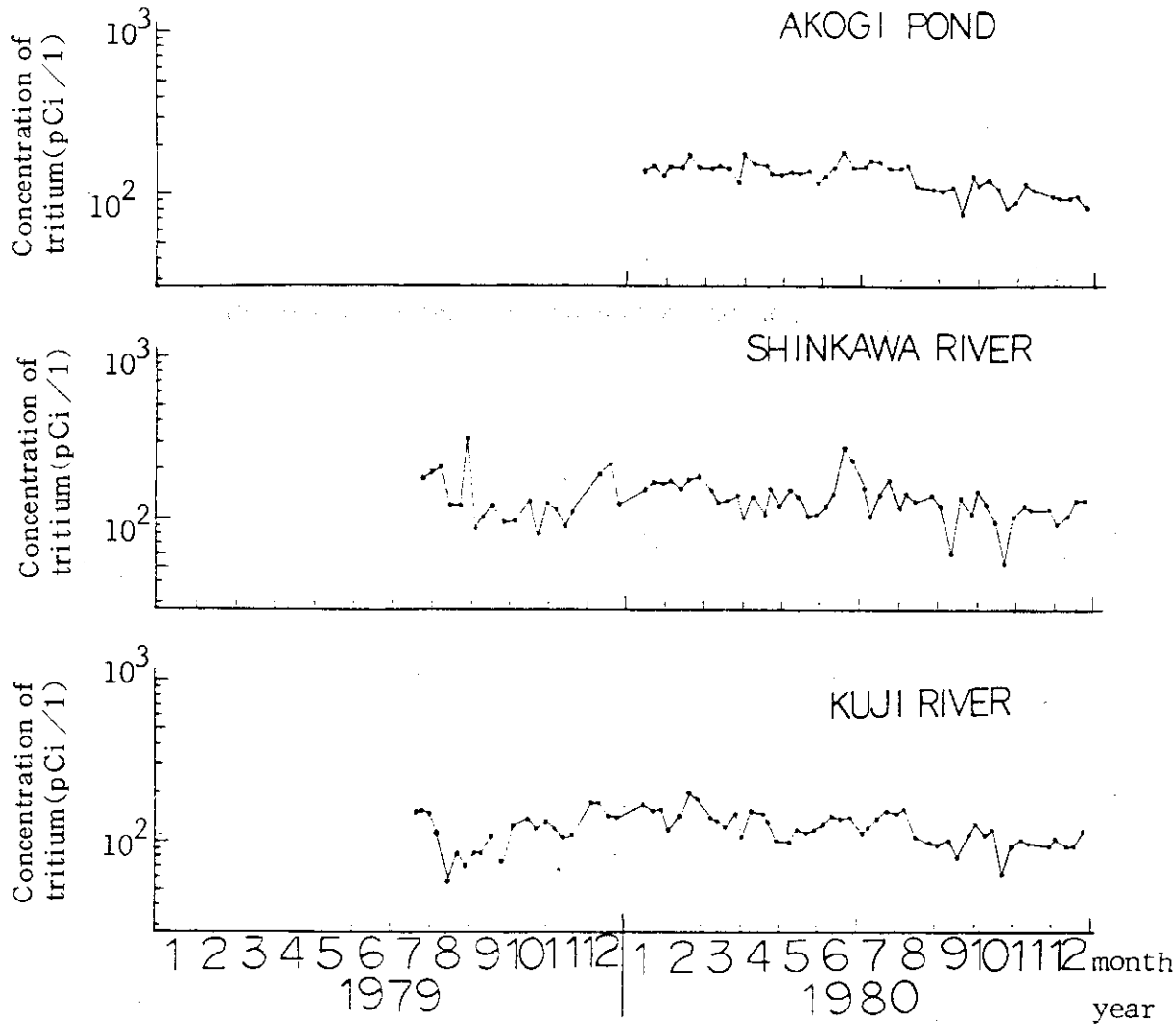


Fig. III-9-1 Concentration of tritium in river water around Tokai-mura

10. Concentration of Tritium in Sea Water

Table III-10-1 Concentration of tritium in sea water around Tokai-mura

TRITIUM CONCENTRATION
IN SEA WATER
AROUND TOKAI-MURA

======= SEA WATER =======

DATE	*** S-100 *** TIME	TEMP. (C)	SAL. (PM)	CONC. (PCI/L,HTO)	*** S-550 *** TIME	TEMP. (C)	SAL.* (PM)	CONC. (PCI/L,HTO)
1977. 9.21	10:15	23.5	26.29	75	15:50	24.0	31.47	94
1977.10. 4	13:50	22.0	31.79	72	13:55	22.0	31.27	67
1977.10.11	13:50	22.0	33.13	105	14:00	22.0	32.94	70
1977.10.18	13:40	21.6	32.88	83	13:45	21.2	32.94	89
1977.10.25	13:55	20.5	32.80	99	14:00	20.5	32.52	91
1977.11. 1	13:20	22.0	33.52	86	13:30	22.0	33.25	70
1977.11. 8	13:30	20.8	32.00	81	13:35	20.8	32.42	97
1977.11.14	13:50	18.0	33.03	83	14:00	18.0	33.10	72
1977.11.22	13:35	18.0	33.52	75	13:45	0.0	33.38	72
1977.11.29	13:40	17.2	33.53	75	13:45	16.8	33.59	72
1977.12. 6	13:40	18.8	33.27	83	13:45	17.6	32.78	72
1977.12.13	13:35	16.0	33.88	86	13:40	15.7	33.89	99
1977.12.23	13:30	16.2	33.88	181	13:35	16.0	33.66	183
1978. 1.10	13:40	13.8	34.26	89	13:45	13.7	34.12	86
1978. 1.17	10:40	14.8	34.40	62	10:45	14.0	34.31	91
1978. 1.23	13:30	13.8	34.35	110	13:55	13.0	34.40	81
1978. 1.30	13:27	13.2	34.67	51	13:35	13.1	34.30	72
1978. 2.13	13:35	14.0	34.72	75	13:40	14.0	34.47	94
1978. 2.21	10:25	13.0	34.64	99	10:30	13.0	34.52	72
1978. 2.27	13:40	13.0	34.65	51	13:45	13.0	34.55	64
1978. 3. 6					13:45	14.2	34.29	81
1978. 3.13	13:30	13.0	34.08	64	13:35	12.5	34.14	75
1978. 3.20	13:30	13.8	34.21	118	13:40	13.8	34.17	99
1978. 3.27	13:40	12.0	32.77	48	13:45	12.0	32.70	102
1978. 4. 4	14:10	8.2	32.11	54	14:20	8.2	31.47	81
1978. 4.10	13:45	9.5	33.22	89	13:55	9.0	33.25	75
1978. 4.17	9:40	9.0	32.37	70	9:50	0.0	32.43	75
1978. 4.24	13:25	11.5	32.82	113	13:35	11.5	32.71	89
1978. 5. 1	13:20	13.0	33.39	110	13:25	13.0	33.31	108
1978. 5. 8	13:25	15.2	31.77	86	13:33	15.0	32.03	83
1978. 5.15	13:30	16.5	32.76	89	13:37	16.5	32.73	81
1978. 5.22	13:15	16.8	26.51	99	13:22	16.6	27.22	108
1978. 5.29	13:35	17.5	31.63	272	13:43	17.0	31.68	235
1978. 6. 5	13:42	16.7	32.62	216	13:50	16.7	32.38	191
1978. 6.12	13:24	14.2	31.21	124	13:30	14.0	30.92	102
1978. 6.19	13:10	14.1	33.04	97	13:15	13.4	33.06	110
1978. 6.26	13:13	13.3	32.70	108	13:18	13.7	32.06	94
1978. 7. 3	13:20	16.2	29.48	102	13:25	16.6	29.26	108
1978. 7.11	13:50	20.4	30.65	145	13:55	20.3	30.90	108
1978. 7.17	13:25	20.2	32.19	99	13:30	20.4	32.00	105
1978. 7.24	13:38	24.5	28.63	143	13:46	24.8	28.20	91
1978. 7.31	13:47	18.2	32.93	137	13:53	18.2	33.05	129
1978. 8. 7	13:50	18.5	33.10	132	13:55	17.2	33.07	105
1978. 8.15	13:20	20.5	33.52	113	13:30	20.4	33.44	102

* SAL.(PM) : Salinity (per mill)

Table III-10-1 (Continued)

	======= SEA WATER =======							
	*** S-100 ***				*** S-550 ***			
DATE	TIME	TEMP. (C)	SAL.* (PM)	CONC. (PCI/L,HTO)	TIME	TEMP. (C)	SAL.* (PM)	CONC. (PCI/L,HTO)
1978. 8.21	13:35	19.7	32.92	148	13:42	19.2	32.78	137
1978. 8.28	13:39	23.0	32.86	154	13:46	22.1	32.94	113
1978. 9. 4	13:40	20.3	32.77	132	13:35	20.5	32.56	99
1978. 9.11	14:15	21.0	32.94	99	14:20	21.0	33.06	108
1978. 9.18	13:35	22.7	28.60	156	13:40	22.2	31.96	113
1978. 9.25	13:20	21.7	33.43	116	13:27	21.1	33.46	102
1978.10. 3	13:35	20.9	31.73	113	13:43	20.6	31.92	102
1978.10.11	13:35	17.0	32.68	124	13:40	17.0	32.77	83
1978.10.16	14:10	17.5	33.53	145	14:16	17.5	33.52	89
1978.10.23	13:18	16.8	32.77	121	13:25	16.9	33.34	113
1978.10.29	13:40	15.9	28.15	116	13:47	15.6	27.06	118
1978.11. 6	13:50	15.5	33.42	83	13:57	14.0	33.32	102
1978.11.14	14:05	13.6	33.22	91	14:10	13.8	33.08	86
1978.11.20	13:35	13.9	33.33	86	13:45	13.7	33.60	81
1978.11.27	13:45	13.0	33.07	86	13:50	13.0	32.92	83
1978.12. 4	13:50	13.7	33.80	91	13:55	13.5	33.72	89
1978.12.13	13:35	12.8	34.07	191	13:40	12.2	33.99	164
1978.12.18	13:45	14.2	34.35	97	13:53	14.0	34.34	121
1978.12.22	14:05	12.9	34.49	99	14:10	11.9	34.33	102
1978.12.27	13:50	14.8	34.48	97	13:55	14.0	34.45	91
1979. 1. 8	13:51	12.5	34.43	99	13:57	12.0	34.47	75
1979. 1.16	13:38	12.0	34.35	91	13:44	11.9	34.46	113
1979. 1.22	13:34	12.0	34.31	121	13:38	11.8	34.40	94
1979. 1.29	13:22	10.8	34.28	102	13:30	11.5	34.42	113
1979. 2. 5	13:35	12.0	34.02	113	13:40	12.0	34.05	97
1979. 2.13	13:37	10.8	33.75	608	13:43	10.8	33.79	105
1979. 2.20	13:40	12.0	34.34	75	13:50	12.0	34.37	105
1979. 2.26	13:35	10.2	33.76	94	13:40	10.0	33.67	105
1979. 3. 5	13:30	10.7	34.27	89	13:37	10.9	33.93	105
1979. 3.13	13:37	11.5	34.09	108	13:42	11.5	34.22	102
1979. 3.19	13:45	11.9	32.56	67	13:50	11.5	33.79	99
1979. 3.26	13:40	10.9	34.08	75	13:46	11.0	34.01	102
1979. 4. 3	13:40	11.8	34.36	86	13:45	11.8	34.37	99
1979. 4.10	13:40	13.2	33.79	72	13:45	13.2	33.86	110
1979. 4.16	13:35	13.1	33.52	67	13:40	13.0	33.43	110
1979. 4.23	13:51	13.0	34.30	91	13:57	12.5	34.17	113
1979. 5. 1	13:50	12.3	34.24	110	13:57	12.5	34.07	108
1979. 5. 7	13:15	13.0	34.29	118	13:20	13.0	34.36	113
1979. 5.14	13:42	14.1	31.14	86	13:48	14.1	29.67	110
1979. 5.22	13:40	15.9	32.94	129	13:45	15.6	32.94	145
1979. 5.28	13:35	16.1	33.20	127	13:43	16.3	33.04	124
1979. 6. 5	13:42	18.2	32.46	143	13:48	18.6	32.48	121
1979. 6.11	13:40	17.0	32.05	137	13:47	17.0	31.76	121
1979. 6.18	13:50	17.9	33.20	127	13:55	17.9	33.12	116
1979. 6.25	13:40	20.0	32.81	124	13:47	20.2	32.98	124
1979. 7. 2	13:45	18.0	33.42	105	13:50	18.0	33.19	78
1979. 7. 9	13:36	22.5	31.54	129	13:44	22.1	31.66	105
1979. 7.16	13:35	19.5	32.94	140	13:40	19.4	33.24	124
1979. 7.23	13:35	20.9	32.73	127	13:40	20.9	32.71	127
1979. 7.30	13:40	25.0	30.29	132	13:45	25.5	28.85	132
1979. 8. 6	13:37	22.4	31.86	105	13:43	23.0	31.27	143
1979. 8.13	13:43	25.5	30.66	118	13:50	25.5	31.01	113
1979. 8.21	13:40	23.2	31.97	118	13:47	23.8	32.08	118
1979. 8.27	13:40	22.0	33.37	81	13:50	22.0	33.22	59
1979. 9. 3	13:35	23.2	33.06	59	13:40	23.5	32.92	43
1979. 9.10	13:38	24.9	33.30	81	13:43	24.4	33.43	35
1979. 9.17	13:42	21.7	33.59	121	13:47	21.7	33.66	81
1979. 9.25	13:45	21.0	33.38	86	13:55	20.8	33.43	35
1979.10. 3	13:37	21.4	33.32	91	13:43	21.4	33.27	48
1979.10.15	14:09	20.3	32.97	97	14:04	20.4	32.71	51
1979.10.22	13:25	20.0	29.79	129	13:33	19.3	29.62	62
1979.10.29	13:45	19.0	33.33	118	13:50	19.0	33.44	48

* SAL.(PM) : Salinity (per mill)

Table III-10-1 (Continued)

======= SEA WATER =======									
		*** S-100 ***			*** S-550 ***				
DATE	TIME	TEMP. (C)	SAL.* (PM)	CONC. (PCI/L,HTO)	TIME	TEMP. (C)	SAL.* (PM)	CONC. (PCI/L,HTO)	
1979.11. 6	13:38	18.5	33.96	105	13:43	18.3	34.65	32	
1979.11.12	13:20	18.0	32.25	70					NO SAMPLE*
1979.11.19	13:40	15.0	33.58	135	13:45	15.0	33.59	59	
1979.11.26	13:30	14.7	32.88	94	13:35	14.3	33.07	54	
1979.12. 3	13:40	13.0	33.02	208	13:45	13.0	33.22	91	
1979.12. 9	13:45	12.7	32.75	124					NO SAMPLE
1979.12.18	13:20	12.9	33.64	127	13:25	12.9	33.77	164	
1979.12.24	13:35	13.2	33.82	105	13:40	13.1	33.80	148	
1980. 1.14	13:35	11.7	34.38	83	13:40	11.5	34.44	43	
1980. 1.21	13:15	12.0	34.34	89	13:20	11.9	34.41	94	
1980. 1.28	13:40	11.0	34.32	127					NO SAMPLE
1980. 2. 4	13:35	10.0	34.34	159					NO SAMPLE
1980. 2.12	13:40	10.0	33.98	840	13:45	9.5	34.20	902	
1980. 2.18	15:45	9.9	33.71	475	15:50	8.7	33.77	464	
1980. 2.26	13:15	8.9	34.19	162	13:40	9.0	34.21	194	
1980. 3. 6	14:00	11.0	32.35	118	14:05	11.0	33.82	121	
1980. 3.11	13:20	10.3	33.96	110	13:30	10.0	34.09	121	
1980. 3.18	13:35	8.9	33.81	118	13:40	8.9	33.94	121	
1980. 3.25	13:40	7.9	33.27	105					
1980. 3.31	13:40	9.0	30.16	137	13:45	9.0	30.93	135	
1980. 4. 7	15:40	9.8	33.11	99	15:45	9.8	33.25	105	
1980. 4.14	13:15	11.2	33.08	143					NO SAMPLE
1980. 4.21	13:35	10.0	33.51	135	13:40	10.0	33.44	129	
1980. 4.28	13:25	11.0	33.86	105					NO SAMPLE
1980. 5. 7	13:40	14.5	33.64	186	13:45	14.0	33.34	143	
1980. 5.13	13:35	12.0	33.42	197	13:40	11.5	33.31	216	
1980. 5.20	14:10	17.5	31.76	194	14:15	18.0	31.75	208	
1980. 5.27	13:40	16.5	31.58	175	13:45	16.0	32.13	162	
1980. 6. 4	13:10	17.6	31.79	224	14:17	17.7	30.64	227	
1980. 6.10	13:40	14.6	28.17	199	13:45	13.7	30.02	227	
1980. 6.17	13:10	17.1	31.53	272	13:20	16.8	32.51	259	
1980. 6.24	13:15	18.7	33.20	197	13:20	18.2	33.38	154	
1980. 7. 3	12:45	19.0	30.57	124	12:50	18.0	30.28	143	
1980. 7. 8	13:40	20.0	32.04	162	13:45	18.5	32.05	135	
1980. 7.15	13:40	21.0	29.50	124	13:45	21.0	29.02	137	
1980. 7.22	13:40	19.5	32.27	140	13:45	20.5	31.95	143	
1980. 7.31	13:18	21.1	25.27	151	13:25	22.9	26.14	118	
1980. 8. 5	13:40	20.7	30.34	127	13:45	20.8	30.28	121	
1980. 8.12	11:05	20.9	31.11	129	11:10	20.5	31.25	135	
1980. 8.26	15:40	19.7	31.79	121	15:45	19.8	31.66	129	
1980. 9. 2	13:45	21.5	31.20	89	13:40	22.0	30.28	143	
1980. 9.10	13:50	21.0	30.76	113	15:55	21.0	30.99	145	
1980. 9.17	13:40	19.0	31.44	159					NO SAMPLE
1980. 9.25	13:35	19.5	32.83	497	13:40	19.5	32.77	448	
1980. 9.30	13:35	18.5	32.67	118	13:40	18.0	32.64	99	
1980.10. 8	13:40	19.6	31.18	105	13:45	19.8	31.05	129	
1980.10.14	13:45	20.0	33.08	116	13:55	19.7	33.12	121	
1980.10.21	13:35	17.8	29.40	99	13:40	17.8	30.00	110	
1980.10.28	13:40	16.0	33.36	143	13:45	16.0	33.46	135	
1980.11. 5	13:50	14.5	33.16	194	13:55	14.3	32.94	167	
1980.11.11	13:40	14.5	31.34	327	13:45	14.0	33.02	321	
1980.11.27	13:45	13.2	33.46	172	13:50	13.0	33.48	191	
1980.12. 2	13:40	12.2	33.27	102					NO SAMPLE
1980.12.10					13:45	11.2	33.48	156	
1980.12.16	13:25	13.1	32.85	170	13:30	12.2	33.28	156	
1980.12.23	13:40	14.0	32.89	189	13:45	13.5	32.80	186	

SAL. (PM) : SALINITY (PER MILL)

* SAL.(PM) : Salinity (per mill)
* NO SAMPLE : Blank meant there was no sample.

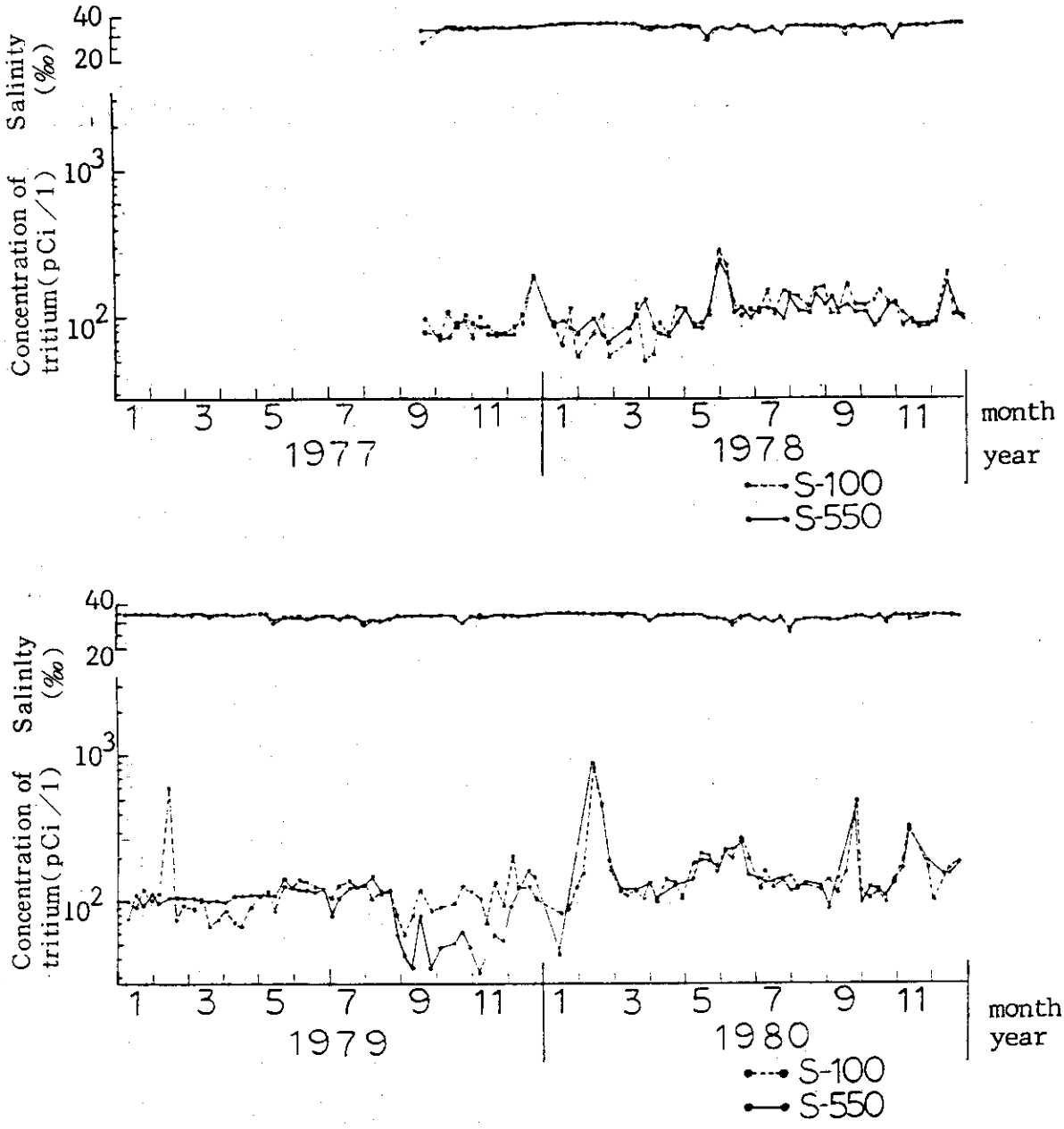


Fig. III-10-1 Concentration of tritium in sea water around Tokai-mura

11. Concentration of Radon in Cave Air

Table III-11-1 Concentration of ^{222}Rn in cave air at Matsushiro-cho, Nagano-ken

date	time	^{222}Rn (pCi/l air)	temp. in cave (°C)
79/10/25	11:15	16.3	12.2
79/10/25	12:30	15.9	12.0
79/10/25	15:00	8.32	12.0
79/10/25	18:00	2.43	12.0
79/10/26	9:30	16.3	12.0
79/10/26	10:15	17.0	12.2
80/04/24	13:08	15.9	
80/04/24	14:00	16.8	12.5
80/04/24	15:00	18.1	13.0
80/04/24	16:09	22.5	13.0
80/04/24	17:20	20.0	12.5
80/04/24	18:15	17.4	
80/04/24	20:39	20.3	13.0
80/04/24	22:01	21.1	12.7
80/04/24	22:58	14.3	12.5
80/04/25	5:42	11.2	12.5
80/04/25	7:25	17.6	12.5
80/04/25	10:44	19.7	12.0
80/04/25	11:35	20.0	12.5
80/11/18	12:09	10.1	12.3
80/11/18	14:17	11.7	
80/11/18	16:17	12.7	12.0
80/11/18	17:17	15.9	12.0
80/11/18	18:17	10.2	12.0
80/11/18	21:30	4.94	12.0
80/11/18	22:45	4.07	12.3
80/11/19	11:05	12.9	12.3
80/11/19	12:25	13.5	
80/11/19	15:40	9.89*	12.2*
80/11/19	17:35	0.243*	10.7*
80/11/19	18:25	4.20	12.2
80/11/19	19:45	3.19	
80/11/20	10:14	10.5	12.8
80/11/20	11:20	1.10*	9.9*
81/06/11	11:57	19.7	13.0
81/06/11	15:00	10.5	13.2
81/06/11	16:30	10.0	
81/06/11	17:27	10.0	13.4
81/06/11	21:03	4.32	14.0
81/06/12	10:28	18.6	13.1
81/06/12	12:22	22.2	
81/06/12	14:48	25.4	
81/06/12	16:27	24.9	13.6
81/06/12	17:22	3.78*	15.0*

* outside the cave

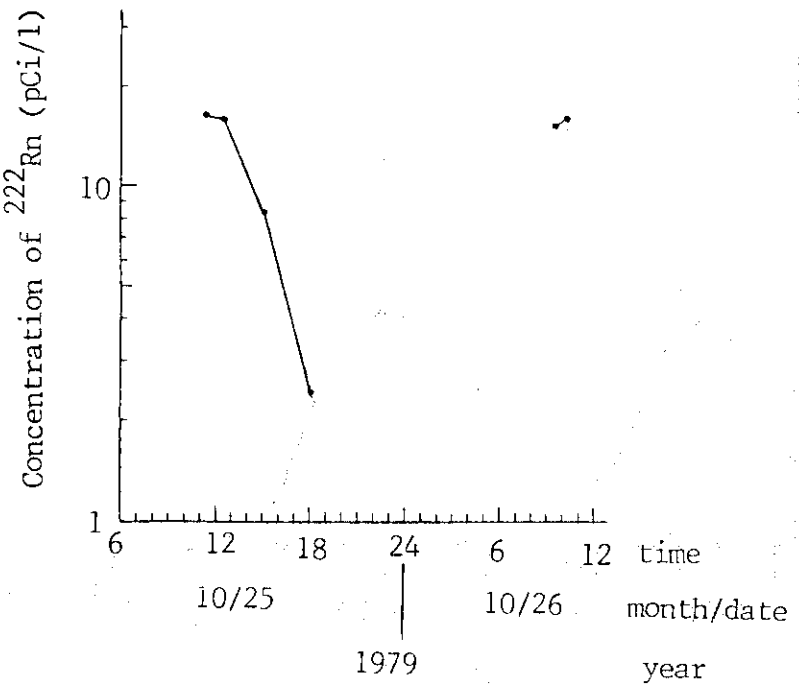


Fig. III-11-1a Concentration of ^{222}Rn in cave air at Matsushiro-cho, Nagano-ken

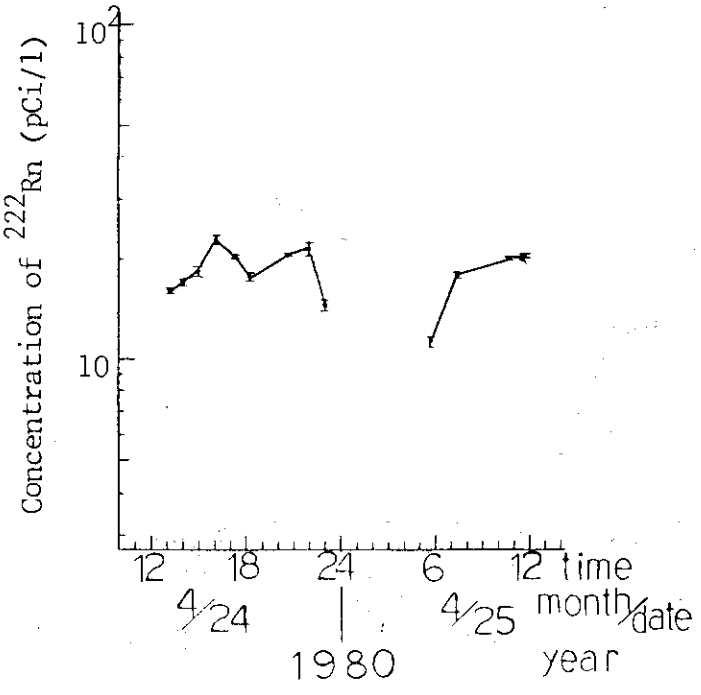


Fig. III-11-1b

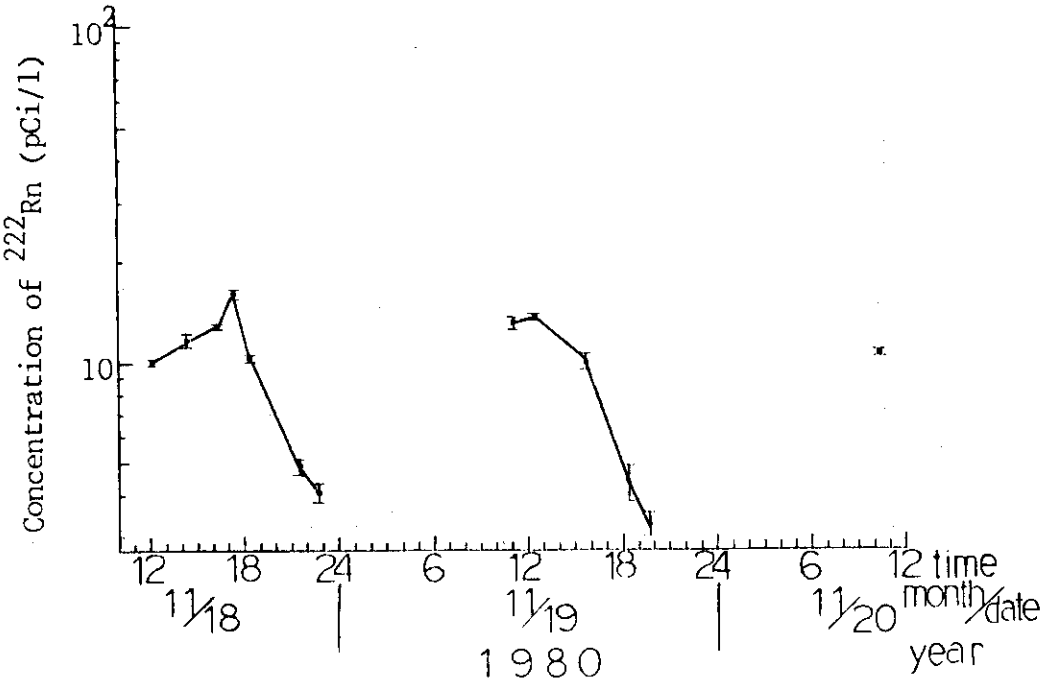


Fig. III-11-1c

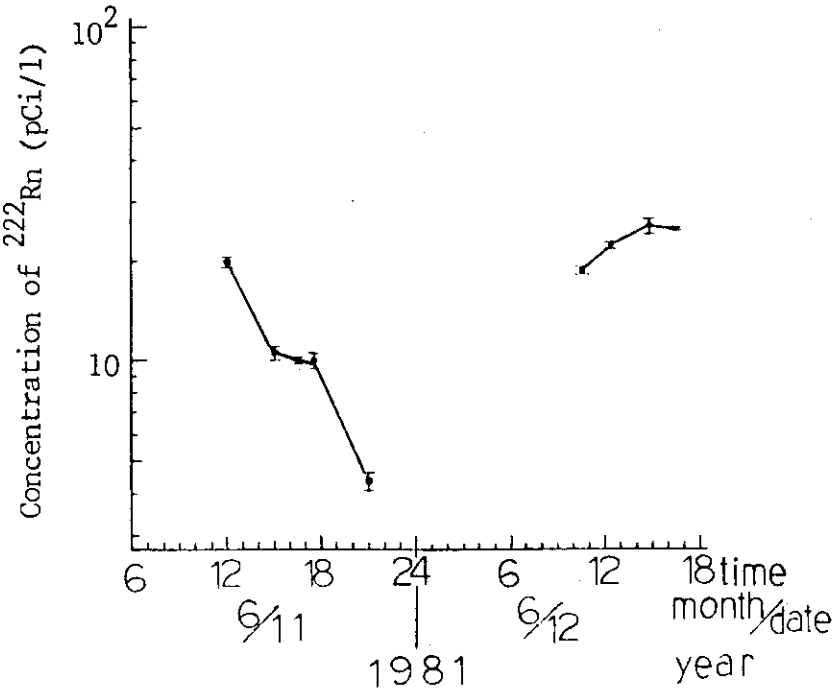


Fig. III-11-1d