

Japan Seismic Hazard Information Station (J-SHIS)

File format specification

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National Research Institute for Earth Science and Disaster Resilience

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Probabilistic Seismic Hazard Maps: Guide for file "Seismic Hazard Map"

1. Abstract

This guide describes the file of seismic hazard map in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The J-SHIS PSHM map data file for Japan whole area is named as follows

```
P-[Year code]-MAP-[Probability case code]-[Earthquake code].csv
```

The map data file for a first-mesh is named like

```
P-[Year code]-MAP-[Probability case code]-[Earthquake code]-[First-mesh code].csv
```

(1) Year code

Year code is described in a format YNNNN. This code indicates the year when the hazard map issued. "_MX" is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Probability case code

Table 2-1 Probability case code

Case code	Explanation
AVR	Average case
MAX	Maximum case

(3) Earthquake code

Refer to the J-SHIS Earthquake Code section in this document.

(4) First mesh code

First-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A first-mesh is a square area of 2/3 degrees latitude × 1 degree longitude (about 75km × 90km). This geographical coordinate system adopts the standard grid square (mesh code N) based on Tokyo Datum.

3. Data description

This file is a CSV file and consists of comment lines prefixed by "#" and data block. The comment lines describe the file version, date, update history and reference date. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

UPDATED

YYYY-MM-DD Update content 1

YYYY-MM-DD Update content 2

(4) Reference date

Reference date is described in a format “# EPOCH = YYYY-MM-DD”.

(5) Data block

The details are in Table 3-1. Format is written in a conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	CODE	%10-11c	250m mesh code
02	T30_I45_PS	%9.6e	Probability of exceedance [IJMA \geq 5-Lower] within 30 years
03	T30_I50_PS	%9.6e	Probability of exceedance [IJMA \geq 5-Upper] within 30 years
04	T30_I55_PS	%9.6e	Probability of exceedance [IJMA \geq 6-Lower] within 30 years
05	T30_I60_PS	%9.6e	Probability of exceedance [IJMA \geq 6-Upper] within 30 years
06	T30_P03_SI	%3.1f	IJMA for a 3% probability of exceedance within 30 years
07	T30_P03_BV	%9.6e	PBV for a 3% probability of exceedance within 30 years (cm/s)
08	T30_P03_SV	%9.6e	PGV for a 3% probability of exceedance within 30 years (cm/s)
09	T30_P06_SI	%3.1f	IJMA for a 6% probability of exceedance within 30 years
10	T30_P06_BV	%9.6e	PBV for a 6% probability of exceedance within 30 years (cm/s)
11	T30_P06_SV	%9.6e	PGV for a 6% probability of exceedance within 30 years (cm/s)
12	T50_P02_SI	%3.1f	IJMA for a 2% probability of exceedance within 50 years
13	T50_P02_BV	%9.6e	PBV for a 2% probability of exceedance within 50 years (cm/s)
14	T50_P02_SV	%9.6e	PGV for a 2% probability of exceedance within 50 years (cm/s)
15	T50_P05_SI	%3.1f	IJMA for a 5% probability of exceedance within 50 years

Column	Header	Format	Explanation
16	T50_P05_BV	%9. 6e	PBV for a 5% probability of exceedance within 50 years (cm/s)
17	T50_P05_SV	%9. 6e	PGV for a 5% probability of exceedance within 50 years (cm/s)
18	T50_P10_SI	%3. 1f	IJMA for a 10% probability of exceedance within 50 years
19	T50_P10_BV	%9. 6e	PBV for a 10% probability of exceedance within 50 years (cm/s)
20	T50_P10_SV	%9. 6e	PGV for a 10% probability of exceedance within 50 years (cm/s)
21	T50_P39_SI	%3. 1f	IJMA for a 39% probability of exceedance within 50 years
22	T50_P39_BV	%9. 6e	PBV for a 39% probability of exceedance within 50 years (cm/s)
23	T50_P39_SV	%9. 6e	PGV for a 39% probability of exceedance within 50 years (cm/s)

(6) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example
<pre> # # VER. = 1.0 # # DATE = 2009-03-15 # # UPDATED # # EPOCH = 2009-01-01 # CODE, T30_I45_PS, T30_I50_PS, T30_I55_PS, T30_I60_PS, T30_P03_SI, T30_P03_BV, T30_P03_SV, T30_P06_SI, T30_P06_BV, T30_P06_SV, T50_P02_SI, T50_P02_BV, T50_P02_SV, T50_P05_SI, T50_P05_BV, T50_P05_SV, T50_P10_SI, T50_P10_BV, T50_P10_SV, T50_P39_SI, T50_P39_BV, T50_P39_SV 5339000011N, 9. 603903e-01, 7. 863986e-01, 3. 056024e-01, 2. 364876e-02, 5. 9, 8. 958661e+01, 8. 149165e+01, 5. 8, 7. 765003e+01, 7. 063365e+01, 6. 0, 1. 034413e+02, 9. 409449e+01, 5. 9, 8. 728374e+01, 7. 939687e+01, 5. 8, 7. 467549e+01, 6. 792789e+01, 5. 4, 4. 794360e+01, 4. 361146e+01 (Following omitted) </pre>

Probabilistic Seismic Hazard Maps: Guide for file "Hazard curve"

1. Abstract

This guide describes the file of Hazard curve in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The Hazard curve data file is named as follows

P-[Year code]-HZD-[Probability case code]-[Period code]-[3rd-mesh code].csv

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. "_MX" is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Probability case code

Table 2-1 Probability case code

Case code	Explanation
AVR	Average case
MAX	Maximum case

(3) Period code

Table 2-2 Period code

Period code	Explanation
T30	30 Years from the reference date
T50	50 Years from the reference date

(4) 3rd-mesh code

3rd-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A 3rd-mesh is a square area of 30 arc-seconds latitude × 45 arc-seconds longitude (about 1km × 1km). This geographical coordinate system adopts the standard grid square (mesh code N) based on Tokyo Datum.

3. Data description

The file is a CSV file and consists of comment lines prefixed by "#" and data block. The comment lines describe the file version, date, update history and reference date. The details are as

follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Reference date

Reference date is described in a format “# EPOCH = YYYY-MM-DD”.

(5) Data block

The details are in Table 3-1. See the J-SHIS Earthquake Code section in this document for more information about earthquake code. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	BV	%8.4f	Peak velocity on the engineering bedrock (cm/s)
02 or later	Earthquake codes	%15.6e	Exceedance probabilities for each earthquake

(6) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example
VER. = 1.0 # # DATE = 2009-04-08


```

#
# UPDATED
#
# EPOCH = 2008-01-01
# BV, TTL_MTTL, PLE_MTTL, PSE_MTTL, LND_MTTL, LND_A98F, PLE_ANNKI, PLE_AMIYA, PLE_ASNKT,
PSE_BTNMI, PSE_BNRML, PSE_BSNKT, PSE_BFKSM, PSE_BIBRK, PLE_ATKNM, PLE_ASKTN, PLE_AETRF,
PSE_BTKNM, PSE_BSKET, PSE_BITRS, PSE_BITRD, LND_BHKNW, LND_AHKDW, LND_AHKSU, LND_AAOMW,
LND_BAKIT, LND_AYMG, LND_ANIGT, LND_BSDGN, PSE_BAKND, PSE_BHGNL, PSE_BHGNS, PSE_BYNGN,
PLE_AKNT0, PSE_BKNT0, PSE_CPCF, PSE_CPHL, LND_CGR5, PSE_CURA, LND_CJPS, LND_CIZU, LND_CNAN,
LND_AGR1
  0.0000,  1.000000e+00,  9.999983e-01,  1.000000e+00,  1.000000e+00,  6.753078e-01,
9.796747e-01,  9.993831e-01,  3.830000e-02,  2.015287e-01,  5.083622e-02,
9.296918e-01,  7.225651e-02,  8.556456e-01,  3.937588e-01,  4.690000e-01,
5.720000e-01,  8.199077e-01,  9.425674e-01,  3.039396e-01,  6.667629e-01,
4.600000e-04,  0.000000e+00,  0.000000e+00,  0.000000e+00,  2.955447e-02,
0.000000e+00,  0.000000e+00,  3.921056e-02,  3.609427e-01,  1.392920e-01,
7.286506e-01,  2.591818e-01,  1.030000e-03,  7.164890e-01,  1.000000e+00,
0.000000e+00,  9.999956e-01,  9.169278e-01,  9.956750e-01,  0.000000e+00,
0.000000e+00,  6.324847e-01
  2.0000,  9.954681e-01,  6.503061e-01,  9.725912e-01,  5.271700e-01,  6.402677e-02,
0.000000e+00,  3.321662e-01,  3.830000e-02,  2.920827e-05,  2.874322e-02,
5.688416e-01,  8.604170e-04,  0.000000e+00,  2.430037e-01,  1.414278e-01,
1.622597e-01,  2.963224e-01,  2.684043e-03,  2.388525e-01,  3.173175e-01,
4.475108e-04,  0.000000e+00,  0.000000e+00,  0.000000e+00,  6.259821e-04,
0.000000e+00,  0.000000e+00,  1.919764e-03,  0.000000e+00,  0.000000e+00,
0.000000e+00,  0.000000e+00,  0.000000e+00,  0.000000e+00,  7.973518e-01,
0.000000e+00,  4.364467e-01,  1.135192e-01,  8.311048e-02,  0.000000e+00,
0.000000e+00,  1.940326e-02
(Following omitted)

```

Probabilistic Seismic Hazard Maps: Guide for file “Hazard curve for Active fault”

1. Abstract

This guide describes the file of Hazard curve disaggregated by earthquakes occurring in major active faults (Characteristic earthquakes and EQTHR^{*1}) and other active faults in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

(*1) EQTHR: EarthQuakes whose Traces are Hardly Recognized

2. File naming rule

The Hazard curve data file for earthquakes occurring in major active faults is named as follows

P-[Year code]-HZD-[Probability case code]-[Period code]-[Earthquake group code]-
[3rd-mesh code].csv

The Hazard curve data file for earthquakes occurring in other active faults is named as follows

P-[Year code]-HZD-[Probability case code]-[Period code]-[Fault code]-
[3rd-mesh code].csv

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Probability case code

Table 2-1 Probability case code

Case code	Explanation
AVR	Average case
MAX	Maximum case

(3) Period code

Table 2-2 Period code

Period code	Explanation
T30	30 Years from the reference date
T50	50 Years from the reference date

(4) Earthquake group code

Refer to the J-SHIS Earthquake Group section in this document.

(5) Fault code

Refer to the J-SHIS Fault Code section in this document.

(6) 3rd-mesh code

3rd-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A 3rd-mesh is a square area of 30 arc-seconds latitude × 45 arc-seconds longitude (about 1km × 1km). This geographical coordinate system adopts the standard grid square (mesh code N) based on Tokyo Datum.

3. Data description

The file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date, update history and reference date. The details are as follows:

(1) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(2) Update history

Update history is described in the following format.

UPDATED

YYYY-MM-DD Update content 1

YYYY-MM-DD Update content 2

(3) Reference date

Reference date is described in a format “# EPOCH = YYYY-MM-DD”.

(4) Data block

The details are in Table 3-1. More information about fault code can be seen in the J-SHIS Fault Code section, and about earthquake group code in the J-SHIS Earthquake Group Code section in this document. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	BV	%8.4f	Peak velocity on the engineering bedrock (cm/s)
02	Earthquake group code or Fault code	%15.6e	Exceedance probabilities for earthquake group or earthquake occurring in fault code.

(5) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example	
#	
#DATE=2018-01-15	
#	
#UPDATED	
#	
#EPOCH=2017-01-01	
#BV, F015021_001	
0.0000,	1.468384e-02
2.0000,	1.468384e-02
4.0000,	1.467705e-02
6.0000,	1.451301e-02
8.0000,	1.398288e-02
10.0000,	1.302954e-02
12.0000,	1.174768e-02
14.0000,	1.029647e-02
16.0000,	8.822316e-03
18.0000,	7.428150e-03
20.0000,	6.172286e-03
(以下省略)	

Probabilistic Seismic Hazard Maps: Guide for file “Fault shape (rectangle)”

1. Abstract

This guide describes the file of fault shape data (Specified fault model: rectangle) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (rectangle) data file for PSHM is named as follows

P-[Year code]-PRM-SHP_TYPE1_[Earthquake code]_EN.csv
--

The fault shape (rectangle) data file for the Conditional Probability of Exceedance (CPE) map is named as follows

C-[Version code]-[Fault code]-FAULT-CASE1_EN.csv
--

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code session in this document. Earthquakes described in this rule are in Table 2-1.

Table 2-1 Earthquakes described in this rule

Earthquake code	Earthquake name
LND_A98F	Characteristic earthquakes occurring in major active fault zones
LND_AGR1	Earthquakes occurring on active faults other than major active fault zones
PSE_AIBRK	Interplate earthquakes in Ibaraki-ken-Oki
LND_AAOMW	Aomori-ken-seiho-Oki Earthquake
LND_AHKDW	Hokkaido-seiho-Oki Earthquake
LND_AHKSW	Hokkaido-nansei-Oki Earthquake
LND_ANIGT	Niigata-ken-hokubu-Oki Earthquake
PLE_ASNKT	Large interplate earthquakes in Northern Sanriku-Oki
LND_AYMGA	Yamagata-ken-Oki Earthquake
PLE_AMYAS	Miyagi-ken-Oki Earthquake (Repeating earthquakes)

PLE_ASNNK	Earthquakes close to the offshore trenches in Southern Sanriku-Oki (Repeating earthquakes)
-----------	--

(3) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation criteria is changed.

(4) Fault code

Refer to the J-SHIS Fault Code section in this document.

3. Data description

The file is a GSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date update history, file information block, earthquake information block, and fault information block. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) File information block

The file information block is described in one line. The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 File information block

Column	Format	Explanation
01	%s	Earthquake code
02	%4d	Number of earthquakes included in this file

(5) Earthquake information block

The earthquake information block is described in one line.

Table 3-2 Earthquake information block

Column	Format	Explanation
01	%s	Fault code
02	%4.1f	Magnitude
03	%4d	Number of fault planes
04	%s	Fault name

NOTE: Negative value of magnitude means moment magnitude.

(6) Fault information block

The fault information block describes a rectangle fault number, reference latitude/longitude, depth of the upper edge of rectangle fault, fault length, width, and strike/dip angles.

Table 3-3 Fault information block

Column	Format	Explanation
01	%4d	Rectangular fault number
02	%7.3f	Longitude of the reference point of rectangular fault (Tokyo datum)
03	%7.3f	Latitude of the reference point of rectangular fault (Tokyo datum)
04	%7.3f	Longitude of the reference point of rectangular fault (Japanese Geodetic Datum 2000)
05	%7.3f	Latitude of the reference point of rectangular fault (Japanese Geodetic Datum 2000)
06	%5.1f	Depth of the upper edge of rectangular fault (km)
07	%5.1f	Length of rectangular fault (km)
08	%5.1f	Width of rectangular fault (km)
09	%5.1f	Strike angle (degree)
10	%5.1f	Dip angle (degree)

NOTE: In the case of multiple faults overlap each other, ground motions with attenuation relation are calculated using an united polygon built from the fault planes. See the Technical Note of the National Research Institute for Earth Science and Disaster Prevention No.314 "Development of Estimation Tools for Earthquake Ground Motion by Empirical Attenuation Relations"

Pair of block(5) and block(6) is repeated itself. Number of repetition is same as number of earthquakes included in this file.

(7) Example

Table 3-4 Example

Example	Description
# # VER. = 1.0 # DATE = 2009-03-15 #	Comment lines
LND_A98F, 169	File information block
F000101, -7.1, 1, Shibetsu fault zone	Earthquake information block
1, 145.080, 43.960, 145.076, 43.962, 3.0, 56.0, 18.0, 216.0, 45.0	Fault information block
F000201, -7.5, 1, Tokachi-heiya fault zone (Main part)	Earthquake information block
1, 143.298, 42.544, 143.294, 42.547, 4.0, 84.0, 24.0, 9.0, 45.0 (Following omitted)	Fault information block

Probabilistic Seismic Hazard Maps: Guide for file “Fault shape (non-rectangle)”

1. Abstract

This guide describes the file of fault shape data (Specified fault model: non-rectangle) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (non-rectangle) data file for PSHM is named as follows

P-[Year code]-PRM-SHP_TYPE2_[Earthquake code]_EN.csv
--

The fault shape (non-rectangle) data file for the Conditional Probability of Exceedance (CPE) map is named as follows

C-[Version code]-[Fault code]-FAULT-CASE1_EN.csv
--

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes described in this rule are in Table 2-1.

Table 2-1 Earthquakes described in this rule

Earthquake code	Earthquake name
PLE_ATHOP	Great East Japan Earthquake (2011 type)
PLE_AMIYA	Miyagi-ken-Oki Earthquake/earthquakes close to the offshore trenches in Southern Sanriku-Oki
PLE_ATKNM	Tokachi-Oki Earthquake/Nemuro-Oki Earthquake
PLE_ASKTN	Shikotanto-Oki Earthquake
PLE_AETRF	Etorofuto-Oki Earthquake
PLE_ANNKI	Nankai Trough earthquakes: 2019 version and before
PLE_AKNT0	Kanto Earthquake of “1923 Taisho” type
PLE_ASGMI	Sagami Trough earthquakes (M8 class)
PLE_ACHSM	Mega earthquakes along the Kuril Trench
PLE_ATKCH	Huge interplate earthquakes in Tokachi-oki
PLE_ANMRO	Huge interplate earthquakes in Nemuro-oki

PLE_AJTHK	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type)
PLE_AAEIN	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki
PLE_AMYGI	Huge interplate earthquakes in Miyagi-ken-Oki

(3) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation criteria is changed.

(4) Fault code

Refer to the J-SHIS Fault Code section in this document.

3. Data description

The file is a GSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date, and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) File information block

The file information block is described in one line. The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 File information block

Column	Format	Explanation
01	%s	Earthquake code
02	%4d	Number of faults included in this file

(5) Fault information block

The fault information block is described in one line.

Table 3-2 Earthquake information block

Column	Format	Explanation
01	%s	Fault code
02	%4.1f	Magnitude
03	%5.1f	Representative depth (km)
04	%4d	Number of constituent points
05	%s	Fault name

NOTE: Negative value of magnitude means moment magnitude.

(6) Point information block

The point information block describes a serial number, latitude, longitude, and depth of each point.

Table 3-3 Point information block

Column	Format	Explanation
01	%4d	Serial number
02	%7.3f	Longitude of point (Tokyo datum)
03	%7.3f	Latitude of point (Tokyo datum)
04	%7.3f	Longitude of point (Japanese Geodetic Datum 2000)
05	%7.3f	Latitude of point (Japanese Geodetic Datum 2000)
06	%5.1f	Depth (km)

Pair of block(5) and block(6) is repeated themselves. Number of repetition is same as number of faults included in this file.

(7) Example

Table 3-4 Example

Example	Description
# # VER. = 1.0 # DATE = 2009-03-03 #	Comment lines
PLE_AMIYA, 6	File information block
AMYA1, -7.6, 30.0, 142, Miyagi-ken-Oki Earthquake (A1)	Fault information block

Example	Description
1, 141.834, 38.587, 141.830, 38.590, 43.9 2, 141.876, 38.575, 141.872, 38.578, 42.7 (snip)	Point information block
AMYA2, -7.4, 30.0, 90, Miyagi-ken-Oki Earthquake (A2)	Fault information block
1, 142.052, 38.296, 142.048, 38.299, 30.8 (Following omitted)	Point information block

Probabilistic Seismic Hazard Maps: Guide for file “Fault shape (non-rectangle, Large Earthquakes along the Nankai Trough)”

1. Abstract

This guide describes the file of fault shape data (Specified fault model: non-rectangle, Large Earthquakes along the Nankai Trough) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (non-rectangle) data file for PSHM is named as follows

P-[Year code]-PRM-SHP_TYPE2_[Earthquake code]_[Pattern code]_EN.csv

The fault shape (non-rectangle) data file for the Conditional Probability of Exceedance (CPE) map is named as follows

C-[Version code]-ANNKI-[Pattern code]-FAULT-CASE1_EN.csv
--

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes described in this rule are in Table 2-1.

Table 2-1 Earthquakes described in this rule

Earthquake code	Earthquake name
PLE_ANNKI	Large Earthquakes along the Nankai Trough: 2020 version and after

(3) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation criteria is changed.

3. Data description

The file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date, and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

UPDATED

YYYY-MM-DD Update content 1

YYYY-MM-DD Update content 2

(4) File information block

The file information block is described in one line. The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 File information block

Column	Format	Explanation
01	%s	Earthquake code
02	%s	Pattern code
03	%4d	Number of Earthquakes

(5) Earthquake information block

The Earthquake information block is described in one line.

Table 3-2 Earthquake information block

Column	Format	Explanation
01	%4d	Serial number
02	%4.1f	Magnitude
03	%5.1f	Representative depth (km)
04	%4d	Number of constituent points
05	%4d	Focal region number

NOTE: Negative value of magnitude means moment magnitude.

(6) Point information block

The point information block describes a serial number, latitude, longitude, and depth of each point.

Table 3-3 Point information block

Column	Format	Explanation
01	%4d	Serial number
02	%7.3f	Longitude of point (Tokyo datum)
03	%7.3f	Latitude of point (Tokyo datum)
04	%7.3f	Longitude of point (Japanese Geodetic Datum 2000)
05	%7.3f	Latitude of point (Japanese Geodetic Datum 2000)
06	%5.1f	Depth (km)

Pair of block(5) and block(6) is repeated themselves. Number of repetition is same as number of earthquakes included in this file.

(7) Example

Table 3-4 Example

Example	Description
# # VER. = 1.0 # DATE = 2021-03-26 #	Comment lines
PLE_ANNKI, AN002, 2	File information block
1, -8.6, 20.0, 1821, 24	Earthquake information block
1, 133.167, 31.853, 133.166, 31.850, 7.4 2, 133.140, 31.892, 133.139, 31.889, 8.1 (snip)	Point information block
2, -8.0, 20.0, 399, 50	Earthquake information block
1, 137.005, 34.284, 137.003, 34.281, 19.2 (Following omitted)	Point information block

Probabilistic Seismic Hazard Maps: Guide for file “Fault shape (discretized rectangular source faults)”

1. Abstract

This guide describes the file of fault shape (discretized rectangular source faults) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (discretized rectangular source faults) file for PSHM is as follows

P-[Year code]-PRM-SHP_TYPE3_[Earthquake code].csv

NOTE: In the case of “Other M7 class earthquakes in Southern Kanto”, special naming rules (Table 2-1) are applied.

Table 2-1 File naming rule of “Other M7 class earthquakes in Southern Kanto”

Earthquake type	File name
Earthquakes on the upper surface of the Philippine Sea plate	P-[Year code]-PRM-SHP_TYPE3_PSE_BKNT0_INTER_PHL.csv
Earthquakes on the upper surface of the Pacific plate	P-[Year code]-PRM-SHP_TYPE3_PSE_BKNT0_INTER_PCF.csv
Earthquakes in the Philippine Sea plate	P-[Year code]-PRM-SHP_TYPE3_PSE_BKNT0_INTRA_PHL.csv

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes covered in this rule are in Table 2-2.

Table 2-2 Earthquakes covered in this rule

Earthquake code	Earthquake name
PSE_BTNMI	Large interplate earthquakes close to the offshore trenches in the Sanriku-Oki to Boso-Oki regions (Tsunami earthquakes)

Earthquake code	Earthquake name
PSE_BNRML	Large intraplate earthquakes close to the offshore trenches in the Sanriku-Oki to Boso-Oki regions (normal faults type)
PSE_BSNKT	Interplate earthquakes other than characteristic earthquakes in Northern Sanriku-Oki
PSE_BSNNK	Earthquakes close to the offshore trenches in Southern Sanriku-Oki (Other than repeating earthquakes)
PSE_BMYAS	Miyagi-ken-Oki Earthquake (Other than repeating earthquakes)
PSE_BFKSM	Interplate earthquakes in Fukushima-ken-Oki
PSE_BIBRK	Interplate earthquakes in Ibaraki-ken-Oki (Other than repeating earthquakes)
PSE_BTKNM	Relatively small interplate earthquakes in the Tokachi-Oki and Nemuro-Oki regions
PSE_BSKET	Relatively small interplate earthquakes in the Shikotanto-Oki and Etorofuto-Oki regions
PSE_BITRS	Relatively shallow earthquakes within a subducted plate along the Kuril Trench
PSE_BITRD	Relatively deep earthquakes within a subducted plate along the Kuril Trench
LND_BHKNW	Hokkaido-hokusei-Oki Earthquake
LND_BAKIT	Akita-ken-Oki Earthquake
LND_BSDGN	Sadogashima-hoppo-Oki Earthquake
PSE_BAKND	Intraplate earthquakes in Akinada-Iyonada-Bungosuido
PSE_BHGNL	Interplate earthquakes in Hyuganada
PSE_BHGNS	Relatively small interplate earthquakes in Hyuganada
PSE_BYNGN	Earthquakes in the vicinity of Yonaguni-jima
PSE_BKNT0	Other M7 class earthquakes in Southern Kanto
PSE_BJPTN	Interplate earthquakes close to the Japan Trench (Tsunami earthquakes)
PSE_BJOUT	Earthquakes in outside of the Japan Trench

3. Data description

The file is a CSV file and consists of comment lines prefixed by "#", file information block, information block of relative probabilities for magnitude, information block of discretizing domain and information block of discretized rectangular source faults. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

UPDATED

YYYY-MM-DD Update content 1

YYYY-MM-DD Update content 2

(4) File information block

The file information block is described in one line. The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 File information block

Column	Format	Explanation
01	%s	Earthquake code
02	%4d	Number of discrete domains (*1)
03	%4d	Number of discretization for magnitudes (*2)
04	%4d	Number of successive occurrence (*3)

(*1) In the case of the earthquake without evaluation of hypocenter in the earthquake occurrence area, the size of rectangular fault is defined by magnitude and the rectangular faults are discretized with uniform distribution. This value is the number of rectangular faults mentioned above.

(*2) If the long-term evaluation magnitude has been indicated in a range of values, the relative probability is defined for each magnitude. This value is the number of the assumed magnitude.

(*3) In the case of successive events are expected after a first earthquake occurs, it is assumed that earthquakes occur “the number of successive occurrence” times on the same fault plane.

(5) Information block of relative probabilities for magnitude

The number of lines, in which the information block of earthquake probabilities is described, is same as the number of discretization of the file information block mentioned at the block (4) .

Table 3-2 Information block of relative probabilities for magnitude

Column	Format	Explanation
01	%4d	Serial numbers
02	%4.1f	Magnitude
03	%7.5f	Relative probability
04	%4d	Identifier of discretized rectangular source faults

NOTE: A negative value means a moment magnitude.

(6) Information block of discretizing domain

The information block of discretizing domain described in one line.

Table 3-3 Information block of discretizing domain

Column	Format	Explanation
01	%4d	Identifier of discretized rectangular source faults
02	%5.1f	Length of discretized fault (km)
03	%5.1f	Width of discretized fault (km)
04	%4d	Number of fault planes

(7) Information block of discretized rectangular source faults

The number of lines, in which the discretized rectangular source faults information block is described, same as the number of fault plane of the information block of discretizing domains mentioned at the block(6) .

Table 3-4 Discretized rectangular source faults information block

Column	Format	Explanation
01	%4d	Rectangular fault number
02	%7.3f	Origin longitude of the rectangular fault (Tokyo datum)
03	%7.3f	Origin latitude of the rectangular fault (Tokyo datum)
04	%7.3f	Origin longitude of the rectangular fault (Japanese Geodetic Datum 2000)
05	%7.3f	Origin latitude of the rectangular fault (Japanese Geodetic Datum 2000)
06	%5.1f	Depth of the upper edge of the rectangular fault (km)
07	%5.1f	Strike angle (degree)
08	%5.1f	Dip angle (degree)

Pair of the block(6) and the block(7) is repeated itself. Number of repetition same as the

number of discrete domains of the file information block mentioned at the block(4) .

(8) Example

Table 3-5 shows the example of data description.

Table 3-5 Example

Example	Description
# # VER. = 1.0 # DATE = 2009-03-15 #	Comment lines
PSE_BSNKT, 2, 6, 1	File information block
1, -7. 1, 0. 26300, 1 2, -7. 2, 0. 21400, 1 3, -7. 3, 0. 17400, 1 4, -7. 4, 0. 14100, 2 5, -7. 5, 0. 11500, 2 6, -7. 6, 0. 09300, 2	Information block of relative probabilities for magnitude
1, 40. 0, 40. 0, 54	Information block of discretizing domain
1, 144. 031, 41. 245, 144. 027, 41. 248, 14. 3, 215. 0, 7. 0 (snip) 54, 142. 342, 40. 061, 142. 338, 40. 064, 40. 7, 186. 0, 21. 0	Information block of discretized rectangular source faults
2, 60. 0, 60. 0, 28	Information block of discretizing domain
1, 144. 071, 41. 282, 144. 067, 41. 285, 12. 7, 205. 0, 9. 0 (snip) 28, 142. 560, 40. 197, 142. 556, 40. 200, 34. 9, 185. 0, 20. 0	Information block of discretized rectangular source faults

Probabilistic Seismic Hazard Maps: Guide for file “Fault shape (discretized rectangular without specified source faults)”

1. Abstract

This guide describes the file of fault shape (discretized rectangular without specified source faults) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (discretized rectangular without specified source faults) file for PSHM is as follows

P-[Year code]-PRM-SHP_TYPE4_[Earthquake code]_[Earthquake type code]_[Region code].csv

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes covered in this rule are in Table 2-1.

Table 2-1 Earthquakes covered in this rule

Earthquake code	Earthquake name
PSE_CPCF	Interplate/intraplate earthquakes without specified source faults for the Pacific plate
PSE_CPHL	Interplate/intraplate earthquakes without specified source faults for the Philippine Sea plate
PSE_COUT	Outer-rise earthquakes of the Japan Trench: 2019 and before Outer-rise earthquakes of the Pacific plate: 2020 and later
PSE_CPHO	Outer-rise earthquakes of the Philippine Sea plate

(3) Earthquake type code

Table 2-2 Earthquake type code

Earthquake type code	Explanation
CRUST	Crustal earthquakes
INTER	Interplate earthquakes
INTRA	Intraplate earthquakes

(4) Region code

Region code is described in a double-digit integer number.

3. Data description

The file is a CSV file and consists of comment lines prefixed by "#", file information block, information block of cumulative frequency for magnitude, information block of discretizing domain and information block of discretized rectangular source faults. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format "# VER. = X.Y". X means the major version, and Y means the minor version.

(2) Date

Date is described in a format "# DATE = YYYY-MM-DD".

(3) Update history

Update history is described in the following format.

UPDATED
YYYY-MM-DD Update content 1
YYYY-MM-DD Update content 2

(4) File information block

The file information block is described in one line. The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 File information block

Column	Format	Explanation
01	%s	Earthquake code
02	%4d	Number of discrete domains (*1)
03	%4d	Number of discretization for magnitudes (*2)

(*1) The size of rectangular fault is defined by magnitude and the rectangular faults are discretized with uniform distribution. This value is the number of rectangular faults mentioned above.

(*2) The cumulative frequency is defined for magnitudes in 0.1 intervals from a minimum to a maximum. This value is the number of the assumed magnitude.

(5) Information block of cumulative frequency for magnitude

The number of lines, in which the information block of cumulative frequency is described, is same as the number of discretization of the file information block mentioned at the block(4) .

Table 3-2 Information block of cumulative frequency for magnitude

Column	Format	Explanation
01	%4d	Serial number
02	%4.1f	Magnitude
03	%7.5f	Cumulative frequency
04	%4d	Identifier of discretized rectangular source faults

NOTE1: A negative value means a moment magnitude.

NOTE2: Cumulative frequency is calculated by grouping the same identifier number of discretized rectangular source faults.

(6) Information block of discretizing domain

The information block of discretizing domain described in one line.

Table 3-3 Information block of discretizing domain

Column	Format	Explanation
01	%4d	Identifier of discretized rectangular source faults
02	%5.1f	Length of discretized fault (Fault length, km)
03	%5.1f	Length of discretized fault (Fault width, km)
04	%4d	Number of fault planes

(7) Information block of discretized rectangular source faults

The number of lines, in which the discretized rectangular source faults information block is described, same as the number of fault plane of the information block of discretizing domains mentioned at the block(6) .

Table 3-4 Discretized rectangular source faults information block

Column	Format	Explanation
01	%4d	Rectangular fault number
02	%7.3f	Origin longitude of the rectangular fault (Tokyo datum)
03	%7.3f	Origin latitude of the rectangular fault (Tokyo datum)
04	%7.3f	Origin longitude of the rectangular fault (Japanese Geodetic Datum 2000)

05	%7.3f	Origin latitude of the rectangular fault (Japanese Geodetic Datum 2000)
06	%5.1f	Depth of the upper edge of the rectangular fault (km)
07	%5.1f	Strike angle (degree)
08	%5.1f	Dip angle (degree)

Pair of the block (6) and the block (7) is repeated itself. Number of repetition same as the number of discrete domains of the file information block mentioned at the block (4) .

(8) Example

Table 3-5 shows the example of data description.

Table 3-5 Example

Example	Description
# # VER. = 1.0 # DATE = 2014-12-16 #	Comment lines
PSE_CPCF, 2, 10	File information block
1, 7.6, 0.01960, 1 2, 7.7, 0.01391, 1 3, 7.8, 0.00929, 1 4, 7.9, 0.00554, 1 5, 8.0, 0.00248, 1 6, 8.1, 0.00695, 2 7, 8.2, 0.00494, 2 8, 8.3, 0.00330, 2 9, 8.4, 0.00196, 2 10, 8.5, 0.00088, 2	Information block of cumulative frequency for magnitude
1, 80.0, 80.0, 121	Information block of discretizing domain
1, 141.046, 34.485, 141.043, 34.488, 41.6, 182.0, 0.0 (snip) 121, 142.505, 26.403, 142.502, 26.407, 16.9, 188.0, 0.0	Information block of discretized rectangular source faults
2, 170.0, 120.0, 39	Information block of discretizing domain
1, 141.356, 34.502, 141.353, 34.505, 10.9, 179.0, 24.0 (snip)	Information block of discretized rectangular source faults

Example	Description
39, 142.269, 32.823, 142.266, 32.827, 8.8, 173.0, 5.0	

Probabilistic Seismic Hazard Maps: Guide for file "Fault shape (discretized non-rectangular source faults)"

4. Abstract

This guide describes the file of fault shape data (discretized non-rectangular source faults) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

5. File naming rule

The fault shape (discretized non-rectangular without specified source faults) file for PSHM is as follows

P-[Year code]-PRM-SHP_TYPE5_[Earthquake code].csv

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. "_MX" is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes covered in this rule are in Table 5-1.

Table 5-1 Earthquakes covered in this rule

Earthquake code	Earthquake name
PSE_BCHTN	Interplate earthquakes close to the Kuril Trench (Tsunami earthquakes)

6. Data description

The file is a CSV file and consists of comment lines prefixed by "#", file information block, fault information block and point information block of discretized non-rectangular source faults. The comment lines describe the file version, date and update history. The details are as follows.

(1) File version

File version is described in a format "# VER. = X.Y". X means the major version, and Y means the minor version.

(2) Date

Date is described in a format "# DATE = YYYY-MM-DD".

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) File information block

The file information block is described in one line. The details are in Table 6-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 6-1 File information block

Column	Format	Explanation
01	%s	Earthquake code
02	%4d	Number of fault planes

(5) Fault information block

The fault information block describes a fault serial number, magnitude, representative depth, relative occurrence probability and number of fault planes. The details are in Table 6-2.

Table 6-2 Fault information block of discretized non-rectangular source faults

Column	Format	Explanation
01	%4d	Fault serial number
02	%4.1f	Magnitude
03	%5.1f	Representative depth (km)
04	%7.5f	Relative occurrence probability
05	%4d	Number of fault planes

NOTE: Negative value of magnitude means moment magnitude.

(6) Point information block of discretized non-rectangular source faults

The point information block describes a serial number, latitude, longitude, and depth of each point. The details are in Table 6-3.

Table 6-3 Point information block of discretized non-rectangular source faults

Column	Format	Explanation
01	%4d	Serial number
02	%7.3f	Longitude of point (Tokyo datum)
03	%7.3f	Latitude of point (Tokyo datum)

04	%7.3f	Longitude of point (Japanese Geodetic Datum 2000)
05	%7.3f	Latitude of point (Japanese Geodetic Datum 2000)
06	%5.1f	Depth (km)

Pair of block(5) and block(6) is repeated themselves. Number of repetition is same as number of faults included in this file.

(7) Example

Table 6-4 shows the example of data description.

Table 6-4 Example

Example	Description
# # VER. = 1.0 # DATE = 2018-06-28 #	Comment lines
PSE_BCHTN, 20	File information block
1, -8.0, 10.0, 0.05000, 466	Fault information block
1, 146.387, 41.840, 146.383, 41.843, 0.5 (snip) 466, 144.181, 41.223, 144.177, 41.226, 8.2	Point information block
2, -8.0, 10.0, 0.05000, 460	Fault information block
1, 147.137, 42.175, 147.133, 42.178, 0.8 (snip) 460, 145.093, 41.735, 145.089, 41.738, 6.2	Point information block

Probabilistic Seismic Hazard Maps: Guide for file “Parameters for seismic activity evaluation and Fault shape of EarthQuake’s Traces Hardly Recognized (EQTHR) from surface evidences”

7. Abstract

This guide describes the file of parameters for seismic activity evaluation and fault shape data of EarthQuakes whose Traces are Hardly Recognized (EQTHR) from surface evidences in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

8. File naming rule

Table 8-1 shows file naming rules of the parameters for seismic activity evaluation and fault shape data of EQTHR file.

Table 8-1 File naming rules

Earthquake type	File name
Parameters for seismic activity evaluation of EQTHR occurring in major active fault zones (Average case)	P-[Year code]-PRM-AVR_LND_A98F_EQTHR_EN.csv
Parameters for seismic activity evaluation of EQTHR occurring in major active fault zones (Maximum case)	P-[Year code]-PRM-MAX_LND_A98F_EQTHR_EN.csv

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

9. Data description

The file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date update history, file information block, earthquake information block, and fault information block. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) File information block

The file information block is described in one line. The details are in Table 9-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 9-1 File information block

Column	Format	Explanation
01	%s	Earthquake code
02	%4d	Number of earthquakes included in this file

(5) Earthquake information block

The earthquake information block is described in one line base as given in Table 9-2 for detail. Parameters such as the mean recurrence interval, the minimum/maximum magnitude, and b-value are given for modeling the seismic activity of EQTHR.

Table 9-2 Earthquake information block

Column	Format	Explanation
01	%s	Fault code
02	%6d	Mean recurrence interval (Years)
03	%3.1f	The minimum magnitude
04	%3.1f	The maximum magnitude
05	%4.1f	b-value
06	%4d	Number of fault planes
07	%s	Fault name

NOTE: Negative value of magnitude means moment magnitude.

(6) Fault information block

The fault information block describes a rectangle fault number, reference latitude/longitude, depth of the upper edge of rectangle fault, fault length, width, and strike/dip angles.

Table 9-3 Fault information block

Column	Format	Explanation
--------	--------	-------------

01	%4d	Rectangular fault number
02	%7.3f	Longitude of the reference point of rectangular fault (Tokyo datum)
03	%7.3f	Latitude of the reference point of rectangular fault (Tokyo datum)
04	%7.3f	Longitude of the reference point of rectangular fault (Japanese Geodetic Datum 2000)
05	%7.3f	Latitude of the reference point of rectangular fault (Japanese Geodetic Datum 2000)
06	%5.1f	Depth of the upper edge of rectangular fault (km)
07	%5.1f	Length of rectangular fault (km)
08	%5.1f	Width of rectangular fault (km)
09	%5.1f	Strike angle (degree)
10	%5.1f	Dip angle (degree)

NOTE: In the case of multiple faults overlap each other, ground motions with attenuation relation are calculated using an united polygon built from the fault planes. See the Technical Note of the National Research Institute for Earth Science and Disaster Prevention No.314 "Development of Estimation Tools for Earthquake Ground Motion by Empirical Attenuation Relations"

Pair of block(5) and block(6) is repeated itself. Number of repetition is same as number of earthquakes included in this file.

(7) Example

Table 9-4 Example

Example	Description
# # VER. = 1.0 # DATE = 2015-10-30 #	Comment lines
LND_A98F, 193	File information block
F000101, 34000, 6.8, 7.4, 0.9, 1, Shibetsu fault zone	Earthquake information block
1, 145.084, 43.958, 145.080, 43.960, 3.0, 56.0, 18.0, 216.0, 45.0	Fault information block
F000201, 39000, 6.8, 7.4, 0.9, 1, Tokachi-heiya fault zone (Main part)	Earthquake information block
1, 143.302, 42.541, 143.298, 42.544, 4.0, 84.0, 24.0, 9.0, 45.0 (Following omitted)	Fault information block

Probabilistic Seismic Hazard Maps: Guide for file “Parameters for seismic activity evaluation”

1. Abstract

This guide describes the file of parameters for seismic activity evaluation in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

Table 2-1 shows file naming rules of the parameters for seismic activity evaluation file.

Table 2-1 File naming rules

Earthquake type	File name
Parameters for seismic activity evaluation of Characteristic earthquakes occurring in major active fault zones (Average case)	P-[Year code]-PRM-ACT_AVR_LND_A98F_EN.csv
Parameters for seismic activity evaluation of Characteristic earthquakes occurring in major active fault zones (Maximum case)	P-[Year code]-PRM-ACT_MAX_LND_A98F_EN.csv
Parameters for seismic activity evaluation of subduction-zone earthquakes (Average case)	P-[Year code]-PRM-ACT_AVR_PME_MTTL_EN.csv
Parameters for seismic activity evaluation of subduction-zone earthquakes (Maximum case)	P-[Year code] -PRM-ACT_MAX_PME_MTTL_EN.csv
Parameters for seismic activity evaluation of Earthquakes occurring on active faults other than major active fault zones	P-[Year code]-PRM-ACT_AVR_LND_AGR1_EN.csv

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

3. Data description

The file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date, update history and reference date. The details are as follows:

- (1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

UPDATED

YYYY-MM-DD Update content 1

YYYY-MM-DD Update content 2

(4) Reference date

Reference date is described in a format “# EPOCH = YYYY-MM-DD”.

(5) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	CODE	%s	Fault code
02	PROC	%s	Stochastic process (BPT: BPT processes, POI: Poisson process, COM: Combined BPT and POI, BSI: BPT process (Simultaneous occurring model), PSI: Poisson process (Simultaneous occurring model), SIM: Simultaneous occurring model, XXX: None evaluation)
03	AVRACT	%10.1f	Mean recurrence interval (Years)
04	NEWACT	%10.1f	The time of the latest event (Years ago: from reference date)
05	ALPHA	%4.2f	Variance
06	P_T30	%8.2e	Probability of occurrence in 30 years(*1)
07	P_T50	%8.2e	Probability of occurrence in 50 years(*1)
08	NAME	%s	Fault name

(*1)The given value is the probability of occurring at least once.

NOTE: ' - ' means an undefined value.

(6) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example	
#	
# VER. = 1.0	
#	
# DATE = 2009-03-15	
#	
# UPDATED	
#	
# EPOCH = 2009-01-01	
# CODE, PROC, AVRACT, NEWACT, ALPHA, P_T30, P_T50, NAME	
F000101, POI,	17000.0, -, 0.00, 1.76e-03, 2.94e-03, Shibetsu fault zone
F000201, POI,	19500.0, -, 0.00, 1.54e-03, 2.56e-03, Tokachi-heiya fault zone (Main part)
F000202, POI,	14000.0, -, 0.00, 2.14e-03, 3.57e-03, Kochien fault
F000301, BPT,	4000.0, 1089.5, 0.24, 0.00e+00, 0.00e+00, Furano fault zone (Western part)
F000302, BPT,	15500.0, 3350.0, 0.24, 0.00e+00, 0.00e+00, Furano fault zone (Eastern part)
F000401, POI,	5000.0, -, 0.00, 5.98e-03, 9.95e-03, Mashike-sanchi-toen fault zone
F000402, POI,	12000.0, -, 0.00, 2.50e-03, 4.16e-03, Numata-Sunagawa area fault zone
F000501, BPT,	11250.0, 6600.0, 0.24, 8.15e-04, 1.38e-03, Tobetsu fault
(Following omitted)	

Probabilistic Seismic Hazard Maps: Guide for file “Earthquake occurrence frequency data (Earthquakes without specified source faults)”

1. Abstract

This guide describes the file of earthquake occurrence frequency data (Earthquakes without specified source faults) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The earthquake occurrence frequency data file is named as follows

P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_[Frequency calculating method code]_[Catalog code].csv

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes described in this rule are in Table 2-1.

Table 2-1 Earthquakes described in this rule

Earthquake code	Earthquake name
PSE_CPCF	Interplate/intraplate earthquakes without specified source faults for the Pacific plate
PSE_CPHL	Interplate/intraplate earthquakes without specified source faults for the Philippine Sea plate
LND_CGR5	Earthquakes occurring at onshore locations where active faults have not been specified
PSE_CURA	Earthquakes without specified source faults in Urakawa-Oki
LND_CJPS	Earthquakes without specified source faults in the eastern margin of the Japan Sea
LND_CIZU	Earthquakes without specified source faults in the southern area of Izu-shoto islands
LND_CNAN	Earthquakes without specified source faults in the vicinity of Nansei-shoto islands

LND_CYNG	Earthquakes without specified source faults in the vicinity of Yonaguni-jima
----------	--

(3) Earthquake type code

Table 2-2 Earthquake type code

Earthquake type code	Explanation
CRUST	Crustal earthquakes
INTER	Interplate earthquakes
INTRA	Intraplate earthquakes

(4) Frequency calculating method code

Table 2-3 Frequency calculating method code

Frequency calculating method code	Explanation
FR	Non-zoning method
SC	Zoning method
SL	Zoning method for large areas
CV	Composition

(5) Catalog code

Table 2-4 Catalog code (2019 and before)

Catalog code	Explanation
SS	Small earthquake catalog
MM	Medium earthquake catalog
SM	Small and medium earthquake catalog

Table 2-5 Catalog code (2020 and after)

Catalog code	Explanation
SS_EXCAF	Small earthquake catalog / Exclude Aftershocks
SS_INCAF	Small earthquake catalog / Include Aftershocks
MM_EXCAF	Medium earthquake catalog / Aftershocks removed
MM_INCAF	Medium earthquake catalog / Exclude Aftershocks
SM	Small and medium earthquake catalog. Include and Exclude Aftershocks

The file prepared for each earthquake is as follows.

- 2019 and before
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_FR_SS.csv
Small earthquake catalog / Non-zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_FR_MM.csv
Medium earthquake catalog / Non-zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SC_SS.csv
Small earthquake catalog / Zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SC_MM.csv
Medium earthquake catalog / Zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SL_SS.csv
Small earthquake catalog / Zoning method for large areas
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SL_MM.csv
Medium earthquake catalog / Zoning method for large areas
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_CV_SM.csv
Composition of the four cases

- 2020 and after
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_FR_SS_EXCAF.csv
Small earthquake catalog / Exclude aftershocks / Non-zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_FR_SS_INCAF.csv
Small earthquake catalog / Include aftershocks / Non-zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_FR_MM_EXCAF.csv
Medium earthquake catalog / Exclude aftershocks / Non-zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_FR_MM_INCAF.csv
Medium earthquake catalog / Include aftershocks / Non-zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SC_SS_EXCAF.csv
Small earthquake catalog / Exclude aftershocks / Zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SC_SS_INCAF.csv
Small earthquake catalog / Include aftershocks / Zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SC_MM_EXCAF.csv
Medium earthquake catalog / Exclude aftershocks / Zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SC_MM_INCAF.csv
Medium earthquake catalog / Include aftershocks / Zoning method
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SL_SS_EXCAF.csv
Small earthquake catalog / Exclude aftershocks / Zoning method for large areas
 - P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SL_SS_INCAF.csv

- Small earthquake catalog / Include aftershocks / Zoning method for large areas
- P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SL_MM_EXCAF.csv
Medium earthquake catalog / Exclude aftershocks / Zoning method for large areas
- P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_SL_MM_INCAF.csv
Medium earthquake catalog / Include aftershocks / Zoning method for large areas
- P-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_CV_SM.csv
Composition results

NOTE: In the case of Earthquakes without specified source faults in the vicinity of Nansei-shoto-islands and Yonaguni-jima, the medium earthquake catalog is only used, and a calculation of CV is under a composition of the two cases.

NOTE: Target earthquakes for “Zoning method for large areas” are Earthquakes occurring at onshore locations where active faults have not been specified (LND_CGR5), Earthquakes without specified source faults in the eastern margin of the Japan Sea (LND_CJPS) and Earthquakes without specified source faults in the southern area of Izu-shoto islands (LND_CIZU).

3. Data description

The file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	MNO	%6d	Mesh number
02	JLG	%7.3f	Longitude of the center of mesh (Tokyo Datum)
03	JLA	%7.3f	Latitude of the center of mesh (Tokyo Datum)
04	WLG	%7.3f	Longitude of the center of mesh (Japanese Geodetic Datum 2000)
05	WLA	%7.3f	Latitude of the center of mesh (Japanese Geodetic Datum 2000)
06	FRQ	%8.5e	Earthquake occurrence frequency
07	BVL	%7.3f	b-value of mesh
08	MMN	%4.1f	The minimum magnitude in a mesh
09	ANO	%3d	Zone number
10	DEP	%5.1f	Representative depth of mesh (km)
11	STR	%5.1f	Strike angle (degree)
12	DIP	%5.1f	Dip angle (degree)

NOTE1: Parameter of non-zoning method

- Correlation distance: 25km
- Cut-off distance: Correlation distance x 3

NOTE2: The mesh, in which earthquake occurrence frequency is 0, is not included in the earthquake type.

(5) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example
<pre># # VER. = 1.0 # # DATE = 2009-03-02 # # UPDATED # # MNO, JLG, JLA, WLG, WLA, FRQ, BVL, MMN, ANO, DEP, STR, DIP 1, 128.500, 32.200, 128.498, 32.203, 3.16793e-03, 0.900, 5.0, 1, 30.0, 225.0, 45.0 (Following omitted)</pre>

Probabilistic Seismic Hazard Maps: Guide for file “Shape data of zoning area”

1. Abstract

This guide describes the file of shape data of zoning area in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The shape data of zoning area file is named as follows

P-[Year code]-PRM-AREA_SHP_[Earthquake code]_[Area code].csv
--

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes covered in this rule are in Table 2-1.

Table 2-1 Earthquakes covered in this rule

Earthquake code	Earthquake name
PSE_CPCF	Interplate/intraplate earthquakes without specified source faults for the Pacific plate
PSE_CPHL	Interplate/intraplate earthquakes without specified source faults for the Philippine Sea plate
LND_GGR5	Earthquakes occurring at onshore locations where active faults have not been specified
PSE_CURA	Earthquakes without specified source faults in Urakawa-Oki
LND_CURA	Earthquakes without specified source faults in Urakawa-Oki
LND_CJPS	Earthquakes without specified source faults in the eastern margin of the Japan Sea
LND_CIZU	Earthquakes without specified source faults in the southern area of Izu-shoto islands
LND_CNAN	Earthquakes without specified source faults in the vicinity of Nansei-shoto islands

LND_CYNG	Earthquakes without specified source faults in the vicinity of Yonaguni-jima
PSE_COUT	Outer-rise earthquakes of the Japan Trench: 2019 and before Outer-rise earthquakes of the Pacific plate: 2020 and after

(3) Area code

Area code is described in a double-digit integer number.

3. Data description

The file is a GSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	JLON	%8.4f	Node longitude (Tokyo Datum)
02	JLAT	%8.4f	Node latitude (Tokyo Datum)
03	WLON	%8.4f	Node longitude (Japanese Geodetic Datum 2000)
04	WLAT	%8.4f	Node latitude (Japanese Geodetic Datum 2000)

(5) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example
#
VER. = 1.0
#
DATE = 2009-03-06
#
UPDATED
#
JLON, JLAT, WLON, WLAT
141.7500, 43.1500, 141.7462, 43.1524
141.7170, 43.0000, 141.7132, 43.0024
(Following omitted)

Probabilistic Seismic Hazard Maps: Guide for file "Occurrence number ratio between interplate earthquakes and intraplate earthquakes"

1. Abstract

This guide describes the file of occurrence number ratio between interplate earthquakes and intraplate earthquakes in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The file name is named as follows

```
P-[Year code]-PRM-RATIO-INTER_INTRA.csv
```

For the range of magnitude that discretized rectangular without specified source faults are defined, the file name is named as follows

```
P-[Year code]-PRM-RATIO-INTER_INTRA_TYPE4.csv
```

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. "_MX" is attached if multiple models exist in a year. X indicates model ID number begins from 2.

3. Data description

The file is a CSV file and consists of comment lines prefixed by "#" and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format "# VER. = X.Y". X means the major version, and Y means the minor version.

(2) Date

Date is described in a format "# DATE = YYYY-MM-DD".

(3) Update history

Update history is described in the following format.

```
# UPDATED
```

```
# YYYY-MM-DD Update content 1
```

```
# YYYY-MM-DD Update content 2
```

(4) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	EQCODE	%s	Earthquake code
02	ANO	%2d	Zone number
03	INTERR	%2d	Seismicity ratio of the interplate earthquakes
04	INTRAR	%2d	Seismicity ratio of the intraplate earthquakes

Earthquakes covered by this file are shown in Table 3-2.

Table 3-2 Earthquakes covered by this file.

Earthquake code	Explanation
PSE_CPCF	Interplate/intraplate earthquakes without specified source faults for the Pacific plate
PSE_CPHL	Interplate/intraplate earthquakes without specified source faults for the Philippine Sea plate

(5) Example

Table 3-3 shows the example of data description.

Table 3-3 Example

Example
VER. = 1.0 # # DATE = 2009-03-15 # # UPDATED # # EQCODE, ANO, INTERR, INTRAR PSE_CPCF, 2, 3, 1 (Following omitted)

Probabilistic Seismic Hazard Maps : Guide for file "Parameters of the Attenuation Relation for the Ground Motion"

1. Abstract

This guide describes the file of parameters of the attenuation relation for the ground motion in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The file of parameters of the attenuation relation for the ground motion in PSHM is named as follows

```
P-[Year code]-PRM-ATTENUATION_FORMULA.csv
```

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. "_MX" is attached if multiple models exist in a year. X indicates model ID number begins from 2.

3. Data description

The file is a CSV file and consists of comment lines prefixed by "#" and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format "# VER. = X.Y". X means the major version, and Y means the minor version.

(2) Date

Date is described in a format "# DATE = YYYY-MM-DD".

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	EQCODE	%s	Earthquake code
02	EQTYPE	%1d	Earthquake type code (1, 2 or 3)
03	SPTYPE	%1d	Fault shape code (1 or 2)
04	MTTYPE	%1d	Magnitude conversion code (1 or 2)
05	CRTYPE	%1d	Correction Type Code (for anomalous seismic intensity)

NOTE: For earthquake category I and II, variance depending on amplitude is to be used. For earthquake category III, variance depending on hypocentral distance is to be used.

1) Earthquake code

See the J-SHIS Earthquake Code section in this document.

2) Earthquake type code

Table 3-2 shows details.

Table 3-2 Earthquake type code

Earthquake type code	Explanation
1	Crustal earthquake
2	Interplate earthquake
3	Intraplate earthquake

3) Fault shape code

Table 3-3 shows details.

Table 3-3 Fault shape code

Fault shape code	Explanation
1	Point source
2	Circular source fault
3	Rectangular source fault
4	Discretized rectangular source faults
5	Discretized non-rectangular source faults

NOTE: A radius of a circular source fault is calculated by the Utsu formula, $r = \sqrt{10^{M-4} / \pi}$.

4) Magnitude conversion code

A magnitude conversion code indicates a method to convert M_j to M_w , which is described in Table 3-4.

Table 3-4 Magnitude conversion code

Magnitude conversion code	Explanation
1	Mw=Mj
2	Mw=0.78Mj+1.08

5) Correction type code

Table 3-5 shows details.

Table 3-5 Correction type code

Correction type code	Explanation
0	No correction
1	Correction for northeast Japan
2	Correction for southwest Japan (Applied to only earthquakes at Philippine Sea plate, zone 4)

(5) Example

Table 3-6 shows the example of data description.

Table 3-6 Example

Example
<pre># # VER. = 1.0 # # DATE = 2007-09-19 # # UPDATED # 2007-09-19 add header # # EQCODE, EQTYPE, SPTYPE, MTTYPE, CRTYPE PSE_GPCF, 3, 2, 1, 1 (Following omitted)</pre>

Probabilistic Seismic Hazard Maps: Guide for file “The Pacific/Philippine Sea Plate Shape Data”

1. Abstract

This guide describes the file of the Pacific/Philippine Sea plate shape data in PSHM. The details are as follows.

2. File naming rule

The Pacific/Philippine Sea plate shape data file is named as follows

P-[Year code]-PRM-PLATE_SHP-[Earthquake code].csv

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

Refer to the J-SHIS Earthquake Code section in this document. Earthquakes covered in this rule are in Table 2-1.

Table 2-1 Earthquakes covered in this rule

Earthquake code	Explanation
PSE_CPCF	Interplate/intraplate earthquakes without specified source faults for the Pacific plate
PSE_CPHL	Interplate/intraplate earthquakes without specified source faults for the Philippine Sea plate

3. Data description

The file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	MNO	%6d	Mesh number
02	JLG	%7.3f	Longitude (Tokyo Datum)
03	JLT	%7.3f	Latitude (Tokyo Datum)
04	WLG	%7.3f	Longitude (Japanese Geodetic Datum 2000)
05	WLA	%7.3f	Latitude (Japanese Geodetic Datum 2000)
06	DEP	%5.1	Depth (km)

(5) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example
<pre># # VER. = 1.0 # # DATE = 2009-03-15 # # UPDATED # # MNO, JLG, JLA, WLG, WLA, DEP 1,136.800, 35.600, 136.797, 35.603, 57.4 (Following omitted)</pre>

Probabilistic Seismic Hazard Maps: Guide for file “Averaged Hazard Map”

1. Abstract

This guide describes the file of averaged hazard map in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The averaged hazard map data file for Japan whole area is named as follows

A-[Version code]-MAP-AVR-TTL_M TTL.csv

The map data file for a first-mesh is named like

A-[Version code]-MAP-AVR-TTL_M TTL-[First-mesh code].csv

(1) Version code

Table 2-1 Version code

Version code	Explanation
V1	Based on seismic activity model for 2012 version of PSHM but all earthquakes are evaluated as Poisson process.
V2	Based on seismic activity model for 2013 version (model 2) of PSHM but all earthquakes are evaluated as Poisson process.
V3	Based on seismic activity model for 2013 version (model 1) of PSHM but all earthquakes are evaluated as Poisson process.
V4	Based on seismic activity model for 2014 version of PSHM but all earthquakes are evaluated as Poisson process.
V5	Based on seismic activity model for 2016 version of PSHM but all earthquakes are evaluated as Poisson process.
V6	Based on seismic activity model for 2017 version of PSHM but all earthquakes are evaluated as Poisson process.
V7	Based on seismic activity model for 2018 version of PSHM but all earthquakes are evaluated as Poisson process.
V8	Based on seismic activity model for 2020 version of PSHM but all earthquakes are evaluated as Poisson process.

(2) First mesh code

First-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A first-mesh is a square area of 2/3 degrees latitude × 1 degree longitude (about 75km × 90km). This geographical coordinate system adopts the standard grid square (mesh

code N) based on Tokyo Datum.

3. Data description

This file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Data block

The details are in Table 3-1. Format is written in a conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
1	CODE	%10-11c	250m mesh code
2	A0500_SI	%s	IJMA with a return period of 500-year
3	A1000_SI	%s	IJMA with a return period of 1000-year
4	A5000_SI	%s	IJMA with a return period of 5000-year
5	A010K_SI	%s	IJMA with a return period of 10,000-year
6	A050K_SI	%s	IJMA with a return period of 50,000-year
7	A100K_SI	%s	IJMA with a return period of 100,000-year

NOTE: 5L, 5U, 6L, 6U indicate IJMA equal to or larger than 5-Lower, 5-Upper, 6-Lower, and 6-Upper, respectively.

(5) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example
VER. = 1.0 # # DATE = 2012-06-11 # # UPDATED # # CODE, A0500_SI, A1000_SI, A5000_SI, A010K_SI, A050K_SI, A100K_SI 3622572811N, 6L, 6U, 6U, 6U, 7, 7 3622572813N, 6L, 6U, 7, 7, 7, 7 (Following omitted)

Guide for file “Conditional Probability of Exceedance Map”

1. Abstract

This guide describes the file of the conditional probability of exceedance map (CPE). The details are as follows.

2. File naming rule

The J-SHIS CPE data file is as follows

```
C-[Version code]-[Fault code]-MAP-CASE1.csv
```

Especially for 「Large Earthquakes along the Nankai Trough (2020 and after)」, file is as follows

```
C-[Version code]-ANNKI-[Pattern code]-MAP-CASE1.csv
```

(1) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation condition is changed.

(2) Fault code

Refer to the J-SHIS Fault Code section in this document.

(3) Pattern code

Pattern code is a code that identifies occurrence pattern of 「Large Earthquakes along the Nankai Trough (2020 and after)」 and is AN001 to AN177.

3. Data description

The file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
```

```
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	CODE	%11c	250m-mesh code
02	AVE_SI	%7.5e	Expected JMA seismic intensity
03	I45_PS	%7.5e	Probability of exceedance [IJMA>=5-Lower]
04	I50_PS	%7.5e	Probability of exceedance [IJMA>=5-Upper]
05	I55_PS	%7.5e	Probability of exceedance [IJMA>=6-Lower]
06	I60_PS	%7.5e	Probability of exceedance [IJMA>=6-Upper]

(5) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example
<pre># # VER. = 1.0 # # DATE = 2009-03-15 # # UPDATED # # CODE, AVE_SI, I45_PS, I50_PS, I55_PS, I60_PS 6443145414N, 4. 34768e+00, 3. 62475e-01, 6. 07883e-02, 1. 30901e-03, 0. 00000e+00 6443145421N, 4. 34760e+00, 3. 62409e-01, 6. 07668e-02, 1. 30756e-03, 0. 00000e+00 (Following omitted)</pre>

Guide for file "Scenario Earthquake Shaking Map"

1. Abstract

This guide describes the file of Scenario Earthquake Shaking Map (SESM). The details are as follows.

2. File naming rule

The J-SHIS SESM map data file is named like

S-[Version code]-[Fault code]-MAP-[Case code].csv

(1) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation condition is changed.

(2) Fault code

Refer to the J-SHIS Fault Code section in this document.

(3) Case code

Case code is described in a format CASE[N]. N is an integer begins from 1.

3. Data description

The file is a CSV file and consists of comment lines prefixed by "#", analysis area block, and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format "# VER. = X.Y". X means the major version, and Y means the minor version.

(2) Date

Date is described in a format "# DATE = YYYY-MM-DD".

(3) Update history

Update history is described in the following format.

UPDATED

YYYY-MM-DD Update content 1

YYYY-MM-DD Update content 2

(4) Analysis area block

Analysis area block begins from a header line "# AREA". And following lines describe vertexes of an analysis area. The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Analysis area block

Column	Header	Format	Explanation
01	JLON	%11.7f	Longitude (Tokyo datum)
02	JLAT	%11.7f	Latitude (Tokyo datum)
03	WLON	%11.7f	Longitude (Japanese Geodetic Datum 2000)
04	WLAT	%11.7f	Latitude (Japanese Geodetic Datum 2000)

(5) Data block

The details are in Table 3-2.

Table 3-2 Data block

Column	Header	Format	Explanation
01	CODE	%10-11c	250m mesh code
02	BV	%.5f	Peak velocity on the engineering bedrock (cm/s)
03	BI	%.5f	Seismic intensity on the engineering bedrock
04	EB	%.5f	S-wave velocity on the engineering bedrock (m/s)
05	AMP	%.5f	Site amplification factor of JMA intensity
06	SI	%.5f	JMA seismic intensity

(6) Example

Table 3-3 shows the example of data description.

Table 3-3 Example

Example	Explanation
# # VER. = 1.0 # DATE = 2009-03-15 #	Comment lines

Example	Explanation
<pre># AREA # JLON, JLAT, WLON, WLAT 143. 9265625, 43. 1010417, 143. 9226515, 43. 1035784 143. 9265625, 44. 4739583, 143. 9224953, 44. 4763023 145. 6984375, 44. 4739583, 145. 6942125, 44. 4763685 145. 6984375, 43. 1010417, 145. 6943068, 43. 1036130</pre>	<p>Analysis area block</p>
<pre># DATA # CODE, BV, BI, EB, AMP, SI 6443572411N, 2. 22587, 3. 22496, 600. 00000, -0. 06017, 3. 16479 6443572412N, 2. 22587, 3. 22496, 600. 00000, -0. 06017, 3. 16479 6443572413N, 2. 225873. 22496, 600. 00000, -0. 06017, 3. 16479 (Following omitted)</pre>	<p>Data block</p>

Guide for file "Fault coordinate for Scenario Earthquake Shaking Map"

1. Abstract

This guide describes the file of fault coordinate for Scenario Earthquake Shaking Map. The details are as follows.

2. File naming rule

The fault coordinates of scenario earthquake file is named like

S-[Version code]-[Fault code]-FAULT-[Case code].csv

(1) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation condition is changed.

(2) Fault code

Refer to the J-SHIS Fault Code section in this document.

(3) Case code

Case code is described in a format CASE[N]. N is an integer begins from 1.

3. Data description

The file is a CSV file and consists of comment lines prefixed by "#", a fault trace block, a fault plane data block, an asperity coordinate block, a rupture starting point block, and a data block. The comment lines describe the file version, date, update history and reference date. The details are as follows:

(1) File version

File version is described in a format "# VER. = X.Y". X means the major version, and Y means the minor version.

(2) Date

Date is described in a format "# DATE = YYYY-MM-DD".

(3) Update history

Update history is described in the following format.

UPDATED

YYYY-MM-DD Update content 1

YYYY-MM-DD Update content 2

(4) Fault trace block

Fault trace block begins from header line "# FTL" and describes latitude, longitude and depth of two ends of fault traces. If a fault trace consists of multiple lines, the block starts with "# FLT[N]" (N is an integer begins from 1) and described successively. The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Fault trace block

Column	Header	Format	Explanation
01	JLON	%11.7f	Longitude(Tokyo datum)
02	JLAT	%11.7f	Latitude (Tokyo datum)
03	WLON	%11.7f	Longitude (Japanese Geodetic Datum 2000)
04	WLAT	%11.7f	Latitude (Japanese Geodetic Datum 2000)
05	DEP	%.4f	Depth (GL-m) (*)

(*) Depth is always 0m in this block, because a fault trace is a fault line on the ground surface.

NOTE: All columns are filled by "NaN" for subduction-zone earthquakes, because a fault trace is not exists for those earthquakes.

(5) Fault plane data block

Fault plane data block begins from header line "# FLT" and describes positions of four corners of a rectangular fault plane. If the segment has plural planes, the blocks are described successively as "# FLT1", "# FLT2", ... The details are in Table 3-2.

Table 3-2 Fault plane data block

Column	Header	Format	Explanation
01	JLON	%11.7f	Longitude(Tokyo datum)
02	JLAT	%11.7f	Latitude (Tokyo datum)
03	WLON	%11.7f	Longitude (Japanese Geodetic Datum 2000)
04	WLAT	%11.7f	Latitude (Japanese Geodetic Datum 2000)
05	DEP	%.4f	Depth (GL-m)

(*) Number of the fault plane data blocks is equal to number of the fault trace blocks.

(6) Asperity coordinate block

Asperity coordinate block begins from header line "# ASP" and describes positions of four corners of asperities on a fault plane. If the fault plane has plural asperities, the block are described successively as "# ASP1", "# ASP2", ... The details are shown in Table 3-3.

Table 3-3 Asperity coordinate block

Column	Header	Format	Explanation
01	JLON	%11.7f	Longitude(Tokyo datum)
02	JLAT	%11.7f	Latitude (Tokyo datum)
03	WLON	%11.7f	Longitude (Japanese Geodetic Datum 2000)
04	WLAT	%11.7f	Latitude (Japanese Geodetic Datum 2000)
05	DEP	%.4f	Depth (GL-m)

(7) Rupture starting point block

Rupture starting point block begins from header line "# DES" and describes position of a rupture starting point. If there are plural points in a segment, the blocks are described successively as "# DES1", "# DES2", ... The details are shown in Table 3-4.

Table 3-4 Rupture starting point block

Column	Header	Format	Explanation
01	JLON	%11.7f	Longitude(Tokyo datum)
02	JLAT	%11.7f	Latitude (Tokyo datum)
03	WLON	%11.7f	Longitude (Japanese Geodetic Datum 2000)
04	WLAT	%11.7f	Latitude (Japanese Geodetic Datum 2000)
05	DEP	%.4f	Depth (GL-m)

(8) Data block

Data block describes the asperity No. and coordinates of the center of elementary faults. The details are shown in Table 3-5.

Table 3-5 Data block

Column	Header	Format	Explanation
01	ELM	%d	Elementary fault No.
02	JLON	%9.5f	Longitude of the center of an elementary fault (Tokyo datum)
03	JLAT	%9.5f	Latitude of the center of an elementary fault (Tokyo datum)
04	WLON	%9.5f	Longitude of the center of an elementary fault (Japanese Geodetic Datum 2000)
05	WLAT	%9.5f	Latitude of the center of an elementary fault (the Japanese Geodetic Datum 2000)
06	DEP	%9.4f	Depth of the center of an elementary fault (GL-m)

07	ASPN	%d	Asperity No. (0 indicates background area)
----	------	----	--

(*) Column No. 07 ASPN corresponds to No. of the asperity coordinate block.

(9) Example

Table 3-6 shows the example of data description.

Table 3-6 Example

Example	Explanation
# # VER. = 1.0 # DATE = 2009-03-15 #	Comment lines
# FTL # JLON, JLAT, WLON, WLAT, DEP 144. 70210, 43. 53541, 144. 69809, 43. 53791, 0. 0000 145. 10998, 43. 94384, 145. 10592, 43. 94629, 0. 0000	Fault trace block
# FLT # JLON, JLAT, WLON, WLAT, DEP 144. 67202, 43. 55131, 144. 66802, 43. 55381, 3000. 0000 145. 07990, 43. 95973, 145. 07585, 43. 96219, 3000. 0000 144. 95230, 44. 02718, 144. 94826, 44. 02962, 15727. 9221 144. 54443, 43. 61875, 144. 54043, 43. 62124, 15727. 9221	Fault plane data block
# ASP1 # JLON, JLAT, WLON, WLAT, DEP 144. 71611, 43. 61715, 144. 71211, 43. 61964, 4414. 2222 144. 83265, 43. 73384, 144. 82863, 43. 73632, 4414. 2222 144. 74759, 43. 77880, 144. 74357, 43. 78127, 12899. 5556 144. 63105, 43. 66211, 144. 62705, 43. 66459, 12899. 5556	Asperity coordinate block
# ASP2 # JLON, JLAT, WLON, WLAT, DEP 144. 90588, 43. 82885, 144. 90184, 43. 83132, 5828. 4444 144. 99328, 43. 91637, 144. 98923, 43. 91883, 5828. 4444 144. 93657, 43. 94635, 144. 93253, 43. 94881, 11485. 3333 144. 84917, 43. 85883, 144. 84514, 43. 86129, 11485. 3333	Asperity coordinate block
# DES # JLON, JLAT, WLON, WLAT, DEP 144. 68932, 43. 72046, 144. 68531, 43. 72293, 12899. 5556	Rupture starting point block

Example	Explanation
<pre># DATA # ELM, JLON, JLAT, WLON, WLAT, DEP, ASPN 1, 144. 67222, 43. 56235, 144. 66821, 43. 56485, 3707. 1068, 0 2, 144. 68679, 43. 57694, 144. 68278, 43. 57943, 3707. 1068, 0 (Following omitted)</pre>	<p>Data block</p>

Guide for file "Fault parameters of scenario earthquakes"

4. Abstract

This guide describes the file of fault parameters of scenario earthquakes in seismic hazard maps for specified seismic source faults. The details are as follows.

5. File naming rule

The fault parameters of scenario earthquakes file is named like

S-[Version code]-[Fault code]-PRM_[Case code].pdf

(1) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation condition is changed.

(2) Fault code

Refer to the J-SHIS Fault Code section in this document.

(3) Case code

Case code is described in a format CASE[N]. N is an integer begins from 1. When multiple cases are described in a file, Case code is described in a format CASE[M_N]. For example, the parameters for CASE1 and CASE2 are described when "CASE1_2".

6. Data description

For detailed instructions, refer to the fault parameters file of each fault.

7. Common parameter of scenario earthquakes

Table 7-1 shows fault parameters of scenario earthquakes used in common.

Table 7-1 Fault parameters of scenario earthquakes used in common

Parameter name	Setting method	Value
density (ρ)	Density at hypocenter	2700.0 kg/m ³
shear wave velocity (β)	Shear wave velocity at hypocenter	3400 m/s
shear modulus (μ)	$\mu = \rho\beta^2$	3.12E+10 N/m ²
rupture velocity (V_r)	$V_r = 0.72 \cdot \beta$ (Geller (1976))	2400 m/s

8. References

- (1) Geller, R. J. (1976): Scaling relations for earthquake source parameters and magnitudes, Bull. Seism. Soc. Am., 66, 1501-1523.

Guide for file "Statistics of Exposed Population"

1. Abstract

This guide describes the file of statistics of exposed population (population exposure to seismic intensity). The details are as follows.

2. File naming rule

The statistics of exposed population file for all scenario earthquakes is named as follows

E-[Year code]-STAT-[Population type code]-[Scenario earthquake code]_EN.csv

The files for each case are named like

E-[Year code]-STAT-[Population type code]-[Scenario earthquake code]-[Version code]-[Fault code]-[case code]_EN.csv

(1) Year code

Year code is described in a format YNNNN. This code indicates the year on which the population census of Japan issued.

(2) Population type code

Table 2-1 shows population type code.

Table 2-1 Population type code

Population type code	Explanation
ALL_DT_A	Daytime population
ALL_NT_A	Nighttime population

(3) Scenario earthquake code

Table 2-2 shows the scenario earthquake codes.

Table 2-2 Scenario earthquake code

Scenario earthquake code	Explanation
C	Conditional Probability of Exceedance(CPE): JMA seismic intensity
S	Seismic Hazard Maps for Specified Seismic Source Faults(SESM): JMA seismic intensity

(4) Version code

Version code is described in a format V[N]. N is an integer begins from 1.

(5) Fault code

Refer to the J-SHIS Fault Code section in this document.

(6) Case code

Case code is described in a format CASE[N]. N is an integer begins from 1.

3. Data description

The file is a CSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	LTECODE	%s	Fault code
02	VERSION	%s	Version value N of scenario earthquake (refer to Guide to file “Scenario Earthquake Shaking Map” on P72)
03	CASE	%s	Case code
04	AREACODE	%05d	Administrative code(*)

05	AREANAME	%s	Administrative name
06	POP	%d	Total population in administrative district
07	I45_PEX	%d	Exposed Population to IJMA>=5-Lower in administrative district
08	I50_PEX	%d	Exposed Population to IJMA>=5-Upper in administrative district
09	I55_PEX	%d	Exposed Population to IJMA>=6-Lower in administrative district
10	I60_PEX	%d	Exposed Population to IJMA>=6-Upper in administrative district

(*)AREACODE is defined by a number of five figures composed of double figures of prefectural code (JISX0401) and three figures of municipal code (JISX0402)

NOTE: Statistics data of exposed population to seismic intensity and total population might not match with to the value made public from “Ministry of Internal Affairs and Communications” etc. because of the quarter dividing.

(5) Example

Table 3-2 shows the example of data description.

Table 3-2 Example

Example
<pre># # VER. = 1.0 # # DATE = 2010-04-01 # # UPDATED # # LTECODE, VERSION, CASE, AREACODE, AREANAME, POP, I45_PEX, I50_PEX, I55_PEX, I60_PEX AIBRK, 1, CASE1, 08203, Ibaraki-Ken Tsuchiura-Shi, 154160, 35978, 0, 0, 0 AIBRK, 1, CASE1, 08205, Ibaraki-Ken Ishioka-Shi, 74013, 505, 0, 0, 0 (Following omitted)</pre>

Guide for file "Site amplification factors"

1. Abstract

This guide describes the file of site amplification factors. The details are as follows.

2. File naming rule

The site amplification factors file for Japan whole area is named as follows

Z-[Version code]-JAPAN-AMP-VS400_M250.csv

The file for a first-mesh is named like

Z-[Version code]- JAPAN-AMP-VS400_M250-[First-mesh code].csv

(1) Version code

Table 2-1 Version code

Version code	Explanation
V3	The 250m mesh data used for 2014 version of "National Seismic Hazard Maps for Japan".
V4	The 250m mesh data used for 2020 version of "National Seismic Hazard Maps for Japan".

(2) First-mesh code

First-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A first-mesh is a square area of 2/3 degrees latitude × 1 degree longitude (about 75km × 90km). This geographical coordinate system adopts the standard grid square (mesh code N) based on Tokyo Datum.

3. Data description

The file is a CSV file and consists of comment lines prefixed by "#" and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format "# VER. = X.Y". X means the major version, and Y means the minor version.

(2) Date

Date is described in a format "# DATE = YYYY-MM-DD".

(3) Update history

Update history is described in the following format.

UPDATED

YYYY-MM-DD Update content 1

YYYY-MM-DD Update content 2

(4) Data block

The details are in Table 3-1. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data block

Column	Header	Format	Explanation
01	CODE	%10c	250m mesh code (JGD2000)
02	JCODE	%2d	Engineering geomorphologic classification code
03	AVS	%5.1f	Average S-wave velocity in the upper 30m of the ground
04	ARV	%9.4f	Site amplification factor (Vs=400m/s - surface)
05 ^(*1)	AVS_EB	%5.1f	Average S-wave velocity in the 30m depth from engineering bedrock in the detailed method. '-' means an undefined value.
06 ^(*1)	AVS_REF	%d	Classification number of references of average S-wave velocity in the upper 30m of the ground

(*1) Version code V3 does not have these columns.

1) Engineering geomorphologic classification

The reference is shown in Table 3-2.

Table 3-2 Reference of the engineering geomorphologic classification

Version code	Reference
V3	Wakamatsu and Matsuoka (2013)
V4	Wakamatsu and Matsuoka (2020)

The details of classification are shown in Table 3-3 and Table 3-4.

Table 3-3 Engineering geomorphologic classification (V3)

Engineering geomorphologic classification code	classification
1	Mountain
2	Mountain footslope
3	Hill
4	Volcano

5	Volcanic footslope
6	Volcanic hill
7	Rocky strath terrace
8	Gravelly terrace
9	Terrace covered with volcanic ash soil
10	Valley bottom lowland
11	Alluvial fan
12	Natural levee
13	Back marsh
14	Abandoned river channel
15	Delta and coastal lowland
16	Marine sand and gravel bars
17	Sand dune
18	Lowland between coastal dunes and/or bars
19	Reclaimed land
20	Filled land
21	Rock shore, rock reef
22	Dry riverbed
23	River bed
24	Water body

Table 3-4 Engineering geomorphologic classification (V4)

Engineering geomorphologic classification code	classification
1	Mountain
2	Mountain footslope
3	Hill
4	Volcano
5	Volcanic footslope
6	Volcanic hill
7	Rocky strath terrace
8	Gravelly terrace
9	Terrace covered with volcanic ash soil
10	Valley bottom lowland
11	Alluvial fan
12	Natural levee
13	Back marsh

14	Abandoned river channel/ Former pond and swamp
15	Delta and coastal lowland
16	Marine sand and gravel bars
17	Sand dune
18	Lowland between coastal dunes and/or bars
19	Reclaimed land
20	Filled land
21	Rock shore, Rock reef
22	Dry riverbed
23	River bed
24	Lake

2) Average S-wave velocity in the upper 30m of the ground

The reference is shown in Table 3-5.

Table 3-5 Reference of the average S-wave velocity in the upper 30m of the ground

Version code	Reference
V3	Matsuoka and Wakamatsu (2008)
V4	AVS_REF = 0: Wakamatsu and Matsuoka (2020)
	AVS_REF = 1: Senna et al. (2013) and Senna et al. (2019)

3) Site amplification factor ($V_s=400\text{m/s}$ - surface)

The reference is shown in Table 3-6.

Table 3-6 Reference of the site amplification factor ($V_s=400\text{m/s}$ - surface)

Version code	Reference
V3	Fujimoto and Midorikawa (2006)
V4	

4) Average S-wave velocity in the 30m depth from engineering bedrock in the detailed method

The reference is shown in Table 3-7.

Table 3-7 Reference of average S-wave velocity in the 30m depth from engineering bedrock in the detailed method

Version code	Reference
V4	Senna et al. (2013) and Senna et al. (2019)

(5) Example

Table 3-8 and Table 3-9 show the example of data description.

Table 3-8 Example (V3)

Example
VER. = 1.0 # DATE = 2014-12-08 # # UPDATED # # CODE, JCODE, AVS, ARV 5640000011, 1,641.3, 0.6689 (Following omitted)

Table 3-9 Example (V4)

Example
VER. = 1.0 # DATE = 2020-07-14 # # UPDATED # # CODE, JCODE, AVS, ARV, AVS_EB, AVS_REF 5640000011, 1,641.3, 0.6689, -, 0 (Following omitted)

4. References

- (1) Wakamatsu, K. and Matsuoka, M. (2013): "Nationwide 7.5-Arc-Second Japan Engineering Geomorphologic Classification Map and Vs30 Zoning", *Journal of Disaster Research Vol. 8 No. 5*, pp.904-911.
- (2) Wakamatsu, K. and Matsuoka, M. (2020): "Update of the Nationwide 7.5-Arc-Second Japan Engineering Geomorphologic Classification Map and Vs30 Zoning", *Bulletin of JAEE, No. 40*, pp.24-27 (in Japanese).
- (3) Matsuoka, M. and Wakamatsu, K. (2008): "Site Amplification Capability Map based on the 7.5-arc-second Japan Engineering Geomorphologic Classification Map", *National Institute of Advanced Industrial Science and Technology*, Intellectual property management, No.H20PRO-936.
- (4) Fujimoto, K. and Midorikawa, S. (2006): "Relationship between Average Shear-Wave Velocity and

Site Amplification Inferred from Strong Motion Records at Nearby Station Pairs”, *Journal of Japan Association for Earthquake Engineering Vol. 6 No. 1*, pp.11–22.

- (5) Senna, S., Maeda, T., Inagaki, Y., Suzuki, H., Matsuyama, H. and Fujiwara, H. (2013): “Modeling of the subsurface structure from the seismic bedrock to the ground surface for a broadband strong motion evaluation” , *J. Disaster Res., Vol. 8, No. 5*, pp.889–903.
- (6) Senna, S., Wakai, A., Yatagai, A., Jin, K., Matsuyama, H., Suzuki, H. and Fujiwara, H. (2019): “Modeling of the subsurface structure from the seismic bedrock to the ground surface for a broadband strong motion evaluation in Japan” , Proc. of 7th Int. Conf. of Earthquake and Geotechnical Engineering, Malta.

5. Revision history

- Mar. 2014 Delete description of deprecated data version V1.
- Mar. 2021 Add description of data version V4.

Guide for file "Subsurface Structure"

1. Abstract

This guide describes the subsurface structure data file. The details are as follows.

2. File naming rule

The subsurface structure file for Japan whole area is named as follows

D-[Version code]-STRUCT_DEEP-[File type code].csv

The file for a first-mesh is named like

D-[Version code]-STRUCT_DEEP-[File type code]-[First-mesh code].csv

(1) Version code

Version code	Explanation	Reference
V1	The data used for 2010 version of "Scenario Earthquake Shaking Map".	Fujiwara et al. (2009)
V2	The data used for 2011 version of "Scenario Earthquake Shaking Map".	Fujiwara et al. (2012)
V3.2	The data used for 2020 version or later of "Scenario Earthquake Shaking Map".	The Headquarters for Earthquake Research Promotion (2021)
V4	The data described in Chapter 5 of Senna et al. (2023)	Senna et al. (2023)

(2) File type code

Table 2-1 shows file type code.

Table 2-1 File type code

File type code	Explanation
LYRD	Depth
LYRE	Elevation
PYS	Physical property

(3) First-mesh code

First-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A first-mesh is a square area of 2/3 degrees latitude × 1 degree longitude (about 75km × 90km). This geographical coordinate system adopts the standard grid square (mesh code N) based on Tokyo Datum.

3. Data description

The file is a GSV file and consists of comment lines prefixed by “#” and data block. The comment lines describe the file version, date and update history. The details are as follows:

(1) File version

File version is described in a format “# VER. = X.Y”. X means the major version, and Y means the minor version.

(2) Date

Date is described in a format “# DATE = YYYY-MM-DD”.

(3) Update history

Update history is described in the following format.

```
# UPDATED
# YYYY-MM-DD Update content 1
# YYYY-MM-DD Update content 2
```

(4) Data block

The details of each attribute are shown below.

1) Depth

The details are in Table 3-1, Table 3-2 and Table 3-3. Data format is written in conversion specifier for printf function of C-programming language.

a) V1 and V2

Table 3-1 Data block (Depth)

Column	Header	Format	Explanation
01	CODE	%9c	Third-mesh code (the Tokyo datum)
02	D0	%d	0 (constant)
03	D1	%d	Depth of the lower surface of layer No. 1 (m)
:	:	:	:
30	D28	%d	Depth of the lower surface of layer No. 28 (m)
31	D29	%d	Depth of the seismic bedrock (m) Vs=2700(m/s)
32	D30	%d	Depth of the seismic bedrock surface (m) Vs=3100(m/s)
33	D31	%d	Depth of the seismic bedrock surface (m) Vs=3200(m/s)
34	D32	%d	Depth of the seismic bedrock surface (m) Vs=3300(m/s)

b) V3.2

Table 3-2 Data block (Depth)

Column	Header	Format	Explanation
01	CODE	%8c	Third-mesh code (Japanese Geodetic Datum 2000)
02	S0	%.1f	0 (constant)
03	D0	%.1f	Depth of the lower surface of layer No. 0 (m)
04	D1	%.1f	Depth of the lower surface of layer No. 1 (m)
:	:	:	:
31	D28	%.1f	Depth of the lower surface of layer No. 28 (m)
32	D29	%.1f	Depth of the lower surface of layer No. 29 (m) (the seismic bedrock surface)
33	D30	%.1f	Depth of the lower surface of layer No. 30 (m)

c) V4

Table 3-3 Data block (Depth)

Column	Header	Format	Explanation
01	CODE	%8c	Third-mesh code (Japanese Geodetic Datum 2000)
02	S0	%.1f	0 (constant)
03	D0	%.1f	Depth of the lower surface of layer No. 0 (m)
04	D1	%.1f	Depth of the lower surface of layer No. 1 (m)
:	:	:	:
31	D28	%.1f	Depth of the lower surface of layer No. 28 (m)
32	D29	%.1f	Depth of the lower surface of layer No. 29 (m) (the seismic bedrock surface)
33	D30	%.1f	Depth of the lower surface of layer No. 30 (m)
34	D31	%.1f	Depth of the lower surface of layer No. 31 (m)

2) Elevation

The details are in Table 3-4, Table 3-5 and Table 3-6. Data format is written in conversion specifier for printf function of C-programming language.

a) V1 and V2

Table 3-4 Data block (Elevation)

Column	Header	Format	Explanation
01	CODE	%9c	Third-mesh code (the Tokyo datum)
02	E0	%d	Elevation of the ground surface (m)
03	E1	%d	Elevation of the lower surface of layer No. 1 (m)

:	:	:	:
30	E28	%d	Elevation of the lower surface of layer No. 28 (m)
31	E29	%d	Elevation of the seismic bedrock surface (m) Vs=2700(m/s)
32	E30	%d	Elevation of the seismic bedrock surface (m) Vs=3100(m/s)
33	E31	%d	Elevation of the seismic bedrock surface (m) Vs=3200(m/s)
34	E32	%d	Elevation of the seismic bedrock surface (m) Vs=3300(m/s)

b) V3.2

Table 3-5 Data block (Elevation)

Column	Header	Format	Explanation
01	CODE	%8c	Third-mesh code (Japanese Geodetic Datum 2000)
02	S0	%.1f	Elevation of the ground surface (m)
03	E0	%.1f	Elevation of the lower surface of layer No. 0 (m)
04	E1	%.1f	Elevation of the lower surface of layer No. 1 (m)
:	:	:	:
31	E28	%.1f	Elevation of the lower surface of layer No. 28 (m)
32	E29	%.1f	Elevation of the lower surface of layer No. 29 (m) (the seismic bedrock surface)
33	E30	%.1f	Elevation of the lower surface of layer No. 30 (m)

c) V4

Table 3-6 Data block (Elevation)

Column	Header	Format	Explanation
01	CODE	%8c	Third-mesh code (Japanese Geodetic Datum 2000)
02	S0	%.1f	Elevation of the ground surface (m)
03	E0	%.1f	Elevation of the lower surface of layer No. 0 (m)
04	E1	%.1f	Elevation of the lower surface of layer No. 1 (m)
:	:	:	:
31	E28	%.1f	Elevation of the lower surface of layer No. 28 (m)
32	E29	%.1f	Elevation of the lower surface of layer No. 29 (m) (the seismic bedrock surface)
33	E30	%.1f	Elevation of the lower surface of layer No. 30 (m)
34	E31	%.1f	Elevation of the lower surface of layer No. 31 (m)

3) Physical property

The details are in Table 3-7. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-7 Data block (Physical property)

Column	Header	Format	Explanation
01	STN	%d	Property number
02	SVP	%d	P-wave velocity (m/s)
03	SVS	%d	S-wave velocity (m/s)
04	SR0	%d	Density (kg/m ³)
05	SQP	%d	Qp (*)
06	SQS	%d	Qs (*)

(*) Both Qp and Qs are defined for a frequency of 1Hz when FDM simulations are executed for the J-SHIS.

(5) Example

Table 3-8 and Table 3-9 show the example of data description.

Table 3-8 Example Elevation)

Example
<pre># # VER. = 3.2 # DATE = 2021-02-03 # # UPDATED # # CODE, S0, E0, E1, E2, E3, E4, E5, E6, E7, E8, E9, E10, E11, E12, E13, E14, E15, E16, E17, E18, E19, E20, E21, E22, E23, E 24, E25, E26, E27, E28, E29, E30 34227762, -5491.5, -5491.5, -5491.5, -5491.5, -5491.5, -5491.5, -5491.5, -5591.5, -5591.5, -5591.5, -5591.5, -5591.5, -5591.5, -5591.5, -5591.5, -5591.5, -5791.5, -5791.5, -5791.5, -6491.5, -6491.5, -6491.5, -6491.5, - 6491.5, -6491.5, -6491.5, -7491.5, -7491.5, -7491.5, -7491.5, -7491.5, -7491.5 (Following omitted)</pre>

Table 3-9 Example (Physical property)

Example
<pre># # VER. = 3.2 # DATE = 2021-02-03 # # UPDATED # # PYS</pre>

STN, SVP, SVS, SRO, SQP, SQS
1, 1600, 350, 1850, 60, 60
2, 1600, 400, 1850, 60, 60
3, 1700, 450, 1900, 60, 60
4, 1800, 500, 1900, 60, 60
5, 1800, 550, 1900, 60, 60
6, 2000, 600, 1900, 100, 100
7, 2000, 650, 1950, 100, 100
8, 2100, 700, 2000, 100, 100
9, 2100, 750, 2000, 100, 100
10, 2200, 800, 2000, 100, 100
(Following omitted)

4. References

- (1) Fujiwara, H. et al. (2009), “A Study on Subsurface Structure Model for Deep Sedimentary Layers of Japan for Strong-motion Evaluation” (in Japanese), *Technical Note of the National Research Institute for Earth Science and Disaster Prevention*, No. **337**.
- (2) Fujiwara, H. et al. (2012), “Some Improvements of Seismic Hazard Assessment based on the 2011 Tohoku Earthquake” (in Japanese), *Technical Note of the National Research Institute for Earth Science and Disaster Prevention*, No. **379**.
- (3) The Headquarters for Earthquake Research Promotion (2021), “Modeling concept of subsurface structures from seismic bedrock to ground surface” (in Japanese), https://www.jishin.go.jp/evaluation/strong_motion/underground_model/integration_model_kanto_2021/
- (4) Senna, S. et al. (2023), “Modeling of the Subsurface Structure from the Seismic Bedrock to the Ground Surface for a Strong Motion Evaluation” (in Japanese), *Technical Note of the National Research Institute for Earth Science and Disaster Resilience*, No. **498**.

The J-SHIS Earthquake Code

1. Abstract

This guide describes the file of the J-SHIS Earthquake Code. The details are as follows.

2. Earthquake code

Earthquake code identifies Hazard curve and Probabilistic Seismic Hazard Maps data. In this code, “_A” indicates earthquakes with specified source faults, “_B” is earthquakes that the source faults can be specified by a domain and “_C” is earthquakes without specified source faults. Table 2-1 shows the Earthquake code.

Table 2-1 Earthquake code

Earthquake code	Earthquake name
TTL_MTTL	All earthquakes
LND_A98F	Characteristic earthquakes occurring in major active fault zones
LND_AGR1	Earthquakes occurring on active faults other than major active fault zones
PLE_ANNKI	Nankai Trough earthquakes: 2019 version and before Large Earthquakes along the Nankai Trough: 2020 version and after
PLE_ATHOP	Great East Japan Earthquake (2011 type)
PLE_AJTHK	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type)
PLE_AAEIN	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki
PLE_AMYGI	Huge interplate earthquakes in Miyagi-ken-Oki
PSE_BJPTN	Interplate earthquakes close to the Japan Trench (Tsunami earthquakes)
PSE_BJOUT	Earthquakes in outside of the Japan Trench
PLE_AMIYA	Miyagi-ken-Oki Earthquake/earthquakes close to the offshore trenches in Southern Sanriku-Oki
PLE_AMYAS	Miyagi-ken-Oki Earthquake (Repeating earthquakes)
PSE_BMYAS	Miyagi-ken-Oki Earthquake (Other than repeating earthquakes)
PLE_ASNNK	Earthquakes close to the offshore trenches in Southern Sanriku-Oki (Repeating earthquakes)
PSE_BSNNK	Earthquakes close to the offshore trenches in Southern Sanriku-Oki (Other than repeating earthquakes)
PLE_ASNKT	Large interplate earthquakes in Northern Sanriku-Oki (Repeating earthquakes)

Earthquake code	Earthquake name
PSE_BTNMI	Large interplate earthquakes close to the offshore trenches in the Sanriku-Oki to Boso-Oki regions (Tsunami earthquakes)
PSE_BNRML	Large intraplate earthquakes close to the offshore trenches in the Sanriku-Oki to Boso-Oki regions (normal faults type)
PSE_BSNKT	Large interplate earthquakes in Northern Sanriku-Oki (Other than repeating earthquakes)
PSE_BFKSM	Interplate earthquakes in Fukushima-ken-Oki
PSE_BIBRK	Interplate earthquakes in Ibaraki-ken-Oki (Other than repeating earthquakes)
PSE_AIBRK	Interplate earthquakes in Ibaraki-ken-Oki (Repeating earthquakes)
PLE_ATKNM	Tokachi-Oki Earthquake/Nemuro-Oki Earthquake
PLE_ASKTN	Shikotanto-Oki Earthquake
PLE_AETRF	Etorofuto-Oki Earthquake
PSE_BTKNM	Relatively small interplate earthquakes in the Tokachi-Oki and Nemuro-Oki regions
PSE_BSKET	Relatively small interplate earthquakes in the Shikotanto-Oki and Etorofuto-Oki regions
PSE_BITRS	Relatively shallow earthquakes within a subducted plate along the Kuril Trench
PSE_BITRD	Relatively deep earthquakes within a subducted plate along the Kuril Trench
LND_BHKNW	Hokkaido-hokusei-Oki Earthquake
LND_AHKDW	Hokkaido-seiho-Oki Earthquake
LND_AHKSU	Hokkaido-nansei-Oki Earthquake
LND_AAOMW	Aomori-ken-seiho-Oki Earthquake
LND_BAKIT	Akita-ken-Oki Earthquake
LND_AYMGA	Yamagata-ken-Oki Earthquake
LND_ANIGT	Niigata-ken-hokubu-Oki Earthquake
LND_BSDGN	Sadogashima-hoppo-Oki Earthquake
PSE_BAKND	Intraplate earthquakes in Akinada-Iyonada-Bungosuido
PSE_BHGNL	Interplate earthquakes in Hyuganada
PSE_BHGNS	Relatively small interplate earthquakes in Hyuganada
PSE_BYNGN	Earthquakes in the vicinity of Yonaguni-jima
PLE_AKNT0	Kanto Earthquake of "1923 Taisho" type
PSE_BKNT0	Other M7 class earthquakes in Southern Kanto

Earthquake code	Earthquake name
PLE_ASGMI	Sagami Trough earthquakes (M8 class)
PSE_CPCF	Interplate/intraplate earthquakes without specified source faults for the Pacific plate
PSE_CPC3	Interplate earthquakes without specified source faults for the Pacific plate
PSE_CPC4	Intraplate earthquakes without specified source faults for the Pacific plate
PSE_COUT	Outer-rise earthquakes of the Japan Trench: 2019 and before Outer-rise earthquakes of the Pacific plate: 2020 and before
PSE_CPHL	Interplate/intraplate earthquakes without specified source faults for the Philippine Sea plate
PSE_CPH3	Interplate earthquakes without specified source faults for the Philippine Sea plate
PSE_CPH4	Intraplate earthquakes without specified source faults for the Philippine Sea plate
PSE_CPH0	Outer-rise earthquakes of the Philippine Sea plate
LND_CGR5	Earthquakes occurring at onshore locations where active faults have not been specified
PSE_CURA	Earthquakes without specified source faults in Urakawa-Oki
LND_CURA	Earthquakes without specified source faults in Urakawa-Oki
LND_CJPS	Earthquakes without specified source faults in the eastern margin of the Japan Sea
LND_CIZU	Earthquakes without specified source faults in the southern area of Izu-shoto islands
LND_CNAN	Earthquakes without specified source faults in the vicinity of Nansei-shoto islands
LND_CYNG	Earthquakes without specified source faults in the vicinity of Yonaguni-jima
PLE_MTTL	Earthquakes of Category I: 2019 version and before Huge subduction-zone earthquakes: 2020 version and after
PSE_MTTL	Earthquakes of Category II: 2019 version and before Subduction-zone earthquakes without specified seismic source faults: 2020 and after: 2020 version and after
LND_MTTL	Earthquakes of Category III: 2019 version and before Shallow earthquakes in land area and in sea area: 2020 version and after

Earthquake code	Earthquake name
PPE_M TTL	Earthquakes of Category I and II: 2019 version and before Subduction-zone earthquakes: 2020 version and after
PLE_ATKCH	Huge interplate earthquakes in Tokachi-oki
PLE_ANMRO	Huge interplate earthquakes in Nemuro-oki
PSE_BCHTN	Interplate earthquakes close to the Kuril Trench (Tsunami earthquakes)
PLE_ACHSM	Mega earthquakes along the Kuril Trench

The J-SHIS Fault Code

1. Abstract

This guide describes the file of the J-SHIS Fault Code. The details are as follows.

2. Fault code

Fault code is defined for the source fault of Characteristic earthquakes occurring in major active fault zone, subduction-zone earthquakes and earthquakes occurring in other active faults.

(1) Major active fault zones

Table 2-1 shows the fault code of major active fault zones.

Table 2-1 Fault code of major active fault zones

Fault code	Fault name
F000101	Shibetsu fault zone
F000201	Tokachi-heiya fault zone (Main part)
F000202	Kochien fault
F000301	Furano fault zone (Western part)
F000302	Furano fault zone (Eastern part)
F000401	Mashike-sanchi-toen fault zone
F000402	Numata-Sunagawa-area fault zone
F000501	Tobetsu fault
F000601	Ishikari-teichi-toen fault zone (Main part)
F000602	Ishikari-teichi-toen fault zone (Southern part)
F000701	Kuromatsunai-teichi fault zone
F000801	Hakodate-heiya-seien fault zone
F000901	Aomori-wan-seigan fault zone
F001001	Tsugaru-sanchi-seien fault zone (Northern part)
F001002	Tsugaru-sanchi-seien fault zone (Southern part)
F001101	Oritsume fault
F001201	Noshiro fault zone
F001301	Kitakami-teichi-seien fault zone
F001401	Shizukuishi-bonchi-seien fault zone
F001402	Mahiru-sanchi-toen fault zone/Northern segment
F001403	Mahiru-sanchi-toen fault zone/Southern segment
F001501	Yokote-bonchi-toen fault zone (Northern segment)
F001502	Yokote-bonchi-toen fault zone (Southern segment)

Fault code	Fault name
F001601	Kitayuri fault
F001701	Shinjo-bonchi fault zone : 2011 version and before Shinjo-bonchi fault zone (Eastern part) : 2012 version and after
F001702	Shinjo-bonchi fault zone (Western part)
F001801	Yamagata-bonchi fault zone (Northern segment)
F001802	Yamagata-bonchi fault zone (Southern segment)
F001901	Shonai-heiya-toen fault zone : 2009 version and before Shonai-heiya-toen fault zone (Northern part): 2010 version and after.
F001902	Shonai-heiya-toen fault zone (Southern part)
F002001	Nagamachi-Rifu-sen fault zone
F002101	Fukushima-bonchi-seien fault zone
F002201	Nagai-bonchi-seien fault zone
F002301	Futaba fault
F002401	Aizu-bonchi-seien fault zone
F002402	Aizu-bonchi-toen fault zone
F002501	Kushigata-sanmyaku fault zone
F002601	Tsukioka fault zone
F002701	Nagaoka-heiya-seien fault zone
F002901	Kamogawa-teichi fault zone
F003001	Sekiya fault
F003101	Kanto-heiya-hokuseien fault zone (Main part)
F003102	Hirai-Kushibiki fault zone
F003401	Tachikawa fault zone
F003501	Isehara fault
F003601	Kannawa/Kozu-Matsuda fault zone
F003701	Miura-hanto fault group (Main part/Kinugasa/Kitatake fault zone)
F003702	Miura-hanto fault group (Main part/Takeyama fault zone)
F003703	Miura-hanto fault group (Southern part)
F003801	Kitaizu fault zone
F003901	Tokamachi fault zone (Western part)
F003902	Tokamachi fault zone (Eastern part)
F004001	Nagano-bonchi-seien fault zone
F004101	Itoigawa-Shizuoka-kozosen fault zone (Segment including Gofukuji Fault)
F004201	Itoigawa-Shizuoka-kozosen fault zone
F004301	Fujikawa-kako fault zone
F004501	Kiso-sanmyaku-seien fault zone (Main part/Northern segment)

Fault code	Fault name
F004502	Kiso-sanmyaku-seien fault zone (Main part/Southern segment)
F004503	Seinaiji toge fault zone
F004601	Sakaitoge-Kamiya fault zone (Main part)
F004602	Mutoyama-Narai fault zone
F004701	Atotsugawa fault zone
F004801	Kokufu fault zone
F004802	Takayama fault zone
F004803	Inohana fault zone
F004901	Ushikubi fault zone
F005001	Shokawa fault zone
F005101	Inadani fault zone (Main part)
F005102	Inadani fault zone (Southeastern part)
F005201	Atera fault zone (Main part/Northern segment)
F005202	Atera fault zone (Main part/Southern segment)
F005203	Sami fault zone
F005204	Shirakawa fault zone
F005301	Byoubuyama fault zone
F005302	Ako fault zone
F005303	Enasan-Sanageyamakita fault zone
F005304	Sanage-Takahama fault zone
F005305	Kagiya fault zone
F005501	Ochigata fault zone
F005601	Tonami-heiya/Kurehayama fault zone (Western part)
F005602	Tonami-heiya/Kurehayama fault zone (Eastern part)
F005603	Kurehayama fault zone
F005701	Morimoto-Togashi fault zone
F005801	Fukui-heiya-toen fault zone (Main part)
F005802	Fukui-heiya toen fault zone (Western part)
F005901	Nagaragawa-joryu fault zone
F006001	Nukumi fault/Northwestern segment
F006002	Nukumi fault zone/Southeastern segment
F006003	Nobi fault zone (Main part/Neodani fault zone)
F006004	Nobi fault zone (Main part/Umehara fault zone)
F006005	Nobi fault zone (Main part/Mitabora fault zone)
F006006	Ibigawa fault zone
F006007	Mugigawa fault

Fault code	Fault name
F006101	Yanagase/Sekigahara fault zone (Main part/Northern segment)
F006102	Yanagase/Sekigahara fault zone (Main part/Central segment)
F006103	Yanagase/Sekigahara fault zone (Main part/Southern segment)
F006104	Urazoko-Yanagaseyama fault zone
F006301	Nosaka fault zone
F006302	Shufukuji fault zone
F006401	Kohoku-sanchi fault zone (Northwestern part)
F006402	Kohoku-sanchi fault zone (Southeastern part)
F006501	Biwako-seigan fault zone : 2009 version and before Biwako-seigan fault zone (Northern part) : 2010 version and after
F006502	Biwako-seigan fault zone (Southern part)
F006701	Yoro-Kuwana-Yokkaichi fault zone
F006801	Suzuka-toen fault zone
F006901	Suzuka-seien fault zone
F007001	Tongu fault
F007101	Nunobiki-sanchi-toen fault zone (Western part)
F007102	Nunobiki-sanchi-toen fault zone (Eastern part)
F007201	Kizugawa fault zone
F007301	Mikata fault zone
F007302	Hanaore fault zone/Northern segment
F007303	Hanaore fault zone/Central southern segment
F007401	Yamada fault zone (Main part)
F007402	Gomura fault zone
F007501	Nara-bonchi toen fault zone
F007601	Arima-Takatsuki fault zone
F007701	Ikoma fault zone
F007801	Kanbayashigawa fault
F007802	Mitoke fault
F007803	Kyoto-Nishiyama fault zone
F007901	Rokko-Awajishima fault zone (Main part/Rokko-sanchi-nanen-Awajishima-togan segment)
F007902	Rokko-Awajishima fault zone (Main area/Awajishima-seigan segment)
F007903	Senzan fault zone
F008001	Uemachi fault zone
F008101	Median Tectonic Line (MTL) fault zone (Kongo-sanchi-toen- Izumi-sanmyaku-nanen) : 2011 version and before Median Tectonic Line (MTL) fault zone (Kongo-sanchi-toen) : 2012 version and after

Fault code	Fault name
F008102	Median Tectonic Line (MTL) fault zone (Kitan-kaikyo-Naruto-Kaikyo)
F008103	Median Tectonic Line (MTL) fault zone (Sanuki-sanmyaku-nanen-Ishizuchi-sanmyaku-hokuen-tobu)
F008104	Median Tectonic Line (MTL) fault zone (Ishizuchi-sanmyaku-hokuen)
F008105	Median Tectonic Line (MTL) fault zone (Ishizuchi-sanmyaku-hokuen-seibu-Iyonada)
F008106	Median Tectonic Line (MTL) fault zone (Izumi-sanmyaku-nanen)
F008201	Nagisan fault zone
F008202	Yamasaki fault zone (Main part/Northwestern segment)
F008203	Yamasaki fault zone (Main part/Southeastern segment)
F008204	Kusatani fault
F008401	Nagao fault zone
F008701	Itsukaichi fault zone
F008702	Koi-Hiroshima-seien fault zone
F008801	Iwakuni fault zone
F009001	Kikukawa fault zone
F009101	Nishiyama fault zone
F009201	Beppu-wan-Hijiu fault zone/Eastern segment
F009202	Beppu-wan-Hijiu fault zone/Western segment
F009203	Oita-heiya-Yufuin fault zone/Eastern segment
F009204	Oita-heiya-Yufuin fault zone part/Western segment
F009205	Noinedake-Haneyama fault zone
F009206	Kuenohirayama-Kameishiyama fault zone
F009301	Futagawa/Hinagu fault zone (Northeastern segment)
F009311	Futagawa/Hinagu fault zone (Central/Southwestern segment)
F009321	Futagawa/Hinagu fault zone (Central segment)
F00931A	Futagawa/Hinagu fault zone (Central/Southwestern segment)
F00931B	Futagawa/Hinagu fault zone (Central segment)
F009322	Futagawa/Hinagu fault zone (Central/Southwestern segment)
F009401	Minou fault zone
F009501	Unzen fault group (Northern part)
F009502	Unzen fault group (Southeastern part)
F009503	Unzen fault group (Southwestern part)
F009504	Unzen fault group (Southwestern part)
F009601	Izumi fault zone
F009701	Ise-wan fault zone (Main part/Northern segment)
F009702	Ise-wan fault zone (Main part/Southern segment)

Fault code	Fault name
F009703	Shirako-Noma fault
F009801	Osaka-wan fault zone
F009901	Sarobetsu fault zone
F010101	Hanawa-higashi fault zone
F010201	Takada-heiya-seien fault zone
F010202	Takada-heiya-toen fault zone
F010302	Muikamachi fault zone (Southern part)
F010335	Muikamachi fault zone (Northern part) Case 1
F010336	Muikamachi fault zone (Northern part) Case 2
F010401	Sone-kyuryo fault zone
F010501	Uozu fault zone
F010601	Suonada fault group (Main part)
F010602	Aio-oki fault zone
F010603	Ube-Nanpou-oki fault zone
F010701	Akinada fault group (Main part)
F010702	Hiroshima-wan-Iwakuni-oki fault zone
F010801	Kego fault zone (Northwestern segment)
F010802	Kego fault zone (Southeastern segment)
F010901	Hitoyoshi-bonchi-nanen fault zone
F011001	Miyako-jima fault zone (Central part)
F011002	Miyako-jima fault zone (Western part)
F012001	Kokura-higashi fault zone
F012101	Fukuchiyama fault zone
F012201	Nishiyama fault zone (Oshima-Oki segment)
F012202	Nishiyama fault zone (Nishiyama segment)
F012203	Nishiyama fault zone (Kama-toge segment)
F01220B	Nishiyama fault zone (Oshima-Oki segment/Nishiyama segment)
F01220C	Nishiyama fault zone (Nishiyama segment/Kama-toge segment)
F01220A	Nishiyama fault zone (All segment)
F012301	Umi fault
F012401	Kego fault zone (Northwestern segment)
F012402	Kego fault zone (Southeastern segment)
F01240A	Kego fault zone (All segment)
F012501	Hinata-Okasagi-toge fault zone
F012601	Minou fault zone
F012701	Saga-heiya-hokuen fault zone

Fault code	Fault name
F012801	Beppu-wan-Hijiu fault zone/Eastern segment
F012802	Beppu-wan-Hijiu fault zone/Western segment
F012803	Oita-heiya-Yufuin fault zone/Eastern segment
F012804	Oita-heiya-Yufuin fault zone part/Western segment
F012805	Noinedake-Haneyama fault zone
F012806	Kuenohirayama-Kameishiyama fault zone
F01280A	Beppu-wan-Hijiu fault zone (All segment)
F01280B	Oita-heiya-Yufuin fault zone (All segment)
F012901	Unzen fault group (Northern part)
F012902	Unzen fault group (Southeastern part)
F012903	Unzen fault group (Southwestern part/Northern segment)
F012904	Unzen fault group (Southwestern part/Southern segment)
F01290A	Unzen fault group (Southwestern part Northern/Southern segment)
F013001	Futagawa fault zone (Futagawa segment)
F013002	Futagawa fault zone (Uto segment)
F013003	Futagawa fault zone (Uto-hanto-hokugan segment)
F013101	Hinagu fault zone (Takano-Shirahata segment)
F013102	Hinagu fault zone (Hinagu segment)
F013103	Hinagu fault zone (Yatsushirokai segment)
F01300C	Futagawa fault zone (Futagawa segment/Uto segment)
F01300D	Futagawa fault zone (Uto segment/Uto-hanto-hokugan segment)
F01300E	Futagawa/Hinagu fault zone (Futagawa segment/Takano-Shirahata segment)
F01310B	Hinagu fault zone (Takano-Shirahata segment/Hinagu segment)
F01310C	Hinagu fault zone (Hinagu segment/Yatsushirokai segment)
F01300A	Futagawa fault zone (All segment)
F01300F	Futagawa/Hinagu fault zone (Futagawa segment/Takano-Shirahata segment/Hinagu segment)
F01310A	Hinagu fault zone (All segment)
F01300B	Futagawa/Hinagu fault zone (Futagawa segment/all segment of Hinagu fault zone)
F013201	Midorikawa fault zone
F013301	Hitoyoshi-bonchi-nanen fault zone
F013401	Izumi fault zone
F013501	Koshiki fault zone (Kamikoshiki-jima northeastern segment)
F013502	Koshiki fault zone (Koshiki segment)
F013601	Ichiki fault zone (Ichiki segment)
F013602	Ichiki fault zone (Koshiki-kaikyo center segment)

Fault code	Fault name
F013603	Ichiki fault zone (Fukiagehama seiho-Oki segment)
F013701	Hijiu fault zone
F013801	Haneyama-Kuenohirayama fault zone
F014121	Sekiya fault
F014221	Uchinokomori fault
F014321	Katashinagawa-sagan fault
F014421	Okubo fault
F014521	Ota fault
F014621	Nagano-bonchi-seien fault zone (Iyama-Chikuma segment)
F014622	Nagano-bonchi-seien fault zone (Omi segment)
F01462A	Nagano-bonchi-seien fault zone (All segment)
F014721	Fukaya fault zone
F014821	Ayasegawa fault (Kounosu-Ina segment)
F014822	Ayasegawa fault (Ina-Kawaguchi segment)
F01482A	Fukaya/Ayasegawa fault zone (Fukaya fault zone/Kounosu-Ina segment)
F01482B	Fukaya/Ayasegawa fault zone (Kounosu-Ina segment/Ina-Kawaguchi segment)
F01482C	Fukaya/Ayasegawa fault zone (All segment)
F014921	Ogose fault
F015021	Tachikawa fault zone
F015121	Kamogawa-teichi fault zone
F015221	Miura-hanto fault group (Main part/Kinugasa/Kitatake fault zone)
F015222	Miura-hanto fault group (Main part/Takeyama fault zone)
F015223	Miura-hanto fault group (Southern part)
F015321	Isehara fault
F015421	Shiozawa fault zone
F015521	Hirayama-Matsuda-kita fault zone
F015621	Sone-kyuryo fault zone
F015721	Minobu fault
F015821	Kitaizu fault zone
F015921	Ito-oki fault
F016021	Inatori fault zone
F016121	Iro-zaki fault
F016221	Itoigawa-Shizuoka-kozosen fault zone (Northern segment)
F016222	Itoigawa-Shizuoka-kozosen fault zone (Central northern segment)
F016223	Itoigawa-Shizuoka-kozosen fault zone (Central southern segment)
F016224	Itoigawa-Shizuoka-kozosen fault zone (Southern segment)

Fault code	Fault name
F01622A	Itoigawa-Shizuoka-kozosen fault zone (Northern segment/Central northern segment)
F01622B	Itoigawa-Shizuoka-kozosen fault zone (Central northern segment/Central southern segment)
F01622C	Itoigawa-Shizuoka-kozosen fault zone (Central southern segment/Southern segment)
F01622D	Itoigawa-Shizuoka-kozosen fault zone (Northern segment/Central northern segment/Central southern segment)
F01622E	Itoigawa-Shizuoka-kozosen fault zone (Central northern segment/Central southern segment/Southern segment)
F01622F	Itoigawa-Shizuoka-kozosen fault zone (All segment)
F017001	Shinji (Kashima) fault Case 1
F017101	Shinji (Kashima) fault Case 2
F017201	Amedaki-Kamato fault
F017301	Shikano-Yoshioka fault
F017401	Nichinan-ko fault
F017501	Iwatsubo fault
F017601	Yamasaki fault zone (Nagisen fault zone)
F017701	Yamasaki fault zone (Main part/Northwestern segment)
F017702	Yamasaki fault zone (Main part/Southeastern segment)
F01770A	Yamasaki fault zone (Main part Northwestern/Southeastern segment)
F017801	Chojagahara-Yoshii fault
F017901	Uzuto fault
F018001	Yasuda fault
F018101	Kikugawa fault zone (Northern segment)
F018201	Kikugawa fault zone (Central segment)
F018301	Kikugawa fault zone (Southern segment)
F01820A	Kikugawa fault zone (Northern segment/Central segment)
F01830A	Kikugawa fault zone (Central segment/Southern segment)
F01830B	Kikugawa fault zone (All segment)
F018401	Iwakuni-Itsukaichi fault zone (Koi fault segment)
F018501	Iwakuni-Itsukaichi fault zone (Itsukaichi fault segment)
F018601	Iwakuni-Itsukaichi fault zone (Iwakuni fault segment)
F01850A	Iwakuni-Itsukaichi fault zone (Koi fault segment/Iwakuni fault segment)
F01860A	Iwakuni-Itsukaichi fault zone (Itsukaichi fault segment/Iwakuni fault segment)
F018701	Suonada fault zone (Main part segment)
F018801	Suonada fault zone (Aio-oki fault segment)
F018901	Akinada fault zone

Fault code	Fault name	
F019001	Hiroshima-wan-Iwakuni-oki fault zone	
F019101	Ube-Nanpou-oki fault	
F019201	Yasaka fault	
F019301	Jifuku fault	
F019401	Ohara-ko fault	
F019501	Ogori fault	
F019601	Tsutsuga fault	
F019701	Takibe fault	
F019801	Nago fault	
F019901	Sakaedani fault	
F020001	Kurose fault	
F020101	Median Tectonic Line (MTL) fault zone (Kongo-sanchi-toen segment)	
F020102	FH20102	Median Tectonic Line (MTL) fault zone (Gojoya segment) (Dip = 90 deg.)
	FM20102	Median Tectonic Line (MTL) fault zone (Gojoya segment) (Dip = 40 deg.)
F020103	FH20103	Median Tectonic Line (MTL) fault zone (Negoro segment) (Dip = 90 deg.)
	FM20103	Median Tectonic Line (MTL) fault zone (Negoro segment) (Dip = 40 deg.)
F020104	FH20104	Median Tectonic Line (MTL) fault zone (Kitan-kaikyo - Naruto-Kaikyo segment) (Dip = 90 deg.)
	FM20104	Median Tectonic Line (MTL) fault zone (Kitan-kaikyo - Naruto-Kaikyo segment) (Dip = 40 deg.)
F020105	FH20105	Median Tectonic Line (MTL) fault zone (Sanuki-sanmyaku-nanen eastern segment) (Dip = 90 deg.)
	FM20105	Median Tectonic Line (MTL) fault zone (Sanuki-sanmyaku-nanen eastern segment) (Dip = 40 deg.)
F020106	FH20106	Median Tectonic Line (MTL) fault zone (Sanuki-sanmyaku-nanen western segment) (Dip = 90 deg.)
	FM20106	Median Tectonic Line (MTL) fault zone (Sanuki-sanmyaku-nanen western segment) (Dip = 40 deg.)
F020107	FH20107	Median Tectonic Line (MTL) fault zone (Ishizuchi-sanmyaku-hokuen segment) (Dip = 90 deg.)
	FM20107	Median Tectonic Line (MTL) fault zone (Ishizuchi-sanmyaku-hokuen segment) (Dip = 40 deg.)
F020108	FH20108	Median Tectonic Line (MTL) fault zone (Ishizuchi-sanmyaku-hokuen western segment) (Dip = 90 deg.)
	FM20108	Median Tectonic Line (MTL) fault zone (Ishizuchi-sanmyaku-hokuen western segment) (Dip = 40 deg.)

Fault code	Fault name	
F020109	FH20109	Median Tectonic Line (MTL) fault zone (Iyonada segment) (Dip = 90 deg.)
	FM20109	Median Tectonic Line (MTL) fault zone (Iyonada segment) (Dip = 40 deg.)
F020110	FH20110	Median Tectonic Line (MTL) fault zone (Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM20110	Median Tectonic Line (MTL) fault zone (Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)
F0201AB	FH201AB	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Gojoya segment) (Dip = 90 deg.)
	FM201AB	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Gojoya segment) (Dip = 40 deg.)
F0201AC	FH201AC	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Negoro segment) (Dip = 90 deg.)
	FM201AC	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Negoro segment) (Dip = 40 deg.)
F0201AD	FH201AD	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Kitan-kaikyo - Naruto-Kaikyo segment) (Dip = 90 deg.)
	FM201AD	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Kitan-kaikyo - Naruto-Kaikyo segment) (Dip = 40 deg.)
F0201AE	FH201AE	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Sanuki-sanmyaku-nanen eastern segment) (Dip = 90 deg.)
	FM201AE	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Sanuki-sanmyaku-nanen eastern segment) (Dip = 40 deg.)
F0201AF	FH201AF	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 90 deg.)
	FM201AF	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 40 deg.)
F0201AG	FH201AG	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 90 deg.)
	FM201AG	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 40 deg.)
F0201AH	FH201AH	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 90 deg.)
	FM201AH	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 40 deg.)
F0201AI	FH201AI	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Iyonada segment) (Dip = 90 deg.)

Fault code	Fault name	
	FM201AI	Median Tectonic Line (MTL) fault zone (FROM Kongo-sanchi-toen segment TO Iyonada segment) (Dip = 40 deg.)
F0201AJ	FH201AJ	Median Tectonic Line (MTL) fault zone (All segment) (Dip = 90 deg.)
	FM201AJ	Median Tectonic Line (MTL) fault zone (All segment) (Dip = 40 deg.)
F0201BC	FH201BC	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Negoro segment) (Dip = 90 deg.)
	FM201BC	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Negoro segment) (Dip = 40 deg.)
F0201BD	FH201BD	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Kitan-kaikyo - Naruto-Kaikyo segment) (Dip = 90 deg.)
	FM201BD	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Kitan-kaikyo - Naruto-Kaikyo segment) (Dip = 40 deg.)
F0201BE	FH201BE	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Sanuki-sanmyaku-nanen eastern segment) (Dip = 90 deg.)
	FM201BE	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Sanuki-sanmyaku-nanen eastern segment) (Dip = 40 deg.)
F0201BF	FH201BF	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 90 deg.)
	FM201BF	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 40 deg.)
F0201BG	FH201BG	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 90 deg.)
	FM201BG	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 40 deg.)
F0201BH	FH201BH	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 90 deg.)
	FM201BH	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 40 deg.)
F0201BI	FH201BI	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Iyonada segment) (Dip = 90 deg.)
	FM201BI	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Iyonada segment) (Dip = 40 deg.)
F0201BJ	FH201BJ	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM201BJ	Median Tectonic Line (MTL) fault zone (FROM Gojoya segment TO Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)

Fault code	Fault name	
F0201CD	FH201CD	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Kitan-kaikyo - Naruto-Kaikyo segment) (Dip = 90 deg.)
	FM201CD	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Kitan-kaikyo - Naruto-Kaikyo segment) (Dip = 40 deg.)
F0201CE	FH201CE	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Sanuki-sanmyaku-nanen eastern segment) (Dip = 90 deg.)
	FM201CE	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Sanuki-sanmyaku-nanen eastern segment) (Dip = 40 deg.)
F0201CF	FH201CF	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 90 deg.)
	FM201CF	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 40 deg.)
F0201CG	FH201CG	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 90 deg.)
	FM201CG	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 40 deg.)
F0201CH	FH201CH	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 90 deg.)
	FM201CH	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 40 deg.)
F0201CI	FH201CI	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Iyonada segment) (Dip = 90 deg.)
	FM201CI	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Iyonada segment) (Dip = 40 deg.)
F0201CJ	FH201CJ	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM201CJ	Median Tectonic Line (MTL) fault zone (FROM Negoro segment TO Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)
F0201DE	FH201DE	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Sanuki-sanmyaku-nanen eastern segment) (Dip = 90 deg.)
	FM201DE	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Sanuki-sanmyaku-nanen eastern segment) (Dip = 40 deg.)
F0201DF	FH201DG	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 90 deg.)

Fault code	Fault name	
	FM201DF	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 40 deg.)
F0201DG	FH201DG	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 90 deg.)
	FM201DG	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 40 deg.)
F0201DH	FH201DH	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 90 deg.)
	FM201DH	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 40 deg.)
F0201DI	FH201DI	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Iyonada segment) (Dip = 90 deg.)
	FM201DI	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Iyonada segment) (Dip = 40 deg.)
F0201DJ	FH201DJ	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM201DJ	Median Tectonic Line (MTL) fault zone (FROM Kitan-kaikyo - Naruto-Kaikyo segment TO Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)
F0201EF	FH201EF	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 90 deg.)
	FM201EF	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Sanuki-sanmyaku-nanen western segment) (Dip = 40 deg.)
F0201EG	FH201EG	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 90 deg.)
	FM201EG	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 40 deg.)

Fault code	Fault name	
F0201EH	FH201EH	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 90 deg.)
	FM201EH	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 40 deg.)
F0201EI	FH201EI	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Iyonada segment) (Dip = 90 deg.)
	FM201EI	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Iyonada segment) (Dip = 40 deg.)
F0201EJ	FH201EJ	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM201EJ	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen eastern segment TO Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)
F0201FG	FH201FG	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen western segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 90 deg.)
	FM201FG	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen western segment TO Ishizuchi-sanmyaku-hokuen segment) (Dip = 40 deg.)
F0201FH	FH201FH	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen western segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 90 deg.)
	FM201FH	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen western segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 40 deg.)
F0201FI	FH201FI	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen western segment TO Iyonada segment) (Dip = 90 deg.)
	FM201FI	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen western segment TO Iyonada segment) (Dip = 40 deg.)
F0201FJ	FH201FJ	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen western segment TO Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM201FJ	Median Tectonic Line (MTL) fault zone (FROM Sanuki-sanmyaku-nanen western segment TO Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)
F0201GH	FH201GH	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 90 deg.)
	FM201GH	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen segment TO Ishizuchi-sanmyaku-hokuen western segment) (Dip = 40 deg.)

Fault code	Fault name	
F0201GI	FH201GI	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen segment TO Iyonada segment) (Dip = 90 deg.)
	FM201GI	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen segment TO Iyonada segment) (Dip = 40 deg.)
F0201GJ	FH201GJ	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen segment TO Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM201GJ	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen segment TO Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)
F0201HI	FH201HI	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen western segment TO Iyonada segment) (Dip = 90 deg.)
	FM201HI	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen western segment TO Iyonada segment) (Dip = 40 deg.)
F0201HJ	FH201HJ	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen western segment TO Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM201HJ	Median Tectonic Line (MTL) fault zone (FROM Ishizuchi-sanmyaku-hokuen western segment TO Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)
F0201IJ	FH201IJ	Median Tectonic Line (MTL) fault zone (FROM Iyonada segment TO Houyo-kaikyo - Yufuin segment) (Dip = 90 deg.)
	FM201IJ	Median Tectonic Line (MTL) fault zone (FROM Iyonada segment TO Houyo-kaikyo - Yufuin segment) (Dip = 40 deg.)
F022131	Nagao fault zone	
F022231	Kamihougunji fault	
F022331	Kamiura-Nishitsukinomiya fault	
F022431	Tsunatsukemori fault	

(2) Fault code of subduction-zone earthquakes

Table 2-2 shows the fault code of subduction-zone earthquakes and Table 2-3 shows subduction-zone earthquakes with correlated occurrence.

Table 2-2 Fault code of subduction-zone earthquakes

Fault code	Appropriate earthquake name
ANNKI	Nankai Earthquake
ATNKI	Tonankai Earthquake
ATOKI	Tokai Earthquake
ANN10	Nankai Trough earthquakes (ZYXE)
ANN11	Nankai Trough earthquakes (ZYXEd)

ANN12	Nankai Trough earthquakes (ZYXEs)
ANN13	Nankai Trough earthquakes (ZYXEs _d)
ANN20	Nankai Trough earthquakes (YXE)
ANN21	Nankai Trough earthquakes (YXEs)
ANN30	Nankai Trough earthquakes (ZYX)
ANN31	Nankai Trough earthquakes (ZYXs)
ANN40	Nankai Trough earthquakes (YX)
ANN41	Nankai Trough earthquakes (YXs)
ANN50	Nankai Trough earthquakes (s)
ANN60	Nankai Trough earthquakes (ZY)
ANN70	Nankai Trough earthquakes (XE)
ANN80	Nankai Trough earthquakes (Y)
ANN90	Nankai Trough earthquakes (X)
ANNI1	Nankai Trough earthquakes (ZY, XE) : 2013 version and after
ANNI2	Nankai Trough earthquakes (Y, XE) : 2013 version and after
ANNI3	Nankai Trough earthquakes (ZY, X) : 2013 version and after
ANNI4	Nankai Trough earthquakes (Y, X)
ATHOP	Great East Japan Earthquake (2011 type)
AMYAS	Miyagi-ken-Oki Earthquake (Repeating earthquakes)
BMYAS	Miyagi-ken-Oki Earthquake (Other than repeating earthquakes)
AMYA1	Miyagi-ken-Oki Earthquake (A1)
AMYA2	Miyagi-ken-Oki Earthquake (A2)
AMIYB	Miyagi-ken-Oki Earthquake (B)
ASNNK	Earthquakes close to the offshore trenches in Southern Sanriku-Oki (Repeating earthquakes)
BSNNK	Earthquakes close to the offshore trenches in Southern Sanriku-Oki (Other than repeating earthquakes)
ASNKT	Large interplate earthquakes in Northern Sanriku-Oki
BTNMI	Large interplate earthquakes close to the offshore trenches in the Sanriku-Oki to Boso-Oki regions (Tsunami earthquakes)
BNRML	Large interplate earthquakes close to the offshore trenches in the Sanriku-Oki to Boso-Oki regions (normal faults type)
BSNKT	Large interplate earthquakes in Northern Sanriku-Oki (Other than repeating earthquakes)
BFKSM	Interplate earthquakes in Fukushima-ken-Oki
AIBRK	Interplate earthquakes in Ibaraki-ken-Oki (Repeating earthquakes)
BIBRK	Interplate earthquakes in Ibaraki-ken-Oki (Other than repeating earthquakes)
ATKCH	Tokachi-Oki Earthquake

ANMRO	Nemuro-Oki Earthquake
ASKTN	Shikotanto-Oki Earthquake
AETRF	Etorofuto-Oki Earthquake
BTKNM	Relatively small interplate earthquakes in the Tokachi-Oki and Nemuro-Oki regions
BSKET	Relatively small interplate earthquakes in the Shikotanto-Oki and Etorofuto-Oki regions
BITRS	Relatively shallow earthquakes within a subducted plates along the Kuril Trench
BITRD	Relatively deep earthquakes within a subducted plates along the Kuril Trench
BHKNW	Hokkaido-hokusei-Oki Earthquake
AHKDW	Hokkaido-seiho-Oki Earthquake
AHKSU	Hokkaido-nansei-Oki Earthquake
AAOMW	Aomori-ken-seiho-Oki Earthquake
BAKIT	Akita-ken-Oki Earthquakes
AYMGA	Yamagata-ken-Oki Earthquake
ANIGT	Niigata-ken-hokubu-Oki Earthquake
BSDGN	Sadogashima-hoppo-Oki Earthquake
BAKND	Intraplate earthquakes in Akinada-Iyonada-Bungosuido
BHGNL	Interplate earthquakes in Hyuganada
BHGNS	Relatively small interplate earthquakes in Hyuganada
BYNGN	Earthquakes in the vicinity of Yonaguni-jima
AKNTO	Kanto Earthquake of "1923 Taisho" type
BKNT0	Other M7 class earthquakes in Southern Kanto
ASG01	Sagami Trough earthquakes (CS1) : 2013 version Sagami Trough earthquakes (M8 class: Area1) : 2014 version and after
ASG02	Sagami Trough earthquakes (CST1) : 2013 version Sagami Trough earthquakes (M8 class: Area2) : 2014 version and after
ASG03	Sagami Trough earthquakes (CS12) : 2013 version Sagami Trough earthquakes (M8 class: Area3) : 2014 version and after
ASG04	Sagami Trough earthquakes (CST12) : 2013 version Sagami Trough earthquakes (M8 class: Area4) : 2014 version and after
ASG05	Sagami Trough earthquakes (CST123) : 2013 version Sagami Trough earthquakes (M8 class: Area5) : 2014 version and after
ASG06	Sagami Trough earthquakes (CS2) : 2013 version Sagami Trough earthquakes (M8 class: Area6) : 2014 version and after
ASG07	Sagami Trough earthquakes (CST2) : 2013 version Sagami Trough earthquakes (M8 class: Area7) : 2014 version and after
ASG08	Sagami Trough earthquakes (CST23) : 2013 version Sagami Trough earthquakes (M8 class: Area8) : 2014 version and after

ASG09	Sagami Trough earthquakes (GST123D) : 2013 version Sagami Trough earthquakes (M8 class: Area9) : 2014 version and after
ASG10	Sagami Trough earthquakes (CD1) : 2013 version Sagami Trough earthquakes (M8 class: Area10) : 2014 version and after
ACH01	Mega earthquakes along the Kuril Trench (Mw8.7 model1)
ACH02	Mega earthquakes along the Kuril Trench (Mw8.7 model2)
ACH03	Mega earthquakes along the Kuril Trench (Mw8.7 model3)
ACH04	Mega earthquakes along the Kuril Trench (Mw8.8 model1)
ACH05	Mega earthquakes along the Kuril Trench (Mw8.8 model2)
ACH06	Mega earthquakes along the Kuril Trench (Mw8.8 model3)
ACH07	Mega earthquakes along the Kuril Trench (Mw8.8 model4)
ACH08	Mega earthquakes along the Kuril Trench (Mw8.9 model1)
ACH09	Mega earthquakes along the Kuril Trench (Mw8.9 model2)
ACH10	Mega earthquakes along the Kuril Trench (Mw9.0 model1)
ACH11	Mega earthquakes along the Kuril Trench (Mw9.0 model2)
ACH12	Mega earthquakes along the Kuril Trench (Mw9.0 model3)
ACH13	Mega earthquakes along the Kuril Trench (Mw9.2 model1)
ANM01	Huge interplate earthquakes in Nemuro-oki (Mw8.0 model1)
ANM02	Huge interplate earthquakes in Nemuro-oki (Mw8.0 model2)
ANM03	Huge interplate earthquakes in Nemuro-oki (Mw8.0 model3)
ANM04	Huge interplate earthquakes in Nemuro-oki (Mw8.0 model4)
ANM05	Huge interplate earthquakes in Nemuro-oki (Mw8.0 model5)
ANM06	Huge interplate earthquakes in Nemuro-oki (Mw8.0 model6)
ANM07	Huge interplate earthquakes in Nemuro-oki (Mw8.0 model7)
ANM08	Huge interplate earthquakes in Nemuro-oki (Mw8.0 model8)
ANM09	Huge interplate earthquakes in Nemuro-oki (Mw8.1 model1)
ANM10	Huge interplate earthquakes in Nemuro-oki (Mw8.1 model2)
ANM11	Huge interplate earthquakes in Nemuro-oki (Mw8.1 model3)
ANM12	Huge interplate earthquakes in Nemuro-oki (Mw8.1 model4)
ANM13	Huge interplate earthquakes in Nemuro-oki (Mw8.1 model5)
ANM14	Huge interplate earthquakes in Nemuro-oki (Mw8.1 model6)
ANM15	Huge interplate earthquakes in Nemuro-oki (Mw8.2 model1)
ANM16	Huge interplate earthquakes in Nemuro-oki (Mw8.2 model2)
ANM17	Huge interplate earthquakes in Nemuro-oki (Mw8.2 model3)
ANM18	Huge interplate earthquakes in Nemuro-oki (Mw8.3 model1)
ANM19	Huge interplate earthquakes in Nemuro-oki (Mw8.3 model2)
ANM20	Huge interplate earthquakes in Nemuro-oki (Mw8.3 model3)

ANM21	Huge interplate earthquakes in Nemuro-oki (Mw8.4 model1)
ANM22	Huge interplate earthquakes in Nemuro-oki (Mw8.4 model2)
ANM23	Huge interplate earthquakes in Nemuro-oki (Mw8.4 model3)
ANM24	Huge interplate earthquakes in Nemuro-oki (Mw8.5 model1)
ATK01	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model1)
ATK02	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model2)
ATK03	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model3)
ATK04	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model4)
ATK05	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model5)
ATK06	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model6)
ATK07	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model7)
ATK08	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model8)
ATK09	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model9)
ATK10	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model10)
ATK11	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model11)
ATK12	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model12)
ATK13	Huge interplate earthquakes in Tokachi-oki (Mw8.0 model13)
ATK14	Huge interplate earthquakes in Tokachi-oki (Mw8.1 model1)
ATK15	Huge interplate earthquakes in Tokachi-oki (Mw8.1 model2)
ATK16	Huge interplate earthquakes in Tokachi-oki (Mw8.1 model3)
ATK17	Huge interplate earthquakes in Tokachi-oki (Mw8.1 model4)
ATK18	Huge interplate earthquakes in Tokachi-oki (Mw8.1 model5)
ATK19	Huge interplate earthquakes in Tokachi-oki (Mw8.1 model6)
ATK20	Huge interplate earthquakes in Tokachi-oki (Mw8.1 model7)
ATK21	Huge interplate earthquakes in Tokachi-oki (Mw8.1 model8)
ATK22	Huge interplate earthquakes in Tokachi-oki (Mw8.2 model1)
ATK23	Huge interplate earthquakes in Tokachi-oki (Mw8.2 model2)
ATK24	Huge interplate earthquakes in Tokachi-oki (Mw8.2 model3)
ATK25	Huge interplate earthquakes in Tokachi-oki (Mw8.2 model4)
ATK26	Huge interplate earthquakes in Tokachi-oki (Mw8.2 model5)
ATK27	Huge interplate earthquakes in Tokachi-oki (Mw8.3 model1)
ATK28	Huge interplate earthquakes in Tokachi-oki (Mw8.3 model2)
ATK29	Huge interplate earthquakes in Tokachi-oki (Mw8.3 model3)
ATK30	Huge interplate earthquakes in Tokachi-oki (Mw8.3 model4)
ATK31	Huge interplate earthquakes in Tokachi-oki (Mw8.4 model1)
ATK32	Huge interplate earthquakes in Tokachi-oki (Mw8.5 model1)
ATK33	Huge interplate earthquakes in Tokachi-oki (Mw8.5 model2)

ATK34	Huge interplate earthquakes in Tokachi-oki (Mw8.6 model1)
BCHTN	Interplate earthquakes close to the Kuril Trench (Tsunami earthquakes)
AAE01	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model1)
AAE02	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model2)
AAE03	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model3)
AAE04	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model4)
AAE05	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model5)
AAE06	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model6)
AAE07	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model7)
AAE08	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model8)
AAE09	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model9)
AAE10	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model10)
AAE11	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model11)
AAE12	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model12)
AAE13	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model13)
AAE14	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model14)
AAE15	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw7.9 model15)
AAE16	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model1)
AAE17	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model2)

AAE18	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model3)
AAE19	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model4)
AAE20	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model5)
AAE21	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model6)
AAE22	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model7)
AAE23	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model8)
AAE24	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model9)
AAE25	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.0 model10)
AAE26	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.1 model1)
AAE27	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.1 model2)
AAE28	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.1 model3)
AAE29	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.1 model4)
AAE30	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.1 model5)
AAE31	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.1 model6)
AAE32	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.1 model7)
AAE33	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.1 model8)
AAE34	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.2 model1)
AAE35	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.2 model2)
AAE36	Huge interplate earthquakes in Aomori-ken-toho-Ok i and Northern Iwate-ken-Ok i (Mw8.2 model3)

AAE37	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.2 model4)
AAE38	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.2 model5)
AAE39	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.2 model6)
AAE40	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.3 model1)
AAE41	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.3 model2)
AAE42	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.3 model3)
AAE43	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.3 model4)
AAE44	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.3 model5)
AAE45	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.4 model1)
AAE46	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.4 model2)
AAE47	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.5 model1)
AAE48	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.5 model2)
AAE49	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.6 model1)
AAE50	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.7 model1)
AAE51	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki (Mw8.8 model1)
AJT01	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.6 model1)
AJT02	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.8 model1)
AJT03	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.7 model1)
AJT04	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.9 model1)

AJT05	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.8 model2)
AJT06	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw9.0 model1)
AJT07	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.6 model2)
AJT08	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.7 model2)
AJT09	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.7 model3)
AJT10	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type) (Mw8.9 model2)
AMY01	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw7.9 model1)
AMY02	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw7.9 model2)
AMY03	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw7.9 model3)
AMY04	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw7.9 model4)
AMY05	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw7.9 model5)
AMY06	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw7.9 model6)
AMY07	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw7.9 model7)
AMY08	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.0 model1)
AMY09	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.0 model2)
AMY10	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.0 model3)
AMY11	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.0 model4)
AMY12	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.1 model1)
AMY13	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.1 model2)
AMY14	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.1 model3)
AMY15	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.2 model1)
AMY16	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.2 model2)
AMY17	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.3 model1)
AMY18	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.4 model1)
AMY19	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.5 model1)
AMY20	Huge interplate earthquakes in Miyagi-ken-toho-Okai (Mw8.6 model1)
AN001	Large Earthquakes along the Nankai Trough (pattern 1)
AN002	Large Earthquakes along the Nankai Trough (pattern 2)
AN003	Large Earthquakes along the Nankai Trough (pattern 3)
AN004	Large Earthquakes along the Nankai Trough (pattern 4)

AN005	Large Earthquakes along the Nankai Trough (pattern 5)
AN006	Large Earthquakes along the Nankai Trough (pattern 6)
AN007	Large Earthquakes along the Nankai Trough (pattern 7)
AN008	Large Earthquakes along the Nankai Trough (pattern 8)
AN009	Large Earthquakes along the Nankai Trough (pattern 9)
AN010	Large Earthquakes along the Nankai Trough (pattern 10)
AN011	Large Earthquakes along the Nankai Trough (pattern 11)
AN012	Large Earthquakes along the Nankai Trough (pattern 12)
AN013	Large Earthquakes along the Nankai Trough (pattern 13)
AN014	Large Earthquakes along the Nankai Trough (pattern 14)
AN015	Large Earthquakes along the Nankai Trough (pattern 15)
AN016	Large Earthquakes along the Nankai Trough (pattern 16)
AN017	Large Earthquakes along the Nankai Trough (pattern 17)
AN018	Large Earthquakes along the Nankai Trough (pattern 18)
AN019	Large Earthquakes along the Nankai Trough (pattern 19)
AN020	Large Earthquakes along the Nankai Trough (pattern 20)
AN021	Large Earthquakes along the Nankai Trough (pattern 21)
AN022	Large Earthquakes along the Nankai Trough (pattern 22)
AN023	Large Earthquakes along the Nankai Trough (pattern 23)
AN024	Large Earthquakes along the Nankai Trough (pattern 24)
AN025	Large Earthquakes along the Nankai Trough (pattern 25)
AN026	Large Earthquakes along the Nankai Trough (pattern 26)
AN027	Large Earthquakes along the Nankai Trough (pattern 27)
AN028	Large Earthquakes along the Nankai Trough (pattern 28)
AN029	Large Earthquakes along the Nankai Trough (pattern 29)
AN030	Large Earthquakes along the Nankai Trough (pattern 30)
AN031	Large Earthquakes along the Nankai Trough (pattern 31)
AN032	Large Earthquakes along the Nankai Trough (pattern 32)
AN033	Large Earthquakes along the Nankai Trough (pattern 33)
AN034	Large Earthquakes along the Nankai Trough (pattern 34)
AN035	Large Earthquakes along the Nankai Trough (pattern 35)
AN036	Large Earthquakes along the Nankai Trough (pattern 36)
AN037	Large Earthquakes along the Nankai Trough (pattern 37)
AN038	Large Earthquakes along the Nankai Trough (pattern 38)
AN039	Large Earthquakes along the Nankai Trough (pattern 39)
AN040	Large Earthquakes along the Nankai Trough (pattern 40)

AN041	Large Earthquakes along the Nankai Trough (pattern 41)
AN042	Large Earthquakes along the Nankai Trough (pattern 42)
AN043	Large Earthquakes along the Nankai Trough (pattern 43)
AN044	Large Earthquakes along the Nankai Trough (pattern 44)
AN045	Large Earthquakes along the Nankai Trough (pattern 45)
AN046	Large Earthquakes along the Nankai Trough (pattern 46)
AN047	Large Earthquakes along the Nankai Trough (pattern 47)
AN048	Large Earthquakes along the Nankai Trough (pattern 48)
AN049	Large Earthquakes along the Nankai Trough (pattern 49)
AN050	Large Earthquakes along the Nankai Trough (pattern 50)
AN051	Large Earthquakes along the Nankai Trough (pattern 51)
AN052	Large Earthquakes along the Nankai Trough (pattern 52)
AN053	Large Earthquakes along the Nankai Trough (pattern 53)
AN054	Large Earthquakes along the Nankai Trough (pattern 54)
AN055	Large Earthquakes along the Nankai Trough (pattern 55)
AN056	Large Earthquakes along the Nankai Trough (pattern 56)
AN057	Large Earthquakes along the Nankai Trough (pattern 57)
AN058	Large Earthquakes along the Nankai Trough (pattern 58)
AN059	Large Earthquakes along the Nankai Trough (pattern 59)
AN060	Large Earthquakes along the Nankai Trough (pattern 60)
AN061	Large Earthquakes along the Nankai Trough (pattern 61)
AN062	Large Earthquakes along the Nankai Trough (pattern 62)
AN063	Large Earthquakes along the Nankai Trough (pattern 63)
AN064	Large Earthquakes along the Nankai Trough (pattern 64)
AN065	Large Earthquakes along the Nankai Trough (pattern 65)
AN066	Large Earthquakes along the Nankai Trough (pattern 66)
AN067	Large Earthquakes along the Nankai Trough (pattern 67)
AN068	Large Earthquakes along the Nankai Trough (pattern 68)
AN069	Large Earthquakes along the Nankai Trough (pattern 69)
AN070	Large Earthquakes along the Nankai Trough (pattern 70)
AN071	Large Earthquakes along the Nankai Trough (pattern 71)
AN072	Large Earthquakes along the Nankai Trough (pattern 72)
AN073	Large Earthquakes along the Nankai Trough (pattern 73)
AN074	Large Earthquakes along the Nankai Trough (pattern 74)
AN075	Large Earthquakes along the Nankai Trough (pattern 75)
AN076	Large Earthquakes along the Nankai Trough (pattern 76)

AN077	Large Earthquakes along the Nankai Trough (pattern 77)
AN078	Large Earthquakes along the Nankai Trough (pattern 78)
AN079	Large Earthquakes along the Nankai Trough (pattern 79)
AN080	Large Earthquakes along the Nankai Trough (pattern 80)
AN081	Large Earthquakes along the Nankai Trough (pattern 81)
AN082	Large Earthquakes along the Nankai Trough (pattern 82)
AN083	Large Earthquakes along the Nankai Trough (pattern 83)
AN084	Large Earthquakes along the Nankai Trough (pattern 84)
AN085	Large Earthquakes along the Nankai Trough (pattern 85)
AN086	Large Earthquakes along the Nankai Trough (pattern 86)
AN087	Large Earthquakes along the Nankai Trough (pattern 87)
AN088	Large Earthquakes along the Nankai Trough (pattern 88)
AN089	Large Earthquakes along the Nankai Trough (pattern 89)
AN090	Large Earthquakes along the Nankai Trough (pattern 90)
AN091	Large Earthquakes along the Nankai Trough (pattern 91)
AN092	Large Earthquakes along the Nankai Trough (pattern 92)
AN093	Large Earthquakes along the Nankai Trough (pattern 93)
AN094	Large Earthquakes along the Nankai Trough (pattern 94)
AN095	Large Earthquakes along the Nankai Trough (pattern 95)
AN096	Large Earthquakes along the Nankai Trough (pattern 96)
AN097	Large Earthquakes along the Nankai Trough (pattern 97)
AN098	Large Earthquakes along the Nankai Trough (pattern 98)
AN099	Large Earthquakes along the Nankai Trough (pattern 99)
AN100	Large Earthquakes along the Nankai Trough (pattern 100)
AN101	Large Earthquakes along the Nankai Trough (pattern 101)
AN102	Large Earthquakes along the Nankai Trough (pattern 102)
AN103	Large Earthquakes along the Nankai Trough (pattern 103)
AN104	Large Earthquakes along the Nankai Trough (pattern 104)
AN105	Large Earthquakes along the Nankai Trough (pattern 105)
AN106	Large Earthquakes along the Nankai Trough (pattern 106)
AN107	Large Earthquakes along the Nankai Trough (pattern 107)
AN108	Large Earthquakes along the Nankai Trough (pattern 108)
AN109	Large Earthquakes along the Nankai Trough (pattern 109)
AN110	Large Earthquakes along the Nankai Trough (pattern 110)
AN111	Large Earthquakes along the Nankai Trough (pattern 111)
AN112	Large Earthquakes along the Nankai Trough (pattern 112)

AN113	Large Earthquakes along the Nankai Trough (pattern 113)
AN114	Large Earthquakes along the Nankai Trough (pattern 114)
AN115	Large Earthquakes along the Nankai Trough (pattern 115)
AN116	Large Earthquakes along the Nankai Trough (pattern 116)
AN117	Large Earthquakes along the Nankai Trough (pattern 117)
AN118	Large Earthquakes along the Nankai Trough (pattern 118)
AN119	Large Earthquakes along the Nankai Trough (pattern 119)
AN120	Large Earthquakes along the Nankai Trough (pattern 120)
AN121	Large Earthquakes along the Nankai Trough (pattern 121)
AN122	Large Earthquakes along the Nankai Trough (pattern 122)
AN123	Large Earthquakes along the Nankai Trough (pattern 123)
AN124	Large Earthquakes along the Nankai Trough (pattern 124)
AN125	Large Earthquakes along the Nankai Trough (pattern 125)
AN126	Large Earthquakes along the Nankai Trough (pattern 126)
AN127	Large Earthquakes along the Nankai Trough (pattern 127)
AN128	Large Earthquakes along the Nankai Trough (pattern 128)
AN129	Large Earthquakes along the Nankai Trough (pattern 129)
AN130	Large Earthquakes along the Nankai Trough (pattern 130)
AN131	Large Earthquakes along the Nankai Trough (pattern 131)
AN132	Large Earthquakes along the Nankai Trough (pattern 132)
AN133	Large Earthquakes along the Nankai Trough (pattern 133)
AN134	Large Earthquakes along the Nankai Trough (pattern 134)
AN135	Large Earthquakes along the Nankai Trough (pattern 135)
AN136	Large Earthquakes along the Nankai Trough (pattern 136)
AN137	Large Earthquakes along the Nankai Trough (pattern 137)
AN138	Large Earthquakes along the Nankai Trough (pattern 138)
AN139	Large Earthquakes along the Nankai Trough (pattern 139)
AN140	Large Earthquakes along the Nankai Trough (pattern 140)
AN141	Large Earthquakes along the Nankai Trough (pattern 141)
AN142	Large Earthquakes along the Nankai Trough (pattern 142)
AN143	Large Earthquakes along the Nankai Trough (pattern 143)
AN144	Large Earthquakes along the Nankai Trough (pattern 144)
AN145	Large Earthquakes along the Nankai Trough (pattern 145)
AN146	Large Earthquakes along the Nankai Trough (pattern 146)
AN147	Large Earthquakes along the Nankai Trough (pattern 147)
AN148	Large Earthquakes along the Nankai Trough (pattern 148)

AN149	Large Earthquakes along the Nankai Trough (pattern 149)
AN150	Large Earthquakes along the Nankai Trough (pattern 150)
AN151	Large Earthquakes along the Nankai Trough (pattern 151)
AN152	Large Earthquakes along the Nankai Trough (pattern 152)
AN153	Large Earthquakes along the Nankai Trough (pattern 153)
AN154	Large Earthquakes along the Nankai Trough (pattern 154)
AN155	Large Earthquakes along the Nankai Trough (pattern 155)
AN156	Large Earthquakes along the Nankai Trough (pattern 156)
AN157	Large Earthquakes along the Nankai Trough (pattern 157)
AN158	Large Earthquakes along the Nankai Trough (pattern 158)
AN159	Large Earthquakes along the Nankai Trough (pattern 159)
AN160	Large Earthquakes along the Nankai Trough (pattern 160)
AN161	Large Earthquakes along the Nankai Trough (pattern 161)
AN162	Large Earthquakes along the Nankai Trough (pattern 162)
AN163	Large Earthquakes along the Nankai Trough (pattern 163)
AN164	Large Earthquakes along the Nankai Trough (pattern 164)
AN165	Large Earthquakes along the Nankai Trough (pattern 165)
AN166	Large Earthquakes along the Nankai Trough (pattern 166)
AN167	Large Earthquakes along the Nankai Trough (pattern 167)
AN168	Large Earthquakes along the Nankai Trough (pattern 168)
AN169	Large Earthquakes along the Nankai Trough (pattern 169)
AN170	Large Earthquakes along the Nankai Trough (pattern 170)
AN171	Large Earthquakes along the Nankai Trough (pattern 171)
AN172	Large Earthquakes along the Nankai Trough (pattern 172)
AN173	Large Earthquakes along the Nankai Trough (pattern 173)
AN174	Large Earthquakes along the Nankai Trough (pattern 174)
AN175	Large Earthquakes along the Nankai Trough (pattern 175)
AN176	Large Earthquakes along the Nankai Trough (pattern 176)
AN177	Large Earthquakes along the Nankai Trough (Maximum class)

Table 2-3 Fault code of subduction-zone earthquakes taking into consideration correlated occurrence

Fault code	Appropriate correlated earthquake name
ANNI1	Tonankai Earthquake + Nankai Earthquake : 2012 version and before
ANNI2	Tokai Earthquake + Tonankai Earthquake : 2012 version and before
ANNI3	Tokai Earthquake + Tonankai Earthquake + Nankai Earthquake : 2012 version and before
AMYI1	Miyagi-ken-Oki Earthquake (A1+B)

AMYI2	Miyagi-ken-Oki Earthquake (A2+B)
AMYI3	Miyagi-ken-Oki Earthquake (A1+A2+B)
ATNI1	Tokachi-Oki Earthquake + Nemuro-Oki Earthquake

(3) Fault code of other active faults

Table 2-4 shows the fault code of other active faults.

Table 2-4 Fault code of other active faults

Fault code	Fault name
G030001	Rausu-dake fault zone
G030002	Shari-dake-higashi fault zone
G030003	Abashiri-ko fault zone
G030004	Tokoro-gawa-togan fault
G030005	Toikanbetsu fault zone
G030006	Horonobe fault zone
G030008	Ponitashibetsu fault
G030009	Mitsuishi-Urakawa fault zone
G030010	Karumai fault (ishikari zambu)
G030011	Nohoro-kyuryo fault zone
G030012	Shiribetsu-gawa fault zone
G030013	Yakumo fault zone
G030014	Noheji fault zone
G030015	Tsugaru-sanchi-seien fault zone hokubu hoppou enchou
G030016	Iwaki-san-nanroku fault zone
G030018	Takizawaukai-nishi fault (kitakami zambu)
G030019	Tazawa-ko fault zone
G030020	Kitaguchi fault zone
G030021	Yokote-bonchi-senan fault zone
G030022	Toridame fault zone
G030023	Kamagadai fault zone
G030024	Kisakata fault zone
G030025	Asahiyama flexure zone
G030026	Medeshima-suite fault
G030027	Sakunami-Yashikidaira fault zone
G030028	Togatta fault zone
G030029	Obanazawa fault zone
G030030	Ayukawa fault

Fault code	Fault name
G030031	Kotaru-gawa fault zone
G030032	Futaba fault nambu C-class zan
G030033	Osaka-Ashizawa fault zone
G030034	Futatsuya fault
G030035	Sangunmori fault zone
G030036	Yunotake fault
G030037	Idosawa fault
G030038	Takahagi-fukin suite
G030039	Tanagura fracture zone seien fault
G030040	Adatara-yama-toroku fault zone
G030041	Kawageta-yama fault zone
G030042	Shirakawa-seho fault zone
G030043	Hinoemata-nishi fault
G030044	Kokuzoyama-toho fault
G030045	Hanezu fault zone
G030046	Numakoshi-toge fault
G030047	Yoshinoya fault
G030048	Yukyu-zan fault zone
G030049	Jorakuji fault
G030050	Osado-segan fault zone
G030051	Kuninaka-heiya-minami fault
G030052	Muikamachi fault zone
G030053	Hirataki-Busuno-toge fault
G030054	Takada-heiya-toen fault zone
G030055	Takada-heiya-seien fault zone
G030056	Togakushi-yama fault
G030057	Jonen-dake-higashi fault zone
G030059	Saotome-dake fault
G030060	Noto fault zone
G030061	Kirigamine fault zone
G030062	Kamogawa-techi fault zone kita fault
G030063	Ogose fault
G030064	Tsurukawa fault
G030065	Ogiyama fault
G030066	Kurokura-Shiozawa fault zone
G030067	Hadano fault zone

Fault code	Fault name
G030069	Tanna fault zone nantan group
G030070	Daruma-yama fault zone
G030071	Iro-zaki fault
G030072	Nihondaira fault zone
G030073	Hatanagi-san fault
G030074	Median Tectonic Line-Akaishi-sanchi-seien fault zone
G030075	Shimoina-ryuto fault zone
G030076	Hiraoka fault
G030078	Suzugasawa fault
G030079	Shirosu-toge fault zone
G030080	Wakatochi-toge fault
G030081	Kuno-gawa fault
G030082	Furukawa fault zone (Toichi-gawa fault)
G030083	Kuchiudo-Yamanokuchi fault
G030084	Byobu-yama fault nanseibu
G030085	Kasahara fault
G030086	Hanadate fault
G030087	Fukozu fault zone
G030088	Nagoyashi-fukin fault
G030089	Tenpaku-kako fault
G030090	Bijo-zan fault zone
G030091	Tanigumi-Kochibora fault
G030092	Ikedayama fault
G030093	Tsushima fault zone
G030094	Suzukaoki fault
G030095	Yoro-sanchi-seien fault zone
G030096	Hokyoji fault
G030097	Kanekusa-dake fault zone
G030098	Okukawanami fault
G030099	Sarake fault
G030100	Hosenji fault zone
G030101	Mihama-wan-oki fault
G030102	Mimi-kawa fault zone
G030103	Biwako-togan-kotei fault
G030104	Kumagawa fault zone
G030105	Biwako-nambu-kotei fault

Fault code	Fault name
G030106	Odorii fault zone
G030107	Suzuka-sakashita fault zone
G030108	Kyogamine-minami fault
G030109	Median Tectonic Line Taki
G030110	Ieki fault zone
G030111	Nabari fault zone
G030112	Shigaraki fault zone
G030113	Wazuka-dani fault
G030114	Tahara fault
G030115	Ayame-ike flexure zone
G030116	Keihanna-kyuryo flexure zone
G030117	Habikino fault zone
G030118	Izumi-hokuroku fault zone
G030119	Median Tectonic Line Gojo
G030120	Habu fault
G030121	Nakayama fault zone
G030122	Mitakesan fault
G030123	Gosho-dani fault zone
G030124	Takatsuka-yama fault
G030125	Shizuki fault zone
G030126	Hansanji fault zone
G030127	Yabu fault zone
G030128	Akenobe-hoppo fault
G030129	Hikihara fault
G030130	Ametaki-Kamoto fault
G030131	Iwatsubo fault zone (Shikano fault)
G030132	Iwatsubo fault zone (Iwatsubo fault)
G030133	Kashima fault zone
G030134	Yoshii fault
G030135	Fukuyama fault zone
G030136	Mitsugi fault
G030137	Shobara fault
G030138	Miyoshi fault zone
G030139	Kamine fault
G030140	Tsutsuga fault zone
G030141	Yasaka fault zone

Fault code	Fault name
G030142	Ohara-ko fault
G030143	Shibuki fault
G030144	Tokushima-heiya-nanen fault zone
G030145	Akui-gawa fault zone
G030146	Ebata fault zone
G030147	Takanawa-san-kita fault
G030148	Tsunatsukimori fault
G030149	Yasuda fault
G030150	Gyodo-zaki fault
G030151	Kochi-Agawa
G030152	Sukumo-Nakamura fault zone
G030153	Tosashimizu-kita fault zone
G030154	Kokura-higashi fault zone
G030155	Fukuchiyama fault zone
G030157	Saganoseki fault
G030158	Fukuragi fault
G030159	Taradake-nanseiroku fault zone
G030160	Aso-gairin-nanroku fault group
G030161	Midorikawa fault zone
G030162	Tsurukiba fault zone
G030163	Kunimidake fault zone
G030164	Kawaminami-Soyabaru fault
G030166	Minamata fault zone
G030167	Nagashima fault group
G030168	Kagoshimawan-toen fault zone
G030169	Kagoshimawan-seien fault zone
G030170	Ichiki fault zone
G030171	Ikedako-nishi fault zone
G030172	Tanega-shima-hokubu fault
G030173	Yaku-shima-nangan fault zone
G030174	Kikai-jima fault zone
G030175	Okinoerabu-jima fault zone
G030176	Kinwan-segan fault zone
G030177	Miyako-jima fault zone
G030178	Yonaguni-jima fault zone
G030179	Noto-hantou fault

Fault code	Fault name
G030180	Ube-toubu-Shimosato fault
G030181	Ube-nantou-oki fault zone
G030182	Hime-jima-hokusei-oki fault zone
G030183	Itoshima-hanto-0ki fault group
G030184	Saganoseki fault
G030185	Taradake-nanseiroku fault zone
G030186	Fukuragi fault
G030187	Aso-gairin-nanroku fault group
G030188	Tsurukiba fault zone
G030189	Kunimidake fault zone
G030190	Minamata fault zone
G030191	Kagoshimawan-toen fault zone
G030192	Kagoshimawan-seien fault zone
G030193	Ikedako-nishi fault zone

The J-SHIS Earthquake Group Code

1. Abstract

This guide describes the file of the J-SHIS Earthquake Group Code. The details are as follows.

2. Earthquake Group code

Earthquake Group code is defined for earthquakes occurring in major active fault zone both of Characteristic Earthquakes and EQTHR*¹.

(*1) EQTHR: EarthQuakes whose Traces are Hardly Recognized

(1) Earthquake occurring major active fault zones

Table 2-1 shows the Earthquake Group code and their Fault codes which are the earthquake contained in the group for earthquakes occurring in major active fault zones.

Table 2-1 Earthquake Group code of earthquakes occurring in major active fault zones

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0001_001	EQs occurring on Shibetsu fault zone	F000101
F0002_001	EQs occurring on Tokachi-heiya fault zone (Main part)	F000201
F0002_002	EQs occurring on Kochien fault	F000202
F0003_001	EQs occurring on Furano fault zone (Western part)	F000301
F0003_002	EQs occurring on Furano fault zone (Eastern part)	F000302
F0004_001	EQs occurring on Mashike-sanchi-toen fault zone	F000401
F0004_002	EQs occurring on Numata-Sunagawa-area fault zone	F000402
F0005_001	EQs occurring on Tobetsu fault	F000501
F0006_001	EQs occurring on Ishikari-teichi-toen fault zone (Main part)	F000601
F0006_002	EQs occurring on Ishikari-teichi-toen fault zone (Southern part)	F000602
F0007_001	EQs occurring on Kuromatsunai-teichi fault zone	F000701
F0008_001	EQs occurring on Hakodate-heiya-seien fault zone	F000801
F0009_001	EQs occurring on Aomori-wan-seigan fault zone	F000901
F0010_001	EQs occurring on Tsugaru-sanchi-seien fault zone (Northern part)	F001001
F0010_002	EQs occurring on Tsugaru-sanchi-seien fault zone (Southern part)	F001002
F0011_001	EQs occurring on Oritsume fault	F001101

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0012_001	EQs occurring on Noshiro fault zone	F001201
F0013_001	EQs occurring on Kitakami-teichi-seien fault zone	F001301
F0014_001	EQs occurring on Shizukuishi-bonchi-seien fault zone	F001401
F0014_002	EQs occurring on Mahiru-sanchi-toen fault zone/Northern segment	F001402
F0014_003	EQs occurring on Mahiru-sanchi-toen fault zone/Southern segment	F001403
F0015_001	EQs occurring on Yokote-bonchi-toen fault zone (Northern segment)	F001501
F0015_002	EQs occurring on Yokote-bonchi-toen fault zone (Southern segment)	F001502
F0016_001	EQs occurring on Kitayuri fault	F001601
F0017_001	EQs occurring on Shinjo-bonchi fault zone (Eastern part)	F001701
F0017_002	EQs occurring on Shinjo-bonchi fault zone (Western part)	F001702
F0018_001	EQs occurring on Yamagata-bonchi fault zone (Northern segment)	F001801
F0018_002	EQs occurring on Yamagata-bonchi fault zone (Southern segment)	F001802
F0019_001	EQs occurring on Shonai-heiya-toen fault zone (Northern part)	F001901
F0019_002	EQs occurring on Shonai-heiya-toen fault zone (Southern part)	F001902
F0020_001	EQs occurring on Nagamachi-Rifu-sen fault zone	F002001
F0021_001	EQs occurring on Fukushima-bonchi-seien fault zone	F002101
F0022_001	EQs occurring on Nagai-bonchi-seien fault zone	F002201
F0023_001	EQs occurring on Futaba fault	F002301
F0024_001	EQs occurring on Aizu-bonchi-seien fault zone	F002401
F0024_002	EQs occurring on Aizu-bonchi-toen fault zone	F002402
F0025_001	EQs occurring on Kushigata-sanmyaku fault zone	F002501
F0026_001	EQs occurring on Tsukioka fault zone	F002601
F0027_001	EQs occurring on Nagaoka-heiya-seien fault zone	F002701
F0039_001	EQs occurring on Tokamachi fault zone (Western part)	F003901
F0039_002	EQs occurring on Tokamachi fault zone (Eastern part)	F003902
F0045_001	EQs occurring on Kiso-sanmyaku-seien fault zone (Main part/Northern segment)	F004501

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0045_002	EQs occurring on Kiso-sanmyaku-seien fault zone (Main part/Southern segment)	F004502
F0045_003	EQs occurring on Seinaiji toge fault zone	F004503
F0046_001	EQs occurring on Sakaitoge-Kamiya fault zone (Main part)	F004601
F0046_002	EQs occurring on Mutoyama-Narai fault zone	F004602
F0047_001	EQs occurring on Atotsugawa fault zone	F004701
F0048_001	EQs occurring on Kokufu fault zone	F004801
F0048_002	EQs occurring on Takayama fault zone	F004802
F0048_003	EQs occurring on Inohana fault zone	F004803
F0049_001	EQs occurring on Ushikubi fault zone	F004901
F0050_001	EQs occurring on Shokawa fault zone	F005001
F0051_001	EQs occurring on Inadani fault zone (Main part)	F005101
F0051_002	EQs occurring on Inadani fault zone (Southeastern part)	F005102
F0052_001	EQs occurring on Atera fault zone (Main part/Northern segment)	F005201
F0052_002	EQs occurring on Atera fault zone (Main part/Southern segment)	F005202
F0052_003	EQs occurring on Sami fault zone	F005203
F0052_004	EQs occurring on Shirakawa fault zone	F005204
F0053_001	EQs occurring on Byoubuyama fault zone	F005301
F0053_002	EQs occurring on Ako fault zone	F005302
F0053_003	EQs occurring on Enasan-Sanageyamakita fault zone	F005303
F0053_004	EQs occurring on Sanage-Takahama fault zone	F005304
F0053_005	EQs occurring on Kagiya fault zone	F005305
F0055_001	EQs occurring on Ochigata fault zone	F005501
F0056_001	EQs occurring on Tonami-heiya/Kurehayama fault zone (Western part)	F005601
F0056_002	EQs occurring on Tonami-heiya/Kurehayama fault zone (Eastern part)	F005602
F0056_003	EQs occurring on Kurehayama fault zone	F005603
F0057_001	EQs occurring on Morimoto-Togashi fault zone	F005701
F0058_001	EQs occurring on Fukui-heiya-toen fault zone (Main part)	F005801
F0058_002	EQs occurring on Fukui-heiya toen fault zone (Western part)	F005802

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0059_001	EQs occurring on Nagaragawa-joryu fault zone	F005901
F0060_001	EQs occurring on Nukumi fault/Northwestern segment	F006001
F0060_002	EQs occurring on Nukumi fault zone/Southeastern segment	F006002
F0060_003	EQs occurring on Nobi fault zone (Main part/Neodani fault zone)	F006003
F0060_004	EQs occurring on Nobi fault zone (Main part/Unehara fault zone)	F006004
F0060_005	EQs occurring on Nobi fault zone (Main part/Mitabora fault zone)	F006005
F0060_006	EQs occurring on Ibigawa fault zone	F006006
F0060_007	EQs occurring on Mugigawa fault	F006007
F0061_001	EQs occurring on Yanagase/Sekigahara fault zone (Main part/Northern segment)	F006101
F0061_002	EQs occurring on Yanagase/Sekigahara fault zone (Main part/Central segment)	F006102
F0061_003	EQs occurring on Yanagase/Sekigahara fault zone (Main part/Southern segment)	F006103
F0061_004	EQs occurring on Urazoko-Yanagaseyama fault zone	F006104
F0063_001	EQs occurring on Nosaka fault zone	F006301
F0063_002	EQs occurring on Shufukuji fault zone	F006302
F0064_001	EQs occurring on Kohoku-sanchi fault zone (Northwestern part)	F006401
F0064_002	EQs occurring on Kohoku-sanchi fault zone (Southeastern part)	F006402
F0065_001	EQs occurring on Biwako-seigan fault zone (Northern part)	F006501
F0065_002	EQs occurring on Biwako-seigan fault zone (Southern part)	F006502
F0067_001	EQs occurring on Yoro-Kuwana-Yokkaichi fault zone	F006701
F0068_001	EQs occurring on Suzuka-toen fault zone	F006801
F0069_001	EQs occurring on Suzuka-seien fault zone	F006901
F0070_001	EQs occurring on Tongu fault	F007001
F0071_001	EQs occurring on Nunobiki-sanchi-toen fault zone (Western part)	F007101

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0071_002	EQs occurring on Nunobiki-sanchi-toen fault zone (Eastern part)	F007102
F0072_001	EQs occurring on Kizugawa fault zone	F007201
F0073_001	EQs occurring on Mikata fault zone	F007301
F0073_002	EQs occurring on Hanaore fault zone/Northern segment	F007302
F0073_003	EQs occurring on Hanaore fault zone/Central southern segment	F007303
F0074_001	EQs occurring on Yamada fault zone (Main part)	F007401
F0074_002	EQs occurring on Gomura fault zone	F007402
F0075_001	EQs occurring on Nara-bonchi toen fault zone	F007501
F0076_001	EQs occurring on Arima-Takatsuki fault zone	F007601
F0077_001	EQs occurring on Ikoma fault zone	F007701
F0078_001	EQs occurring on Kanbayashigawa fault	F007801
F0078_002	EQs occurring on Mitoke fault	F007802
F0078_003	EQs occurring on Kyoto-Nishiyama fault zone	F007803
F0079_001	EQs occurring on Rokko-Awajishima fault zone (Main part/Rokko-sanchi-nanen-Awajishima-togan segment)	F007901
F0079_002	EQs occurring on Rokko-Awajishima fault zone (Main area/Awajishima-seigan segment)	F007902
F0079_003	EQs occurring on Senzan fault zone	F007903
F0080_001	EQs occurring on Uemachi fault zone	F008001
F0081_001	EQs occurring on Median Tectonic Line (MTL) fault zone (Kongo-sanchi-toen)	F008101
F0081_002	EQs occurring on Median Tectonic Line (MTL) fault zone (Kitan-kaikyo-Naruto-Kaikyo)	F008102
F0081_003	EQs occurring on Median Tectonic Line (MTL) fault zone (Sanuki-sanmyaku-nanen-Ishizuchi-sanmyaku-hokuen-tobu)	F008103
F0081_004	EQs occurring on Median Tectonic Line (MTL) fault zone (Ishizuchi-sanmyaku-hokuen)	F008104
F0081_005	EQs occurring on Median Tectonic Line (MTL) fault zone (Ishizuchi-sanmyaku-hokuen-seibu-Iyonada)	F008105
F0081_006	EQs occurring on Median Tectonic Line (MTL) fault zone (Izumi-sanmyaku-nanen)	F008106
F0082_001	EQs occurring on Kusatani fault	F008204

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0084_001	EQs occurring on Nagao fault zone	F008401
F0097_001	EQs occurring on Ise-wan fault zone (Main part/Northern segment)	F009701
F0097_002	EQs occurring on Ise-wan fault zone (Main part/Southern segment)	F009702
F0097_003	EQs occurring on Shirako-Noma fault	F009703
F0098_001	EQs occurring on Osaka-wan fault zone	F009801
F0099_001	EQs occurring on Sarobetsu fault zone	F009901
F0101_001	EQs occurring on Hanawa-higashi fault zone	F010101
F0102_001	EQs occurring on Takada-heiya-seien fault zone	F010201
F0102_002	EQs occurring on Takada-heiya-toen fault zone	F010202
F0103_001	EQs occurring on Muikamachi fault zone (Northern part)	F010335, F010336
F0103_002	EQs occurring on Muikamachi fault zone (Southern part)	F010302
F0105_001	EQs occurring on Uozu fault zone	F010501
F0110_001	EQs occurring on Miyako-jima fault zone (Central part)	F011001
F0110_002	EQs occurring on Miyako-jima fault zone (Western part)	F011002
F0120_001	EQs occurring on Kokura-higashi fault zone	F012001
F0121_001	EQs occurring on Fukuchiyama fault zone	F012101
F0122_001	EQs occurring on Nishiyama fault zone	F012201~F012203, F01220A~F01220C
F0123_001	EQs occurring on Umi fault	F012301
F0124_001	EQs occurring on Kego fault zone	F012401, F012402, F01240A
F0125_001	EQs occurring on Hinata-Okasagi-toge fault zone	F012501
F0126_001	EQs occurring on Minou fault zone	F012601
F0127_001	EQs occurring on Saga-heiya-hokuen fault zone	F012701
F0128_001	EQs occurring on Beppu-wan-Hijiu fault zone	F012801, F012802, F01280A
F0128_002	EQs occurring on Oita-heiya-Yufuin fault zone	F012803, F012804, F01280B
F0128_003	EQs occurring on Noinedake-Haneyama fault zone	F012805
F0128_004	EQs occurring on Kuenohirayama-Kameishiyama fault zone	F012806
F0129_001	EQs occurring on Unzen fault group (Northern part)	F012901
F0129_002	EQs occurring on Unzen fault group (Southeastern part)	F012902
F0129_003	EQs occurring on Unzen fault group (Southwestern part)	F012903, F012904, F01290A

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0130_001	EQs occurring on Futagawa/Hinagu fault zone	F013001~F013003, F01300A~F01300F, F013101~F013103, F01310A~F01310C
F0132_001	EQs occurring on Midorikawa fault zone	F013201
F0133_001	EQs occurring on Hitoyoshi-bonchi-nanen fault zone	F013301
F0134_001	EQs occurring on Izumi fault zone	F013401
F0135_001	EQs occurring on Koshiki fault zone (Kamikoshiki-jima northeastern segment)	F013501
F0135_002	EQs occurring on Koshiki fault zone (Koshiki segment)	F013502
F0136_001	EQs occurring on Ichiki fault zone (Ichiki segment)	F013601
F0136_002	EQs occurring on Ichiki fault zone (Koshiki-kaikyo center segment)	F013602
F0136_003	EQs occurring on Ichiki fault zone (Fukiagehama seiho-Okai segment)	F013603
F0137_001	EQs occurring on Hiji fault zone	F013701
F0138_001	EQs occurring on Haneyama-Kuenohirayama fault zone	F013801
F0141_001	EQs occurring on Sekiya fault	F014121
F0142_001	EQs occurring on Uchinokomori fault	F014221
F0143_001	EQs occurring on Katashinagawa-sagan fault	F014321
F0144_001	EQs occurring on Okubo fault	F014421
F0145_001	EQs occurring on Ota fault	F014521
F0146_001	EQs occurring on Nagano-bonchi-seien fault zone	F014621, F014622, F01462A
F0147_001	EQs occurring on Fukaya/Ayasegawa fault zone	F014721, F014821, F014822, F01482A, F01482B, F01482C
F0149_001	EQs occurring on Ogose fault	F014921
F0150_001	EQs occurring on Tachikawa fault zone	F015021
F0151_001	EQs occurring on Kamogawa-teichi fault zone	F015121
F0152_001	EQs occurring on Miura-hanto fault group (Main part/Kinugasa/Kitatake fault zone)	F015221
F0152_002	EQs occurring on Miura-hanto fault group (Main part/Takeyama fault zone)	F015222
F0152_003	EQs occurring on Miura-hanto fault group (Southern part)	F015223
F0153_001	EQs occurring on Isehara fault	F015321
F0154_001	EQs occurring on Shiozawa fault zone	F015421

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0155_001	EQs occurring on Hirayama-Matsuda-kita fault zone	F015521
F0156_001	EQs occurring on Sone-kyuryo fault zone	F015621
F0157_001	EQs occurring on Minobu fault	F015721
F0158_001	EQs occurring on Kitaizu fault zone	F015821
F0159_001	EQs occurring on Ito-oki fault	F015921
F0160_001	EQs occurring on Inatori fault zone	F016021
F0161_001	EQs occurring on Iro-zaki fault	F016121
F0162_001	EQs occurring on Itoigawa-Shizuoka-kozosen fault zone	F016221~ F016224, F01622A~F01622F
F0170_001	EQs occurring on Shinji (Kashima) fault	F017001, F017101
F0172_001	EQs occurring on Amedaki-Kamato fault	F017201
F0173_001	EQs occurring on Shikano-Yoshioka fault	F017301
F0174_001	EQs occurring on Nichinan-ko fault	F017401
F0175_001	EQs occurring on Iwatsubo fault	F017501
F0176_001	EQs occurring on Yamasaki fault zone (Nagisen fault zone)	F017601
F0176_002	EQs occurring on Yamasaki fault zone (Main part)	F017701, F017702, F01770A
F0178_001	EQs occurring on Chojagahara-Yoshii fault	F017801
F0179_001	EQs occurring on Uzuto fault	F017901
F0180_001	EQs occurring on Yasuda fault	F018001
F0181_001	EQs occurring on Kikugawa fault zone	F018101, F018201, F01820A, F018301, F01830A, F01830B
F0184_001	EQs occurring on Iwakuni-Itsukaichi fault zone	F018401, F018501, F01850A, F018601, F01860A
F0187_001	EQs occurring on Suonada fault zone (Main part segment)	F018701
F0187_002	EQs occurring on Suonada fault zone (Aio-oki fault segment)	F018801
F0189_001	EQs occurring on Akinada fault zone	F018901
F0190_001	EQs occurring on Hiroshima-wan-Iwakuni-oki fault zone	F019001
F0191_001	EQs occurring on Ube-Nanpou-oki fault	F019101
F0192_001	EQs occurring on Yasaka fault	F019201
F0193_001	EQs occurring on Jifuku fault	F019301
F0194_001	EQs occurring on Ohara-ko fault	F019401
F0195_001	EQs occurring on Ogori fault	F019501
F0196_001	EQs occurring on Tsutsuga fault	F019601

Earthquake Group code	Earthquake Group name (EQs means Earthquakes.)	Fault code
F0197_001	EQs occurring on Takibe fault	F019701
F0198_001	EQs occurring on Nago fault	F019801
F0199_001	EQs occurring on Sakaedani fault	F019901
F0200_001	EQs occurring on Kurose fault	F020001
F0201_001	EQs occurring on Median Tectonic Line (MTL) fault zone	F0201*, FH201*, FM201*
F0221_001	EQs occurring on Nagao fault zone	F022131
F0222_001	EQs occurring on Kamihougunji fault	F022231
F0223_001	EQs occurring on Kamiura-Nishitsukinomiya fault	F022331
F0224_001	EQs occurring on Tsunatsukemori fault	F022431

Probabilistic Seismic Hazard Maps: Guide for ESRI Shapefile “Seismic Hazard Map”

1. Abstract

This guide describes the ESRI Shapefile of seismic hazard map in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The J-SHIS PSHM map ESRI Shapefile for Japan whole area is named as follows

P-[Year code]-MAP-[Probability case code]-[Earthquake code]-SHAPE. [shp|shx|dbf|prj]

The map data file for a first-mesh is named like

P-[Year code]-MAP-[Probability case code]-[Earthquake code]-SHAPE-[First-mesh code]
. [shp|shx|dbf|prj]

(1) Year code

Year code is described in a format YNNNN. This code indicates the year when the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Probability case code

Table 2-1 Probability case code

Case code	Explanation
AVR	Average case
MAX	Maximum case

(3) Earthquake code

Refer to the J-SHIS Earthquake Code section in this document.

(4) First mesh code

First-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A first-mesh is a square area of 2/3 degrees latitude × 1 degree longitude (about 75km × 90km). This geographical coordinate system adopts the standard grid square (mesh code N) based on the Tokyo Datum.

3. Data description

This ESRI Shapefile stores geometry of 250m-mesh and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table

(* .dbf), and a projection file (* .prj).

Table 3-1 Data attributes

Name	Type	Format	Explanation
CODE	String	10-11	250m mesh code
T30_I45_PS	Double	17.15	Probability of exceedance [IJMA >=5-Lower] within 30 years
T30_I50_PS	Double	17.15	Probability of exceedance [IJMA >=5-Upper] within 30 years
T30_I55_PS	Double	17.15	Probability of exceedance [IJMA >=6-Lower] within 30 years
T30_I60_PS	Double	17.15	Probability of exceedance [IJMA >=6-Upper] within 30 years
T30_P03_SI	Double	3.1	IJMA for a 3% probability of exceedance within 30 years
T30_P03_BV	Double	7.3	PBV for a 3% probability of exceedance within 30 years (cm/s)
T30_P03_SV	Double	7.3	PGV for a 3% probability of exceedance within 30 years (cm/s)
T30_P06_SI	Double	3.1	IJMA for a 6% probability of exceedance within 30 years
T30_P06_BV	Double	7.3	PBV for a 6% probability of exceedance within 30 years (cm/s)
T30_P06_SV	Double	7.3	PGV for a 6% probability of exceedance within 30 years (cm/s)
T50_P02_SI	Double	3.1	IJMA for a 2% probability of exceedance within 50 years
T50_P02_BV	Double	7.3	PBV for a 2% probability of exceedance within 50 years (cm/s)
T50_P02_SV	Double	7.3	PGV for a 2% probability of exceedance within 50 years (cm/s)
T50_P05_SI	Double	3.1	IJMA for a 5% probability of exceedance within 50 years
T50_P05_BV	Double	7.3	PBV for a 5% probability of exceedance within 50 years (cm/s)
T50_P05_SV	Double	7.3	PGV for a 5% probability of exceedance within 50 years (cm/s)
T50_P10_SI	Double	3.1	IJMA for a 10% probability of exceedance within 50 years
T50_P10_BV	Double	7.3	PBV for a 10% probability of exceedance within 50 years (cm/s)
T50_P10_SV	Double	7.3	PGV for a 10% probability of exceedance within 50 years (cm/s)
T50_P39_SI	Double	3.1	IJMA for a 39% probability of exceedance within 50 years
T50_P39_BV	Double	7.3	PBV for a 39% probability of exceedance within 50 years (cm/s)
T50_P39_SV	Double	7.3	PGV for a 39% probability of exceedance within 50 years (cm/s)

Probabilistic Seismic Hazard Maps: Guide for ESRI Shapefile “Fault shape (rectangle)”

1. Abstract

This guide describes the ESRI Shapefile of fault shape data (Specified fault model: rectangle) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (rectangle) ESRI Shapefile for PSHM is named as follows

P-[Year code]-PRM-SHAPE-TYPE1_[Earthquake code]_EN. [shp shx dbf prj]

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code session in this document. Earthquakes described in this rule are in Table 2-1.

Table 2-1 Earthquakes described in this rule

Earthquake code	Earthquake name
LND_A98F	Characteristic earthquakes occurring in major active fault zones
LND_AGR1	Earthquakes occurring on active faults other than major active fault zones
PSE_AIBRK	Interplate earthquakes in Ibaraki-ken-Oki
LND_AAOMW	Aomori-ken-seiho-Oki Earthquake
LND_AHKDW	Hokkaido-seiho-Oki Earthquake
LND_AHKSW	Hokkaido-nansei-Oki Earthquake
LND_ANIGT	Niigata-ken-hokubu-Oki Earthquake
PLE_ASNKT	Large interplate earthquakes in Northern Sanriku-Oki
LND_AYMGA	Yamagata-ken-Oki Earthquake
PLE_AMYAS	Miyagi-ken-Oki Earthquake (Repeating earthquakes)
PLE_ASNNK	Earthquakes close to the offshore trenches in Southern Sanriku-Oki (Repeating earthquakes)

3. Data description

This ESRI Shapefile stores geometry of rectangular faults (shape type: PolygonZ) and attribute

information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Data attributes

Name	Type	Format	Explanation
FLT_ID	String	15	Rectangular fault number (*1)
LTECODE	String	10	Fault code
LTENAME	String	150	Fault name
LON	Double	7.3	Longitude of the reference point of rectangular fault
LAT	Double	7.3	Latitude of the reference point of rectangular fault
DEP	Double	5.1	Depth of the upper edge of rectangular fault (km)
STR	Double	5.1	Strike angle (degree)
DIP	Double	5.1	Dip angle (degree)
WID	Double	5.1	Width of rectangular fault (km)
LEN	Double	5.1	Length of rectangular fault (km)
MAG	Double	6.1	Magnitude (*2)
AVR_AVRACT	Double	10.1	Mean recurrence interval (Years) – Average case
MAX_AVRACT	Double	10.1	Mean recurrence interval (Years) – Maximum case
AVR_NEWACT	Double	10.1	The time of the latest event (Years ago: from reference date) – Average case
MAX_NEWACT	Double	10.1	The time of the latest event (Years ago: from reference date) – Maximum case
AVR_T30P	Double	15.10	Probability of occurrence in 30 years – Average case
MAX_T30P	Double	15.10	Probability of occurrence in 30 years – Maximum case
AVR_T50P	Double	15.10	Probability of occurrence in 50 years – Average case
MAX_T50P	Double	15.10	Probability of occurrence in 50 years – Maximum case
PROC	String	5	Stochastic process (BPT: BPT processes, POI: Poisson process, COM: Combined BPT and POI, BSI: BPT process (Simultaneous occurring model), PSI: Poisson process (Simultaneous occurring model), SIM: Simultaneous occurring model, XXX: None evaluation)
ALPHA	Double	7.2	Variance (*3)

NOTE: '-999' means an undefined value.

(*1) Described as [Fault code]_[Serial number of rectangular fault(%05d)].

(*2) Negative value of magnitude means moment magnitude.

(*3) Variance for calculate probability of occurrence by BPT processes.

Probabilistic Seismic Hazard Maps: Guide for ESRI Shapefile “Fault shape (non-rectangle)”

1. Abstract

This guide describes the ESRI Shapefile of fault shape data (Specified fault model: non-rectangle) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (non-rectangle) ESRI Shapefile for PSHM is named as follows

P-[Year code]-PRM-SHAPE-TYPE2_[Earthquake code]_EN. [shp|shx|dbf|prj]

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes described in this rule are in Table 2-1.

Table 2-1 Earthquakes described in this rule

Earthquake code	Earthquake name
PLE_ATHOP	Great East Japan Earthquake (2011 type)
PLE_AMIYA	Miyagi-ken-Oki Earthquake/earthquakes close to the offshore trenches in Southern Sanriku-Oki
PLE_ATKNM	Tokachi-Oki Earthquake/Nemuro-Oki Earthquake
PLE_ASKTN	Shikotanto-Oki Earthquake
PLE_AETRF	Etorofuto-Oki Earthquake
PLE_ANNKI	Nankai Trough earthquakes
PLE_AKNT0	Kanto Earthquake of “1923 Taisho” type
PLE_ASGMI	Sagami Trough earthquakes (M8 class)
PLE_ACHSM	Mega earthquakes along the Kuril Trench
PLE_ATKCH	Huge interplate earthquakes in Tokachi-oki
PLE_ANMRO	Huge interplate earthquakes in Nemuro-oki
PLE_AJTHK	Mega earthquakes along the Japan Trench (Great East Japan Earthquake 2011 type)
PLE_AAEIN	Huge interplate earthquakes in Aomori-ken-toho-Oki and Northern Iwate-ken-Oki

PLE_AMYGI	Huge interplate earthquakes in Miyagi-ken-Oki
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3. Data description

This ESRI Shapefile stores geometry of multiple point sources (shape type: MultiPointZ) and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Data attributes

Name	Type	Format	Explanation
LTECODE	String	10	Fault code
LTENAME	String	150	Fault name
DEPTH	Double	5.1	Depth (km)
MAG	Double	6.1	Magnitude (*1)
AVRACT	Double	10.1	Mean recurrence interval (Years)
NEWACT	Double	10.1	The time of the latest event (Years ago: from reference date)
T30P	Double	15.10	Probability of occurrence in 30 years (*2)
T50P	Double	15.10	Probability of occurrence in 50 years (*2)
PROC	String	5	Stochastic process (BPT: BPT processes, POI: Poisson processes, COM: Combined BPT and POI, XXX: None evaluation)
ALPHA	Double	7.2	Variance (*3)

NOTE: '-999' means an undefined value.

(*1) Negative value of magnitude means moment magnitude.

(*2) The given value is the probability of occurring at least once.

(*3) Variance for calculate probability of occurrence by BPT processes.

Probabilistic Seismic Hazard Maps: Guide for ESRI Shapefile “Fault shape (non-rectangle, Large Earthquakes along the Nankai Trough)”

1. Abstract

This guide describes the ESRI Shapefile of fault shape data (Specified fault model: non-rectangle, Large Earthquakes along the Nankai Trough) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (non-rectangle) ESRI Shapefile for PSHM is named as follows

P-[Year code]-PRM-SHAPE-TYPE2_[Earthquake code]_[Pattern code]_EN. [shp|shx|dbf|prj]

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes described in this rule are in Table 2-1.

Table 2-1 Earthquakes described in this rule

Earthquake code	Earthquake name
PLE_ANNKI	Large Earthquakes along the Nankai Trough: 2020 version and after

3. Data description

This ESRI Shapefile stores geometry of multiple point sources (shape type: MultiPointZ) and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Data attributes

Name	Type	Format	Explanation
FRNO	String	10	Focal region number
DEPTH	Double	5.1	Depth (km)
MAG	Double	6.1	Magnitude (*1)

(*1) Negative value of magnitude means moment magnitude.

Probabilistic Seismic Hazard Maps: Guide for ESRI Shapefile “Fault shape (discretized rectangular source faults)”

1. Abstract

This guide describes the ESRI Shapefile of fault shape (discretized rectangular source faults) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (discretized rectangular source faults) ESRI Shapefile for PSHM is as follows

P-[Year code]-PRM-SHAPE-TYPE3_[Earthquake code]_EN. [shp|shx|dbf|prj]

NOTE: In the case of “Other M7 class earthquakes in Southern Kanto”, special naming rules (Table 2-1) are applied.

Table 2-1 File naming rule of “Other M7 class earthquakes in Southern Kanto”

Earthquake type	File name
Earthquakes on the upper surface of the Philippine Sea plate	P-[Year code]-PRM-SHAPE-TYPE3_PSE_BKNT0_INTER_PHL. [shp shx dbf prj]
Earthquakes on the upper surface of the Pacific plate	P-[Year code]-PRM-SHAPE-TYPE3_PSE_BKNT0_INTER_PCF. [shp shx dbf prj]
Earthquakes in the Philippine Sea plate	P-[Year code]-PRM-SHAPE-TYPE3_PSE_BKNT0_INTRA_PHL. [shp shx dbf prj]

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes covered in this rule are in Table 2-2.

Table 2-2 Earthquakes covered in this rule

Earthquake code	Earthquake name
PSE_BTNMI	Large interplate earthquakes close to the offshore trenches in the Sanriku-Oki to Boso-Oki regions (Tsunami earthquakes)

Earthquake code	Earthquake name
PSE_BNRML	Large intraplate earthquakes close to the offshore trenches in the Sanriku-Oki to Boso-Oki regions (normal faults type)
PSE_BSNKT	Interplate earthquakes other than characteristic earthquakes in Northern Sanriku-Oki
PSE_BSNNK	Earthquakes close to the offshore trenches in Southern Sanriku-Oki (Other than repeating earthquakes)
PSE_BMYAS	Miyagi-ken-Oki Earthquake (Other than repeating earthquakes)
PSE_BFKSM	Interplate earthquakes in Fukushima-ken-Oki
PSE_BIBRK	Interplate earthquakes in Ibaraki-ken-Oki (Other than repeating earthquakes)
PSE_BTKNM	Relatively small interplate earthquakes in the Tokachi-Oki and Nemuro-Oki regions
PSE_BSKET	Relatively small interplate earthquakes in the Shikotanto-Oki and Etorofuto-Oki regions
PSE_BITRS	Relatively shallow earthquakes within a subducted plate along the Kuril Trench
PSE_BITRD	Relatively deep earthquakes within a subducted plate along the Kuril Trench
LND_BHKNW	Hokkaido-hokusei-Oki Earthquake
LND_BAKIT	Akita-ken-Oki Earthquake
LND_BSDGN	Sadogashima-hoppo-Oki Earthquake
PSE_BAKND	Intraplate earthquakes in Akinada-Iyonada-Bungosuido
PSE_BHGNL	Interplate earthquakes in Hyuganada
PSE_BHGNS	Relatively small interplate earthquakes in Hyuganada
PSE_BYNGN	Earthquakes in the vicinity of Yonaguni-jima
PSE_BKNT0	Other M7 class earthquakes in Southern Kanto
PSE_BJPTN	Interplate earthquakes close to the Japan Trench (Tsunami earthquakes)
PSE_BJOUT	Earthquakes in outside of the Japan Trench

3. Data description

This ESRI Shapefile stores geometry of rectangular faults (shape type: PolygonZ) and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Discretized rectangular source faults information block

Column	Type	Format	Explanation
EQTYPE	Integer	2	Earthquake type code (1: Crustal earthquake, 2: Interplate earthquake, 3: Intraplate earthquake)
FLT_ID	String	15	Fault rectangular number (*1)
LTECODE	String	10	Fault code
LTENAME	String	150	Fault name
LON	Double	7.3	Origin longitude of the rectangular fault
LAT	Double	7.3	Origin latitude of the rectangular fault
DEP	Double	5.1	Depth of the upper edge of the rectangular fault (km)
STR	Double	5.1	Strike angle (degree)
DIP	Double	5.1	Dip angle (degree)
WID	Double	5.1	Width of discretized fault (km)
LEN	Double	5.1	Length of discretized fault (km)
AVRACT	Double	10.1	Mean recurrence interval (Years)
NEWACT	Double	10.1	The time of the latest event (Years ago: from reference date)
T30P	Double	15.10	Probability of occurrence in 30 years
T50P	Double	15.10	Probability of occurrence in 50 years
PROC	String	5	Stochastic process (BPT: BPT processes, POI: Poisson processes, COM: Combined BPT and POI, XXX: None evaluation)
ALPHA	Double	7.2	Variance (*2)
MAGRANGE	String	30	Range of magnitude (*3)
FQRANGE	String	40	Range of occurrence frequency(*3)

NOTE:

- '-999' means an undefined value.
- It is assumed that earthquakes occur 3 times on the same fault plane on "Interplate earthquakes in Fukushima-ken-Oki" (~2011 version).

(*1) Described as [Fault code]_[Serial number of rectangular fault(%05d)].

(*2) Variance for calculate probability of occurrence by BPT processes.

(*3) If the magnitude has indicated in a comma separated list, occurrence probability is also given as list to fit the Gutenberg Richter relation with $b = 0.9$. Negative value of magnitude means moment magnitude.

Probabilistic Seismic Hazard Maps: Guide for ESRI Shapefile “Fault shape (discretized non-rectangular source faults)”

1. Abstract

This guide describes the ESRI Shapefile of fault shape (discretized non-rectangular source faults) in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

The fault shape (discretized non-rectangular source faults) ESRI Shapefile for PSHM is as follows.

P-[Year code]-PRM-SHAPE-TYPE5_[Earthquake code].[shp|shx|dbf|prj]

(1) Year code

Year code is described in a format YNNNN. This code indicates the year in which the hazard map issued. “_MX” is attached if multiple models exist in a year. X indicates model ID number begins from 2.

(2) Earthquake code

See the J-SHIS Earthquake Code section in this document. Earthquakes covered in this rule are in Table 2-1.

Table 2-1 Earthquakes covered in this rule

Earthquake code	Earthquake name
PSE_BCHTN	Interplate earthquakes close to the Kuril Trench (Tsunami earthquakes)

3. Data description

This ESRI Shapefile stores geometry of rectangular faults (shape type: MultiPointZ) and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Discretized non-rectangular source faults information block

Column	Type	Format	Explanation
EQTYPE	Integer	2	Earthquake type code (1: Crustal earthquake, 2: Interplate earthquake, 3: Intraplate earthquake)
FLT_ID	String	15	Fault rectangular number (*1)
LTECODE	String	10	Fault code
LTENAME	String	150	Fault name
DEPTH	Double	5.1	Representative depth (km)

AVRACT	Double	10.1	Mean recurrence interval (Years)
NEWACT	Double	10.1	The time of the latest event (Years ago: from reference date)
T30P	Double	15.10	Probability of occurrence in 30 years
T50P	Double	15.10	Probability of occurrence in 50 years
PROC	String	5	Stochastic process (BPT: BPT processes, POI: Poisson processes, COM: Combined BPT and POI, XXX: None evaluation)
ALPHA	Double	7.2	Variance (*2)
MAG	String	30	Magnitude(*3)
FREQ	String	40	Relative occurrence frequency

Note:

(*1) Described as [Fault code]_[Serial number of rectangular fault(%05d)].

(*2) Variance for calculate probability of occurrence by BPT processes.

(*3) Negative value of magnitude means moment magnitude.

Probabilistic Seismic Hazard Maps: Guide to ESRI Shapefile “Averaged Hazard Map”

1. Abstract

This guide describes the ESRI Shapefile of averaged hazard map in Probabilistic Seismic Hazard Maps (PSHM). The details are as follows.

2. File naming rule

An ESRI Shapefile for the averaged hazard map is named like

A-[Version code]-MAP-AVR-TTL_M TTL-SHAPE. [shp|shx|dbf|prj]

The file for a first-mesh is named like

A-[Version code]-MAP-AVR-TTL_M TTL-SHAPE-[First-mesh code]. [shp|shx|dbf|prj]

(1) Version code

Table 2-1 Version code

Version code	Explanation
V1	Based on seismic activity model for 2012 version of PSHM but all earthquakes are evaluated as Poisson process.
V2	Based on seismic activity model for 2013 version (model 2) of PSHM but all earthquakes are evaluated as Poisson process.
V3	Based on seismic activity model for 2013 version (model 1) of PSHM but all earthquakes are evaluated as Poisson process.
V4	Based on seismic activity model for 2014 version of PSHM but all earthquakes are evaluated as Poisson process.
V5	Based on seismic activity model for 2016 version of PSHM but all earthquakes are evaluated as Poisson process.
V6	Based on seismic activity model for 2017 version of PSHM but all earthquakes are evaluated as Poisson process.
V7	Based on seismic activity model for 2018 version of PSHM but all earthquakes are evaluated as Poisson process.
V8	Based on seismic activity model for 2020 version of PSHM but all earthquakes are evaluated as Poisson process.

(2) First-mesh code

First-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A first-mesh is a square area of 2/3 degrees latitude × 1 degree longitude (about 75km × 90km). This geographical coordinate system adopts the standard grid square (mesh code N) based on Tokyo Datum.

3. Data description

This ESRI Shapefile stores geometry of 250m-mesh and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Data attributes

Name	Type	Format	Explanation
CODE	String	11	250m mesh code
A0500_SI	String	2	IJMA with a return period of 500-year
A1000_SI	String	2	IJMA with a return period of 1000-year
A5000_SI	String	2	IJMA with a return period of 5000-year
A010K_SI	String	2	IJMA with a return period of 10,000-year
A050K_SI	String	2	IJMA with a return period of 50,000-year
A100K_SI	String	2	IJMA with a return period of 100,000-year

NOTE: 5L, 5U, 6L, 6U indicate IJMA equal to or larger than 5-Lower, 5-Upper, 6-Lower, and 6-Upper, respectively.

Guide to ESRI Shapefile of a map of the Conditional Probability of Exceedance

1. Abstract

This guide describes the ESRI Shapefile of a map of the Conditional Probability of Exceedance (CPE). The details are as follows.

2. File naming rule

An ESRI Shapefile for the J-SHIS CPE is named like

C-[Version code]-[Fault code]-MAP-SHAPE-CASE1. [shp|shx|dbf|prj]

Especially for 「Large Earthquakes along the Nankai Trough (2020 and after)」, file is as follows

C-[Version code]-ANNKI-[Pattern code]-MAP-SHAPE-CASE1. [shp|shx|dbf|prj]

(1) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation condition is changed.

(2) Fault code

Refer to the J-SHIS Fault Code section in this document.

(3) Pattern code

Pattern code is a code that identifies occurrence pattern of 「Large Earthquakes along the Nankai Trough (2020 and after)」 and is AN001 to AN177.

3. Data description

This ESRI Shapefile stores geometry of 250m-mesh and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Data attributes

Name	Type	Format	Explanation
CODE	String	11	250m-mesh code
AVE_SI	Double	9.5	Expected JMA seismic intensity
I45_PS	Double	9.5	Probability of exceedance [IJMA>=5-Lower]
I50_PS	Double	9.5	Probability of exceedance [IJMA>=5-Upper]
I55_PS	Double	9.5	Probability of exceedance [IJMA>=6-Lower]
I60_PS	Double	9.5	Probability of exceedance [IJMA>=6-Upper]

Guide to ESRI Shapefile of Scenario Earthquake Shaking Map

1. Abstract

This guide describes the ESRI Shapefile of Scenario Earthquake Shaking Map (SESM). The details are as follows.

2. File naming rule

An ESRI Shapefile for the J-SHIS SESM is named like

S-[Version code]-[Fault code]-MAP-SHAPE-[Case code]. [shp shx dbf prj]
--

(1) Version code

Version code is described in a format V[N]. Integer N is incremented by 1 when fault parameters or calculation criteria is changed.

(2) Fault code

Refer to the J-SHIS Fault Code section in this document.

(3) Case code

Case code is described in a format CASE[N]. N is an integer begins from 1.

3. Data description

This ESRI Shapefile stores geometry of 250m-mesh and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Data attributes

Name	Type	Format	Explanation
CODE	String	10-11	250m mesh code
BV	Double	9.5	Peak velocity on the engineering bedrock (cm/s)
BI	Double	9.5	Seismic intensity on the engineering bedrock
EB	Double	9.5	S-wave velocity on the engineering bedrock (m/s)
AMP	Double	9.5	Site amplification factor of JMA Seismic intensity
SI	Double	9.5	JMA Seismic intensity

Guide to ESRI Shapefile of Site amplification factors

1. Abstract

This guide describes the ESRI Shapefile of site amplification factors. The details are as follows.

2. File naming rule

An ESRI Shapefile for the J-SHIS site amplification factors is named like

Z-[Version code]-JAPAN-AMP-VS400_M250-SHAPE. [shp|shx|dbf|prj]

The file for a first-mesh is named like

Z-[Version code]- JAPAN-AMP-VS400_M250-SHAPE-[First-mesh code]. [shp|shx|dbf|prj]

(1) Version code

Table 2-1 Version code

Version code	Explanation
V3	The 250m mesh data used for 2014 version of "National Seismic Hazard Maps for Japan".
V4	The 250m mesh data used for 2014 version of "National Seismic Hazard Maps for Japan".

(2) First-mesh code

First-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A first-mesh is a square area of 2/3 degrees latitude × 1 degree longitude (about 75km × 90km). This geographical coordinate system adopts the standard grid square (mesh code N) based on Tokyo Datum.

3. Data description

This ESRI Shapefile stores geometry of 250m-mesh and attribute information described in Table 3-1. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

Table 3-1 Data attributes

Name	Type	Format	Explanation
CODE	String	10	250m mesh code (Japanese Geodetic Datum 2000)
JCODE	Integer	2	Engineering geomorphologic classification code
AVS	Double	5. 1	Average S-wave velocity in the upper 30m of the ground
ARV	Double	9. 4	Site amplification factor (Vs=400m/s - surface)

AVS_EB ^(*)	String	6	Average S-wave velocity in the 30m depth from engineering bedrock in the detailed method. '-' means an undefined value.
AVS_REF ^(*)	Integer	2	Classification number of reference of average S-wave velocity in the upper 30m of the ground

(*1) Version code V3 does not have these columns.

NOTE: For detail, refer to the (4) of Guide for file "Site amplification factors" in this document.

4. Revision history

Mar. 2014 Delete description of deprecated data version V1.

Mar. 2021 Add description of data version V4.

Guide to ESRI Shapefile of “Subsurface Structure”

1. Abstract

This guide describes the ESRI Shapefile of subsurface structure. The details are as follows.

2. File naming rule

An ESRI Shapefile for the J-SHIS subsurface structure is named like

D-[Version code]-STRUCT_DEEP-[File type code]-SHAPE. [shp|shx|dbf|prj]

The file for a first-mesh is named like

D-[Version code]-STRUCT_DEEP-[File type code]-SHAPE-[First-mesh code]. [shp|shx|dbf|prj]

(1) Version code

Table 2-1 Version code

Version code	Explanation	Reference
V1	The data used for 2010 version of “Scenario Earthquake Shaking Map ”.	Fujiwara et al. (2009)
V2	The data used for 2011 version of “Scenario Earthquake Shaking Map ”.	Fujiwara et al. (2012)
V3.2	The data used for 2020 version of “Scenario Earthquake Shaking Map ”.	The Headquarters for Earthquake Research Promotion (2021)
V4	The data described in Chapter 5 of Senna et al. (2023)	Senna et al. (2023)

(2) File type code

Table 2-2 shows file type code.

Table 2-2 File type code

File type code	Explanation
LYRD	Depth
LYRE	Elevation

(3) First-mesh code

First-mesh code is a part of the standard grid system defined in JIS X 0410 and JIS X 0410/AMENDMENT1:2002. A first-mesh is a square area of 2/3 degrees latitude × 1 degree longitude (about 75km × 90km). This geographical coordinate system adopts the standard grid square (mesh code N) based on Tokyo Datum.

3. Data description

This ESRI Shapefile stores geometry of 3rd-mesh and attribute information described in (1) (2) for Elevation. An ESRI Shapefile consists of a main file (*.shp), an index file (*.shx), a dBASE table (*.dbf), and a projection file (*.prj).

(1) Depth

The details are in Table 3-1, Table 3-2 and Table 3-3. Data format is written in conversion specifier for printf function of C-programming language.

a) V1 and V2

Table 3-1 Data attributes (Depth)

Name	Type	Format	Explanation
CODE	String	11	Third-mesh code (the Tokyo datum)
D0	Integer	5	0 (constant)
D1	Integer	5	Depth of the lower surface of layer No. 1 (m)
:	:	:	:
D28	Integer	5	Depth of the lower surface of layer No. 28 (m)
D29	Integer	5	Depth of the seismic bedrock (m) Vs=2700(m/s)
D30	Integer	5	Depth of the seismic bedrock surface (m) Vs=3100(m/s)
D31	Integer	5	Depth of the seismic bedrock surface (m) Vs=3200(m/s)
D32	Integer	5	Depth of the seismic bedrock surface (m) Vs=3300(m/s)

b) V3.2

Table 3-2 Data attributes (Depth)

Name	Type	Format	Explanation
CODE	String	11	Third-mesh code (Japanese Geodetic Datum 2000)
S0	Double	7.1	0 (constant)
D0	Double	7.1	Depth of the lower surface of layer No. 0 (m)
D1	Double	7.1	Depth of the lower surface of layer No. 1 (m)
:	:	:	:
D28	Double	7.1	Depth of the lower surface of layer No. 28 (m)
D29	Double	7.1	Depth of the lower surface of layer No. 29 (m) (the seismic bedrock surface)
D30	Double	7.1	Depth of the lower surface of layer No. 30 (m)

c) V4

Table 3-3 Data attributes (Depth)

Name	Type	Format	Explanation
CODE	String	11	Third-mesh code (Japanese Geodetic Datum 2000)
S0	Double	7.1	0 (constant)
D0	Double	7.1	Depth of the lower surface of layer No. 0 (m)
D1	Double	7.1	Depth of the lower surface of layer No. 1 (m)
:	:	:	:
D28	Double	7.1	Depth of the lower surface of layer No. 28 (m)
D29	Double	7.1	Depth of the lower surface of layer No. 29 (m) (the seismic bedrock surface)
D30	Double	7.1	Depth of the lower surface of layer No. 30 (m)
D31	Double	7.1	Depth of the lower surface of layer No. 31 (m)

(2) Elevation

The details are in and Table 3-4, Table 3-5 and Table 3-6. Data format is written in conversion specifier for printf function of C-programming language.

a) V1 and V2

Table 3-4 Data attributes (Elevation)

Name	Type	Format	Explanation
CODE	String	11	Third-mesh code (the Tokyo datum)
E0	Integer	6	Elevation of the ground surface (m)
E1	Integer	6	Elevation of the lower surface of layer No. 1 (m)
:	:	:	:
E28	Integer	6	Elevation of the lower surface of layer No. 28 (m)
E29	Integer	6	Elevation of the seismic bedrock surface (m) Vs=2700(m/s)
E30	Integer	6	Elevation of the seismic bedrock surface (m) Vs=3100(m/s)
E31	Integer	6	Elevation of the seismic bedrock surface (m) Vs=3200(m/s)
E32	Integer	6	Elevation of the seismic bedrock surface (m) Vs=3300(m/s)

b) V3.2

Table 3-5 Data attributes (Elevation)

Name	Type	Format	Explanation
CODE	String	11	Third-mesh code (Japanese Geodetic Datum 2000)
S0	Double	8.1	Elevation of the ground surface (m)
E0	Double	8.1	Elevation of the lower surface of layer No. 0 (m)
E1	Double	8.1	Elevation of the lower surface of layer No. 1 (m)
:	:	:	:
E28	Double	8.1	Elevation of the lower surface of layer No. 28 (m)
E29	Double	8.1	Elevation of the lower surface of layer No. 29 (m) (the seismic bedrock surface)
E30	Double	8.1	Elevation of the lower surface of layer No. 30 (m)

c) V4

Table 3-6 Data attributes (Elevation)

Name	Type	Format	Explanation
CODE	String	11	Third-mesh code (Japanese Geodetic Datum 2000)
S0	Double	8.1	Elevation of the ground surface (m)
E0	Double	8.1	Elevation of the lower surface of layer No. 0 (m)
E1	Double	8.1	Elevation of the lower surface of layer No. 1 (m)
:	:	:	:
E28	Double	8.1	Elevation of the lower surface of layer No. 28 (m)
E29	Double	8.1	Elevation of the lower surface of layer No. 29 (m) (the seismic bedrock surface)
E30	Double	8.1	Elevation of the lower surface of layer No. 30 (m)
E31	Double	8.1	Elevation of the lower surface of layer No. 31 (m)

4. References

- (1) Fujiwara, H. et al. (2009), "A Study on Subsurface Structure Model for Deep Sedimentary Layers of Japan for Strong-motion Evaluation" (in Japanese), *Technical Note of the National Research Institute for Earth Science and Disaster Prevention*, No. 337.
- (2) Fujiwara, H. et al. (2012), "Some Improvements of Seismic Hazard Assessment based on the 2011 Tohoku Earthquake" (in Japanese), *Technical Note of the National Research Institute for Earth Science and Disaster Prevention*, No. 379.
- (3) The Headquarters for Earthquake Research Promotion (2021), "Modeling concept of subsurface structures from seismic bedrock to ground surface" (in Japanese), https://www.jishin.go.jp/evaluation/strong_motion/underground_model/integration_model_kanto_2021/

- (4) Senna, S. et al. (2023), “Modeling of the Subsurface Structure from the Seismic Bedrock to the Ground Surface for a Strong Motion Evaluation” (in Japanese), *Technical Note of the National Research Institute for Earth Science and Disaster Resilience*, No. **498**.