Japan Seismic Hazard Information Station (J-SHIS)

File format specification

Apr. 2017

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 >=5-Lower] within 30 years
03	T30_I50_PS	%9.6e	Probability of exceedance [IJMA >=5-Upper] within 30 years
04	T30_I55_PS	%9.6e	Probability of exceedance [IJMA >=6-Lower] within 30 years
05	T30_I60_PS	%9.6e	Probability of exceedance [IJMA >=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
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)

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_AHKSW, LND_AAOMW,
LND_BAKIT, LND_AYMGA, LND_ANIGT, LND_BSDGN, PSE_BAKND, PSE_BHGNL, PSE_BHGNS, PSE_BYNGN,
PLE_AKNTO, PSE_BKNTO, 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 "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 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 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
PLE_AKNTO	Kanto Earthquake of "1923 Taisho" type
PLE_ASGMI	Sagami Trough earthquakes (M8 class)

(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 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	%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
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 (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_BKNTO_INTER_PHL.csv
Earthquakes on the upper surface of the Pacific plate	P-[Year code]-PRM-SHP-TYPE3_PSE_BKNTO_INTER_PCF.csv
Earthquakes in the Philippine Sea plate	P-[Year code]-PRM-SHP_TYPE3_PSE_BKNTO_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_BKNTO	Other M7 class earthquakes in Southern Kanto

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

(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) 39,142.269, 32.823,142.266, 32.827, 8.8,173.0, 5.0	Information block of discretized rectangular source faults

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"

1. 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.

2. File naming rule

Table 2-1 shows file naming rules of the parameters for seismic activity evaluation and fault shape data of EQTHR file.

Table 2-1 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.

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, 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 base as given in Table 3-2 for detail. Parameters such as the mean recurrence interval, the minimum/maximum magnitudeare and b-value are given for modeling the seimic activity of EQTHR.

Table 3-2 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 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 = 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

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

The file prepared for each earthquake is as follows.

- 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 areasP-[Year code]-PRM-ACT_[Earthquake code]_[Earthquake type code]_CV_SM.csv
  Composition of the four cases

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
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)

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_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
PSE_COUT	Outer-rise earthquakes of the Japan Trench

(3) Area code

Area 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 "#" 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

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 Mj to Mw, 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
VER. = 1.0 # # DATE = 2007-09-19 # # UPDATED # 2007-09-19 add header # # EQCODE, EQTYPE, SPTYPE, MTTYPE, CRTYPE PSE_CPCF,3,2,1,1 (Following omitted)

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
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)

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_MTTL.csv
```

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

```
A-[Version code]-MAP-AVR-TTL_MTTL-[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.

(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

(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. 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
#
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)

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
# 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	Analysis area block
# 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)	Data block

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
# 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)	Data block

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 P60)
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
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)

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".

(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)

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)

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

Table 3-3 Engineering geomorphologic classification

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

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

The reference is shown in Table 3-4.

Table 3-4 Reference of the average S-wave velocity in the upper 30m of the ground

Version code	Reference
V3	Matsuoka and Wakamatsu (2008)

3) Site amplification factor (Vs=400m/s - surface)

The reference is shown in Table 3-5.

Table 3-5 Reference of the site amplification factor (Vs=400m/s - surface)

Version code	Reference
V3	Fujimoto and Midorikawa (2006)

(5) Example

Table 3-6 shows the example of data description.

Table 3-6 Example

Example
#
VER. = 1.0
DATE = 2014-12-08
#
UPDATED

```
#
# CODE, JCODE, AVS, ARV
5640000011, 1,641.3,    0.6689
 (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) 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.

(3) 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. Revision history

Mar. 2014　　Delete description of deprecated data version V1.

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)

(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 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 of each attribute are shown below.

1) Depth

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 (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)

2) Elevation

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

Table 3-2 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)

3) Physical property

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

Table 3-3 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	SRO	%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 3-4 and Table 3-5 show the example of data description.

Table 3-4 Example Elevation)

Example
#
VER. = 1.0
DATE = 2009-04-24
#
UPDATED
#

```
# CODE,  E0,E1,E2,E3,E4,E5,E6,E7,E8,E9,E10,E11,E12,E13,E14,E15,E16,E17,E18,E19,E10,E21,E
22,E23,E24,E25,E26,E27,E28,E29,E30,E31,E32
56360000N,-1184,-1184,-1184,-1184,-1184,-1184,-1756,-1756,-1756,-1756,-1756,-1756,-1756,-1
756,-1756,-1756,-1756,-1756,-2245,-2245,-2245,-2245,-2245,-2245,-2245,-2495,-3111,-4
467,-4467,-4467,-4467,-4467,-8504
 (Following omitted)
```

Table 3-5 Example (Physical property)

Example

```
#
# VER. = 1.0
# DATE = 2009-04-24
#
# UPDATED
#
# PYS
# 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", *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", *Technical Note of the National Research Institute for Earth Science and Disaster Prevention*, No. **379**.

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
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_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)
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)

Earthquake code	Earthquake name
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_AHKSW	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_AKNTO	Kanto Earthquake of "1923 Taisho" type
PSE_BKNTO	Other M7 class earthquakes in Southern Kanto
PLE_ASGMI	Sagami Trough earthquakes (M8 class)
PSE_CPCF	Interplate/intraplate earthquakes without specified source faults for the Pacific plate
PSE_COUT	Outer-rise earthquakes of the Japan Trench
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

Earthquake code	Earthquake name
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
PSE_MTTL	Earthquakes of Category II
LND_MTTL	Earthquakes of Category III
PPE_MTTL	Earthquakes of Category I and II

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	Chuo-kozosen fault zone (Kongo-sanchi-toen- Izumi-sanmyaku-nanen) : 2011 version and before Chuo-kozosen fault zone (Kongo-sanchi-toen) : 2012 version and after

Fault code	Fault name
F008102	Chuo-kozosen fault zone (Kitan-kaikyo-Naruto-Kaikyo)
F008103	Chuo-kozosen fault zone (Sanuki-sanmyaku-nanen- Ishizuchi-sanmyaku-hokuen- tobu)
F008104	Chuo-kozosen fault zone (Ishizuchi-sanmyaku-hokuen)
F008105	Chuo-kozosen fault zone (Ishizuchi-sanmyaku-hokuen-seibu- Iyonada)
F008106	Chuo-kozosen 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)
F009703	Shirako-Noma fault

Fault code	Fault name
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
F012801	Beppu-wan-Hijiu fault zone/Eastern segment

Fault code	Fault name
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)
F013603	Ichiki fault zone (Fukiagehama seiho-Oki segment)

Fault code	Fault name
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 falut
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)
F01622A	Itoigawa-Shizuoka-kozosen fault zone (Northern segment/Central northern segment)
F01622B	Itoigawa-Shizuoka-kozosen fault zone (Central northern segment/Central southern segment)

Fault code	Fault name
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 dault
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/Itsukaichi 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
F019001	Hiroshima-wan-Iwakuni-oki fault zone
F019101	Ube-Nanpou-oki fault
F019201	Yasaka fault

Fault code	Fault name
F019301	Jifuku fault
F019401	Ohara-ko fault
F019501	Ogori fault
F019601	Tsutsuga falult
F019701	Takibe fault
F019801	Nago fault
F019901	Sakaedani fault
F020001	Kurose 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 (ZYXEsd)
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

Fault code	Appropriate earthquake name
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
AHKSW	Hokkaido-nansei-Oki Earthquake
AAOMW	Aomori-ken-seiho-Oki Earthquake
BAKIT	Akita-ken-Oki Earthquakes
AYMGA	Yamagata-ken-Oki Earthquake

Fault code	Appropriate earthquake name
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
BKNTO	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 (CST123D) : 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

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	Ponnitashibetsu 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
G030031	Kotaru-gawa fault zone

Fault code	Fault name
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
G030069	Tanna fault zone nantan group

Fault code	Fault name
G030070	Daruma-yama fault zone
G030071	Iro-zaki fault
G030072	Nihondaira fault zone
G030073	Hatanagi-san fault
G030074	Chuo-kozosen-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
G030106	Odorii fault zone

Fault code	Fault name
G030107	Suzuka-sakashita fault zone
G030108	Kyogamine-minami fault
G030109	Chuo-kozosen 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	Chuo-kozosen 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-Kamato 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
G030142	Ohara-ko fault

Fault code	Fault name
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
G030180	Ube-toubu-Shimosato fault

Fault code	Fault name
G030181	Ube-nantou-oki fault zone
G030182	Hime-jima-hokusei-oki fault zone
G030183	Itoshima-hanto-Oki 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

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_AKNTO	Kanto Earthquake of "1923 Taisho" type
PLE_ASGMI	Sagami Trough earthquakes (M8 class)

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 (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_BKNTO_INTER_PHL.[shp|shx|dbf|prj]
Earthquakes on the upper surface of the Pacific plate	P-[Year code]-PRM-SHAPE-TYPE3_PSE_BKNTO_INTER_PCF.[shp|shx|dbf|prj]
Earthquakes in the Philippine Sea plate	P-[Year code]-PRM-SHAPE-TYPE3_PSE_BKNTO_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_BKNTO	Other M7 class earthquakes in Southern Kanto

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		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 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_MTTL-SHAPE.[shp|shx|dbf|prj]

The file for a first-mesh is named like

A-[Version code]-MAP-AVR-TTL_MTTL-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.

(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]

(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

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".

(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) (*)

(*)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.

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)

(2) File type code

Table 2-1 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. Data format is written in conversion specifier for printf function of C-programming language.

Table 3-1 Data attributes (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)

(2) Elevation

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

Table 3-2 Data attributes (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)

4. References

(1) Fujiwara, H. et al. (2009), "A Study on Subsurface Structure Model for Deep Sedimentary Layers of Japan for Strong-motion Evaluation", *Technical Note of the National Research Institute for Earth Science and Disaster Prevention*, No. **337**.

(2) Fujiwara, H. et al. (2012), “, 2012a, H. et althe National Research Institute for Earth Science and Disaster Pre, *Technical Note of the National Research Institute for Earth Science and Disaster Prevention*, No. **379**.