This document describes the organization and contetent of the CR-ROM.

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| 00_README.txt : This file
| 01_List_of_Data_Files.pdf
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| 04_Location_and_Soil_Profile_for_Fukushima_Daini.pdf
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| 06_Characteristics_of_Seismometers_for_Fukushima_Daini.pdf
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| 09_Data_from_Base-Isolated_Building_at_Fukushima_Daiichi.pdf
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| 11_Data_from_Dense_Surface_Array_at_Fukushima_Daiichi.pdf
| 12_Characteristics_of_Other_Seismometers.pdf
+-DATA :Data File
+-DATA
  |
  +-1F6 : Fukushima Daiichi Unit 6 - Reactor Bldg, Turbine Bldg, Free field (Seismometer Type B)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      1F6yyyymmddhhMM***.** : Data file
  |
  +-1FN : Fukushima Daiichi - Free field at North point (Seismometer Type A)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      1FPyyyymmddhhMM***.** : Data file
  |
  +-1FS : Fukushima Daiichi - Free field at South point (Seismometer Type A)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      1FPyyyymmddhhMM***.** : Data file
  |
  +-1FZ : Fukushima Daiichi Units 1 to 6 - Reactor Bldgs, Seismic Observation house
(Seismometer Type C)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      1FZyyyymmddhhMM***.** : Data file
  |
  +-2F1 : Fukushima Daini Units 1 & 2 - Reactor Bldgs, Turbine Bldgs, Free field near Unit 1
        (Seismometer Type B)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      2F1yyyymmddhhMM***.** : Data file
  |
  +-2FF : Fukushima Daini - Free field (Seismometer Type A)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      2FFyyyymmddhhMM***.** : Data file
  |
  +-2FZ : Fukushima Daini Units 1 to 4- Reactor Bldgs, Turbine Bldgs, Seismic Observation house
        (Seismometer Type C)
```

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    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      2FZyyyymmddhhMM***.** : Data file
  |
  +-1Fi : Fukushima Daiichi Base-Isolated Building (Seismometer Type a)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      1Fiyyyymmddhh MM***.** : Data file
  |
  +-2Fi : Fukushima Daini Base-Isolated Building (Seismometer Type a)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      2Fiyyyymmddhh MM***.** : Data file
  |
  +-1FA : Fukushima Daiichi Dense Surface Array (Seismometer Type b)
    |
    +-yyyymmddhhMM : Date and time of earthquake occurrence
      1FAyyyymmddhh MM***.** : Data file
```

Notes

- The North direction of the seismometers coincide with the NS-axis of the plant (Plant North, P.N.), except for the Type b seismometers. See files 03, 04, 09 and 10.

- For the Type b seismometers, the North direction of the seismometers coincide with the true North. See file 11.

- For the Type C seismometers, data starting times are not synchronized because data recordings are initiated separately, and the times are not refered absolute time.

- For the Type a seismometers, the data starting times are not refered absolute time.

- All seismometers except for the Type B seismometers used for Fukushima Daini NPP are set to take North (between North-South), East (between East-West), and Up (between Up-Down) as positive. In other words, these seismometers have the same polarity as K-NET instruments.

- Type B seismometers used for Fukushima Daini NPP are set to take South (between North-South), West (between East-West), and Up (between Up-Down) as positive.

- Baseline correction is not applied to any data. However, the maximum acceleration and time history plot described in file 07 and 08 are determined after baseline correction applied.

- yyyy: A.D. year (4 digits)
  mm: Month
  dd: Date
  hh: Hour
  MM: Minute
  ***.**: Identification of observation point, followed by component

Refer to "01_List_of_Data_Files.pdf" for further details.
The year/date/hour/minute is the time (reported by the Japan Meteorological Agency) when the corresponding earthquake occurred.

- The earthquake source data in this CD-ROM are the tentative values determined by the Japan

Meteorological Agency.

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1. This CD-ROM may not be copied for distribution to a third person or party.
2. Tokyo Electric Power Company is to be credited as the provider of data for any outcome that result from use of this CD-ROM.

Description of data format

The format adopted in the strong-motion data file is illustrated below using an example.

```
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
INDEX-NUMBER      =1FP201103111446GN1.NS<CR>                    (1) Index
CHANNEL-NUMBER    =1<CR>                                  (2) Channel ID
TOTAL OF CHANNELS  =15<CR>                                (3) Total number of channels
DATA-NUMBER       =30000<CR>                                    (4) Total number of data
DATA-INTERVAL     = 0.01<CR>                                    (5) Sampling interval
ACC-MAX           =570.345<CR>                            (6) Maximum acceleration
OBSERVED-LONGITUDE =141   2<CR>                                 (7) Longitude of
observation point
OBSERVED-LATITUDE  = 37  25<CR>                                 (8) Latitude of
observation point
OBSERVED PLACE NAME=1FN<CR>                                     (9) Location
TITLE             =GN1(OP+12.2m) NS<CR>                 (10) ID code of observation point,
Component
 EARTHQUAKE-ORIGIN<CR>                                          (11)
LONGITUDE         =142  51.60<CR>                         (12) Longitude of epicenter
LATITUDE          = 38   6.20<CR>                         (13) Latitude of epicenter
MAGNITUDE          =9.0<CR>                               (14) Magnitude
DEPTH             =24<CR>                                 (15) Depth of epicenter
EPICENTRAL-DISTANCE=178<CR>                                     (16) Epicentral distance
ORIGIN-TIME       =2011   3  11  14  46  18.00<CR>        (17) Origin Time
LOCATION          =OFF SANRIKU<CR>                        (18) Location of epicenter
DATA-FORMAT       =(10F8.3)<CR>                             (19) Data format
DATA-STARTING-TIME =2011   3  11  14  46  20.00<CR>       (20) Data start time
DATA-UNIT         =Gal<CR>                                (21) Unit used for data
         ・
         ・Lines 1 to 21: Header information
         ・Lines 22 to 50: Blank
         ・Lines 51 – : Data (10F8.3) Unit : Gal
         ・
  0.029   0.040  -0.011  -0.038  -0.010   0.005  -0.006  -0.007   0.024   0.037
  0.003  -0.012   0.014   0.032   0.004   0.003   0.063   0.069   0.006  -0.022
 -0.018  -0.026  -0.039   0.009   0.094   0.081  -0.015  -0.062  -0.027   0.017
         ・
         ・
         ・
         ・
         ・
  2.329   1.438   1.009   0.489   0.217   0.229  -0.045  -0.357   0.071   0.954
  1.797   2.602   2.357   0.405  -1.531  -2.313  -2.693  -3.118  -2.921  -1.831
 -0.561   1.006   3.396   5.233   5.930   6.418   6.288   5.744   5.444   4.042
[EOF]
----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
```

Notes

(19) DATA-FORMAT

– Any value exceeding 1000 gal is expressed in 10F8.2 instead of 10F8.3 .

(20) DATA-STARTING-TIME

- This time is the actual start time subtracting the delay time.
- For the Type C seismometers, data starting times are not synchronized because data recordings are initiated separately, and the times are not refered absolute time.

List of observation data files

I. Fukushima Daiichi Unit 6 - Reactor Bldg, Turbine Bldg, Free field (Seismometer Type B)

Placed in Directory : 1F6/201103111446/

File Name	Observation Point	Location	Altitude (O.P.)	Component
1F6201103111446P01.NS	P1	Unit 6 , Reactor Bldg Roof truss	+65.5m	NS
1F6201103111446P01.EW				EW
1F6201103111446P01.UD				UD
1F6201103111446P11.UD	P11			UD
1F6201103111446P02.NS	P2	Unit 6 , Reactor Bldg 6th floor	+51.5m	NS
1F6201103111446P02.EW				EW
1F6201103111446P02.UD				UD
1F6201103111446P10.NS	P10			NS
1F6201103111446P10.EW				EW
1F6201103111446P10.UD				UD
1F6201103111446P08.NS	P8	Unit 6 , Reactor Bldg 2nd floor	+19.0m	NS
1F6201103111446P08.EW				EW
1F6201103111446P08.UD				UD
1F6201103111446P03.NS	P3	Unit 6 , Reactor Bldg 2nd basement (on basemat)	+1.0m	NS
1F6201103111446P03.EW				EW
1F6201103111446P03.UD				UD
1F6201103111446P05.NS	P5			NS
1F6201103111446P05.EW				EW
1F6201103111446P05.UD				UD
1F6201103111446P13.NS	P13	Borehole near Unit 6	-18.0m	NS
1F6201103111446P13.EW				EW
1F6201103111446P13.UD				UD
1F6201103111446P04.NS	P4	Borehole near Unit 6	-18.0m	NS
1F6201103111446P04.EW				EW
1F6201103111446P04.UD				UD
1F6201103111446P14.NS	P14	Borehole near Unit 6	-130m	NS
1F6201103111446P14.EW				EW
1F6201103111446P14.UD				UD
1F6201103111446P09.NS	P9	Unit 6 , Turbine Bldg 2nd floor (on turbine pedestal)	+23.0m	NS
1F6201103111446P09.EW				EW
1F6201103111446P09.UD				UD
1F6201103111446P06.NS	P6	Unit 6 , Turbine Bldg Basement (on basemat)	+1.0m	NS
1F6201103111446P06.EW				EW
1F6201103111446P06.UD				UD

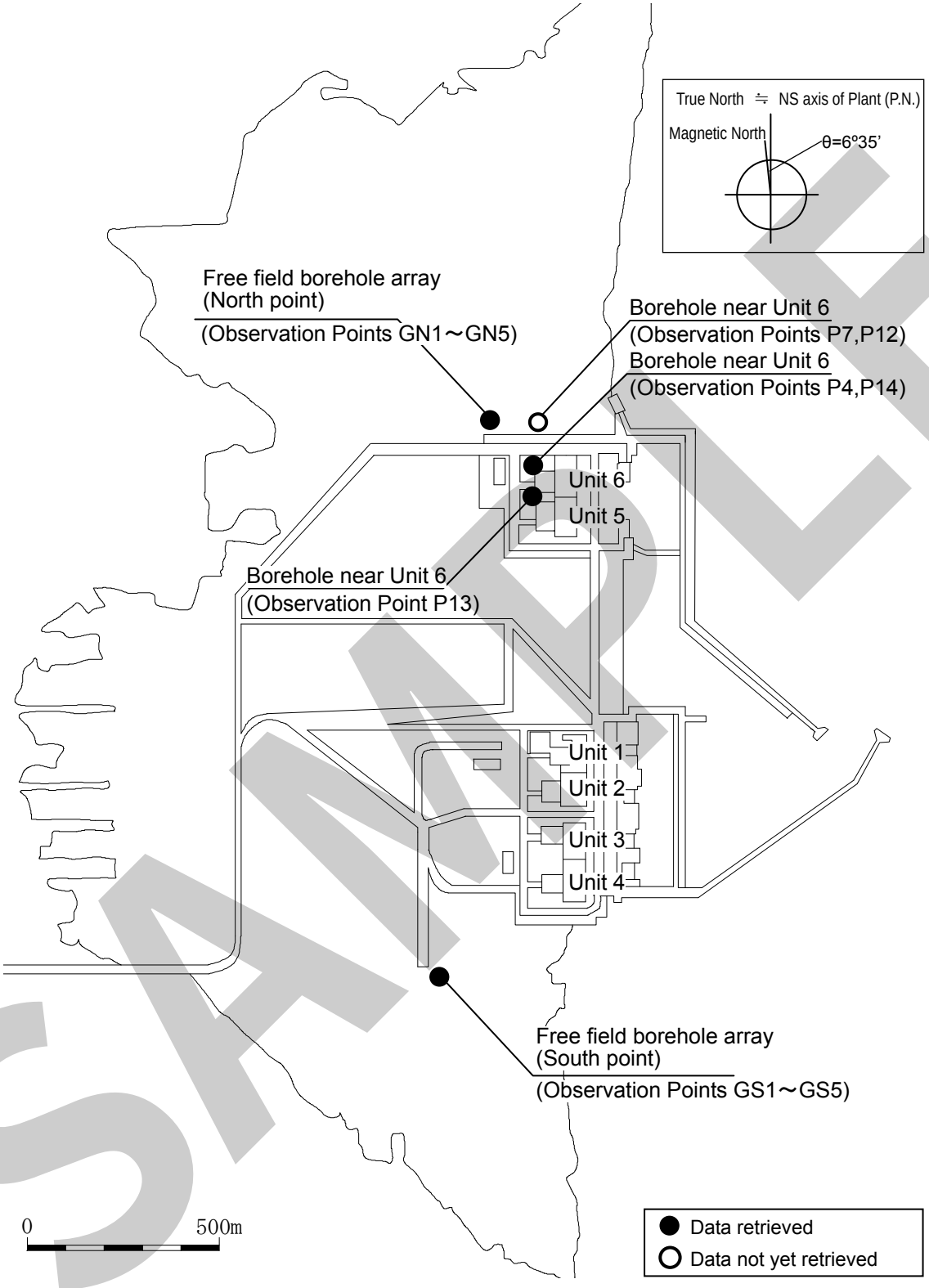


Fig. 1 Schematic location of observation points at the Fukushima Daiichi Nuclear Power Plant

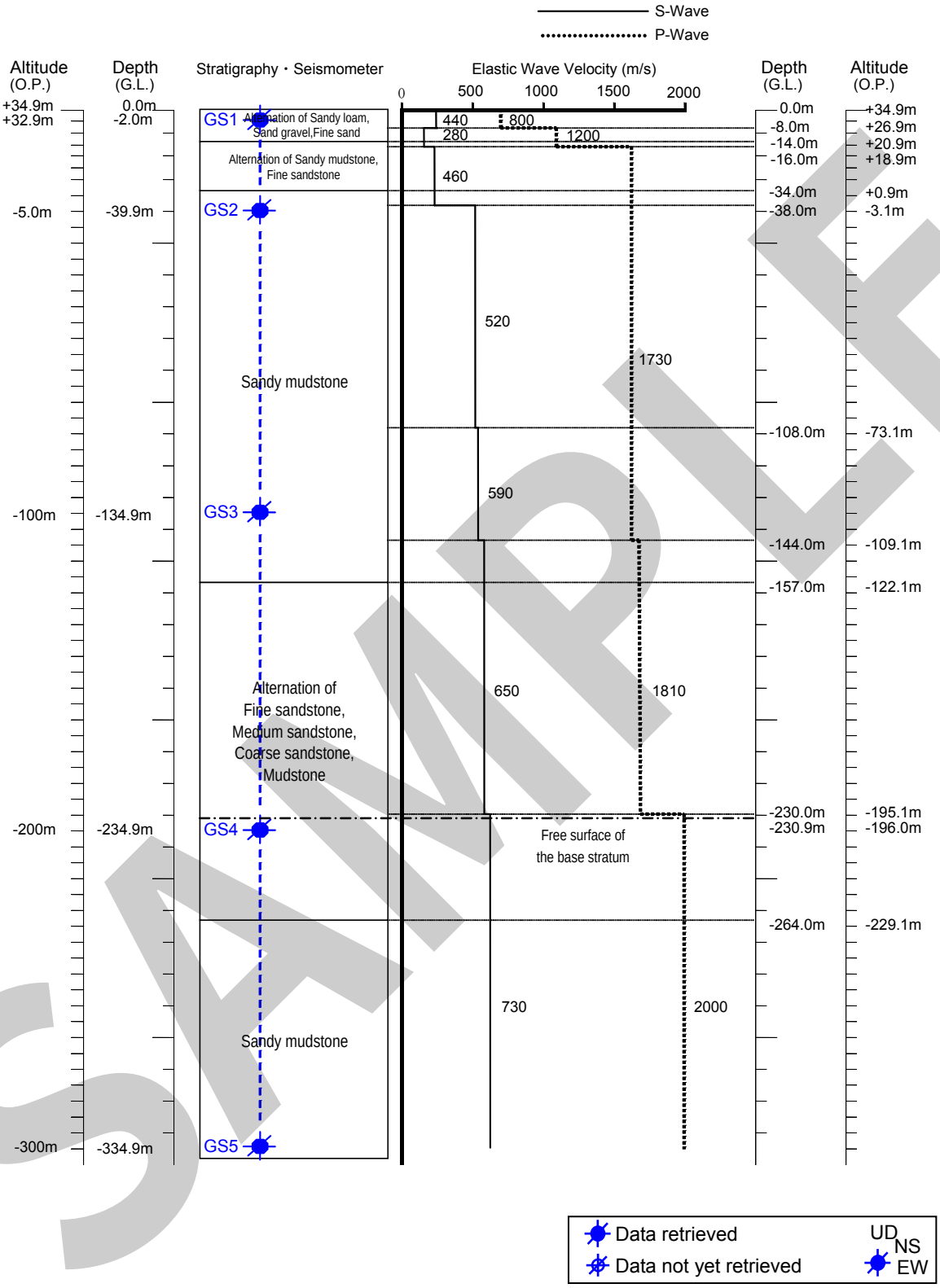


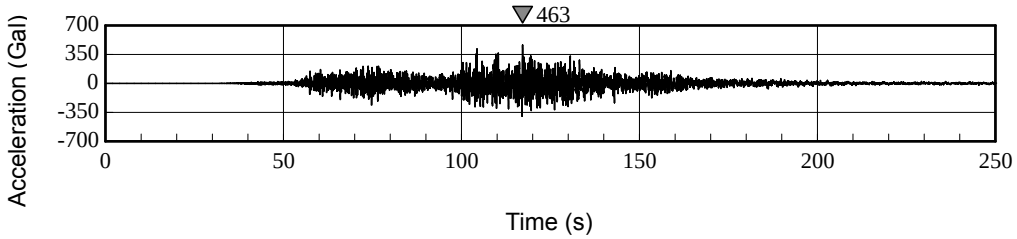
Fig. 2 Geological stratum and location of seismometers at Free field borehole array (South point)

Table.2 Characteristics of Seismometer Type A

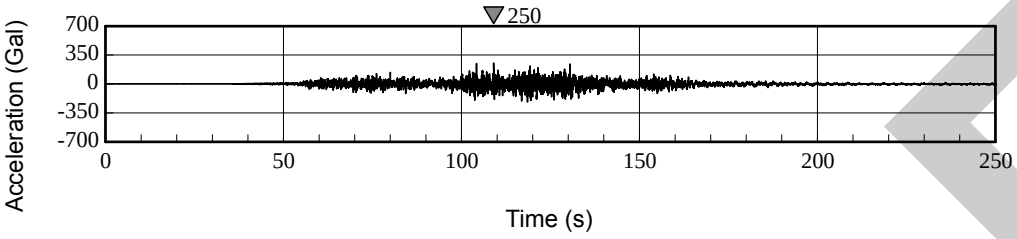
Unit	Item	Specifications
Sensor	Instrument type	Servo type accelerometer
	Frequency response	DC – 300 Hz
	Full scale range	± 2 G
Amplifier	Frequency response	0.05 - 30 Hz
	Digital filter	30 Hz sixth-order LPF IIR
	Full scale range	± 2000 Gal
Recorder	A/D converter	24 bit
	Dynamic range	126 dB
	Resolution	0.96 mGal
	Sampling frequency	100 Hz
	Time correction	GPS

Table.3 Characteristics of Seismometer Type B

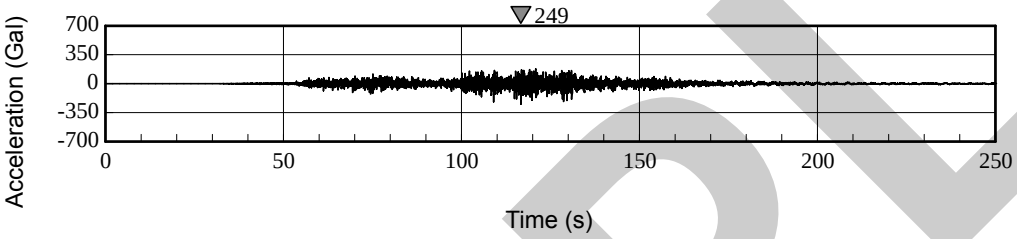
Unit	Item	Specifications		
		P1 – P4	P5 – P11	P12 – P14
Sensor	Instrument type	Servo type accelerometer		
	Frequency response	DC – 400 Hz	0.1 – 100 Hz	
	Full scale range	± 2 G (horizontal) ± 1 G (vertical)	± 1000 Gal	± 700 Gal
Amplifier	Frequency response	0.02 - 30 Hz		
	Digital filter	30 Hz third-order LPF IIR, 0.02Hz/DC first-order HPF IIR		
	Full scale range	± 2097 Gal		
Recorder	A/D converter	24 bit		
	Dynamic range	114 dB		
	Resolution	4.00 mGal		
	Sampling frequency	100 Hz		
	Time correction	GPS		



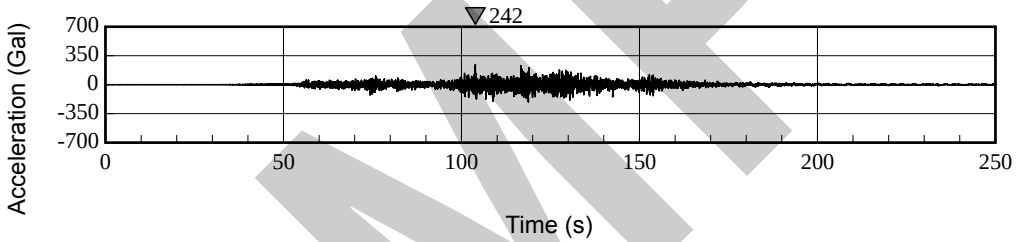
（a）Observation Point GS1（O.P.+32.9m）



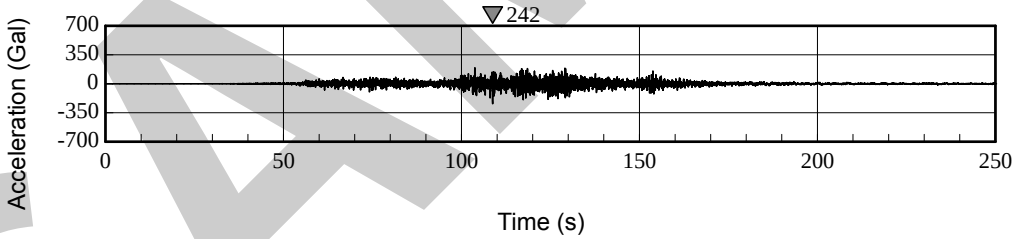
（b）Observation Point GS2（O.P.-5.0m）



（c）Observation Point GS3（O.P.-100m）



（d）Observation Point GS4（O.P.-200m）



（e）Observation Point GS5（O.P.-300m）

Fig.1 Acceleration time histories (NS) at Free field borehole array (South point)
(2011.3.11 14:46 off the Pacific coast of Tohoku Earthquake)

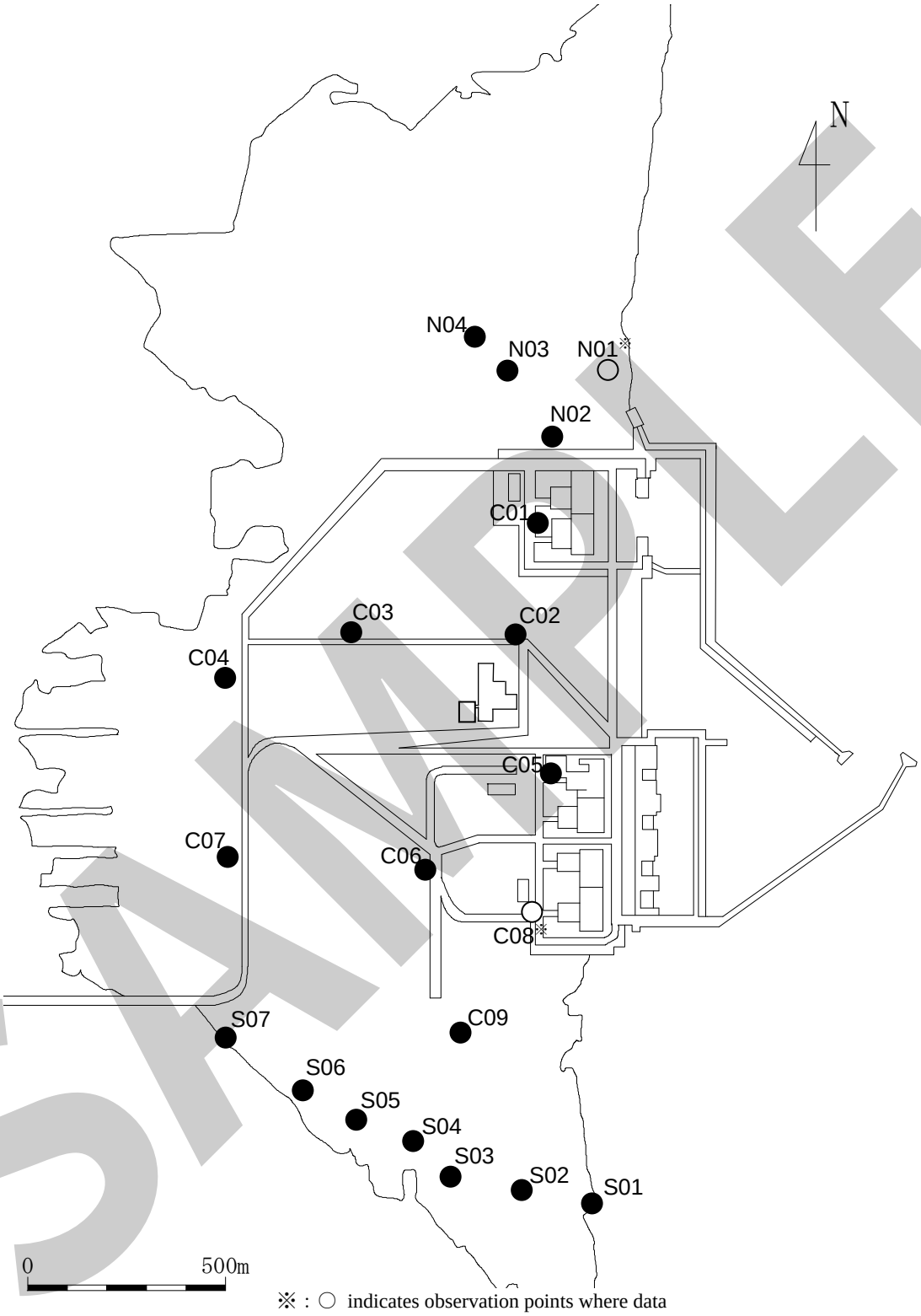


Fig. 1 Location of Dense Surface Array at Fukushima Daiichi Nuclear Power Plant