

## About Waveform Data

The format of the seismic acceleration data is shown in text form on page 216 of "New Introduction to Spectral Analysis of Seismic Motions" (hereafter referred to as this book). The first line is the name of the earthquake motion (A50), the time interval (F10.2, unit: seconds), the total number of data (I10), and the maximum acceleration (F10.2, unit: Gal=cm/sec<sup>2</sup>), followed by the acceleration data (8F10.2, unit: Gal) on the second and subsequent lines. In this book, device identification number 5 is used for reading and 6 for output. Since most fortran language compiler software uses number 5 as the standard input and number 6 as the standard output, it seems preferable to use device numbers other than 5 and 6 when reading data from a file (input) or writing data to a file (output). For example, if you want to read the attached acceleration data from device number 50, you can do the following.

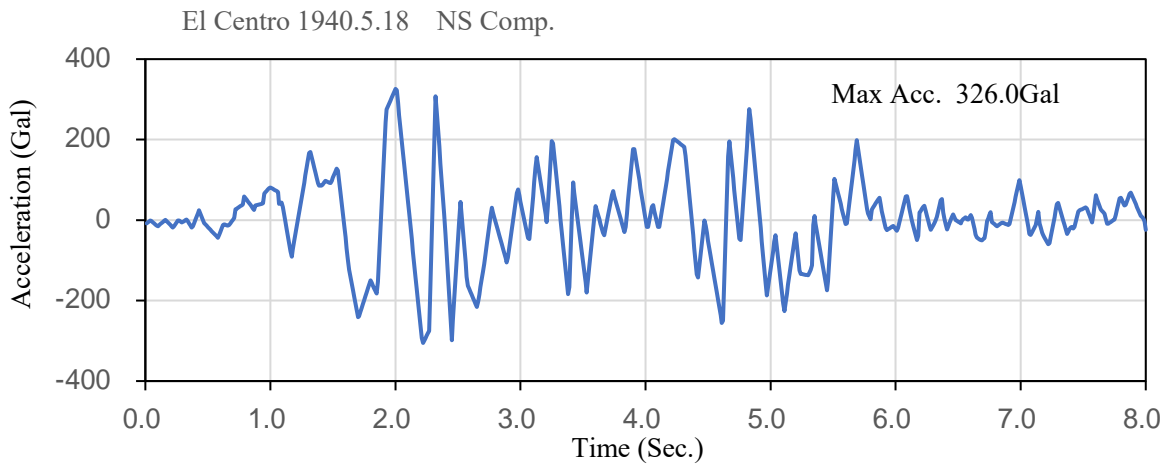
```
CHARACTER NAME*50
REAL*4 DT, ACC(800), ACMAX
C
READ(50, ' (A50, F10. 0, I10, F10. 0)' ) NAME, DT, ND, ACMAX
READ(50, ' (8F10. 0)' ) (ACC(I), I=1, ND)
```

To read El Centro wave acceleration data, EQ.01, from the device number (UNIT) 50, set the device number (the first number in the sequence of parentheses in the OPEN statement) to 50 in the OPEN statement shown on page 216 of this book, and replace the filename in the second FILE='filename' with EQ.01. If the OPEN statement is not used in the program source, it is necessary to specify the device number 50 to be EQ.01 in the runtime shell.

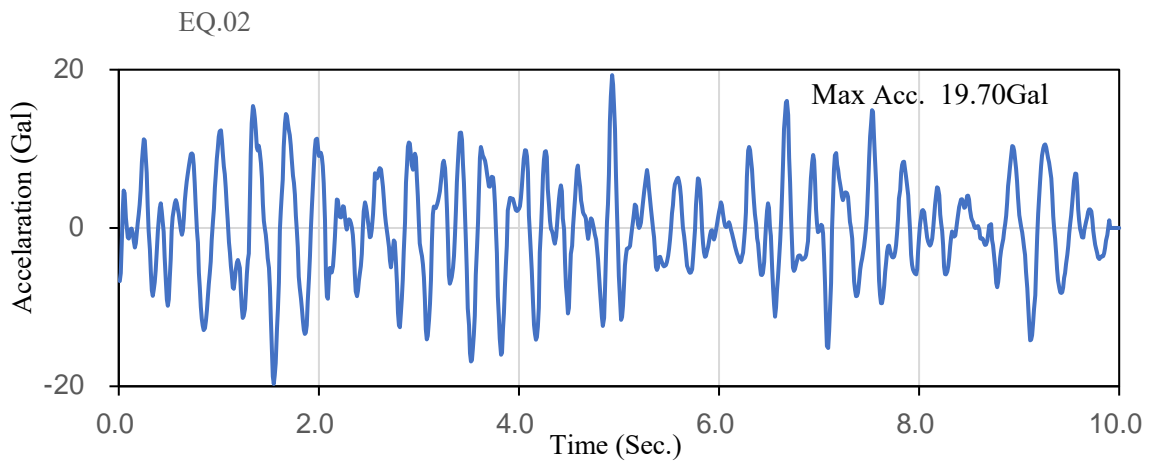
For reference, the data conversion program to read the published EQ.01 data in Excel can be written as follows. It is assumed that EQ.01 is read from device number 50 and text format file is output to device number 60. If you compile the file with a fortran compiler and run it, you will get a file named fort.60. Rename fort.60 to EQ01.txt, for example, and read it from Excel as a fixed-length text file and you can make figures like those on the next page.

```
CHARACTER NAME*50
REAL*4 DT, ACC(800), ACMAX
C
READ(50, ' (A50, F10. 0, I10, F10. 0)' ) NAME, DT, ND, ACMAX
READ(50, ' (8F10. 0)' ) (ACC(I), I=1, ND)
C
DO I=1, ND
  WRITE(60, ' (2F10. 3)' ) DT*FLOAT(I-1), ACC(I)
END DO
C
STOP
END
```

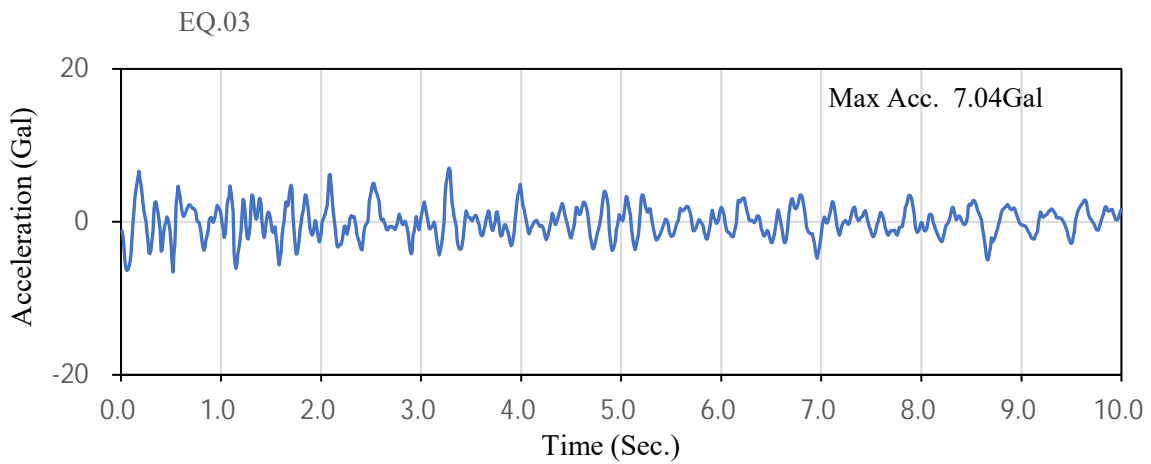
Graphical Figures of the waveform data



(a) EQ.01 data ( Fig. 1-1 on page 2 and first figure of Fig. 8-1 on page 161)



(b) EQ.02 data (Fig. 9-16 on page 191)



(c) EQ.03 data (Fig. 9-16 on page 191)