
How to use 'MRT-EL.for' : Fourier transform and spectrum analysis

MRT-EL.for

Input file: MRT-EL.idt

Wave data file: KushiroPort.dat ; this is denoted by 'MRT-EL.idt'

Output files:

Ampo-el.frd

コメント [A1]: Amplification
factor in frequency data

MRT-EL.idt

コメント [A2]: ファイル名は固定

```

/const/
  graacc      budwat      refhed
  .1000000E+01 .1000000E+01 .1000000E+01

```

コメント [A3]: No valid

```

/dainf/
  ndat      rdpm
  10000     .6000000E+00

```

コメント [A4]: No valid

```

/tcinf/
  tint[sec.]  tskp[sec.]
  .0100000E+00 .0000000E+00

```

コメント [A5]: Time increment:
sampling period

```

/niinf/
  gamma      beta
  .5000000E+00 .2500000E+00

```

コメント [P6]: No valid

```

/flinf/
  ifinp      ; -1: no, 1: Parzen Window
              -1
  band[Hz]   lowcut[Hz]   highcut[Hz]   for Parzen Window
  0.300000E+00 .000000E+00 .1000000E+10

```

コメント [A7]: Control filter and
smoothing operation; -1: no, 1:
Parzen Window

```

/file_flag/
  inpw
  1
  data filename[in 30 letters including symbols from 16th column]
  flag name[in 5 letters including symbols from 16th column]
  /data

```

コメント [P8]: Fix this to be 1

コメント [P9]: Earthquake acc
data

```

/lyinf/
  nlayer(including base layer)
  3
  No.  thickl  rho      G      hh
  1    .1000000E+02 .1500000E+04 .1500000E+08 .0300000E+00
  2    .1000000E+02 .1500000E+04 .6000000E+08 .0300000E+00
  3    .1000000E+02 .1500000E+04 .1350000E+09 .0300000E+00

```

コメント [P10]: Wave data must
follow this flag which user can
choose by one-self.コメント [P11]: Number of
layers including base layer

コメント [P12]: Surface layer

コメント [P13]: Base layer

(ground surface)

1st layer thickness H= 10m, density $\rho=1500\text{kg/m}^3$, shear modulus $G=\rho V_s^2=15\text{MPa}$, damping factor $h=0.03$ 2nd layer thickness H= 20m, density $\rho=1500\text{kg/m}^3$, shear modulus $G=\rho V_s^2=60\text{MPa}$, damping factor $h=0.03$ 3rd layer thickness H= 20m, density $\rho=1500\text{kg/m}^3$, shear modulus $G=\rho V_s^2=135\text{MPa}$, damping factor $h=0.03$
(base layer)

KushiroPort.dat

コメント [A14]: ファイル名は固定

/data/

コメント [A15]: This flag must be denoted in 'fft.idt'.

0.045
0.015
-0.142
-0.192
-0.035
0.137
-0.112
0.08
0.006
-0.135
.....

'Ampo-el.frd' files:

No.	H	rho	Vels	hh	Z[(i)-(i+1)]	N.Period
1	0.1000000E+02	0.1500000E+04	0.1000000E+03	0.3000000E-01	0.5000000E+00	0.4000000E+00
2	0.1000000E+02	0.1500000E+04	0.2000000E+03	0.3000000E-01	0.6666667E+00	0.2000000E+00
3	0.1000000E+02	0.1500000E+04	0.3000000E+03	0.3000000E-01	0.1000000E+01	0.1333333E+00

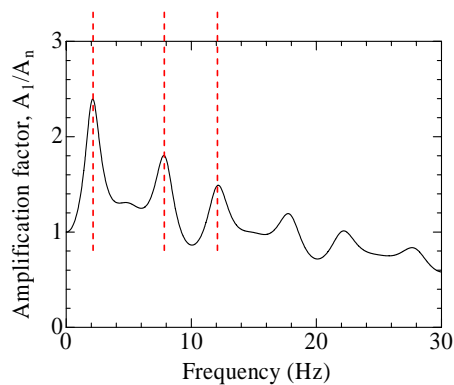
Freq.	Period	omg	A1/An	AB1/ABn	AccB	AccS
0.1220703E-01	0.8192000E+02	0.7669904E-01	0.9998852E+00	0.1000051E+01	0.5933935E-01	0.5933254E-01
0.2441406E-01	0.4096000E+02	0.1533981E+00	0.9998469E+00	0.1000205E+01	0.6256434E-01	0.6255476E-01
0.3662109E-01	0.2730667E+02	0.2300971E+00	0.9998850E+00	0.1000462E+01	0.6522687E-01	0.6521937E-01
0.1000000E+01	0.1000000E+01	0.2000000E+01	0.8000000E+01	0.8000000E+01	0.0000000E+00	

.....

コメント [P16]: Profile of layers:
'N.Period' indicates natural period calculated by $4H1/Vs$.
Only in two layer system, 'N.Period' is useful information.

コメント [P17]: Frequency, perios and omega(angular frequency) fro input wave date

コメント [P18]: A1: amplitude of upward wave in surface layer, An: amplitude of upward wave in base layer. If we plots $A1/An$ vs. Freq, we can discuss the amplification properties of the ground system.

(4th column vs. 1st column)