Two major steps using FES to generate tidal BC.

1) ./gen_fg

The output will be fg.bp.

Remove the first two lines in fg.bp which will be used as input for next step.

2) ./gen_harm_FES

ln –sf fg.bp open.ll

matlab –nodisplay

>>gen_harm_FES

The output will be ap.out.

Add the following lines (see how to generate them in "2 ADCIRC tidal BC") to the ap.out and save ap.out as bctides.in:

```
07/27/2011 00:00:00 GMT
8 50. ntip
S2
2 0.112841 0.145444E-03 1.00000     0.00
M2
2 0.242334 0.140519E-03 1.00661    86.75
N2
2 0.046398 0.137880E-03 1.00661    198.72
K2
2 0.030704 0.145842E-03 0.96614    266.42
K1
1 0.141565 0.729212E-04 0.99458    223.23
P1
1 0.046843 0.725229E-04 1.00000    145.67
O1
1 0.100514 0.675977E-04 0.99104    219.40
Q1
1 0.019256 0.649585E-04 0.99104    331.37
8  nbfr
S2
  0.145444E-03 1.00000     0.00
M2
  0.140519E-03 1.00661    86.75
N2
  0.137880E-03 1.00661    198.72
K2
  0.145842E-03 0.96614    266.42
K1
```

```
  0.729212E-04  0.99458    223.23
P1
  0.725229E-04  1.00000    145.67
O1
  0.675977E-04  0.99104    219.40
Q1
  0.649585E-04  0.99104    331.37
1 !nope
748 3 0 0 0 !Ocean
```

Note:

1) the first two columns if parameters for each tidal constituent are fixed, the last two columns of parameters are dependent on time, which can be generated by Nodal_Factors in ADCIRC. Will be described later.
2) The order of the tidal constituents should be the same with that in the ap.out.

2 ADCIRC tidal BC

Cd /sciclone/home20/whuang07/schism10/NWM/Case1/RUN08c/ADCIRC%
Two steps using ADCIRC

    1   is to generate the amplitude and phase,
    2   is to generate the nodal factors for each tidal constituent.

Specitically:

1) Under Amp_Phase
   ./gen_bc.pl hgrid.ll tides.out
2) Under NodalFactor/ADCIRC
   ./tide_fac
   The output will be tide_fac.out:
   TIDAL FACTORS STARTING: HR- 0.00, DAY- 27, MONTH- 7 YEAR- 2011

   FOR A RUN LASTING   50.00 DAYS

   CONST   NODE   EQ ARG (ref GM)
   NAME   FACTOR   (DEG)

   K1   0.99458   223.23
   O1   0.99104   219.40
   P1   1.00000   145.67
   Q1   0.99104   331.37
   N2   1.00661   198.72
   M2   1.00661   86.75
   S2   1.00000   0.00
   K2   0.96614   266.42
```

3) Add the two factors for each tidal constituent in bctide.in (see highlighted below)

07/27/2011 00:00:00 GMT

7 50. ntip

S2

2  0.112841  0.145444E-03  1.00000     0.00

M2

2  0.242334  0.140519E-03  1.00661    86.75

N2

2  0.046398  0.137880E-03  1.00661    198.72

K2

2  0.030704  0.145842E-03  0.96614    266.42

K1

1  0.141565  0.729212E-04  0.99458    223.23

O1

1  0.100514  0.675977E-04  0.99104    219.40

Q1

1  0.019256  0.649585E-04  0.99104    331.37

7  nbfr

S2

  0.145444E-03  1.00000     0.00

M2

  0.140519E-03  1.00661    86.75

N2

  0.137880E-03  1.00661    198.72

K2

  0.145842E-03  0.96614    266.42

K1

  0.729212E-04  0.99458    223.23

O1

  0.675977E-04  0.99104    219.40

Q1

  0.649585E-04  0.99104    331.37

1 !nope

748 3 0 0 !Ocean

4) Add output from the 1st step to bctides