

NWM coupling using Fortran script:

1) download NWM discharge from database:

Take 2005/07 to 2005/09 as an example for downloading data:

```
aws s3 cp s3://nwm-archive/2005/ . --no-sign-req --recursive --exclude "*" --include "20050[7-9]*CHR"
```

The data have been saved under:

```
/sciclone/home20/whuang07/data10/NWM/CHRTOUT
```

2) Edit the land boundaries:

Since the boundary between CB and DB is defined as island in the original grid, however, this boundary should be included when searching the intersections between the NWM segments and the grid boundary, so manually remove other boundaries and only keep the land boundary and this extra island boundary in the grid.

3) generating source/sink input files:

The projection is in lat/lon.

The input files are hgrid.ll and NWM_sho_ll.nc which contains the NWM segments for both NGOMx and east coast region.

The NWM data is saved under:

```
/sciclone/home20/whuang07/data10/NWM/CHRTOUT
```

This should be changed if you have another directory of the database in the lines of fortran script:

```
character(len=*),parameter::REPODir='/sciclone/home20/whuang07/data10/NWM/CHRTOUT/'
```

Time should also be reset if time period is changed.

4) compile the script:

```
ifort -O2 -CB -g -traceback -o coupling_nwm ../../UtilLib/schism_geometry.f90 ../../UtilLib/pt_in_poly_test.f90 coupling_nwm.f90 -I $NETCDF/include -ISNETCDF_FORTRAN/include -LSNETCDF_FORTRAN/lib -LSNETCDF/lib -LSNETCDF/lib -lnetcdf -lnetcdf
```

5) run the script:

```
qlogin -q 1000 1:x5672:ppn=1
```

```
./coupling_nwm
```

Type 1.e-3 when asking for the epsilon value.

The outputs will be source_sink.in, msource.th, vsink.th, and vsource.th.

6) post-processing of the vsink.th and vsource.th

Since for some cases, the sink and source elements are close to each other, which will lead to large oscillations of the water elevation. To avoid this issue, use another post-processing script to merge the sink and source flux, so that all sink flux will be 0, which also means the sink flux will be added to the source flux. Number of source and sink elements are not changed.

`./post_couple_omp`