Running the South Florida Water Management Model - SFWMM (V5.0) -

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Commonly used terminology:

- **wmm.exe**
  - SFWMM executable (currently 100 *fortran* files and 56 *include* files)

- **ALTWMM**
  - Required input file for the SFWMM executable

- **wmm_mkdirs.scr**
  - script to create the SFWMM output directory structure with associated post-processing control files (without execution of the SFWMM)

Commonly used terminology (cont.):

- **wmm.scr**
  - the wrap-around script which executes the SFWMM along with pre- and post- processing

- **wmm_post_proc.scr**
  - script which executes the SFWMM post-processing only, based on existing output run

- **runinput**
  - required input file for the wmm_mkdirs.scr, the wmm.scr, and the wmm_post_proc.scr

Commonly used terminology (cont.):

- **rundone**
  - SFWMM output file created by wmm.scr or wmm_post_proc.scr after execution is complete
- **chk_bud.scr**
  - Utility to look at residuals in the monthly water budget result file

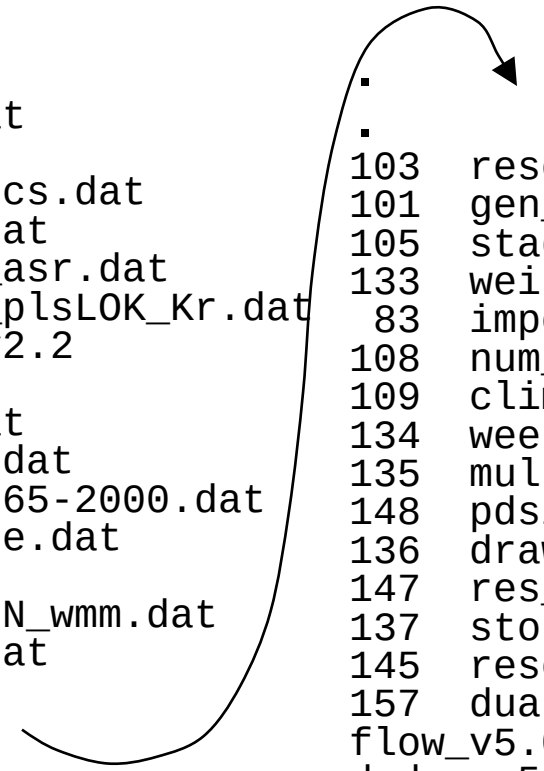
- Criteria for creation of input and output directories
  - Keep projects in a group. Example:
    - /vol/hsm3/CERP
      - /vol/hsm3/CERP/2000BS
        - » /vol/hsm3/CERP/2000BS/2000B1_v5.0_in
        - » /vol/hsm3/CERP/2000BS/2000B1_v5.0_out
        - » /vol/hsm3/CERP/2000BS/2000B1_v5.0_31yr_in
        - » /vol/hsm3/CERP/2000BS/2000B1_v5.0_31yr_out
      - /vol/hsm3/CERP/2050BS
  - Have a different input directory for each simulation. Facilitates documentation and quality assurance

What is the **altwmm** file ?

– data locator file, specifying the full pathname of all the input files required to run the SFWMM

```
SFWMM v5.0 - 2000B1                                  ← run title
36                                                   ← number of units to open
112  gen_model_def_param.dat                         ← 1st unit # w/ filename
  2  model_definition_info.dat
  7 /vol/hsm/data/db/grid_io/rain/rain_v2.0_nsm_wmm.bin
.
.
```

```
.
.
 20  lec_et.cf
 94  trginput_062003.dat
 11  canal_struc_specs.dat
 23  canal_grid_loc.dat
 22  known_flow_route_specs.dat
 60  static_grid_values.dat
 18  well_pumpage_061303_asr.dat
 28  ETp_1965-2000_17stn_plsLOK_Kr.dat
 13  eaa_canal_profiles_v2.2
 15  max_go_tbl
 59  srs_rf_plan_rf_et.dat
 21  wca_out_struc_specs.dat
 36  monthly_lok_et_rf_1965-2000.dat
 37  well_ind_rss_2000base.dat
 17  asrinput.dat
 12  ETp_weights_17stn_TIN_wmm.dat
102  lok_wca_oper_sched.dat
104  levee_spg_input.dat
.
.
```

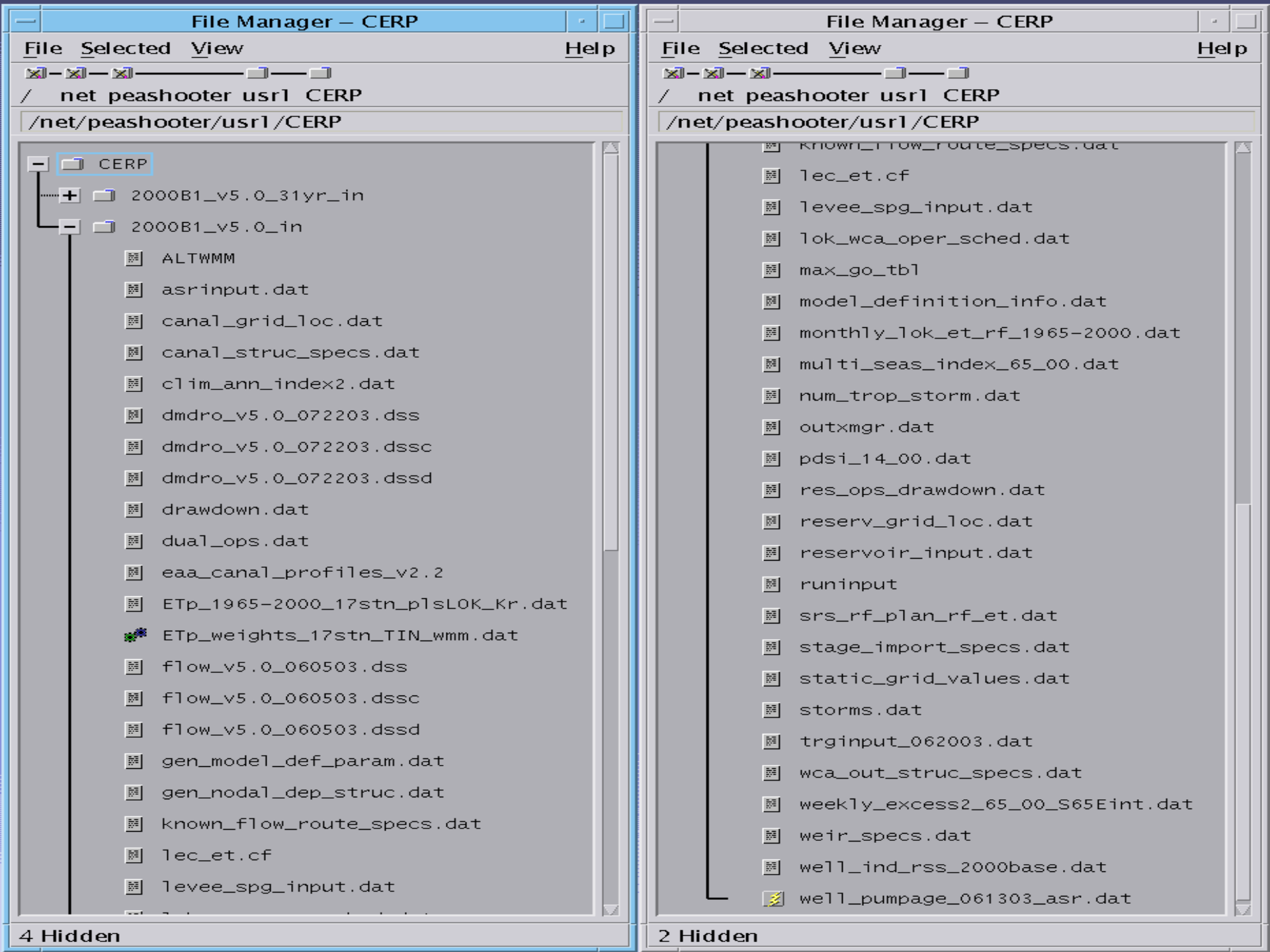


```
.
.
103  reservoir_input.dat
101  gen_nodal_dep_struc.dat
105  stage_import_specs.dat
133  weir_specs.dat
 83  import.EAA_VERIF_2000_1
108  num_trop_storm.dat
109  clim_ann_index2.dat
134  weekly_excess2_65_00_S65Eint.dat
135  multi_seas_index_65_00.dat
148  pdsi_14_00.dat
136  drawdown.dat
147  res_ops_drawdown.dat
137  storms.dat
145  reserv_grid_loc.dat
157  dual_ops.dat
flow_v5.0_060503.dss
dmdro_v5.0_072203.dss
```

- documentation for all the input files can be found at

http://iweb/iwebB501/wsd/hsm/models/sfwmm/man/index.html

- Documenting the ALTWMM or any SFWMM ascii input file
  - Lines with #, ! or * in the first column
  - Blocks starting with keyword **begcomm** (any combination of upper and lower case) and ending with keyword **endcomm** (any combination of upper and lower case). Any line in between these two is considered a comment


File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
CERP
2000B1_v5.0_31yr_in
2000B1_v5.0_in
ALTWMM
asrinput.dat
canal_grid_loc.dat
canal_struc_specs.dat
clim_ann_index2.dat
dmdro_v5.0_072203.dss
dmdro_v5.0_072203.dssc
dmdro_v5.0_072203.dssd
drawdown.dat
dual_ops.dat
eaa_canal_profiles_v2.2
ETp_1965-2000_17stn_plsLOK_Kr.dat
ETp_weights_17stn_TIN_wmm.dat
flow_v5.0_060503.dss
flow_v5.0_060503.dssc
flow_v5.0_060503.dssd
gen_model_def_param.dat
gen_nodal_dep_struc.dat
known_flow_route_specs.dat
lec_et.cf
levee_spg_input.dat
4 Hidden
File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
lec_et.cf
levee_spg_input.dat
lok_wca_oper_sched.dat
max_go_tbl
model_definition_info.dat
monthly_lok_et_rf_1965-2000.dat
multi_seas_index_65_00.dat
num_trop_storm.dat
outxmgr.dat
pdsi_14_00.dat
res_ops_drawdown.dat
reserv_grid_loc.dat
reservoir_input.dat
runinput
srs_rf_plan_rf_et.dat
stage_import_specs.dat
static_grid_values.dat
storms.dat
trginput_062003.dat
wca_out_struc_specs.dat
weekly_excess2_65_00_S65Eint.dat
weir_specs.dat
well_ind_rss_2000base.dat
well_pumpage_061303_asr.dat
2 Hidden

What is the **runinput** file ?

– Common input file to the wmm_mkdirs.scr, the wmm.scr, and the wmm_post_proc.scr

- contains information needed to create the output directory structure, execute the SFWMM, and perform pre- and post- processing.

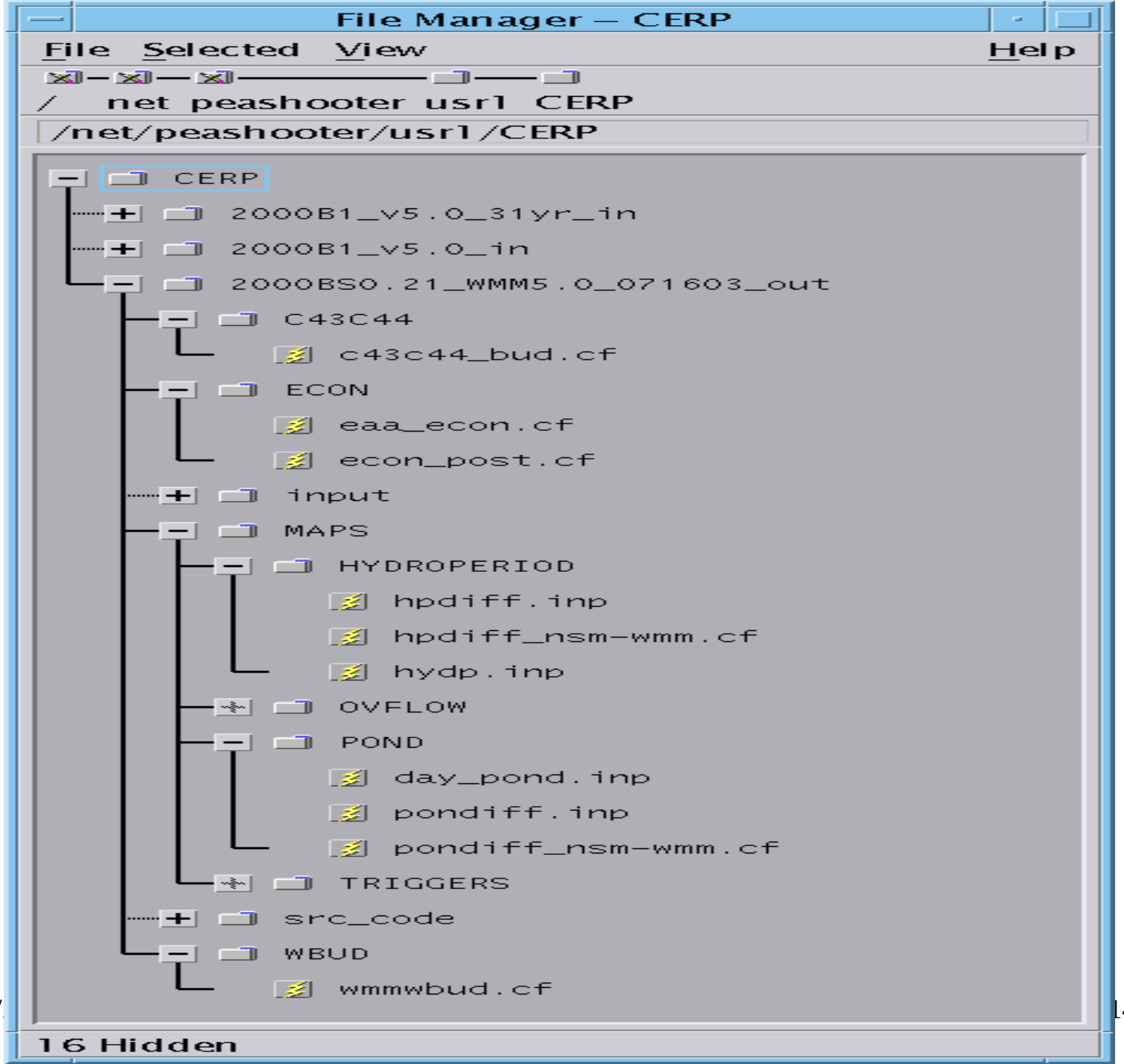
Information specified in runinput file:

```
# SFWMM executable (full path) and ALTWMM control file
# Output directory for this simulation.
# File name where standard output is to be saved
# Delete previous files in this location? Type Y for Yes and N for No
# Mailing list
/vol/hsm/wmm2k/sfwmm/V5.0/src_gcc/wmm.exe ALTWMM
/vol/hsm3/CERP/2000BS/2000B1_v5.0_out
stdout
Y
aali amontoy cadavid dlyons hcorrea .....
# Exisiting run with similar output structure and control files
# SFWMM Version # for Maps and Titles
# Run Title String for Maps and Titles
/vol/hsm3/CERP/2000BS/2000BS0.22_WMM5.0_071803_gnu_out
v5.0
2000B1
.
.
```

Information specified in runinput file (cont.):

```
# List of control files for post processing utilities
# Leave blank lines if a post processor should not run
# The following order must be input:
wmmwbud.cf              → Water Budget post processor
c43c44_bud.cf           → C43C44 budget post processor
econ_post.cf            → LEC ECON post processor
eaa_econ.cf             → EAA ECON post processor
losassm.cf              → LOSA post processor
hpdiff_nsm-wmm.cf       → HYDROPERIOD post processor
pondiff_nsm-wmm.cf      → PONDING post processor
noresbud.def            → North Storage Water Budget post processor
asrbud.def              → ASR Bubble Budget post processor
hydp.inp                → HYDROPERIOD Maps Creation
hpdiff.inp              → HYDROPERIOD Difference Maps Creation
day_pond.inp            → PONDING Maps Creation
pondiff.inp             → PONDING Difference Maps Creation
trigmap.cf              → Trigger Map Creation
```

- What is the main function of **wmm_mkdirs.scr** ?
  - Read the specified runinput file from the command line
  - Create the output directory structure
  - Copy and modify control files from specified existing run
  - Manual updates to these control files may still be necessary (e.g. updated basin definitions for water budget processor)

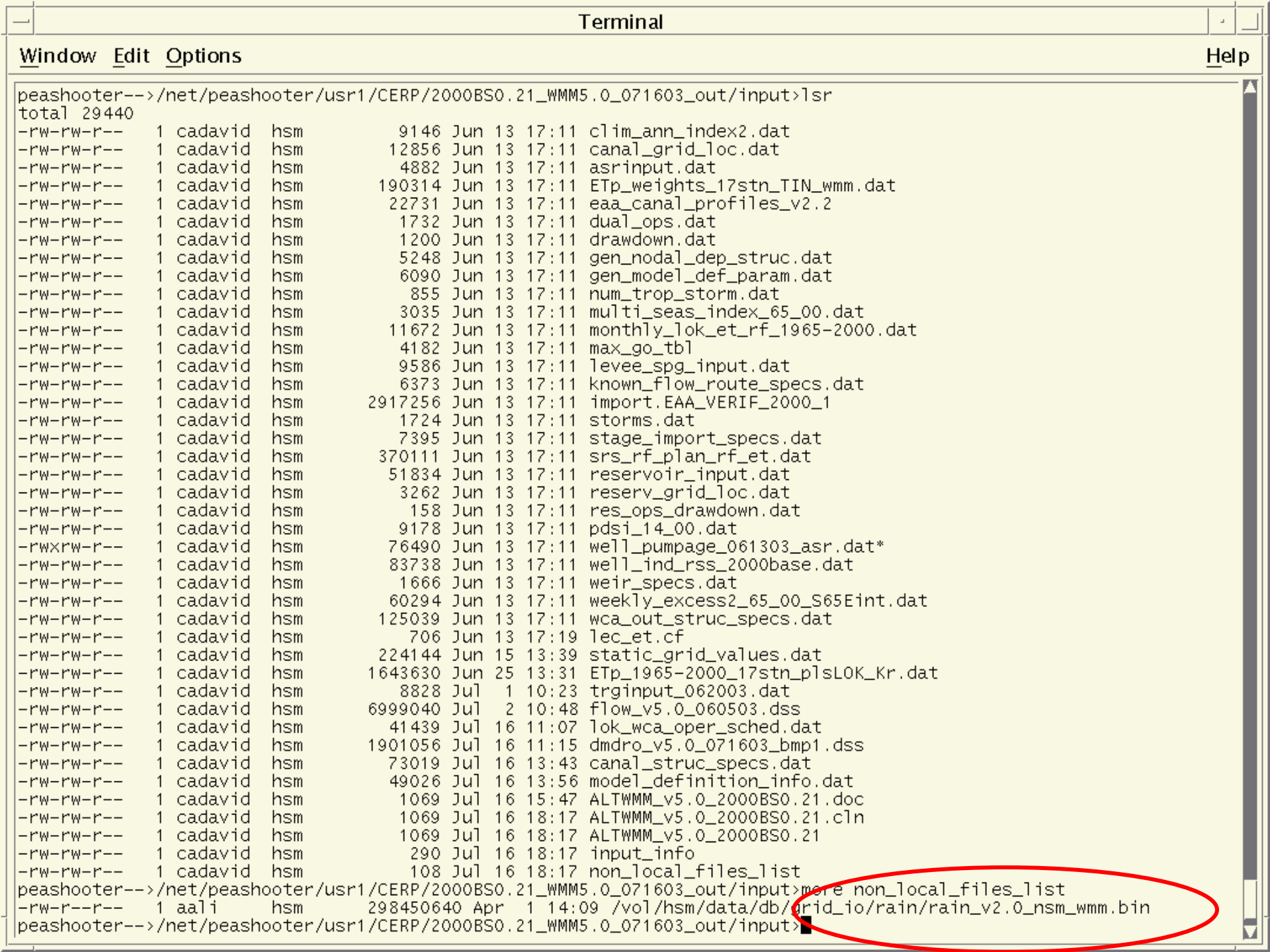

File Manager — CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
CERP
2000B1_v5.0_31yr_in
2000B1_v5.0_in
2000BSO.21_WMM5.0_071603_out
C43C44
c43c44_bud.cf
ECON
eaa_econ.cf
econ_post.cf
input
MAPS
HYDROPERIOD
hpdiff.inp
hpdiff_nsm-wmm.cf
hydp.inp
OVFLOW
POND
day_pond.inp
pondiff.inp
pondiff_nsm-wmm.cf
TRIGGERS
src_code
WBUD
wmmwbud.cf
16 Hidden

- What does **wmm.scr** do ?
  - Set up environment variables
  - Get input from the user via the runinput file
  - Check for existence of files and directories (e.g. SFWMM executable and ALTWMM file)
  - Remove documentation lines from ALTWMM

- What does **wmm.scr** do (cont.) ?
  - Archive source code used for the simulation under the simulation output directory (**src_code**)
  - Archieve input directory for the simulation under the simulation output directory (**input**)
    - Copy of local files
    - Long list of non-local input files

- What does **wmm.scr** do (cont.) ?
  - Remove existing files from output directory, including the rundone file, if requested
  - Notify users via e-mail when run starts:
    - Post processing definition/configuration file existence
  - Run SFWMM and time the execution
  - Notify users on run completion/status

- What does **wmm.scr** do (cont.) ?
  - Post-processing and maps production
    - LEC Urban Areas
    - EAA
    - LOSA Report (Calendar and Water Year)
    - Water Budgets (Annual, Water Year, Seasonal and Monthly)
    - Overland Flow
    - LEC trigger maps
    - Hydroperiod and Hydroperiod differerence maps
    - Ponding and Ponding differerence maps


Terminal
Window Edit Options
Help
peashooter-->/net/peashooter/usr1/CERP/2000BS0.21_WMM5.0_071603_out/input>lsr
total 29440
-rw-rw-r-- 1 cadavid hsm 9146 Jun 13 17:11 clim_ann_index2.dat
-rw-rw-r-- 1 cadavid hsm 12856 Jun 13 17:11 canal_grid_loc.dat
-rw-rw-r-- 1 cadavid hsm 4882 Jun 13 17:11 asrinput.dat
-rw-rw-r-- 1 cadavid hsm 190314 Jun 13 17:11 ETp_weights_17stn_TIN_wmm.dat
-rw-rw-r-- 1 cadavid hsm 22731 Jun 13 17:11 eaa_canal_profiles_v2.2
-rw-rw-r-- 1 cadavid hsm 1732 Jun 13 17:11 dual_ops.dat
-rw-rw-r-- 1 cadavid hsm 1200 Jun 13 17:11 drawdown.dat
-rw-rw-r-- 1 cadavid hsm 5248 Jun 13 17:11 gen_nodal_dep_struc.dat
-rw-rw-r-- 1 cadavid hsm 6090 Jun 13 17:11 gen_model_def_param.dat
-rw-rw-r-- 1 cadavid hsm 855 Jun 13 17:11 num_trop_storm.dat
-rw-rw-r-- 1 cadavid hsm 3035 Jun 13 17:11 multi_seas_index_65_00.dat
-rw-rw-r-- 1 cadavid hsm 11672 Jun 13 17:11 monthly_lok_et_rf_1965-2000.dat
-rw-rw-r-- 1 cadavid hsm 4182 Jun 13 17:11 max_go_tbl
-rw-rw-r-- 1 cadavid hsm 9586 Jun 13 17:11 levee_spg_input.dat
-rw-rw-r-- 1 cadavid hsm 6373 Jun 13 17:11 known_flow_route_specs.dat
-rw-rw-r-- 1 cadavid hsm 2917256 Jun 13 17:11 import.EAA_VERIF_2000_1
-rw-rw-r-- 1 cadavid hsm 1724 Jun 13 17:11 storms.dat
-rw-rw-r-- 1 cadavid hsm 7395 Jun 13 17:11 stage_import_specs.dat
-rw-rw-r-- 1 cadavid hsm 370111 Jun 13 17:11 srs_rf_plan_rf_et.dat
-rw-rw-r-- 1 cadavid hsm 51834 Jun 13 17:11 reservoir_input.dat
-rw-rw-r-- 1 cadavid hsm 3262 Jun 13 17:11 reserv_grid_loc.dat
-rw-rw-r-- 1 cadavid hsm 158 Jun 13 17:11 res_ops_drawdown.dat
-rw-rw-r-- 1 cadavid hsm 9178 Jun 13 17:11 pdsi_14_00.dat
-rwxrw-r-- 1 cadavid hsm 76490 Jun 13 17:11 well_pumpage_061303_asr.dat*
-rw-rw-r-- 1 cadavid hsm 83738 Jun 13 17:11 well_ind_rss_2000base.dat
-rw-rw-r-- 1 cadavid hsm 1666 Jun 13 17:11 weir_specs.dat
-rw-rw-r-- 1 cadavid hsm 60294 Jun 13 17:11 weekly_excess2_65_00_S65Eint.dat
-rw-rw-r-- 1 cadavid hsm 125039 Jun 13 17:11 wca_out_struc_specs.dat
-rw-rw-r-- 1 cadavid hsm 706 Jun 13 17:19 lec_et.cf
-rw-rw-r-- 1 cadavid hsm 224144 Jun 15 13:39 static_grid_values.dat
-rw-rw-r-- 1 cadavid hsm 1643630 Jun 25 13:31 ETp_1965-2000_17stn_plsLOK_Kr.dat
-rw-rw-r-- 1 cadavid hsm 8828 Jul 1 10:23 trginput_062003.dat
-rw-rw-r-- 1 cadavid hsm 6999040 Jul 2 10:48 flow_v5.0_060503.dss
-rw-rw-r-- 1 cadavid hsm 41439 Jul 16 11:07 lok_wca_oper_sched.dat
-rw-rw-r-- 1 cadavid hsm 1901056 Jul 16 11:15 dmdro_v5.0_071603_bmp1.dss
-rw-rw-r-- 1 cadavid hsm 73019 Jul 16 13:43 canal_struc_specs.dat
-rw-rw-r-- 1 cadavid hsm 49026 Jul 16 13:56 model_definition_info.dat
-rw-rw-r-- 1 cadavid hsm 1069 Jul 16 15:47 ALTWMM_v5.0_2000BS0.21.doc
-rw-rw-r-- 1 cadavid hsm 1069 Jul 16 18:17 ALTWMM_v5.0_2000BS0.21.cln
-rw-rw-r-- 1 cadavid hsm 1069 Jul 16 18:17 ALTWMM_v5.0_2000BS0.21
-rw-rw-r-- 1 cadavid hsm 290 Jul 16 18:17 input_info
-rw-rw-r-- 1 cadavid hsm 108 Jul 16 18:17 non_local_files_list
peashooter-->/net/peashooter/usr1/CERP/2000BS0.21_WMM5.0_071603_out/input>more non_local_files_list
-rw-r--r-- 1 aali hsm 298450640 Apr 1 14:09 /vol/hsm/data/db/grid_io/rain/rain_v2.0_nsm_wmm.bin
peashooter-->/net/peashooter/usr1/CERP/2000BS0.21_WMM5.0_071603_out/input>

Terminal

Window Edit Options Help

```
peashooter-->/net/peashooter/usr1/CERP/2000BS0.21_WMM5.0_071603_out/src_code>lsr
total 1210
-rw-rw-r--   1 cadavid  hsm        13255 Jul 16 18:17 src_code_tar.log
-rw-rw-r--   1 cadavid  hsm       597847 Jul 16 18:17 src_code.tar.gz
peashooter-->/net/peashooter/usr1/CERP/2000BS0.21_WMM5.0_071603_out/src_code>m src_code_tar.log
Backup of source code directory for /vol/hixonscratch/RESTRUCTURE/rsantee/models/WMM2K/src/wmm.exe
Wed Jul 16 18:17:56 EDT 2003
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/Makefile_linux.gz 3K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/Makefile_unix.gz 3K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/STRCOUNT.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/abc.inc.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/accum_estuar_dmnds.F.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/add_misc.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/addlok.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/agarea.F.gz 8K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/agdata.inc.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/alloc_to_eaa.F.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/annual_init.F.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/asr.F.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/asr1.inc.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/asr2.inc.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/asr3.inc.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/asr_input.F.gz 5K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/asr_param.inc.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/asr_to_lec_ws.F.gz 3K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/avail_res_stor_adjust.F.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/bpts.F.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/budg.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/c1.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/c2.inc.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/caloos.F.gz 5K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/canalloc.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/canl_dep_struc_capac_setup.F.gz 4K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/canl_dep_struc_param_setup.F.gz 3K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/ccaloos.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/chnlf.F.gz 16K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/climvar.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/cnldata.F.gz 14K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/cnlneeds.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/cstlucie.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/daily_output.F.gz 4K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/daily_ovlnf_out.F.gz 2K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/daily_variables_init.F.gz 4K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/daydump.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/dlycslope.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/dstring.F.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/dualops.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/eaa_caps.inc.gz 1K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/eaa_flow_distrib_capac_setup.F.gz 5K
a /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/src_code/eaa_neutral_caps.F.gz 16K
--More--(27%)
```

- Sample e-mail notification to users on run completion/status

Subject: SUCCESSFUL - "SFWMM v5.0 - 2000B1" run on modserv1a
Date: Mon, 16 Jun 2003 08:07:20 -0400 (EDT)
From:rsantee@mailhost.sfwmd.gov
To: aali@sfwmd.gov, amontoy@sfwmd.gov, cadavid@sfwmd.gov, dlyons@sfwmd.gov,
hcorrea@sfwmd.gov, hxu@sfwmd.gov, jabarne@sfwmd.gov, jobey@sfwmd.gov,
ktarbot@sfwmd.gov, lbologna@sfwmd.gov, lbrion@sfwmd.gov, lzhang@sfwmd.gov,
mirizar@sfwmd.gov, pmassena@sfwmd.gov, ptrimble@sfwmd.gov,

"SFWMM v5.0 - 2000B1" run terminated CORRECTLY on
Mon Jun 16 08:07:20 EDT 2003.

Execution time [Hr:min] = 3:50
Elapsed time [Hr:min] = 3:53

Input Directory

/vol/hsm3/CERP/2000BS/2000BS0.20_WMM5.0_061603_in

Output Directory

/vol/hsm3/CERP/2000BS/2000BS0.20_WMM5.0_061603_out

SFWMM Executable

/vol/hixonscratch/RESTRUCTURE/rsantee/models/WMM2K/src/wmm.exe

The CPU is ----------> modserv1a
The runinput file is -------> runinput_v5.0_2000BS0.20
The ALTWMM file is ---------> ALTWMM_v5.0_2000BS0.20
The simulation period is ---> JAN 1965 to DEC 2000

*** Post-Processing has just been initiated. ***

- What does **wmm_post_proc.scr** do ?
  - Set up environment variables
  - Get input from the user via the runinput file
  - Notify users via e-mail when post-processing starts
  - Post-processing and maps production
  - Notify users on post-processing completion/status

- Steps to execute the wmm_mkdirs.scr:

  1. Change current working directory to input directory where runinput file is located

  2. command line input:

     - /……/**wmm_mkdirs.scr** ***runinput***

- Steps to execute the wmm.scr:

  1. Change current working directory to input directory where runinput file is located

  2. command line input:

     - /……/**wmm.scr** ***runinput***

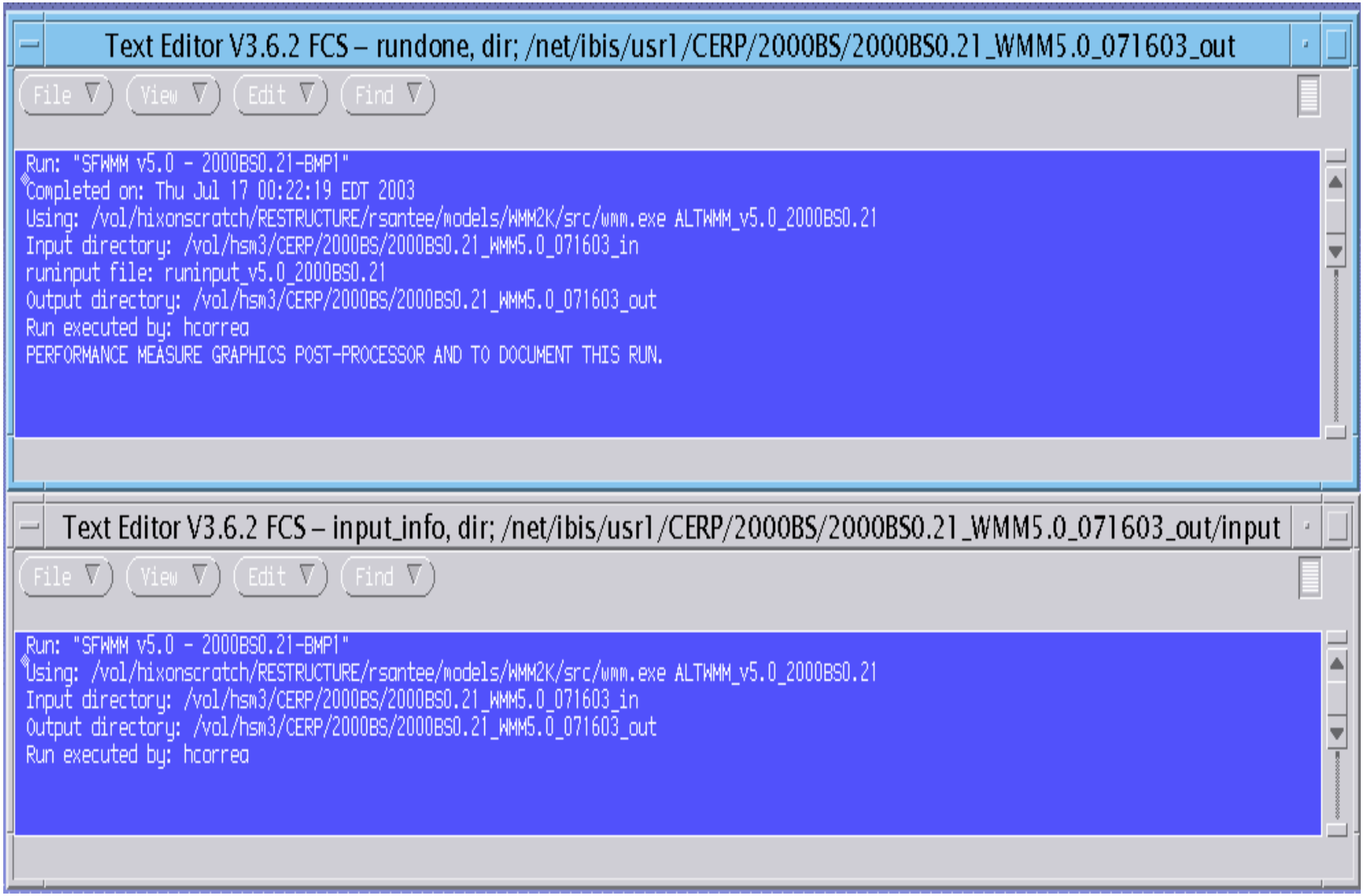
- Steps to execute the wmm_post_proc.scr:

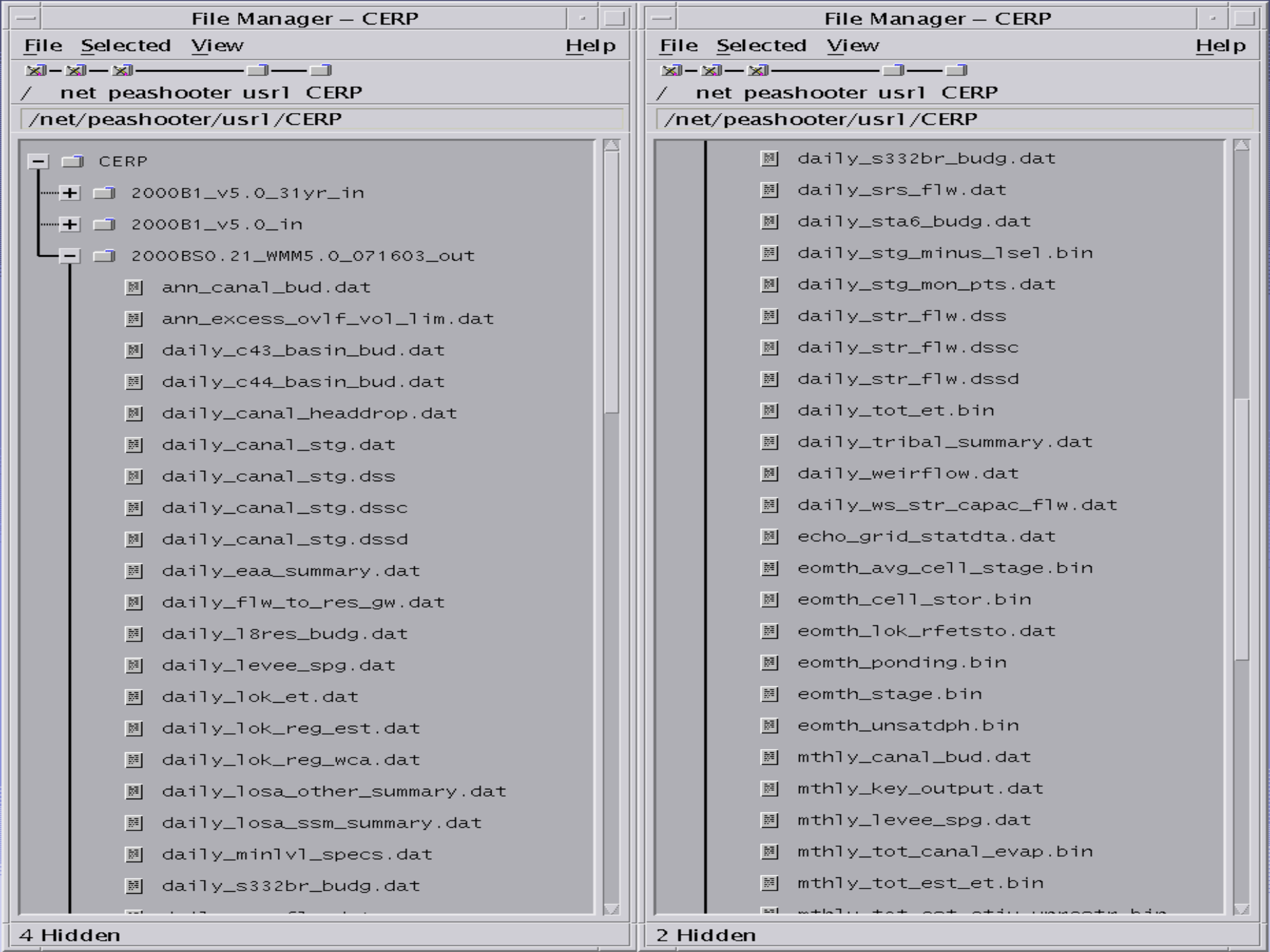
  1. Change current working directory to input directory where runinput file is located

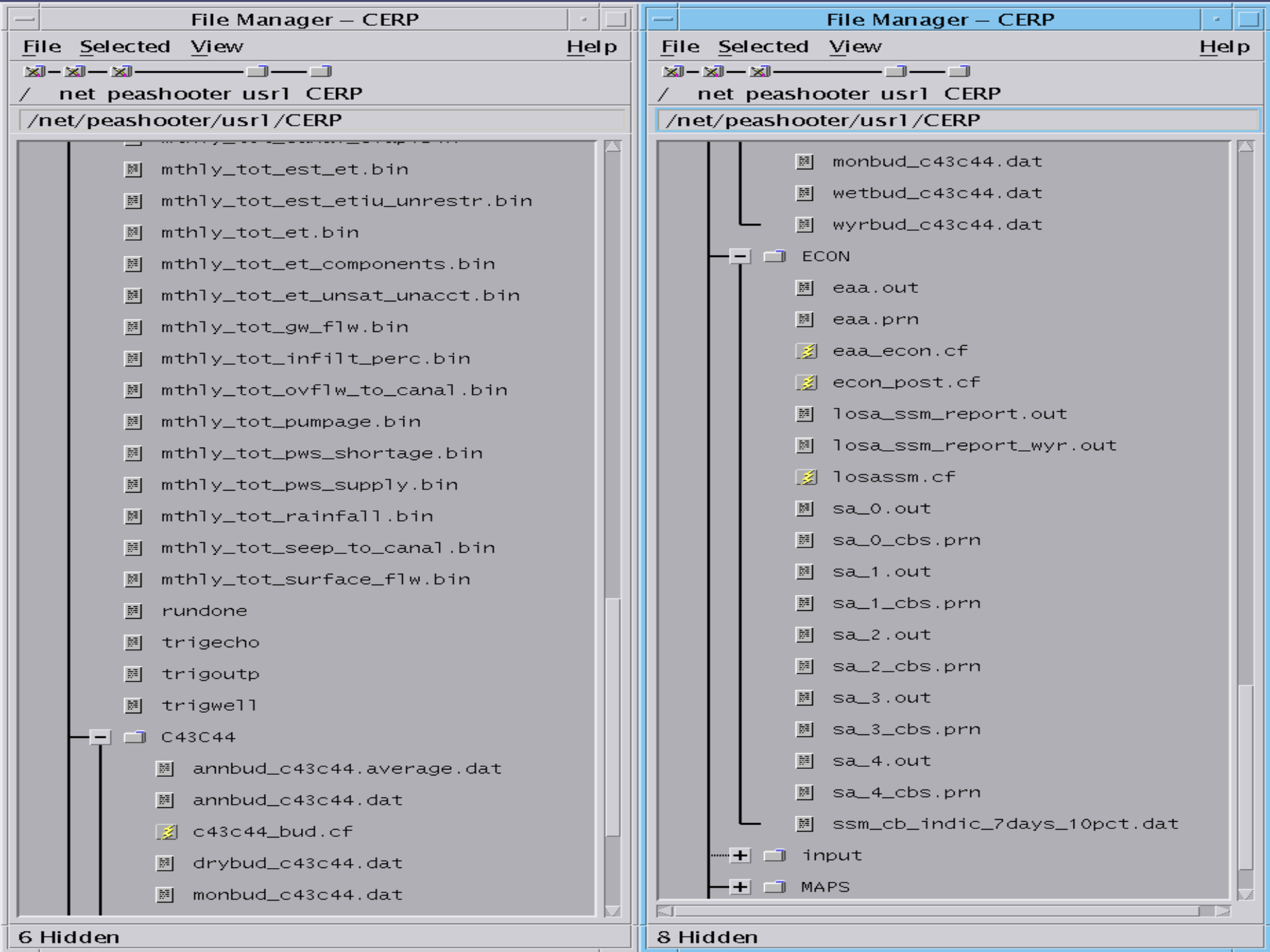
  2. command line input:

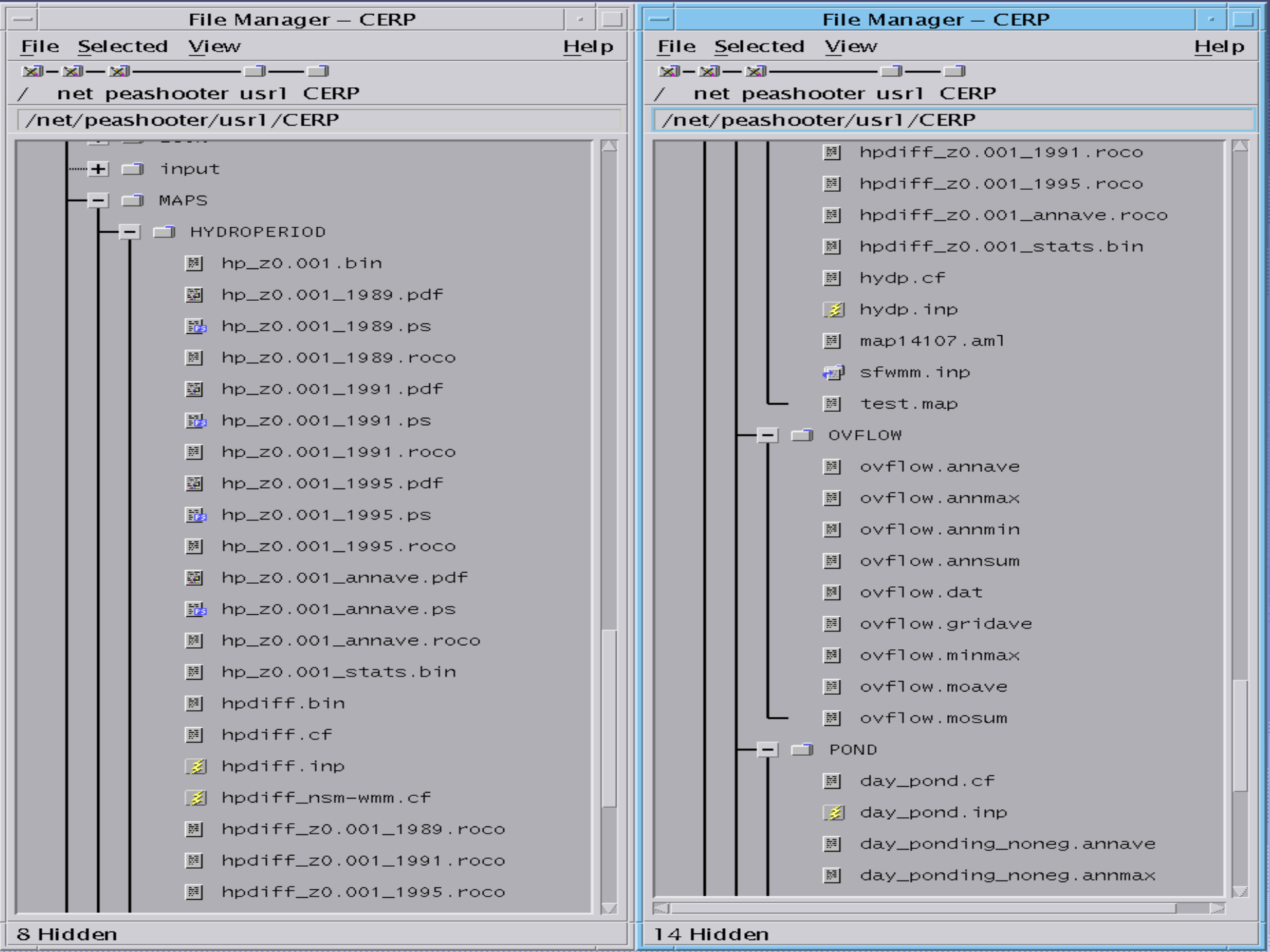
     - /……/**wmm_post_proc.scr** ***runinput***

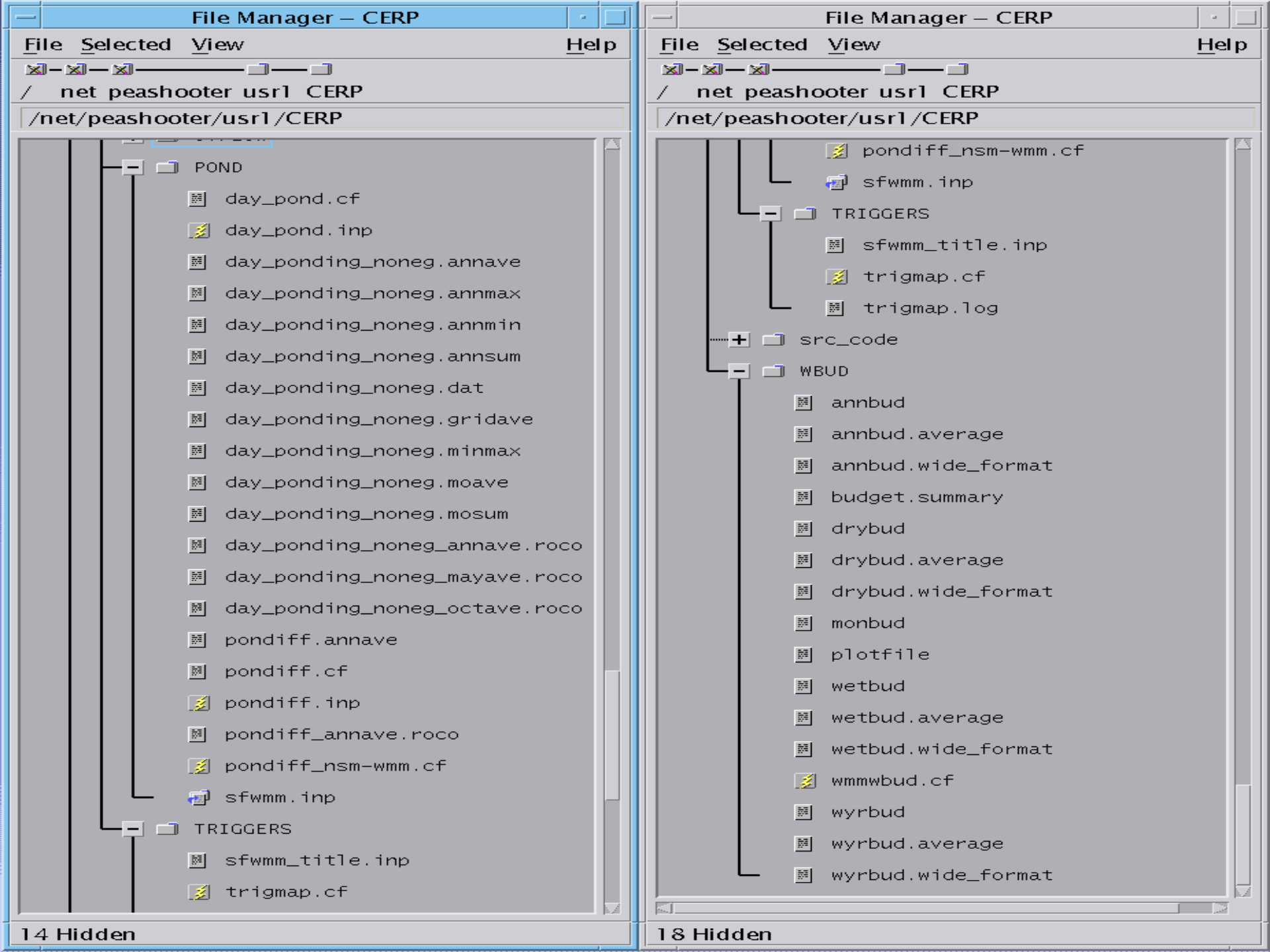
- What is the **rundone** file ?
  - Created, in the output directory, after the Water Budget, LEC and EAA post-processors have been completed successfully
  - Contains useful information w.r.t. simulation run (e.g. run title, completion date and time, etc.)
  - Existence of this file signals PM graphics scripts can start execution
  - Similar information is stored before run starts in **input/input_info** (used in case the run crashes)


Text Editor V3.6.2 FCS – rundone, dir; /net/ibis/usr1/CERP/2000BS/2000BS0.21_WMM5.0_071603_out
File
View
Edit
Find
Run: "SFWMM v5.0 - 2000BS0.21-BMP1"
Completed on: Thu Jul 17 00:22:19 EDT 2003
Using: /vol/hixonscratch/RESTRUCTURE/rsantee/models/WMM2K/src/wmm.exe ALTWMM_v5.0_2000BS0.21
Input directory: /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_in
runinput file: runinput_v5.0_2000BS0.21
Output directory: /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out
Run executed by: hcorrea
PERFORMANCE MEASURE GRAPHICS POST-PROCESSOR AND TO DOCUMENT THIS RUN.
Text Editor V3.6.2 FCS – input_info, dir; /net/ibis/usr1/CERP/2000BS/2000BS0.21_WMM5.0_071603_out/input
File
View
Edit
Find
Run: "SFWMM v5.0 - 2000BS0.21-BMP1"
Using: /vol/hixonscratch/RESTRUCTURE/rsantee/models/WMM2K/src/wmm.exe ALTWMM_v5.0_2000BS0.21
Input directory: /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_in
Output directory: /vol/hsm3/CERP/2000BS/2000BS0.21_WMM5.0_071603_out
Run executed by: hcorrea


File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
CERP
2000B1_v5.0_31yr_in
2000B1_v5.0_in
2000BS0.21_WMM5.0_071603_out
ann_canal_bud.dat
ann_excess_ovlf_vol_lim.dat
daily_c43_basin_bud.dat
daily_c44_basin_bud.dat
daily_canal_headdrop.dat
daily_canal_stg.dat
daily_canal_stg.dss
daily_canal_stg.dssc
daily_canal_stg.dssd
daily_eaa_summary.dat
daily_flw_to_res_gw.dat
daily_l8res_budg.dat
daily_levee_spg.dat
daily_lok_et.dat
daily_lok_reg_est.dat
daily_lok_reg_wca.dat
daily_losa_other_summary.dat
daily_losa_ssm_summary.dat
daily_minlvl_specs.dat
daily_s332br_budg.dat
4 Hidden
File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
daily_s332br_budg.dat
daily_srs_flw.dat
daily_sta6_budg.dat
daily_stg_minus_lsel.bin
daily_stg_mon_pts.dat
daily_str_flw.dss
daily_str_flw.dssc
daily_str_flw.dssd
daily_tot_et.bin
daily_tribal_summary.dat
daily_weirflow.dat
daily_ws_str_capac_flw.dat
echo_grid_statdta.dat
eomth_avg_cell_stage.bin
eomth_cell_stor.bin
eomth_lok_rfetsto.dat
eomth_ponding.bin
eomth_stage.bin
eomth_unsatdph.bin
mthly_canal_bud.dat
mthly_key_output.dat
mthly_levee_spg.dat
mthly_tot_canal_evap.bin
mthly_tot_est_et.bin
2 Hidden

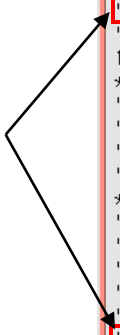

File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
mthly_tot_est_et.bin
mthly_tot_est_etiu_unrestr.bin
mthly_tot_et.bin
mthly_tot_et_components.bin
mthly_tot_et_unsat_unacct.bin
mthly_tot_gw_flw.bin
mthly_tot_infilt_perc.bin
mthly_tot_ovflw_to_canal.bin
mthly_tot_pumpage.bin
mthly_tot_pws_shortage.bin
mthly_tot_pws_supply.bin
mthly_tot_rainfall.bin
mthly_tot_seep_to_canal.bin
mthly_tot_surface_flw.bin
rundone
trigecho
trigoutp
trigwell
C43C44
annbud_c43c44.average.dat
annbud_c43c44.dat
c43c44_bud.cf
drybud_c43c44.dat
monbud_c43c44.dat
6 Hidden
File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
monbud_c43c44.dat
wetbud_c43c44.dat
wyrbud_c43c44.dat
ECON
eaa.out
eaa.prn
eaa_econ.cf
econ_post.cf
losa_ssm_report.out
losa_ssm_report_wyr.out
losassm.cf
sa_0.out
sa_0_cbs.prn
sa_1.out
sa_1_cbs.prn
sa_2.out
sa_2_cbs.prn
sa_3.out
sa_3_cbs.prn
sa_4.out
sa_4_cbs.prn
ssm_cb_indic_7days_10pct.dat
input
MAPS
8 Hidden


File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
input
MAPS
HYDROPERIOD
hp_z0.001.bin
hp_z0.001_1989.pdf
hp_z0.001_1989.ps
hp_z0.001_1989.roco
hp_z0.001_1991.pdf
hp_z0.001_1991.ps
hp_z0.001_1991.roco
hp_z0.001_1995.pdf
hp_z0.001_1995.ps
hp_z0.001_1995.roco
hp_z0.001_annave.pdf
hp_z0.001_annave.ps
hp_z0.001_annave.roco
hp_z0.001_stats.bin
hpdiff.bin
hpdiff.cf
hpdiff.inp
hpdiff_nsm-wmm.cf
hpdiff_z0.001_1989.roco
hpdiff_z0.001_1991.roco
hpdiff_z0.001_1995.roco
8 Hidden
File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
hpdiff_z0.001_1991.roco
hpdiff_z0.001_1995.roco
hpdiff_z0.001_annave.roco
hpdiff_z0.001_stats.bin
hydp.cf
hydp.inp
map14107.aml
sfwmm.inp
test.map
OVFLOW
ovflow.annave
ovflow.annmax
ovflow.annmin
ovflow.annsum
ovflow.dat
ovflow.gridave
ovflow.minmax
ovflow.moave
ovflow.mosum
POND
day_pond.cf
day_pond.inp
day_ponding_noneg.annave
day_ponding_noneg.annmax
14 Hidden


File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
POND
day_pond.cf
day_pond.inp
day_ponding_noneg.annave
day_ponding_noneg.annmax
day_ponding_noneg.annmin
day_ponding_noneg.annsum
day_ponding_noneg.dat
day_ponding_noneg.gridave
day_ponding_noneg.minmax
day_ponding_noneg.moave
day_ponding_noneg.mosum
day_ponding_noneg_annave.roco
day_ponding_noneg_mayave.roco
day_ponding_noneg_octave.roco
pondiff.annave
pondiff.cf
pondiff.inp
pondiff_annave.roco
pondiff_nsm-wmm.cf
sfwmm.inp
TRIGGERS
sfwmm_title.inp
trigmap.cf
14 Hidden
File Manager – CERP
File Selected View Help
/ net peashooter usr1 CERP
/net/peashooter/usr1/CERP
pondiff_nsm-wmm.cf
sfwmm.inp
TRIGGERS
sfwmm_title.inp
trigmap.cf
trigmap.log
src_code
WBUD
annbud
annbud.average
annbud.wide_format
budget.summary
drybud
drybud.average
drybud.wide_format
monbud
plotfile
wetbud
wetbud.average
wetbud.wide_format
wmmwbud.cf
wyrbud
wyrbud.average
wyrbud.wide_format
18 Hidden

Sample header definition in water budget control file (wmmwbud.cf)

Input files not located in output directory



```
*****************************************************************
* WATER BUDGET DEFINITION DATA FILE FOR THE SOUTH FLORIDA WATER  *
* MANAGEMENT MODEL (SFWMM) / NATURAL SYSTEM MODEL (NSM)          *
* WATER BUDGET POST-PROCESSING PROGRAM                           *
*****************************************************************
"SFWMM v5.0 - 2000BS0.23_31yr_gnu"          = Run  Title
1965            = Simulation Start Year
1995            = Simulation End Year
10560.          = Grid Cell Size in x (E-W) direction(ft)
10560.          = Grid Cell Size in y (N-S) direction(ft)
26              = No. of Sub-areas to Summarize (including entire area)
SFWMM           = Model that budget is desired for (NSM or SFWMM)
*** Input Files Pertinent to SFWMM or NSM ***
"../mthly_tot_pumpage.bin"                  = Input Filename for monthly well pumpage
"../mthly_levee_spg.dat"                    = Input Filename for monthly levee seepage
"../eomth_lok_rfetsto.dat"                  = Input Filename for monthly lake rf, et & eom storage
"../eomth_unsatdph.bin"                     = Input Filename for month-end depth of storage in unsat zone
"/vol/hsm3/CERP/2000BS/2000BS0.23_WMM5.0_31yr_072303_gnu_in/flow_v5.0_060503.dss" = DSS Input Filename for historical structure flow
"../daily_str_flw.dss"                      = DSS Output Filename for simulated structure flows
1                                           = flag for performing unsaturated zone budgets for the SFWMM
*** Input Files Pertinent to the SFWMM for Unsaturated Zone Water Budgets
"../mthly_tot_infilt_perc.bin"              = Input Filename for monthly infiltration & percolation
"../mthly_tot_et_components.bin"            = Input Filename for monthly et components
"../mthly_tot_pws_supply.bin"               = Input Filename for monthly net irrigation supplies
"../mthly_tot_et_unsat_unacct.bin"          = Input Filename unaccounted for unsaturated ET
*** Input Files Common to Both Models ***
"../mthly_tot_rainfall.bin"                 = Input Filename for monthly rainfall
"../mthly_tot_et.bin"                       = Input Filename for monthly evapotranspiration
"../eomth_cell_stor.bin"                    = Input Filename for month-end stages
"../mthly_tot_surface_flw.bin"              = Input Filename for monthly overland flow
"../mthly_tot_gw_flw.bin"                   = Input Filename for monthly groundwater flow
"/vol/hsm3/CERP/2000BS/2000BS0.23_WMM5.0_31yr_072303_gnu_in/static_grid_values.dat" = Input Filename for storage coefficients
*** Output Files ***
"monbud"                                    = Output Filename for Monthly Water Budget Summary
"annbud"                                    = Output Filename for Annual Budget Summary
"wetbud"                                    = Output Filename for Wet Season Budget Summary
"WET SEASON(JUN-OCT)"                       = String for Wet Season Output Title
6                                           = First Month of Wet Season
10                                          = Last Month of Wet Season
"drybud"                                    = Output Filename for Dry Season Budget Summary
"DRY SEASON(NOV-MAY)"                       = String for Dry Season Output Title
11                                          = First Month of Dry Season
5                                           = Last Month of Dry Season
"wyrbud" "plotfile"                         = Output Filename for Water Year Budget Summary
"WATER-YEAR(NOV-OCT)"                       = String for Water Year Output Title
11                                          = First Month of Water Year
10                                          = Last Month of Water Year
0                                           = flag for printing monthly columnar data to subarea named files
```

Sample basin definition in water budget control file (wmmwbud.cf)

```
*********************************************************************
WATER_CONSERVATION_AREA-1 = Sub-area Name
*********************************************************************
*  SUBAREA BOUNDARY
43 = Southernmost Row No.
52 = Northernmost Row No.
*  SUBAREA DEFINITION (Row #'s in descending order)
*  ROW#  MIN COL#  MAX COL#
      52      29      32
      51      29      32
      50      28      34
      49      28      34
      48      28      34
      47      28      34
      46      29      34
      45      29      34
      44      30      34
      43      31      33
*
*  LEVEE SEEPAGE
1 = No. of Levee Seepage Segments
L-40 = Name of Levee Seepage Segment #1
10 = No. of Levee Seepage Cells in X-direction for Segment #1
*COORDINATES OF CELL IMMEDIATELY WEST OF LEVEE SEEPAGE BOUNDARY
   32,52    1
   32,51    1
   34,50    1
   34,49    1
   34,48    1
   34,47    1
   34,46    1
   34,45    1
   34,44    1
   33,43    1
0 = No. of Levee Seepage Cells in Y-direction for Segment #1
*
*  STRUCTURE INFLOWS AND OUTFLOWS
6  = No. of Structure Inflows to Subbasin
*  STRUCTURE NAME
   "/SFWMM/ST1WQ1/FLOW//1DAY/SIMULATED/"
   "/SFWMM/S5AWC1/FLOW//1DAY/SIMULATED/"
   "/SFWMM/S6/FLOW//1DAY/SIMULATED/"
   "/SFWMM/L8TCA1/FLOW//1DAY/SIMULATED/"
   "/SFWMM/ACME12/FLOW//1DAY/SIMULATED/"
   "/SFWMM/L101OT/FLOW//1DAY/SIMULATED/"
6  = No. of Structure Outflows from Subbasin
*  STRUCTURE NAME
   "/SFWMM/S5A2NO/FLOW//1DAY/SIMULATED/"
   "/SFWMM/S10/FLOW//1DAY/SIMULATED/"
   "/SFWMM/S39/FLOW//1DAY/SIMULATED/"
   "/SFWMM/G94AB/FLOW//1DAY/SIMULATED/"
   "/SFWMM/ACME2/FLOW//1DAY/SIMULATED/"
   "/SFWMM/S10E/FLOW//1DAY/SIMULATED/"
```

Sample basin water budget output (annbud.average)

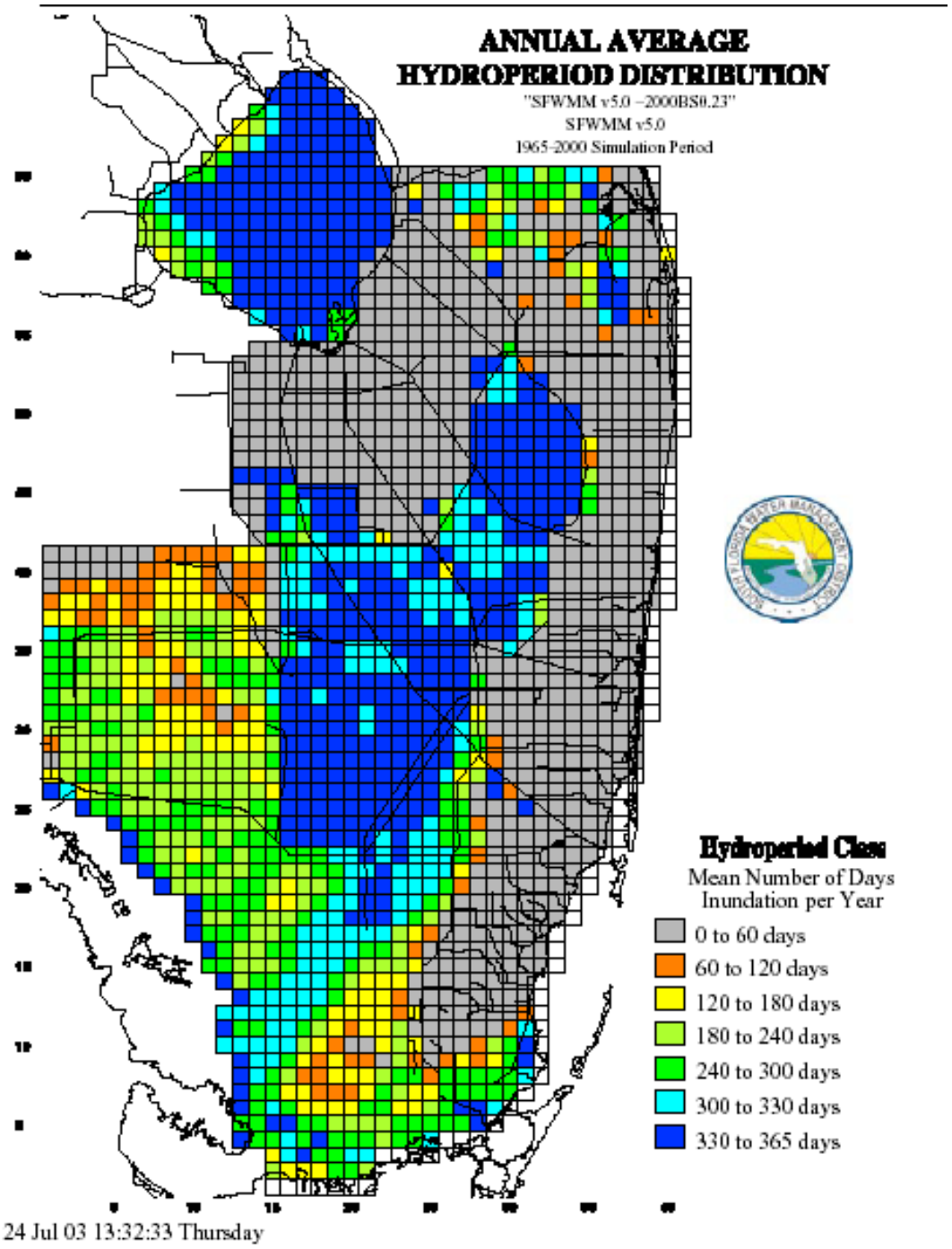
ANNUAL MEAN (1965-2000) WATER BUDGET SUMMARY FOR WATER_CONSERVATION_AREA-1
SUBBASIN AREA (square miles) = 224.
(All values in thousand acre-feet)

	MEAN
RAINFALL	617.2
ET	597.6
ETP	586.1
ETS	11.5
ETU	0.0
ET_P+S+U	597.6
ULSVIAPW	0.0
GCVIAREU	0.0
PUMPAGE	0.0
PWS	0.0
IND&RSS	0.0
OFIN	0.0
OFOUT	0.0
GWIN	0.3
GWOUT	86.5
LSPGIN	1.2
LSPGOUT	8.2
STQSIN	541.3
ST1WQ1	207.3
S5AWC1	2.0
S6	218.2
L8TCA1	0.0
ACME12	36.1
L101OT	77.7
STQSOUT	463.8
S5A2NO	8.4
S10	197.8
S39	93.2
G94AB	21.6
ACME2	0.4
S10E	142.3
SUMIN	1159.9
SUMOUT	1156.2
STOCH	3.8
RESIDUAL	0.0
%RES/INF	0.00
UNSATURATED ZONE COMPONENTS	
NIRRSUPT	0.0
URBLSCP	0.0
NURSERY	0.0
GOLFCRS	0.0
AGLOVOL	0.0
AGOVRHD	0.0
AGOTHER	0.0
INFILT	100.9
PERC	100.9
ETU	0.0
ETIU	0.0
ETNU	0.0
ETU_WT	0.0
UZSUMIN	100.9
UZSUMOUT	100.9
UZSTOCH	0.0
UZ_RESID	0.0
%URS/INF	0.00

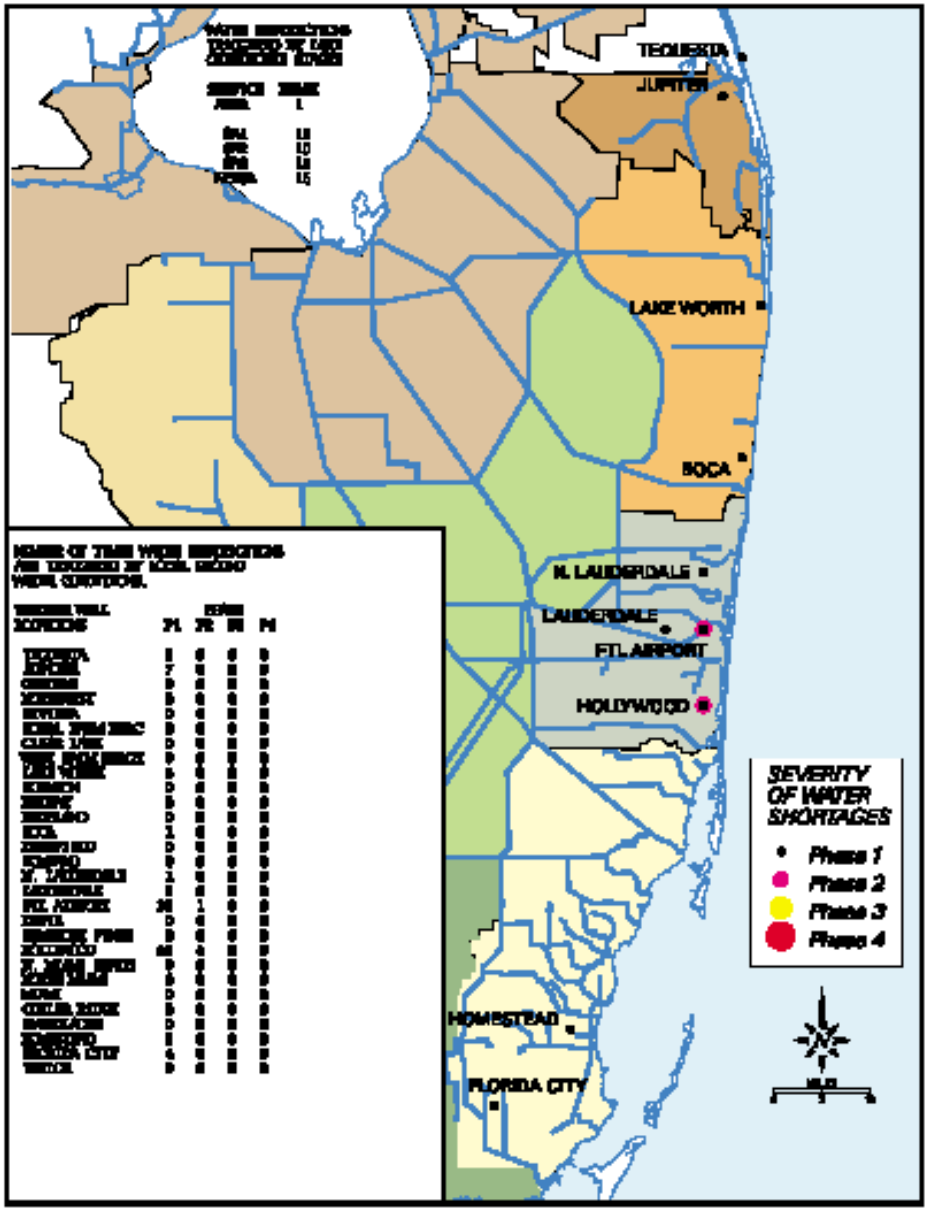
Sample LEC Service Area water shortage summary (sa_1.out)

```
SFWMM Water Shortage and ET Summary Post-Processor Version 1.15
SFWMM Run Title = SFWMM v5.0 - 2000BSO.23_31yr_gnu

Run Start Year  =    1965
Run End Year    =    1995

IRRIGATED AREA SUMMARY for lec_sa_1                                    "
SERVICE AREA (square miles) =   672.

IRRIGATED AREA (acres)
 Urban Landscape =    54871.
 Nursery         =     3676.
 Golf Course     =    13850.
 Ag Lowvolume    =     6305.
   Citrus        =    11207.
   Avocado       =       31.
 Ag Overhead     =    13414.
 Ag Other        =     6191.
   Sod           =     2434.
   Sugar Cane    =     4592.
   Rice          =        0.
 Total Irr. Area =    98307.
.
.

SUMMARY OF SUPPLIES (acre-ft) for lec_sa_1

Public Water Supply
         Jan    Feb    Mar    Apr    May    Jun    Jul    Aug    Sep    Oct    Nov    Dec    Ann
 1965  18534  16103  20341  18584  22249  15994  18052  18989  16947  17862  18790  18505 220950
 1966  18534  16103  20341  18584  22249  18816  18052  18989  16947  17862  18790  18505 223772
 1967  18534  16103  20341  18584  22249  15994  18052  18989  16947  17862  18790  18505 220950
 1968  18534  14176  17290  15797  18911  18816  18052  18989  16947  17862  18790  18505 212670
 1969  18534  16103  20341  18584  22249  18816  18052  18989  16947  17862  18790  18505 223772
.
.
 ------------------------------------------------------------------------------------------------

SUMMARY OF SHORTAGES (acre-ft) for lec_sa_1

Public Water Supply
         Jan    Feb    Mar    Apr    May    Jun    Jul    Aug    Sep    Oct    Nov    Dec    Ann
 1965      0      0      0      0      0   2822      0      0      0      0      0      0   2822
 1966      0      0      0      0      0      0      0      0      0      0      0      0      0
 1967      0      0      0      0      0   2822      0      0      0      0      0      0   2822
 1968      0   2502   3051   2788   3337      0      0      0      0      0      0      0  11678
 1969      0      0      0      0      0      0      0      0      0      0      0      0      0
.
.
```

Sample hydroperiod map



Sample LEC trigger map



Frequency & Severity of Water Restriction Triggers for
"SFWMM v5.0 - 2000BS0.23_31yr_gnu"

Exploring the Run Results

- Look at the residuals in the annual water budget and monthly water budget result files
  - cd to simulation_output_directory/WMMBUD and view annbud & monbud
  - Use the **chk_bud.scr** utility (glance at monthly budget components on the screen)
- Use other utilities (grid_io, dsstool) to explore results

Terminal

Window Edit Options Help

1965 WATER BUDGET SUMMARY FOR EAA+HOL+ROT+298+STA SUBBASIN AREA (square miles) = 980.
RESIDUAL (All values in thousand acre-feet)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
1965	-2.1	0.7	0.3	0.1	0.3	1.4	1.0	0.0	0.2	0.0	-0.9	-0.2	0.8
1966	0.2	-0.1	-0.3	-0.1	0.0	1.8	-0.4	-0.3	-0.7	0.3	-0.5	-0.2	-0.3
1967	0.1	0.3	-0.4	0.0	0.0	0.9	0.4	-0.9	1.3	-1.0	-0.3	-0.1	0.2
1968	-0.5	0.3	-0.8	-0.1	0.6	1.1	0.0	-1.5	0.0	0.6	-0.5	-0.2	-0.9
1969	0.0	0.2	-0.1	-0.1	-0.1	1.3	-0.7	0.0	0.0	1.0	-1.0	-0.2	0.3
1970	0.0	-0.1	2.0	-1.2	-0.6	0.1	0.6	-0.8	-0.3	0.1	-0.1	0.1	-0.3
1971	-0.2	0.2	-0.2	0.0	0.0	0.4	0.6	-0.8	0.2	0.3	-0.5	-0.1	0.0
1972	-0.1	-0.1	-0.1	0.0	0.1	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	-0.4
1973	0.0	0.0	0.0	-0.9	-0.1	0.0	0.0	1.1	0.2	-1.5	0.1	0.0	-1.2
1974	-0.1	-1.1	-0.4	-0.7	0.0	0.3	1.6	-0.4	-1.1	-0.5	0.7	-0.6	-2.2
1975	-0.1	0.0	0.0	0.0	0.3	1.7	-0.3	-1.8	2.0	-0.8	-1.1	-0.1	0.0
1976	-0.1	0.4	-1.2	-0.4	-0.1	-0.1	-0.1	0.8	0.8	-1.6	0.2	0.1	-1.3
1977	0.2	-0.5	0.0	-0.4	0.0	0.0	0.0	0.2	0.6	-0.6	0.5	-0.1	-0.1
1978	-0.1	-0.2	-0.3	0.0	0.0	0.9	0.8	0.4	-1.3	-0.3	-0.1	0.3	0.1
1979	0.0	-0.2	-0.1	-0.3	0.1	-0.1	0.0	0.5	1.4	-1.4	0.1	0.1	-0.1
1980	1.0	-1.1	-0.3	-0.1	0.1	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	-0.6
1981	0.0	0.3	-0.3	0.0	-0.1	0.0	0.0	0.2	-0.2	0.0	0.0	0.0	-0.1
1982	0.0	0.0	0.2	-0.1	1.3	1.0	-0.5	-1.1	0.8	-1.4	-0.2	-0.1	0.1
1983	0.5	1.0	-0.8	-0.7	0.0	0.5	-0.5	0.0	0.0	0.8	-0.5	0.3	0.6
1984	-0.5	0.1	0.3	-0.4	0.3	-0.3	0.6	-0.6	0.0	0.0	0.0	0.0	-0.6
1985	0.0	0.0	0.0	0.0	-0.1	0.0	0.5	-0.5	1.0	-0.3	-0.5	-0.1	0.1
1986	0.0	0.0	-0.1	0.0	0.0	1.5	-1.3	0.6	-0.8	0.6	-0.5	0.7	0.7
1987	-0.7	-0.1	0.3	-0.4	0.0	0.0	0.0	0.0	0.0	-0.3	1.4	-1.2	-0.9
1988	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.4	0.1	-0.5	0.0	0.0	0.0	-0.2
1989	0.1	-0.1	-0.1	-3.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.6
1990	0.2	0.0	-0.2	0.0	0.2	-0.2	0.0	0.0	0.0	-0.1	-0.3	-0.4	-0.7
1991	1.2	-1.9	-1.8	-0.1	1.3	-1.3	0.3	-0.6	0.0	0.7	0.0	-0.1	-2.3
1992	-0.4	0.3	-0.4	0.0	0.0	1.3	-1.1	1.8	-1.7	-0.4	0.8	-0.6	-0.4
1993	0.7	-0.5	-0.2	-0.1	0.0	0.0	-0.1	0.2	0.3	0.4	-0.5	-0.2	-0.1
1994	0.4	-0.2	-0.2	-0.1	-0.1	0.3	0.7	-0.5	1.0	-0.9	1.0	0.3	1.7
1995	-0.6	-0.7	-0.4	-0.2	0.0	0.3	0.7	1.0	-0.8	1.3	-2.0	-0.4	-1.7
1996	0.0	-0.1	0.3	-0.2	1.0	0.8	-2.0	0.8	-0.8	0.6	-0.4	-0.1	-0.1
1997	-0.1	0.0	0.0	0.3	0.0	-0.3	0.1	0.1	0.8	-1.0	0.7	0.0	0.5
1998	-0.1	0.0	0.1	-0.6	-0.1	0.0	0.0	0.7	0.2	-0.8	1.0	-0.8	-0.4
1999	0.0	-0.2	-0.1	0.0	0.0	0.2	0.0	0.2	2.1	-0.4	-1.7	-0.2	-0.2
2000	0.0	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.3	-0.2	-0.7	-0.9	-1.6

Continue (y, Y or Return):

- Steps to execute the SFWMM without any pre- or post-processing:

  1. define directory path where model output will be sent to:

     - **setenv SFWMMDAT** ***output_directory_path***

  2. command line input (executed in input directory where altwmm input file is located):

     - /...../**wmm.exe** ***altwmm***

- Important notes:
  - The correct library paths must be set before model execution (in the future, an IMC standard will have to be created)

THE END