

DSM2 Learning Series: DSM2 Planning Studies

Session 2: Output Post-processing

The goals for this session include

1. Post-processing DSM2 results, creating new DSS files used for plotting
2. Using Jupyter notebooks to plots results of studies
3. Learning to work with Jupyter notebook plots

Run the post-processor for the baseline and alternative studies.

Post-processing model output

baseline study: running the post-processor

Run post-processor

Creates new flow, stage, and velocity DSS files, containing

- daily max & min
- daily & monthly mean

Command Prompt - postpro.bat

```
D:\DSM2_Planning_2023\delta\DSM2_v822plan\studies_planning\baseline>postpro.bat
```

Successful run

```
/HYDROV8.2.2/TRNR CUT/VEL/01SEP2010 - 01SEP2014/15MIN/2021EX/  
/HYDROV8.2.2/VENICE162/VEL/01SEP2010 - 01SEP2014/15MIN/2021EX/  
/HYDROV8.2.2/VENICE163/VEL/01SEP2010 - 01SEP2014/15MIN/2021EX/  
all process done  
  
(pydelmod_plan) D:\DSM2_Planning_2023\delta\DSM2_v822plan\studies_planning\baseline  
ctivate.bat  
  
D:\DSM2_Planning_2023\delta\DSM2_v822plan\studies_planning\baseline>endlocal  
  
D:\DSM2_Planning_2023\delta\DSM2_v822plan\studies_planning\baseline>
```

Post-processing model output

alternative study: running the post-processor

Run post-processor

Creates new flow, stage, and velocity DSS files, containing

- daily max & min
- daily & monthly mean

Command Prompt

```
D:\DSM2_Planning_2023\delta\DSM2_v822plan\studies_planning\alternative>postpro.bat
```

Successful run

```
/HYDROV8.2.2/TRNR CUT/VEL/01SEP2010 - 01SEP2014/15MIN/2040ALT/  
/HYDROV8.2.2/VENICE162/VEL/01SEP2010 - 01SEP2014/15MIN/2040ALT/  
/HYDROV8.2.2/VENICE163/VEL/01SEP2010 - 01SEP2014/15MIN/2040ALT/  
all process done  
  
(pydelmod_plan) D:\DSM2_Planning_2023\delta\DSM2_v822plan\studies_planning\alternative  
deactivate.bat  
  
D:\DSM2_Planning_2023\delta\DSM2_v822plan\studies_planning\alternative>endlocal  
  
D:\DSM2_Planning_2023\delta\DSM2_v822plan\studies_planning\alternative>
```

Plot model output with Jupyter notebooks

Post-processing model output starting Jupyter notebook application

1. notebook.bat starts the jupyter notebook application

2. Jupyter notebook opens in web browser

3. Click on "workshop_notebooks" folder

Command Prompt - notebook.bat

```
D:\DSM2_Planning_2023\delta\DSM2_v822plan\postp>notebook.bat
D:\DSM2_Planning_2023\delta\DSM2_v822plan\postp>set PATH=c:\Windows\System32;c:\Windows
D:\DSM2_Planning_2023\delta\DSM2_v822plan\postp>call ..\pydelmod_plan\Scripts\activate.bat
(pydelmod_plan) D:\DSM2_Planning_2023\delta\DSM2_v822plan\postp>rem ..\pydelmod_plan\Scripts\conda-unpack.exe
```

Jupyter

Files Running Clusters Nbextensions

Select items to perform actions on them.

0 /

info

kernel

workshop_notebooks

Post-processing model output Opening and configuring a notebook

1. Open the file 2021_example_EC.ipynb

2. Make sure these lines point to your study folders

3. Modify for 4 year time period

Jupyter

Files Running Clusters Nbextensions

Select items to perform actions on them.

0 / workshop_notebooks

2021_example_bnd.ipynb

2021_example_EC.ipynb

2021_example_EC_stdts.ipynb

2021_example_stage.ipynb

```
# Read in scenarios
dir_plan = '../studies_planning/'
dir2021base = dir_plan+'baseline/'
dir2040alt = dir_plan+'alternative/'

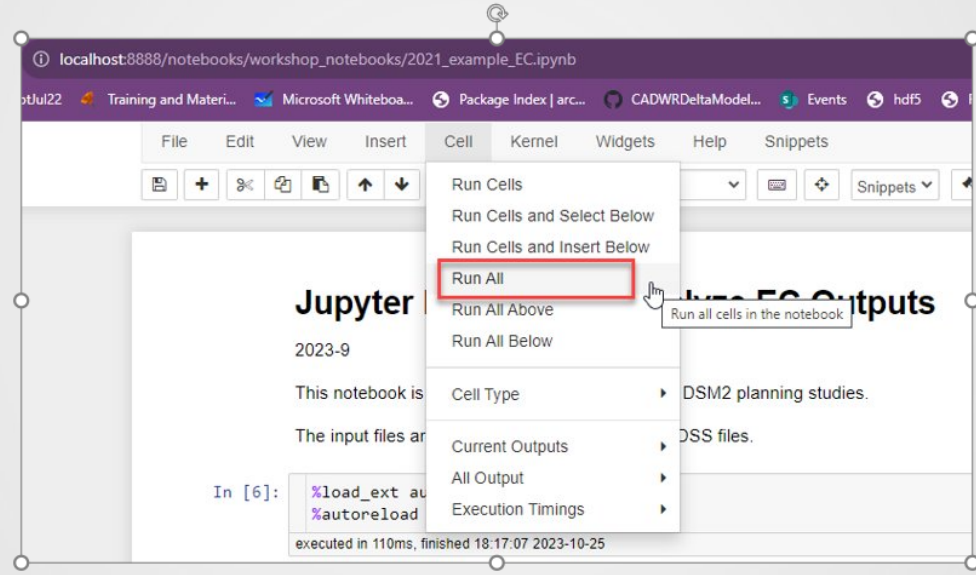
scenarios = [
    {'name': 'baseline', 'fpath': dir2021base+'timeseries/2021ex.DSS'},
    {'name': 'alternative', 'fpath': dir2040alt+'timeseries/2040alt.DSS'}
]

# Add a wateryear type column
wyt_c3f2020 = dir_plan+'baseline/timeseries/CALSIM/calsim_2021ex.DSS'
df_wyt2020 = pdmu.read_calsim3_wateryear_types(wyt_c3f2020)

# period93 = ['1922-10-1', '2015-9-30']
period93 = ['2010-10-1', '2014-9-30']
```

Post-processing model output

Running all cells in a notebook



Jupyter notebooks for plotting model output

Notebook filename	Purpose
2021_example_EC.ipynb	<p>Compare EC outputs from multiple scenarios, many stations throughout the system</p> <ul style="list-style-type: none"> • Bar charts aggregated by month • Exceedance probability • Box & Whisker
2021_example_EC_stds.ipynb	<p>Compare EC outputs from multiple scenarios to D1641 stds</p> <ul style="list-style-type: none"> • Time series • Exceedance probability
2021_example_stage.ipynb	<p>Compare Stage outputs from multiple scenarios</p> <ul style="list-style-type: none"> • All four plot types

Try the various plot features shown in the figure below.

