

# DSM2 Quick Start: Output

June 23, 2023



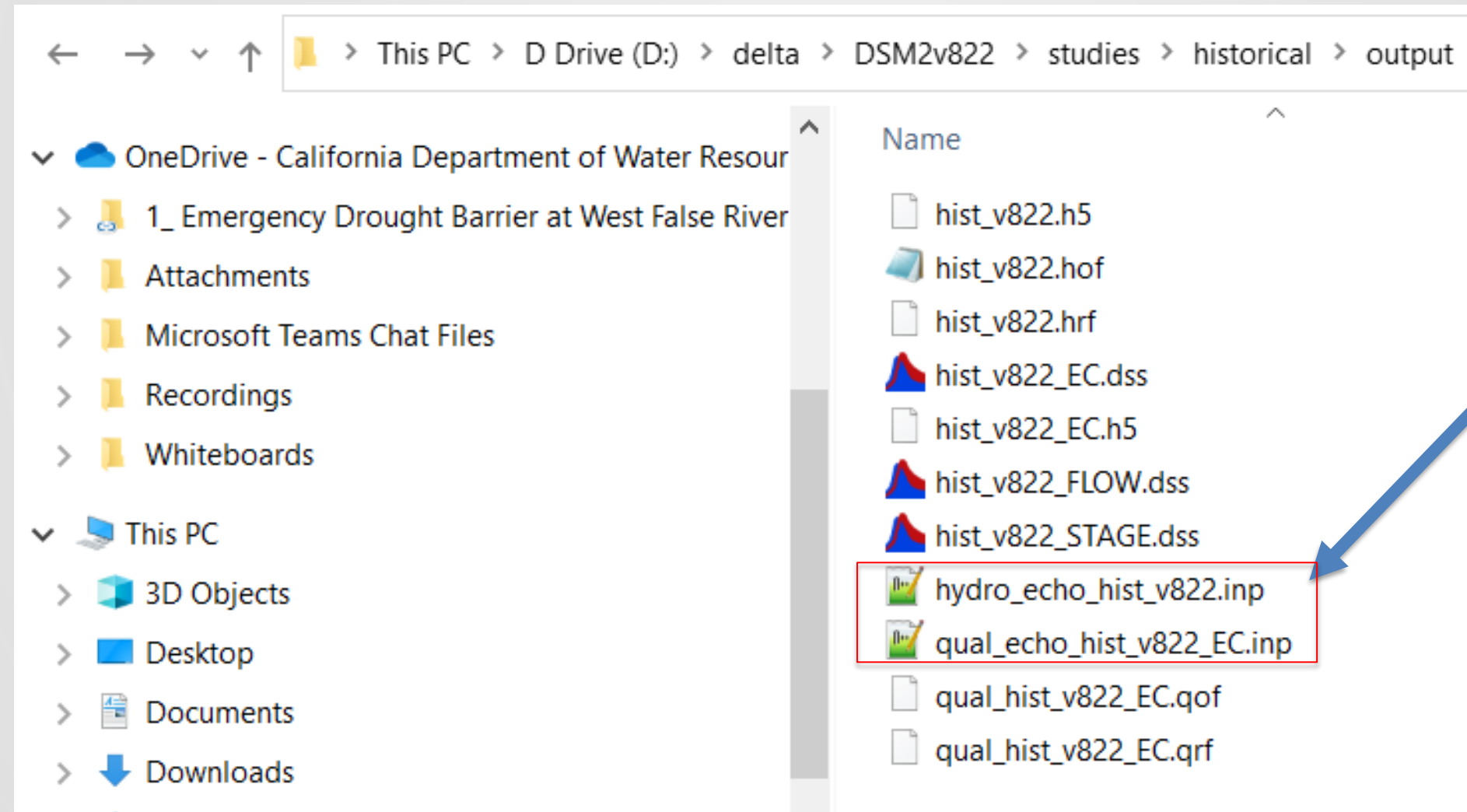
# Overview

1. DSM2 echo files
2. Compare two studies with HEC DSS-Vue
3. Create contour plots in DSM2 Animator
4. Vista: View tidefile output
5. HDF View: View tidefile output

# 1a. DSM2 echo files

## DSM2 output folder

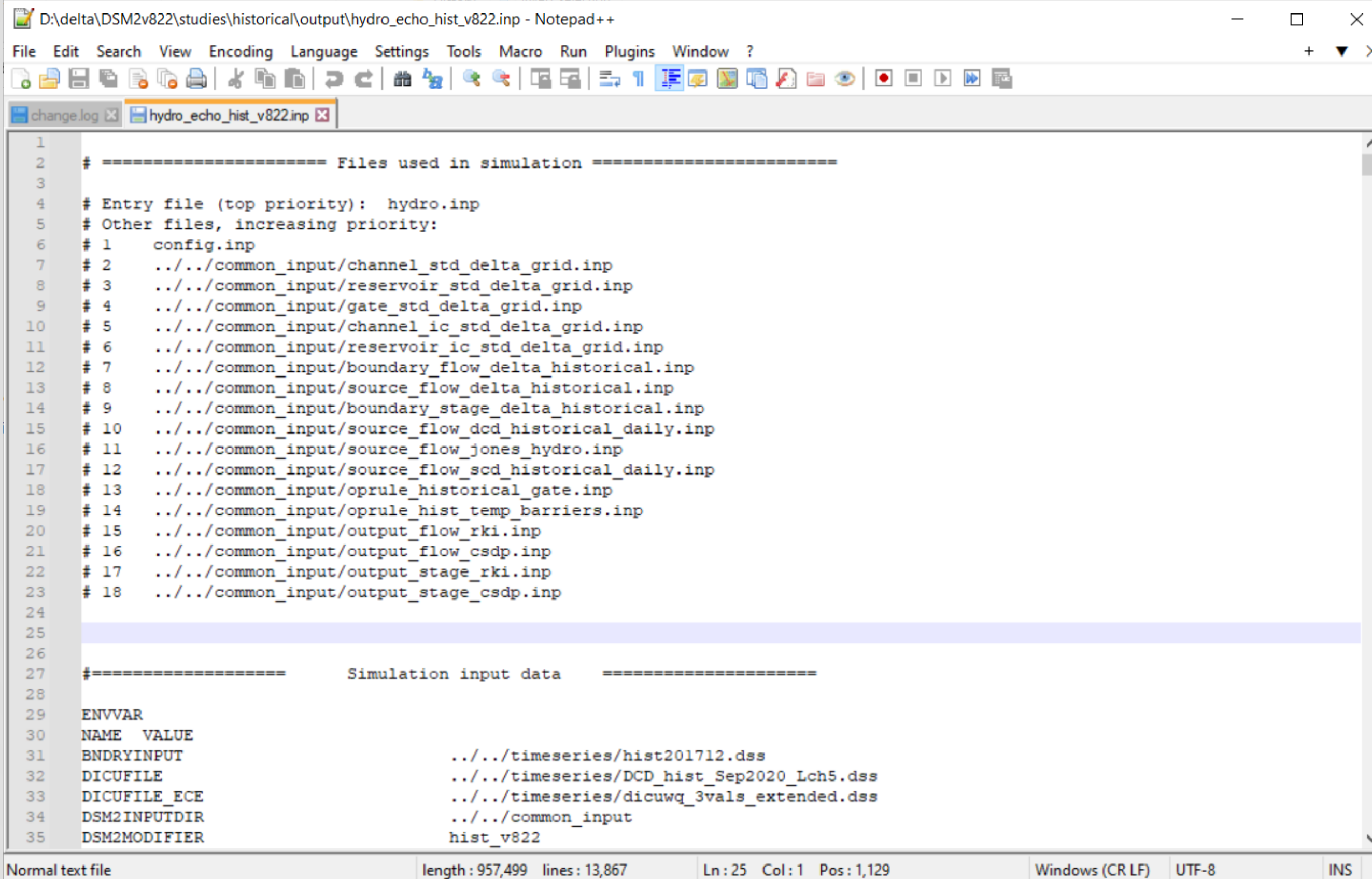
- Merges all fixed input from DSM2 input files
- Can be used as an input file



Echo files (.inp)

# 1b. DSM2 echo files

## The Hydro echo file: all fixed input



```
D:\delta\DSM2v822\studies\historical\output\hydro_echo_hist_v822.inp - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
change.log x hydro_echo_hist_v822.inp x
1
2 # ===== Files used in simulation =====
3
4 # Entry file (top priority):  hydro.inp
5 # Other files, increasing priority:
6 # 1    config.inp
7 # 2    ../../common_input/channel_std_delta_grid.inp
8 # 3    ../../common_input/reservoir_std_delta_grid.inp
9 # 4    ../../common_input/gate_std_delta_grid.inp
10 # 5    ../../common_input/channel_ic_std_delta_grid.inp
11 # 6    ../../common_input/reservoir_ic_std_delta_grid.inp
12 # 7    ../../common_input/boundary_flow_delta_historical.inp
13 # 8    ../../common_input/source_flow_delta_historical.inp
14 # 9    ../../common_input/boundary_stage_delta_historical.inp
15 # 10   ../../common_input/source_flow_dcd_historical_daily.inp
16 # 11   ../../common_input/source_flow_jones_hydro.inp
17 # 12   ../../common_input/source_flow_scd_historical_daily.inp
18 # 13   ../../common_input/oprule_historical_gate.inp
19 # 14   ../../common_input/oprule_hist_temp_barriers.inp
20 # 15   ../../common_input/output_flow_rki.inp
21 # 16   ../../common_input/output_flow_csdp.inp
22 # 17   ../../common_input/output_stage_rki.inp
23 # 18   ../../common_input/output_stage_csdp.inp
24
25
26
27 #=====          Simulation input data          =====
28
29 ENVVAR
30 NAME  VALUE
31 BNDRYINPUT          ../../timeseries/hist201712.dss
32 DICUFILE             ../../timeseries/DCD_hist_Sep2020_Lch5.dss
33 DICUFILE_ECE         ../../timeseries/dicuwq_3vals_extended.dss
34 DSM2INPUTDIR         ../../common_input
35 DSM2MODIFIER         hist_v822
Normal text file          length : 957,499  lines : 13,867          Ln : 25  Col : 1  Pos : 1,129          Windows (CR LF)  UTF-8          INS
```

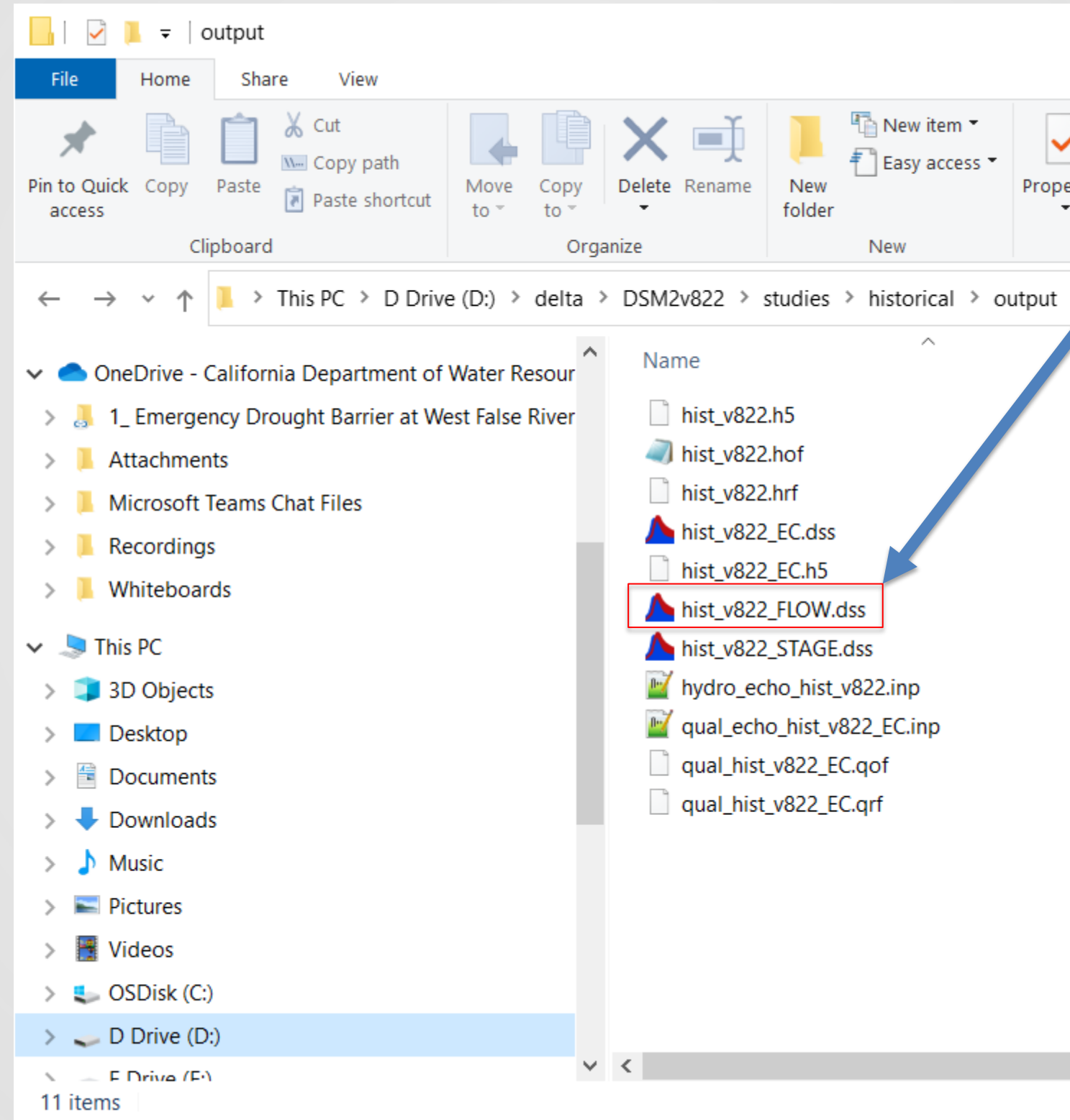


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- 2. Compare two studies with HEC DSS-Vue**
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# 2a. Compare two studies with HEC DSS-Vue

## Opening first DSS file in HEC DSSVue

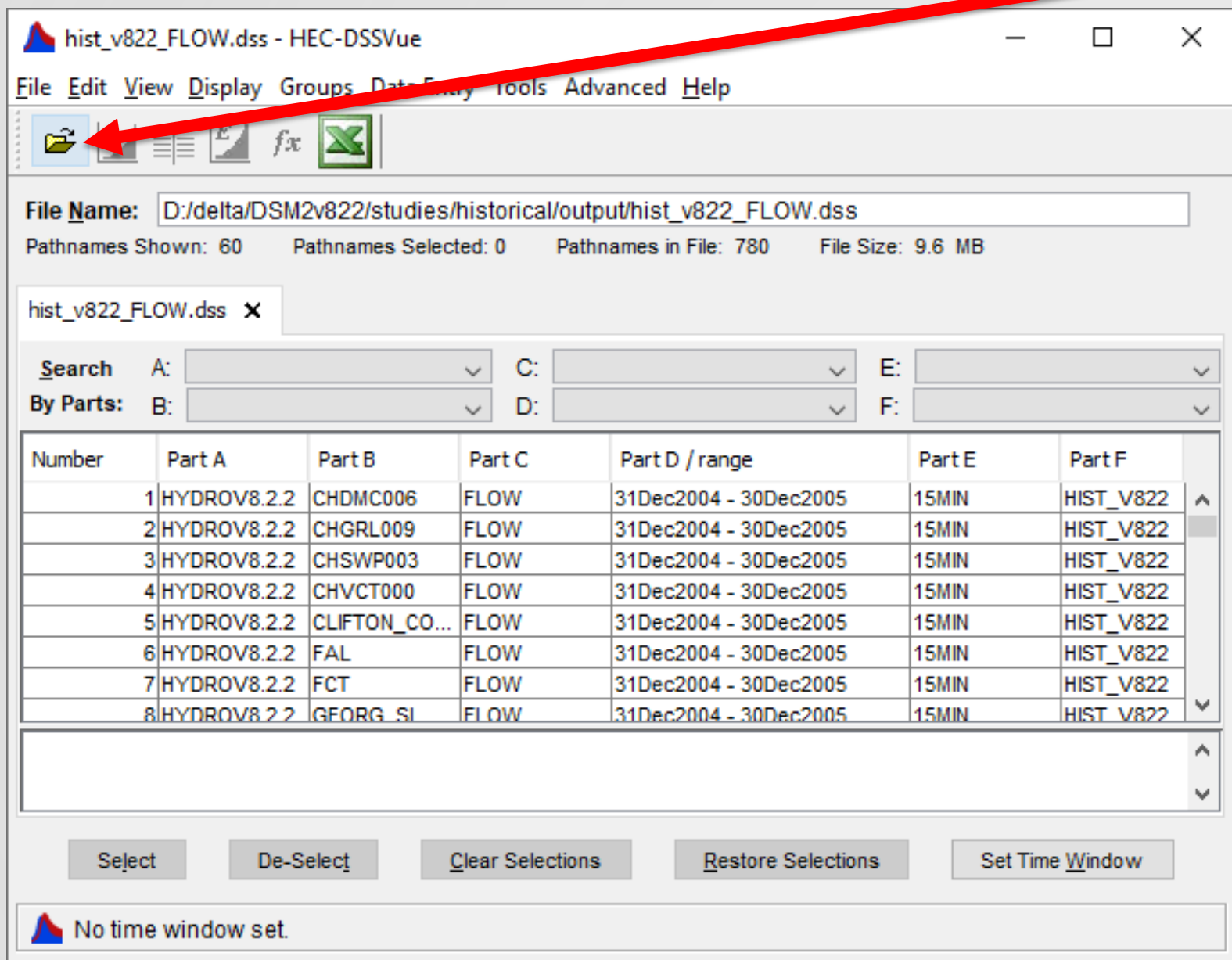


Double-click on DSS flow output file

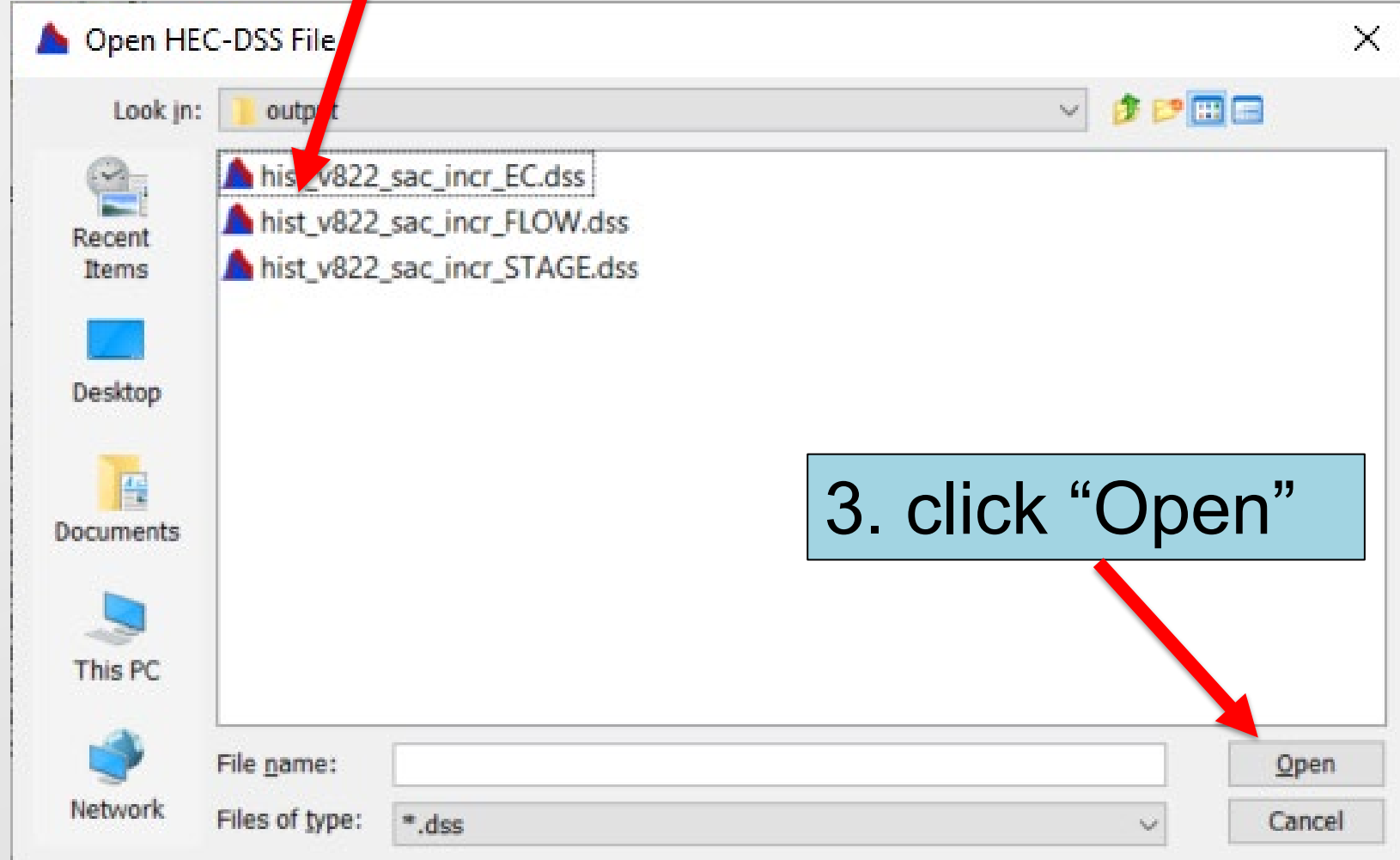
# 2b. Compare two studies with HEC DSS-Vue

## Opening second DSS file in HEC DSSVue

1. Click the folder icon



2. Select the "sac\_incr" flow output DSS file



3. click "Open"



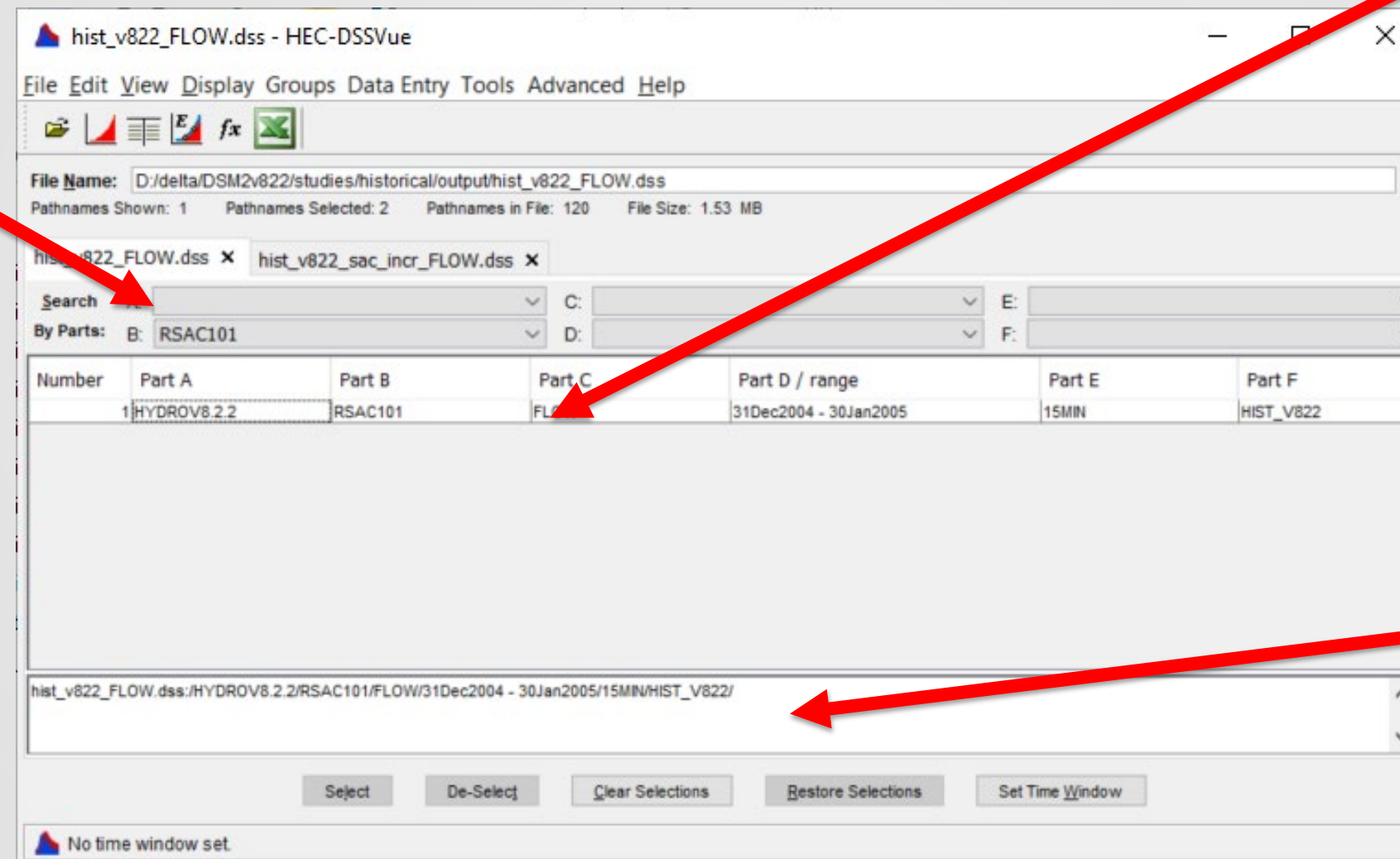
Don't double-click the second DSS file!

# 2c. Compare two studies with HEC DSS-Vue

## Select first data set for comparison plot

1. Filter B parts, showing only RSAC101

2. Double click here



3. The selected data set will now appear here



# 2d. Compare two studies with HEC DSS-Vue

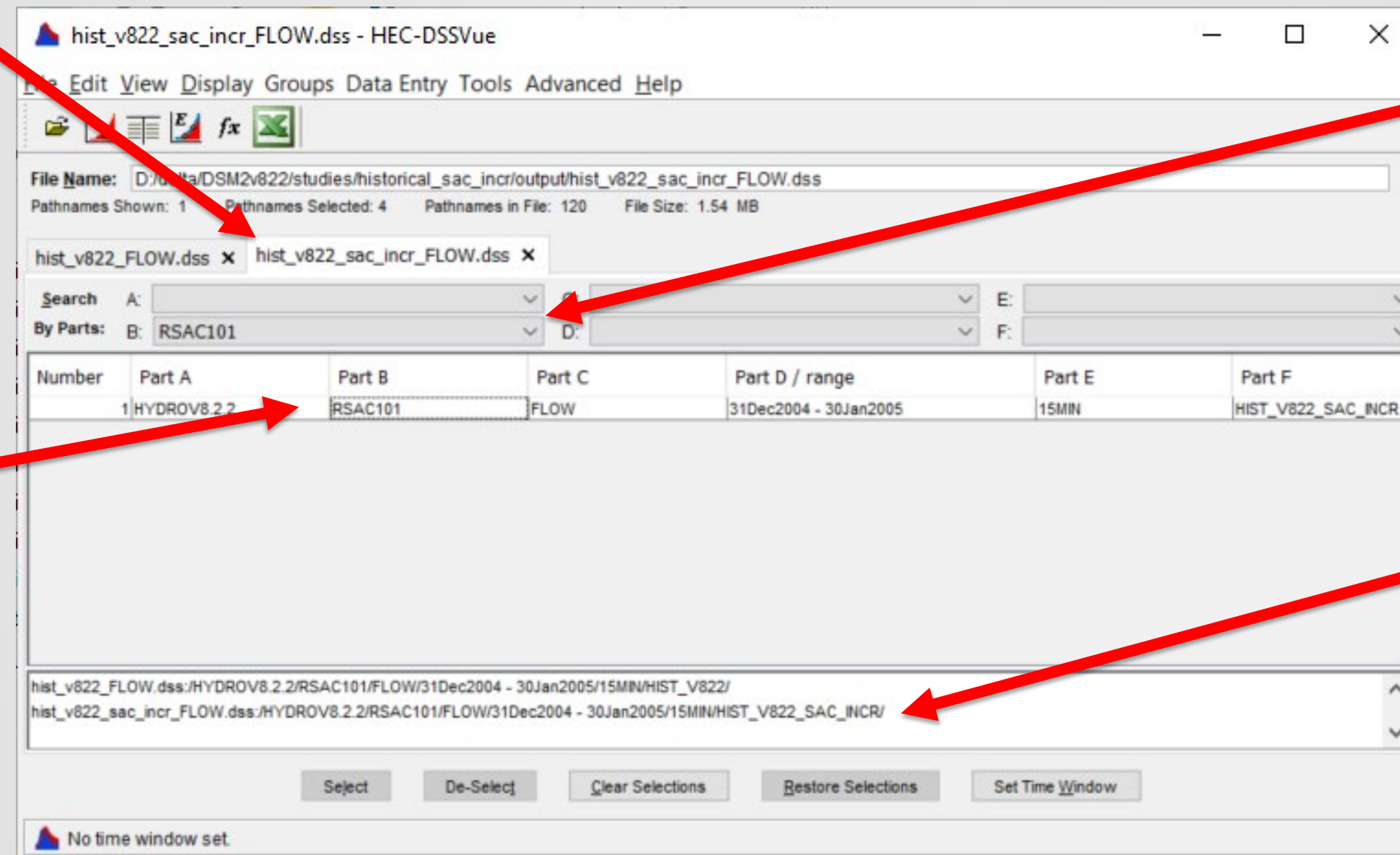
## Select second data set to compare

1. Click the tab to select the sac\_incr dss file

2. Filter B parts, showing only RSAC101

3. Double click here

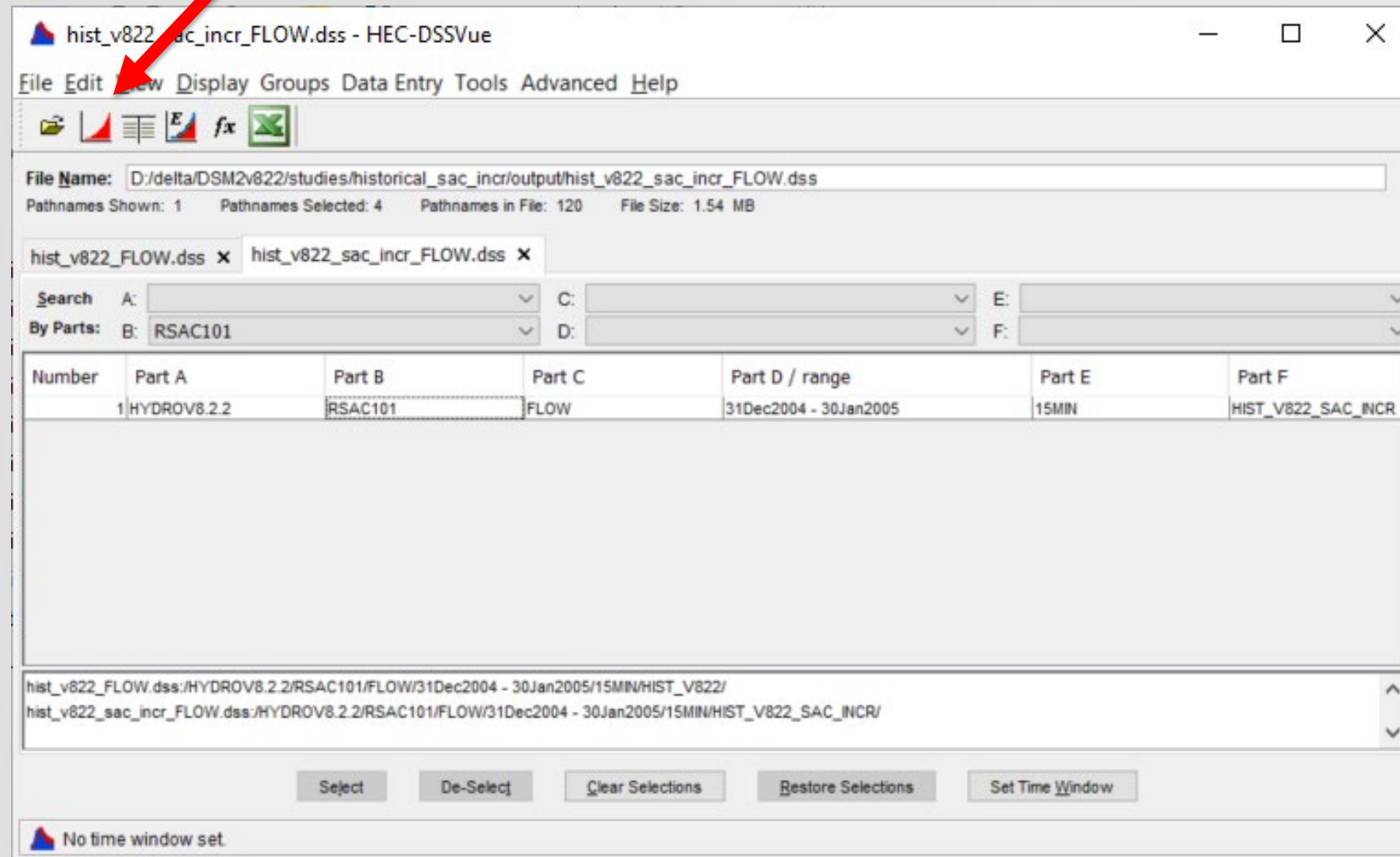
4. The selected data set will now appear here



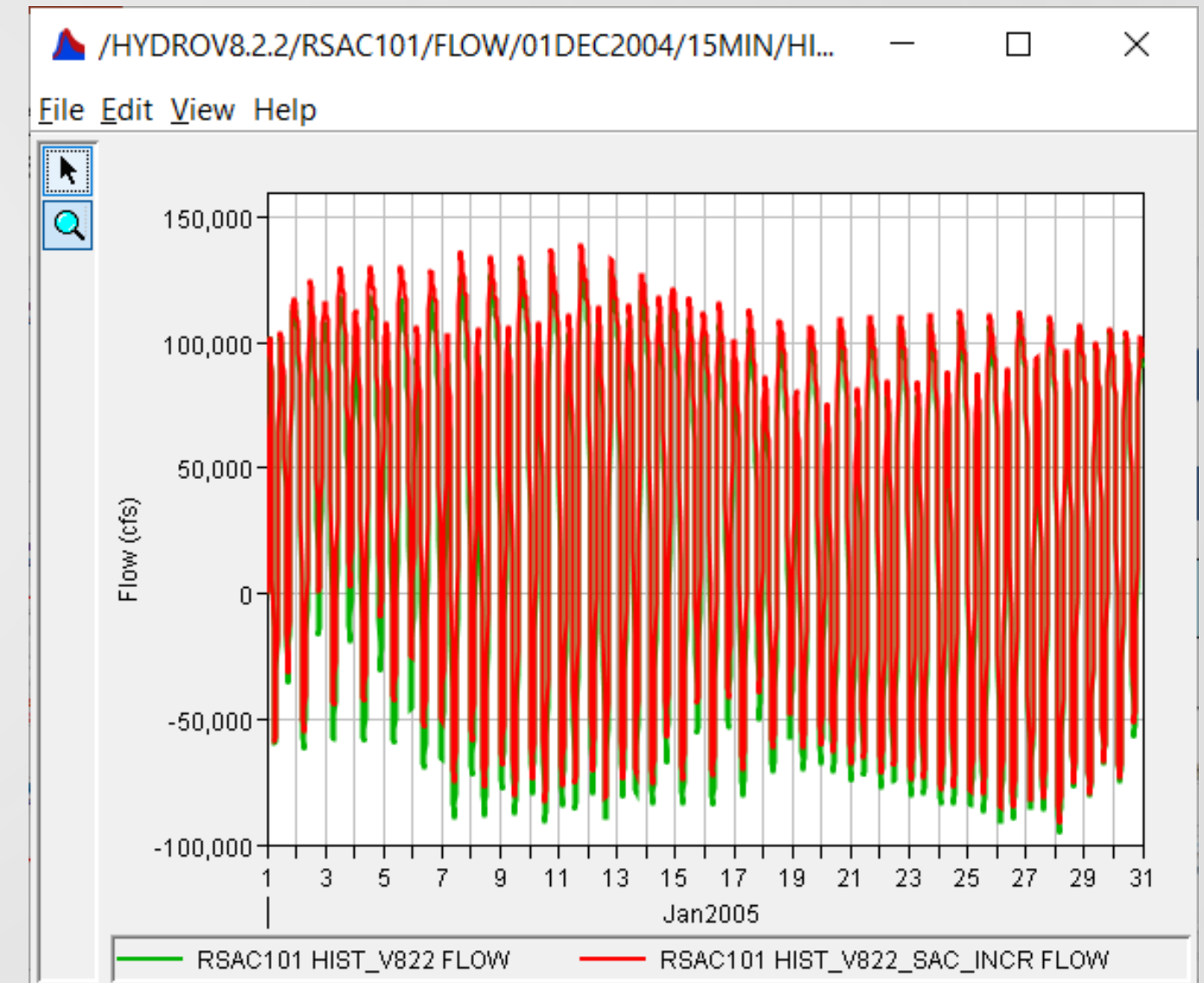
# 2e. Compare two studies with HEC DSS-Vue

## Creating comparison time series plot

1. Click the plot button



2. Click and drag on the plot to zoom in. Right click to zoom out.



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# 3a. Contour plots with DSM2 Animator

## Starting the DSM2 Animator server: 3 steps

 Command Prompt

```
D:\delta\dsm2Animator>start_tomcat.bat
```

1. Navigate to the “dsm2Animator” installation, and execute the batch file “start\_tomcat.bat”

2. You should see messages that look like this.

```
INFO: Starting service Catalina
Jun 08, 2023 9:50:11 AM org.apache.catalina.core.StandardEngine startInternal
INFO: Starting Servlet Engine: Apache Tomcat/7.0.47
Jun 08, 2023 9:50:11 AM org.apache.catalina.startup.HostConfig deployWAR
INFO: Deploying web application archive D:\delta\dsm2Animator\apache-tomcat-7.0.47\webapps\ROOT.war
Jun 08, 2023 9:50:14 AM org.apache.catalina.util.SessionIdGenerator createSecureRandom
INFO: Creation of SecureRandom instance for session ID generation using [SHA1PRNG] took [122] milliseconds.
Jun 08, 2023 9:50:14 AM org.apache.coyote.AbstractProtocol start
INFO: Starting ProtocolHandler ["http-apr-8080"]
Jun 08, 2023 9:50:14 AM org.apache.coyote.AbstractProtocol start
INFO: Starting ProtocolHandler ["ajp-apr-8009"]
Jun 08, 2023 9:50:14 AM org.apache.catalina.startup.Catalina start
INFO: Server startup in 2691 ms
```

3. Point your browser to <http://localhost:8080>

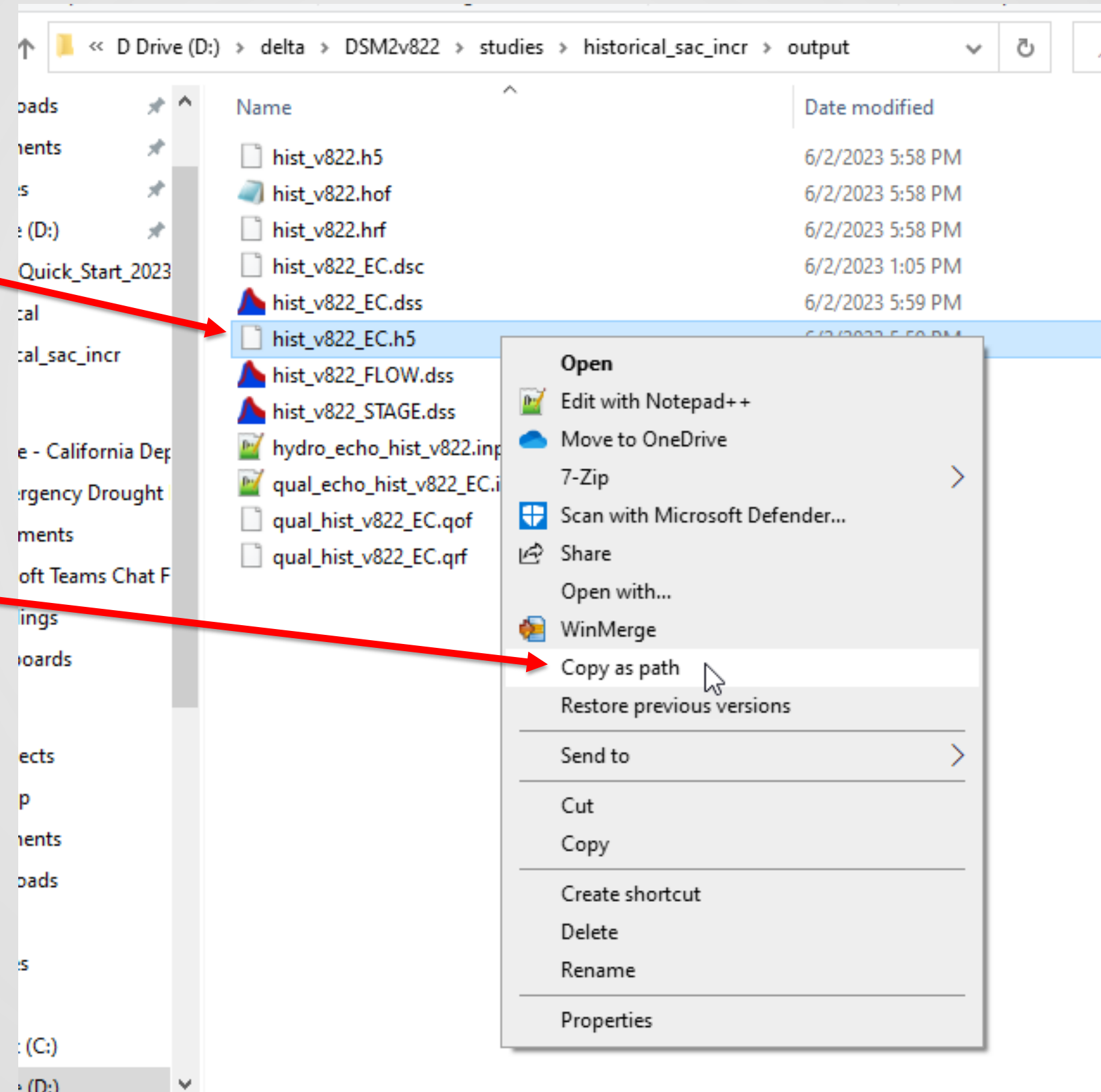


# 3b. View tidefile output in HDF View

## Copying tidefile path

1. Shift-right click  
on **.h5** file

2. Select **“Copy as path”**



# 3c: Contour plots with DSM2 Animator

## DSM2 Animator: EC, single study

+

-

[ ]

Time: 13JUL2005 1500

Hide

Legend

200

500

700

1000

1500

3700

4500

8000

10000

15000

18000

25000

1. Paste file path for hist\_v822\_EC.h5 from historical\_gate\_mod study here (remove the quotes)

3. Click Start/Stop to begin animation

2. Paste value classes here  
200,500,700,1000,1500,3700,4500,8000,10000,15000,18000,25000

Data Type  
ec

Tidally Filter

Tidefile  
D:\delta\DSM2v822\studies\historical\output\hist\_v822

Base Tidefile

Difference Type  
Absolute

Start/Stop

Date  
12JUN2005

Animation Interval: 150 milliseconds

Layer Opacity: 100

Map Background  
Hydda.Full

Value Classes  
200,500,700,1000,1500,3700,4500,8000,10000,15000,18000,25000

Color Scheme

Select Config  
historical\_ec

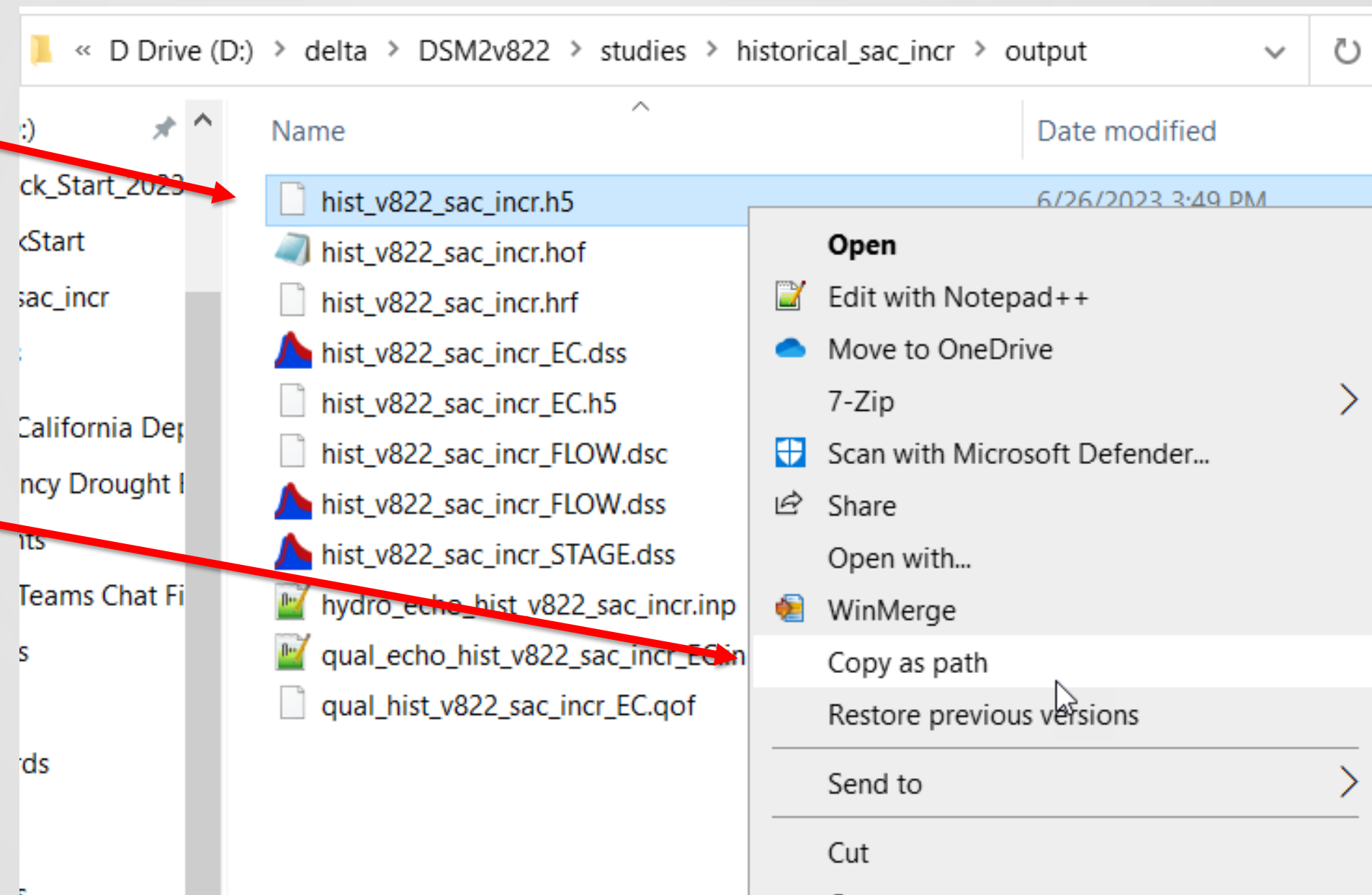
Config Name  
historical\_ec

# 3d. View tidefile output in HDF View

Copying tidefile path for hydro output tidefile, sac\_incr study

1. Shift-right click  
on **.h5** file

2. Select **“Copy as path”**



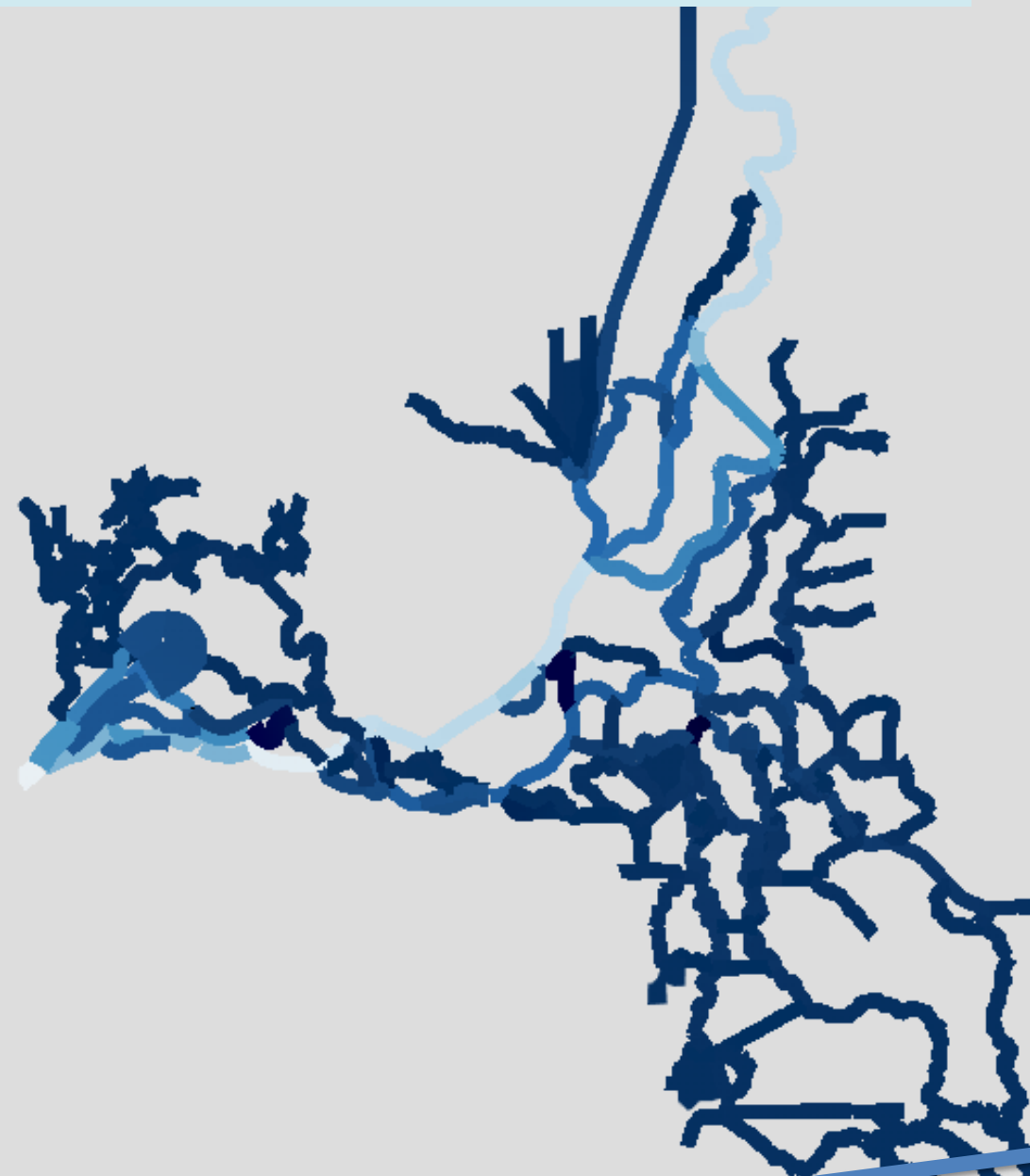
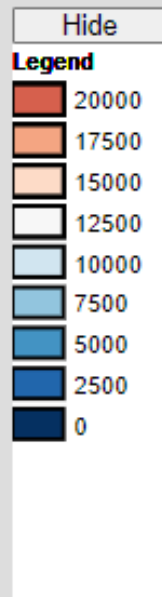
# 3e: Contour plots with DSM2 Animator

Flow difference between 2 studies: paste tidefile, set value classes



1. Paste file path for hist\_v822.h5 from historical\_sac\_incr study here

Time: 19JAN2005 2300



2. Paste value classes here

20000,17500,15000,12500,10000,7500,5000,2500,0

Data Type  
flow ☐ Tidally Filter

Tidefile  
D:\delta\DSM2v822\studies\historical\_sac\_incr\output\hist\_v822.h5

Base Tidefile  
D:\delta\DSM2v822\studies\historical\output\hist\_v822.h5

Difference Type  
Absolute

☐ Start/Stop ↺

Date  
02JAN2005

Animation Interval: 150 milliseconds

Layer Opacity: 100

Map Background  
Hydda.Full

Value Classes  
20000,17500,15000,12500,10000,7500,5000,2500,0

Color Scheme

Plot Config  
historical\_slr\_3ft\_vs\_base\_stage

Plot Name  
historical\_slr\_3ft\_vs\_base\_stage

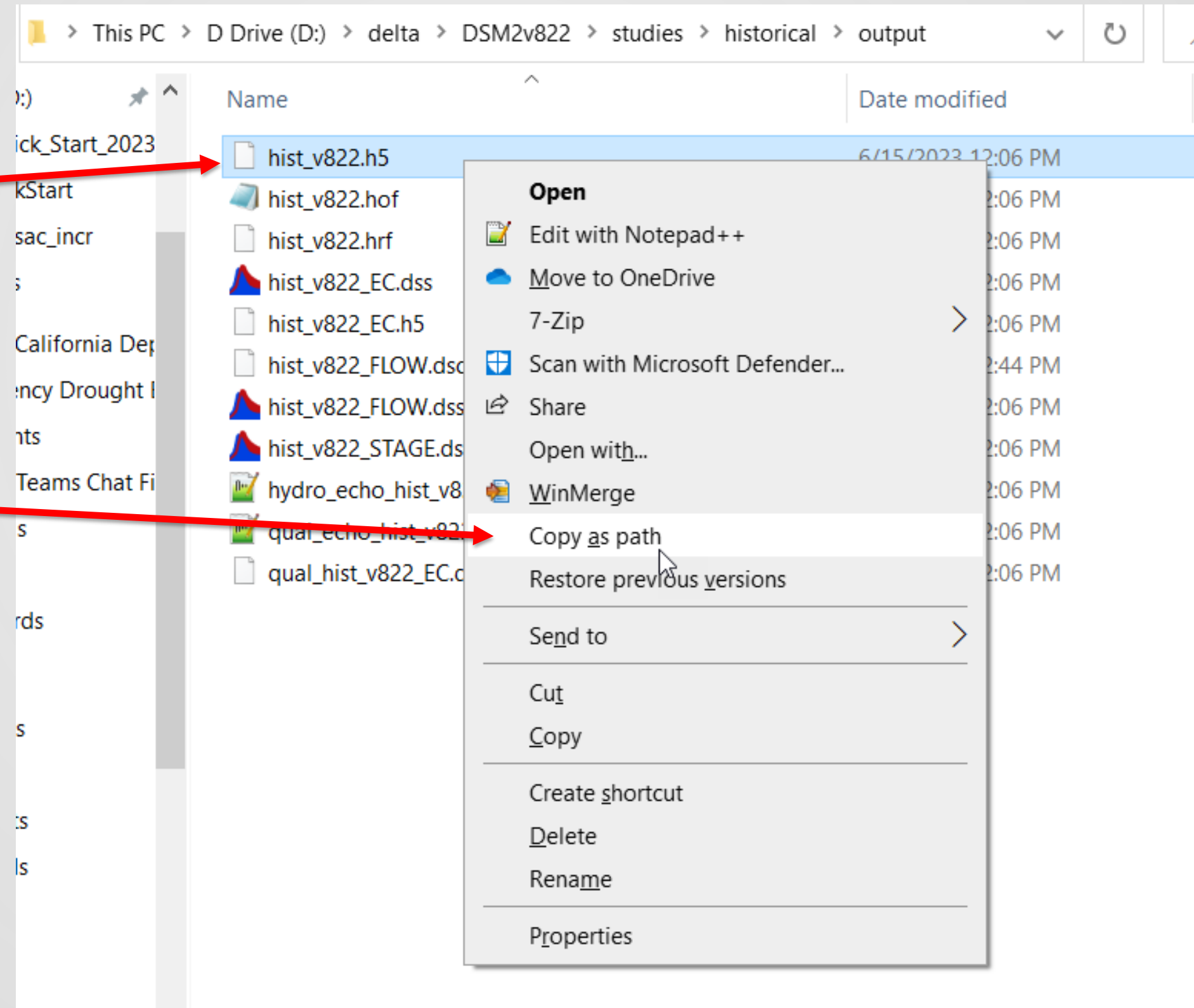


# 3f. View tidefile output in HDF View

Copying tidefile path for hydro output tidefile, historical study

1. Shift-right click  
on hydro **.h5** file

2. Select **“Copy as path”**

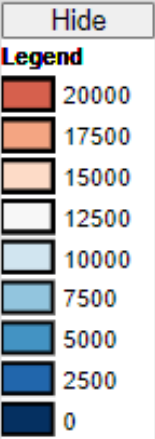


# 3g: Contour plots with DSM2 Animator

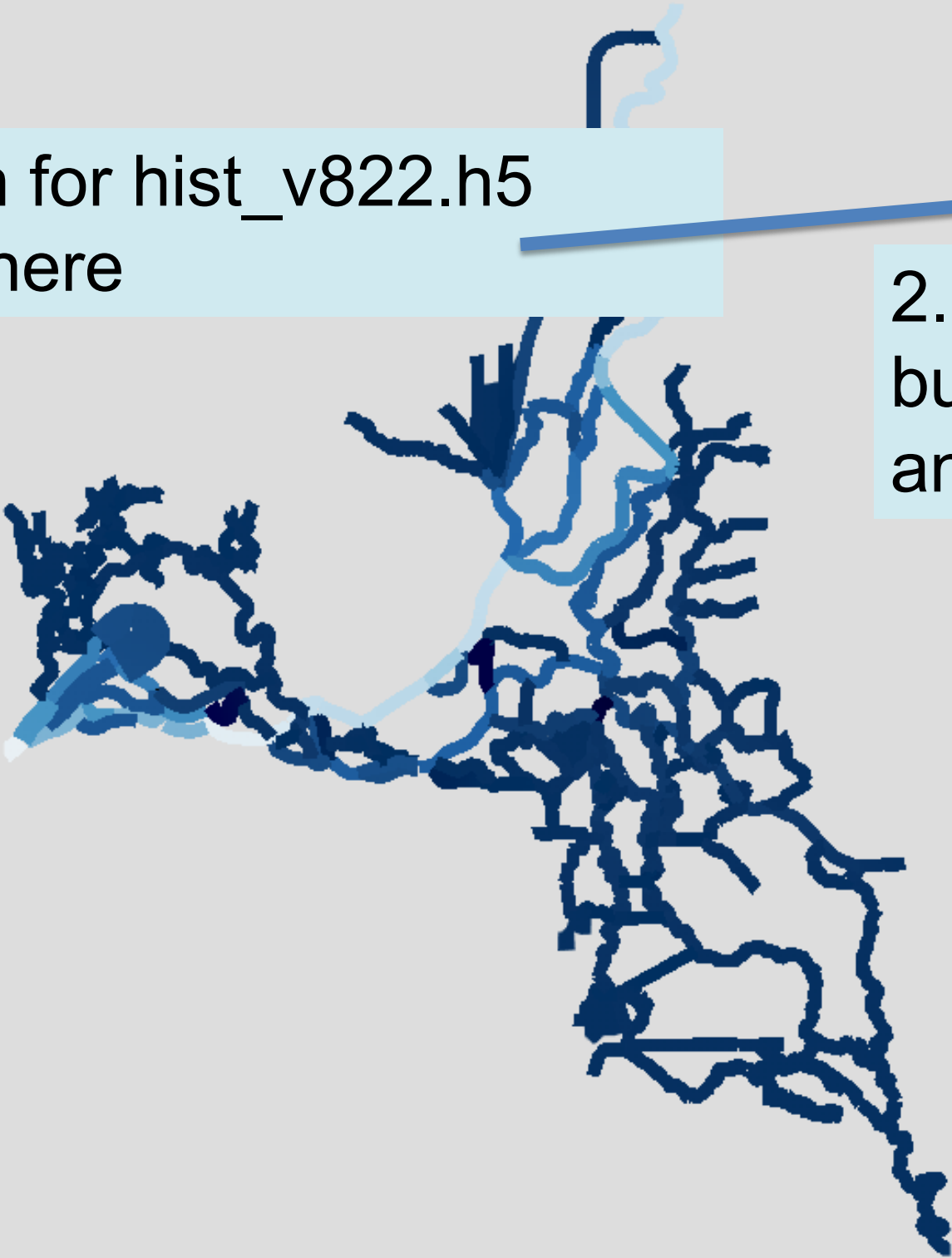
Flow difference between 2 studies: paste tidefile, start animation



Time: 19JAN2005 2300



1. Paste file path for hist\_v822.h5  
Historical study here



2. Click Start/Stop  
button to begin  
animation

Data Type  
flow ☐ Tidally Filter

Tidefile  
D:\delta\DSM2v822\studies\historical\_sac\_incr\outp

Base Tidefile  
D:\delta\DSM2v822\studies\historical\output\hist\_v8

Difference Type  
Absolute

☐ Start/Stop ↺

Date  
02JAN2005

Animation Interval: 150 milliseconds

Layer Opacity: 100

Map Background  
Hydda.Full

Value Classes  
20000,17500,15000,12500,10000,7500,5000,2500,0

Color Scheme

Select Config  
historical\_slr\_3ft\_vs\_base\_stage

Config Name  
historical\_slr\_3ft\_vs\_base\_stage

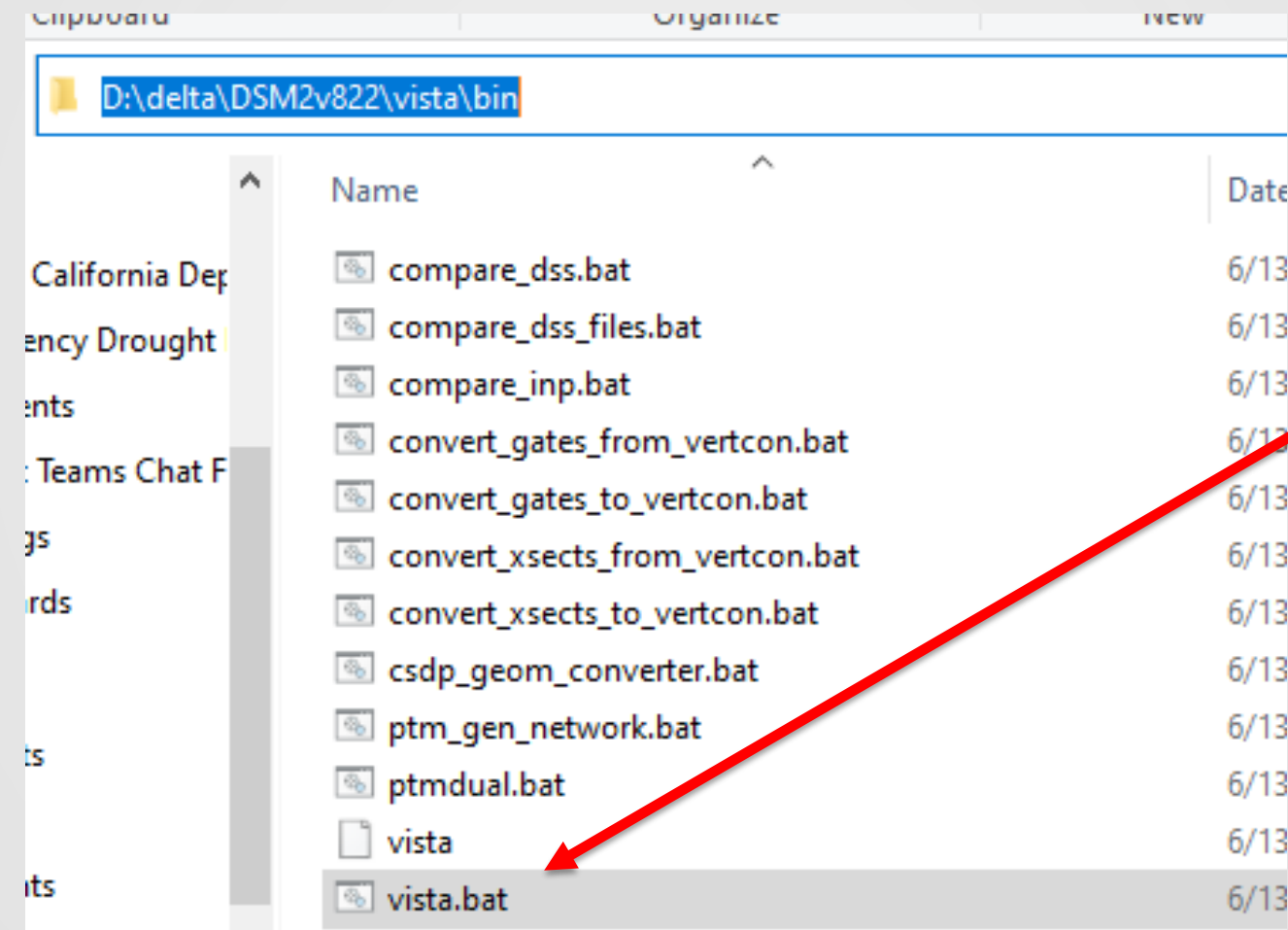
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# 4a. View tidefile output in Vista

## Starting the Vista application

- Model output (flow, stage, area, volume, velocity) at ends of channels and reservoirs
- Plot or tabulate selected data set(s)



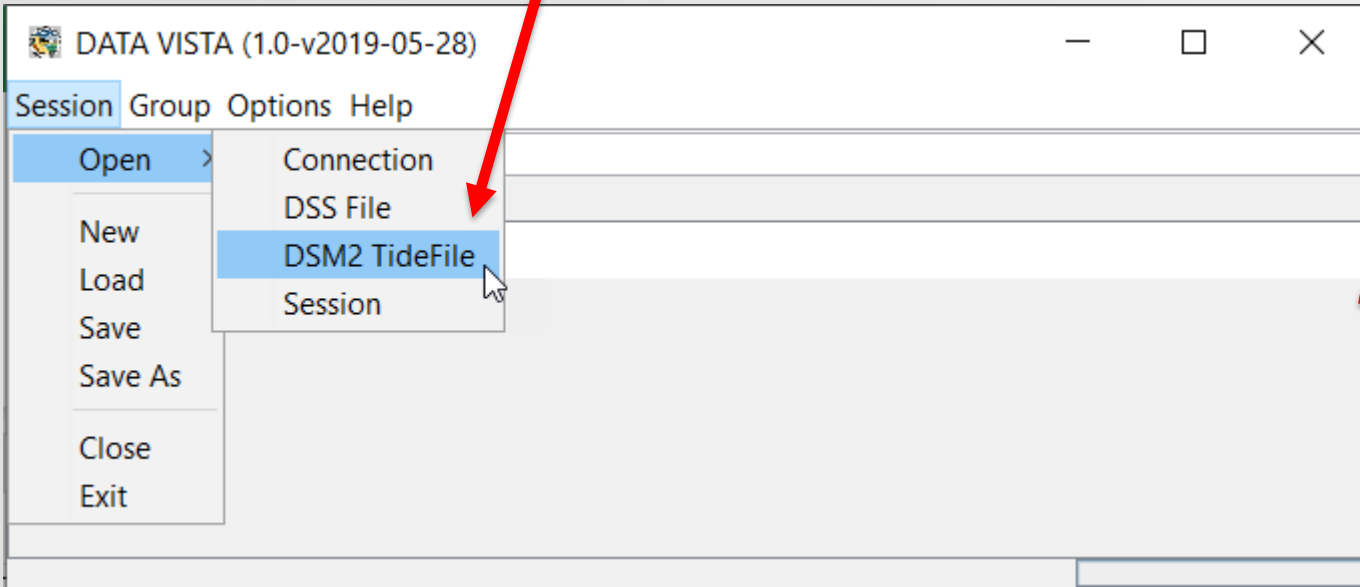
1. Double-click the **vista.bat** file in `d:\delta\DSM2v822\vista\bin\`



# 4b. View tidefile output in Vista

## Opening tidefile in Vista

1. Select Session-Open-DSM2 TideFile



D:\delta\DSM2v822\studies\historical\output\hist\_v822.h5

Data Animation

GROUP: D:\delta\DSM2v822\studies\historical\output\hist\_v822.h5  
NUMBER OF DATA REFERENCES: 5237

Math

Math Period Ops Filling Averaging Conversion Shifting

+ - \* / = ☐ Use Number

Filter

Pathname Filter :

Filter A PART B PART C PART D PART E PART F PART

Select

No.	A PART	B PART	C PART	D PART	E PART	F PART
1	HYDRO	1_UPSTREAM	FLOW	31DEC2004 2400...	30MIN	HIST_V822
2	HYDRO	1_DOWNSTREAM	FLOW	31DEC2004 2400...	30MIN	HIST_V822
3	HYDRO	1_UPSTREAM	STAGE	31DEC2004 2400...	30MIN	HIST_V822
4	HYDRO	1_DOWNSTREAM	STAGE	31DEC2004 2400...	30MIN	HIST_V822
5	HYDRO	1_UPSTREAM	AREA	31DEC2004 2400...	30MIN	HIST_V822
6	HYDRO	1_DOWNSTREAM	AREA	31DEC2004 2400...	30MIN	HIST_V822
7	HYDRO	1	AVG_AREA	31DEC2004 2400...	30MIN	HIST_V822
8	HYDRO	1	VOLUME	31DEC2004 2400...	30MIN	HIST_V822
9	HYDRO	1_UPSTREAM	VELOCITY	31DEC2004 2400...	30MIN	HIST_V822
10	HYDRO	1_DOWNSTREAM	VELOCITY	31DEC2004 2400...	30MIN	HIST_V822
11	HYDRO	2_UPSTREAM	FLOW	31DEC2004 2400...	30MIN	HIST_V822

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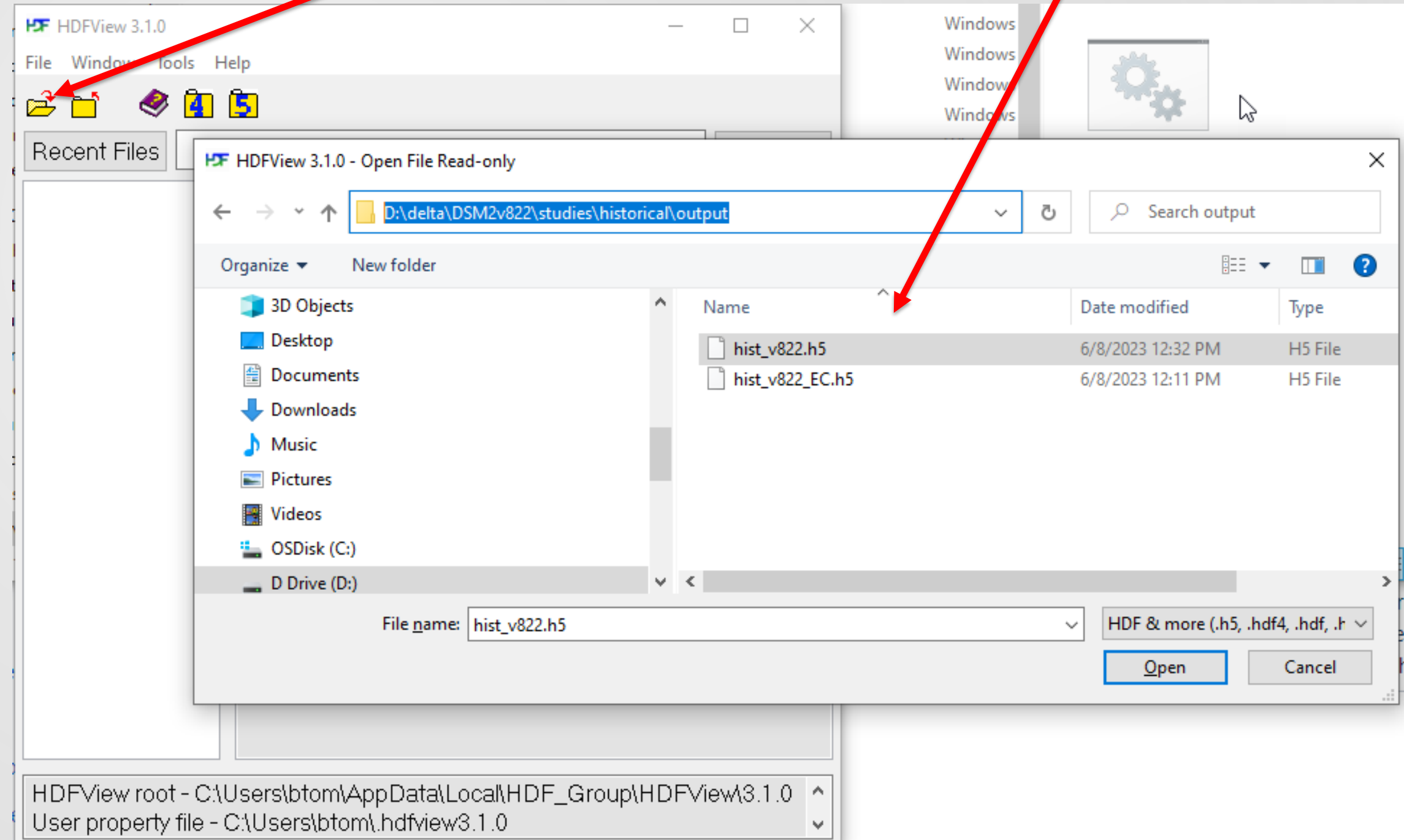
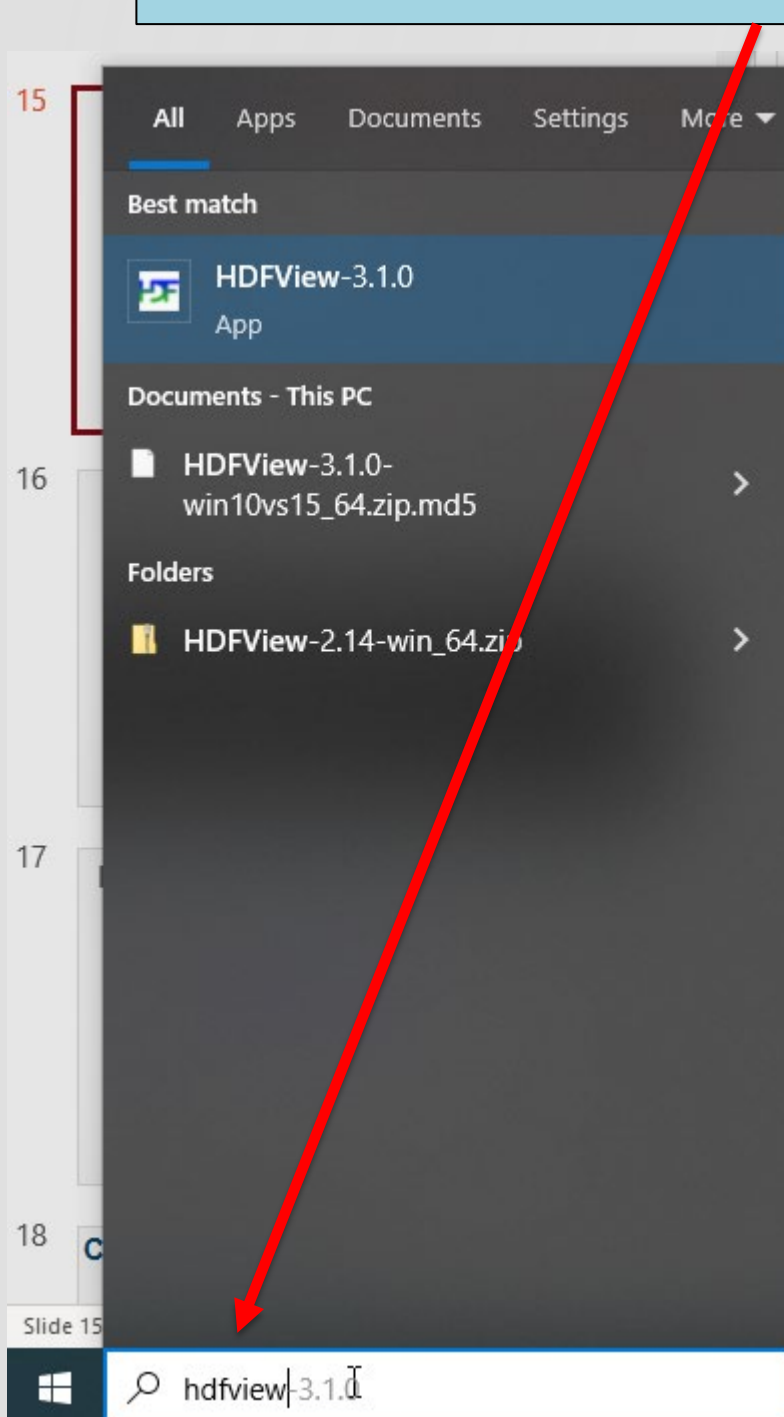
# 5a. View tidefile output in HDF View

## Opening HDFView, and opening a tidefile

1. Search for **HDFView** in the Windows search box. Click the HDFView icon

2. Click the **folder** icon

3. Select an **.h5** file to load



SOURCES

# 5b. View tidefile output in HDF View

## viewing stage output time series

Double-click

The screenshot shows the HDFView 3.1.0 interface. On the left, the 'Recent Files' list shows 'hist\_v822.h5'. The tree view on the left shows the following structure:

- hist\_v822.h5
  - hydro
    - data
      - channel area
      - channel avg area
      - channel flow
      - channel stage**
      - qext flow
      - reservoir flow
      - reservoir height
      - transfer flow
    - geometry
    - input

The 'channel stage' object is selected. The 'Object Attribute Info' panel shows the following attributes:

Name	Type
CLASS	String, length = 10
DIMENSION_LABELS	String, length = va
interval	String, length = 5,
model	String, length = 5,
model_version	String, length = 3,
start_time	String, length = 19

The 'Data Display' window shows the 'channel stage' data as a table. The table has 11 rows (0 to 10) and 8 columns (0 to 7). The data is as follows:

	0	1	2	3	4	5	6	
0	6.4975977	6.991	10.008806	12.334	12.733	11.291079	14.831375	16.90
1	6.829204	6.4075947	10.198287	12.055293	12.449391	11.181914	14.901713	17.45
2	8.011334	6.346938	9.886711	11.760573	12.270631	11.175712	14.922119	17.20
3	8.589956	6.36718	9.718404	11.592373	12.105789	10.863863	14.5993	17.02
4	8.98725	6.4678597	9.669094	11.408724	11.868529	10.692067	14.412505	16.87
5	9.273515	6.630058	9.674394	11.258082	11.69715	10.52995	14.253562	16.71
6	9.487735	6.8090496	9.726336	11.153945	11.56138	10.38121	14.114155	16.58
7	9.653026	6.986606	9.811554	11.086657	11.452445	10.267074	14.006323	16.48
8	9.782602	7.151747	9.915991	11.051823	11.372842	10.180332	13.912544	16.38
9	9.885857	7.301083	10.02786	11.04327	11.315396	10.105831	13.817726	16.28
10	9.969133	7.433781	10.139482	11.051366	11.269831	10.0386...	13.724998	16.18

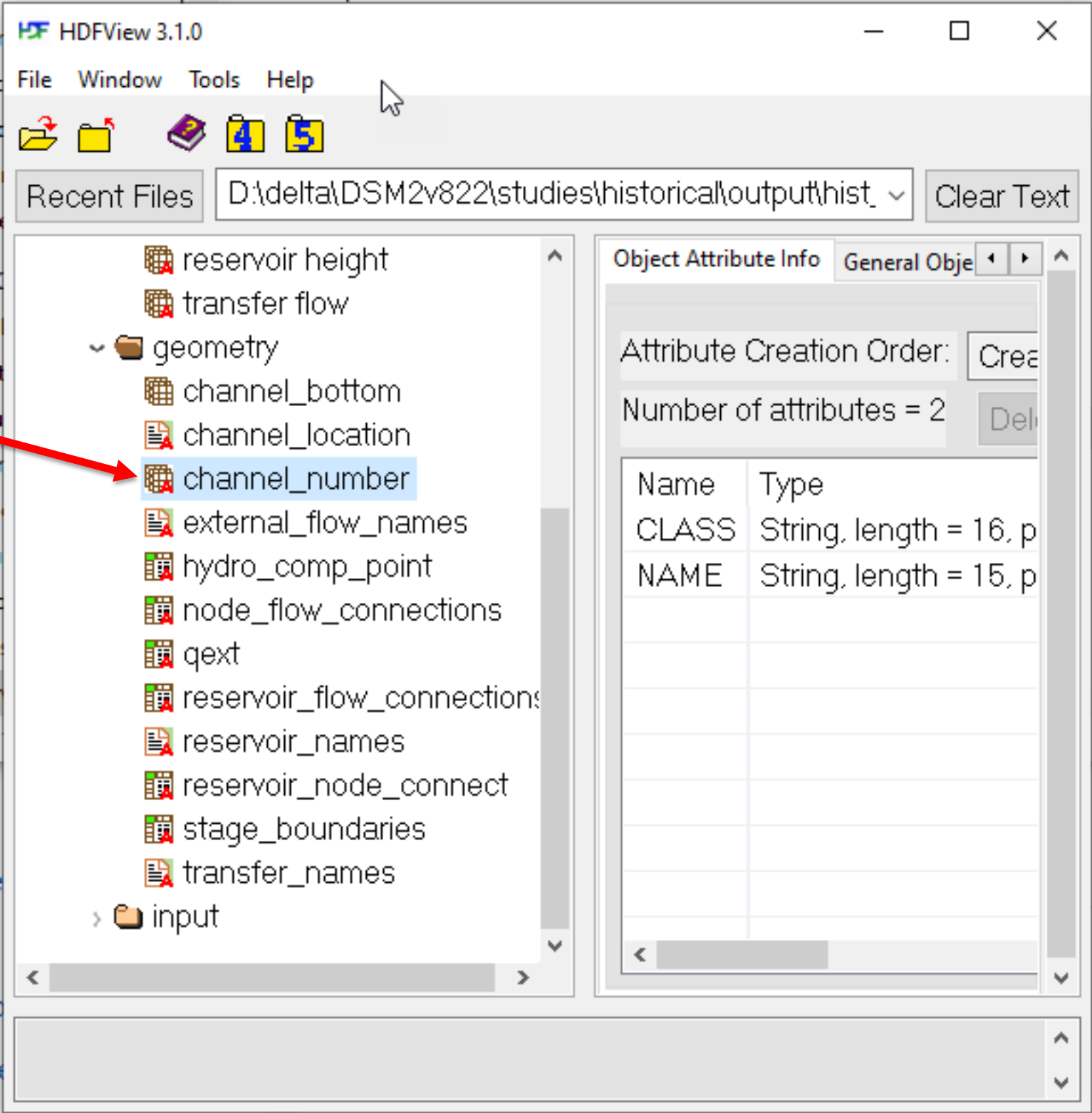
Stage time series for all channels displayed in separate window



# 5c. View tidefile output in HDF View

Viewing channel numbers (fixed input)

Double-click



Channel numbers displayed in separate window

Windows  
Windows  
Windows

channel\_number at /hyd

Table Import/Export Data

0-based

0	1
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12

# Questions?

**Please enter questions into the chat**



Brad Tom (Bradley.Tom@water.ca.gov)



# Thank You!



## Follow-up Survey

<https://forms.gle/FrXg6JkHnm66WAXa9>



## Modeling and Analysis website

<https://water.ca.gov/Library/Modeling-and-Analysis>

- Delta Modeling User Group

Contact: [Min.Yu@water.ca.gov](mailto:Min.Yu@water.ca.gov)

- DSM2 Training

Contact: [Kevin.He@water.ca.gov](mailto:Kevin.He@water.ca.gov)