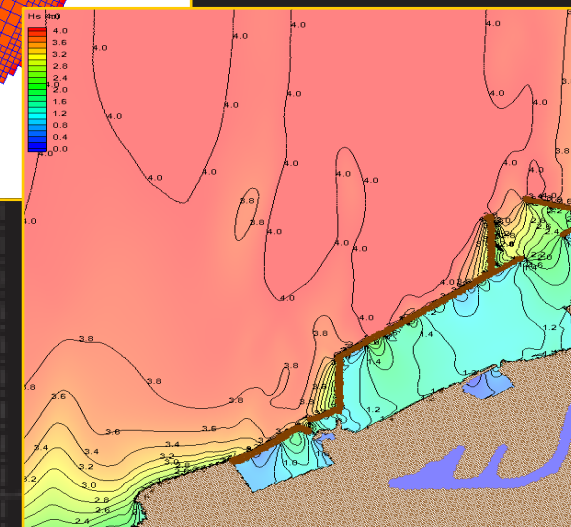
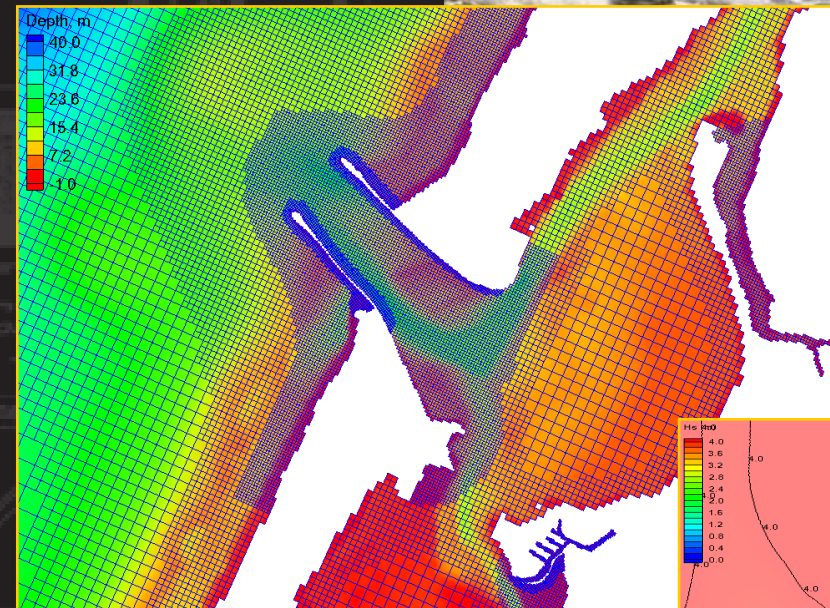


VIEWING AND POST-PROCESSING RESULTS

Mitchell Brown
Liz Holzenthal
Honghai Li

Coastal & Hydraulics Laboratory
US Army Engineer Research and Development
Center (ERDC)



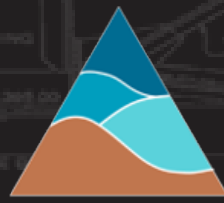
U.S. ARMY



US Army Corps
of Engineers®



ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER



CIRP



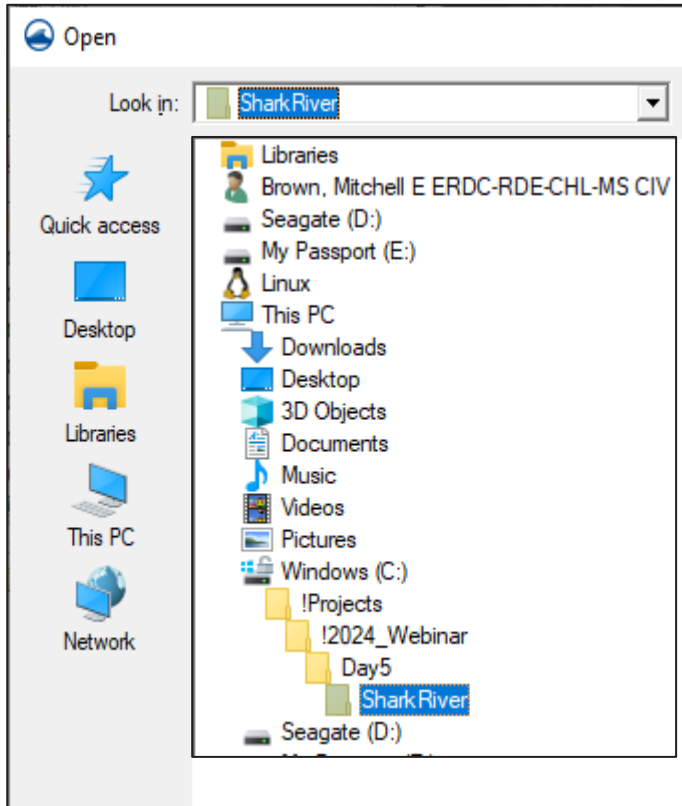
Load Project



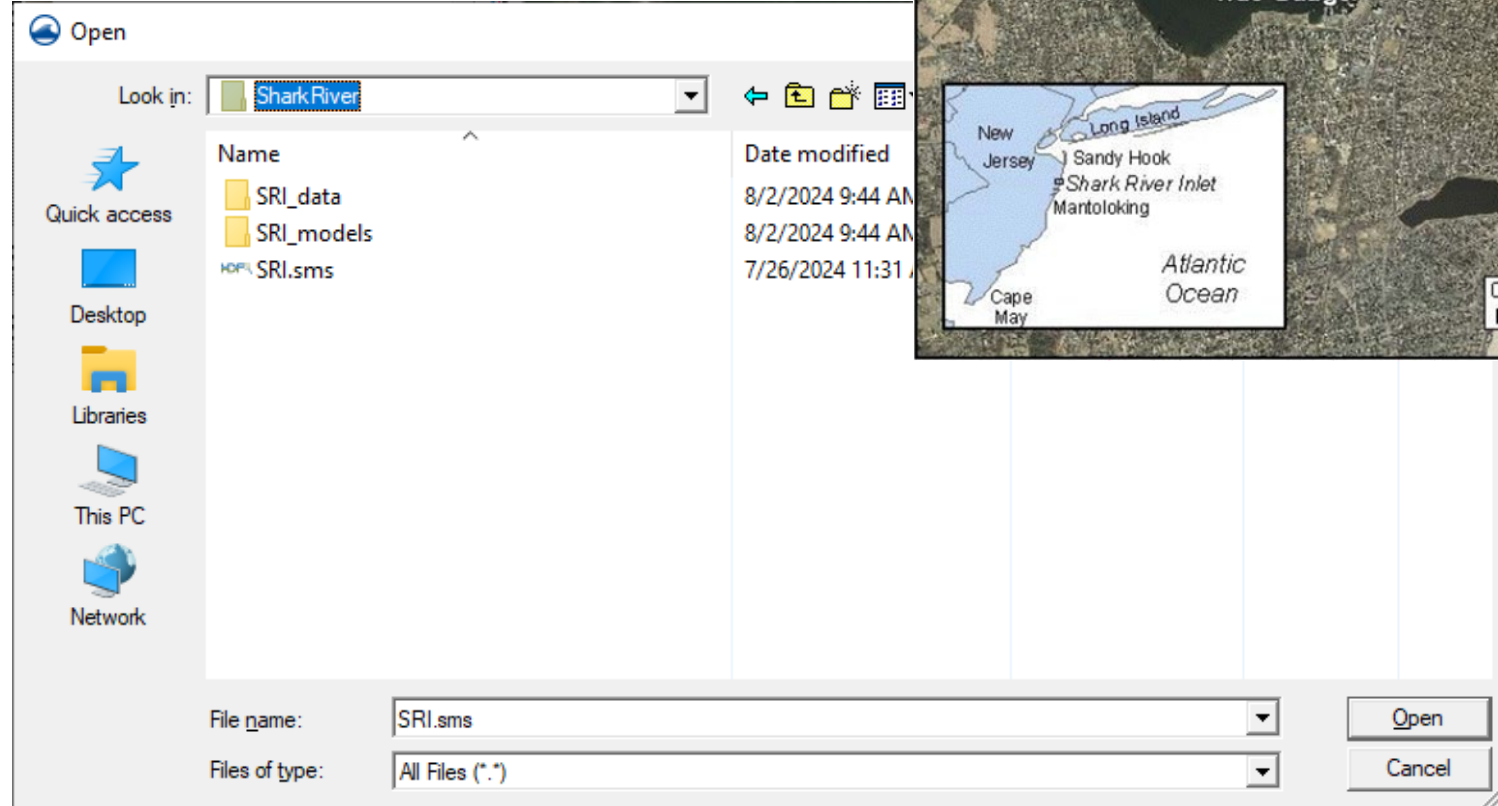
Model Solution

– *Import Project (*.sms)*

1



2





Time Series – Water Surface Elevation Solution



Model Solution

– *Import Datasets (*_wse.h5)*

Name	Date modified	Type	Size
CMS_DIAG.txt	4/26/2024 3:11 AM	TXT File	
SRI.cmcards	4/25/2024 5:52 PM	CMCARDS File	
SRI.tel	4/25/2024 5:52 PM	TEL File	
SRI_datasets.h5	4/25/2024 5:52 PM	HDF5 Data File	658 K
SRI_morph.h5	4/26/2024 3:11 AM	HDF5 Data File	304,963 K
SRI_mp.h5	4/25/2024 5:52 PM	HDF5 Data File	126 K
SRI_trans.h5	4/26/2024 3:11 AM	HDF5 Data File	609,853 K
SRI_vel.h5	4/26/2024 3:11 AM	HDF5 Data File	457,374 K
SRI_wse.h5	4/26/2024 3:11 AM	HDF5 Data File	152,483 K
wse.dat	7/27/2024 3:23 PM	DAT File	25 K

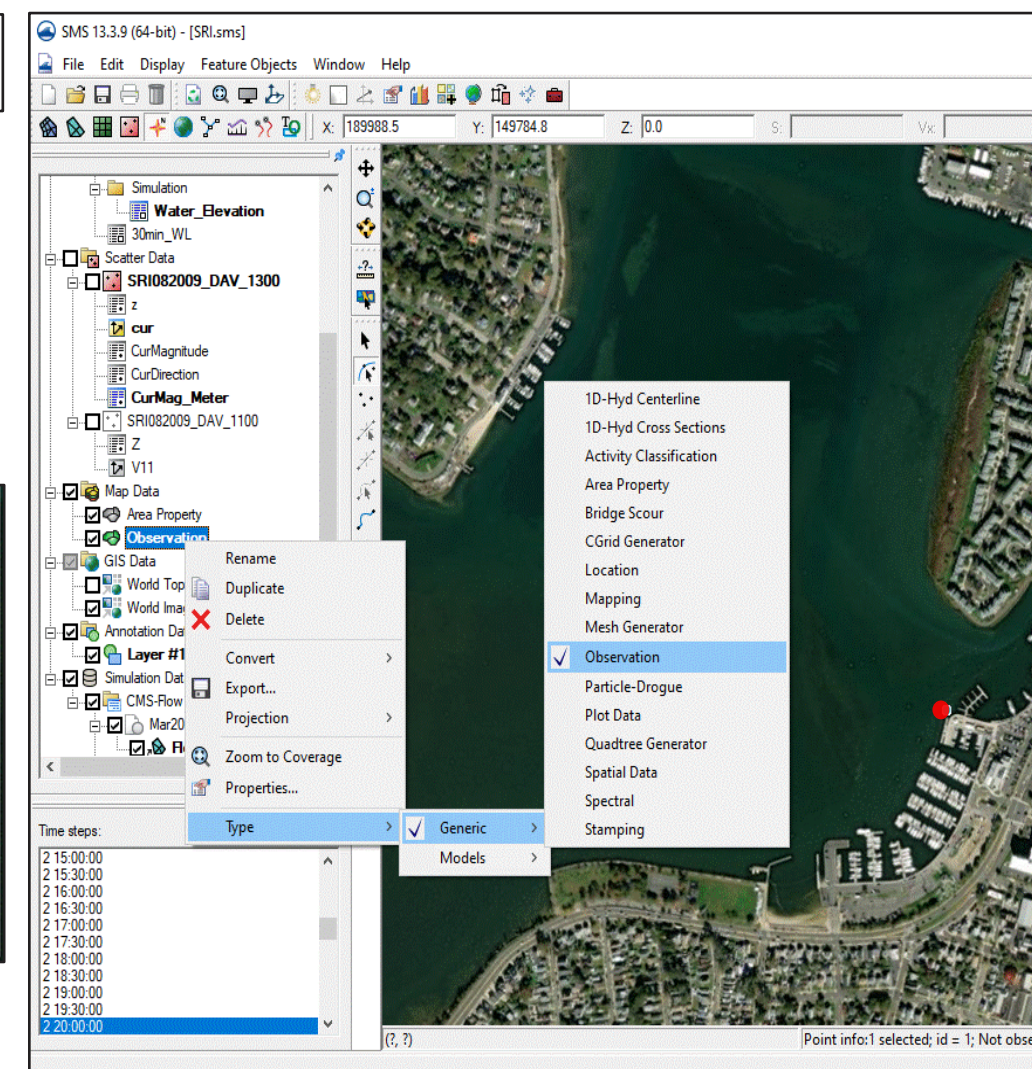
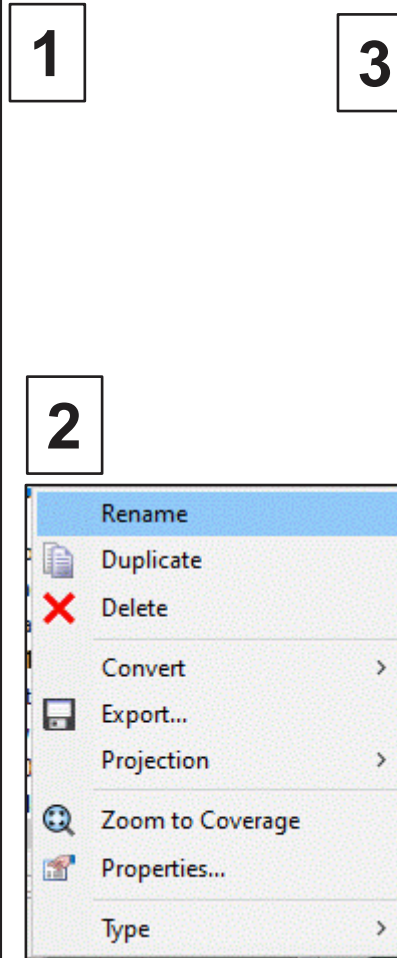
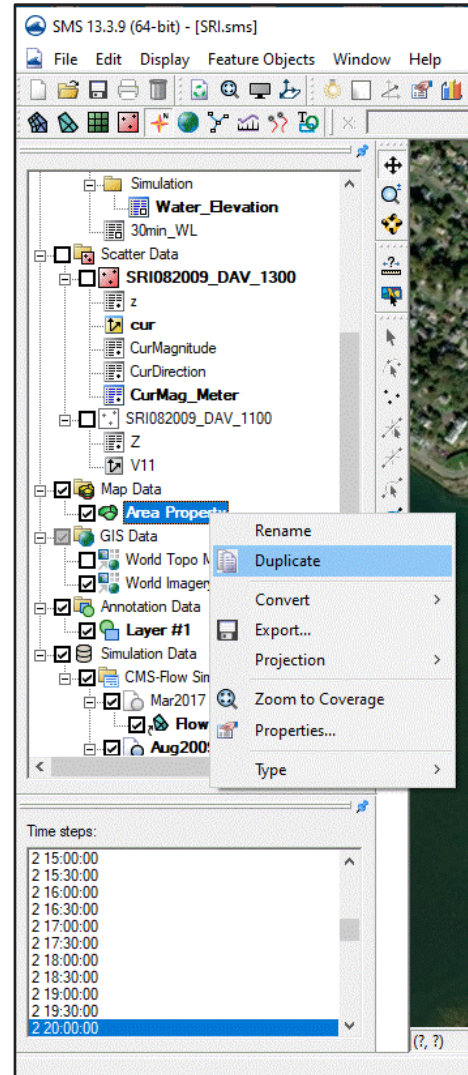




Time Series – Water Surface Elevation

Model Solution

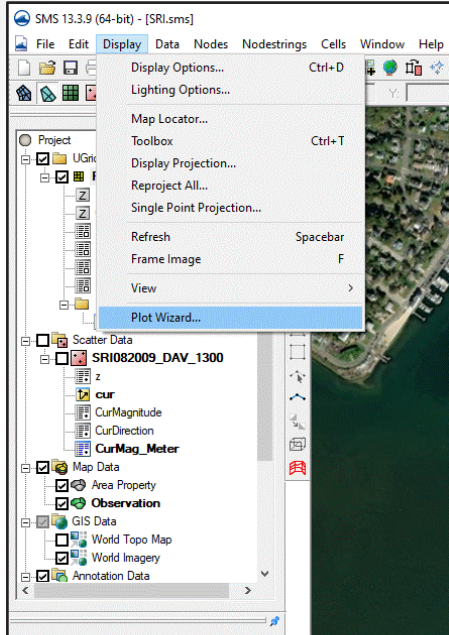
- Generate an observation feature point at the location of tide gauge
- Assign the point attribute as “observation”



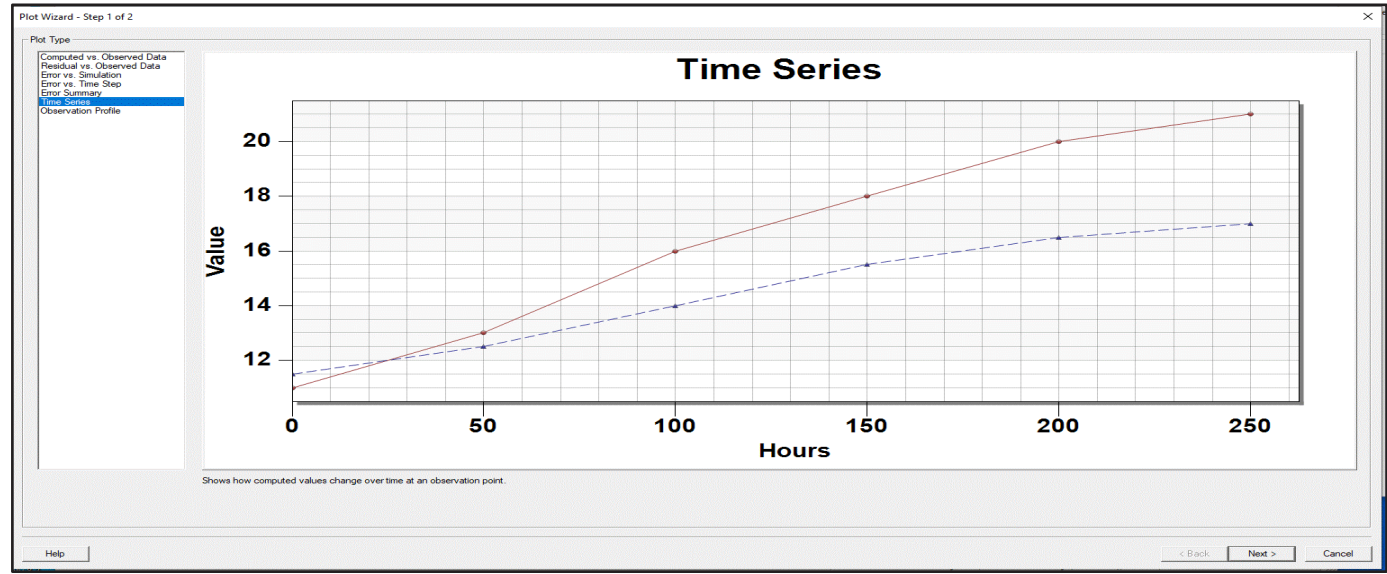


Time Series – Water Surface Elevation

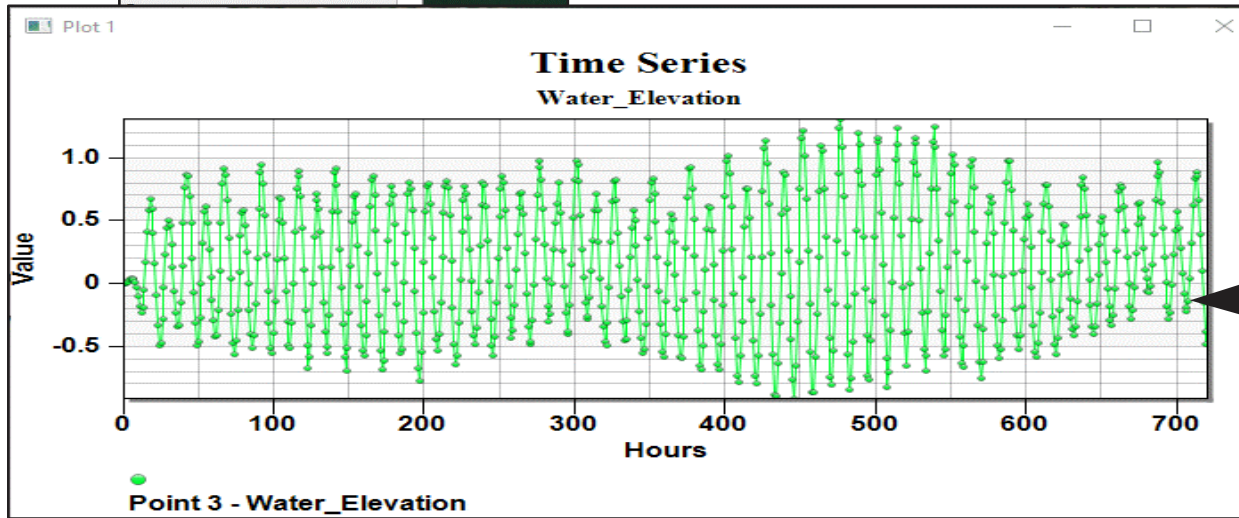
1



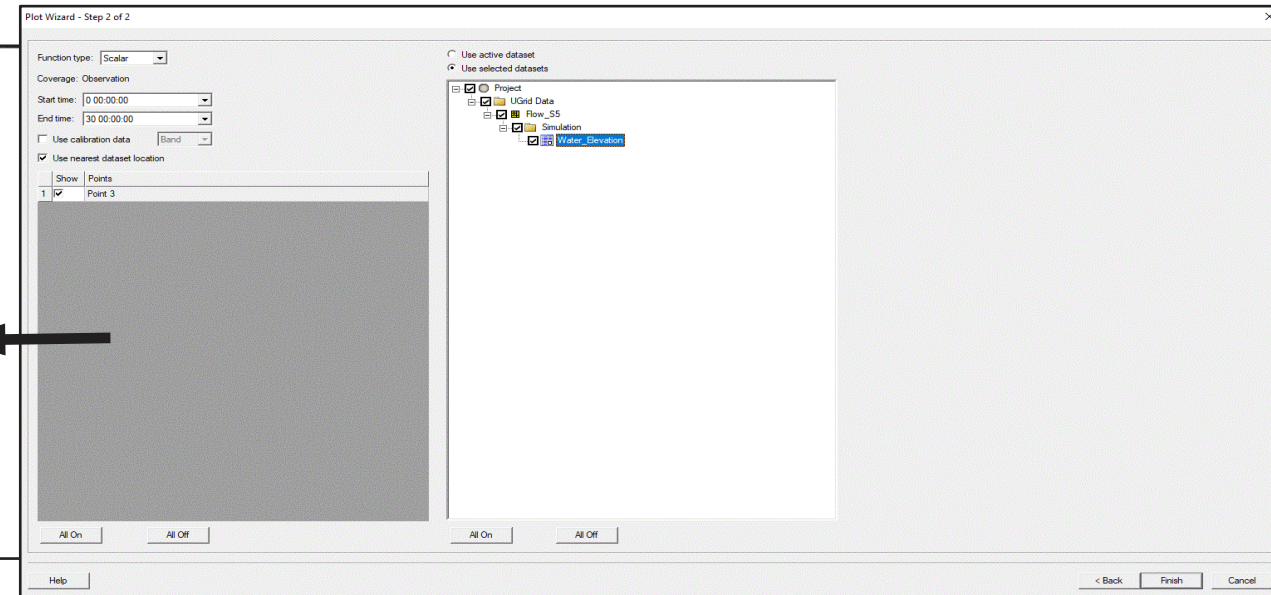
2



4



3



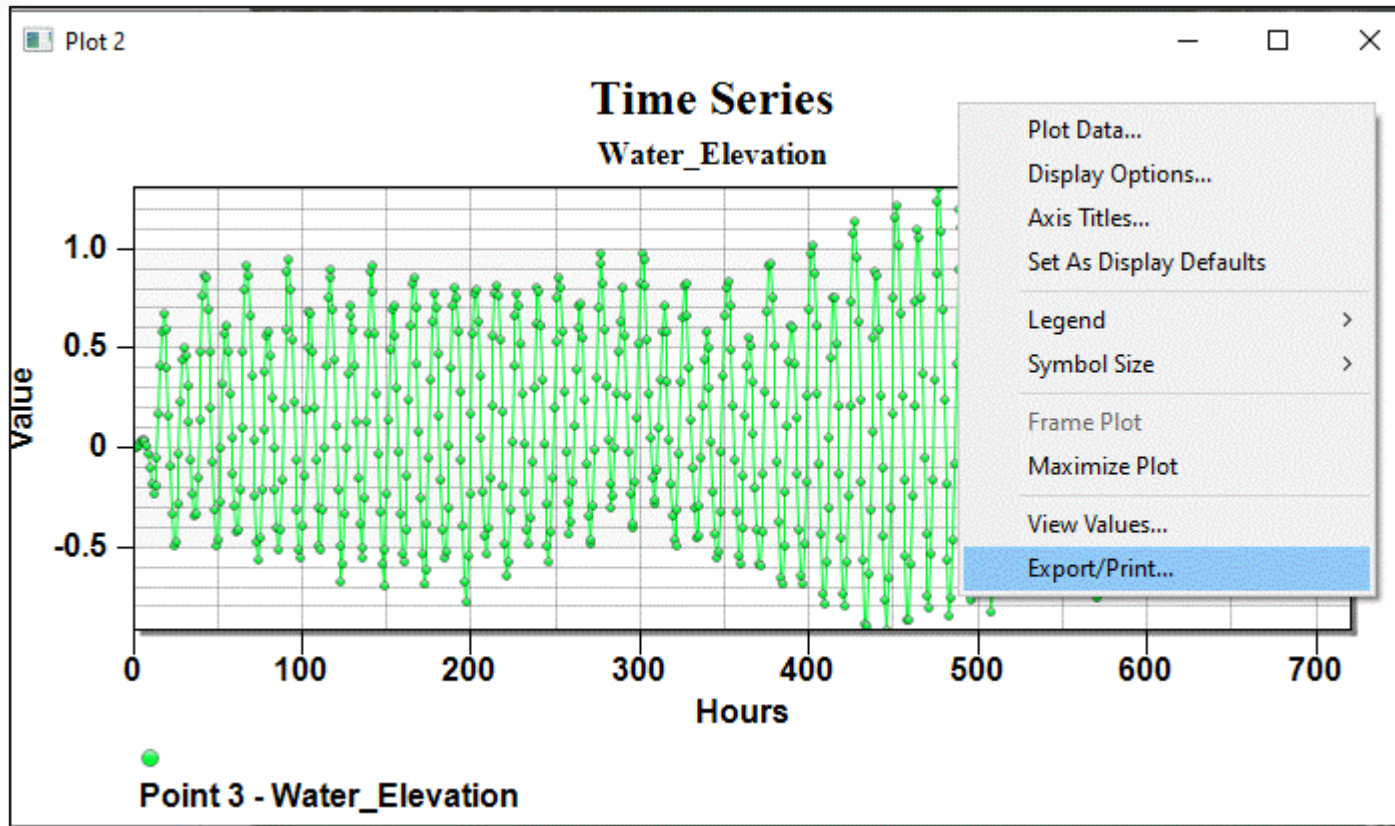


Time Series – Water Surface Elevation



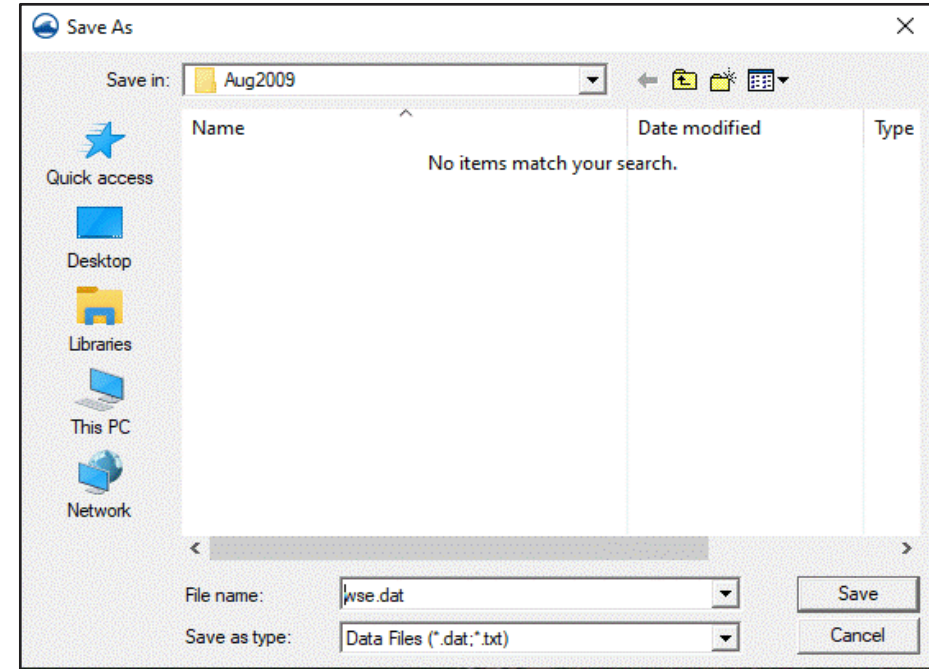
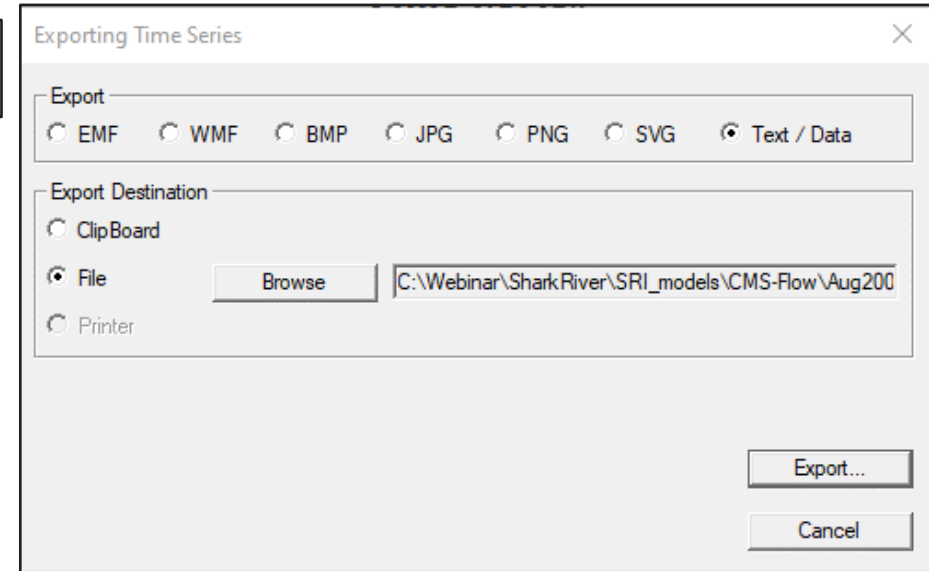
Model Solution

- Extract the raw data values from the plot



2

1



3



Time Series – Water Surface Elevation

Model Solution

– Extract the raw data values from the plot

1



Export... Time Series

Select Subsets and Points

All Data
 Selected Data

Subsets to Export:

Point 3 - Water_Elevation

Points to Export:

Export What

Data
 Data and Labels

Data to Export

X Axis Value, Y Axis Value

Export Style

List
 Table

Delimited

Tab
 Comma

Row vs Column

Subsets/Points
 Points/Subsets

Numeric Precision

Current Precision
 Maximum Precision

Export
Cancel

2

Aug2009

File Home Share View

Navigation pane Details pane

Extra large icons Large icons Medium icons Small icons List Content Tiles

Group by Add columns Sort by Size all columns to fit

Item check boxes File name extensions Hidden items Hide selected items Options

Layout Current view Show/hide

This PC > Local Disk (C:) > Webinar > SharkRiver > SRI_models > CMS-Flow > Aug2009

Name	Date modified	Type	Size
.wse.dat.swp	7/27/2024 3:24 PM	SWP File	0 KB
CMS_DIAG.txt	4/26/2024 3:11 AM	Text Document	1,933 KB
SRI.cmcards	4/25/2024 5:52 PM	CMCARDS File	4 KB
SRI.tel	4/25/2024 5:52 PM	TEL File	7,292 KB
SRI_datasets.h5	4/25/2024 5:52 PM	H5 File	658 KB
SRI_morph.h5	4/26/2024 3:11 AM	H5 File	304,963 KB
SRI_mp.h5	4/25/2024 5:52 PM	H5 File	126 KB
SRI_trans.h5	4/26/2024 3:11 AM	H5 File	609,853 KB
SRI_vel.h5	4/26/2024 3:11 AM	H5 File	457,374 KB
SRI_wse.h5	4/26/2024 3:11 AM	H5 File	152,483 KB
wse.dat	7/27/2024 3:23 PM	DAT File	25 KB



3

wse.dat (C:\Webinar\SharkRiver\SRI_models\CMS-Flow\Aug2009) - GVIM

File Edit Tools Syntax Buffers Window Help

Point 3 - Water_Elevation

```

0.000, 0.000
1.000, -0.001
2.000, 0.001
3.000, 0.012
4.000, 0.027
5.000, 0.038
6.000, 0.044
7.000, 0.032
8.000, 0.007
9.000, -0.035
10.000, -0.101
11.000, -0.179
12.000, -0.235

```

9, 1-8 Top



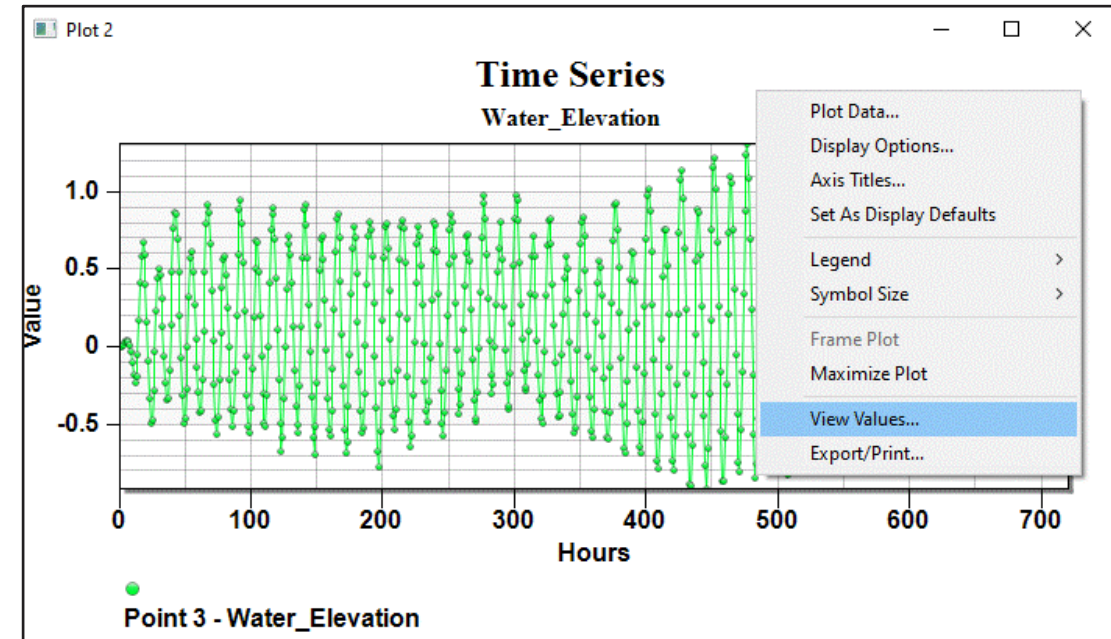
Time Series – Water Surface Elevation



Model Solution

- Extract the raw data values from the plot
- View the calculated data values
- The data are presented in a table that can be highlighted and copied to another program.

1



2

View Values

	Point 3 - Water_Elevation	
	Hours	Value
1	0.0	0.0
2	1.0	-0.000881981803
3	2.0	0.0005498782266
4	3.0	0.0116431983188
5	4.0	0.0268363300711
6	5.0	0.038196593523
7	6.0	0.0435804650187

Close



Time Series – Water Surface Elevation



Measurements

- *Import water surface elevation measurements*
- *Compared the calculated water surface elevation with the measured data at the tide gauge*

2

Observation Coverage

Measurements

	Active	Trans	Name	Module	Data Set
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	New Measurement	UGrid	NONE

Feature object type: points

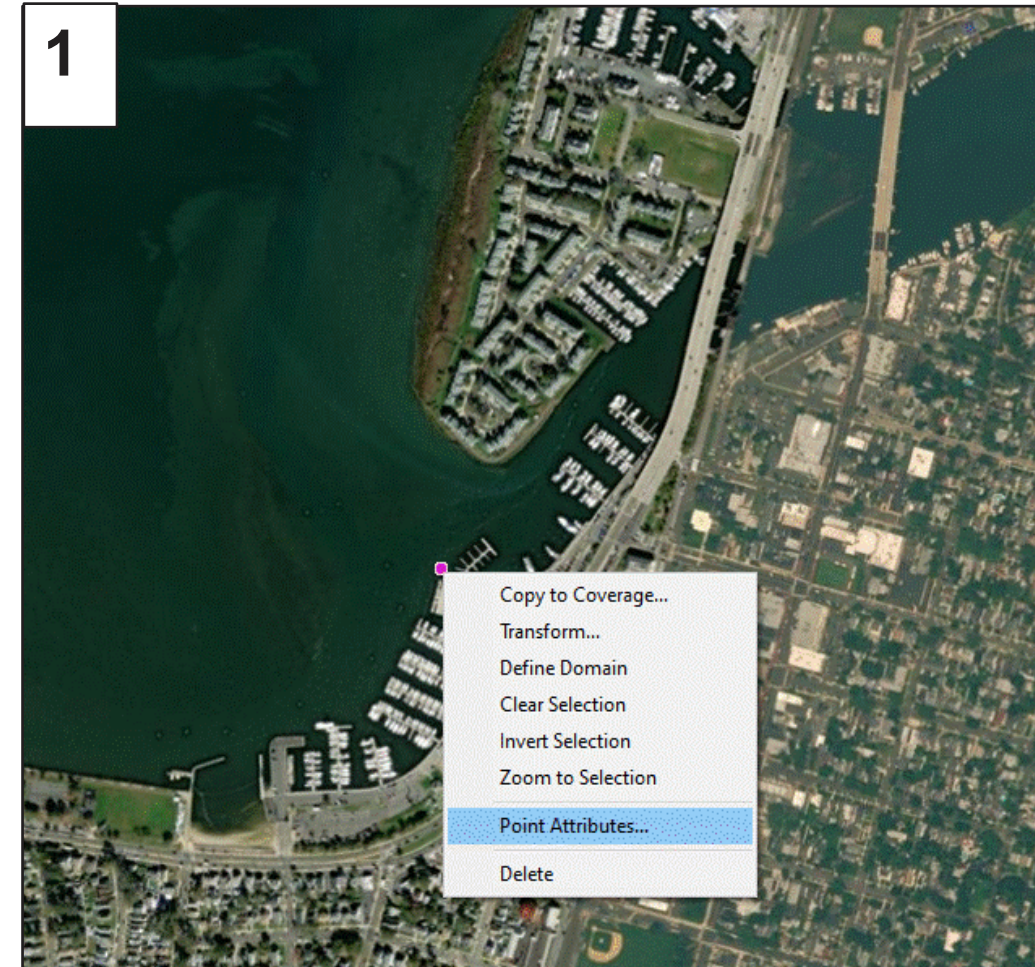
Delete

Observation Points

	Color	Observe	Name	x	y	Time Series	Interval
1	<input type="color" value="green"/>	<input checked="" type="checkbox"/>	Point 3	189990.7	149786.9	Options...	1.0

All On All Off Delete

Help... OK Cancel



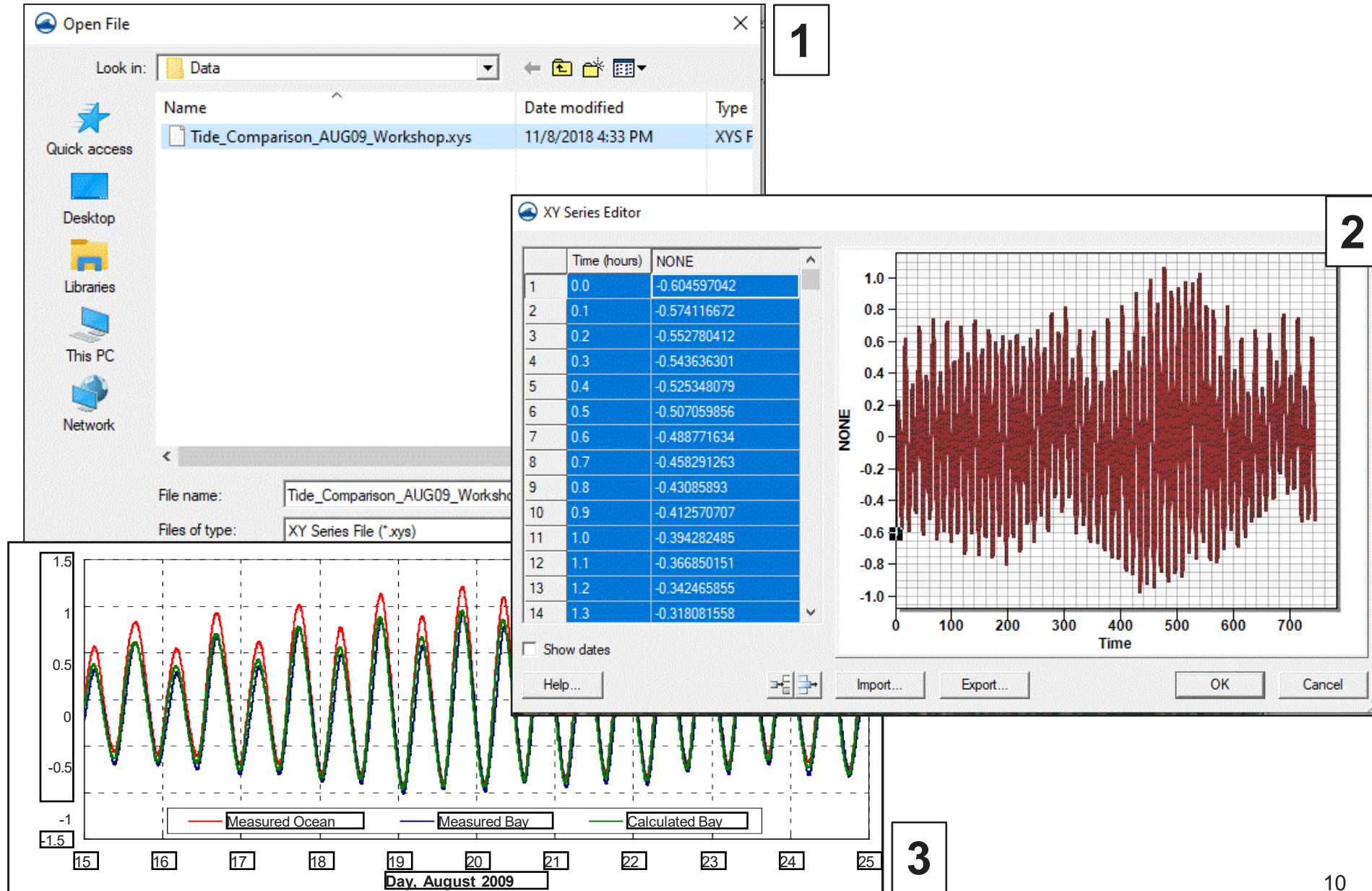


Time Series – Water Surface Elevation



Measurements

- *Import water surface elevation measurements*
- *Compared the calculated water surface elevation with the measured data at the tide gauge*



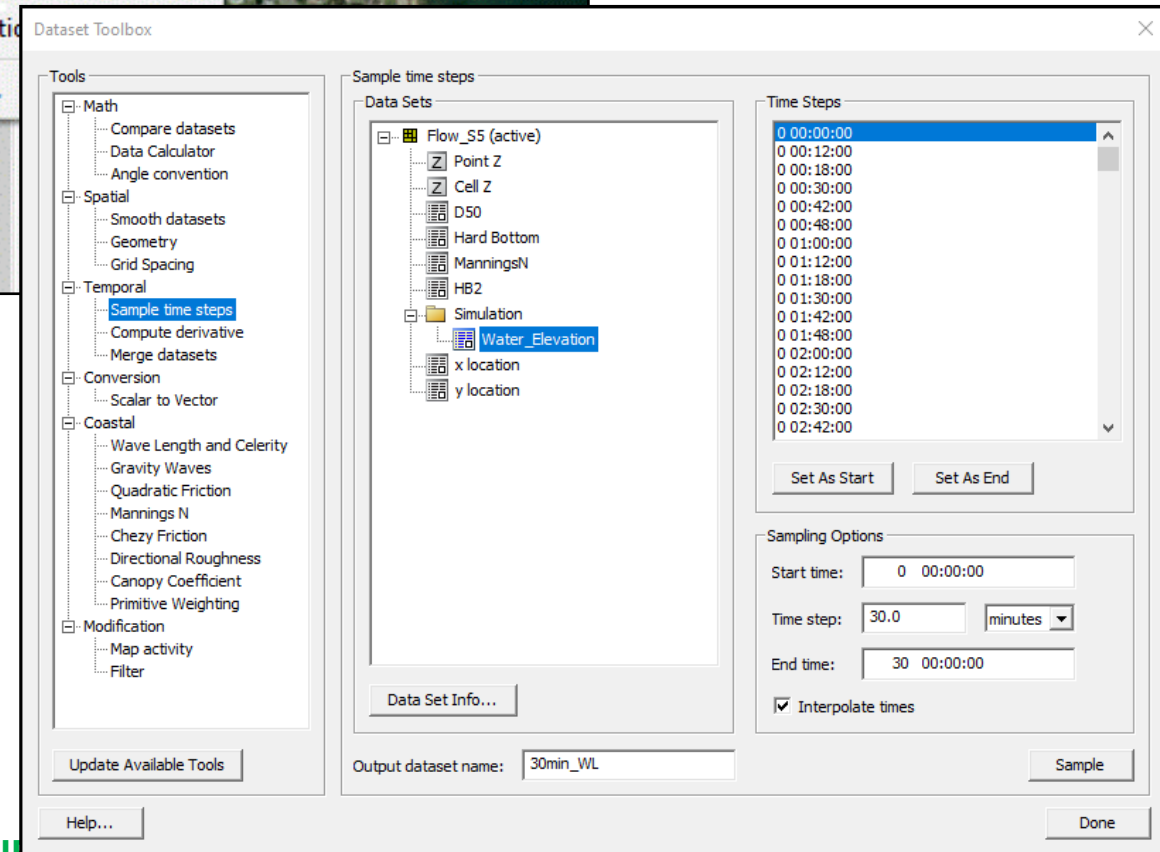
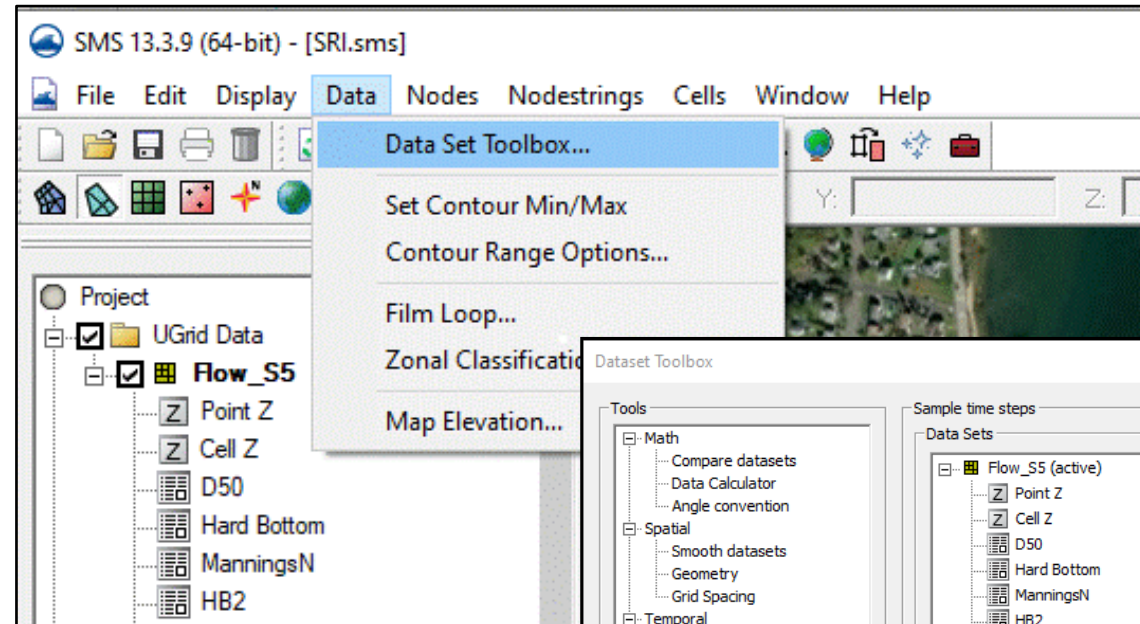


Time Series – Water Surface Elevation



Model-Data Comparison

- *Time series calculated and measured data do not have the same time interval for statistical analysis*
- *Use “Sampling” feature within the data calculator to retrieve the output from the solution with desired time interval*

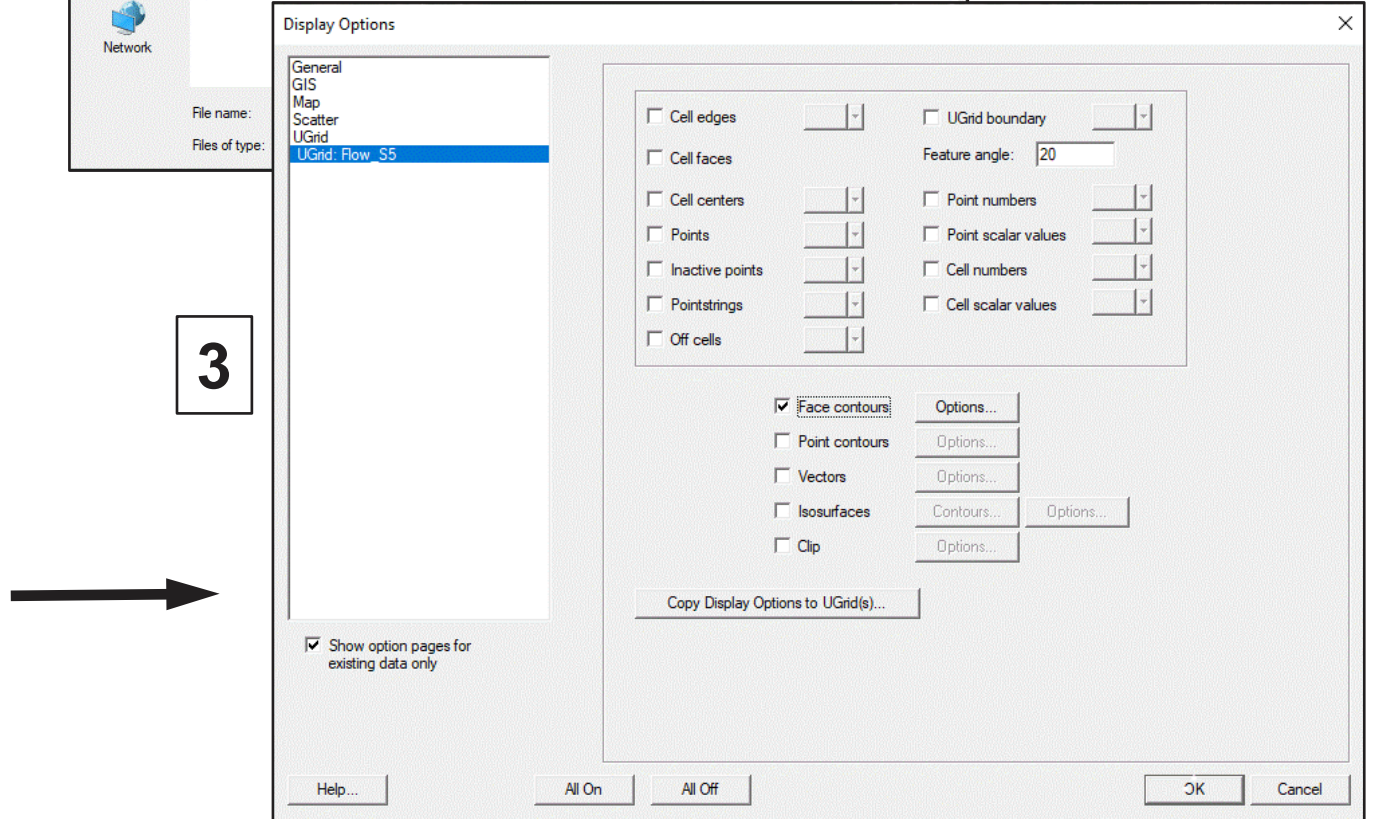
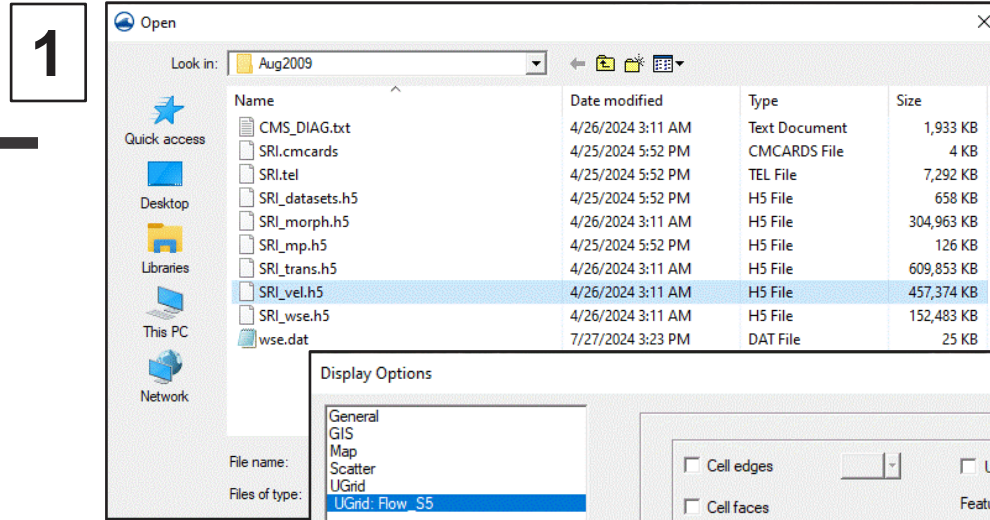
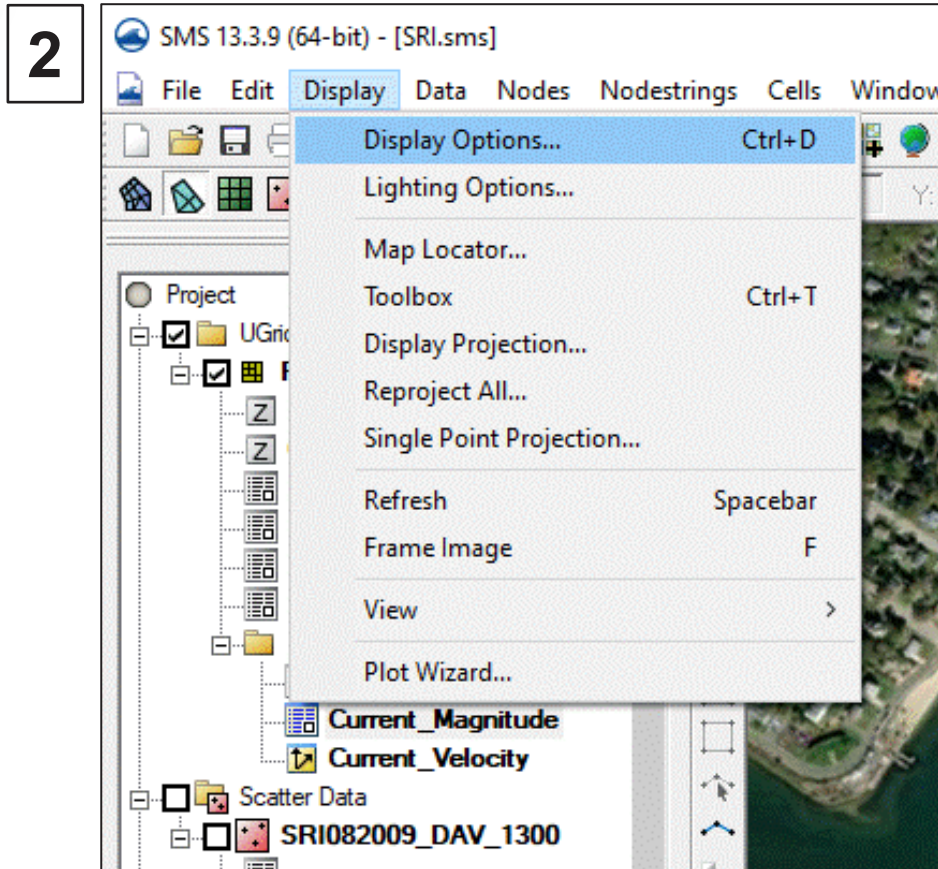




Contour and Vector Plotting

Model Solution - Current

– Import Datasets (*_vel.h5)



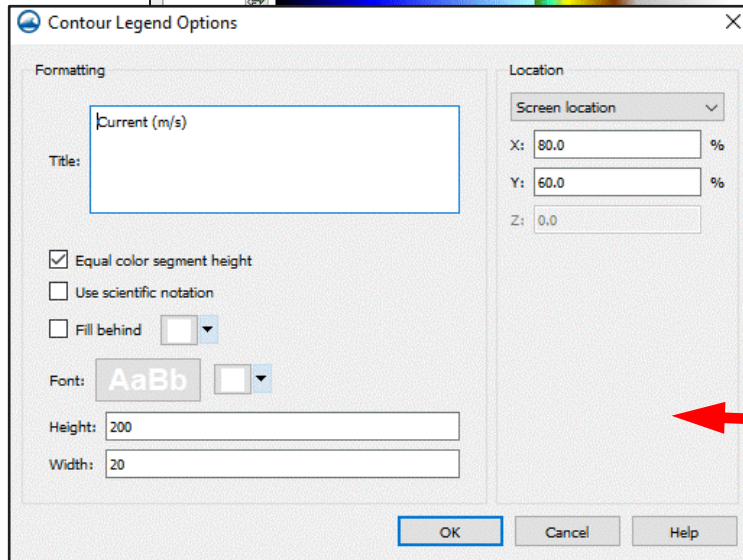
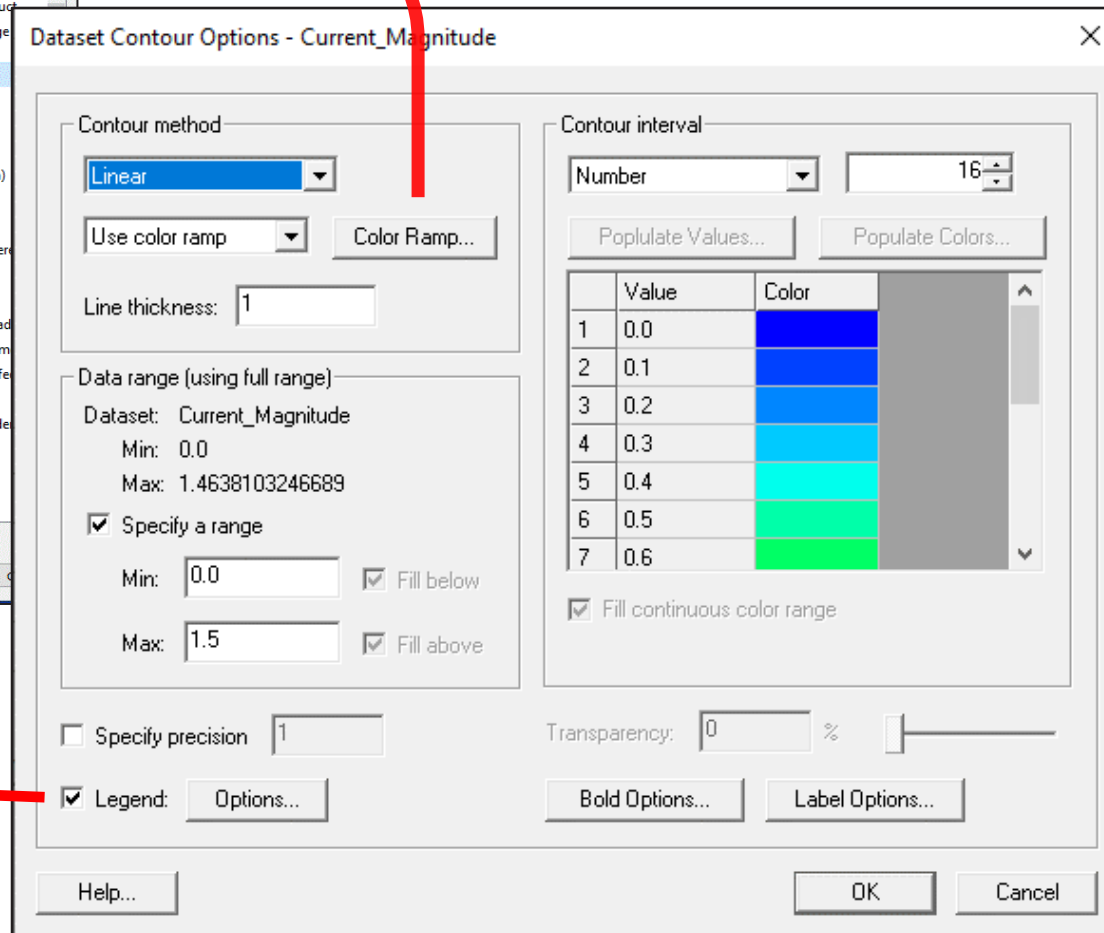
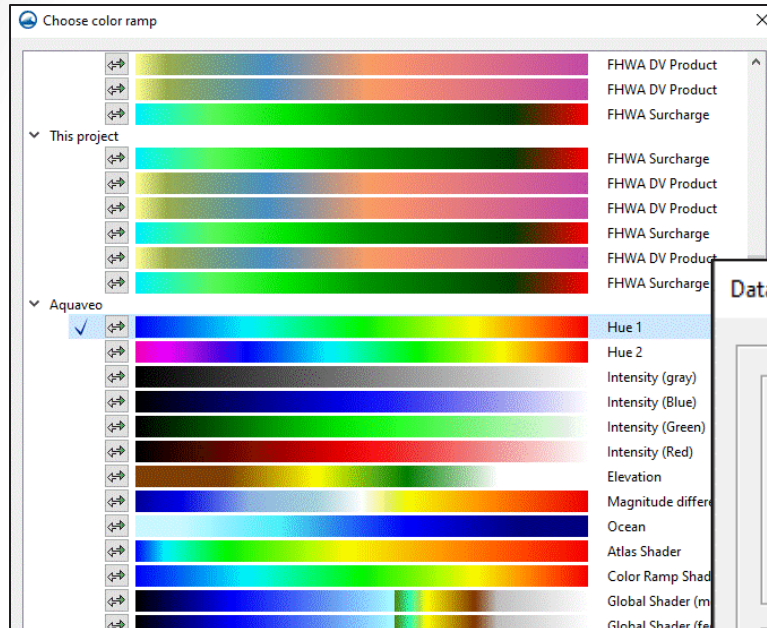


Contour and Vector Plotting



Contour Options

- *Method*
- *Color map*
- *Line thickness*
- *Data range*
- *Data precision*
- *Legend*
- *Interval*
- *Transparency*
- *Bold options*
- *Label options*

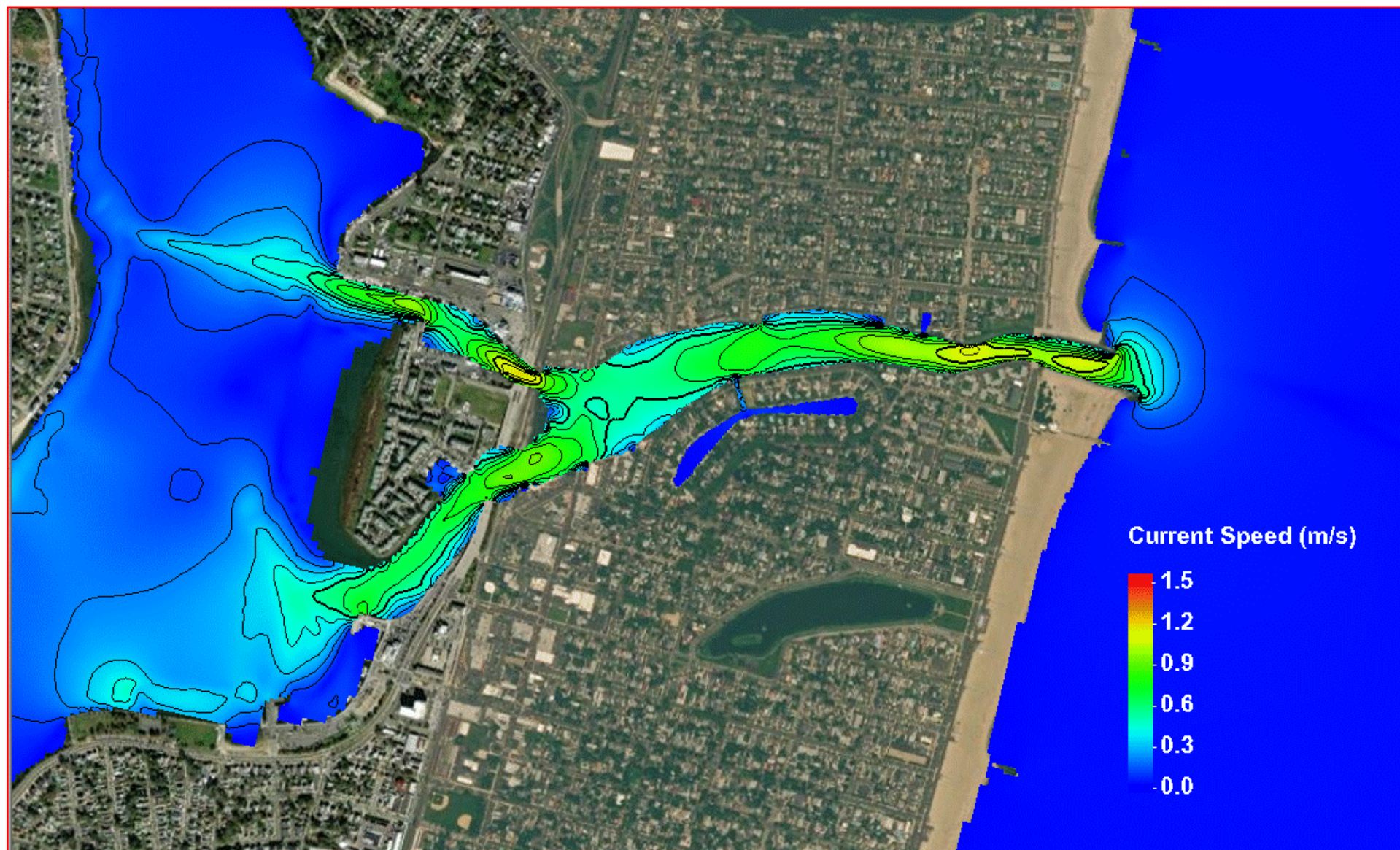




Contour and Vector Plotting

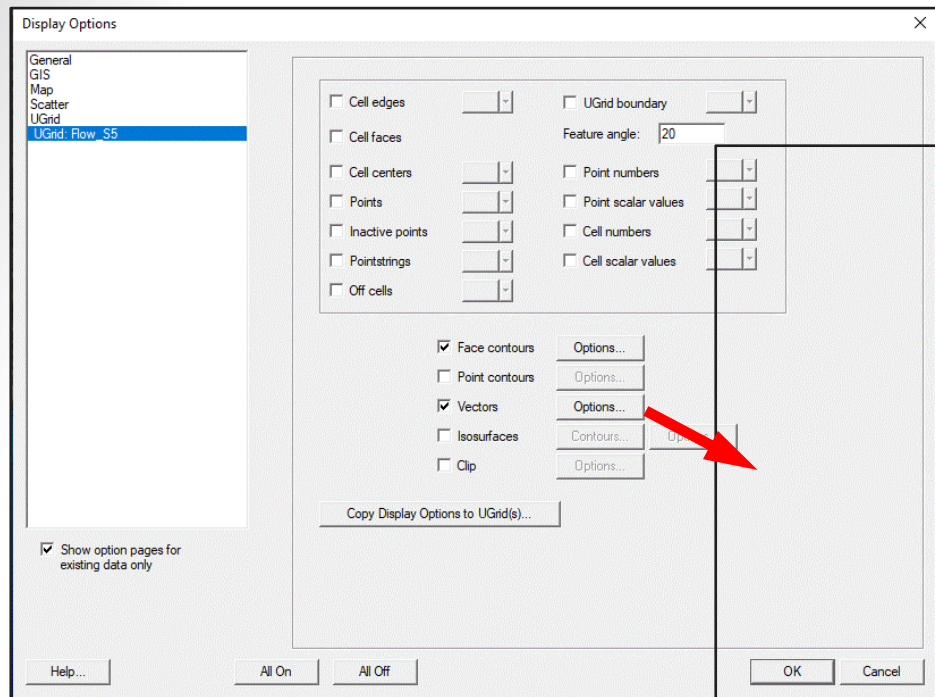


*August 9, 2009
08:00 AM GMT*





Contour and Vector Plotting



Vector Display

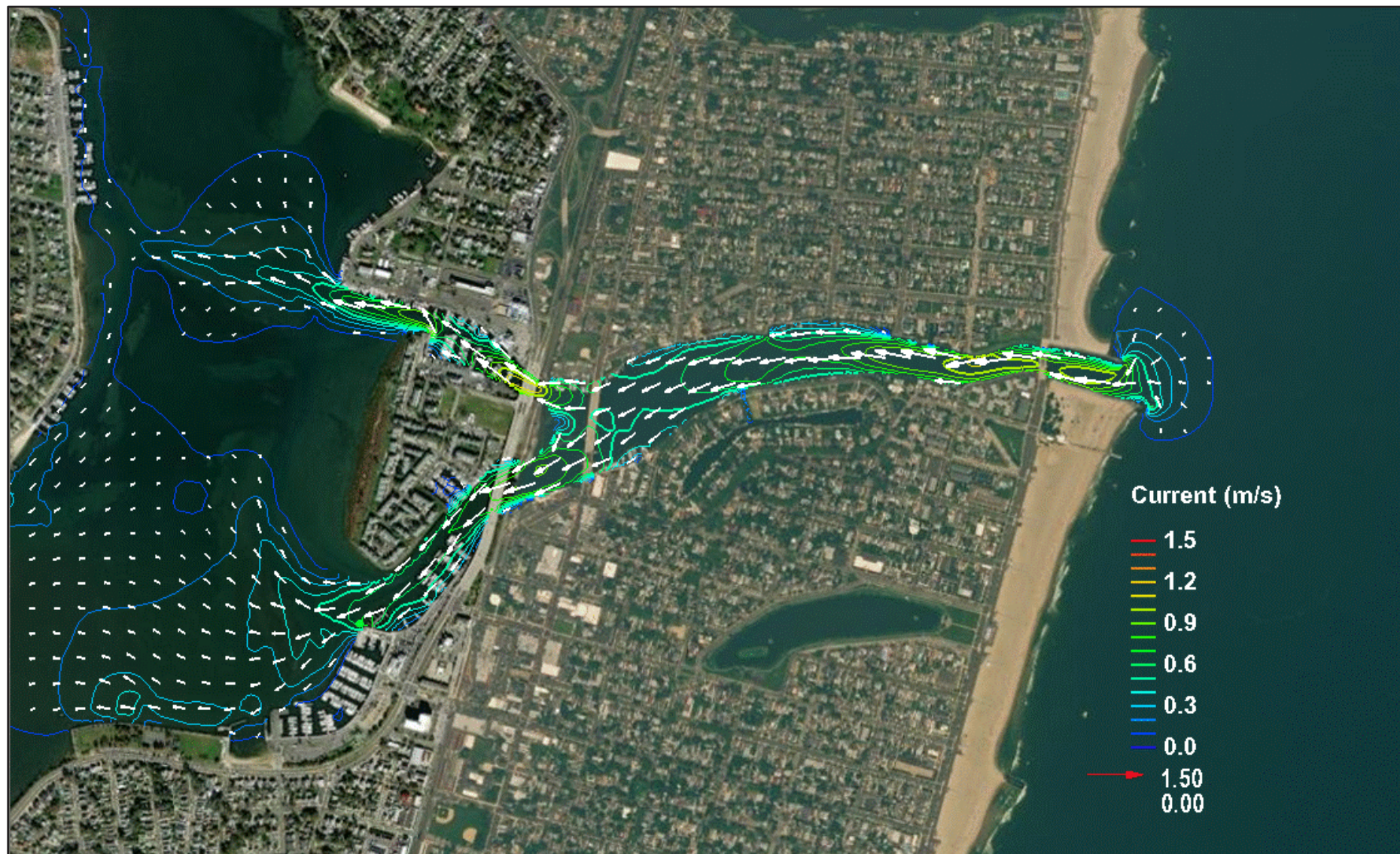
- *Display*
- *Spacing*
- *Offset*
- *Data range*
- *Legend*
- *Length*
- *Scale*
- *Color range*
- *Vector size*



Contour and Vector Plotting



*August 9, 2009
08:00 AM GMT*





Contour and Vector Plotting

Current across Transects

– *Import ADCP current measurements*

1

Name	Date modified	Type	Size
SRI082009_DAV_1300.GIS	11/8/2018 4:34 PM	GIS File	22 KB
SRI082009_DAV_1300.xyz	11/8/2018 4:34 PM	XYZ File	22 KB
Tide_Comparison_AUG09_Workshop.xyz	11/8/2018 4:33 PM	XYX File	139 KB

2

3

	x	y	dist	mag	z	dir	wx	wy
1								
2	190458.2	150348.64	3.68	11.4173	0.114173	185.403	-1.81	11.2
3	190457.85	150348.86	3.73	16.1986	0.161986	98.4111	6.7778	14.53
4	190457.55	150349.11	3.75	18.1666	0.181666	233.0622	-4.7	17.21
5	190457.23	150349.33	3.84	17.9558	0.179558	264.7467	-7.2556	15.31

4



Contour and Vector Plotting



Current across Transects

– *Import ADCP current measurements*

Display Options

General
GIS
Map
Scatter
UGrid
UGrid: Flow_S5

Scatter | Contours | Vectors

Vector Display Placement and Filter

Display: at each node/cell

X spacing: 15 pixels

Y spacing: 15 pixels

Origin: Relative to bed

Offset: 0.0

Dataset...

Arrow Tail at location

Data range: Range

Minimum: 0.0

Maximum: 100.0

Legend: Options...

Show option pages for existing data only

Arrow Options

Shaft length: Scale length to magnitude

Ratio: 0.50

Line width: 1 pixels

Arrows follow flow path

Color Range: Options...

Size: Absolute | Scaled to length

(a): 15.0 %

(b): 30.0 %

Type: Max. Min. | a | b

Help... All On All Off OK Cancel



Contour and Vector Plotting

Current across Transects

– *Import ADCP current measurements*



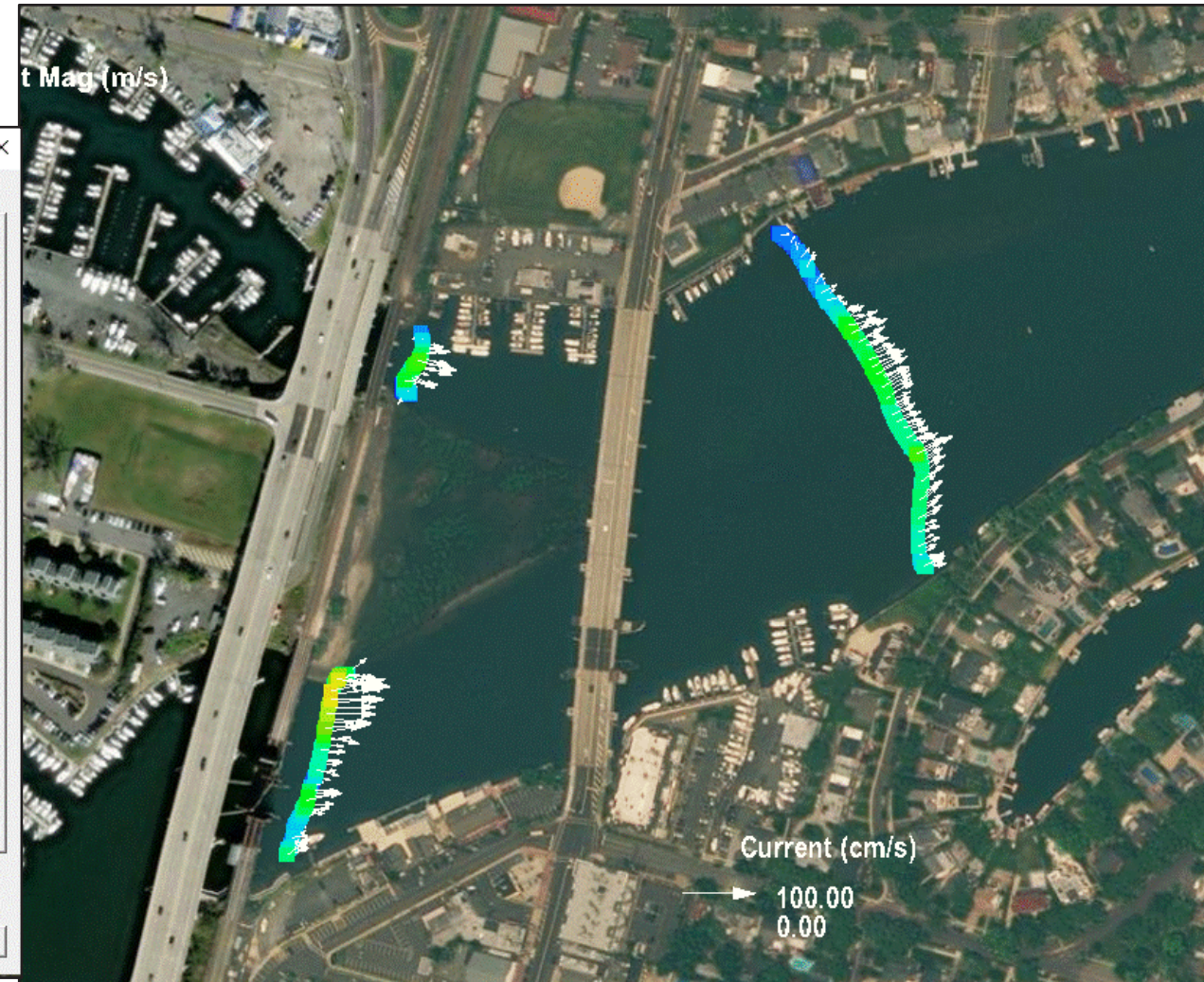
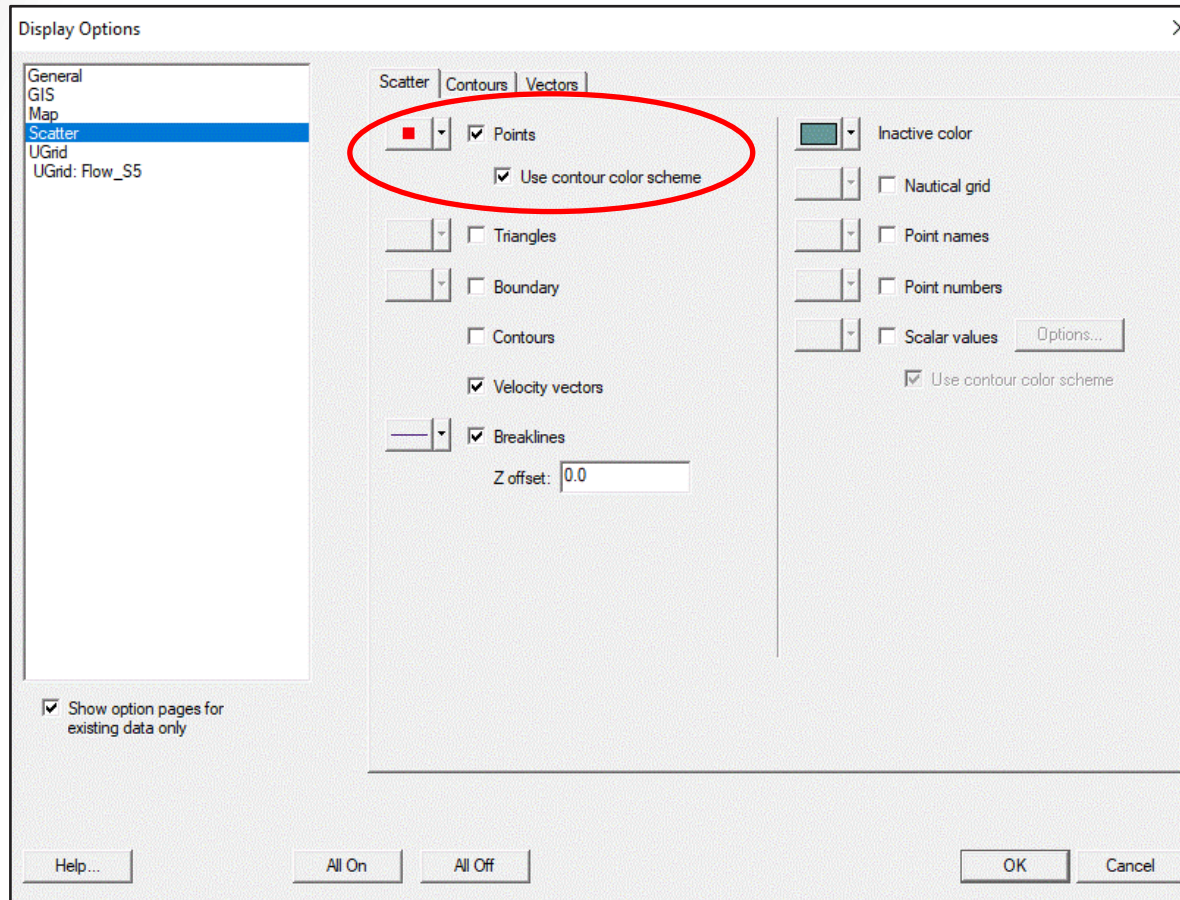


Contour and Vector Plotting



Current across Transects

– *Use contour color scheme*





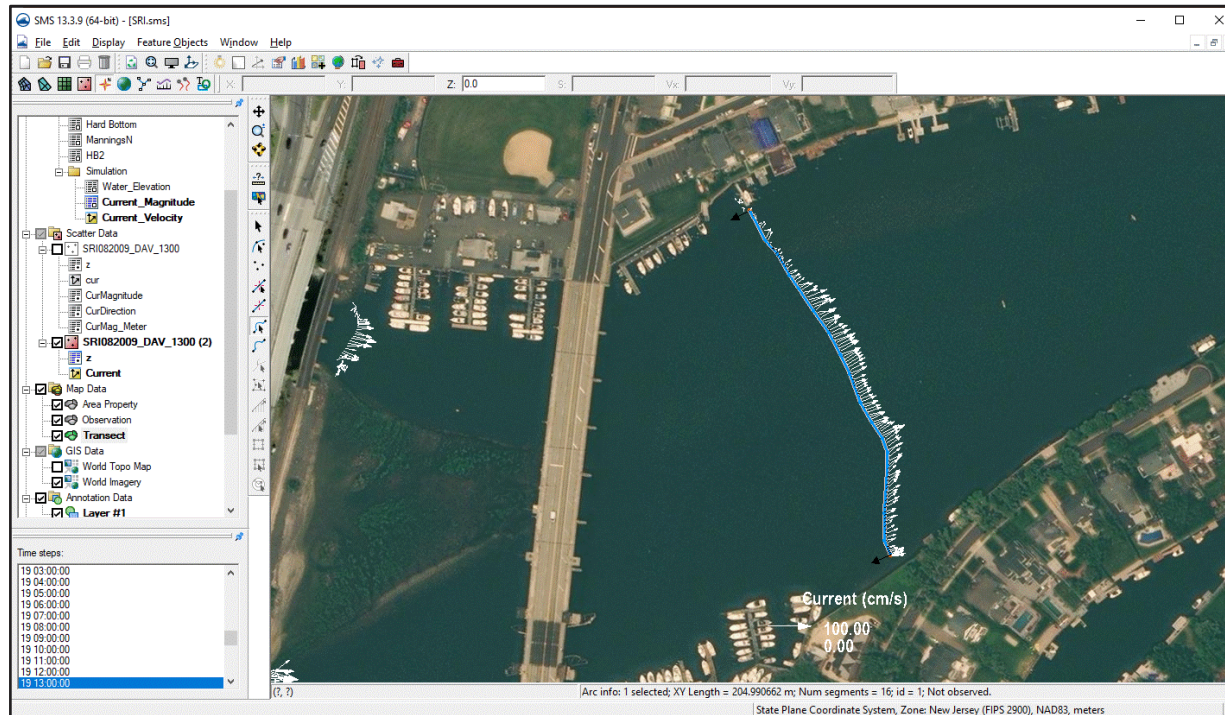
Contour and Vector Plotting



Measured and Calculated Current Speed

- *Generate an arc through the measured points*

1



- Copy to Coverage...
- Transform...
- Define Domain
- Clear Selection
- Invert Selection
- Zoom to Selection

Show Observation Plot
x_origin >

- Split Arc(s)...
- Offset Arc(s)...
- Specify Arc Length...
- Align Arc(s) With Contour...
- Redistribute Vertices...
- Interpolate Vertex Elevations
- Reverse Arc Direction**
- Smooth Arc(s)...
- Prune Arc(s)...

Arc Attributes...

Select Connected Arcs >

Delete

2

Redistribute Vertices

Length units: Meters

Arc information

Number of Selected Arcs	1
Total Number of Segments	16
Total Arc Length(s)	204.99066248319
Segment Lengths:	
Minimum	6.7000000000116
Average	12.811916405199
Maximum	25.756164310688

Arc redistribution

Specify: Specified spacing ▾

Average spacing: 5

Bias (0.01-100.0): 1.0

2nd bias (0.01-100.0): 1.0

Use cubic spline

Help...

OK

Cancel

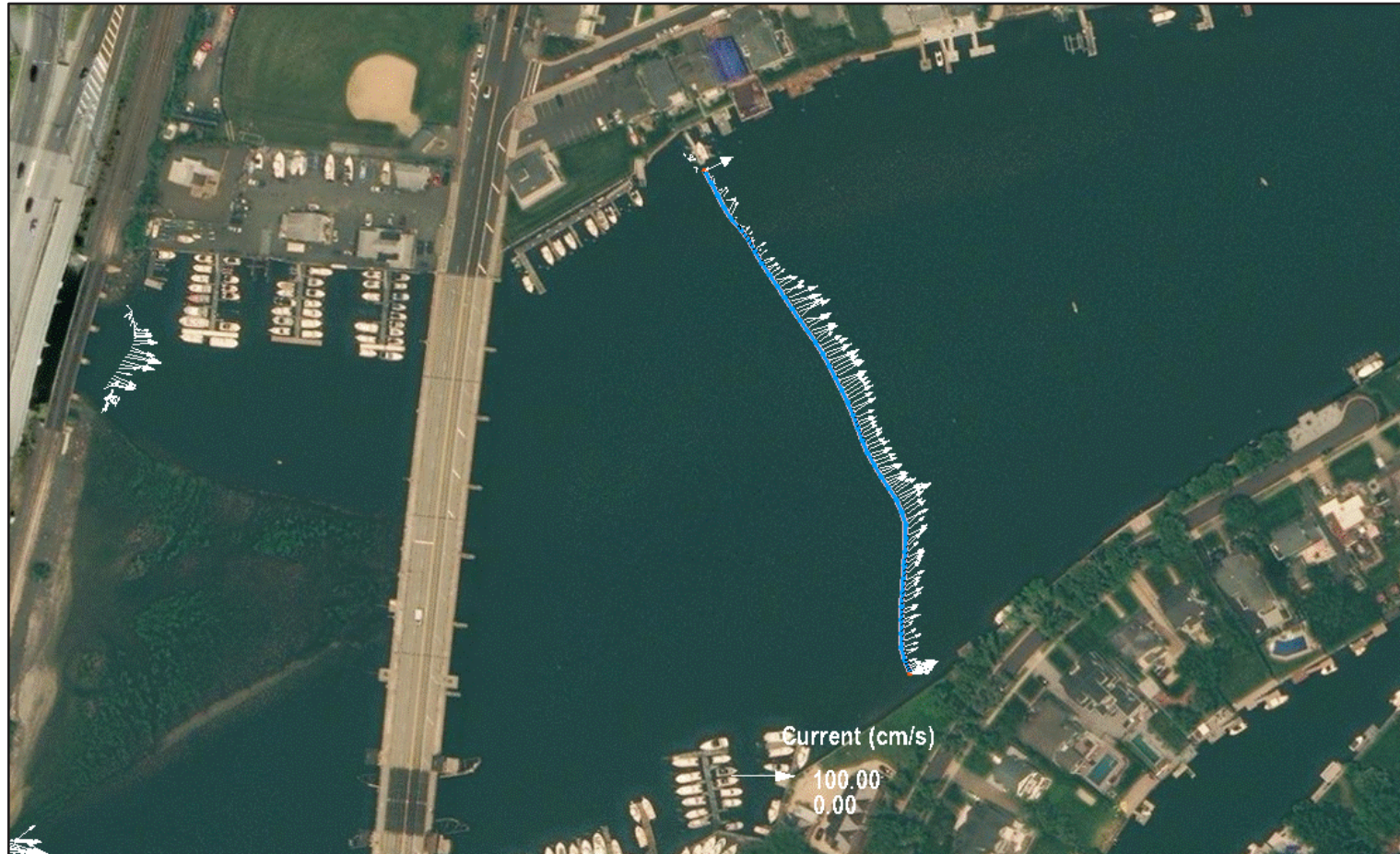
3



Contour and Vector Plotting

Measured and Calculated Current Speed

- *Generate an arc through the measured points*





Contour and Vector Plotting



Measured and Calculated Current Speed

– *Create a new dataset in meters*

The screenshot shows the 'Vector to Scalar' dialog box in the Dataset Toolbox. The 'Tools' list on the left has 'Vector to Scalar' selected. The 'Data Sets' panel shows 'SRI082009_DAV_1300 (2)' (active) with a sub-item 'Current'. The 'Options' panel has 'Magnitude' and 'Direction' checked, while 'Vx' and 'Vy' are unchecked. The 'Dataset name prefix' field contains 'cur'. The 'Compute' button is visible at the bottom right.

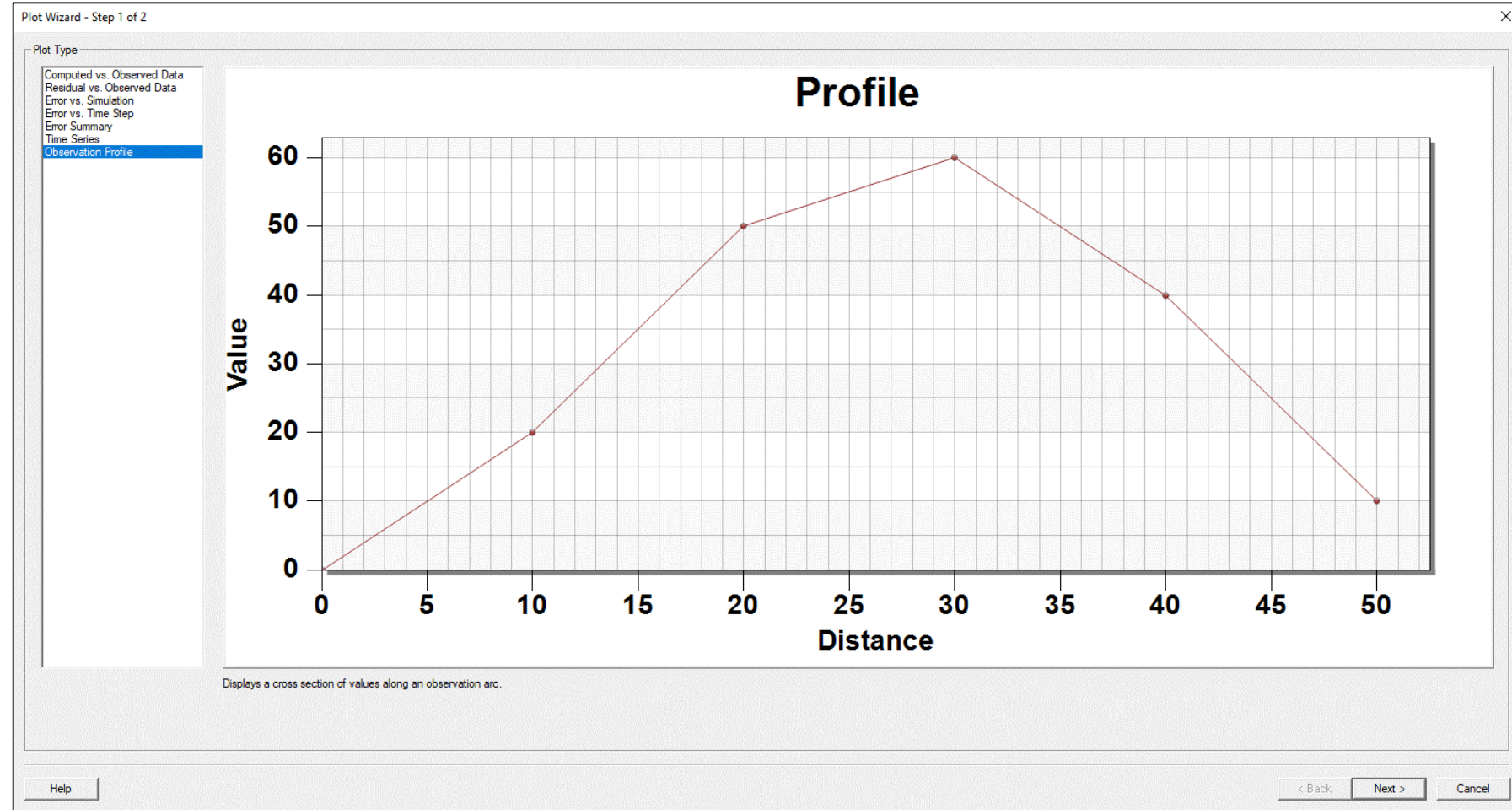
The screenshot shows the 'Data Calculator' dialog box in the Dataset Toolbox. The 'Tools' list on the left has 'Data Calculator' selected. The 'Data Sets' panel shows 'SRI082009_DAV_1300 (2)' with sub-items 'd1. z', 'd2. x location', 'd3. y location', 'd4. cur Magnitude', and 'd5. cur Direction'. The 'Time Steps' panel has '0:00:00:00' selected. The 'Calculator' panel shows the expression 'd4/100'. The 'Output dataset name' field contains 'cur_Mag_meter'. The 'Compute' button is visible at the bottom right.



Contour and Vector Plotting

Measured and Calculated Current Speed

– *Display current data*





Contour and Vector Plotting



- *Extract profile from model calculation and measured data*

Plot Wizard - Step 2 of 2

Coverage
Coverage:

Extract profile from:

	Show	Arcs
1	<input checked="" type="checkbox"/>	Arc 1

Show Intersections:

	Show	Coverage	Type	Show Names
1	<input type="checkbox"/>	Observa...	Observ...	<input type="checkbox"/>
2	<input type="checkbox"/>	Transect	Observ...	<input type="checkbox"/>

Dataset(s)
 Active Specified

- Project
 - UGrid Data
 - Flow_S5
 - Point Z
 - Cell Z
 - D50
 - Hard Bottom
 - ManningsN
 - HB2
 - Simulation
 - Water_Elevation
 - Current_Magnitude
 - Scatter Data
 - SRI082009_DAV_1300
 - z
 - CurMagnitude
 - CurDirection
 - CurMag_Meter
 - SRI082009_DAV_1300 (2)
 - z
 - cur Magnitude
 - cur Direction
 - cur_meter

Dataset color: Use 2nd axis
2nd axis name:
Plot tolerance: m
 Show horizontal shading

Time step(s)
 Active Specified

	Show	Times
465	<input type="checkbox"/>	19 08:00:00
466	<input type="checkbox"/>	19 09:00:00
467	<input type="checkbox"/>	19 10:00:00
468	<input type="checkbox"/>	19 11:00:00
469	<input type="checkbox"/>	19 12:00:00
470	<input checked="" type="checkbox"/>	19 13:00:00
471	<input type="checkbox"/>	19 14:00:00
472	<input type="checkbox"/>	19 15:00:00
473	<input type="checkbox"/>	19 16:00:00
474	<input type="checkbox"/>	19 17:00:00
475	<input type="checkbox"/>	19 18:00:00
476	<input type="checkbox"/>	19 19:00:00
477	<input type="checkbox"/>	19 20:00:00
478	<input type="checkbox"/>	19 21:00:00

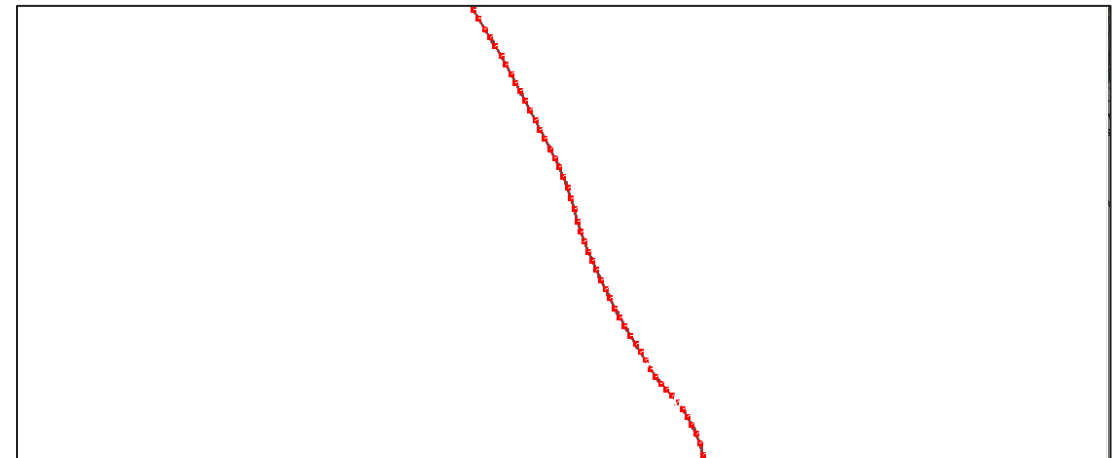
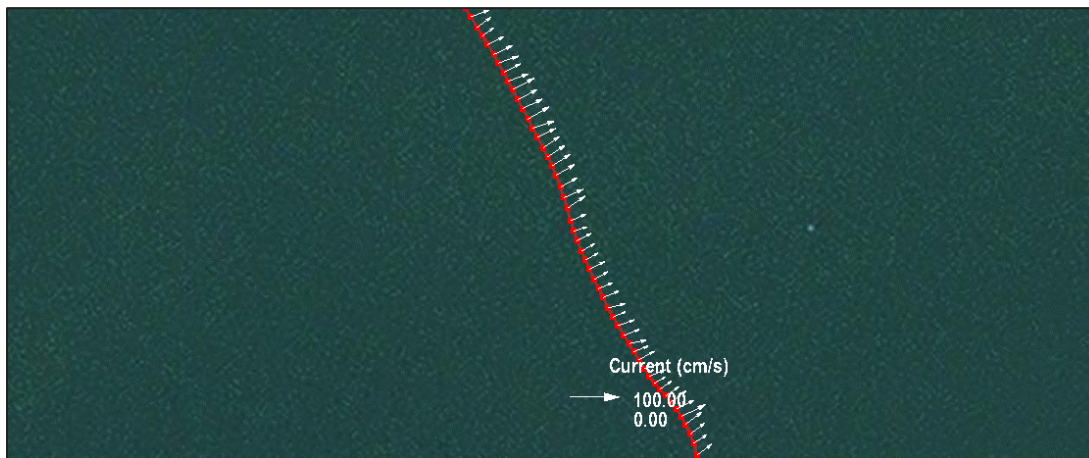
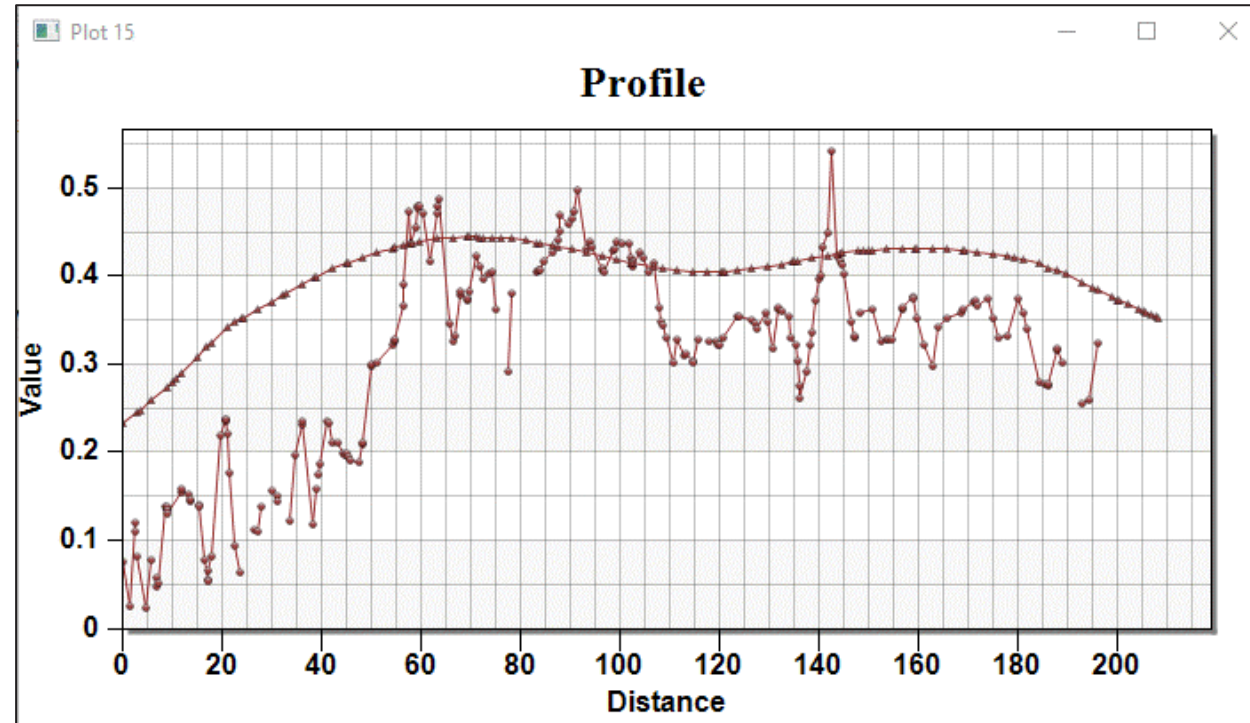
Components

	Show	Name	Trans...	Show Names
--	------	------	----------	------------



Contour and Vector Plotting

- *Extract profile from model calculation and measured data*

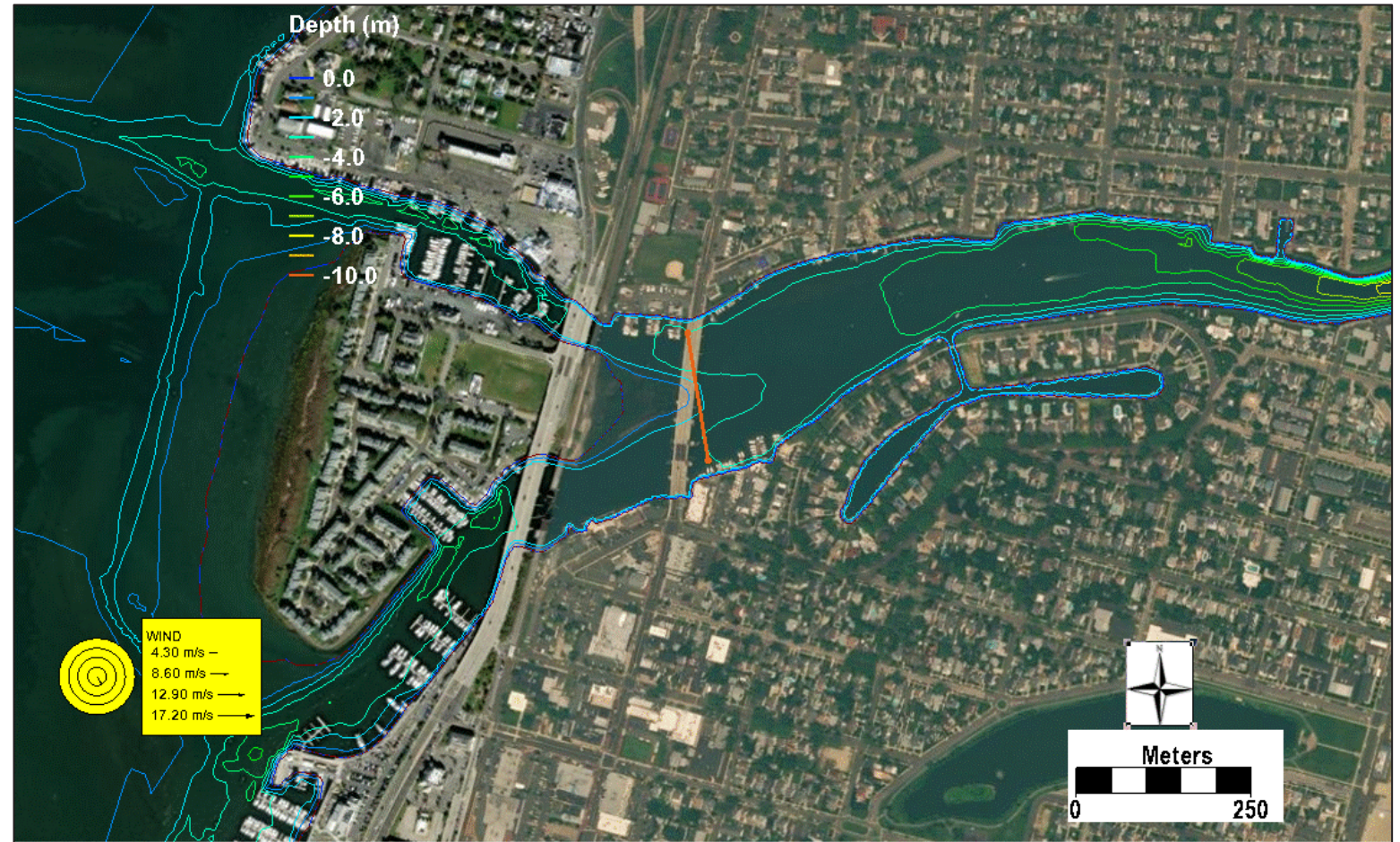




Sediment Transport and Morphology Change



- Calculate sediment fluxes across observational arcs
- Import Datasets (*_trans.h5)





Sediment Transport and Morphology Change



- Calculate sediment fluxes across observational arcs
- Import Datasets (*_trans.h5)
- Generate a dataset with the constant value, 1.0.

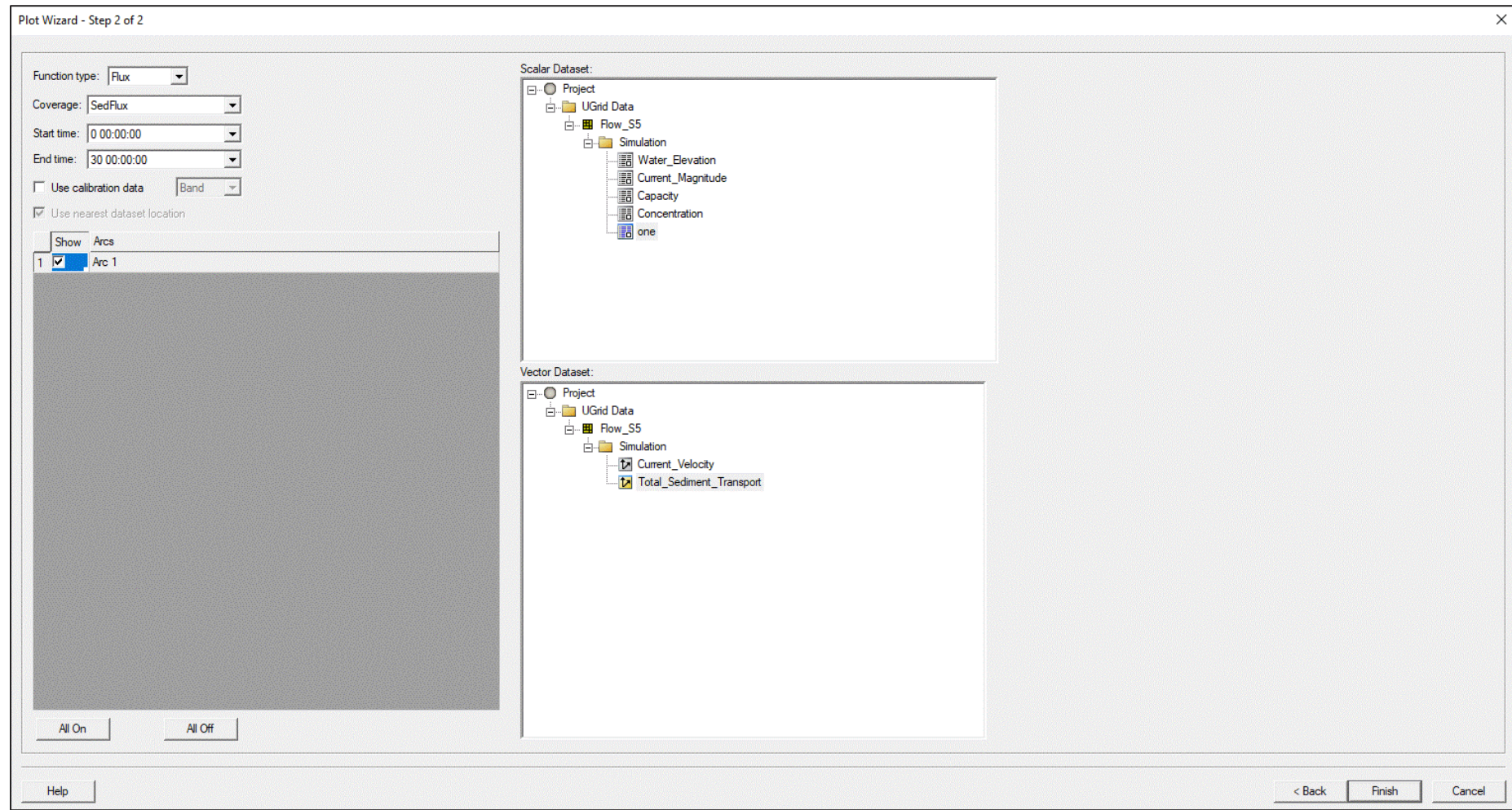
The screenshot shows the Dataset Toolbox interface with the Data Calculator window open. The Data Sets panel lists several datasets, with 'd6. Water_Elevation' selected and circled in red. A blue callout labeled 'Steps 1&4' points to this selection. The Time Steps panel shows a list of time steps from 01:00:00 to 16:00:00, with the 'Use all time steps' checkbox checked and circled in red. A blue callout labeled 'Step 2' points to this checkbox. The Calculator panel shows the expression 'd6:all*0+1' entered, circled in red, with a blue callout labeled 'Step 5' pointing to it. The Output dataset name field contains 'ones', circled in red, with a blue callout labeled 'Step 3' pointing to it. The 'Compute' button is circled in red with a blue callout labeled 'Step 6', and the 'Done' button is circled in red with a blue callout labeled 'Step 7'.



Sediment Transport and Morphology Change



- Calculate sediment fluxes across observational arcs
- Use an executable code to obtain total sediment flux across the transect





Sediment Transport and Morphology Change



– *Channel depth change*





Sediment Transport and Morphology Change



- Channel depth change
- Use Data Set Toolbox to switch the sign of the depth dataset

Plot Wizard - Step 2 of 2

Coverage: Obs_Arc

Extract profile from: Model Intersections

Show	Arcs
<input type="checkbox"/>	Arc 1
<input checked="" type="checkbox"/>	Arc 2
<input type="checkbox"/>	Arc 3
<input type="checkbox"/>	Arc 4

All On All Off

Show Intersections:

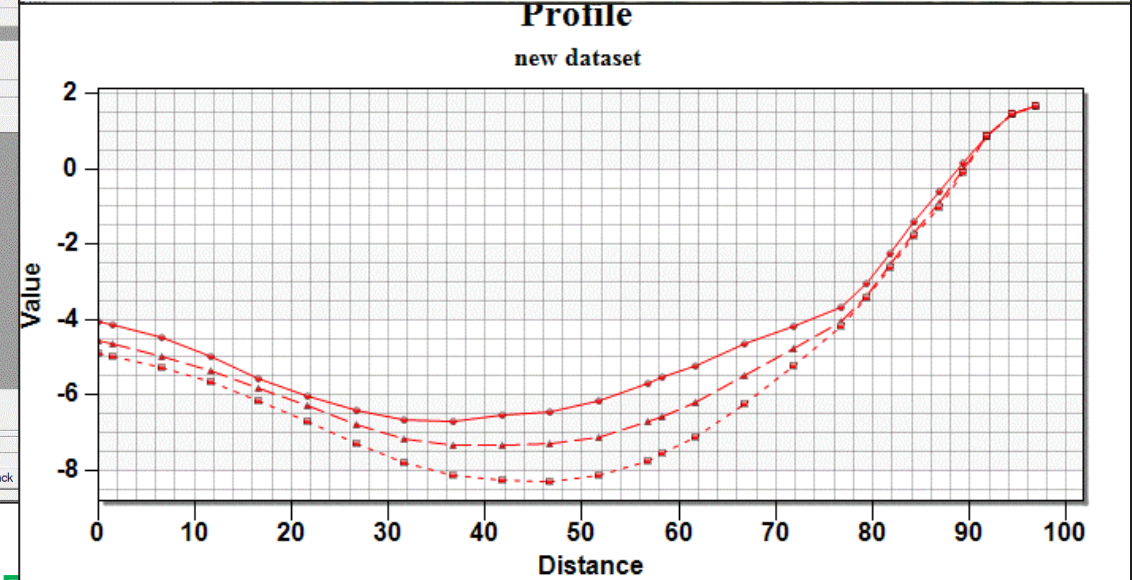
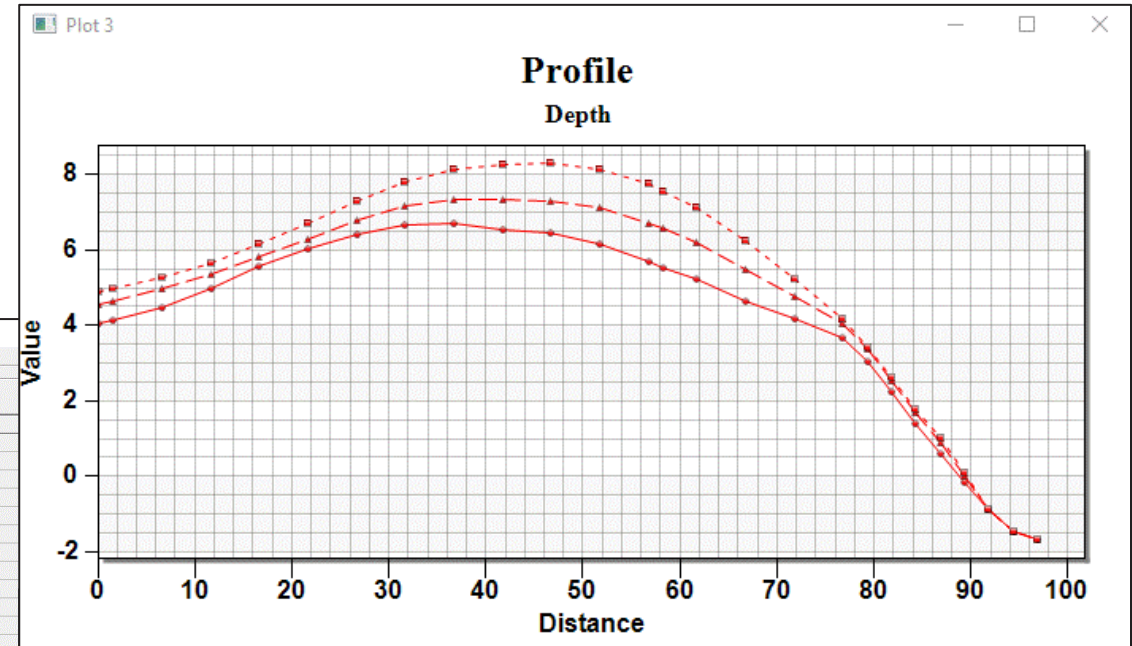
Show	Coverage	Type	Show Names
<input type="checkbox"/>	Observa...	Observ...	<input type="checkbox"/>
<input type="checkbox"/>	Obs_Arc	Observ...	<input type="checkbox"/>

All On All Off

Dataset(s)

Active Specified

- Project
 - UGrid Data
 - Flow_S5
 - Point Z
 - Cell Z
 - D50
 - Hard Bottom
 - ManningsN
 - HB2
 - Simulation
 - Depth
 - Morphology_Change
 - new dataset
 - 30min_WL
 - Scatter Data
 - SRI082009_DAV_1300
 - z
 - CurMagnitude
 - CurDirection
 - CurMag_Meter
 - SRI082009_DAV_1100
 - Z



QUESTIONS?

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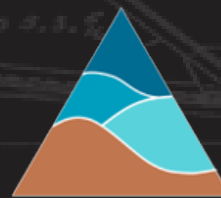
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