



iRIC Software

Changing River Science

EvaTRiP

Examples

Version 3.0 For iRIC ver.3.0

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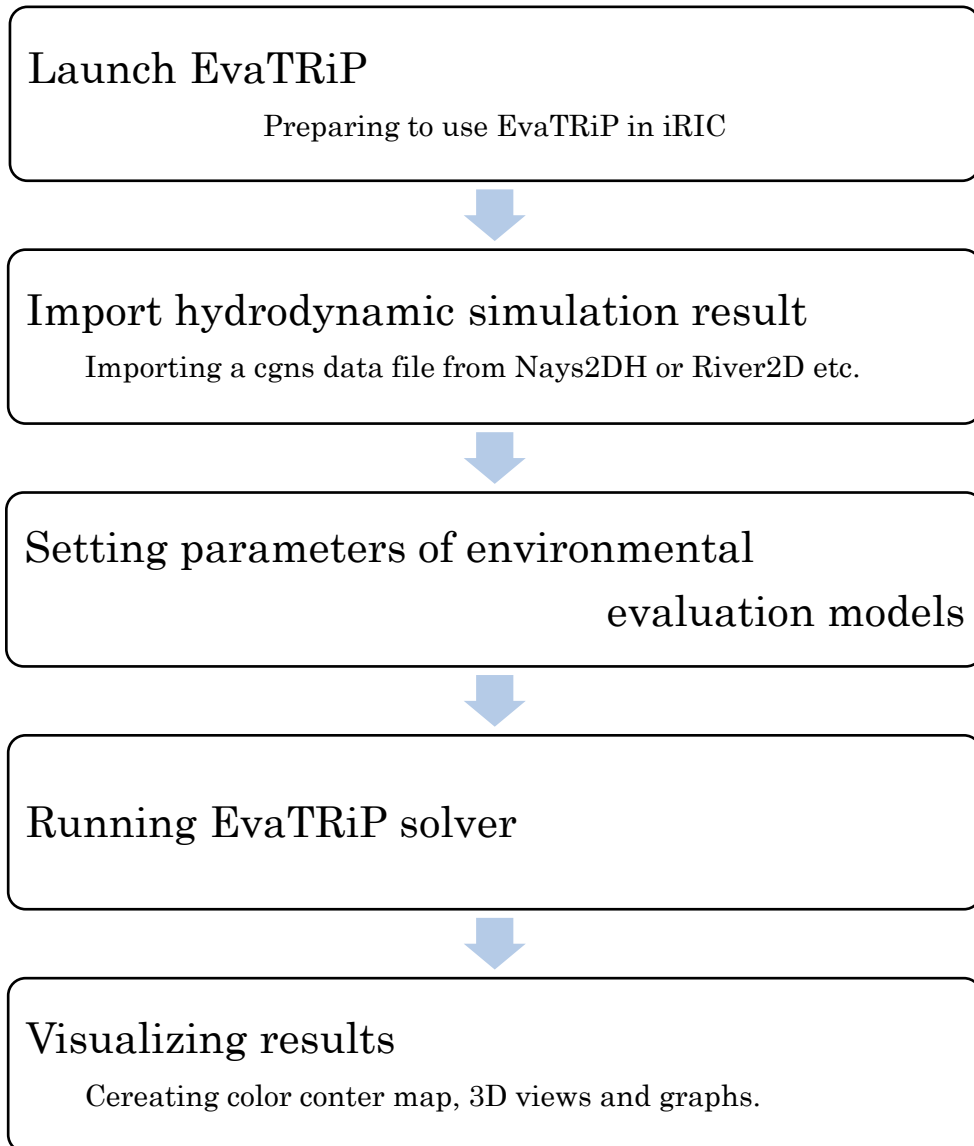
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I. Introduction to EvaTRiP

1. Basic Operation Procedure

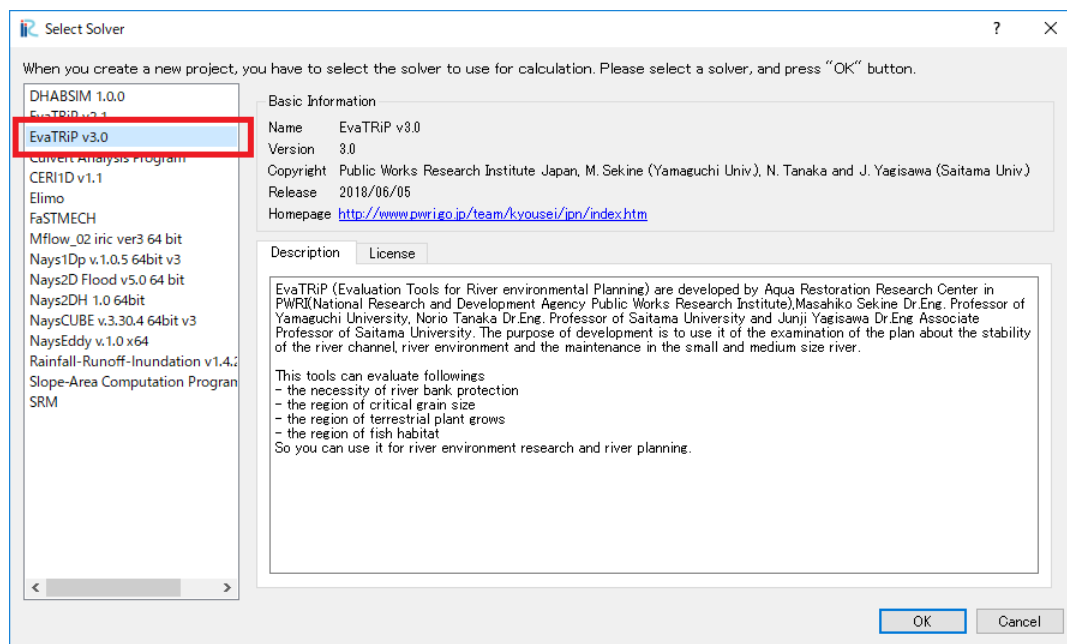
You can use EvaTRiP in the iRIC for your calculations as following procedures;



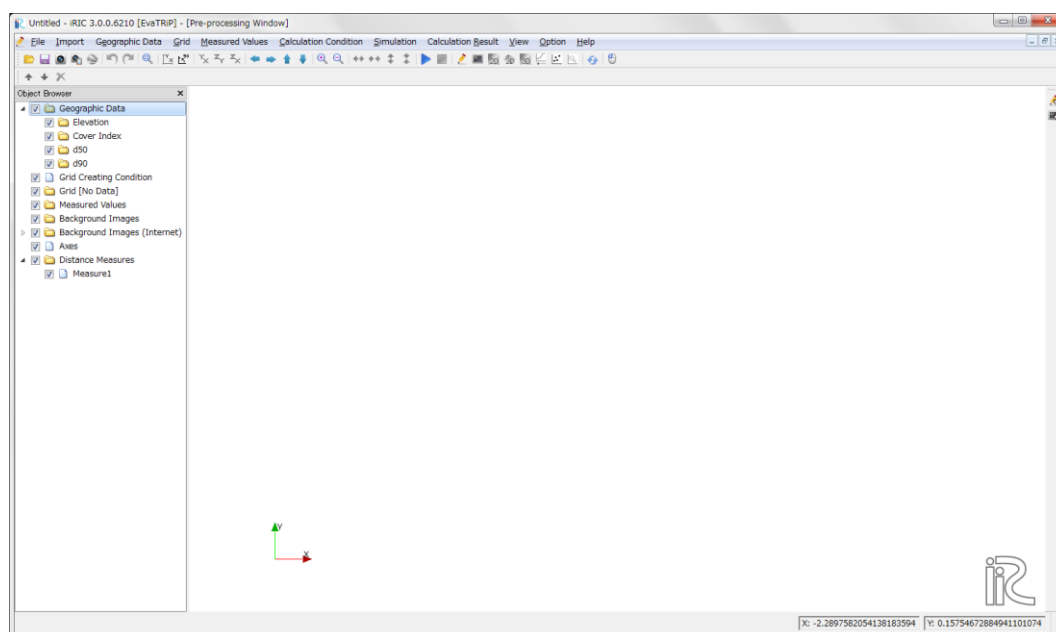
2. Start-up

Start-up of iRIC EvaTRiP is described here.

When iRIC is started, the [iRIC Start Page] will open. In the [iRIC Start Page] dialog box, click [New project]. The [Select a Solver] dialog box will open. In the [Select a Solver] dialog box, select [EvaTRiP] and click [OK].



A window with “Untitled – iRIC [EvaTRiP]” shown in the title bar will open.



3. Sample Data

The sample data used for the calculation examples covered here can be downloaded from the link below.

URL: <http://i-ric.org/ja/downloads>

Calculation example: EvaTRiP

Users following these instructions for EvaTRiP should download the data from the above website in advance.

Japanese characters should not be used in the file path of the folder where the data are saved, as this may result in an error when the data are read.

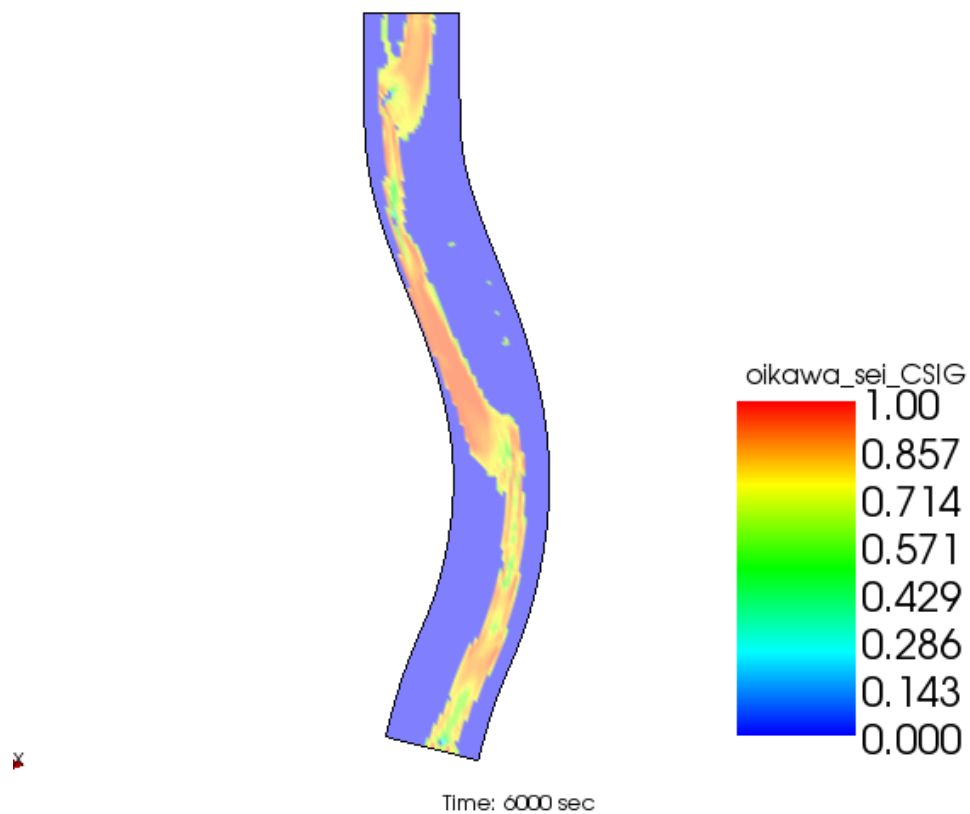
4. Calculation Conditions of EvaTRiP

The examples outlined here are provided to familiarize users with calculations of EvaTRiP. Accordingly, descriptions of configured physical and numerical calculation conditions are omitted in some sections. Many functions other than those outlined here are also available on EvaTRiP. For more details, see the EvaTRiP Solver Manual.

II. Tutorial

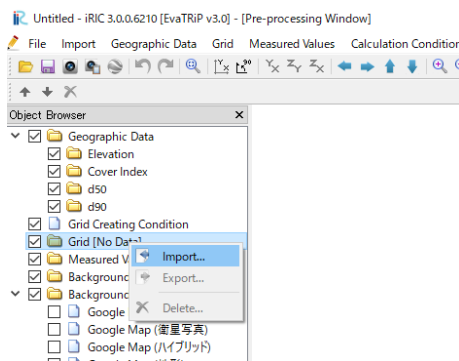
1. Direction

You can understand the basic operation of EvaTRiP in iRIC by simulating evaluation and also understand the method for evaluating river environment by using calculated results of Nays2DH or River2D.

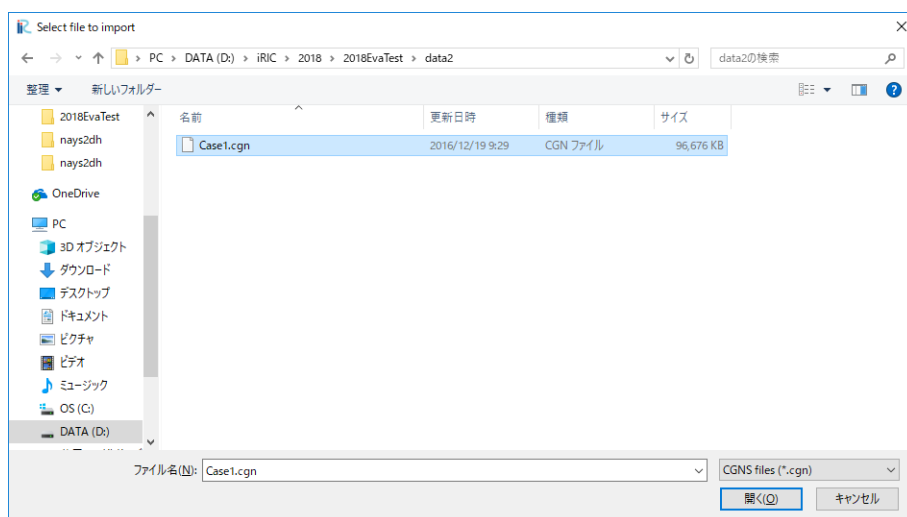


2. Import a CGNS file

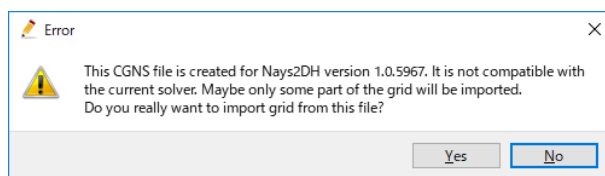
You can import the cgns file from hydrodynamic simulation solvers such as Nays2DH or River2D. Right-click on [Grid (No Data)], and select [Import] on the pop-up menu.



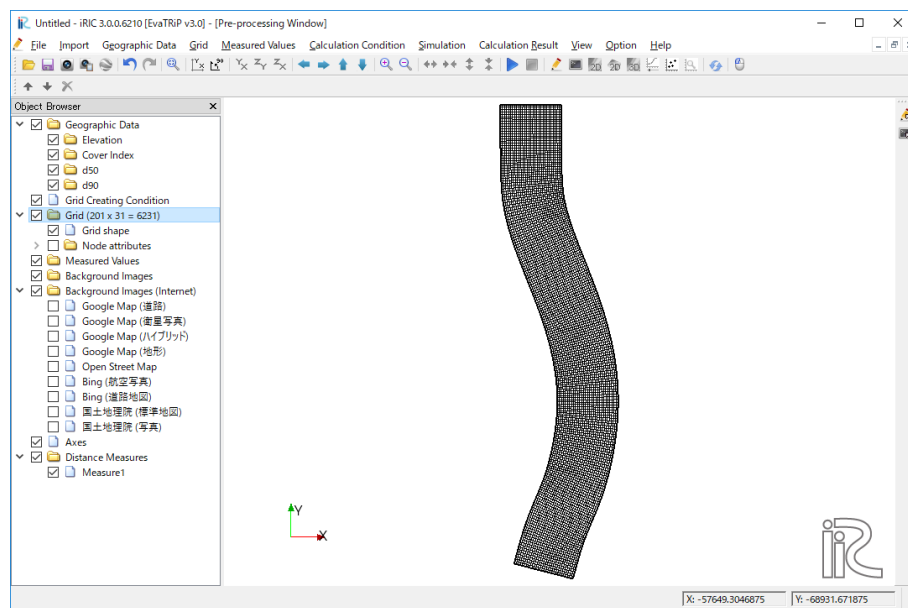
Select the import file.



* Even if the error message appeared, click on [Yes].



The grid will appear on the screen.

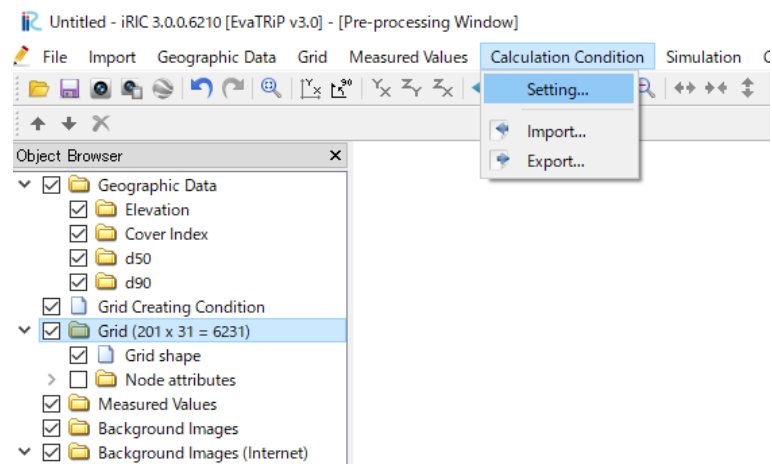


III. Set the parameters

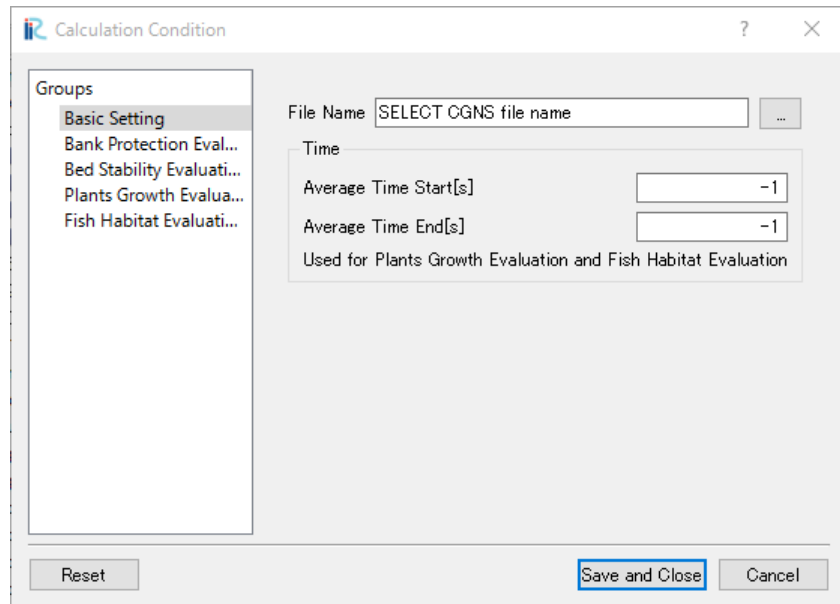
1. Plants Growth Evaluation

This section explains how to set the evaluation conditions for EvaTRiP.

Select [Calculation conditions] -> [Setting] on menu bar.



At Basic Setting tab, select the file name for CGNS file.



Depth Limits [m]

DLimit 1	0.2
DLimit 2	0.3
DLimit 3	0.4

Estimated Depth

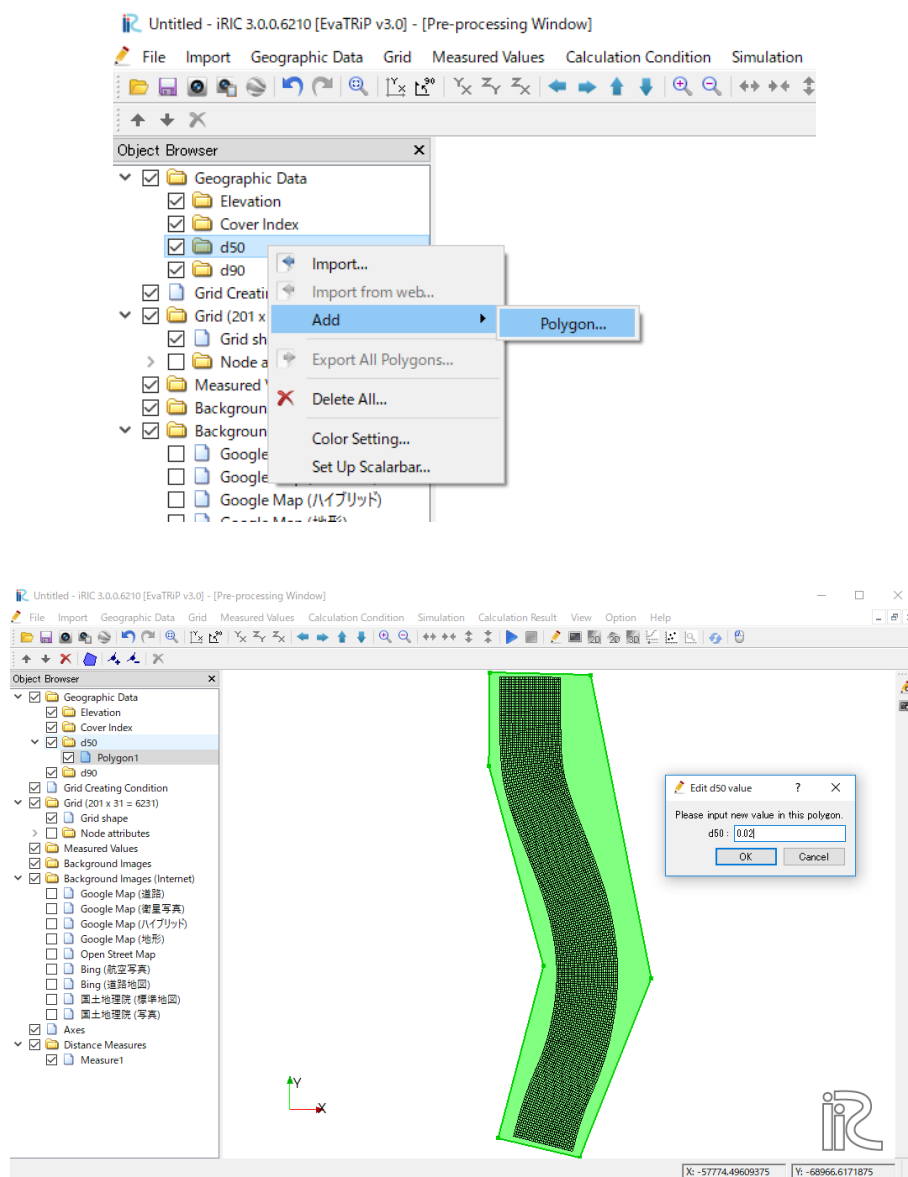
$H_{est} =$ $\times \ln(v) +$

- Depth Limits(m)
- Vel_Dep Estimated

* See also the EvaTRiP solver manual for deeper understanding.

【Make d50&d90 polygon】

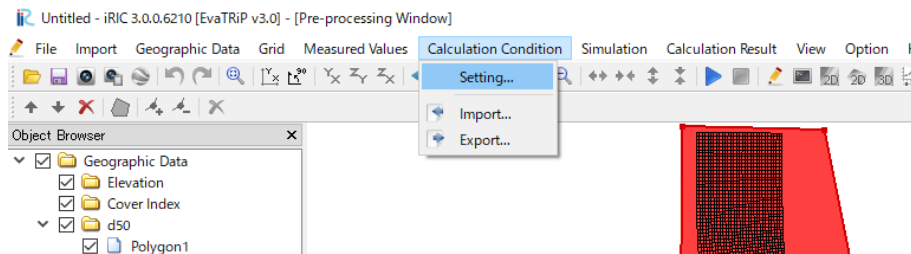
Add a polygon to **d50** category (average particle size). The value is **0.02** (m).



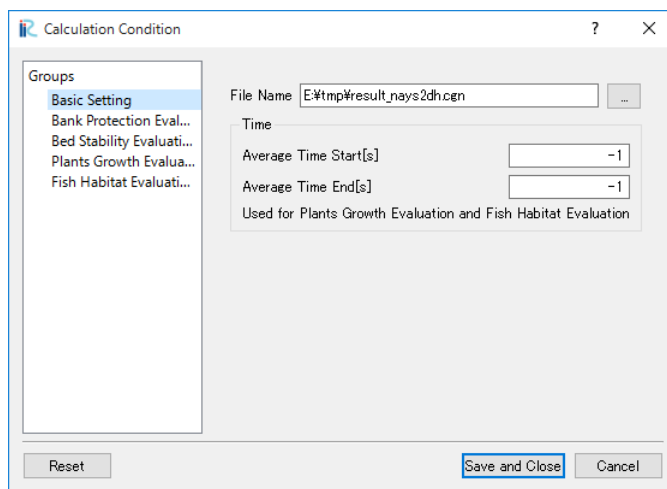
Do the same work with **d90** category. The value is **0.02** (m).

2. SimpleHabitat model

This section explains how to set the evaluation conditions for EvaTRiP.
Select [Calculation conditions] -> [Setting] on menu bar.



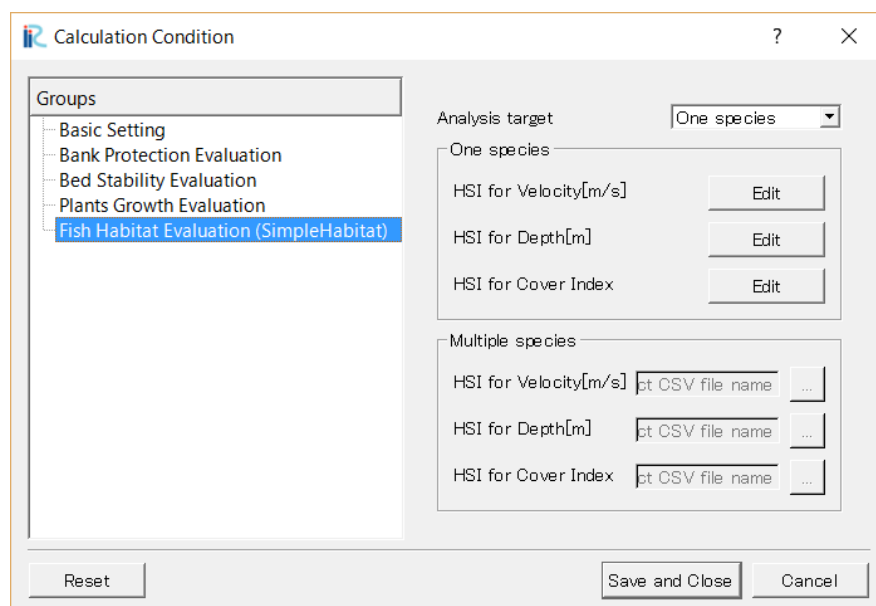
Set the cgns file – select as same as the Grid data file



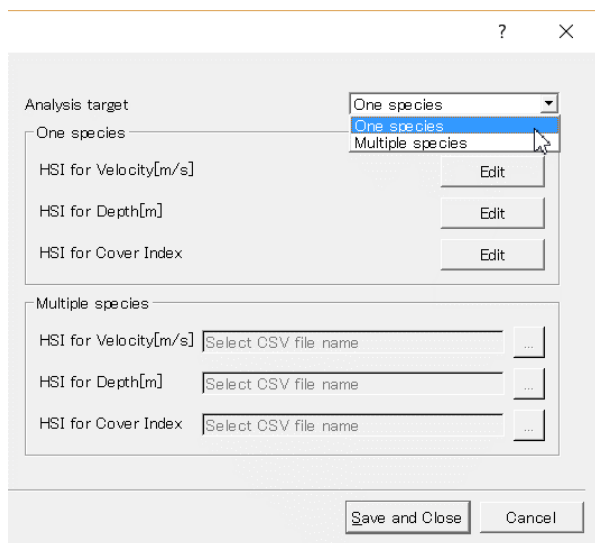
- File Name : ...Case1.cgn

Crick on [Save and Close]

Set the computational conditions for this run as follows;



Click on [Fish Habitat Evaluation] including Groups



- Analysis Target Result

Select One species or Multiple species

- One species

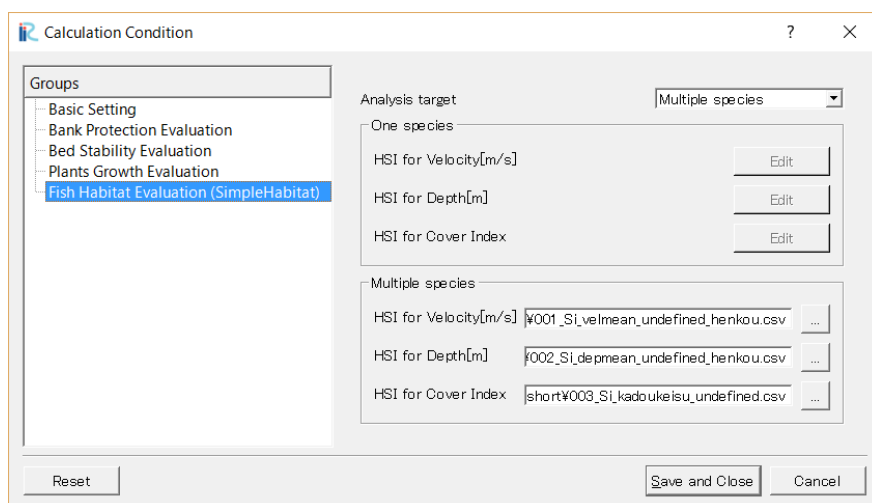
You can make directly SI data sets which are velocity, depth and cover.

- Multiple species

You can select each SI data file.

* See the EvaTRiP manual how to make SI data file.

Select “Multiple species”



Confirm that “Multiple species” is chosen in Analysis target box.

Fill csv files in each HSI box.

001_Si_velmean_undefined_henkou.csv

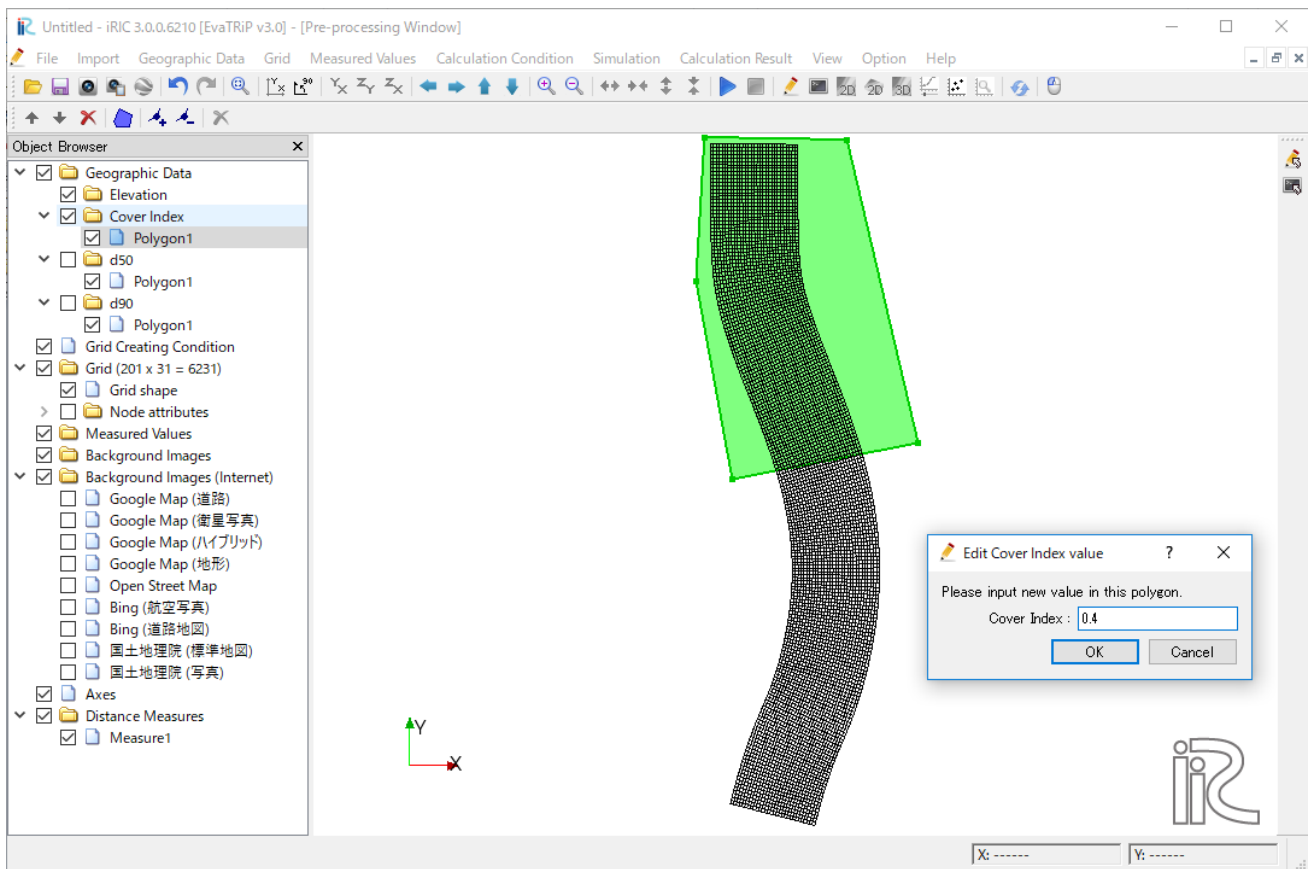
002_Si_depmean_undefined_henkou.csv

003_Si_kadoukeisu_undefined.csv

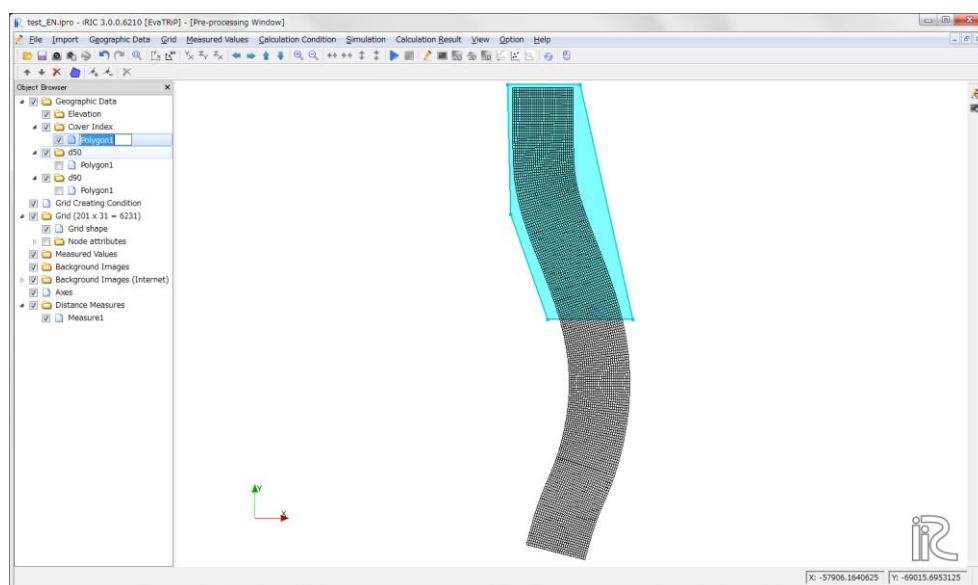
Click on “Save and Close”

【Make cover polygons】

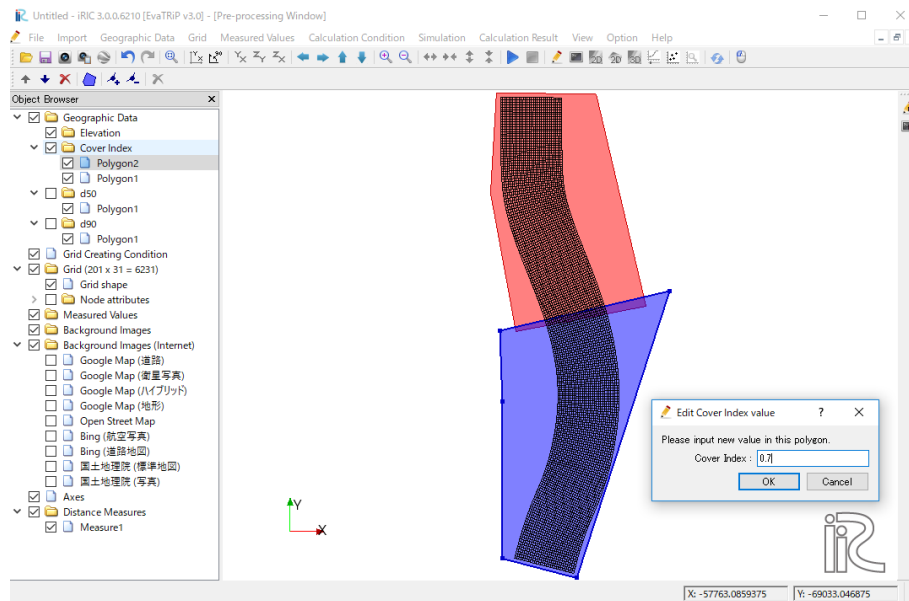
Right-click on [Cover index], and select [Add]-[Polygon] on the pop-up menu.
Delete the polygon of **d90** and **d50** temporally to ease of viewing of the screen.



Rename a ploygon1 name to “cover_upper”. Now, the cover index is **0.4**.

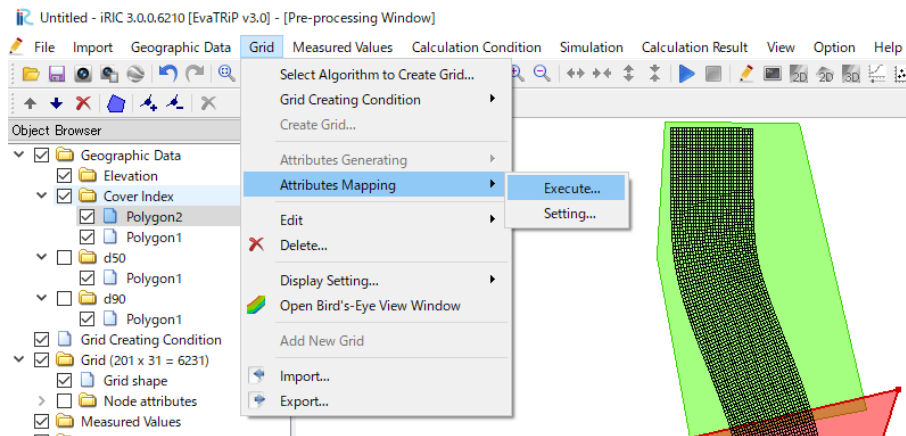


Add another polygon. Rename a ploygon1 name to “cover_lower”. The cover index is **0.7**.

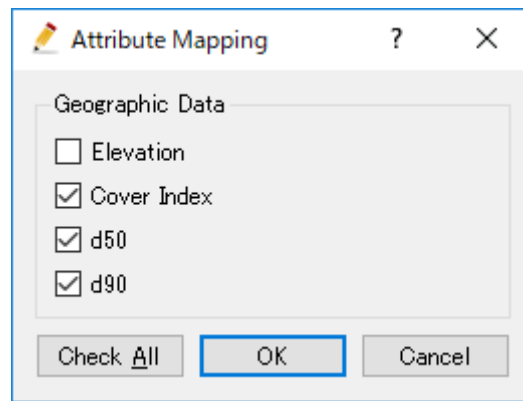


【Execute of Attributes mapping】

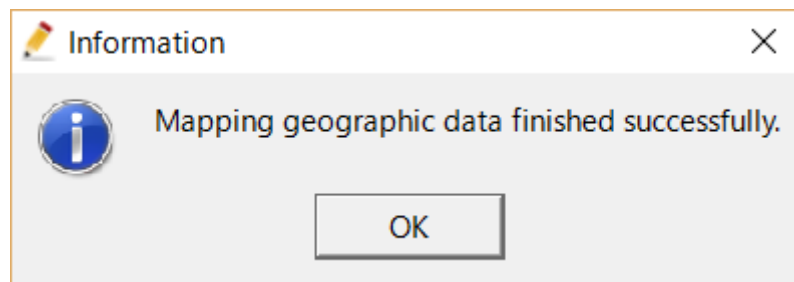
Click on [Grid]-[Attributes Mapping]-[Execute] before calculations



Check off cover index.

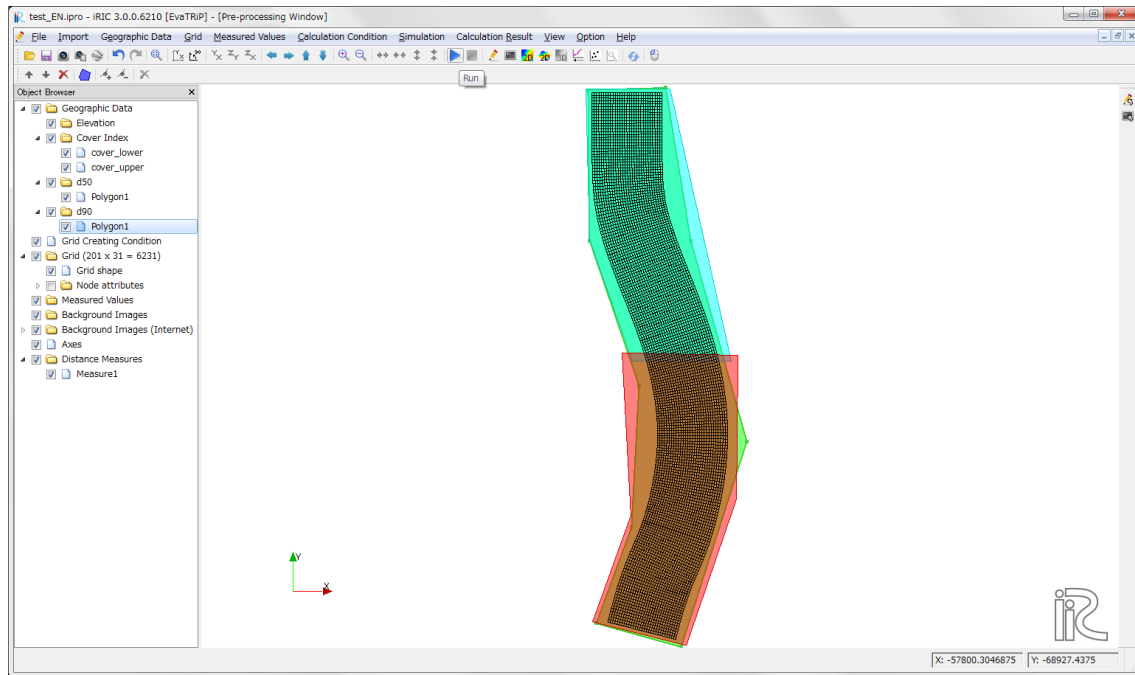


After clicking on “OK”, you can see the information as below.

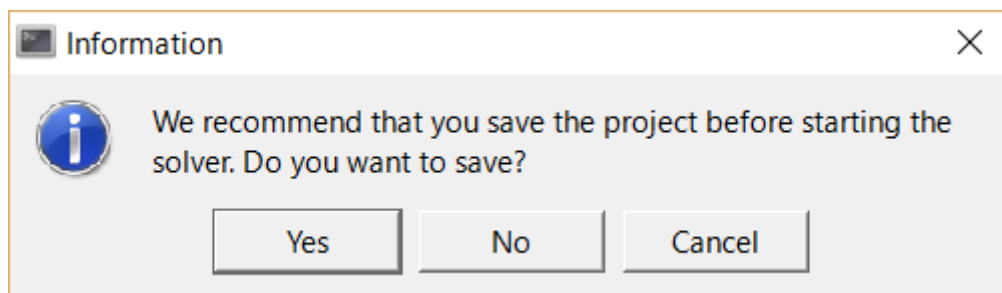


IV. Run EvaTRiP

For running a simulation, select [Simulation] ->[Run] in menu bar or select ► on menu tool bar.



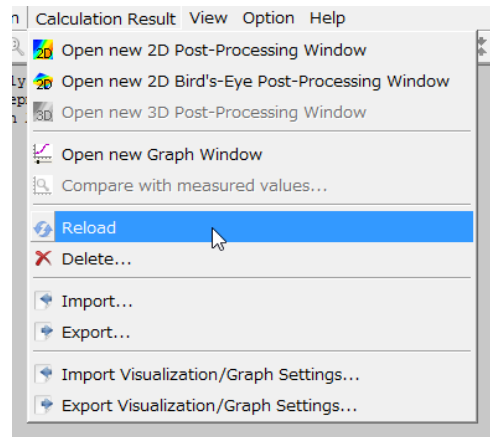
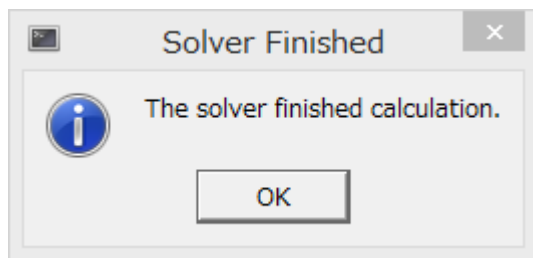
* You can choose [Yes] or [No]. If you select [Cancel] button, the computation won't be done.



Solver console will appear, and it starts the calculation.

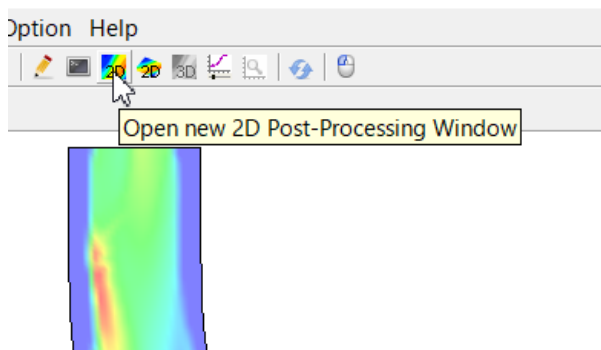
V. Visualization

You can visualize the result after getting dialog which informs you [The solver finished calculation] (left figure) or by reading the result during the calculation by selecting [Calculation result] -> [Reload] (right figure).



You can visualize the output data.

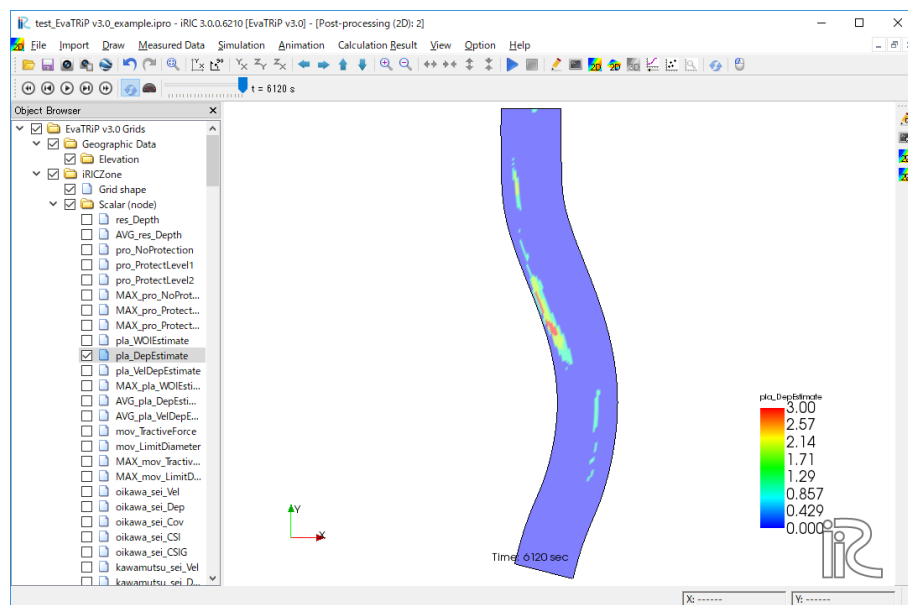
Select [calculation result] -> [Open new 2D post-processing window] in menu bar, or click on the button shown in the following figure;



The buttons for visualization are from left:

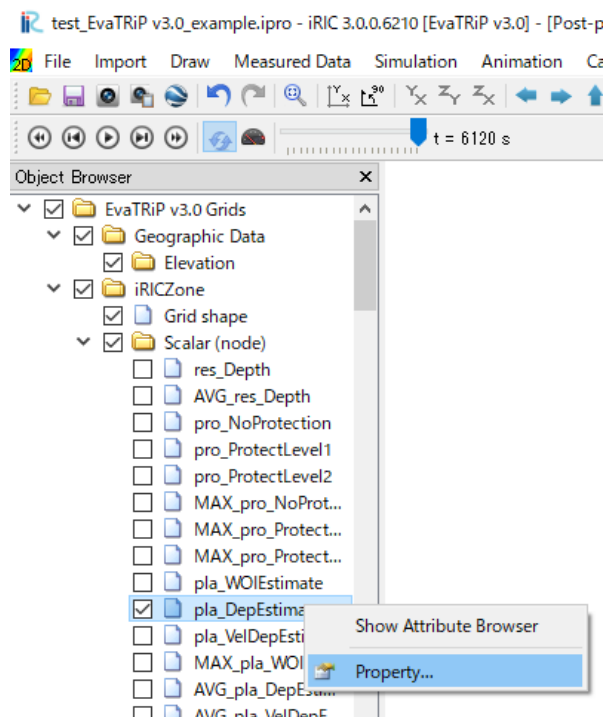
- 2D post-processing window : for visualizing top view of the result
- 2D bird's eye post-processing windows : for visualizing three dimensional view
- 3D post-processing windows : for 3D model only
- Graph window: for visualizing one dimensional graph

2D post-processing window will open.

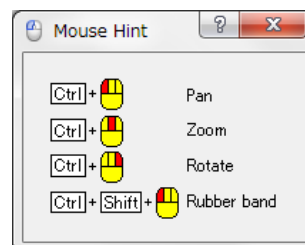


You can visualize the item listed in the object browser to the visualization screen. Firstly, for visualizing the result of “depth estimate”, check the box of [pla_DepEstimate] under [Scalar]. The contour map of an evaluation result was shown.

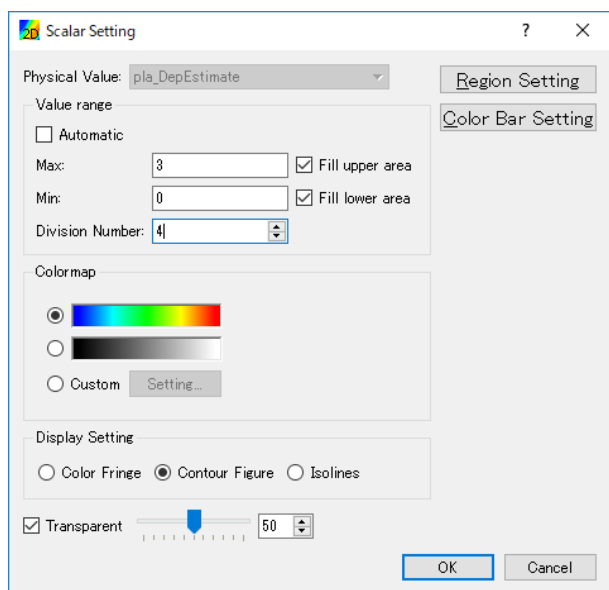
For changing the range of color legend, right-click on [pla_DepEstimate] button and select [Property].



- You can change the location of the color legend by dragging it. (You need to click [Scalar] to make the status of [scalar] ‘active’.)
- You can pan, zoom and rotate the visualization screen by mouse operations shown in following figure;



In this dialog, you can set the maximum/minimum value for the legend colors range, the number of labels for the color legend and etc.



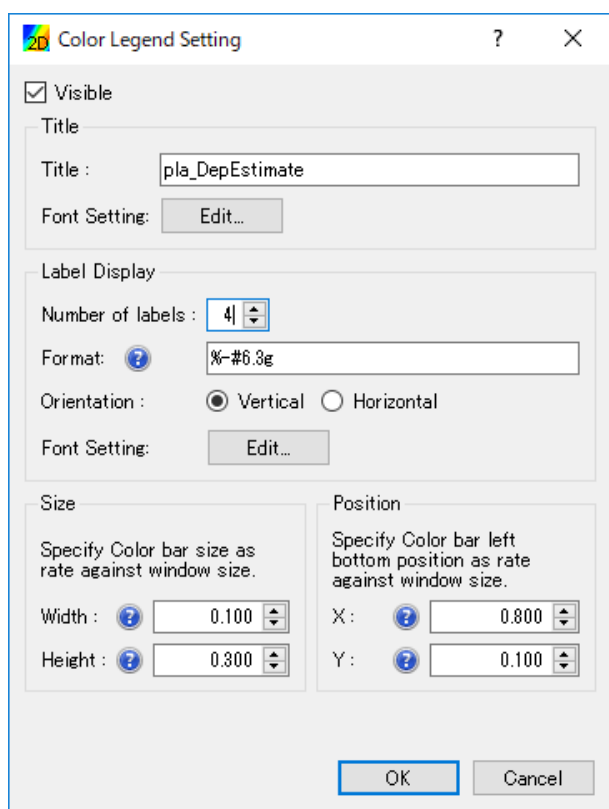
deselect [Automatic] box

- Max : 3
- Min : 0
- Division Number: 4
- Display setting : **Contour Figure**

deselect [Transparent] box

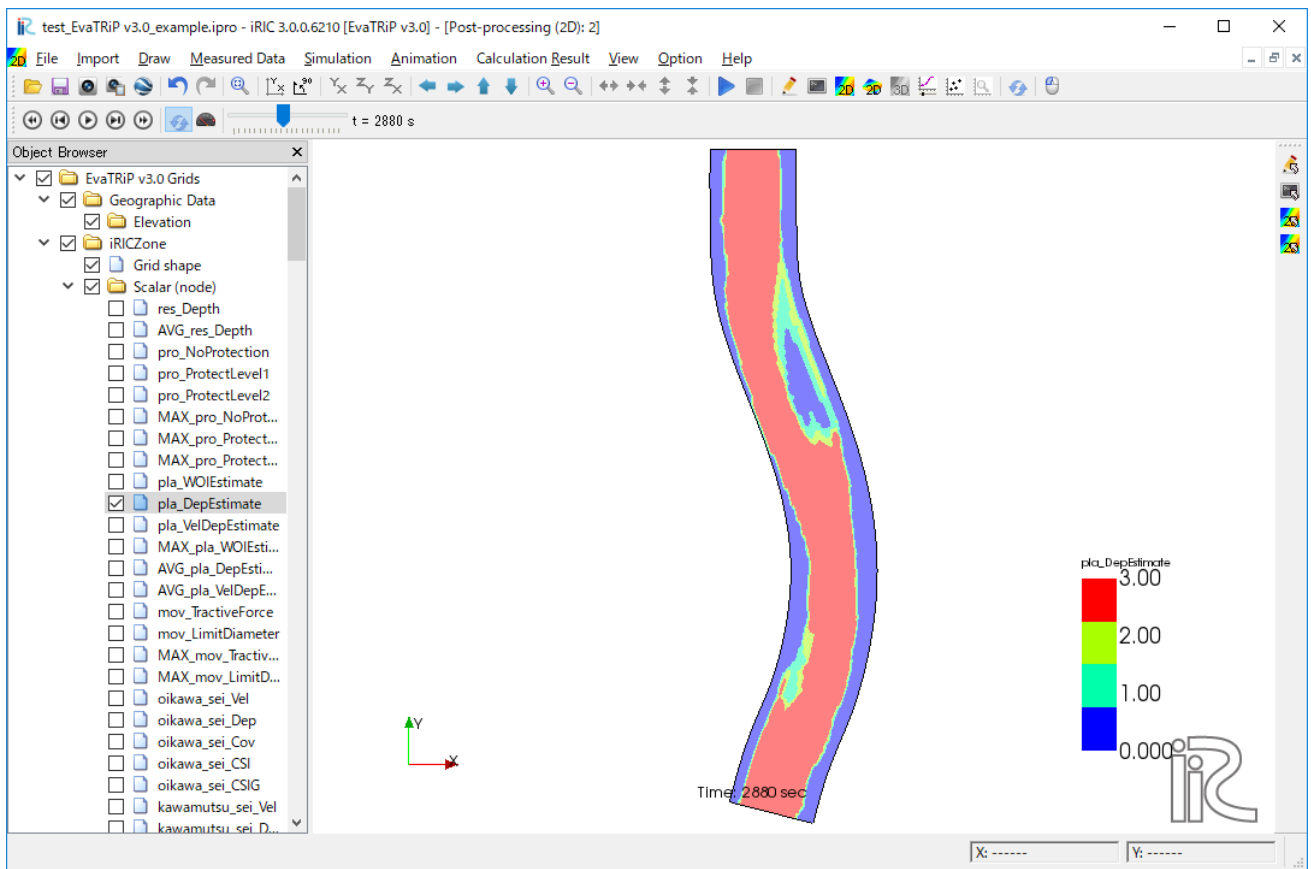
Note) The default setting of display setting is [color Fringe]. But, a color contour will be much clear by selecting [Contour Figure]. In this case, the visualization will have higher quality but the load for visualization will be larger.

You can set number of labels in color bar setting. Click on [color bar setting]



Number of labels : 4

Now, you can clearly observe the map.



(t=2880s)

VI. To user

- Please indicate that using the iRIC software, if you publish a paper with the results using the iRIC software.
- The datasets provided at the Web site are sample data. Therefore you can use it for a test computation.
- Let us know your suggestions, comments and concerns at <http://i-ric.org>.

iRIC Software

EvaTRiP Solver Examples

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