

How to use ParaView with DCPAM output file

Aug. 31, 2015

Introduction

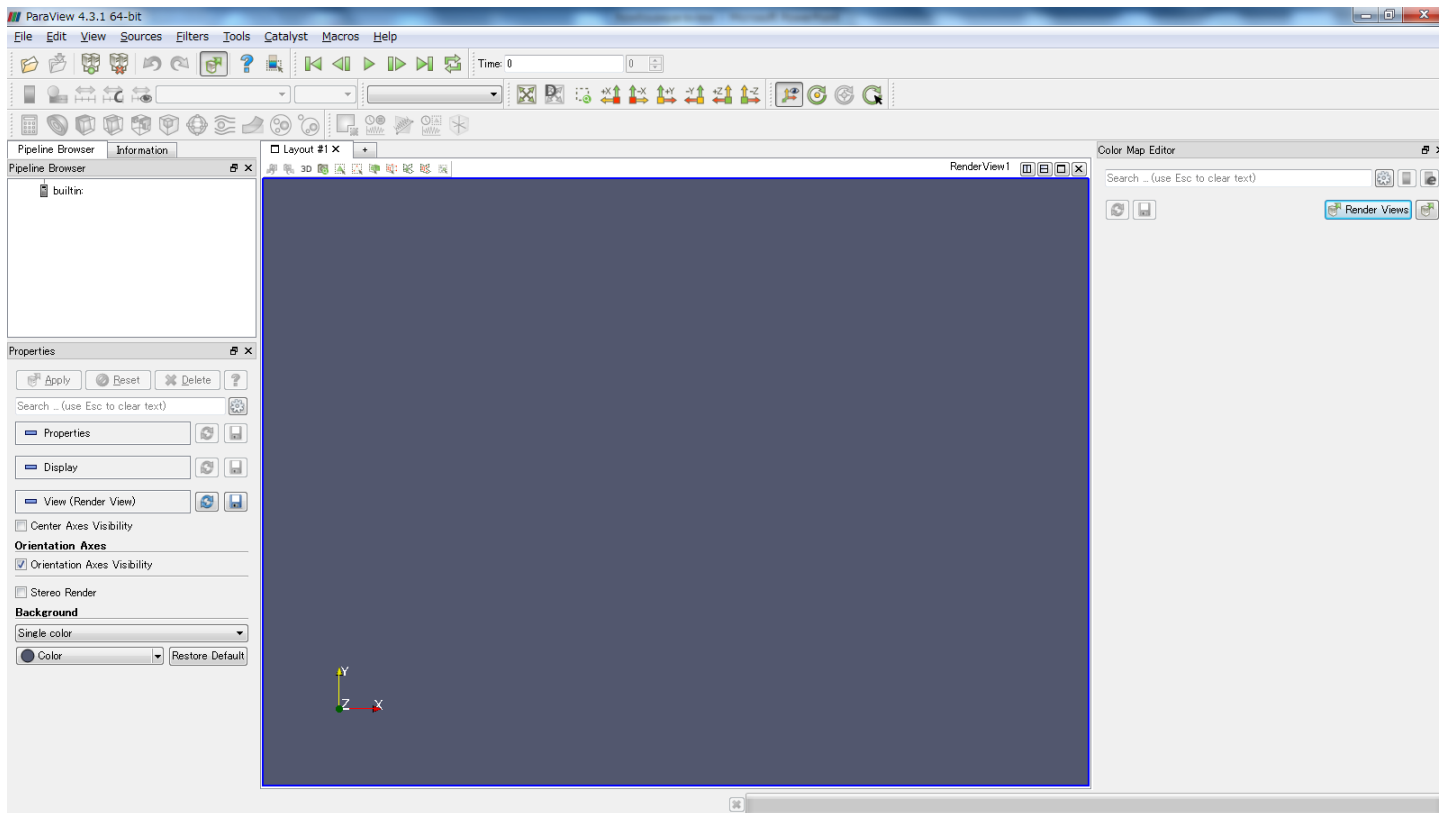
- This document briefly explains how to use the ParaView with the DCPAM output NetCDF files.
 - Data in NetCDF files can be visualized in spherical coordinate. However, this document describes how to visualize in the Cartesian coordinate.
- The ParaView is an open source application for 3D visualization.
 - See <http://www.paraview.org/> for more details.
- The DCPAM is a general circulation model for planetary atmospheres.
 - See <http://www.gfd-dennou.org/library/dcpam/> for more details.

Preparation

- Download the latest version of ParaView from <http://www.paraview.org/> and install it on Windows or Mac or
 - This document is based on ParaView 4.3.1 64-bit.
- Perform DCPAM simulations.
 - A simple one is a baroclinic wave experiment:
 - See http://www.gfd-dennou.org/library/dcpam/dcpam5/dcpam5_latest/doc/gokuraku/exp-p04.htm for more details.
 - “Three minutes cooking”
 - Or, sample data can be downloaded from http://www.gfd-dennou.org/library/dcpam/sample/2015-08-04_yot/P2004/T021L20/ncfiles/ .

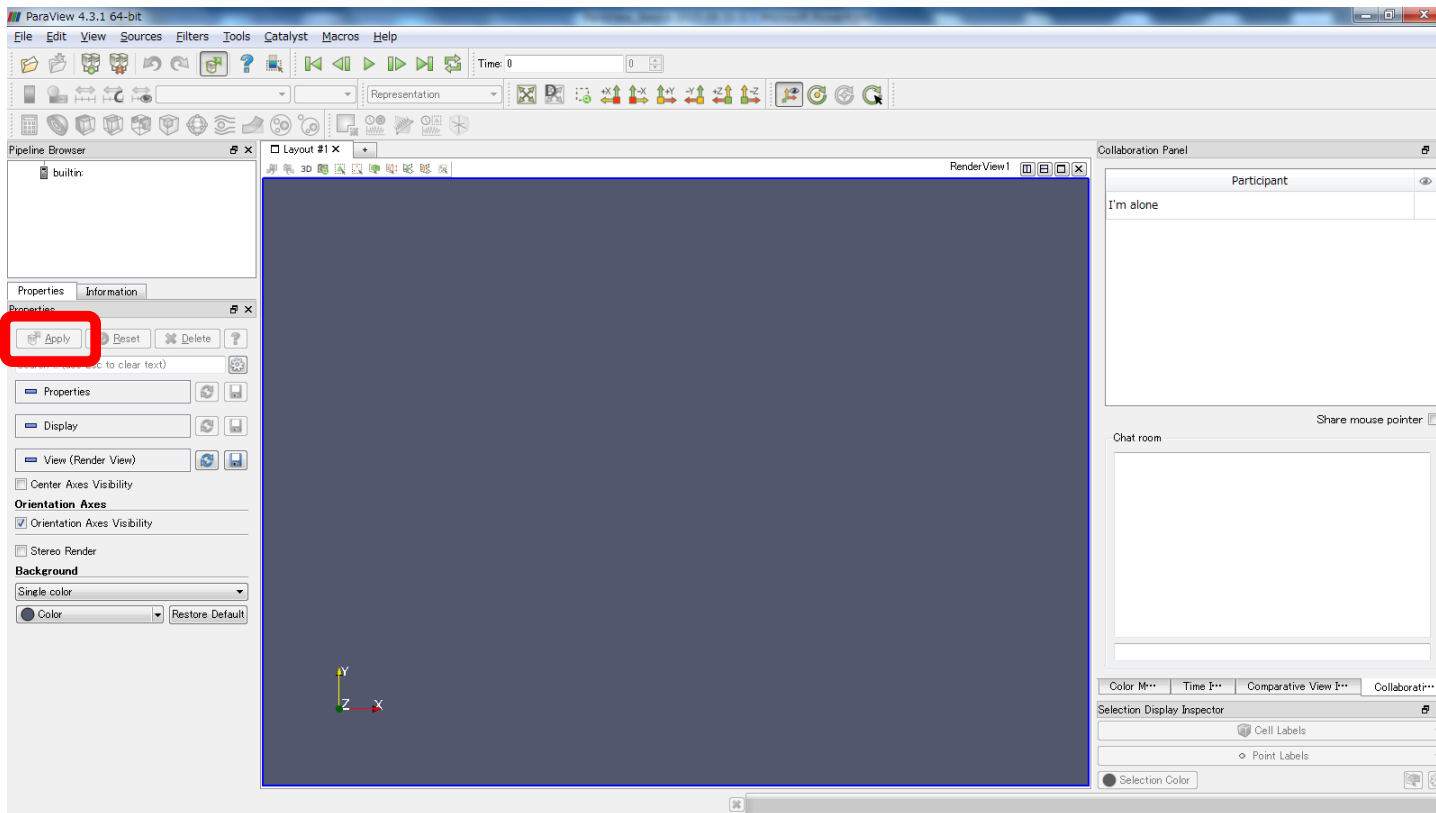
Startup

- Start up ParaView on Windows or Mac or ...



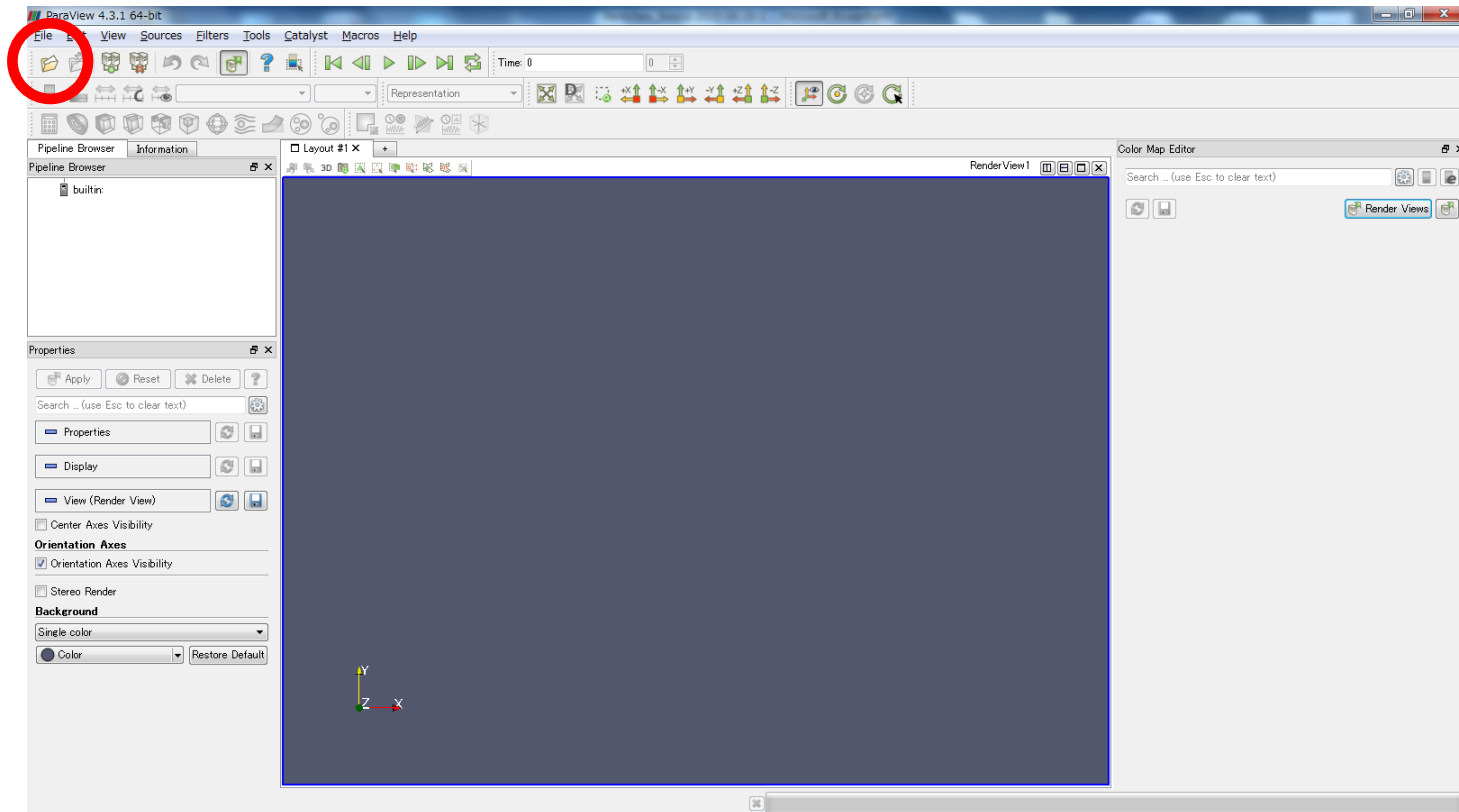
Notice

- Click [Apply] when changes are not reflected.



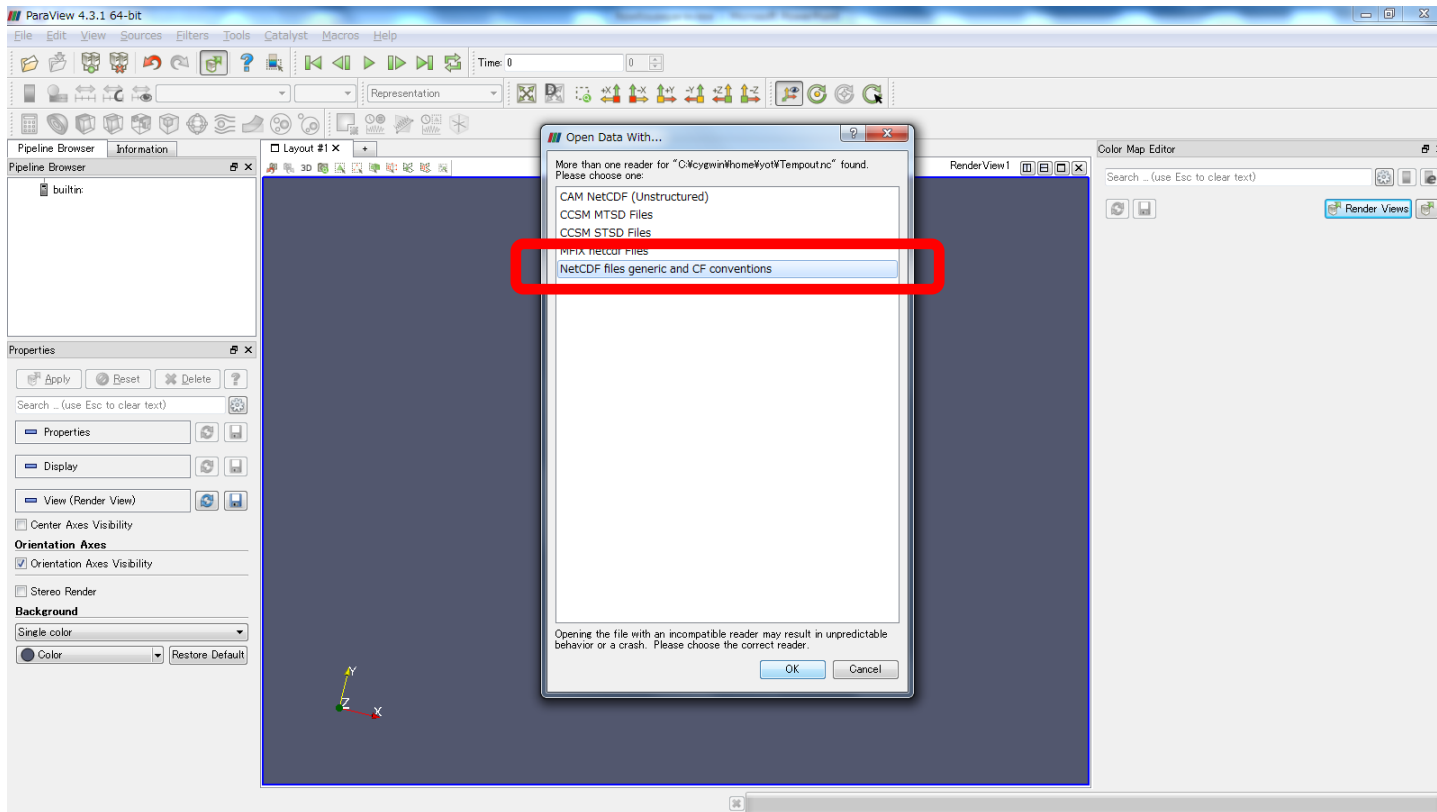
Open a file (1)

- Open a file. (Here, temperature data is used.)



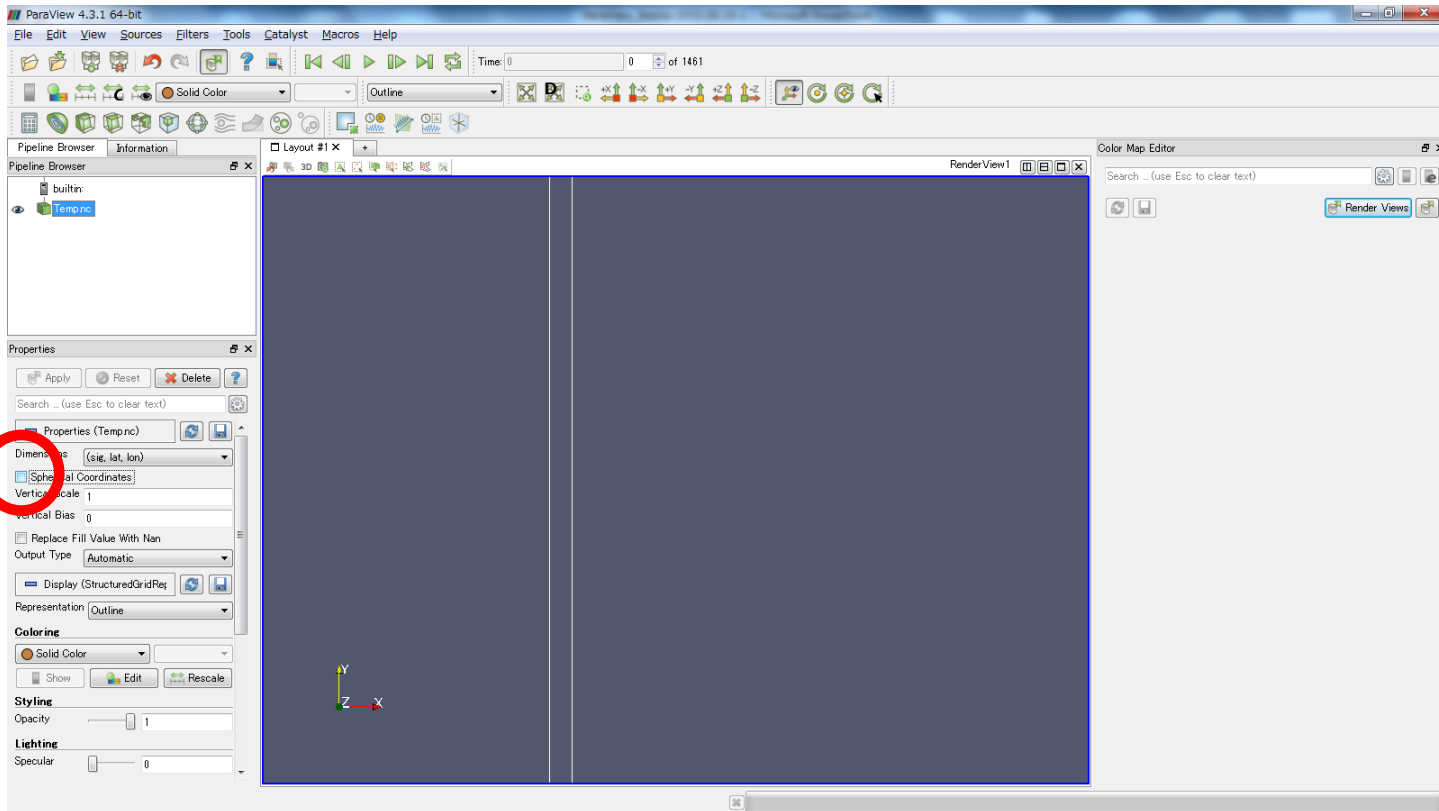
Open a file (2)

- Select “NetCDF files generic and ...”.



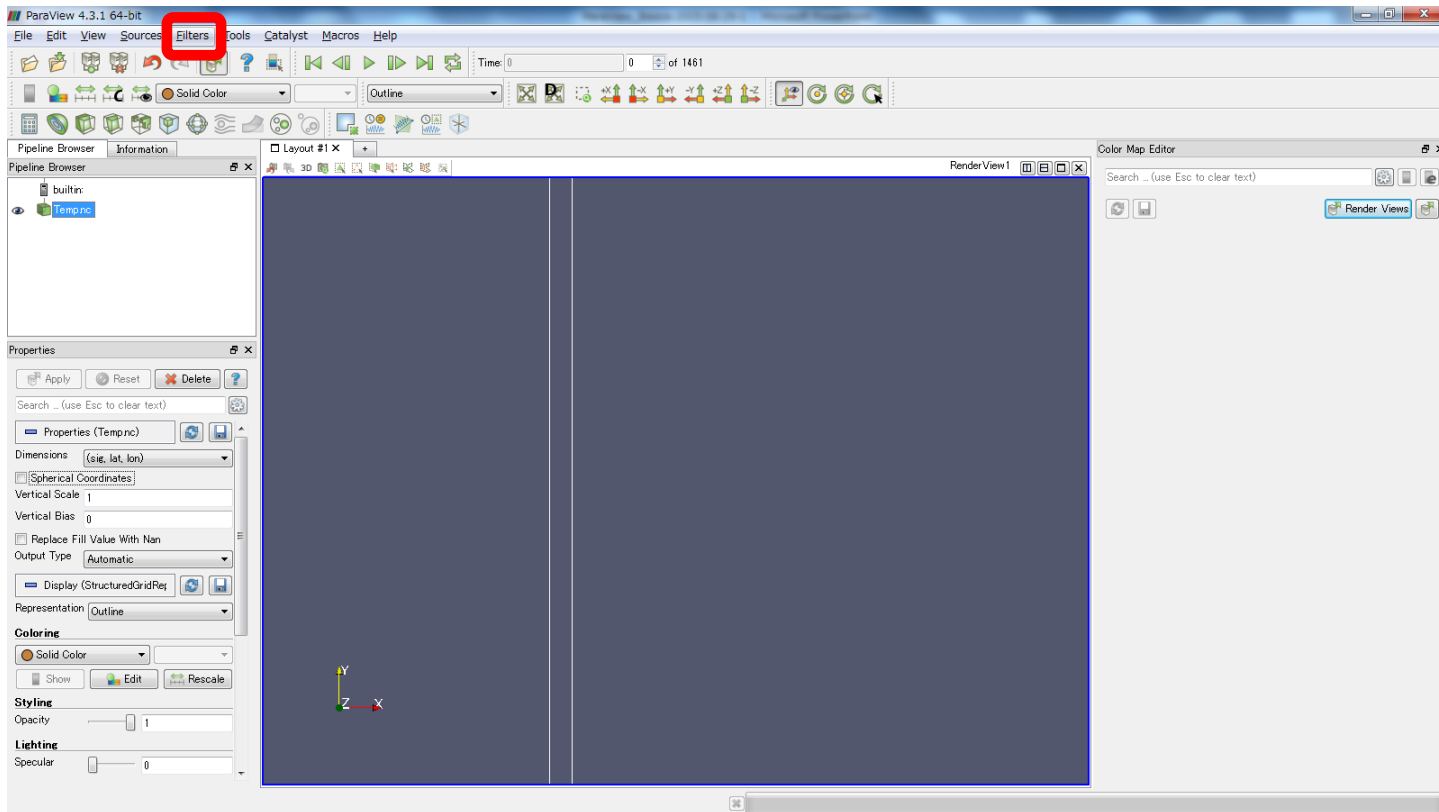
Change to Cartesian coordinate

- Uncheck “Spherical Coordinates”



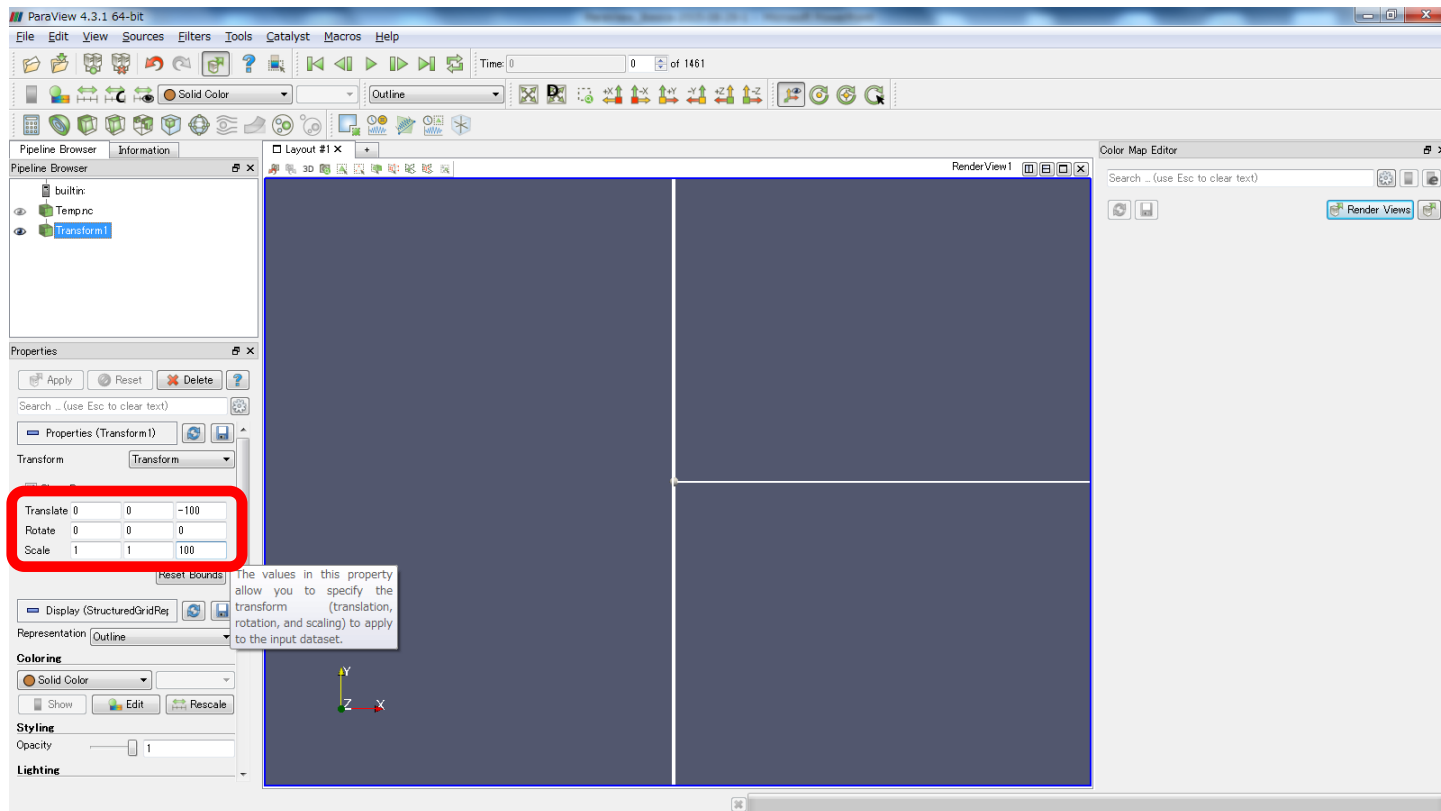
Scaling input values (1)

- [Filter] -> [Alphabetical] -> [Transform]



Scaling input values (2)

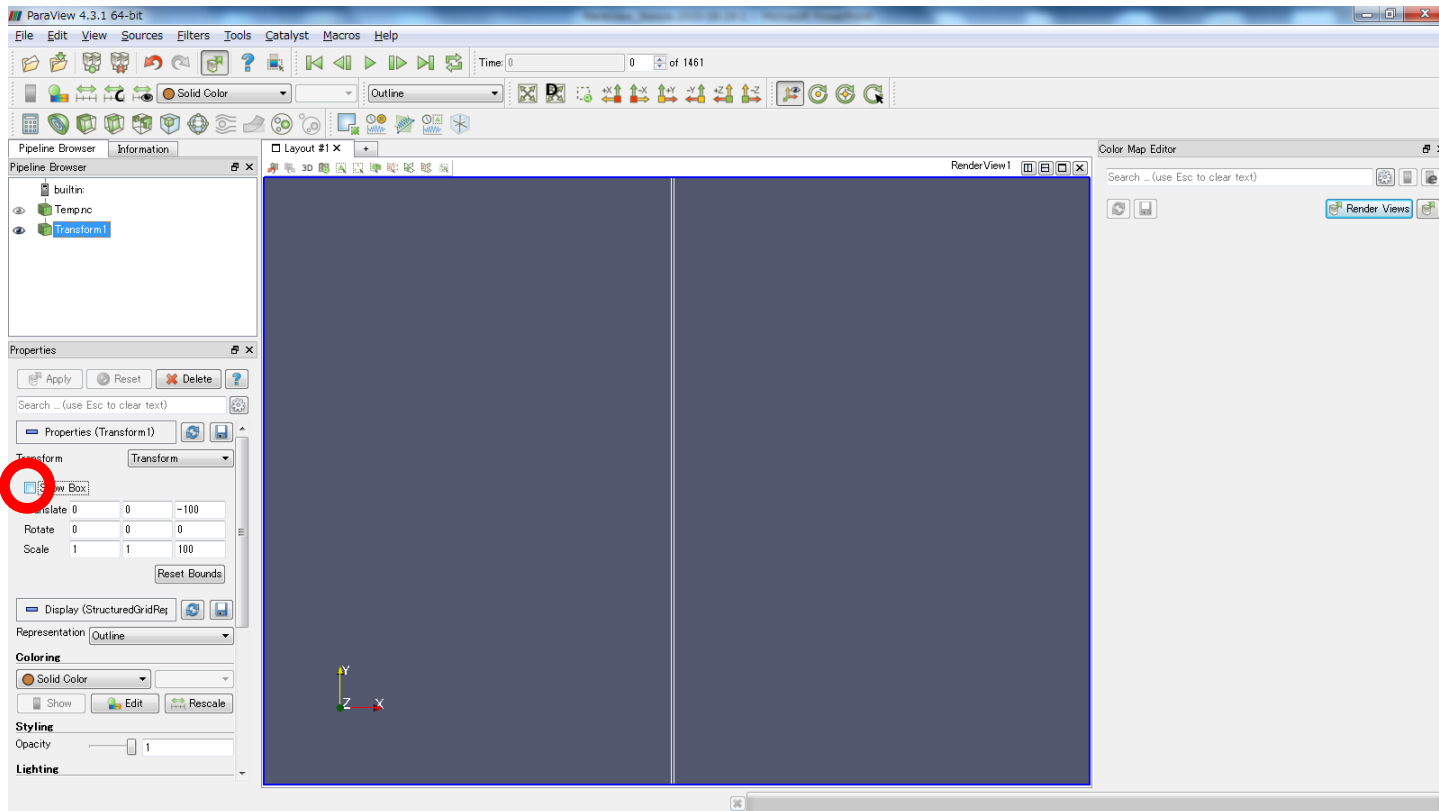
- Set values for scaling



Translate = (0, 0, -100), Rotate = (0, 0, 0), Scale = (1, 1, 100)
Vertical position is reversed and multiplied by 100.

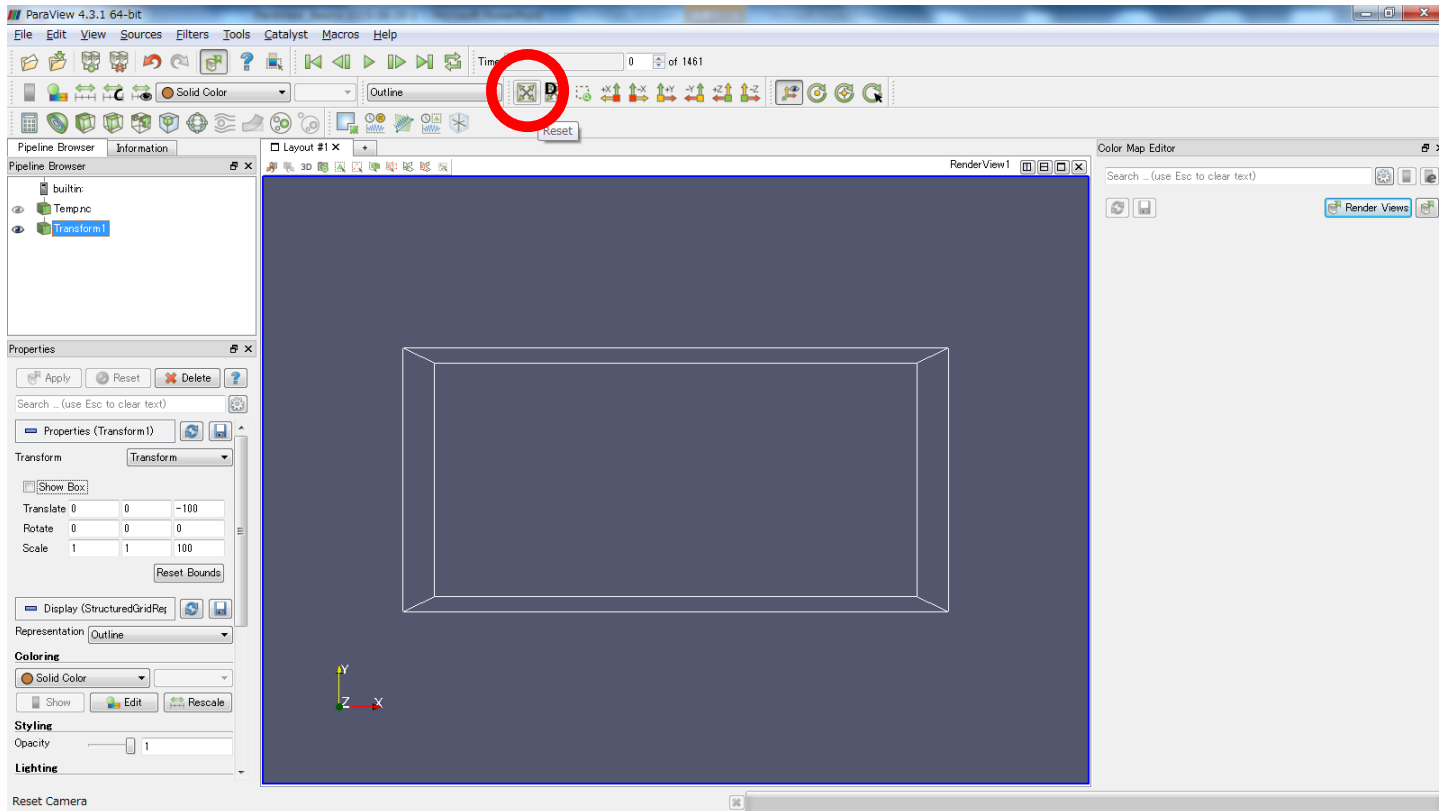
Scaling input values (3)

- Uncheck [Show Box]



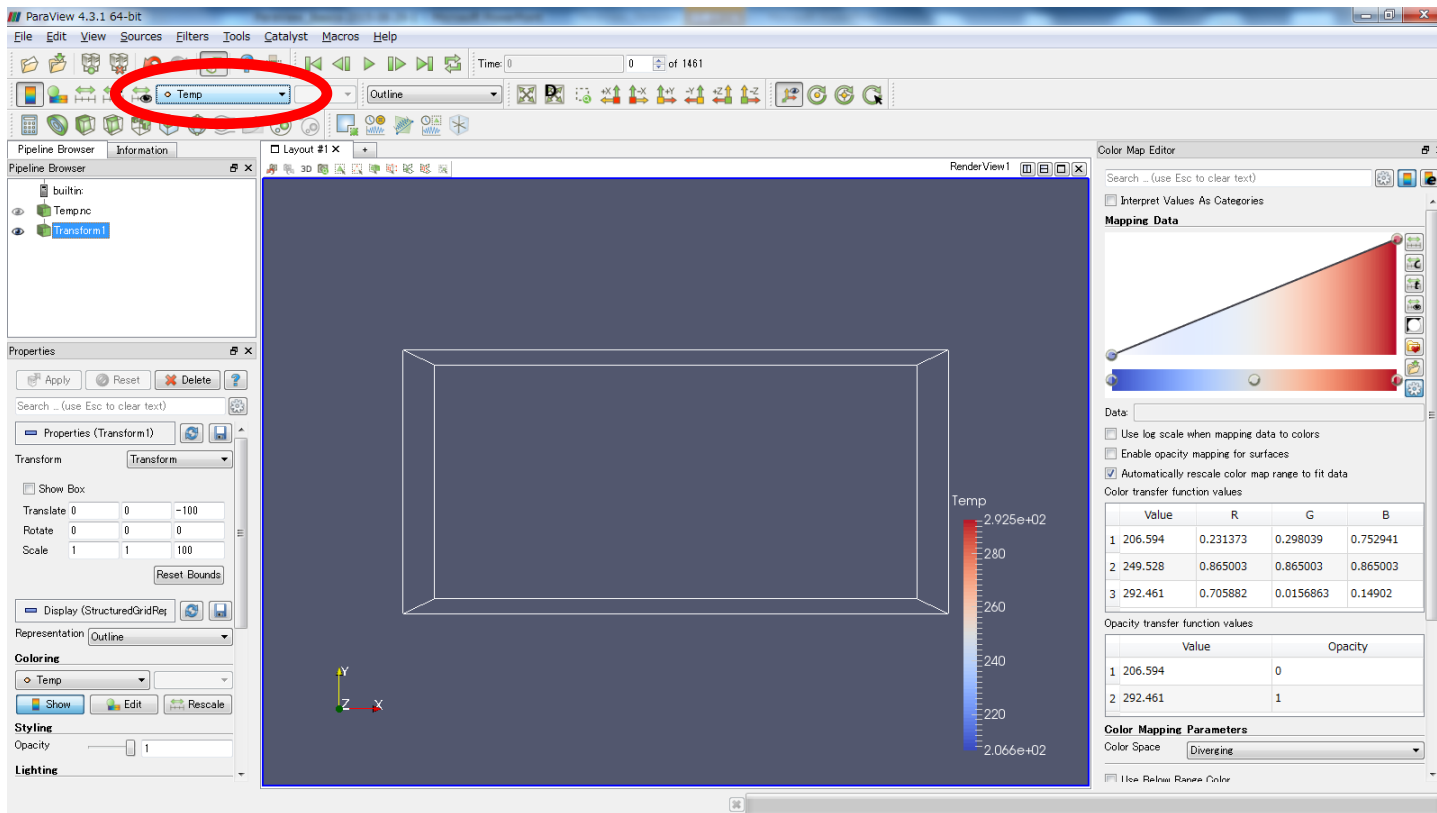
Scaling input values (4)

- Reset the box position



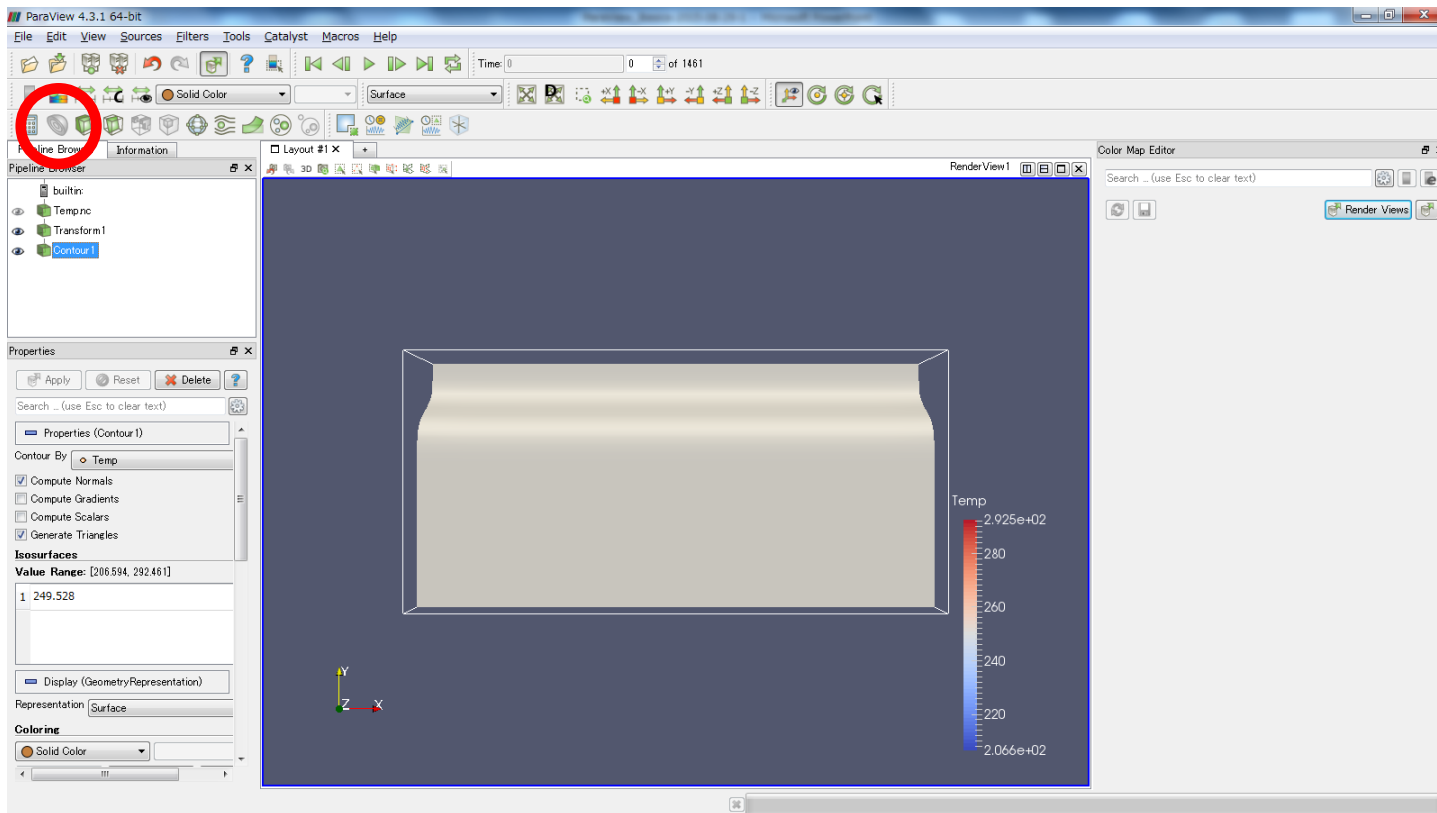
Isosurface (1)

- Select a variable name (“temp”).



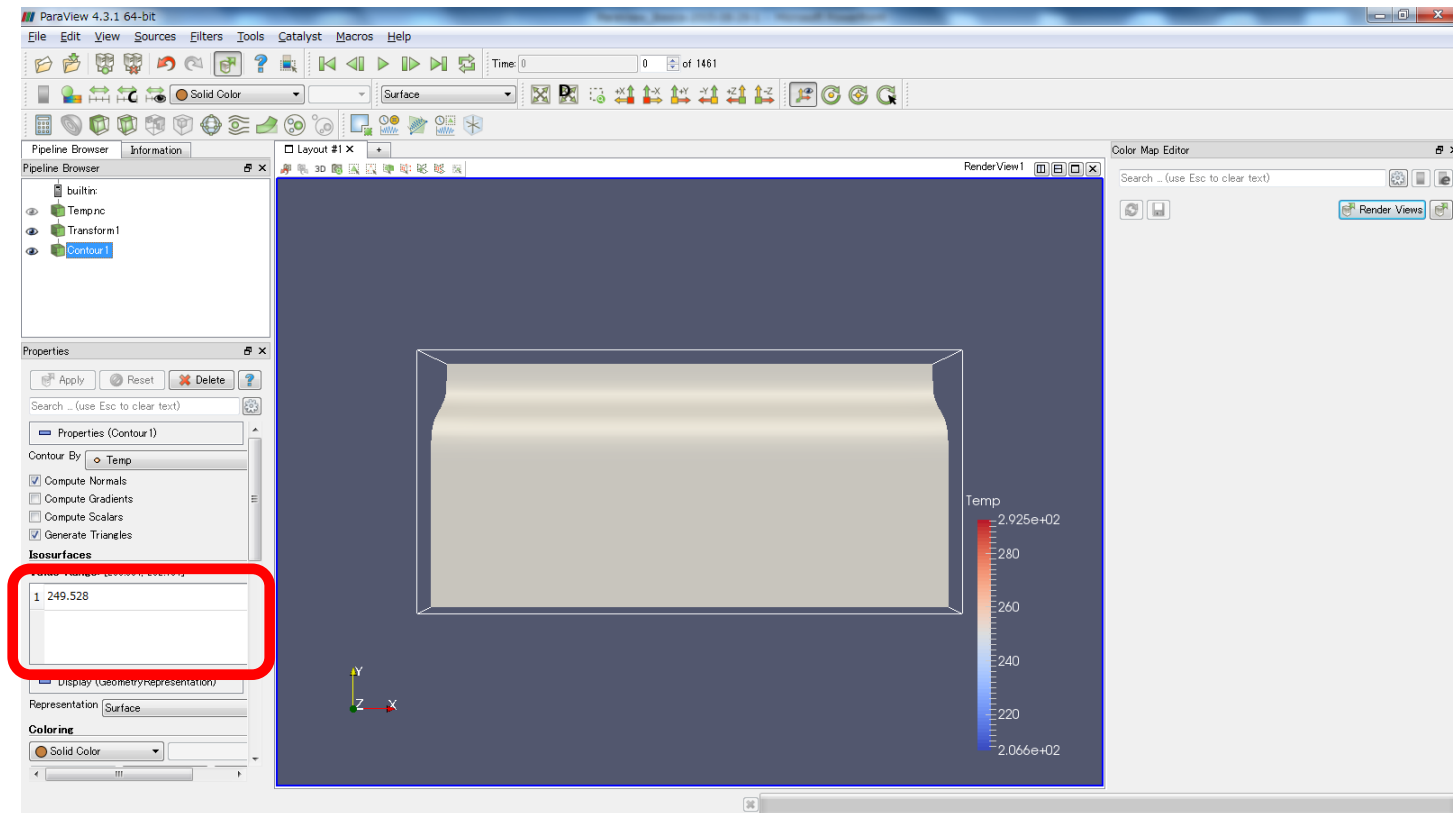
Isosurface (2)

- Click “Contour” to make an isosurface.



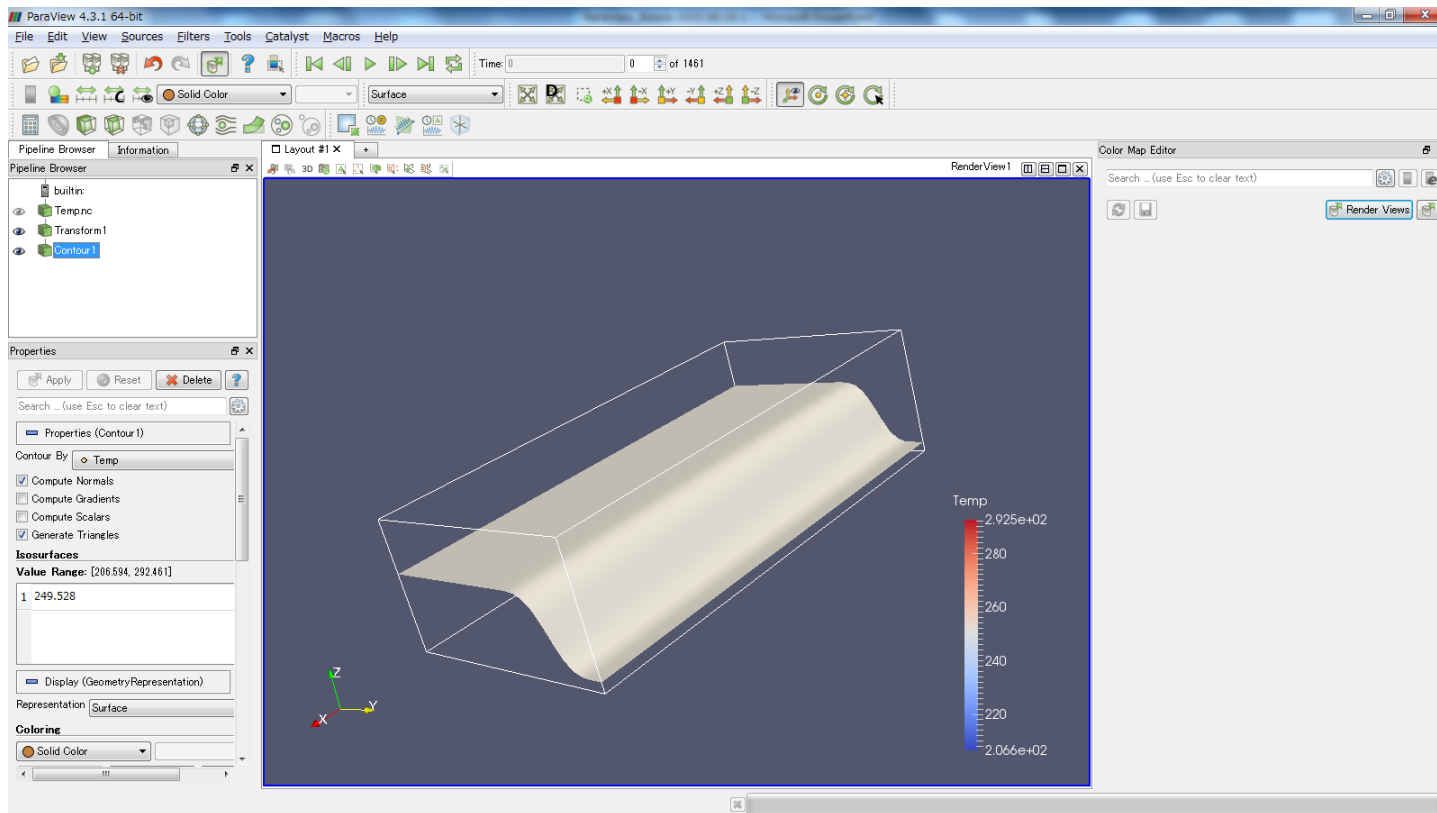
Isosurface (3)

- Surface can be specified and added.



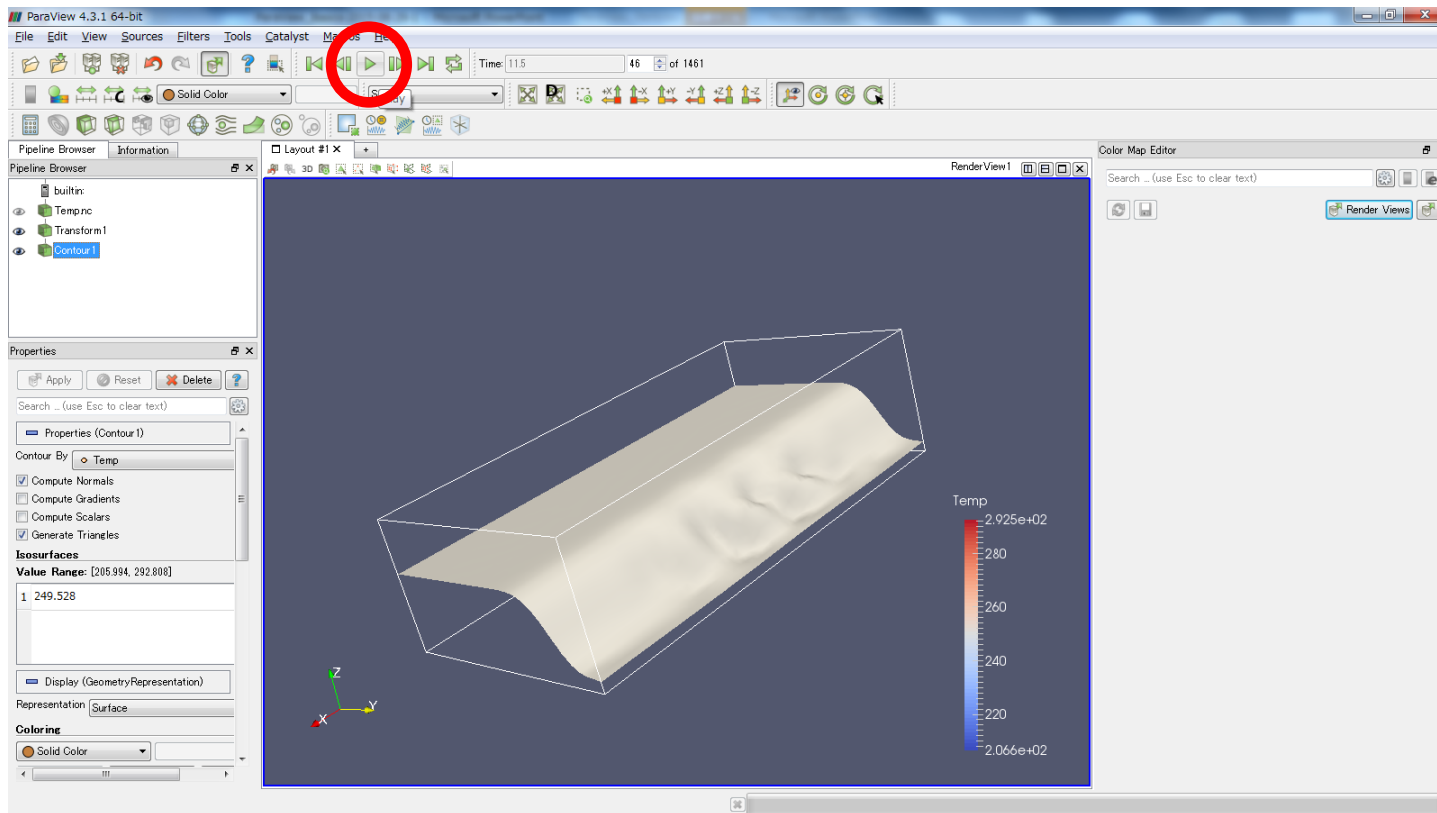
Change an angle

- Angle can be changed by mouse.



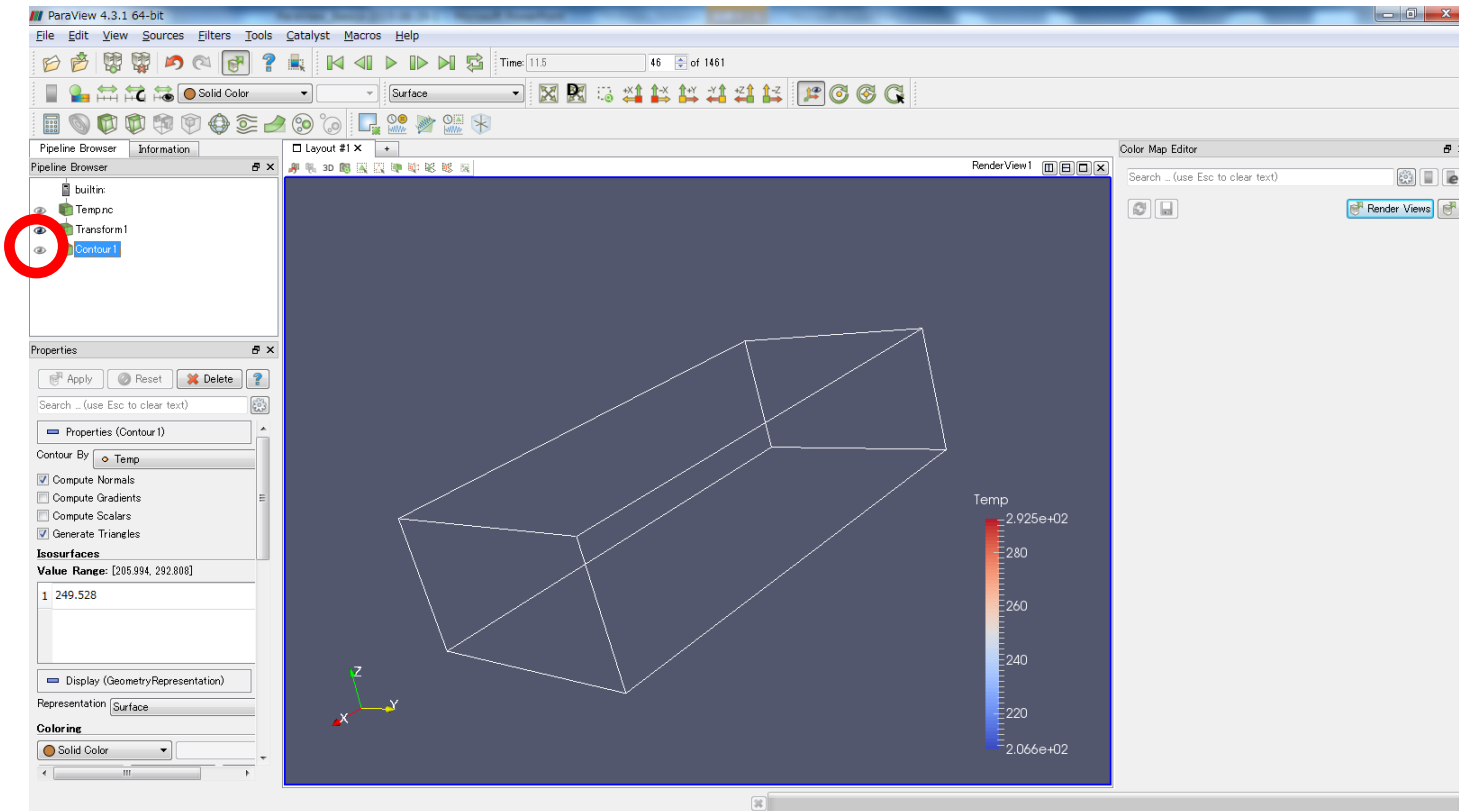
Animation

- Click  to look at animation.



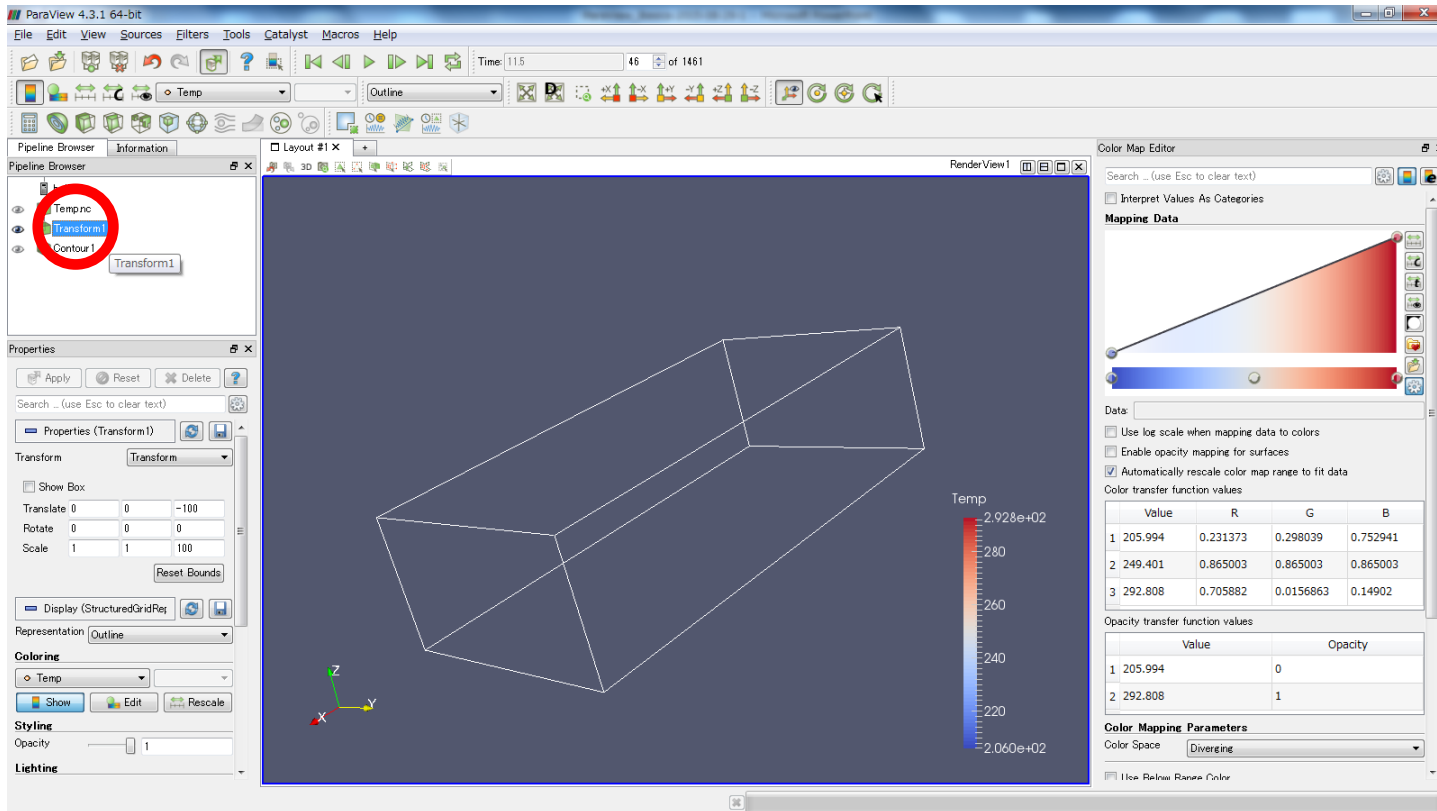
Erase isosurface

- Click “eye” button to disappear the isosurface.



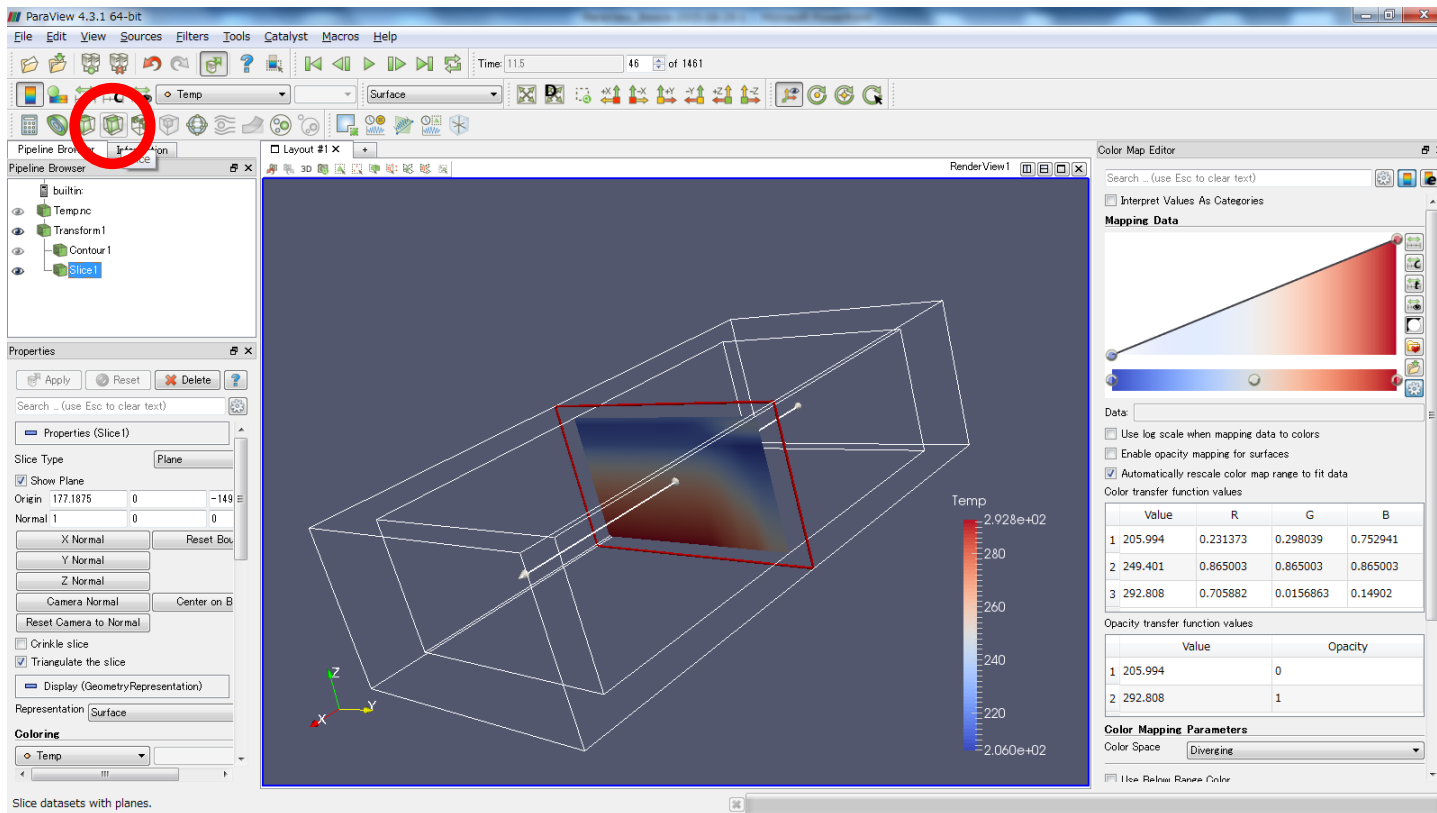
Slice (1)

- Click “Transform1”.



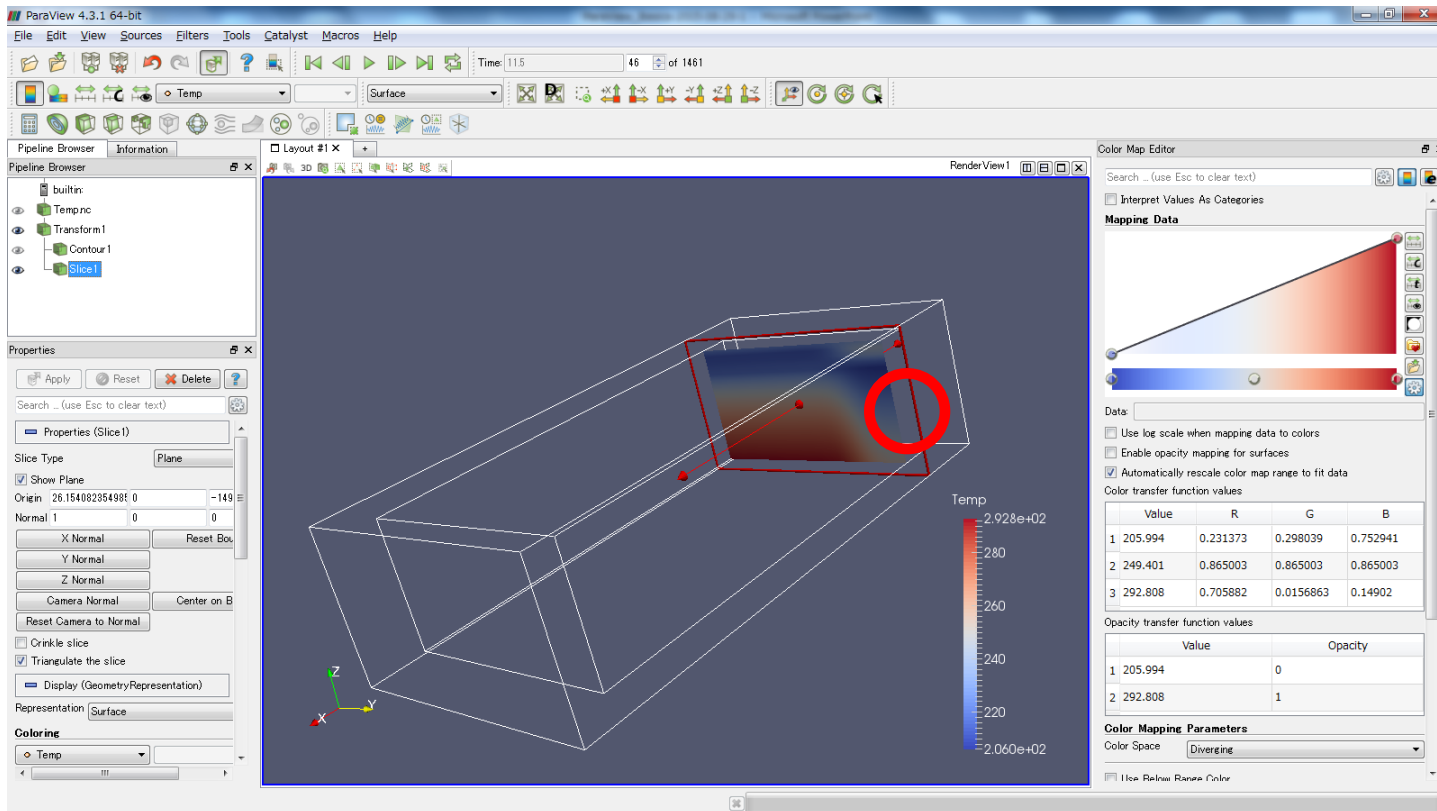
Slice (2)

- Click “Slice”.



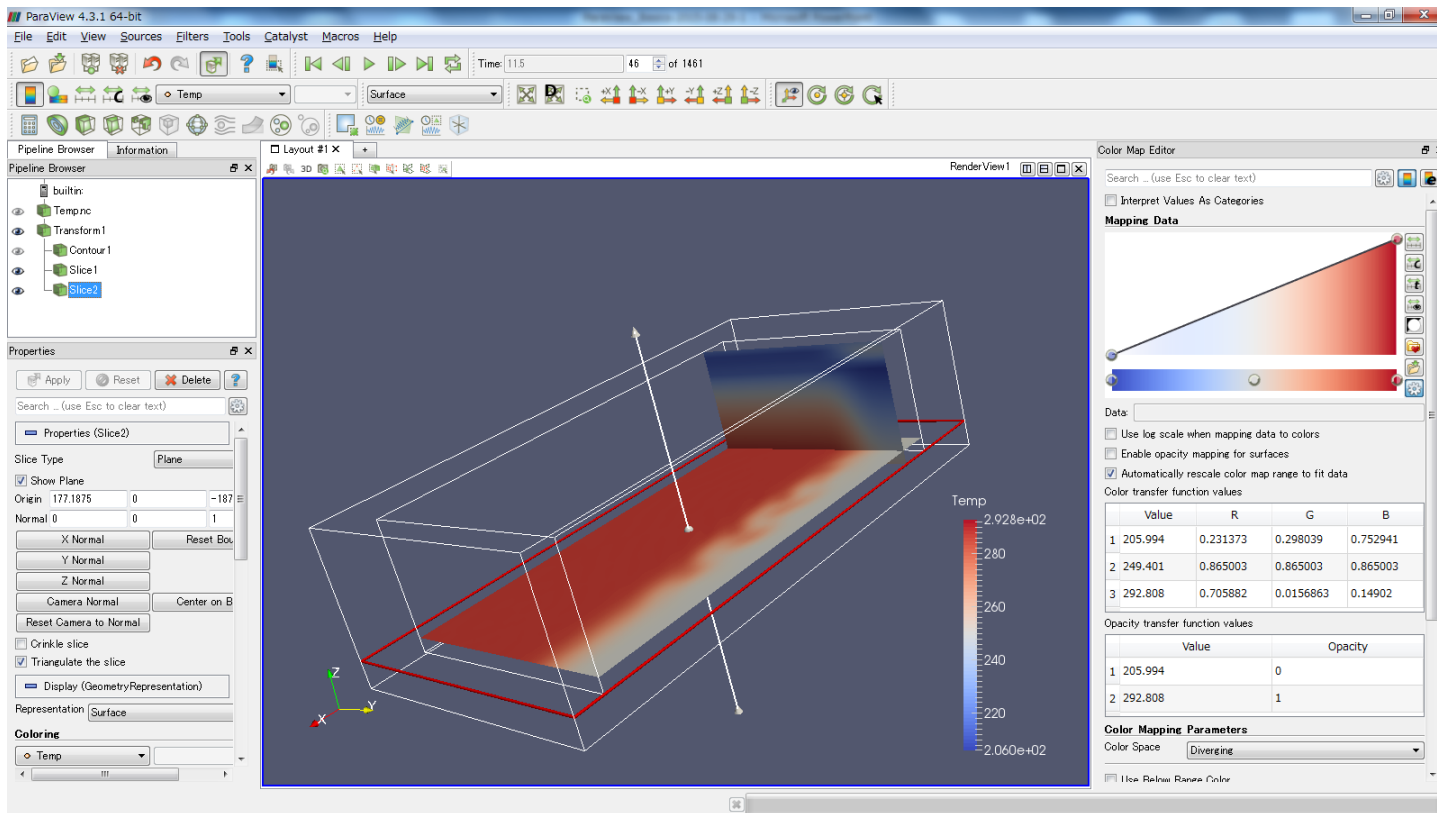
Slice (3)

- Move the slice by grabbing a frame.



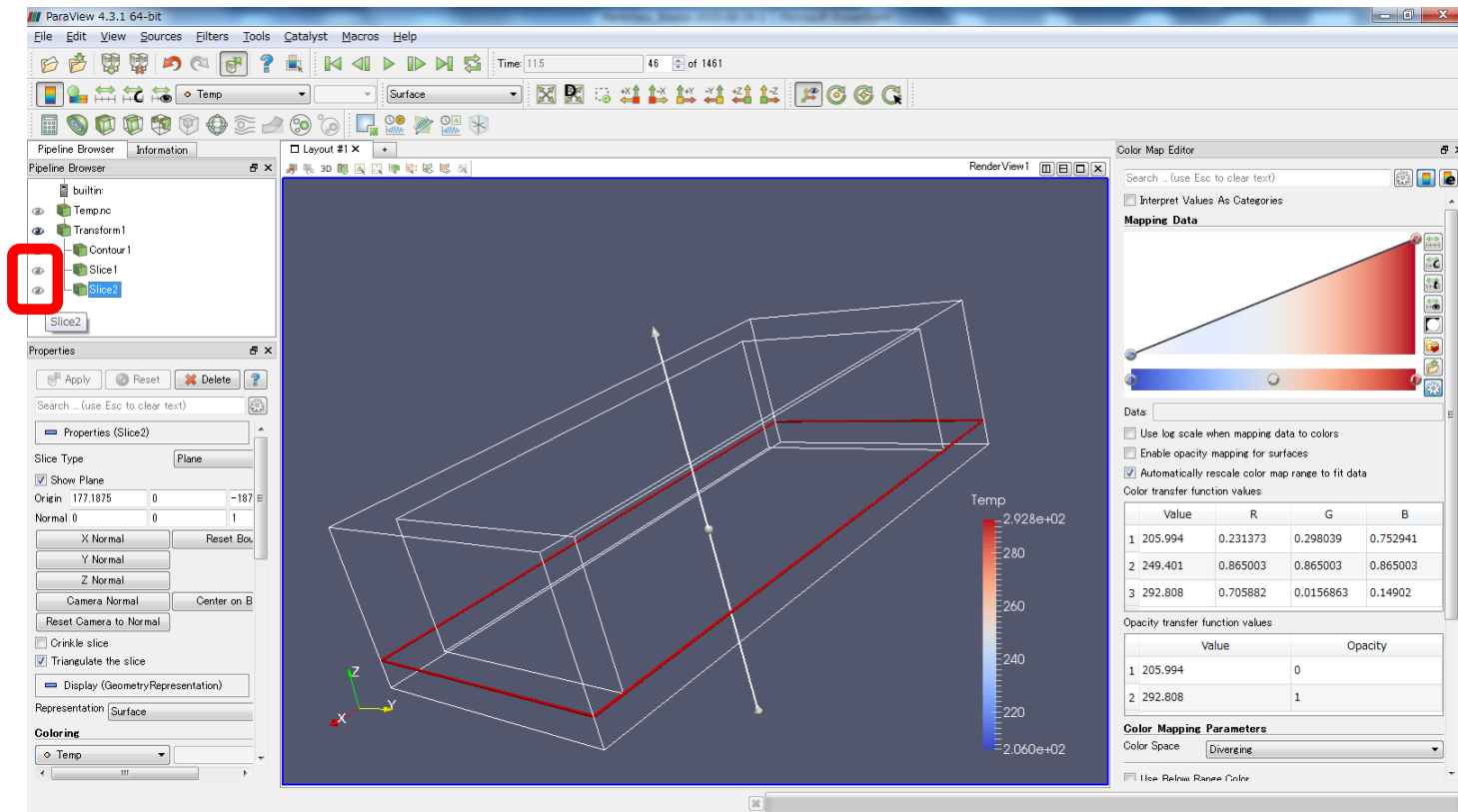
Slice (4)

- Other slices can be added.



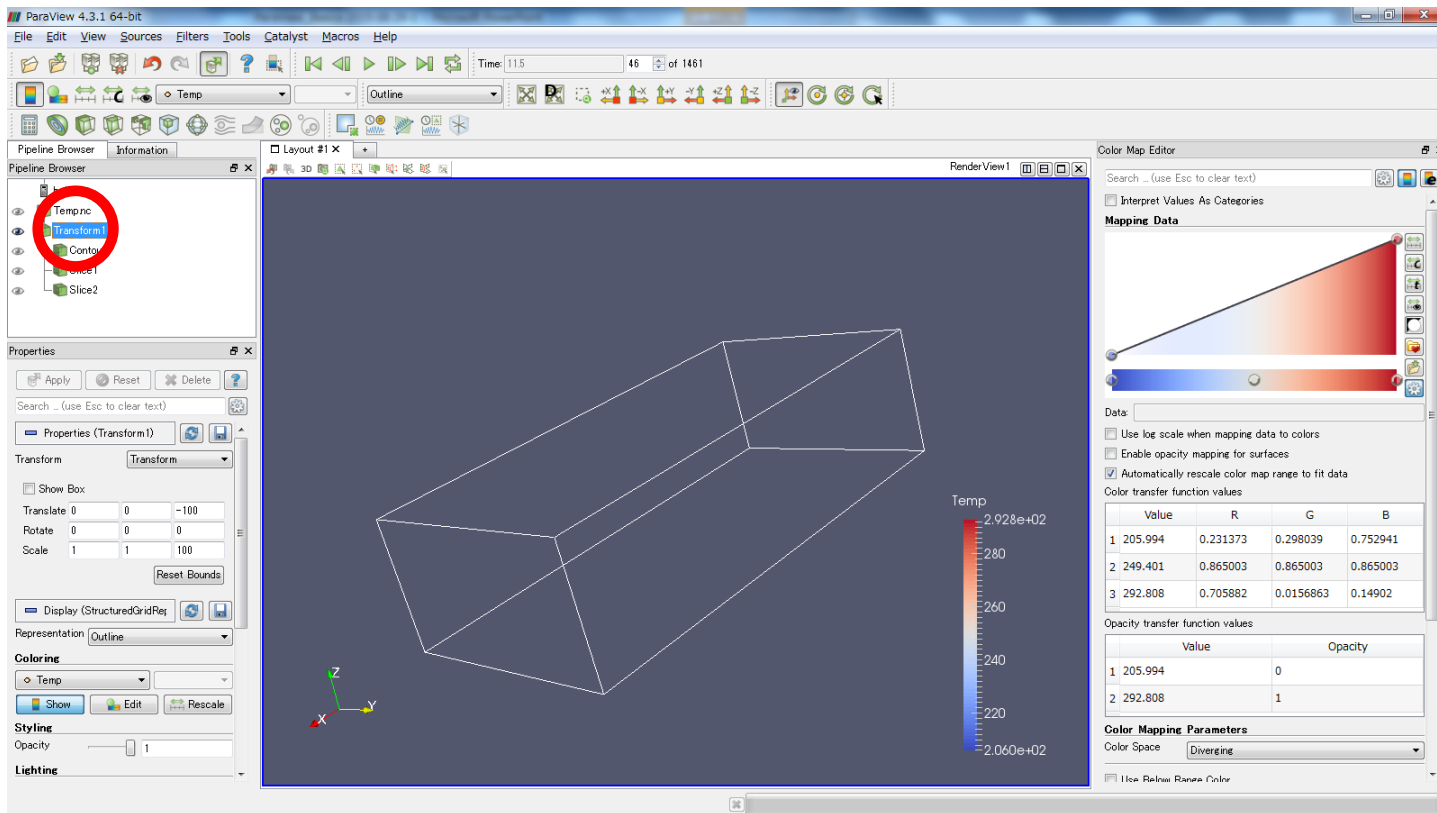
Erase Slices

- Click “eye” buttons to disappear the slices.



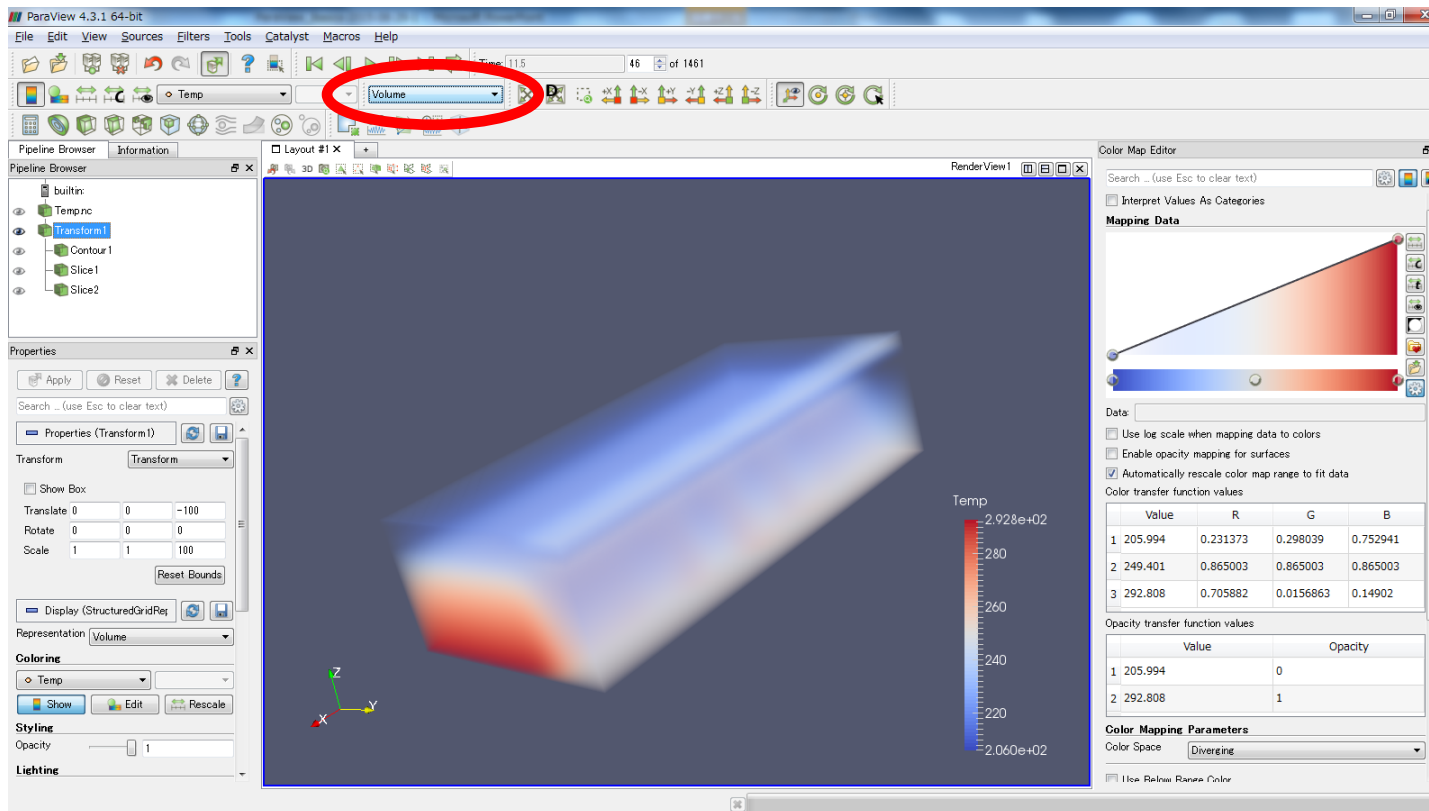
Volume (1)

- Click “Transform1”.



Volume (2)

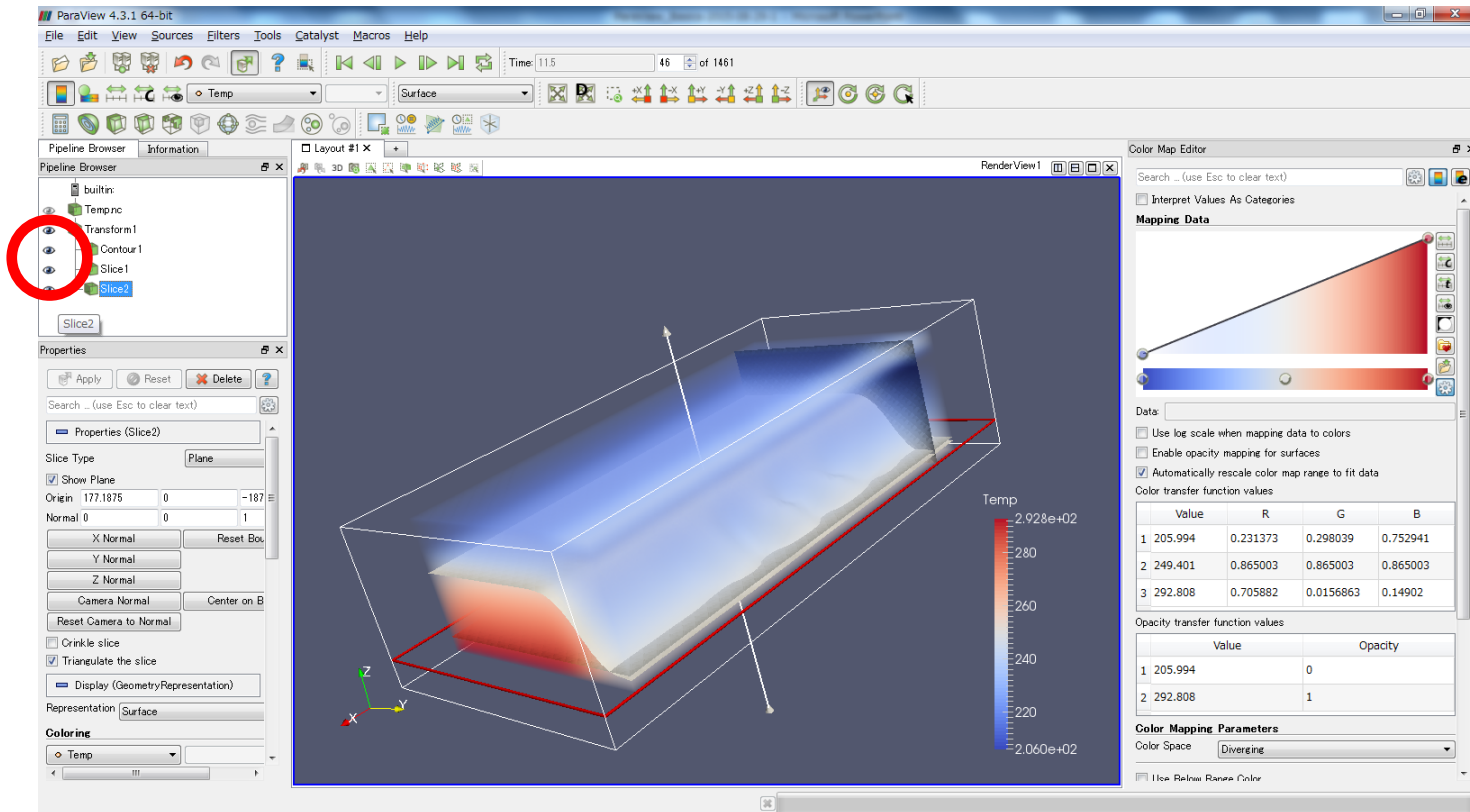
- Select “Volume”.



Some errors may occur. I do not understand its reason.

Isosurface & slice & volume

- Different representation can be combined.



Save an animation

- [File] -> [Save Animation]

