# 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.gfddennou.org/library/dcpam/dcpam5/dcpam5\_latest/doc/gokuraku/ex p-p04.htm for more details.
  - "Three minutes cooking"
    - Or, sample data can be downloaded from http://www.gfddennou.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.

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# 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

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# 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]

