Scientific Visualization Homework1 (Paraview)

Please take the screenshots of the visualizations from paraview to support/show your answers. You may use multiple visualization image to support/show your answers.

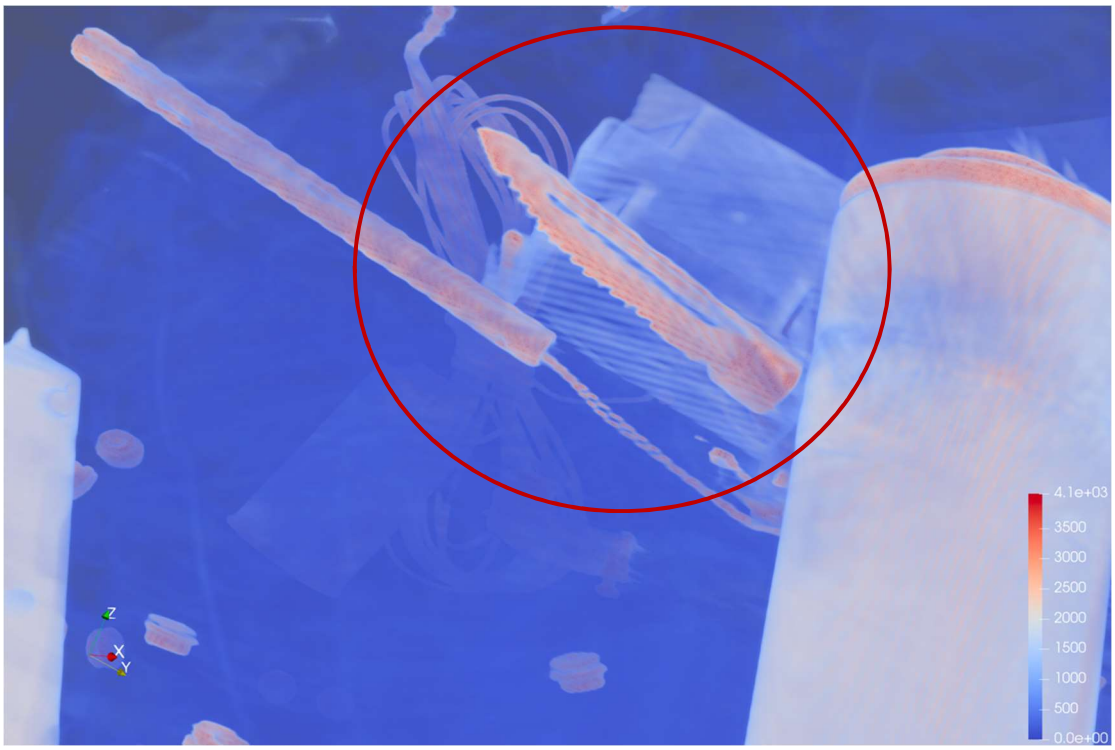
● Backpack Scan Dataset (40%)

Download the “Backpack Scan” dataset (it is a raw data file) from https://klacansky.com/open-scivis-datasets/ and use Paraview to load and visualize it.

Use isosurface or direct volume rendering to explore how many and what objects are in this dataset (Please list at least 10 objects).

You probably do not know what an object exactly are (I do not know either). Just try to select a proper visualization and tune the visual parameters to show the object as clear as possible and describe what it could be. The following is a sample answer of an object:

There is an object after a bottle and in front of a small box. By the shape in the following visualization (volume rendering), I guess it could be a knife.



- # Deep Water Impact Simulation Dataset

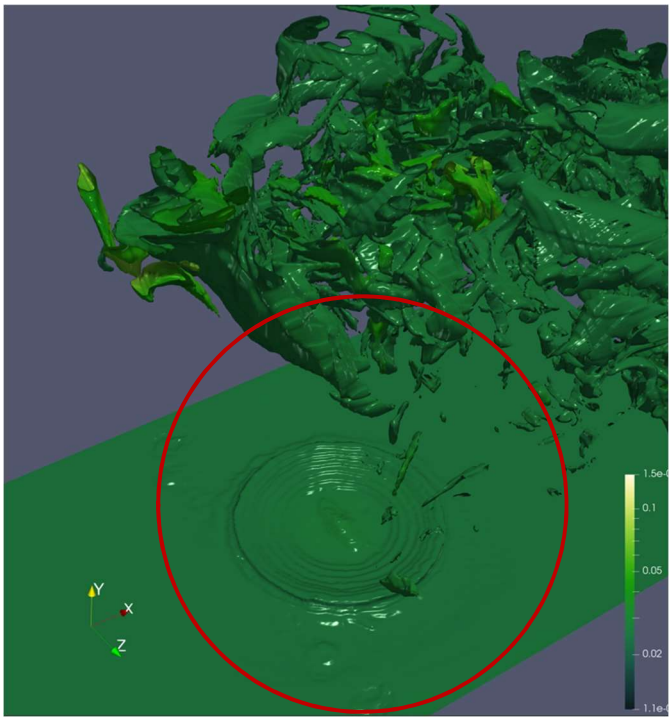
Check this website: https://sciviscontest2018.org/
Please read the document of this dataset first: https://sciviscontest2018.org/wp-content/uploads/sites/19/2017/09/DeepWaterImpactEnsembleDataSet_Revision1.pdf (if you do not want to read the whole document, at least read Sec 1. Introduction and Sec 2.3 Scalar Field)

Download "pv_insitu_300x300x300_49831.vti" from this webpage https://oceans11.lanl.gov/deepwaterimpact/yA31_300x300x300-AllScalars_resolution.html . This file is one time step (one moment) of the deep water impact simulation. At this time step, the asteroid already hit the ocean.

You will use this dataset to answer the following questions.

You are free to choose any attributes/variables or visualization techniques to answer the following questions.

(1) (30%) Visualize size of the tsunami wave at this moment. The following figure is an example. I use isosurface rendering to show the tsunami wave. You do not have to use the same technique(isosurface) and generate the same image to answer this question.



(one more question in the next page)

(2) (30%) Does the temperature of the region inside the tsunami wave ring is higher than that of neighboring ocean region? Please generate visualization image(s) to answer this scientific question. (hint: you may need tev variable to answer this question)