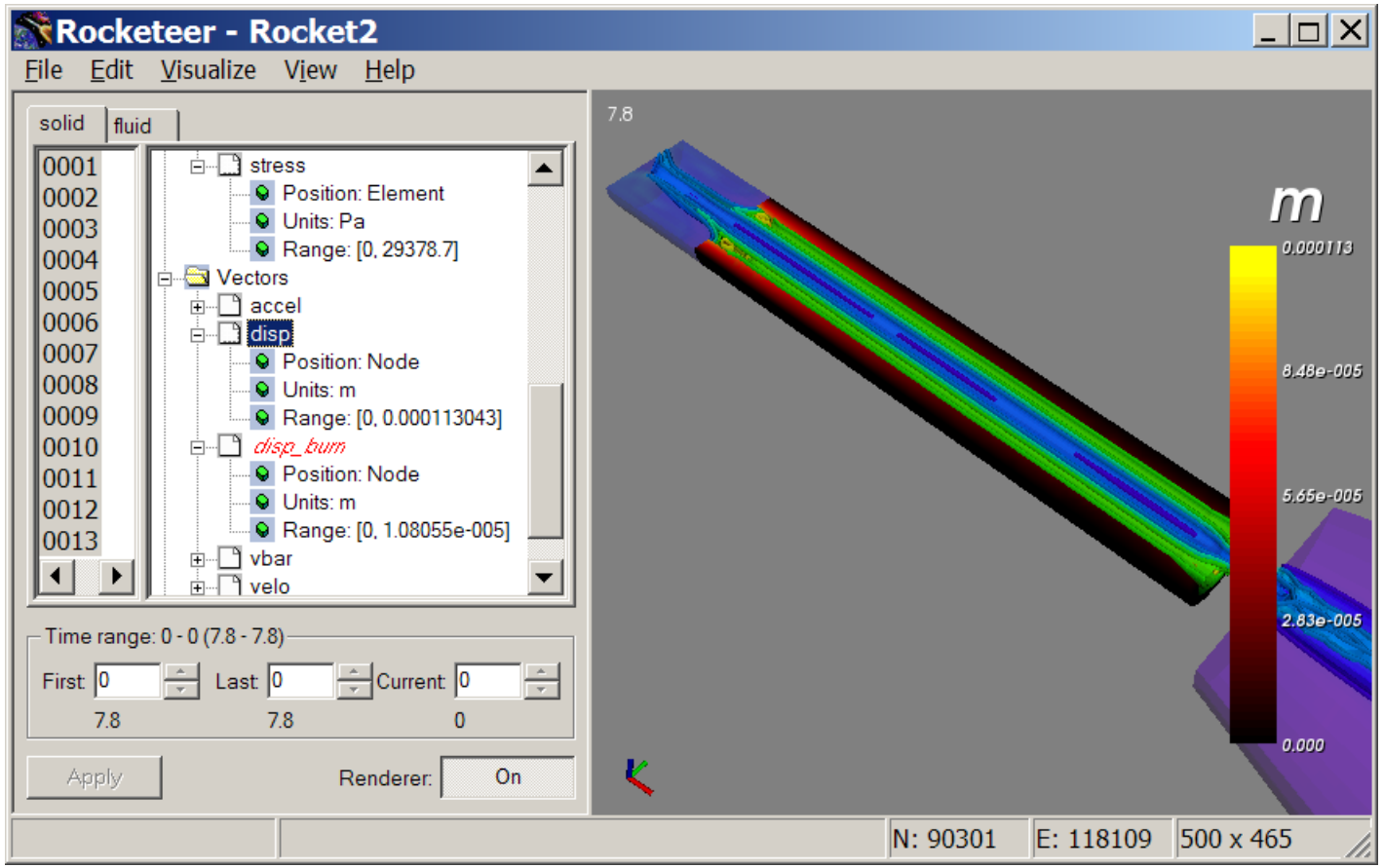
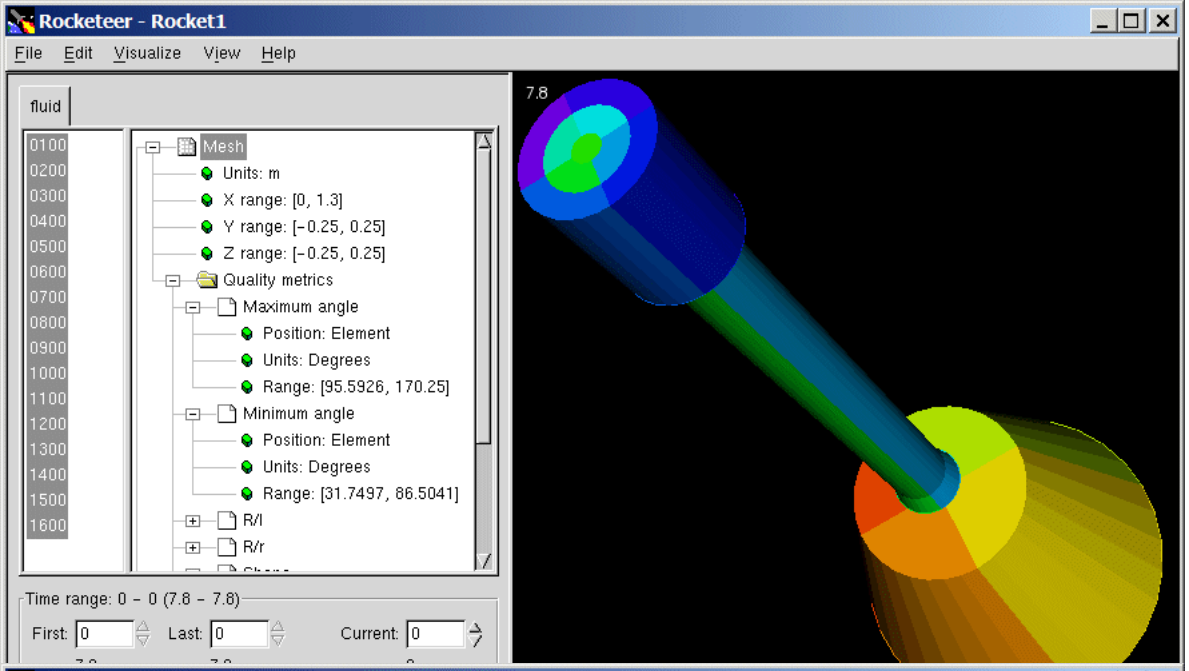
Section 14
Using Rocketeer

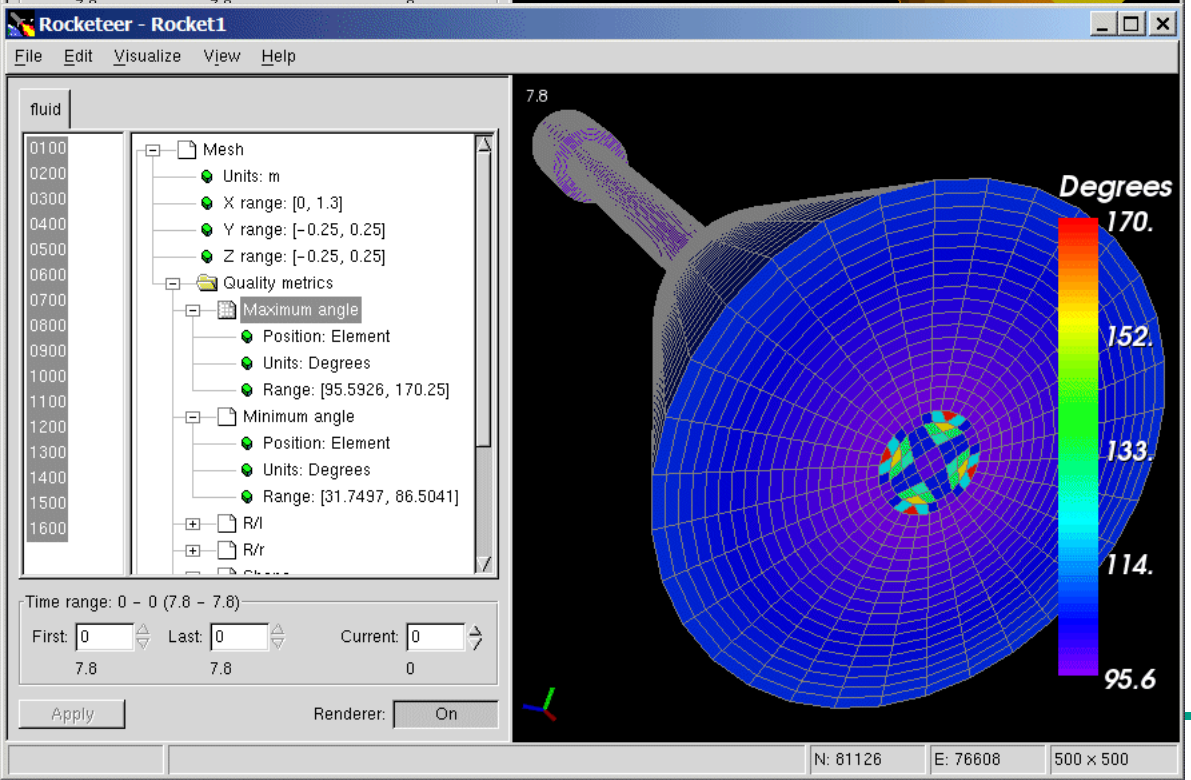
Visualization with *Rocketeer*

- Prerequsites on Linux
  - libstdc++.so.5 (compat rpm's)
  - libGLU.so.1 (rpm)



Rocketeer

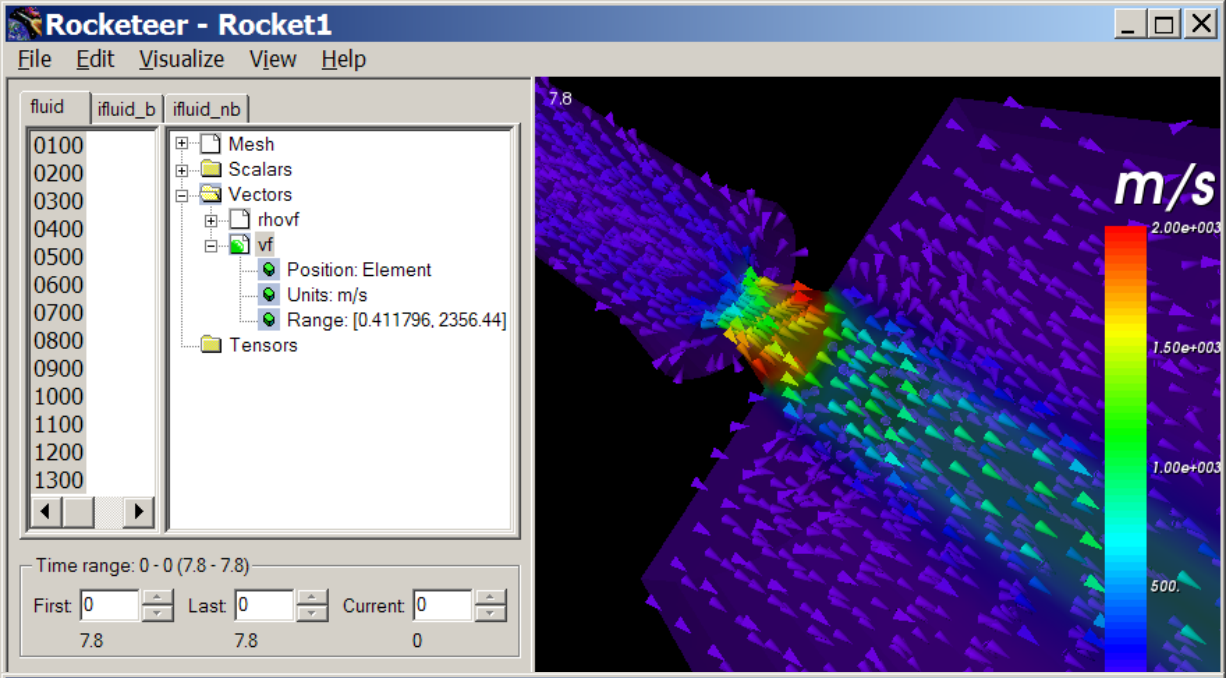


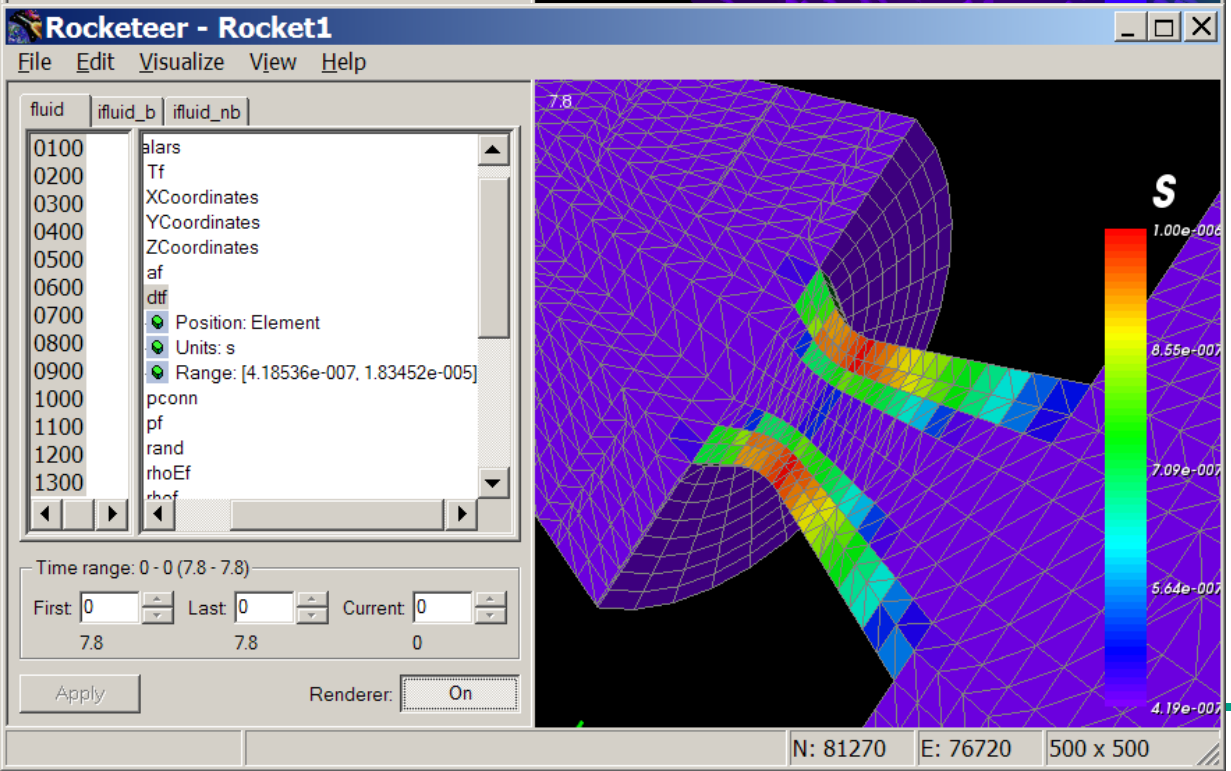


- All data sets
  - Times, Blocks
  - Coordinates/ranges
  - Nodes/elements
  - Variables/ranges
    - Scalars
    - Vectors
    - Tensors
- Mesh
  - Blocks by color
- Quality metrics
  - Min/Max angle
  - Size, Skewness, etc.
- Surface plots

Illinois Rocstar

Rocketeer



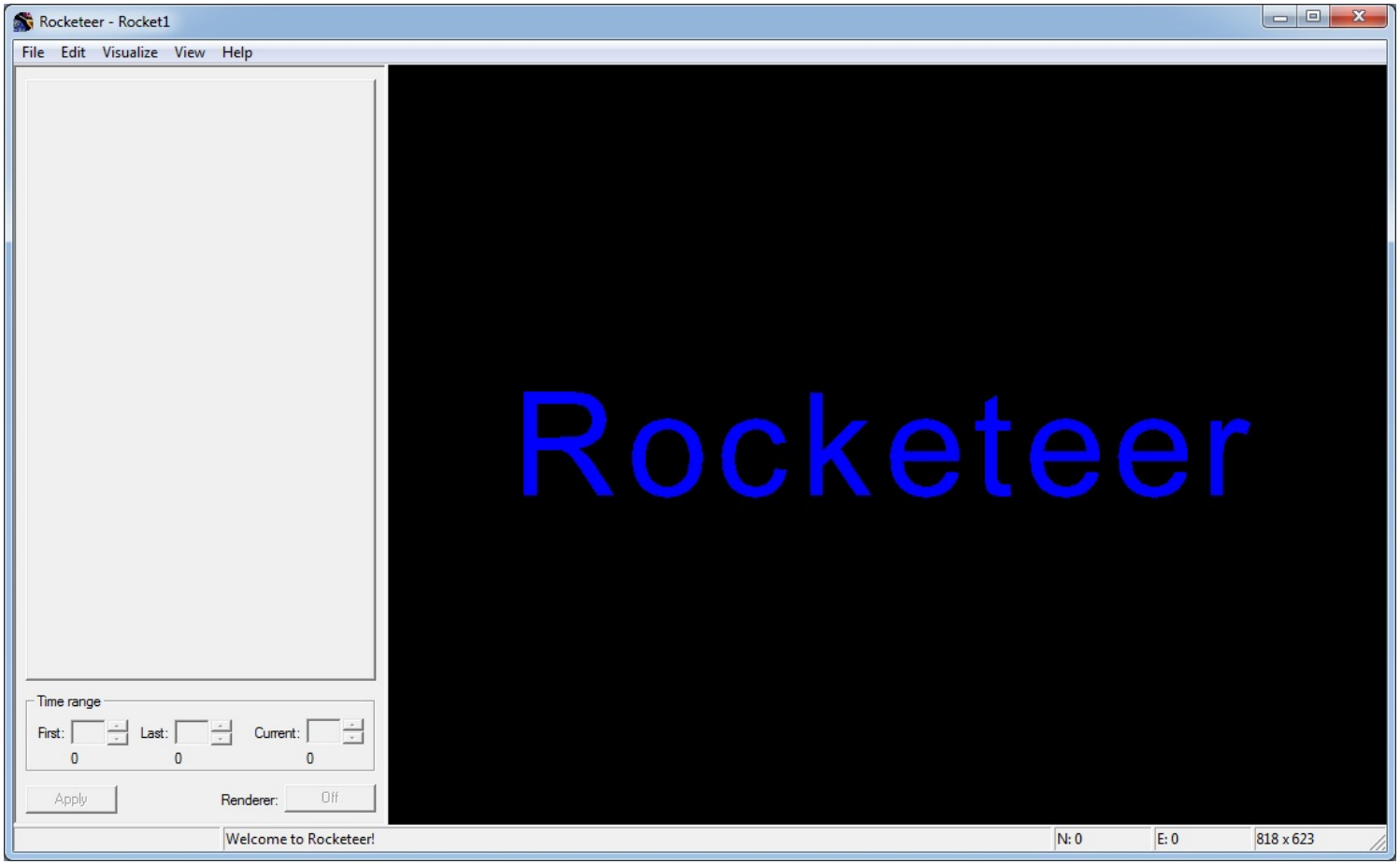


- Glyphs
  - Particles
  - Vector fields
- Isosurfaces
- 3-D mesh plots
- Opacity controls
  - Constant
  - Value-dependent
- Thresholds
- Animation
  - Output series
  - Moving camera
- Stand-alone, client/server, and batch versions

Illinois Rocstar

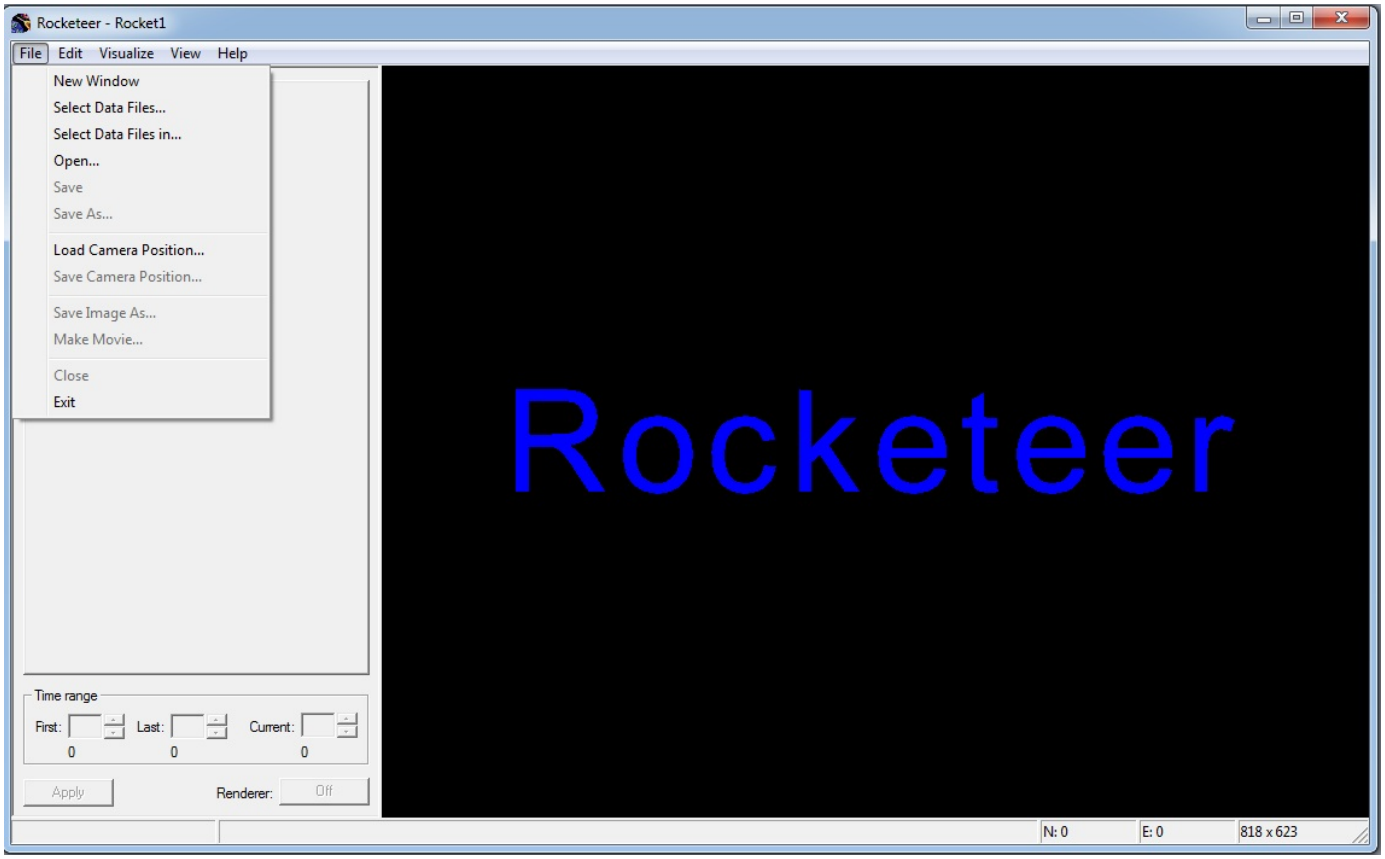
Using Rocketeer

Open Rocketeer on Windows by double-clicking icon

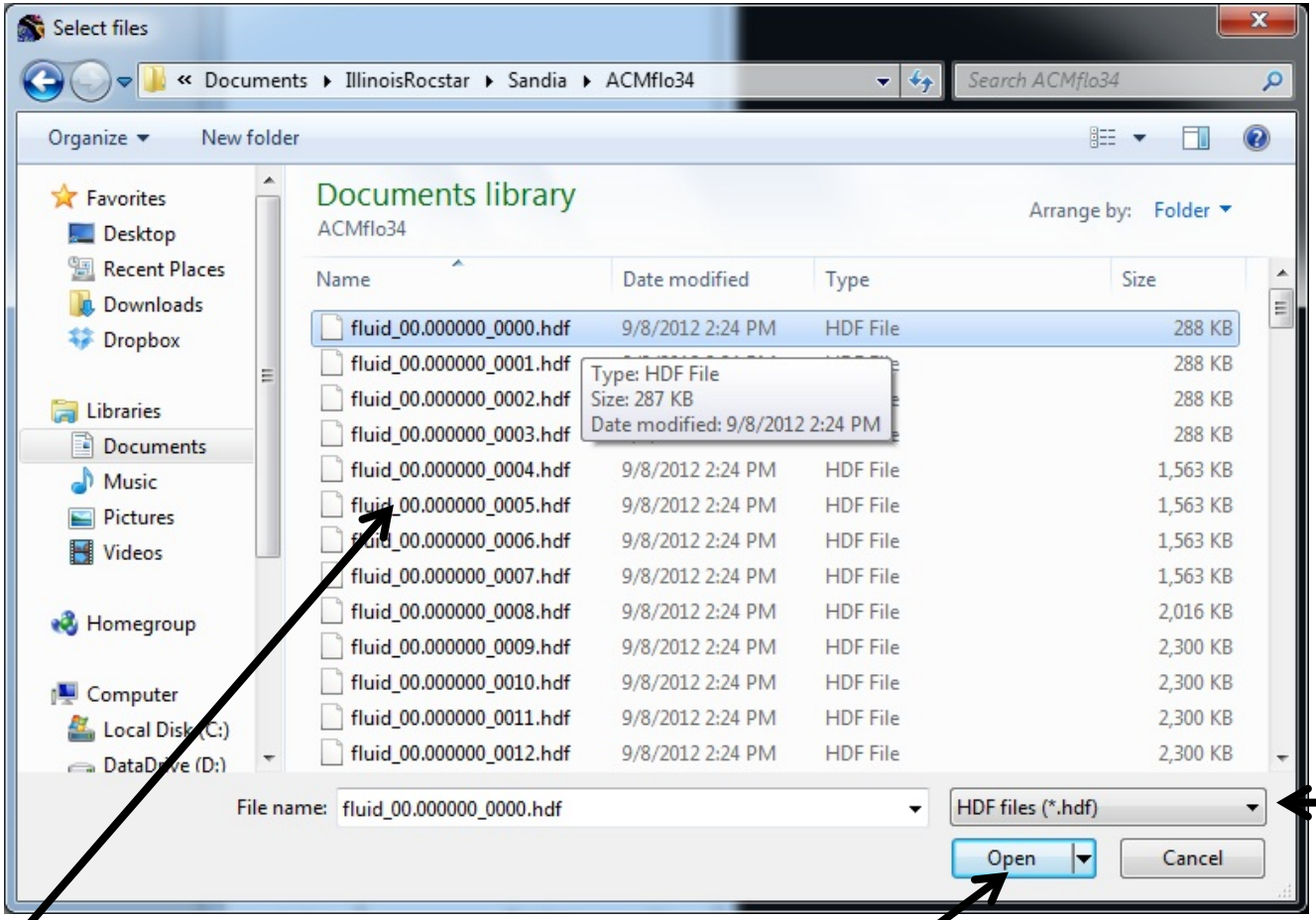


Select Data to Display

Choose File->Select Data Files…



Data Selection Dialog



Change to HDF

Shift-click or Ctrl-click to select multiple files

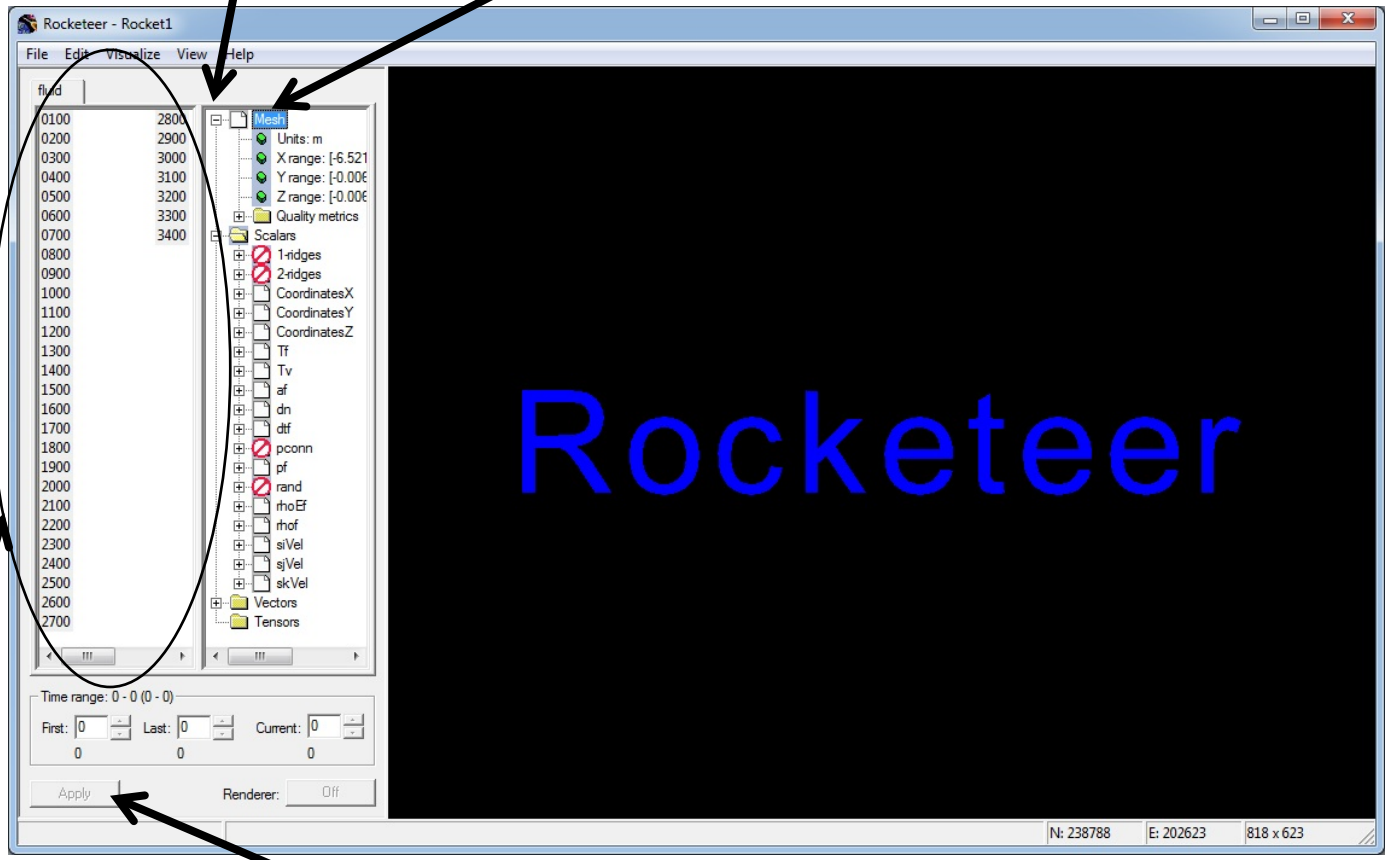
Select all the fluid_00.0000* files and click Open

Data Display

Variables

Once Partitions are selected, click on Mesh

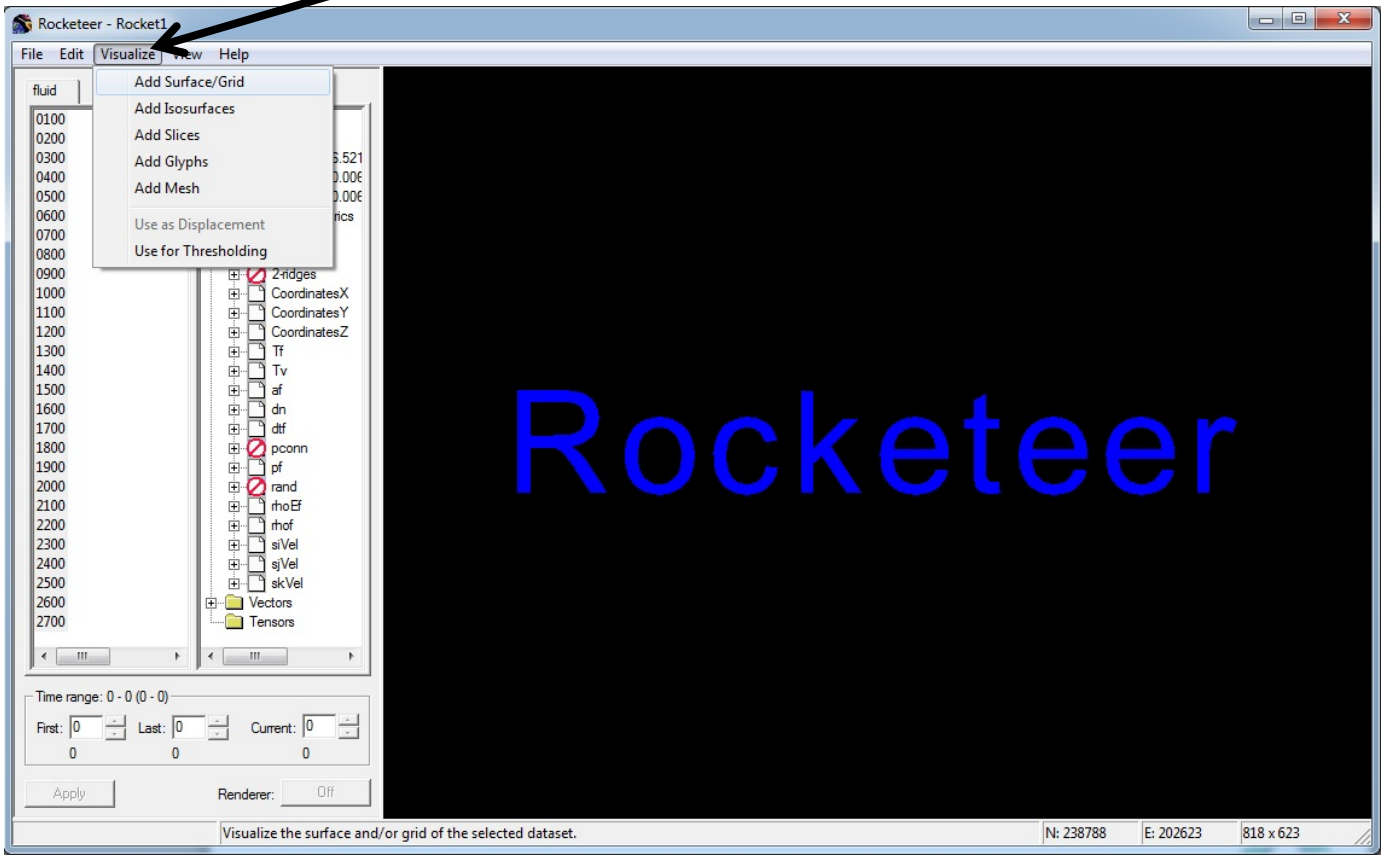
Partitions



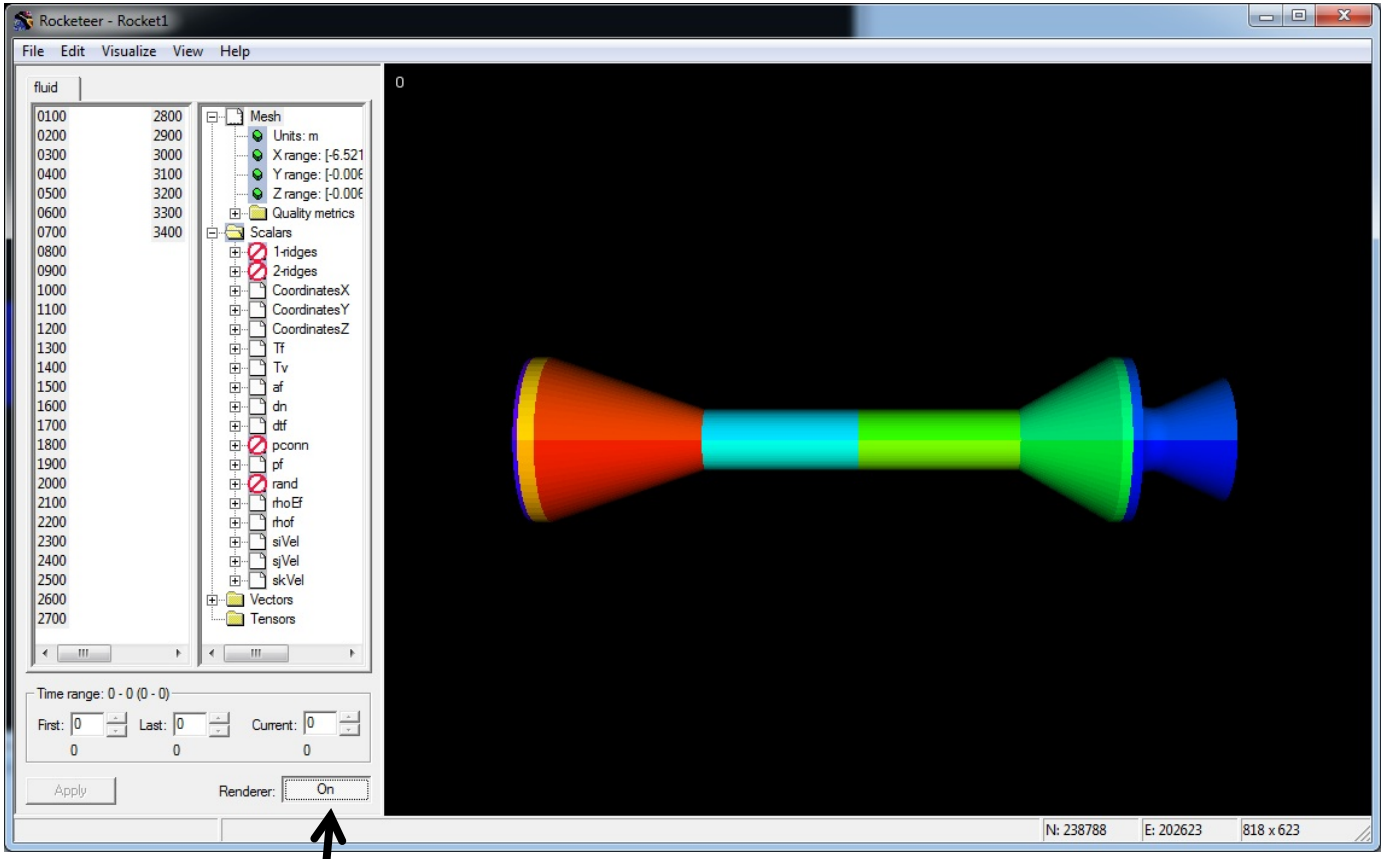
Click on 0100, Cltl-click on 3400 to select all partitions; click Apply button

Selecting Variable to Visualize

With Mesh variable selected, choose Visualize->Add Surface/Grid



Activating Display



Click on Renderer button (toggle from off to on)

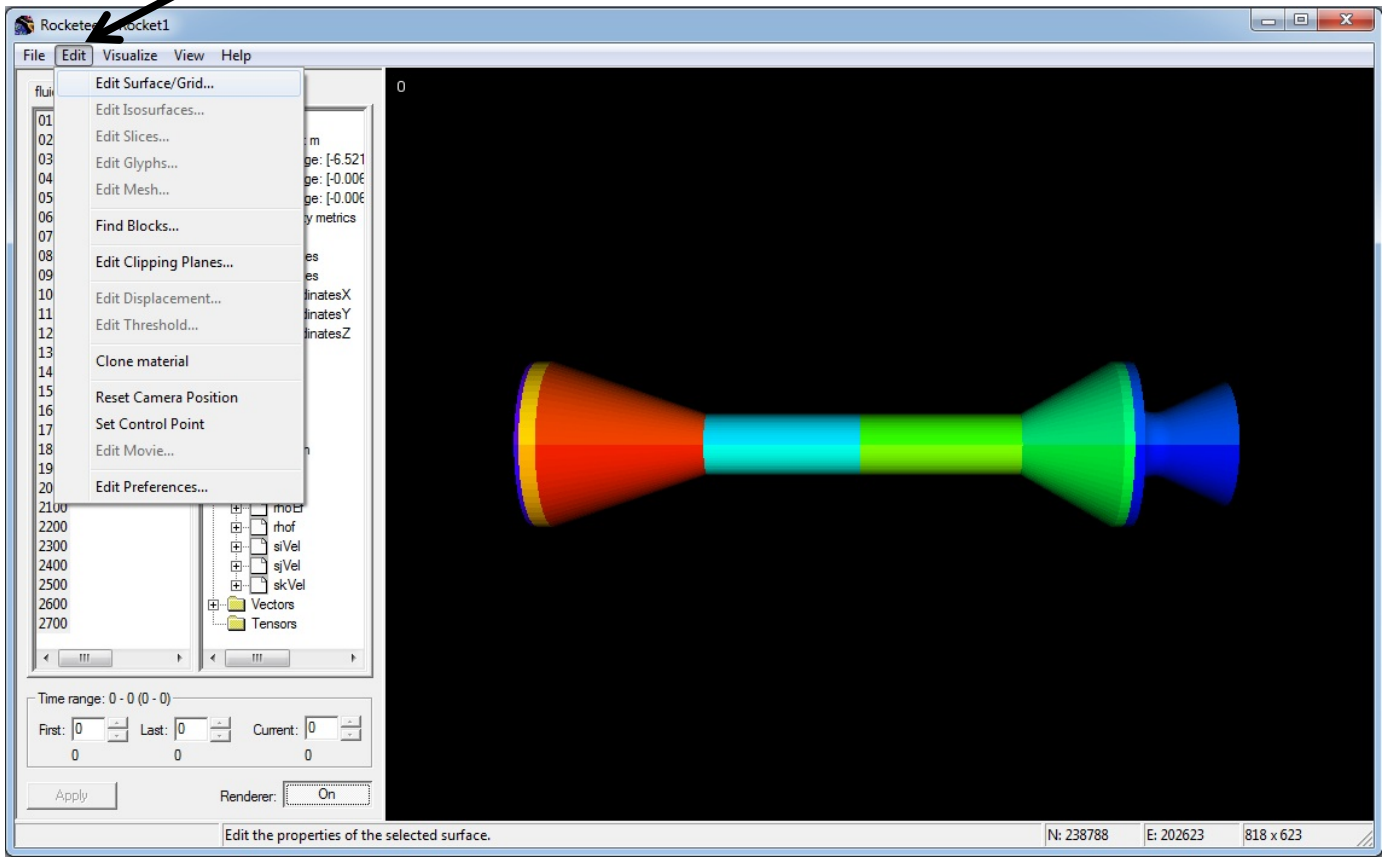
Moving the Image With the Mouse

- Left button – free rotate
- Ctrl-Left Button – Rotate in plane of screen
- Right button hold/move up: larger image
- Right button hold/move down: smaller image
- Center button: translate in plane of screen

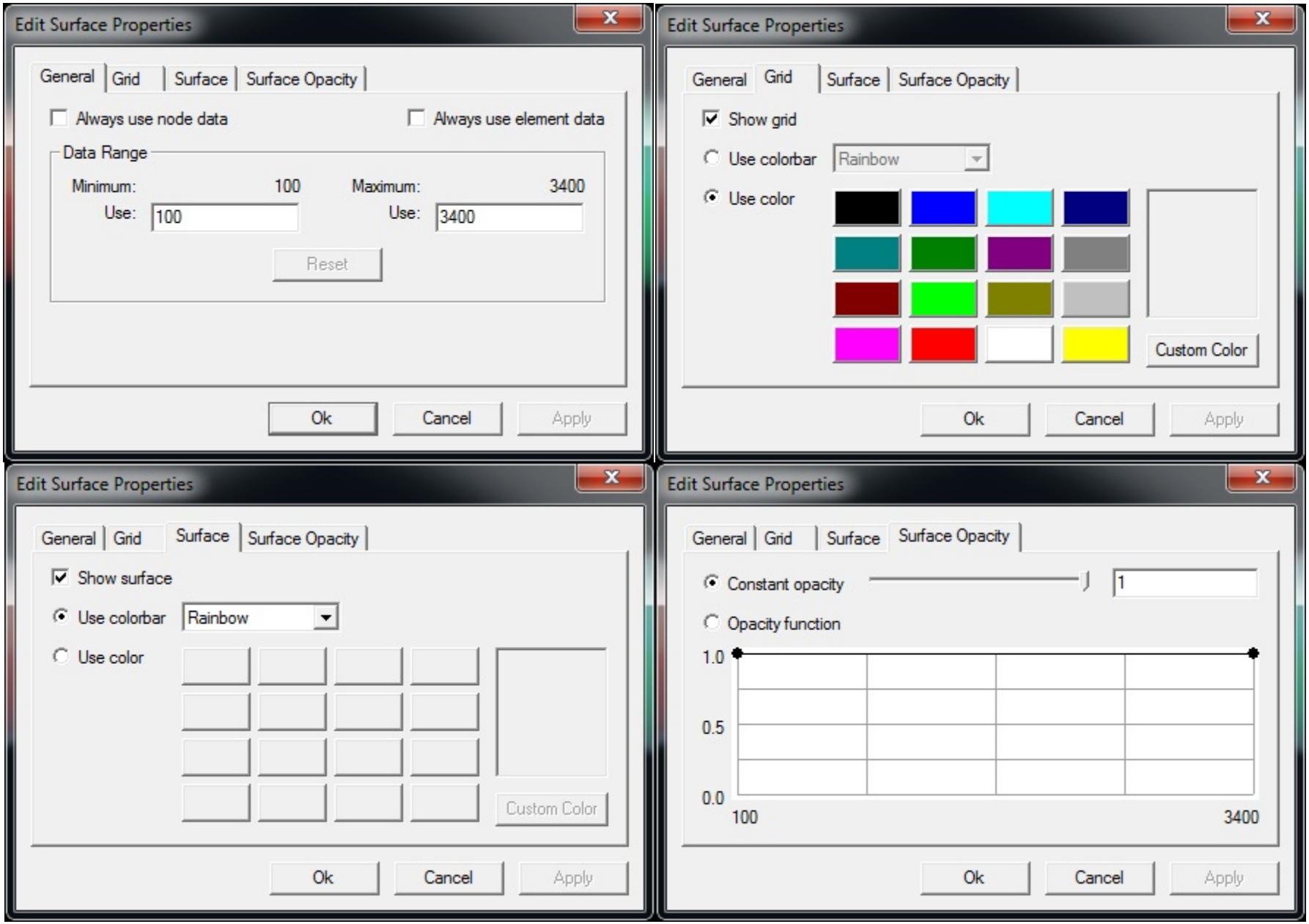
- Note: There is no “return to default” command

Change How Mesh Displays

Choose
Edit->Edit Surface/Grid

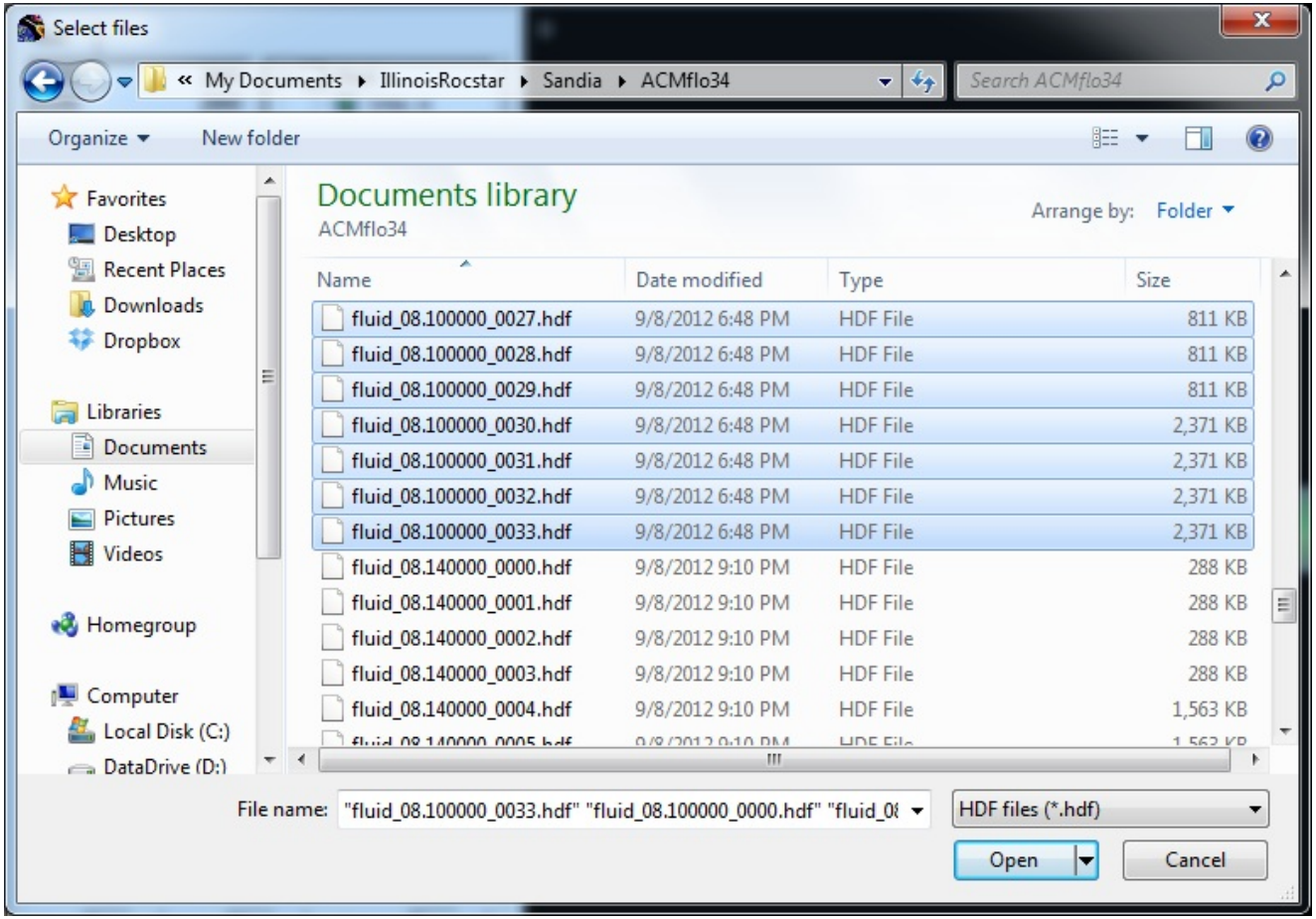


Edit Surface/Grid Dialog – 4 tabs

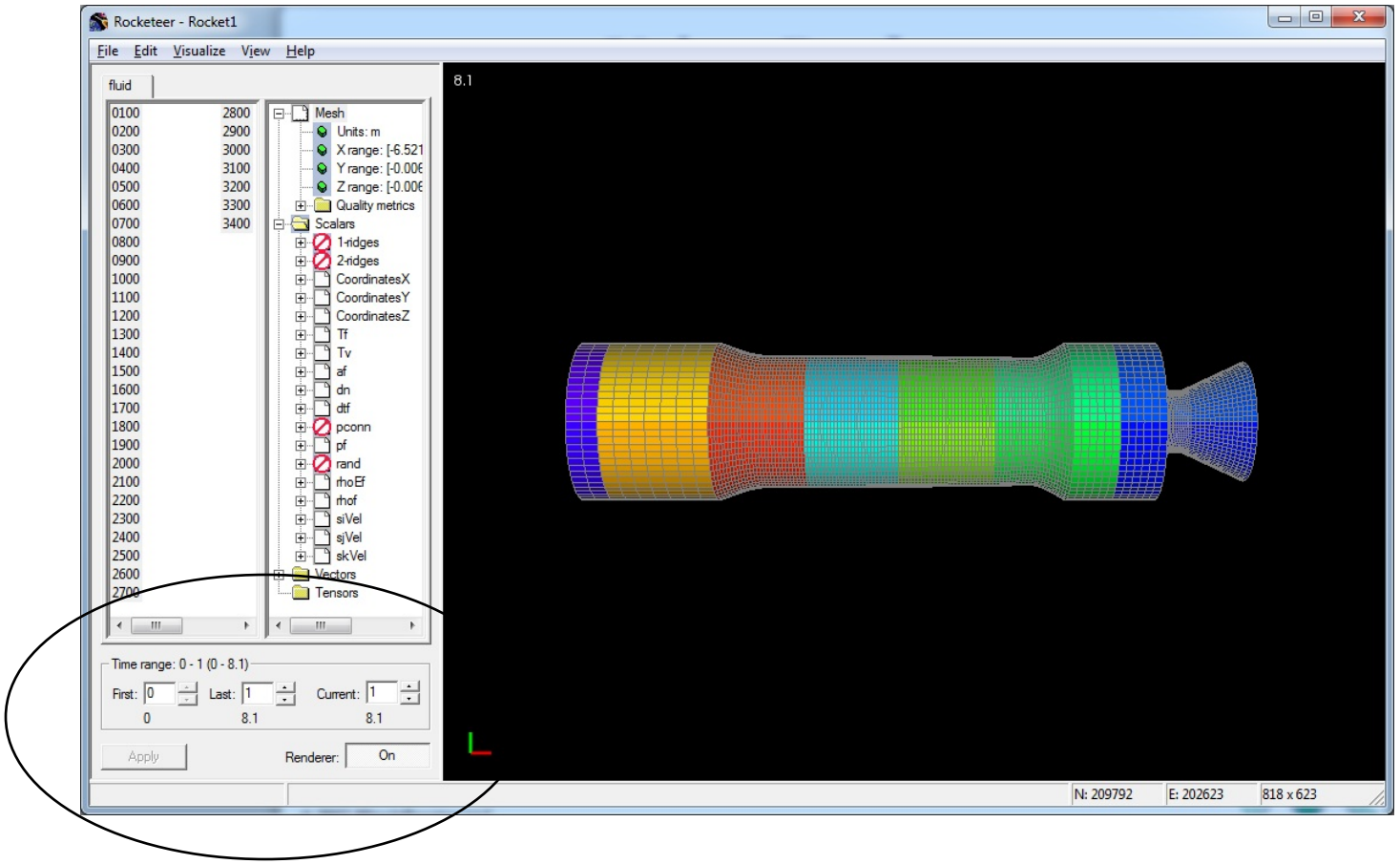


Add a New Timestep

File->Select Data Files… again. Choose all 34 blocks of another timestep (Select first file, shift-click on last)



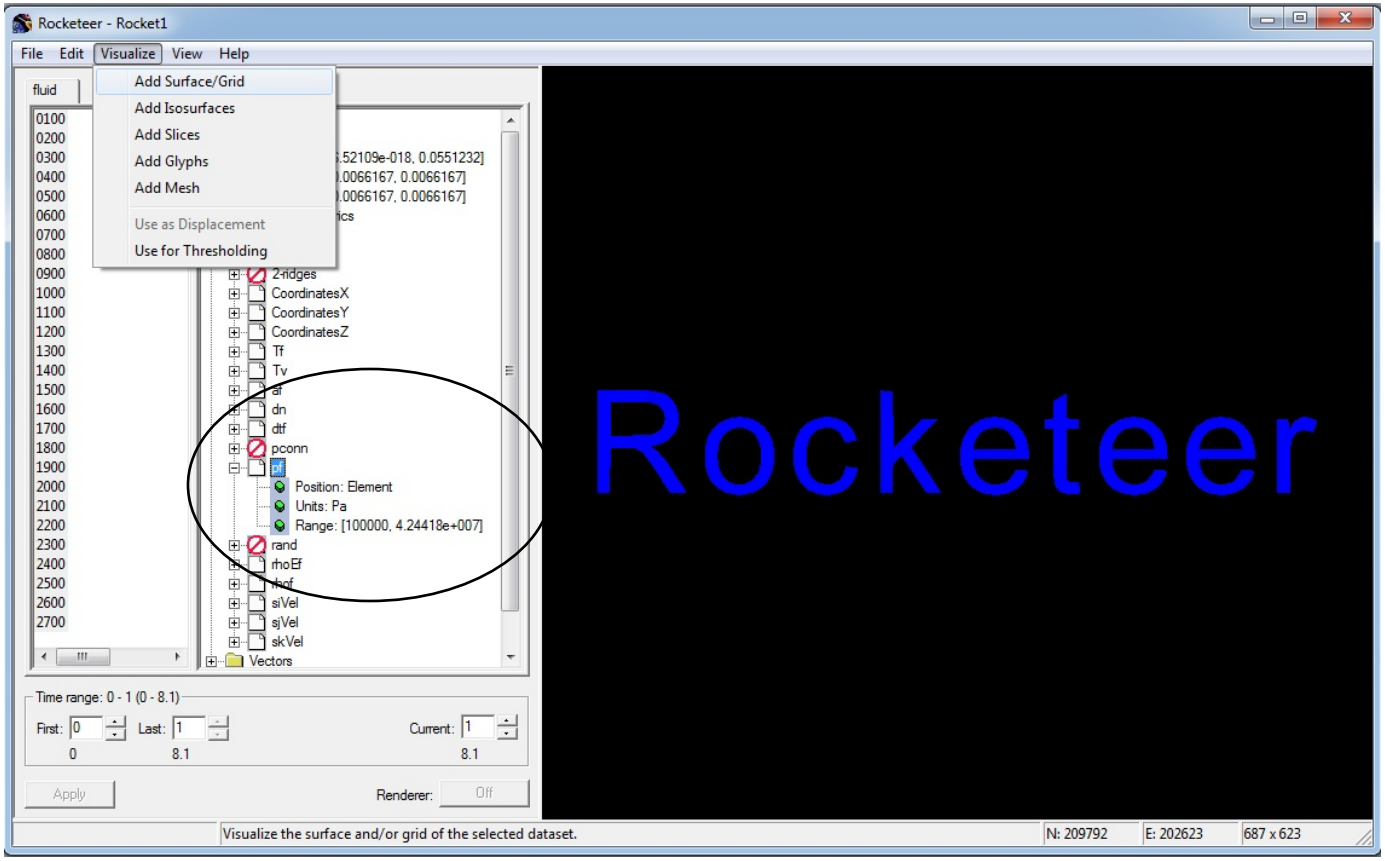
Displaying Different Times



Shows time range. Use up/down arrows beside "Current" display to change timestep. Once changed, click Apply…

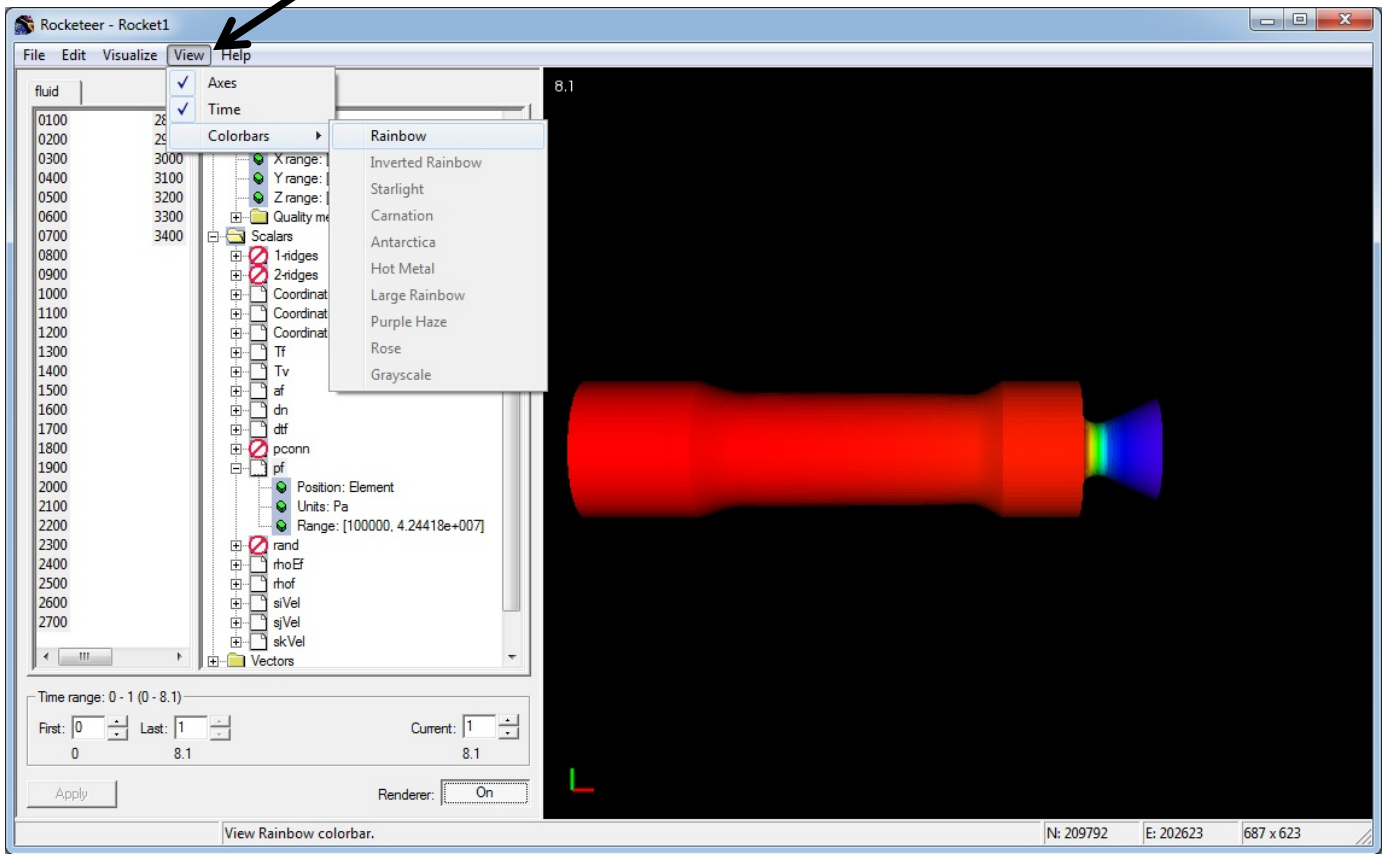
Displaying Different Variables

Click on Mesh icon in Variable area.
Choose Visualize->Remove Surface/Grid
Click on pf variable (pressure)
Choose Visualize->Add Surface/Grid
Then click Renderer: On button



Add Colorbar

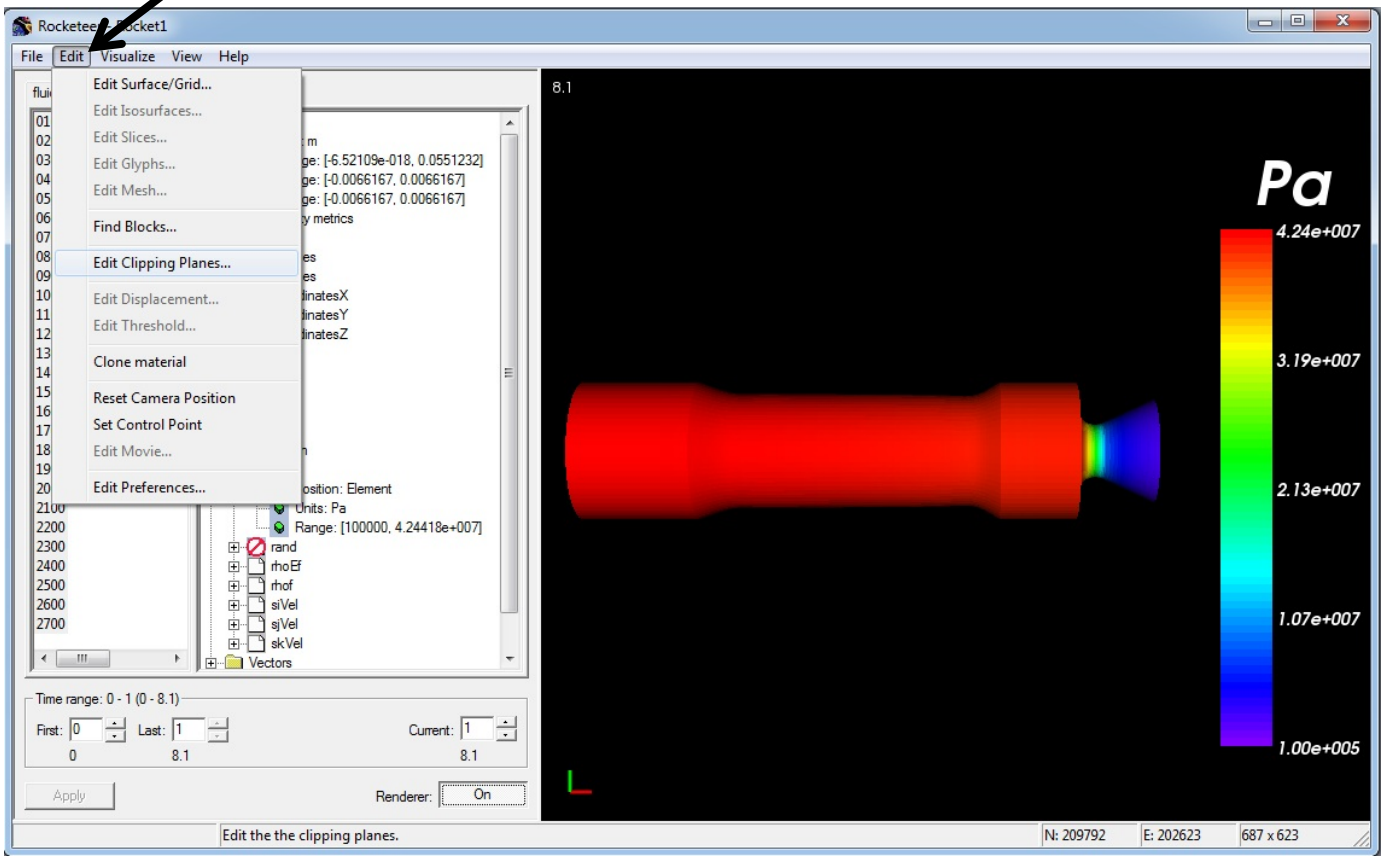
Choose
View->Colorbars->Rainbow



Only one colorbar allowed at a time

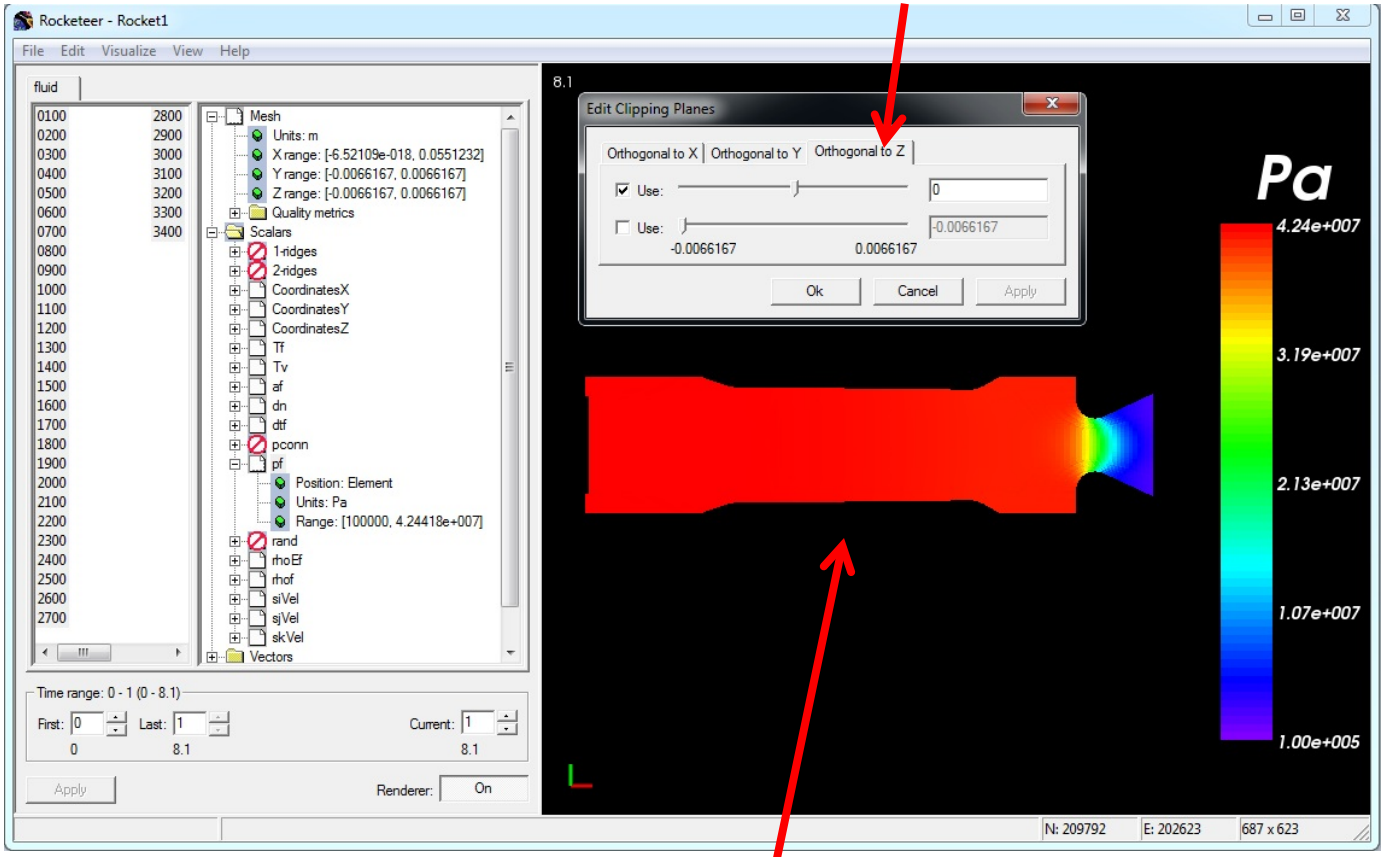
Clipping Planes

Choose
Edit->Edit Clipping Planes



Set Clipping Plane

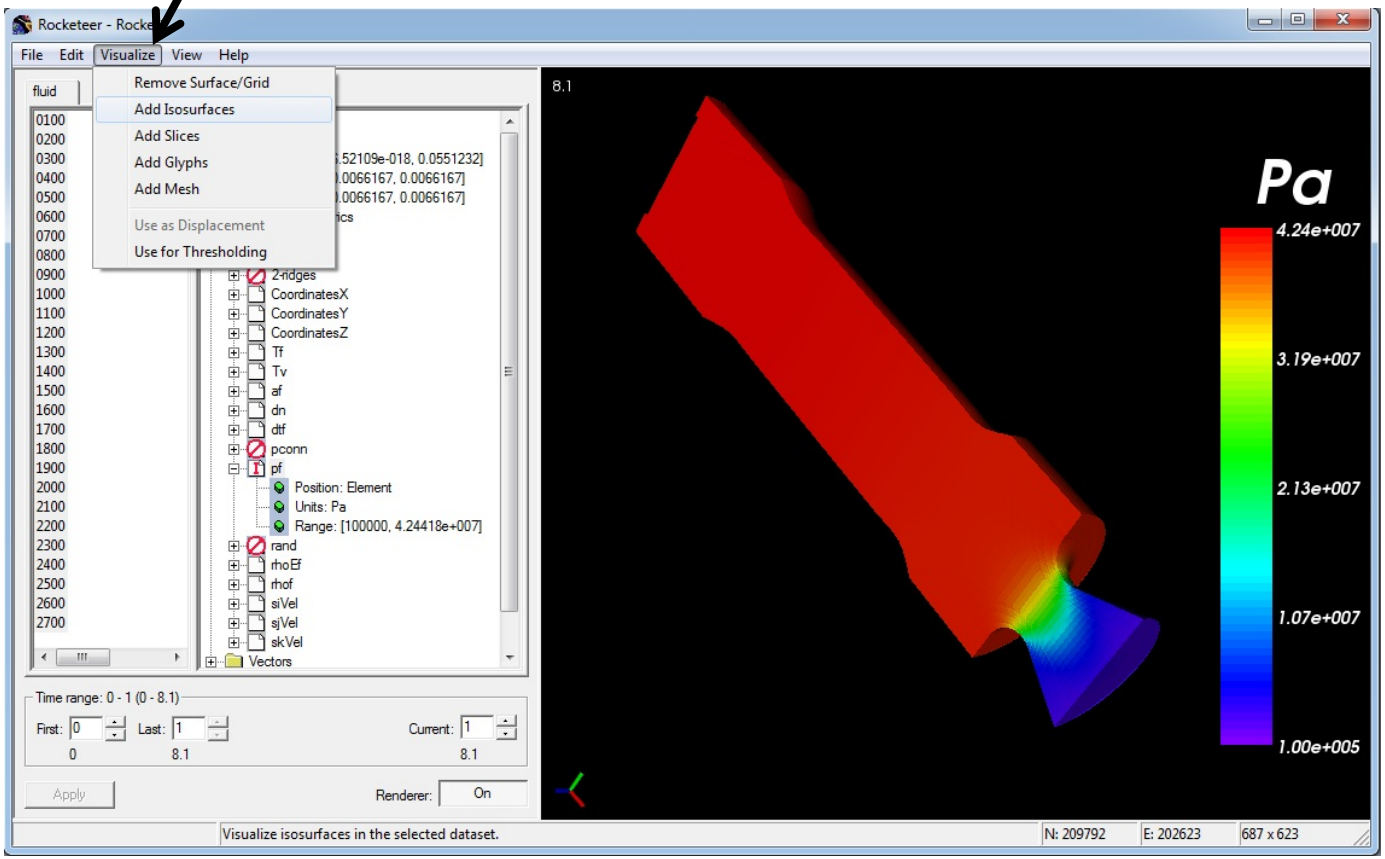
Choose Orthogonal to Z tab, click first "Use" box, set plane to 0.0



Display is "clipped" down the center…

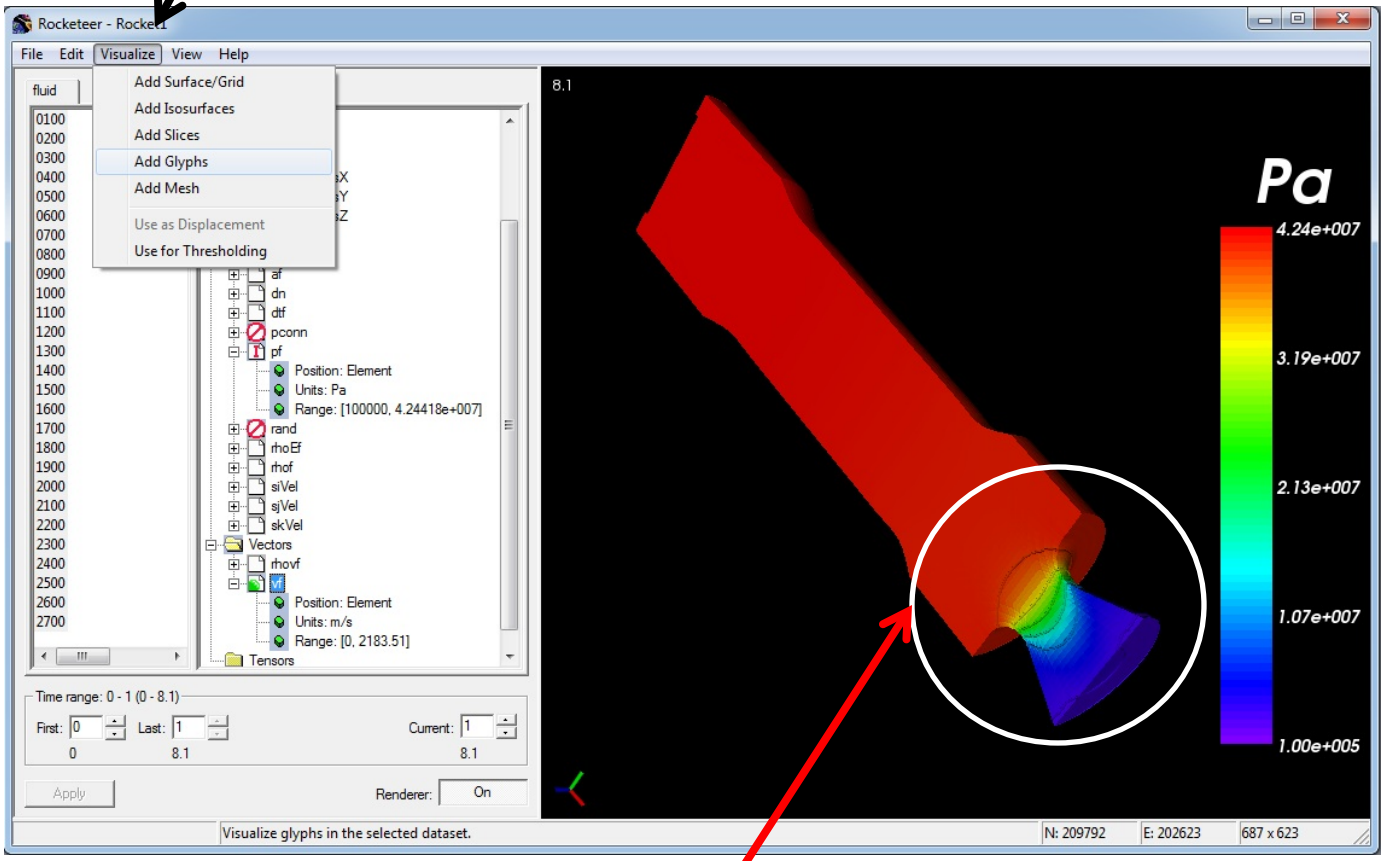
Add Display Elements

With pf still selected, choose Visualize->Add Isosurfaces



Add a Second Variable

Expand “Vectors”, select vf (velocity), choose Visualize->Add Glyphs

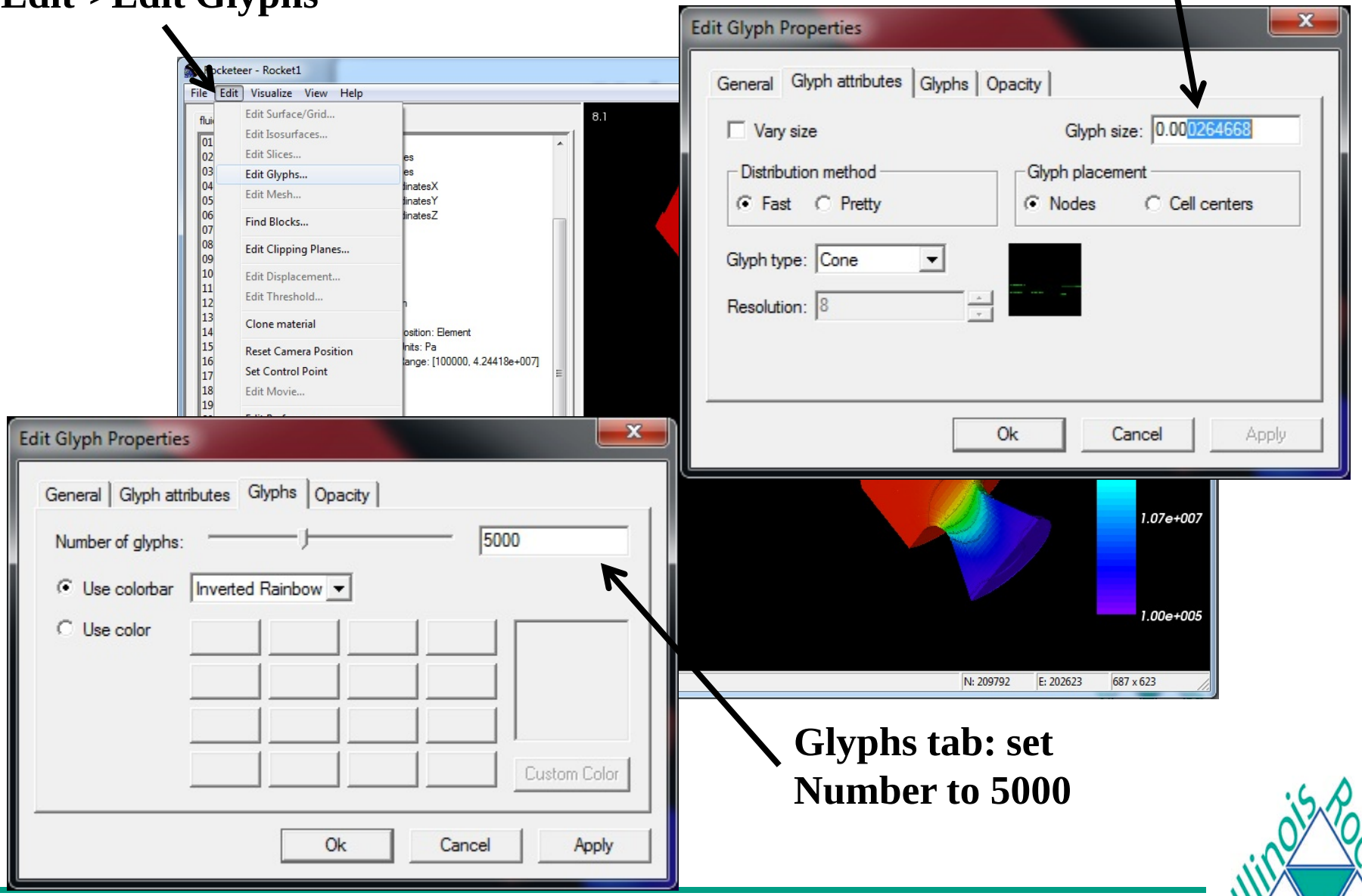


Isosurfaces showing through Grid surface

Edit Glyphs

With vf still selected, choose Edit->Edit Glyphs

Attributes tab: set size to 0.001

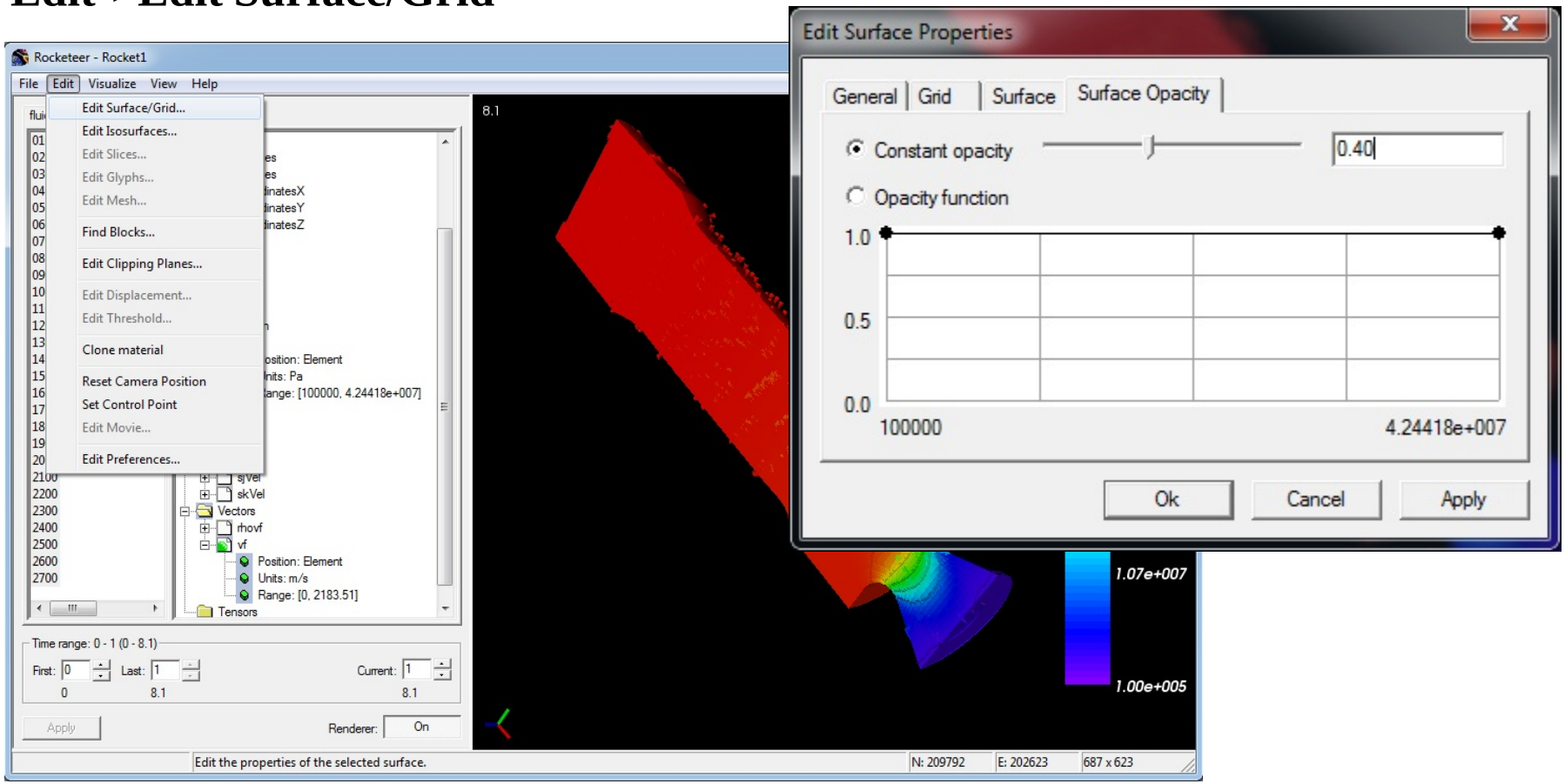


Glyphs tab: set Number to 5000

Opacity

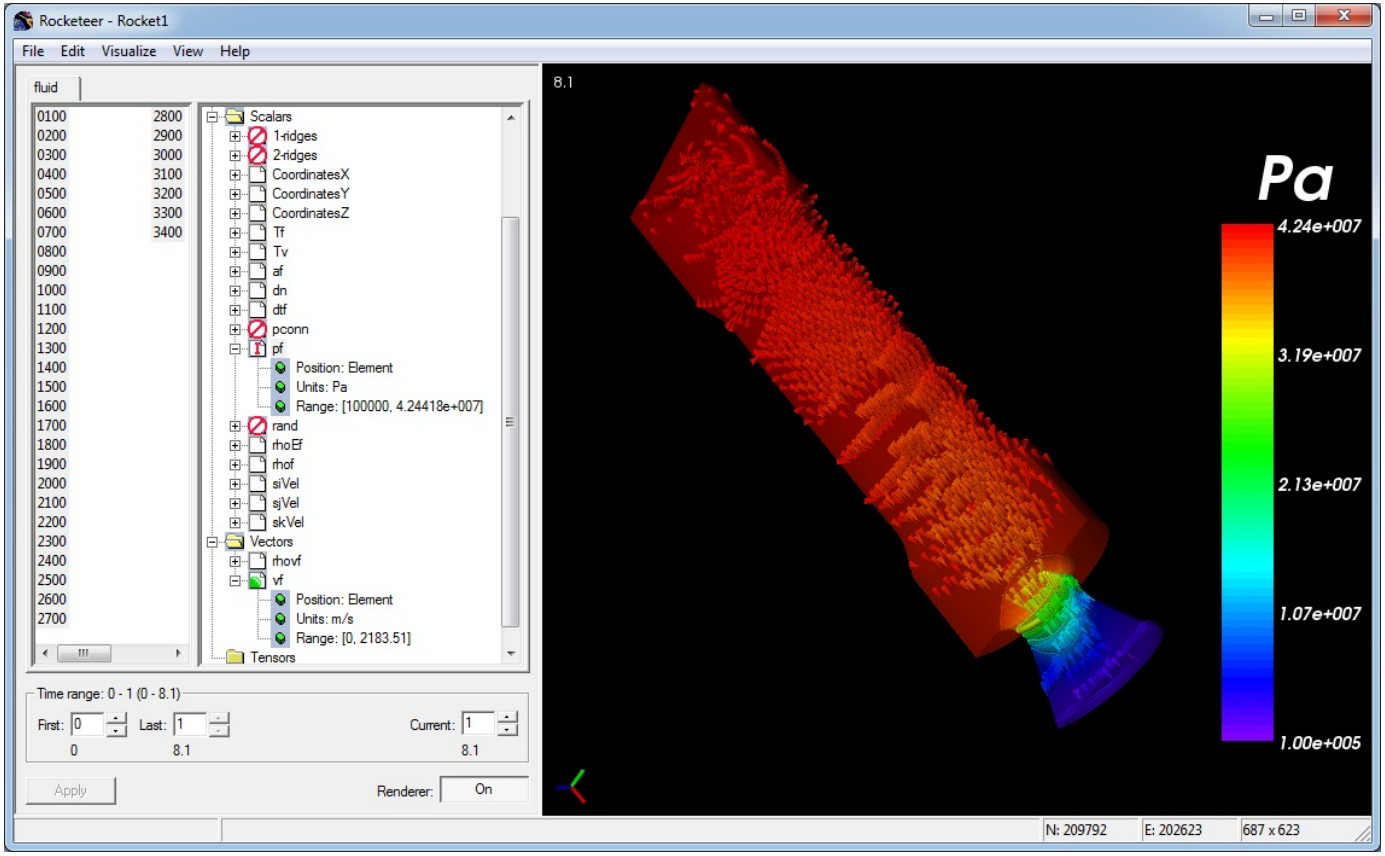
Select pf variable, choose Edit->Edit Surface/Grid

Surface Opacity Tab: set Constant Opacity to 0.40, click OK



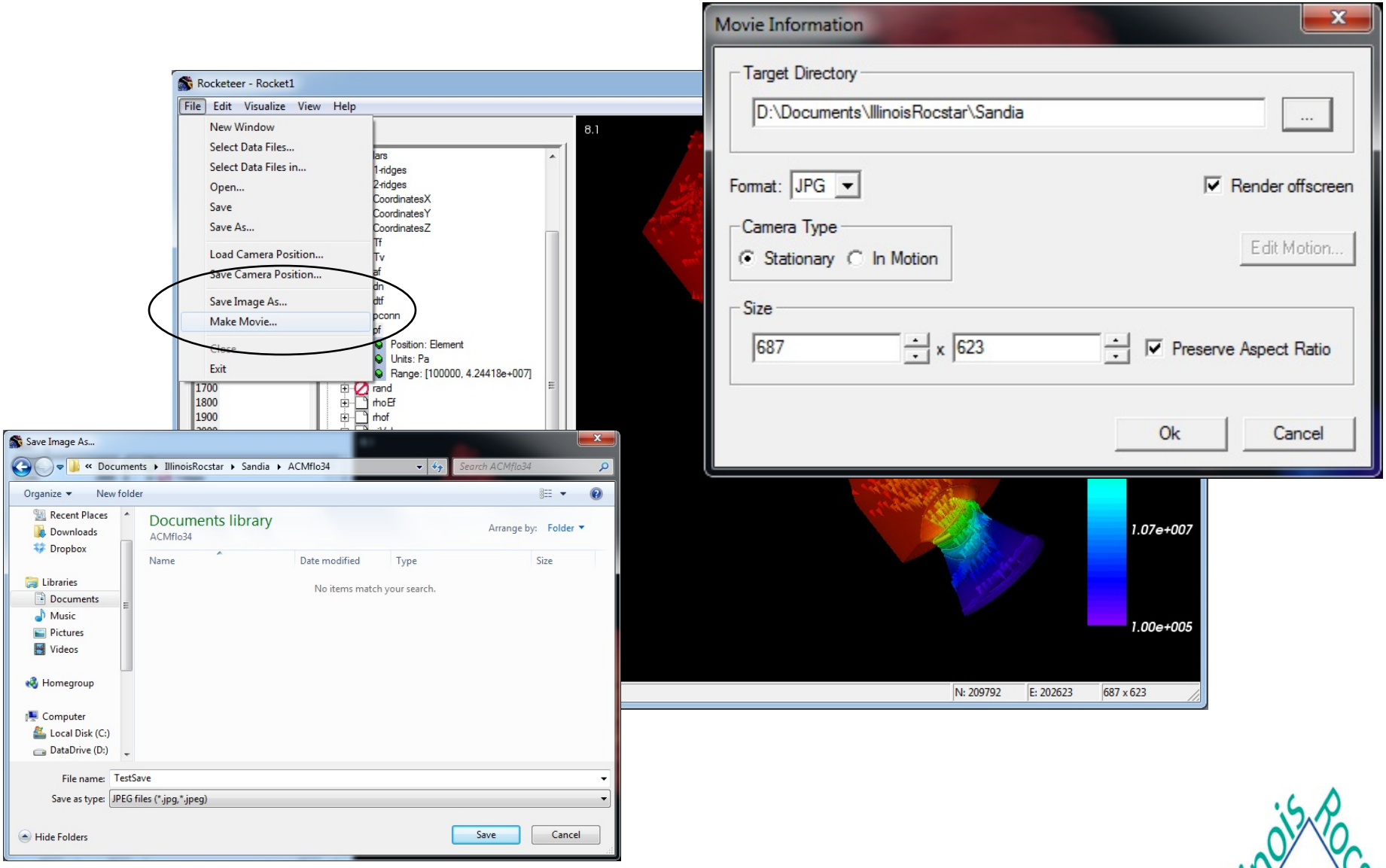
Note: a bug in the Windows version of Rocketeer will cause the image to disappear when Opacity is not equal to 1.0. Move the image very slightly and it will reappear

Final Display



Two variables: Pressure and Velocity
Pressure volume and isosurfaces; colorbar
Velocity Glyphs
Translucent pressure volume

Saving Images and Movies



Much More…

- http://www.csar.uiuc.edu/F_software/rocketeer/v1.3/Rocketeer_Users_Guide.htm
- Multiple materials (fluid and solid, surface)
- Block Selection
- Movie Fly-throughs
- Slices
- Bounding boxes...