Scientific Visualization in HPC

0265640 132304 133732 032051 037334 024721 015013 052226 001662
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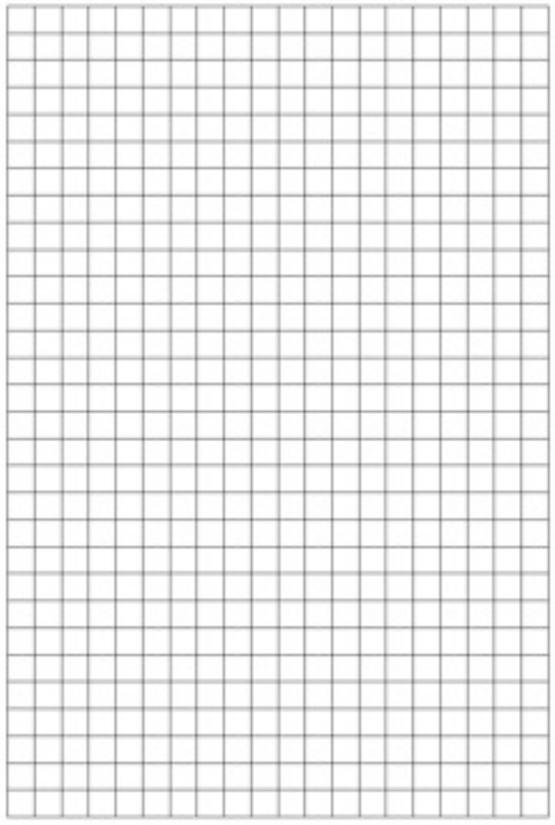
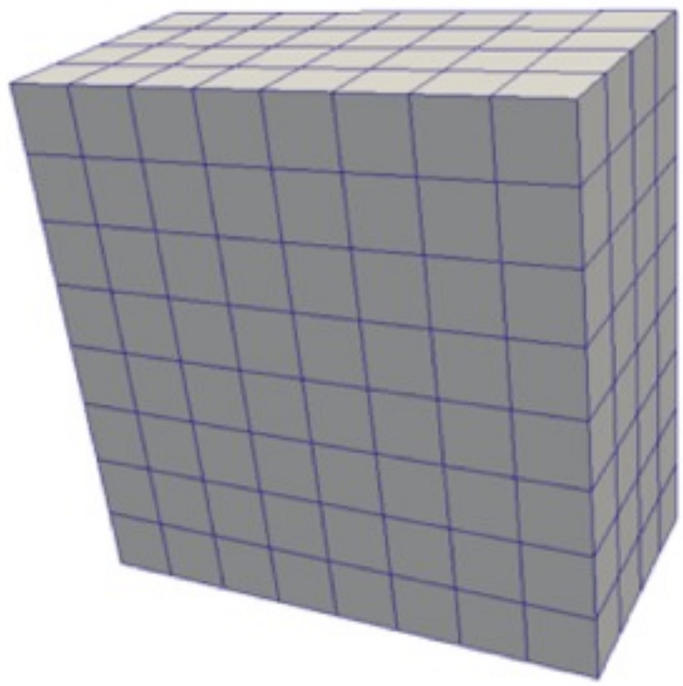
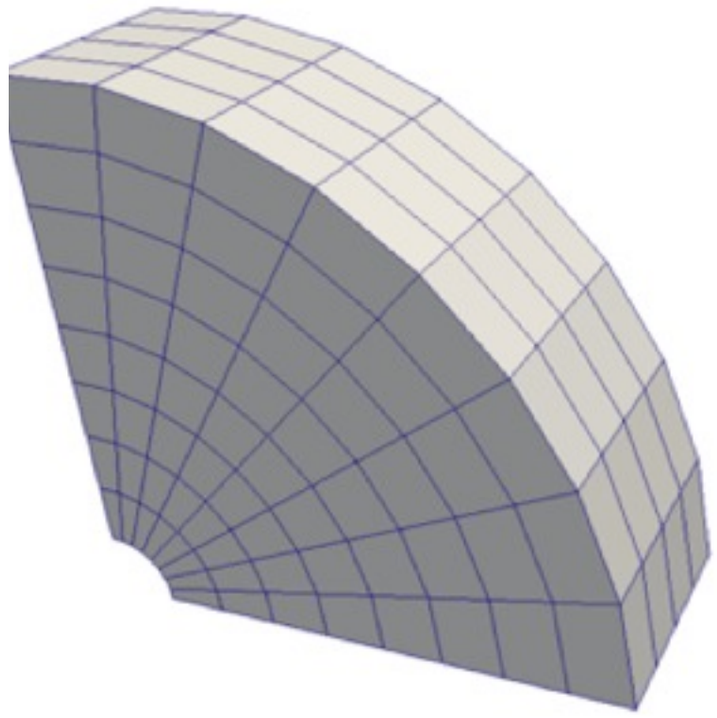
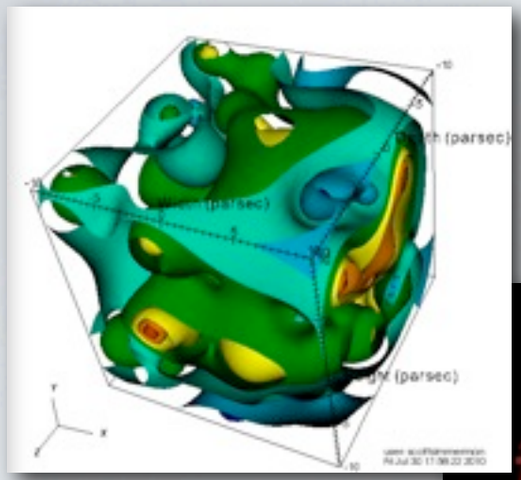
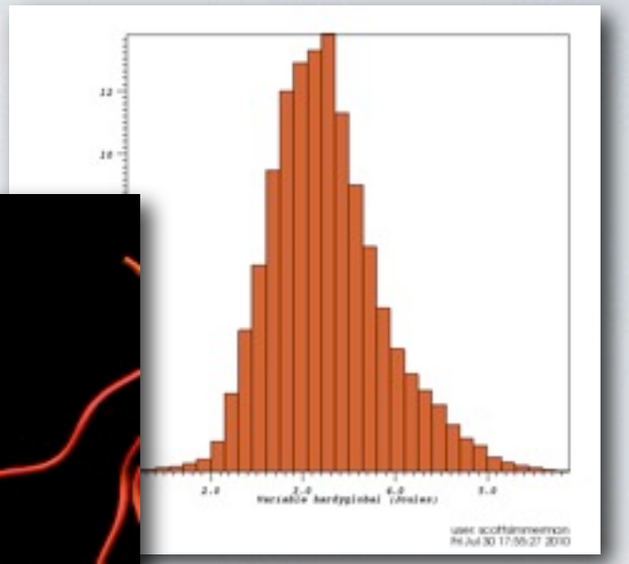


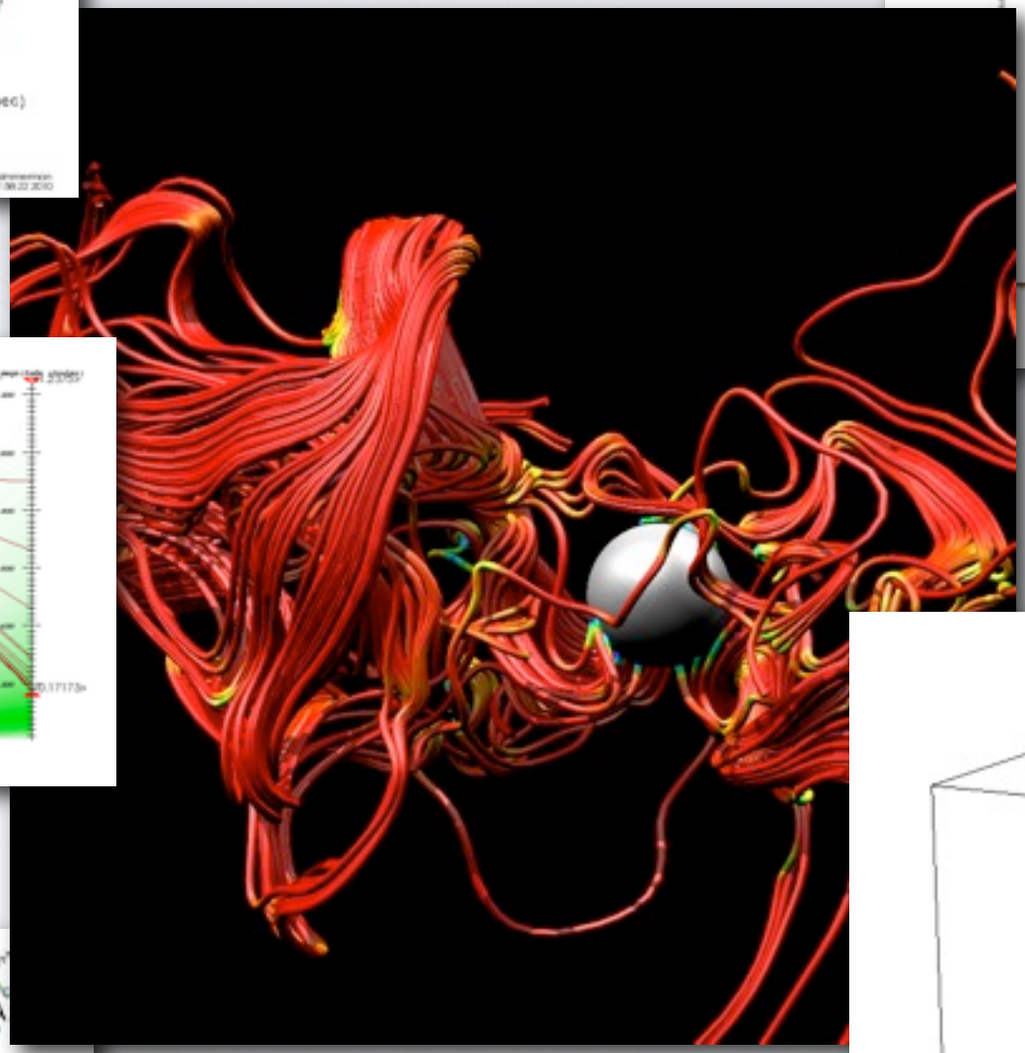


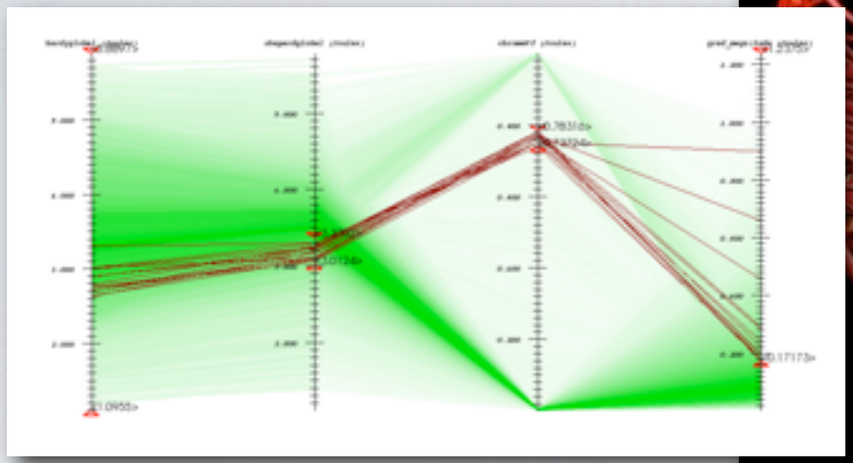


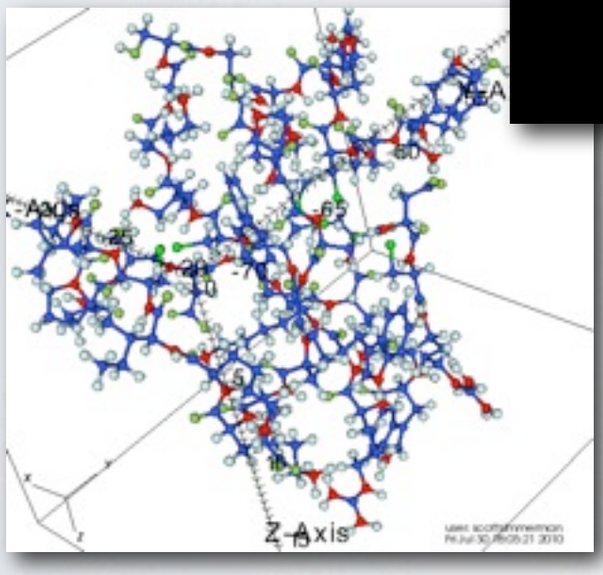
Data on Mesh

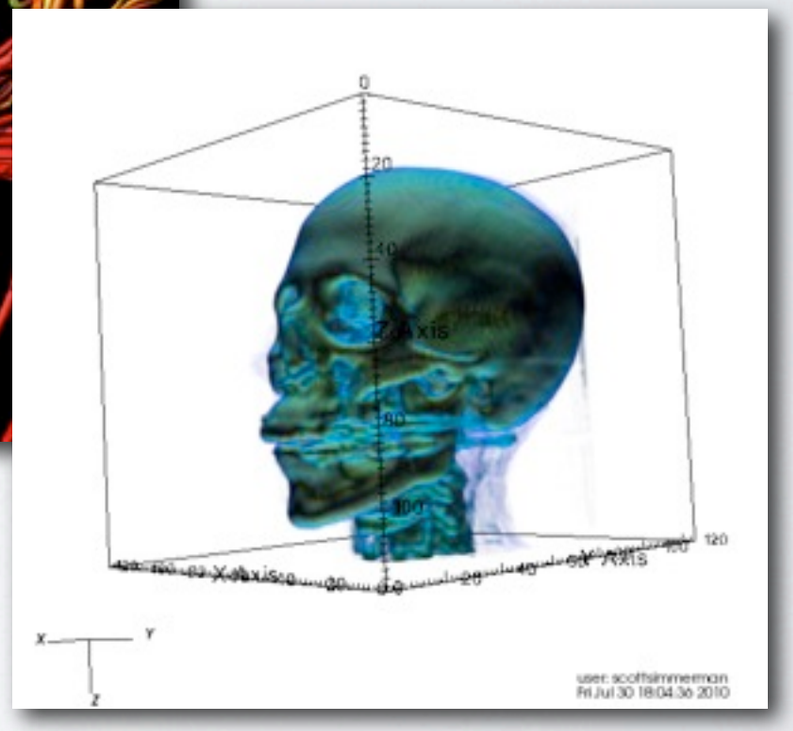




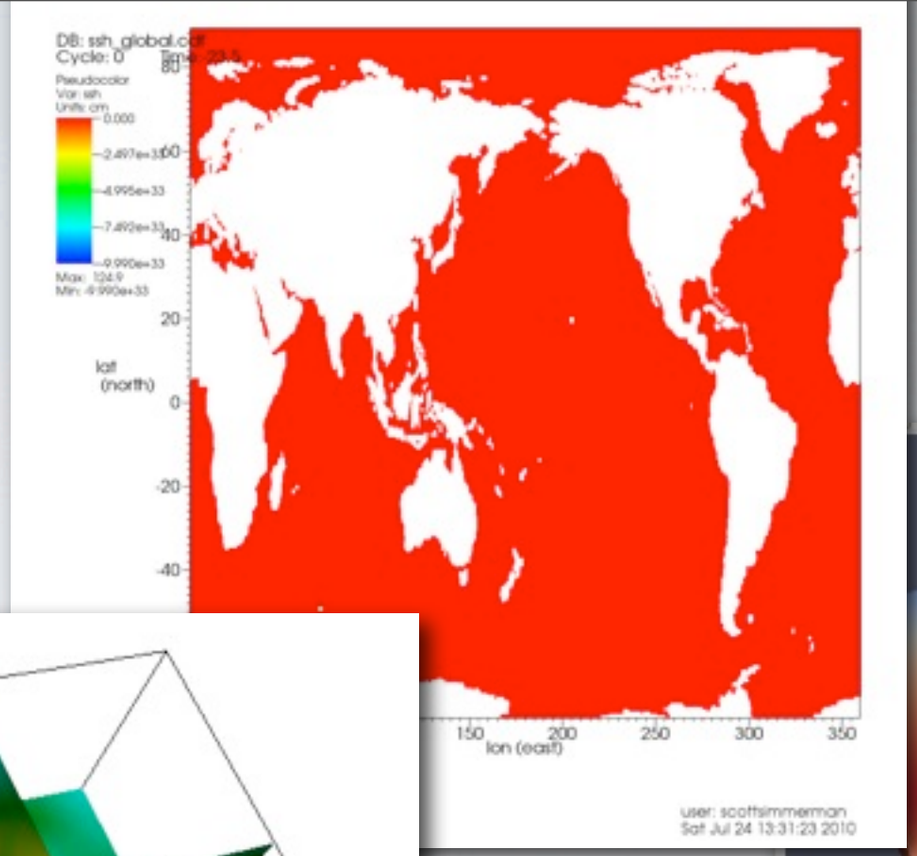


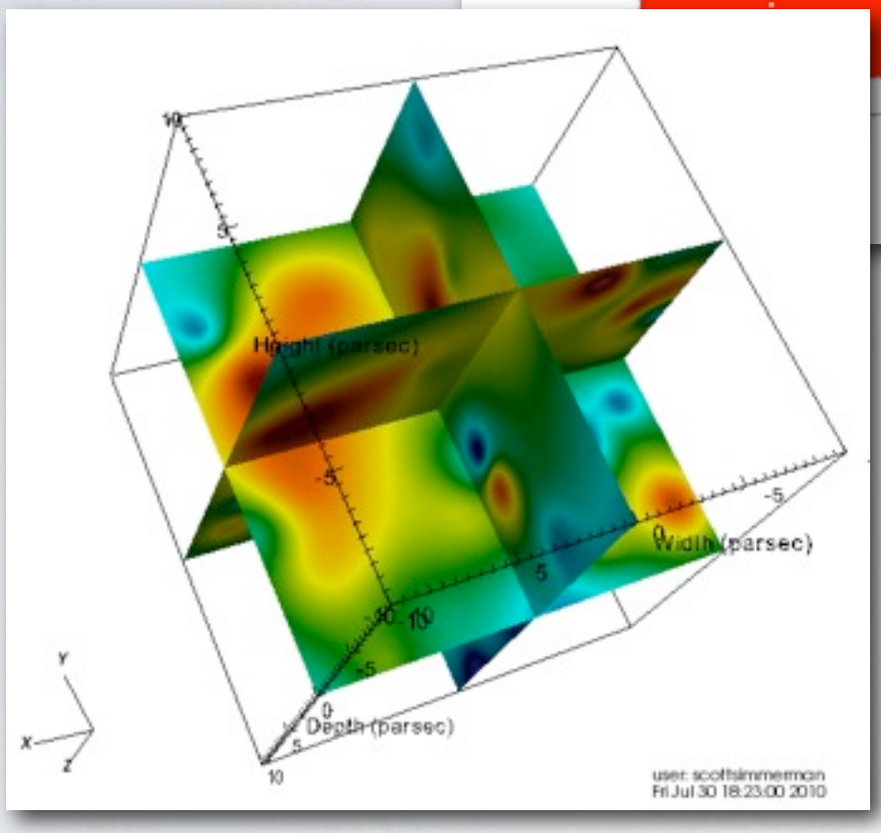


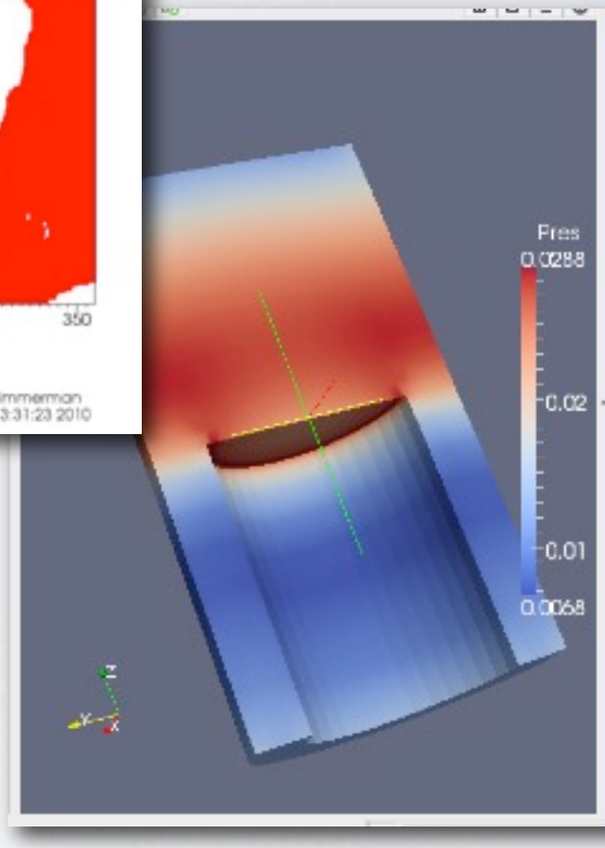


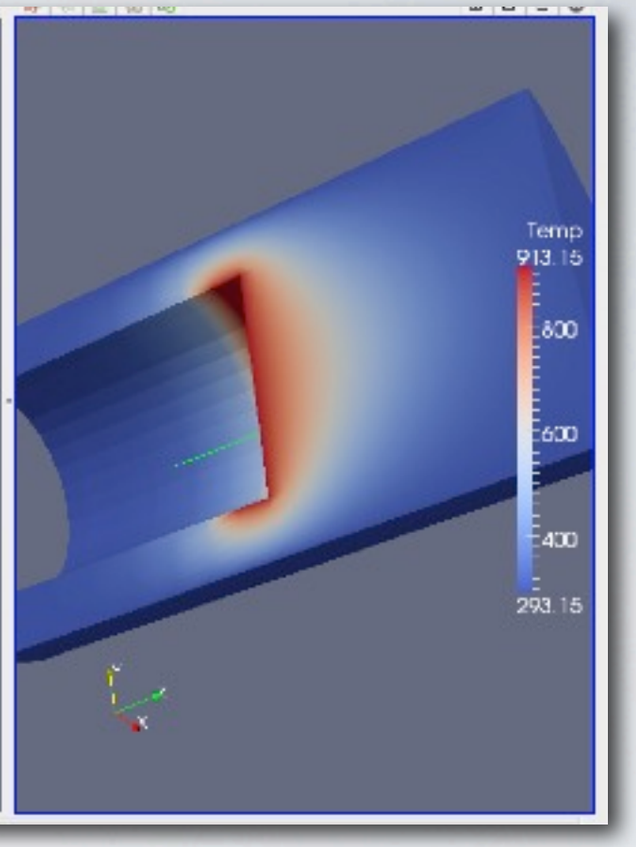


Plots

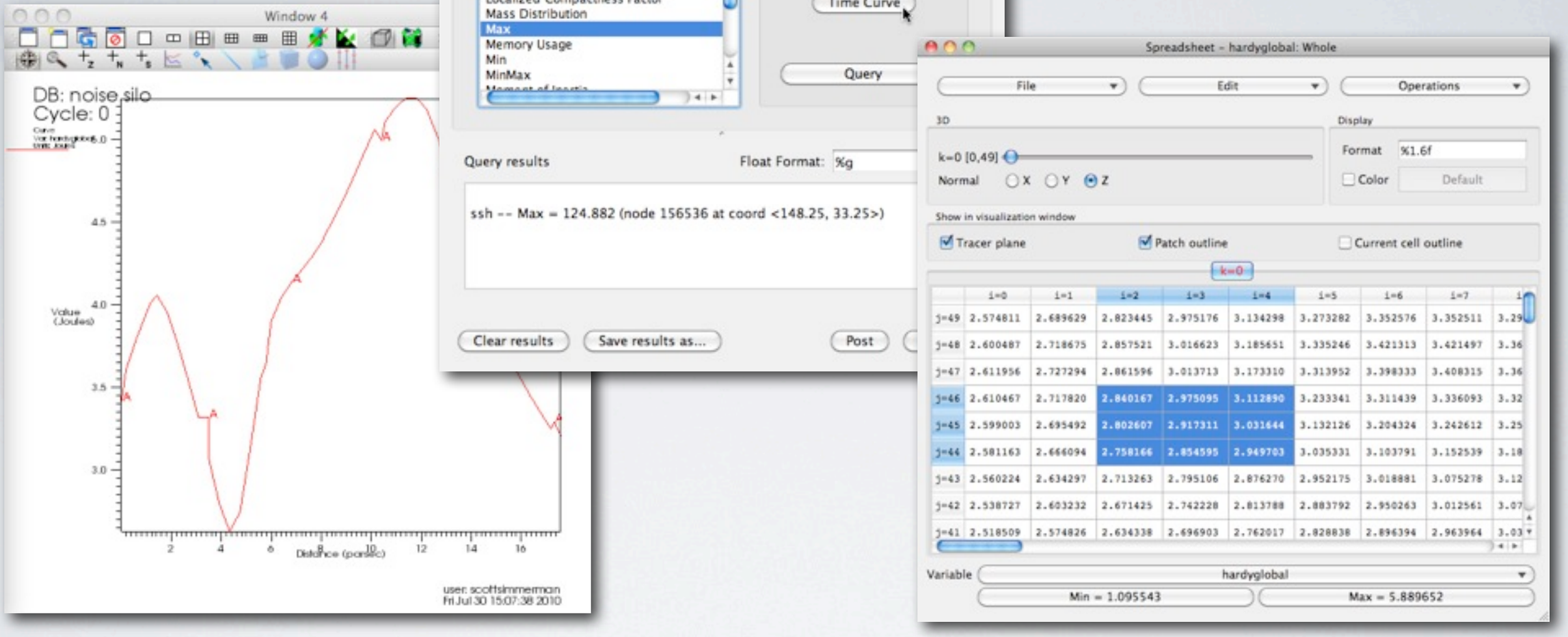








Operators/Filters



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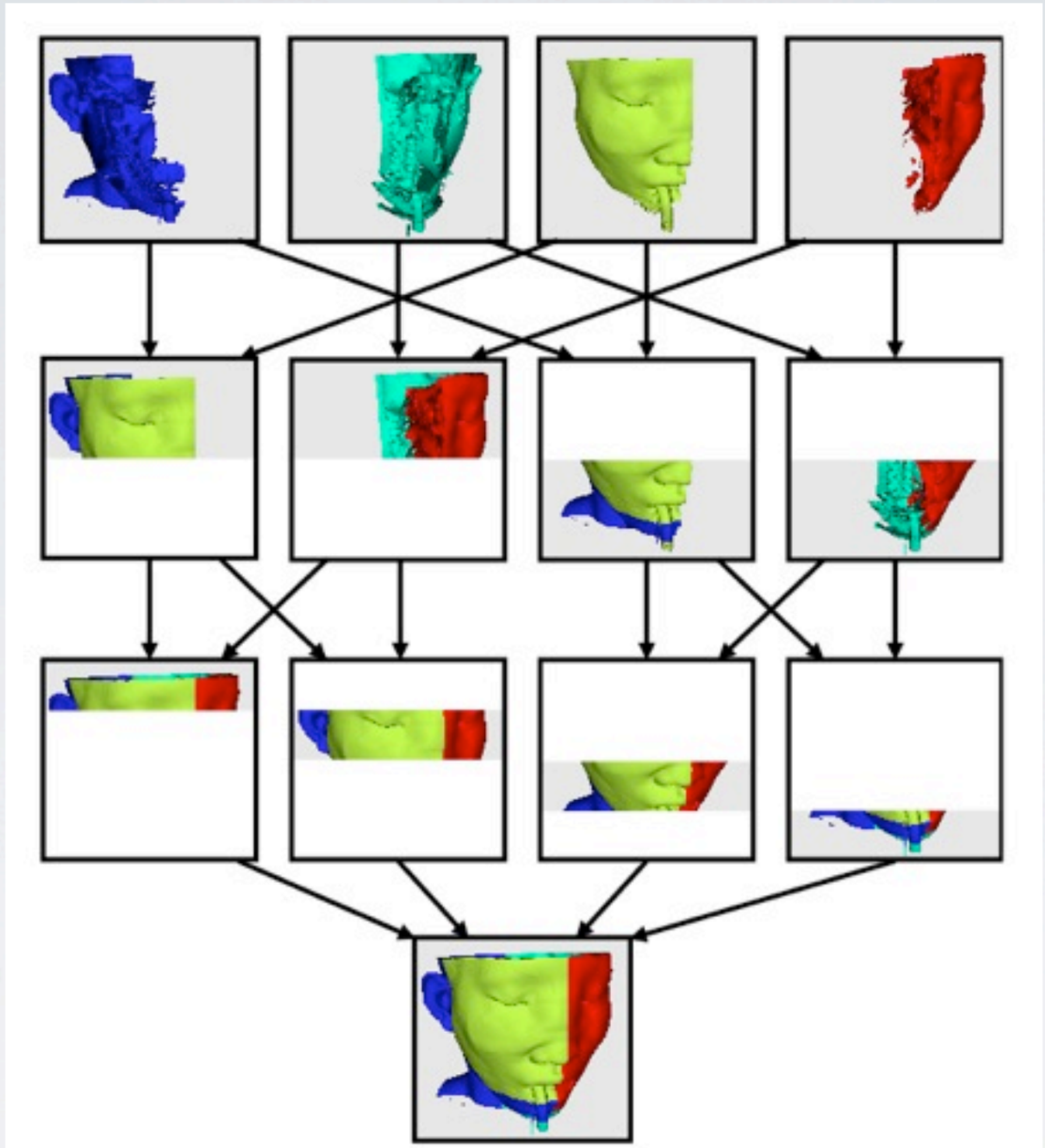
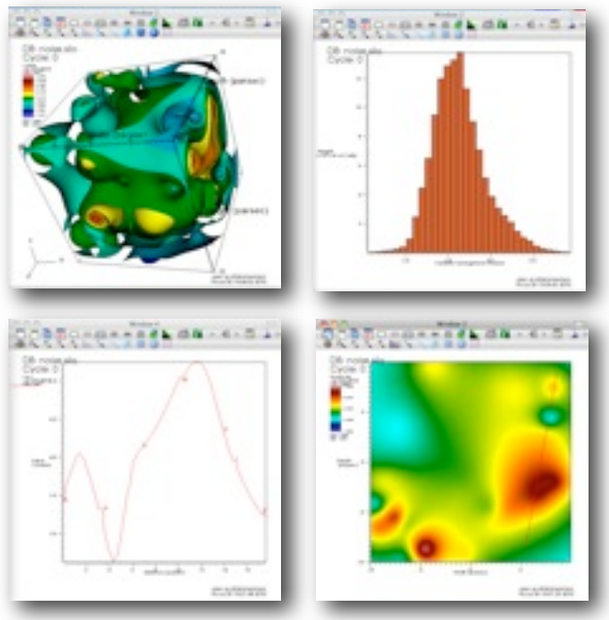
j=48	2.600487	2.718675	2.857521	3.016623	3.185651	3.335246	3.421313	3.421497
j=47	2.611956	2.727294	2.861596	3.013713	3.173310	3.313952	3.398333	3.408315
j=46	2.610467	2.717820	2.840167	2.975095	3.112890	3.233341	3.311439	3.336093
j=45	2.599003	2.695492	2.802607	2.917311	3.031644	3.132126	3.204324	3.242612
j=44	2.581163	2.666094	2.758166	2.854595	2.949703	3.035331	3.103791	3.152539
j=43	2.560224	2.634297	2.713263	2.795106	2.876270	2.952175	3.018881	3.075278
j=42	2.538727	2.603232	2.671425	2.742228	2.813788	2.883792	2.950263	3.012561
j=41	2.518509	2.574826	2.634338	2.696903	2.762017	2.828838	2.896394	2.963964

Analysis



Handle Large Data in Parallel

GUI - user interface



Viewer - manages vis windows

Database Server - connects to file system; reads metadata

Compute Engine - reads and processes data; sends geometry or images to viewer

Client/Server Architecture

Getting Data In

- Lots of built-in readers (over 100)
- Write your own reader
- Easily handles ascii data or raw binary

VisIt Demo

To copy data file:

```
scp  std00##@nautilus.nics.utk.edu:/nics/a/
  proj/nautilustrain/ssh_global_10.cdf  .
```

OR

```
http://web.eecs.utk.edu/~simmerma/
ssh_global_10.cdf
```

Links

VisIt main site:
https://wci.llnl.gov/codes/visit/

VisIt wiki:
http://visitusers.org/index.php?title=Main_Page

Paraview main site:
http://www.paraview.org/

ParaView wiki:
http://paraview.org/Wiki/ParaView

Molecular plots in Visit:
http://www.visitusers.org/index.php?title=Molecular_data_features

OverView (infovis for ParaView):
https://www.kitware.com/InfovisWiki/index.php/Main_Page