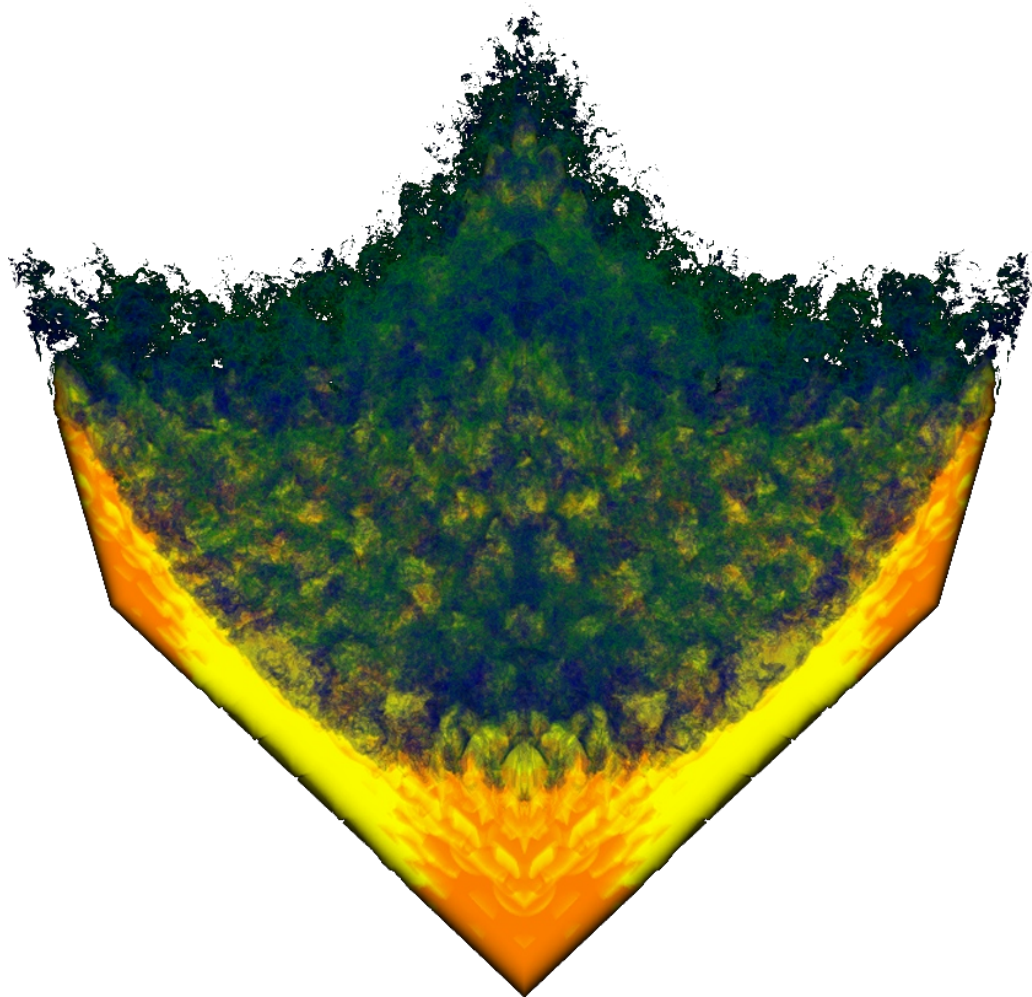
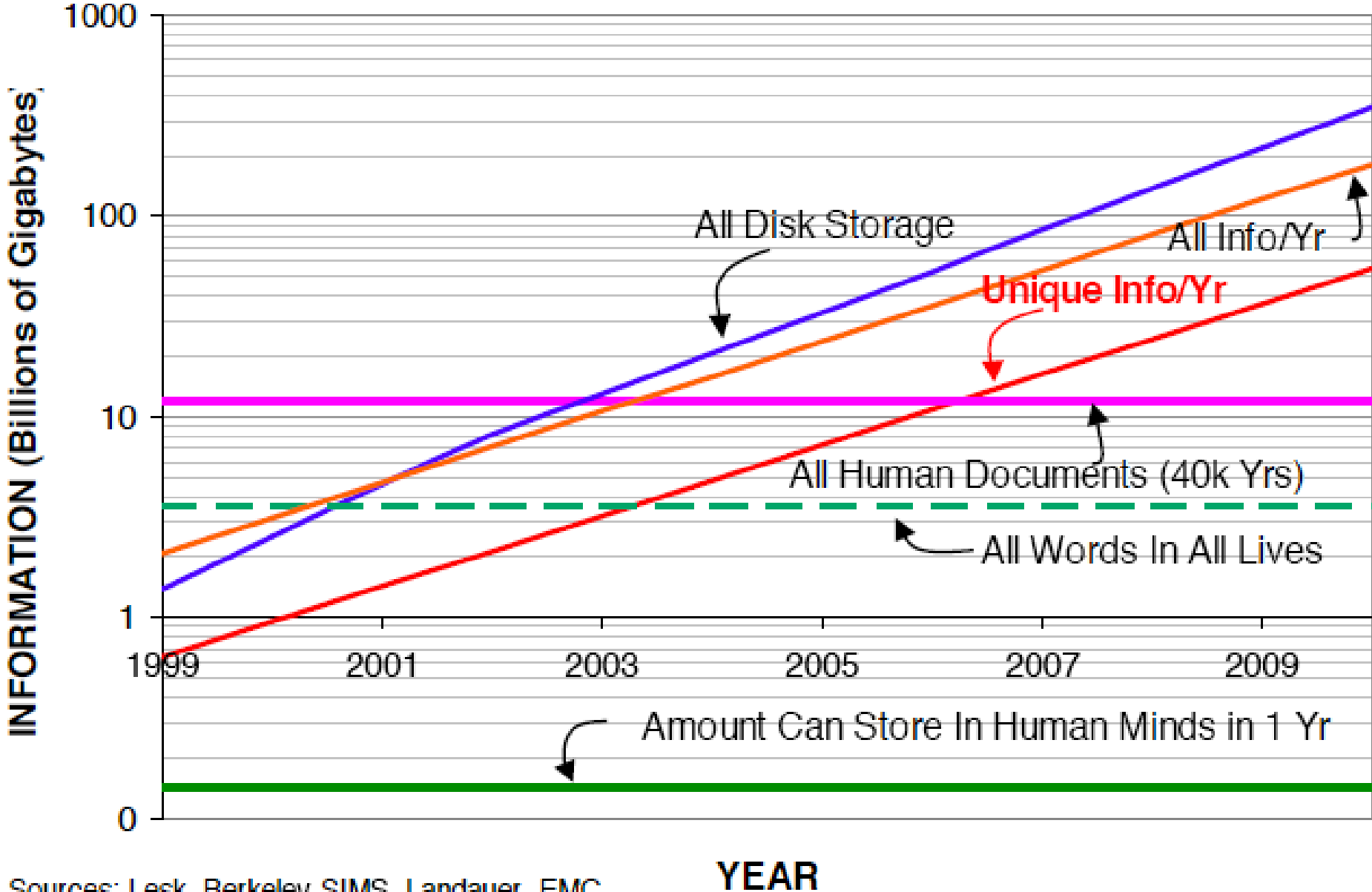


# *Freeprocessing*: In-transit Data Processing

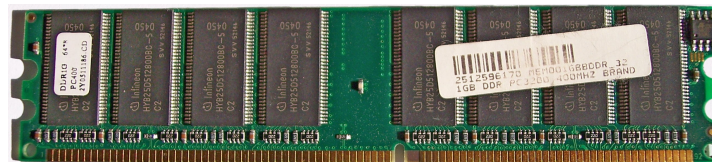
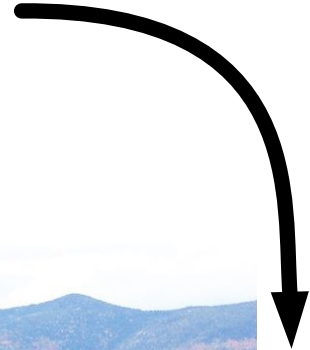
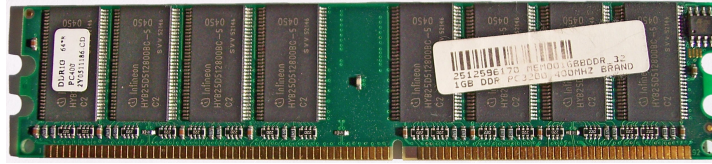
# Growth of Data

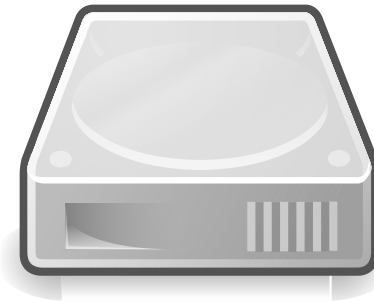
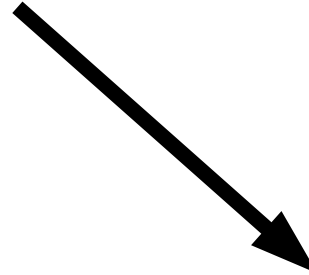
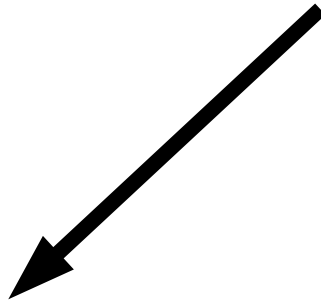
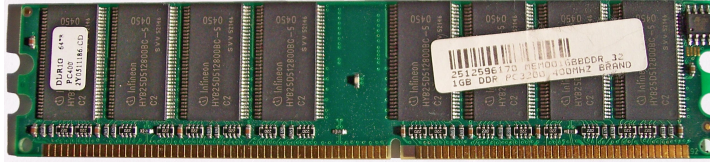
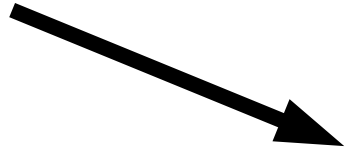


# Growth of Data



Sources: Lesk, Berkeley SIMS, Landauer, EMC





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systems. We also recommend using the build\_visit script on your system if you plan to:

the user and build the user desired combination of Visit features entirely under-the-covers. With maybe the exception of VTK version 5.0 library, which as open source, so is only available as in the Visit binary distributions. The specific versions of the the external libraries used have been however newer versions of the libraries should work equally well.

## Build visit overview

Visit can now be built automatically using the build\_visit script on many Linux, MacOS X, and AIX platforms (more to come). The build\_visit script takes care of all the details of building Visit, including:

- Modify the Visit source code.
- Run a parallel compute engine. Building a parallel version of Visit on your system allows you to configure Visit so it uses your MPI library, avoids the overhead of a serial build, and runs faster.
- Create your own Visit plugins. Building Visit on your system ensures that it is built with the same C++ compiler that you will use to develop your plugins.

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### Running build\_visit

Build\_visit has both a Command-Line Interface (CLI) and a Graphical User Interface (GUI). That's also some environment variables that can be set.

#### Background

The Visit build process is a little complex, there are several very large external libraries with are required before the Visit build can even be attempted. required a substantial number of changes to the Kitware source in order to function correctly, the third party libraries are unchanged from their distributively converted into the Visit source site [https://wci.llnwd.net/codes/visit/3rd\\_party/](https://wci.llnwd.net/codes/visit/3rd_party/) as well as the SVN site <https://portal-auth.net>

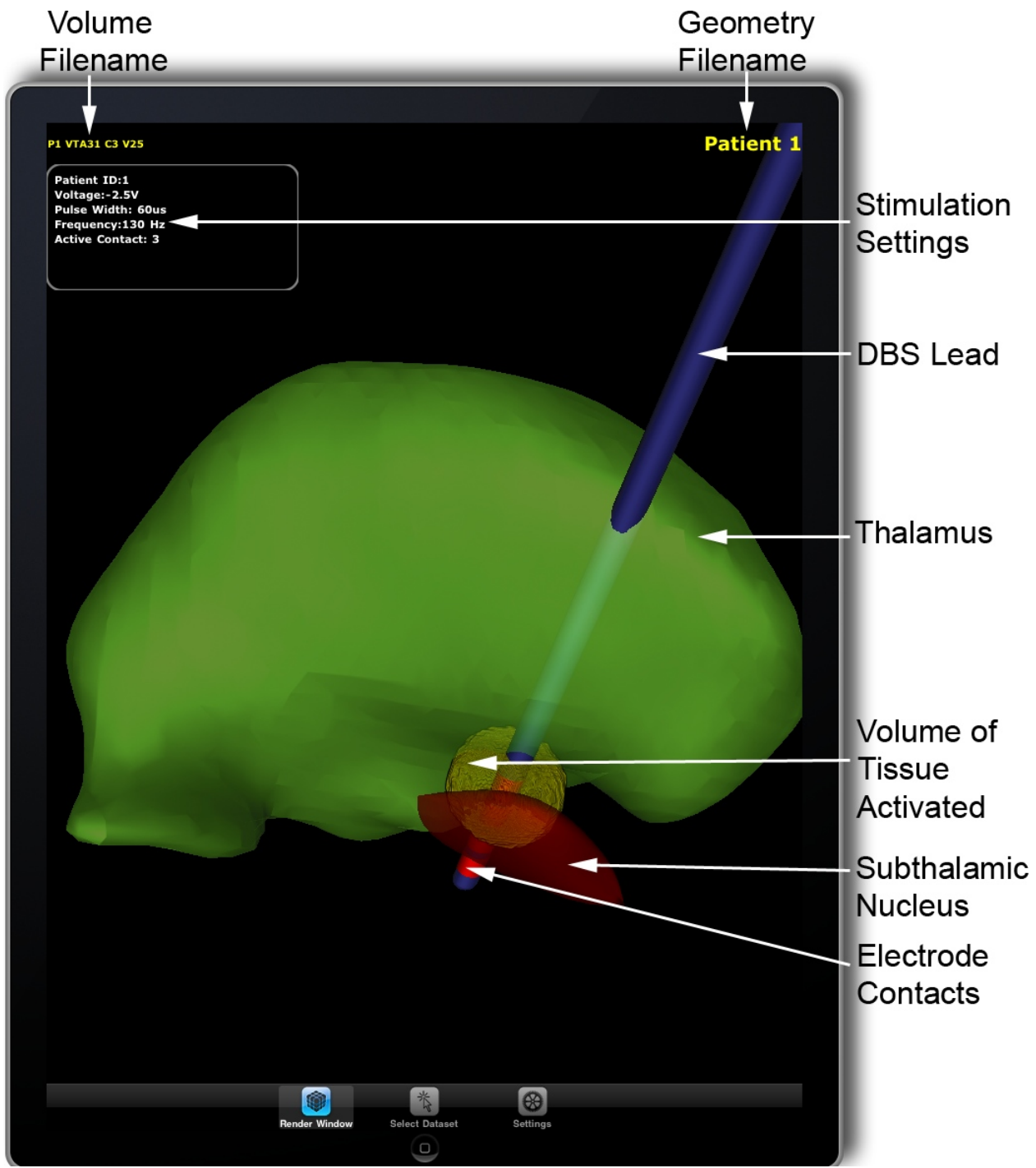
#### Required 3rd-party libraries

The following table contains the required external libraries, the default version number used by build\_visit, and in the order that they are being built

Library	Version	Description	For More Information
Mesa	6.4.2	3-D Graphics Library	<a href="http://www.mesa3d.org/">http://www.mesa3d.org/</a>
Mesa	5.0	(Linux only)	
Qt	3.3.8	GUI Toolkit	<a href="http://www.trolltech.com/">http://www.trolltech.com/</a>
Open	2.4.5	Node File generation	<a href="http://www.open-mpi.org/">http://www.open-mpi.org/</a>
VTK	5.0.0c	Visualization Toolkit	<a href="http://www.kitware.com/">http://www.kitware.com/</a>
Python	2.5	Scripting Language	<a href="http://www.python.org/">http://www.python.org/</a>
Silc	4.6.1	File I/O Library	<a href="https://wci.llnwd.net/codes/visit/3rd_party/silo-4.6.1.tar.gz">https://wci.llnwd.net/codes/visit/3rd_party/silo-4.6.1.tar.gz</a>

Yeah, I figured that I would end up with visit-writer, alas. It's just that it requires a full-blown installation of VisIt, and that's been painful to setup.

– Chris Aug 9 '09  
(StackOverflow)





# “Google to results”

- Metric for ease of use

# Goals

- Vis/analysis without disk I/O
- *Simplicity*
  - Few code modifications
  - No CS experts on simulation team
  - Fast turnaround
  - Few external dependencies
  - → Easy to use with “our” sim



Thanks: Wikipedia User:Llez

# Binary Instrumentation

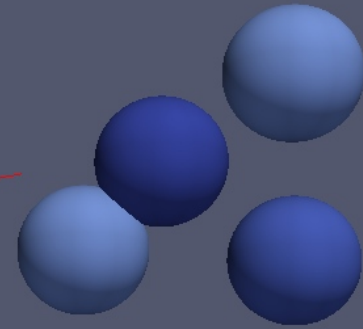
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000007C0	5F	69	6E	69	74	00	5F	66	69	6E	69	00	5F	49	54	__init_fini_ITM
000007D0	5F	64	65	72	65	67	69	73	74	65	72	54	4D	43	6C	__deregisterTMClon
000007E0	6E	65	54	61	62	6C	65	00	5F	49	54	4D	5F	72	65	neTable.ITM_reg
000007F0	69	73	74	65	72	54	4D	43	6C	6F	6E	65	54	61	62	isterTMCloneTabl
00000800	65	00	5F	5F	63	78	61	5F	66	69	6E	61	6C	69	7A	e.__cxa_finalize
00000810	00	5F	4A	76	5F	52	65	67	69	73	74	65	72	43	6C	._Jv_RegisterCla
00000820	73	73	65	73	00	67	65	74	70	69	64	00	73	74	64	sses.getpid.stdo
00000830	75	74	00	66	69	6C	65	6E	6F	00	69	73	61	74	74	ut_FILENO.isatty
00000840	00	5F	5F	61	73	73	65	72	74	5F	66	61	69	6C	00	.__assert_fail.s
00000850	79	6D	62	5F	64	62	67	00	76	70	72	69	6E	74	66	ymb_dbg.vprintf.
00000860	70	75	74	73	00	73	74	72	6E	63	6D	70	00	73	79	puts.strncmp.sym
00000870	62	5F	70	61	72	73	65	5F	6F	70	74	69	6F	6E	73	b_parse_options.
00000880	73	74	72	64	75	70	00	73	74	72	63	68	72	00	73	strdup.strchr.st
00000890	72	6C	65	6E	00	66	72	65	65	00	67	65	74	65	6E	rlen.free.getenv
000008A0	00	66	6E	6D	61	74	63	68	00	66	6F	70	65	6E	00	fnmatch.fopen.f
000008B0	65	72	72	6F	72	00	66	65	6F	66	00	66	73	63	61	error.feof.fscan
000008C0	66	00	5F	5F	65	72	72	6E	6F	5F	6C	6F	63	61	74	f.__errno_locati
000008D0	6F	6E	00	64	6C	65	72	72	6F	72	00	64	6C	6F	70	on.dlerror.dlope
000008E0	6E	00	64	6C	73	79	6D	00	73	74	72	6E	63	61	73	n.dlsym.strncase
^G Help ^C Exit (No Save) ^T goTo Offset ^X Exit and Save ^W Search																

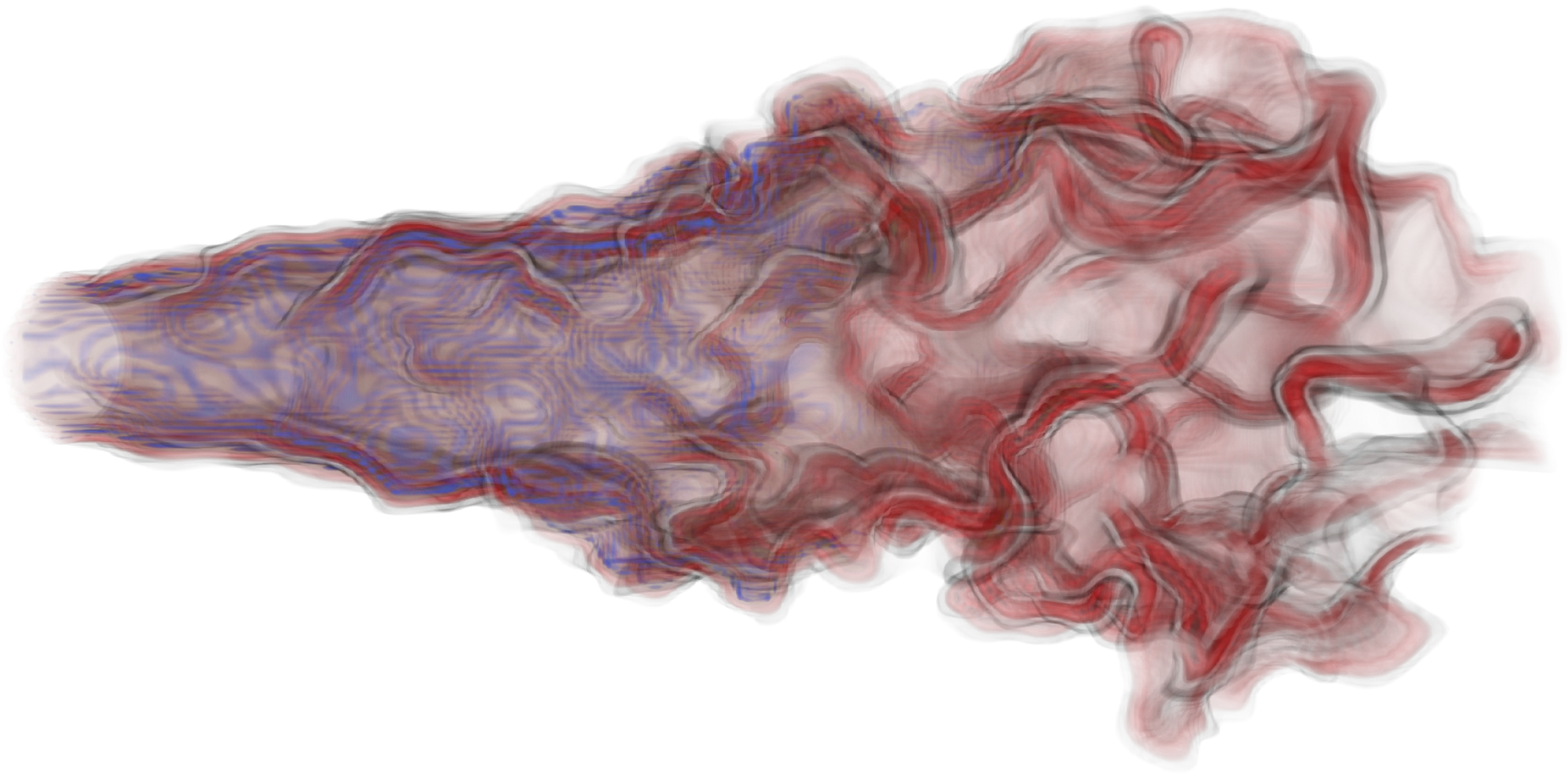
# Advantages

- “Google to results”: 10 minutes
- *No code modifications!*
- Novel uses

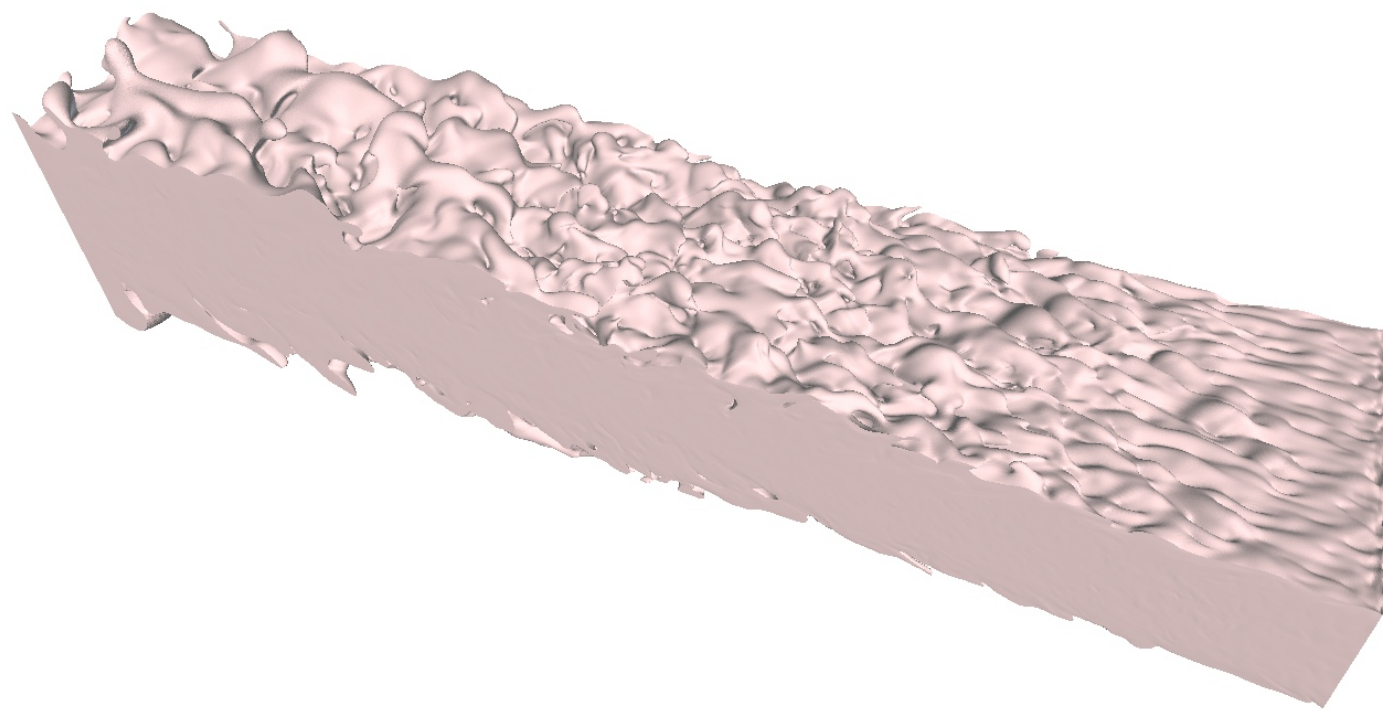
?

# N-Body









# Image Credits

- Wikipedia User:Llez, User:Mysid, User:Lobsterbake, User:Someone35
- Tango project