

Center for Multi-scale
Modeling of Atmospheric
Processes

CIWG Breakout

July 2009

CIWG Agenda

- Talks
 - User support (Mark Branson)
 - Large File/Parallel I/O Status (Karen Schuchardt)
- Status & Progress
 - NSF/Teragrid allocations, DOE/INCITE allocations
 - Digital Library holdings, Circulating Disk Drives, Bulk Data Transfer
 - Developing Teragrid community account for single-point-of-access MMF runs
- On-going Issues
 - Model Taxonomy & Software Configuration Management: What's the status of the codes and where are they
 - Strategies for Post-processing Model Output
 - Large-memory node computer at UCSD
 - Teragrid visualization
- Renewal Proposal Outline

Heads-Up

Smithsonian/CMMAP?

From: Miller Scott <MillerS@si.edu>
Subject: RE: Maui water stuff
Date: July 20, 2009 8:28:24 PM PDT
To: John Helly <jhelly@mail.ucsd.edu>

It seems like the kind of thing that would be of great interest to the new Smithsonian Secretary, as I see his ideas evolving. Do you have a current written summary of the exhibit idea?

From: Helly John [<mailto:hellyj@ucsd.edu>]
Sent: Monday, July 20, 2009 6:17 PM
To: Miller, Scott
Cc: Helly John; Helly, John
Subject: Re: Maui water stuff

Hi Scott.

Nothing yet. We, at CMMAP, still want to do it but the budget problems killed participation by AMNH. Does SI want to do something independently with us?

J.

On Jul 19, 2009, at 6:02 PM, Miller, Scott wrote:

Thanks. Good to hear from you. What happened with the clouds exhibit?

Upcoming Opportunities for Allocations

Allocation Types, Limits, and Deadlines

	Startup/Education Allocation	Research Allocation
Service Units (SUs) Requested	Up to 30,000 SUs for systems < 50 TFLOPS Up to 200,000 SUs for systems > 50 TFLOPS**	200,000 - Unlimited
Submission Window	Year round	December 15 - January 15 March 15 - April 15 June 15 - July 15 September 15 - October 15
Deadlines	N/A	January 15 April 15 July 15 October 15
Allocations Begin	2 Weeks after submission	April 1 July 1 October 1 January 1
Page Limit	N/A	10 Pages* (15 for requests over 10,000,000 SUs) (15 for Multi-year)
Review Cycle	Within a week	Quarterly
Typical Uses	Class/training accounts, start up accounts requiring small amounts of time	Experienced users with research projects

Mark Branson
CMMAP User Support

SPCAM-SOM model simulation

- insertion of SOM into SPCAM amip code (not 3.5.0), Sept 2001-2005
- SOM active only in the tropics (20S to 20N). Based on Waliser et al. (1999)
- in addition to usual monthly-averaged history files, we saved a subset of variables every day and some every 6 hours

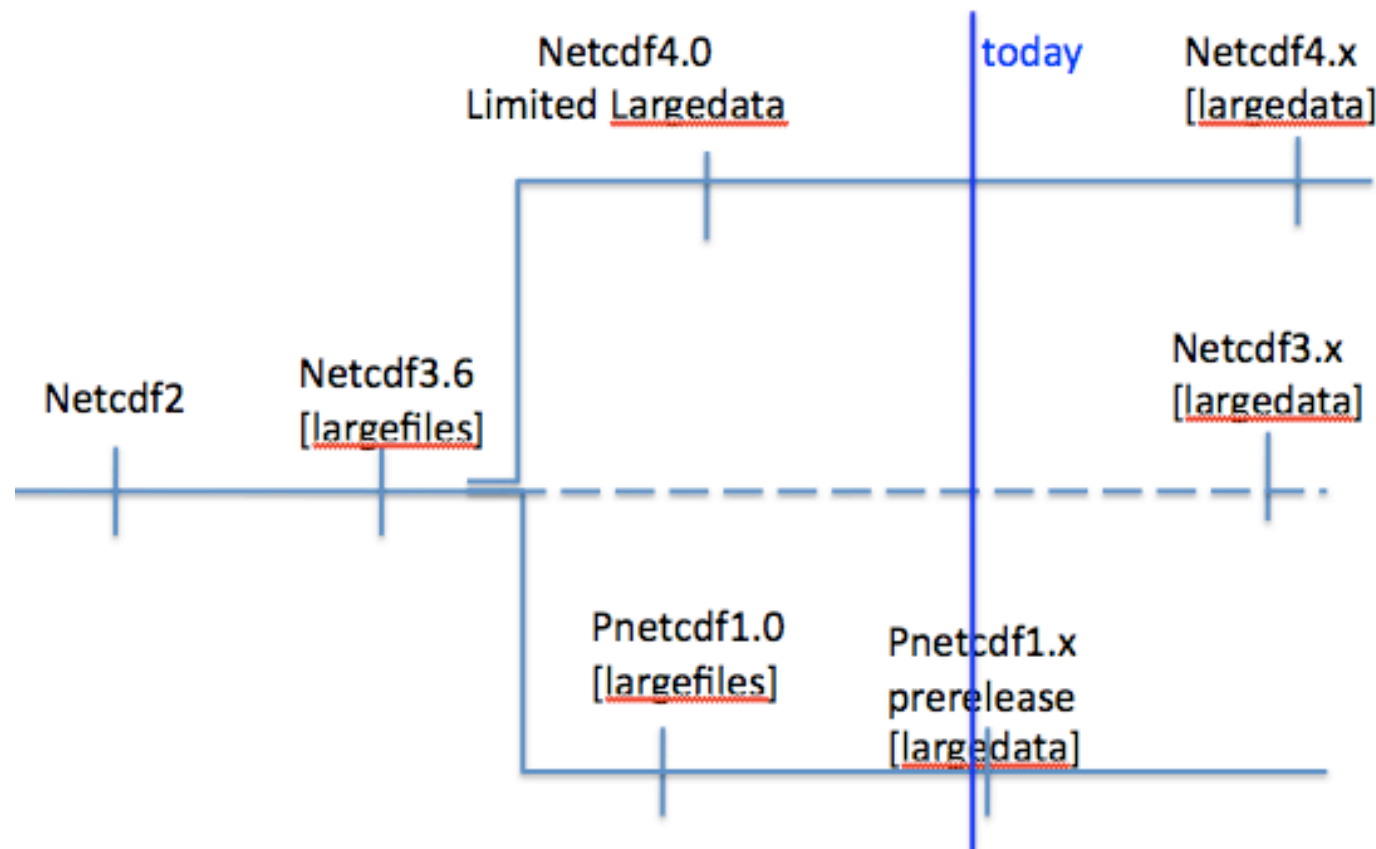
GIGA-LES Data Availability

- We temporarily have the 3D netcdf output files from Marat's GIGA-LES simulation available at the Data Analysis Services Group (DASG) at NCAR
- The files can be accessed from bluefire (/gpfs/proj2/dasg007/gigales)
- Is there enough user interest to request additional time for this space allocation?

Karen Schuchardt
SCIDAC
Collaboration

NetCDF Status

Real large data support coming soon!



Caution:
Pnetcdf output not
currently compatible
with other formats

MMF-Parameterization Workshop

- Led by Steve Krueger
- Maybe virtual (teleconference)
- Aid researchers in the integration of parameterizations into SAM (not GCM per Marat)
- Get Teragrid resources to support this



CMMAP Digital Library

Computing Resources

- [NSF Teragrid](#)
- [DOE INCITE](#)

Data Resources

- [Search for Data](#)

Software

- [Bulk Data Transfer Client](#)
- [Multi-scale Modeling Framework \(MMF\)](#)

hellyj

- [My blog](#)
- [Create content](#)
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INCITE Resources & Allocations

Mon, 05/18/2009 - 23:25 — hellyj

2010 INCITE Call for Proposals

[Add new comment](#) [Read more](#)

[Computational Resources](#)

Teragrid Resources & Allocations

Mon, 05/18/2009 - 23:14 — hellyj

[Add new comment](#) [Read more](#)

[Computational Resources](#)

Sample Fortran program to read GIGALES netcdf 3D snapshot data

This program will read one variables for a subset of the horizontal domain for all vertical levels of a given 3D snapshot time.

1 attachment

Data Conversion Tools

Thu, 11/27/2008 - 20:54 — hellyj



CMMAP Digital Library

Edit primary link

Home

Search for Data

- Search Parameters
- CMMAP_AMIP
 - CMMAP_SAM6.7SR_OUTMOMENTS
 - CMMAP_SAM6.7SR_OUTMOVIES
 - CMMAP_SAM6.7SR_OUTSTATa
 - CMMAP_SAM6.7SR_OUT2D
 - CMMAP_SAM6.7SR_OUT3D
 - CMMAP_SAM6.7SR_OUT3D_netCDF
 - CMMAP_SUPERLES
 - CMMAP_SUPERLES_4xCO2

Navigation

North:

South:

East:

West:

Submit Query

Computing Resources

- NSF Teragrid
- DOE INCITE

Data Resources

- Search for Data

Software

- Bulk Data Transfer Client
- Multi-scale Modeling Framework (MMF)

hellyj

- My blog
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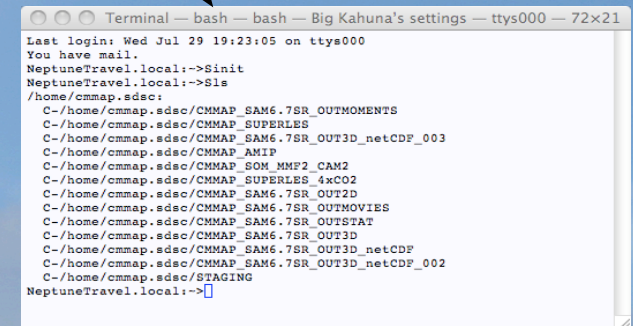
Filename	Collection	Subject	Keywords	Description	Type
<input type="checkbox"/> GATE_IDEAL_S_2048x2048x256_100m_2s_cldtop.raw	metadata		CMMAP_SAM6.7SR_OUTMOVIES	MMF Output for the SUPERLES project	
<input type="checkbox"/> GATE_IDEAL_S_2048x2048x256_100m_2s_cwp.raw	metadata		CMMAP_SAM6.7SR_OUTMOVIES	MMF Output for the SUPERLES project	
<input type="checkbox"/> GATE_IDEAL_S_2048x2048x256_100m_2s_jwp.raw	metadata		CMMAP_SAM6.7SR_OUTMOVIES	MMF Output for the SUPERLES project	
<input type="checkbox"/> GATE_IDEAL_S_2048x2048x256_100m_2s_mse.raw	metadata		CMMAP_SAM6.7SR_OUTMOVIES	MMF Output for the SUPERLES project	
<input type="checkbox"/> GATE_IDEAL_S_2048x2048x256_100m_2s_qvsfc.raw	metadata		CMMAP_SAM6.7SR_OUTMOVIES	MMF Output for the SUPERLES project	
<input type="checkbox"/> GATE_IDEAL_S_2048x2048x256_100m_2s_sfcprec.raw	metadata		CMMAP_SAM6.7SR_OUTMOVIES	MMF Output for the SUPERLES project	

Simple Methods of Data Download (2) and Upload (1)



Selective Data Transfer

Bulk Data Transfer SRB Client



Storage Resource Broker (SRB)

- SAM-QFS has 16 tape drives, an 304-TB disk cache
- Meta Data Servers: 2 x Sun x4600
- Data Login Servers: 2 x Sun v40z /
- 6 x 1GbE connections to the TeraGrid/HPC network
- Tape Drives
- 16 STK 9940-B tape drives
- 24 IBM J2 3592 tape drives

Circulating External Disk Drives



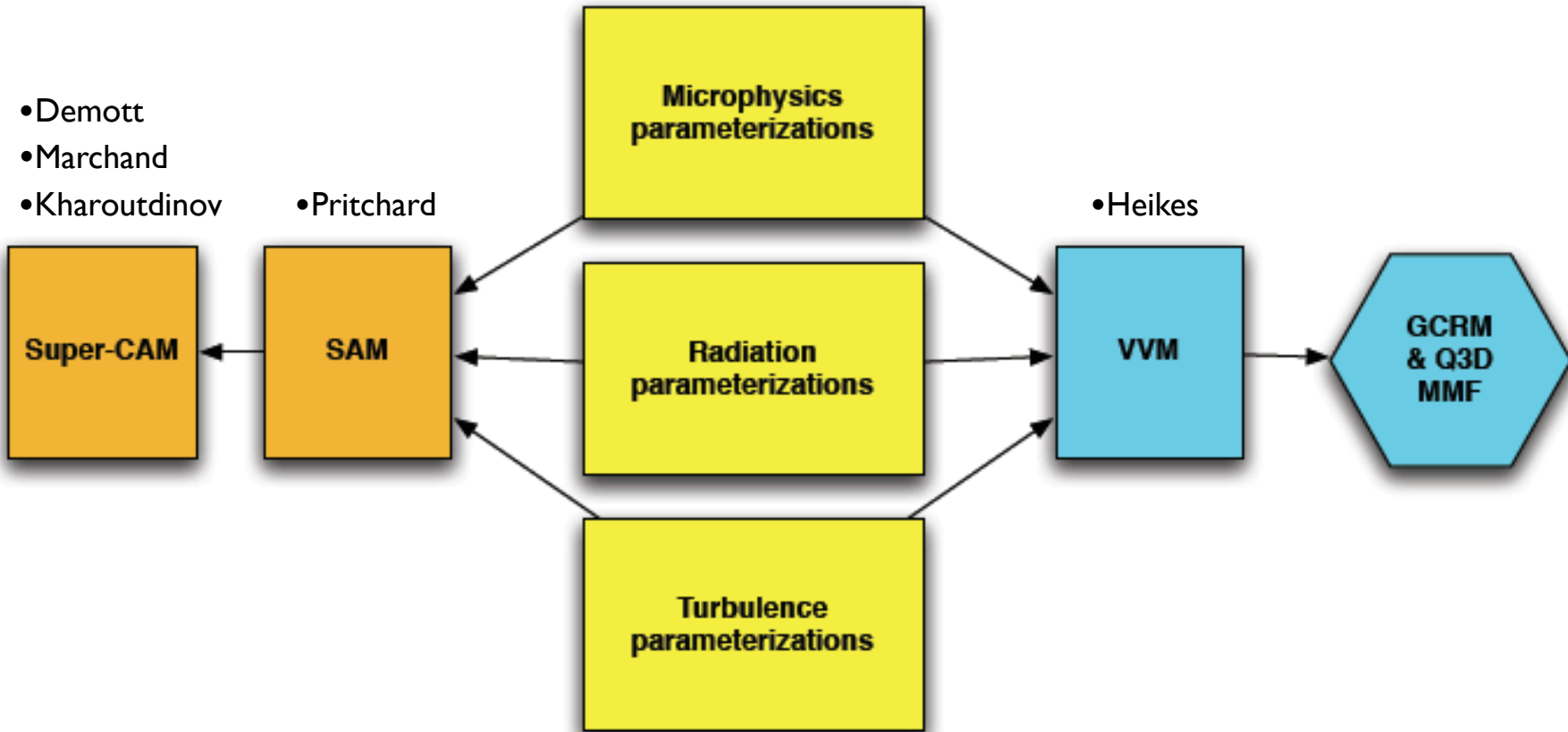
- FAT32 volume format
- USB 2.0 connector

- SRB-client can also be used for non-web data transfer ala rsync
- List-base scripts are also possible if they are desired

Model Taxonomy & Software Configuration Management

- Model codes
- Utility codes

Testing parameterizations





f90tohtml

A perl script to convert fortran source files into a hyperlinked web site.

 Search projects

[Project Home](#) [Downloads](#) [Wiki](#) [Issues](#) [Source](#)

[Summary](#) | [Updates](#) | [People](#)

NEW: updated for WRFV3 on April 30, 2009

A new home for f90tohtml

f90tohtml has been around for a decade, but, as of 10 July 2008, is new here at code.google.com. The author of this page is also new to code.google.com, and is uncertain what to expect, and uncertain how to manage this new venue. Hopefully this venue will make f90tohtml more useful to its users. Perhaps this project can become a community project. Apologies for letting the old site become outdated. New project owners and project members are welcome.

By the way, the tip about https at [Getting Started with Google Code Hosting](#) was very helpful. I had to manually enter https just to upload a *new download!* (but no problems in 2009)

Here are some public code browsers, that you can make with f90tohtml:

- [wrfbrowser](#), WRF version 3
- [crmbrowser](#), CRM version 2.1.2
- [d2psbrowser](#)

Here are the legacy installation instructions:

What is f90tohtml?

- f90tohtml is a PERL script that converts FORTRAN source code into HTML. All the subprogram calls are linked, both forward and backwards. A clickable calling tree is constructed. A subject index can be made from a user-supplied hash. A search engine, based on regular expressions, searches the code.
- f90tohtml was developed for the purpose of browsing large numerical weather prediction codes, the University of Oklahoma's ARPS model, the PSU/UCAR MM5, the NCEP Regional Spectral Model, the Navy's COAMPS model, and the new community WRF model.
- f90tohtml is most effective when used on your code; browsing from your own disk is much quicker than over the net. But you may view an online [WRF Browser](#). The WRF model is v1.3, downloaded from <http://www.wrf-model.org> on March 30, 2003.
- The files and scripts that will help you apply f90tohtml to *your* source of WRF, ARPS5.0 and COAMPS2.0 are bundled with the distribution.

How to install f90tohtml

★ Star this project

Code license: [MIT License](#)

Labels: [fortran90](#), [f90](#), [conversion](#), [html](#)

Feeds: [Project feeds](#)

Project owners: [People details](#)

[incredio](#),
[francoise.pinsard](#)

Visualization

TeraGrid User Portal Now Offers Interactive Remote Visualization on Spur

The TeraGrid User Portal team is pleased to announce the transition of the user portal's Remote Visualization feature from Maverick to the new TACC Visualization resource, Spur. The remote visualization service offers interactive visualization capabilities through a remote VNC desktop session for users needing to analyze very large data sets residing on Spur or Ranger, and requires only a Java-capable browser, an active Spur allocation, and a VNC password set on Spur. The transition to Spur will greatly increase the performance and capability of this service. Spur system configuration includes a Sun Fire X4600 server (master node) with:

- 8 dual-core CPUs (16 cores)
- 256 Gigabytes of Memory
- 4 NVIDIA Quadro FX5600 GPUs

7 Sun X4400 servers (visualization nodes), each with:

- 4 quad-core CPUs (16 cores)
- 128 Gigabytes of Memory
- 4 NVIDIA Quadro FX5600 GPUs

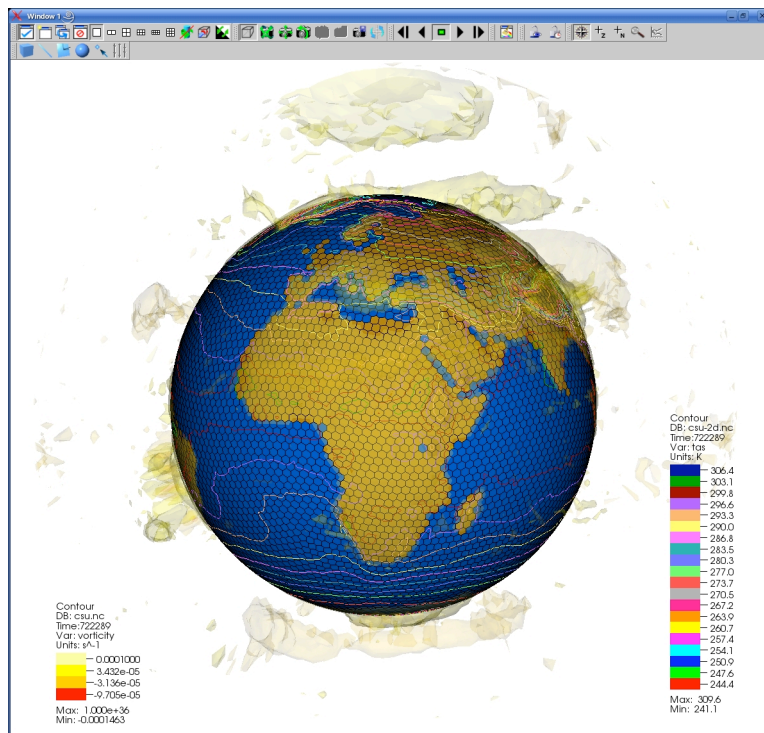
Total system capability: 128 cores, 1 Terabyte aggregate memory, 32 GPUs

TeraGrid User Portal users may access this service as before, by logging into the portal, visit the 'Resources' area and select the 'Remote Visualization' to use the Spur Remote Visualization service.

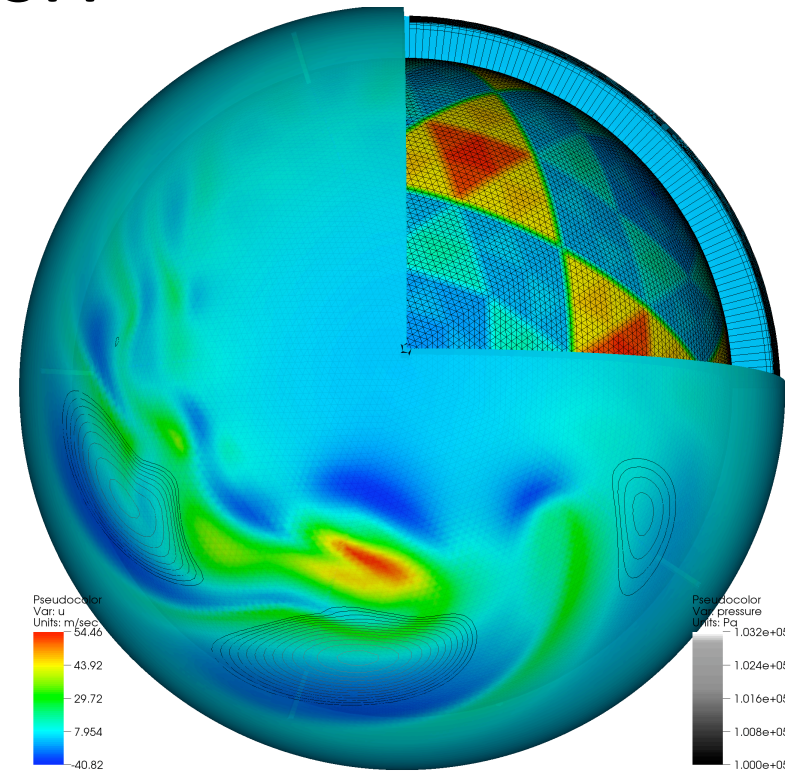
At least one tool called ParaView

3D visualization of geodesic data

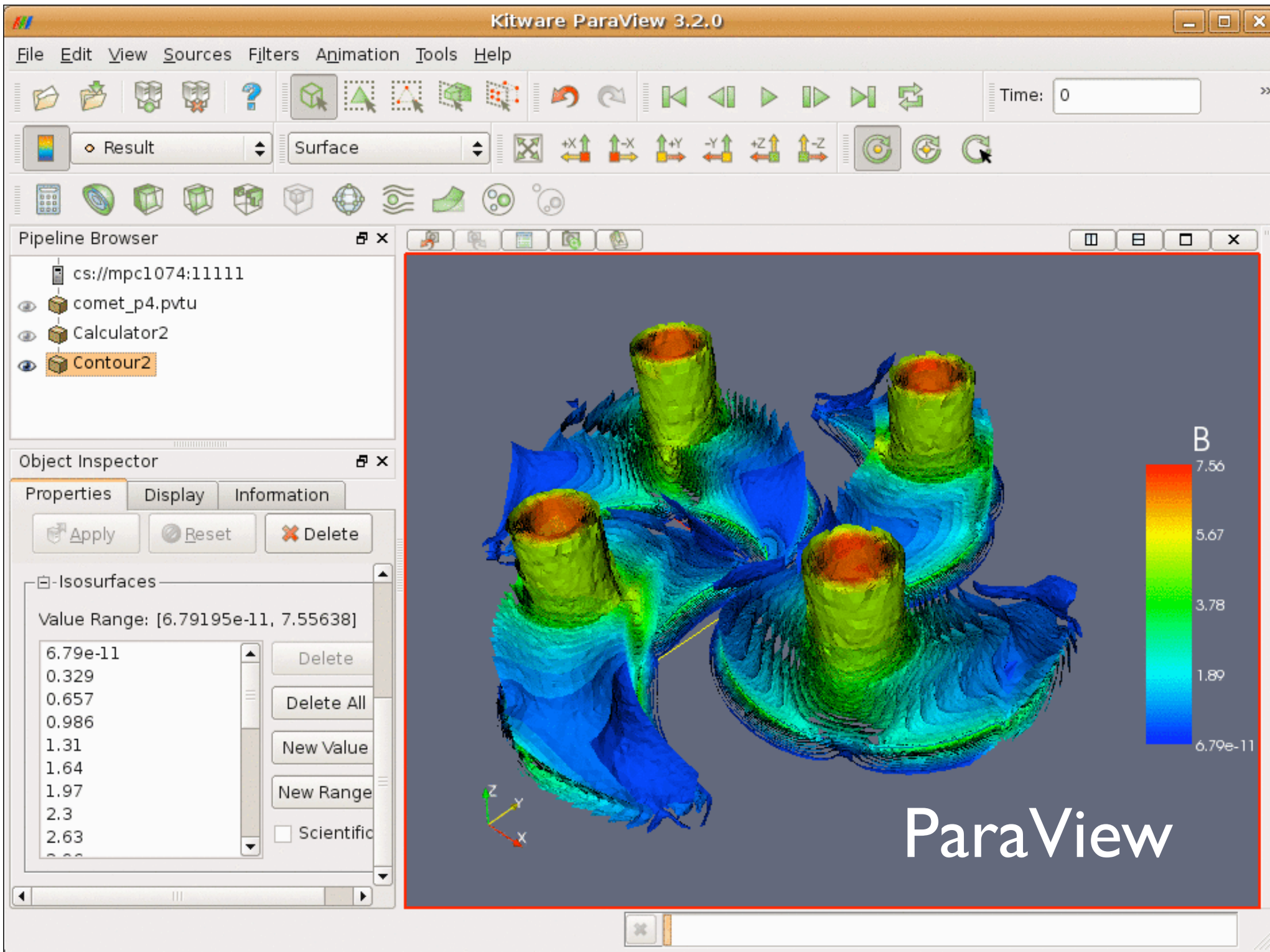
VisIT



3D isocontours of vorticity.



Composite plot of multiple mesh types and variables in the geodesic grid. Cell area (2D cell-centered data) and wind velocity (3D corner-centered on layers) data is shown by pseudocolor plots. Pressure (3D cell-centered on layers) is shown by contour lines.



Renewal Proposal

1. **Cyberinfrastructure Working Group**
 - 1.1. **Large-Eddy Simulation Run**
 - 1.1.1. **Research derived from that (at least one poster last night)**
 - 1.2. **Data Conversion Project**
 - 1.2.1. **How is that data being used**
 - 1.3. **MMF-Community Account/Science Gateway**
 - 1.4. ***'Integrating New Parameterizations into MMF'* Workshop**
2. **Digital Library**
 - 2.1. **Data Distribution**
 - 2.2. **Software Distribution**
 - 2.3. **Maybe evolve into CMMAP Atlas of Cloud Modeling?**
3. **Large Volume Data Transfer and Visualization**
 - 3.1. **Need an experimental setup**
 - 3.2. **Potential collaboration with Museums**
4. **Computing Resources**
 - 4.1. **UCSD Matching (Storage Resources, maybe Computing)**
 - 4.2. **Analysis & Visualization**
 - 4.3. **Teragrid Integration**
 - 4.3.1. **Community Account**
 - 4.3.2. **Petascale Computing**
 - 4.4. **Earth System Grid Integration**
 - 4.4.1. **SCIDAC Collaboration**
 - 4.4.2. **Unstructured grids**
5. **Standards**
 - 5.1. **CF-Metadata**
6. **Education and Outreach**
 - 6.1. **Graduate Student Workshop(s)**

Cyberinfrastructure Renewal Outline

Research & KT Factoring Needed

Topics Inventory

- Cecilia DeLuca: National Unified Operational Predictive Capability (Interoperability?)
- K. Schuchardt: Large-file/Parallel I/O
- **Single-column model resources desired.**
- K. Musgrave: On-line Tutorials for MMF (SPCAM) (Grad. Student) (Look at WRF/CAM as example)
- M. Branson: SPCAM/SOM dataset (AMIP, hourly CRM variables)
- I. Baker: need to get land-cover data exemplars out to exposure.
- Need clarification of dataset naming and genesis
- S. Krueger: SPCAM User's Group Workshop
- R. Heikes: SVN access to from DL also larger question of CMMAP-level SVN service still open (svn://

Backup



TeraGrid™ User Portal

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Welcome, John Helly

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[Allocations/Usage](#) [Accounts](#) [Profile](#) [Registered DNS](#) [Change Portal Password](#) [Add/Remove User](#) [Community Account](#) [SSH Terminal](#) [Citation Info](#)

Allocation Usage

Projects

[Show Inactive Projects](#) | [Show Expired Allocations](#)

Regionalization of Anthropogenic Climate Change Simulations

[Show Project Details](#)

Allocations									
Start Date	End Date	Resource	SUs Remaining	SUs Awarded	My Usage (SU)	% Remaining	Alloc. Type	State	
2009-04-01	2010-03-31	Ranger	294,974	950,000	0.0	31 %	new	active	
2009-04-01	2010-03-31	Spur	500	500	0.0	100 %	new	active	

Modeling Global Climate Variability with the Multi-scale Modeling Framework: The Boundary-layer Cloud Problem

[Show Project Details](#)

Allocations									
Start Date	End Date	Resource	SUs Remaining	SUs Awarded	My Usage (SU)	% Remaining	Alloc. Type	State	
2009-04-01	2010-03-31	Steele	950,000	950,000	0.0	100 %	new	active	

[Show Users on Steele](#)

RCM Enhancement and Baseline Climate Intercomparison Project

[Show Project Details](#)


Allocations									
Start Date	End Date	Resource	SUs Remaining	SUs Awarded	My Usage (SU)	% Remaining	Alloc. Type	State	
2008-10-01	2009-09-30	Ranger	-9,616 <i>Overdrawn</i>	490,000	0.0	0 %	renewal	inactive	
2008-10-01	2009-09-30	SDSC Tape	100	100	0.0	100 %	renewal	active	

[\[User Responsibility Form\]](#)
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Data Conversion (com3D->netCDF)



by Mark
Branson/CSU

 **CMMAP Digital Library** Edit primary links

Home

Active forum topics

- What software should we use to produce the SUPERLES derivatives?
- We have identified nedCDF as the default format for data products. Any discussion needed?
- data format conversion [more](#)

hellyj

- My blog
- Create content
- Search for Data
- My account
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SAM output conversion programs


[View](#) [Edit](#) [Outline](#)

Two of the programs that convert the 3D model output which is made up compressed 2-byte integers to either binary floating point values (com3D2bin.f) or netcdf files (com3D2nc.f).

Attachment	Size
com3D2bin.f	3.5 KB
com3D2nc.f	5.5 KB

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 **CMMAP Digital Library** Edit primary links

Home

Sample Fortran program to read GIGALES netcdf 3D snapshot data

[View](#) [Edit](#) [Outline](#)

This program will read one variables for a subset of the horizontal domain for all vertical levels of a given 3D snapshot time.

Attachment	Size
read_gigales3d.f90	2.01 KB

Active forum topics

- What software should we use to produce the SUPERLES derivatives?
- We have identified nedCDF as the default format for data products. Any discussion needed?
- data format conversion [more](#)

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Recent blog posts

- Datatar Alternatives
- CMMAP Digital Library URL updated to <http://cmmmap.sdsc.edu> (don't need /drupal)
- CMMAP Digital Library upgrade completed
- Collections Status [more](#)

Recent comments

- netcdf on Datatar 17 weeks 4 days ago
- IEEE format means unformatted binary from FORTRAN writes 17 weeks 4 days ago
- netCDF or ieee 17 weeks 4 days ago
- You can use the reply

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