# CMMAP Community Portal for MMF (SP–CAM) Experiments

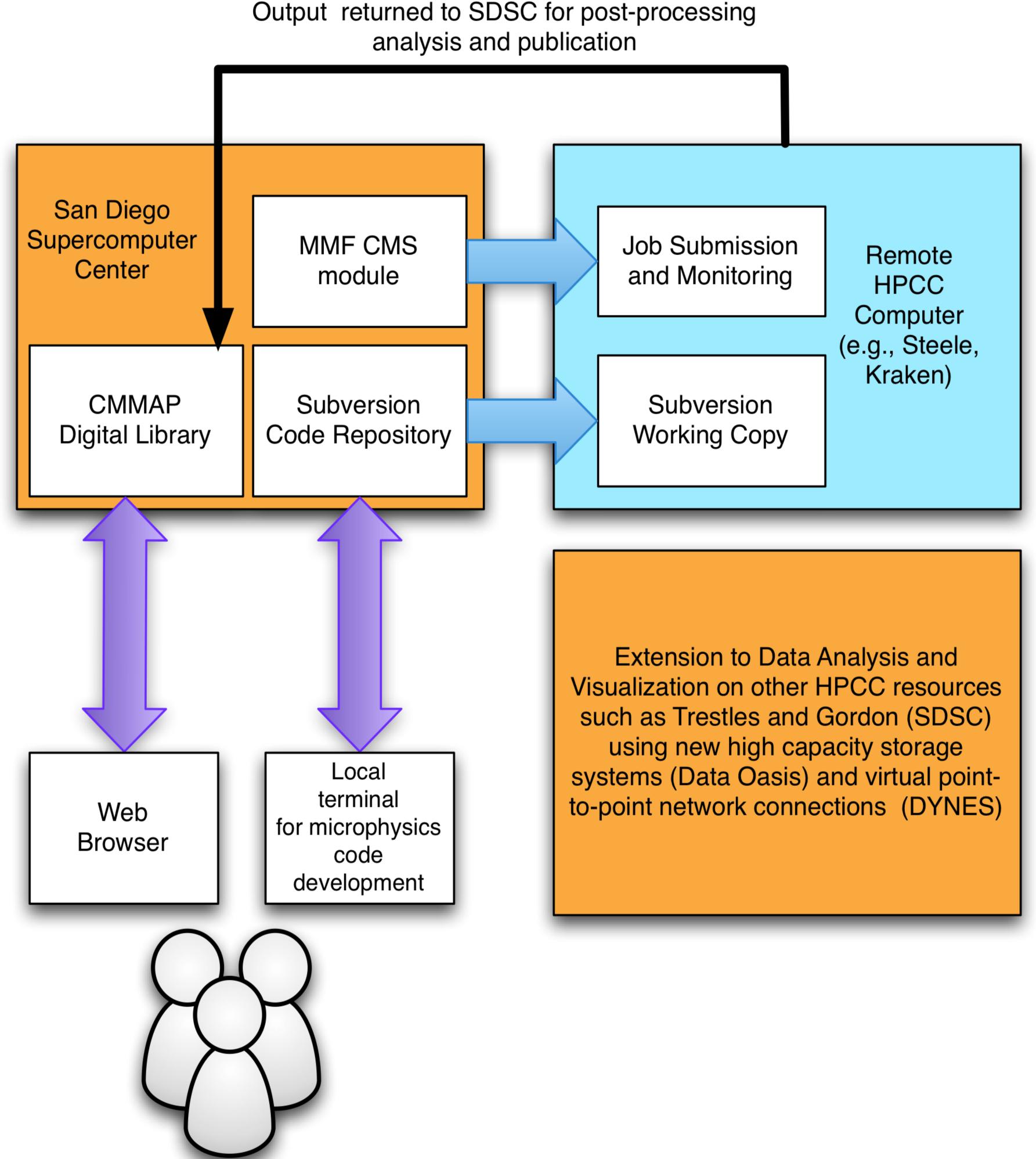
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# Abstract

Community accounts on the National Science Foundation High-performance Computing and Communications network is a relatively recent development. For reasons of security and accountability, the policy on the Teragrid has historically been one of individual, named-user access essentially since the beginning of the system. The increasingly common, portal-oriented computing paradigm is a result of the maturation of web-based technology combined with new tools in the form of *Content* Management Systems (CMSs) that provide new levels of interactivity through multi-language application programming interfaces (APIs). The Multi-modeling Framework (MMF) SP-CAM model is being used by a variety of collaborators throughout the CMMAP community so we chosen to integrate it into the CMMAP Digital Library portal to explore the utility of having a more convenient method of access to a complex modeling environment. The goal is to bring the experimental capabilities of the SP-CAM to the scientist who is not a model developer per se but who wants to conduct numerical experiments occasionally and develop new model components such as new microphysics schemes. Previously this capability has been available only to scientists who are expert in both the science and the computing realms. The CMMAP community portal is now being tested against the MACM microphysics scheme. Initial MACM tests will focus on one vs. two-moment treatment of precipitation (rain, snow, graupel). The basic motivation is two-part: 1) the sensitivity of the organization of deep convection and its thermodynamic and dynamic characteristics to onemoment versus two-moment microphysics in CRM studies, and specifically the suggestion that microphysics-driven impacts on cold pool characteristics are important in propagating convective characteristics in MMF; 2) poor simulation of global precipitation distribution and frequency in nearly all models, including GCMs, NWP and global cloud-resolving models, with generally too much light precipitation, which may be due in part to representation of precipitation microphysics. The idea is to conduct simulations with appropriate configuration and output to address both scientific questions.



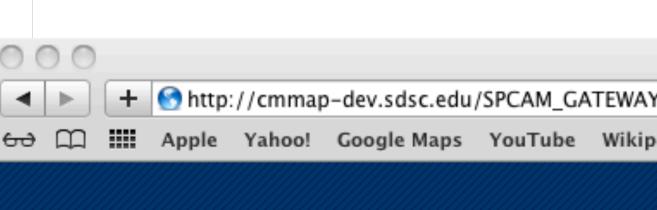




# Supported by computing allocations on the NSF Teragrid now known as XSEDE







### NEW FORUM TOPICS

CMMA

- Subversion Management
- data format conversion What software should we use to produce the
- SUPERLES derivatives? We have identified nedCDF as the default format for data products. Any discussion needed?

### ACTIVE FORUM TOPICS

- Subversion Management
- What software should we use to produce the SUPERLES derivatives?
- We have identified nedCDI as the default format for data products. Any discussion needed?
- data format conversion

- SOFTWARE Bulk Data Transfer Client
- Model Development Team
- Multi-scale Modeling
- Framework (MMF) Tools and Utilities

#### COMPUTING RESOURCES

- NSF Teragrid
- DOE INCITE
- Experiment with SPCAM
- Run SPCAM
- hackin

#### DATA RESOURCES

Search for Data

#### HELLYJ

- Biblio
- My account
- Search for Data
- Create content
- Recent posts
- Feed aggregator
- Administer

### NAVIGATION Experiment with SPCAM

## Experiment with SPCAM

R-3.COMPILE ROJ3.5@steele ) Yes

Enter a whitespace-free code\_configuration designation: g:1312764560 OTE: Code configuration name is tied to code version

Finite-Volume Semi-Lagrangian

Only Finite-Value grids supported at this time Which atmospheric physics would you like to use?:

ideal adiabatic

Which atmospheric horizontal grid resolution you like to use?: 1.9x2.5 (144,96) Only Finite-Value grids supported at this time

Enable atm perturbation growth experiments? Which CRM microphysics package would you like?: Sam1mom-Standard m2005-Double Moment

Would you like the CRM to be 2D or 3D?: 2D (CRM\_nx or CRM\_ny eq 1) 🔘 3 D

Enter number of CRM columns in zonal dimension:

Enter number of CRM columns in meridional dimensio

Enter horizontal resolution of CRM in meters

Enter temporal resolution of CRM in seconds

Which ocean model would you like to use?:

O docn7

Enable SOM input fields to history tapes ? R-1.User\_Info R-2.Platfm/Version R-4.Runtime\_Opts

Expmt w/SPCAM

# With important contributions from Mike Pritchard, Marat Kharoutdinov, Minghuai Wang, Gabe Kooperman, Mark Branson, Robert Pincus

C Q- Google

Experiment with SPCAM | CMMAP Digital Library

# **CMMAP** Digital Library

Would you like to define/install a new code configuration? If not,proceed to Runtime\_Opts below:

Which atmospheric dynamics would you like to use?:

### Enter number of ATM\_GCM layers in vertical dimension?

OI version of SPCAM requires Sam1mom

Enter number of CRM layers in vertical dimension (at least 2 less than atm\_nz):