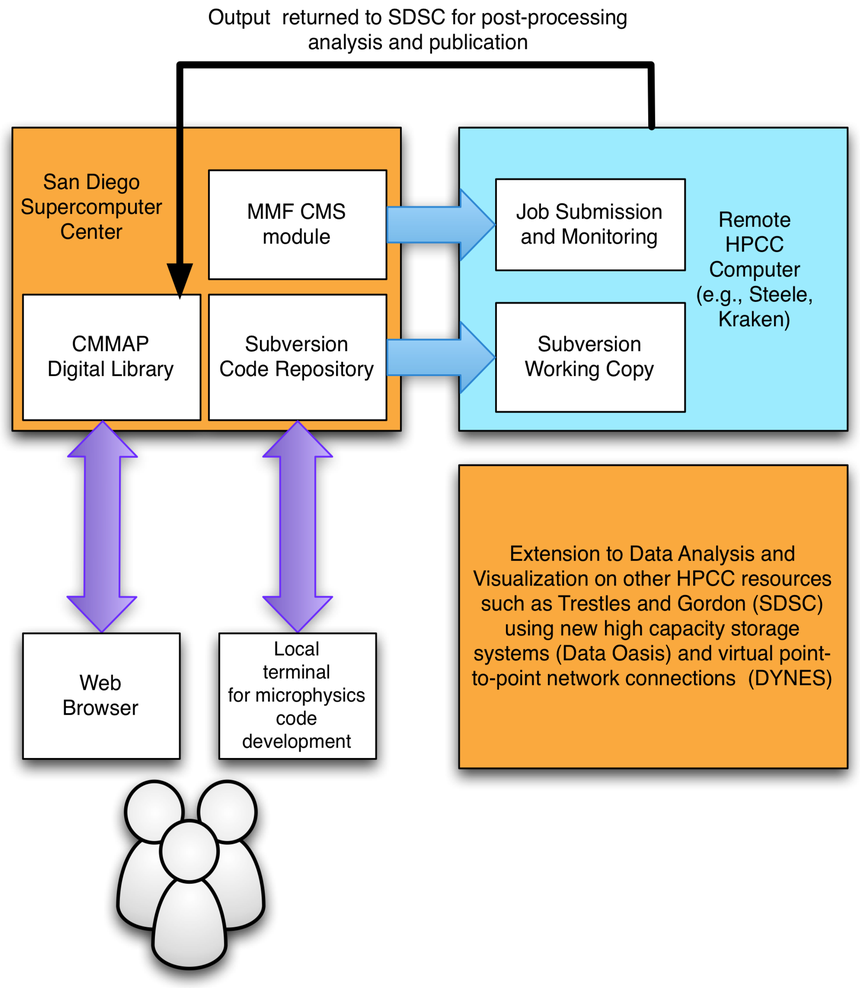
CMMAP Community Portal for MMF (SP-CAM) Experiments

John Helly[1,2], Jack Ritchie[2], Hugh Morrison[3]
[1]San Diego Supercomputer Center, [2]Scripps Institution of Oceanography, [3]National Center for Atmospheric Research

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

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 one-moment 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

SDSC

SCRIPPS INSTITUTION OF OCEANOGRAPHY UCSD 1903 • CENTENNIAL • 2003

NCAR NATIONAL CENTER FOR ATMOSPHERIC RESEARCH