**Activities and Findings**

**Research and Education Activities:**

During the first reporting period for the Commodity Governance (CoG) project, the team at University of Colorado/CIRES focused on the following activities:

1. Participation in interviews conducted by collaborators at the University of Michigan. Interview topics included the histories of community infrastructure and modeling projects, work habits, and collaboration techniques.

2. Broad discussion of project issues during biweekly teleconferences. The discussions hosted by the project covered project planning, ideas and preconceptions about the need for in-person meetings and communications, and reviews of a variety of portals and documents relevant to the project.

3. Development of a prototype collaborative workspace, including requirements collection and preparation of use cases, system design, initial implementation, and scientist review. The intent is to integrate the workspace into the Earth System Grid portal (http://www.earthsystemgrid.org) for proximity to climate models, model output data sets, and analysis and visualization services. This combination of collaborative workspace, scientific artifacts, and services is anticipated to appeal to scientists analyzing 5th Coupled Model Intercomparison Project (CMIP5) data and others involved in model development, comparison, and evaluation projects. The idea is to build up the community of collaborators while integrating into it elements of commodity governance.

**Findings: (See PDF version submitted by PI at the end of the report)**

A prototype of a collaborative workspace module was completed during the first year of the CoG project. It includes the ability to create projects and sub-projects, to upload a variety of images and documents, and to annotate objects and initiate and contribute to discussions using a variety of formats, including blogs. Functional requirements were derived from two use cases. The first use case is based on a summer colloquium scheduled for 2012, organized by collaborator Christiane Jablonowski. This colloquium is focused on the comparison of atmospheric dynamical cores, the portion of an atmospheric model that solves the governing fluid equations. It serves as a template for the support of other 'model intercomparison projects' or MIPs, an approach to model evaluation that is widely employed in the Earth science modeling community. A second use case is based on a class entitled 'The Art of Climate Modeling,' taught at the University of Michigan by Christiane. For this graduate level class, each student created a sub-project which also needed its own workspace in the virtual environment. Student projects involved running the Community Climate System Model (CCSM), analyzing the resulting output, and presenting and discussing the results in an on-line forum.

Sylvia Murphy prepared use cases based on collaborator input and coordinated reviews, while senior developer Luca Cinquini implemented the prototype. The Django package, a python-based framework for web development, was used to expedite the implementation. Several reviews were conducted with scientist collaborators, and with leads from the Earth System Grid gateway at NCAR. Although the prototype was completed too late to be used in Christiane's class during the Fall 2010 semester, it will be usable for future courses. The capability Christiane is currently using, a forum provided by Google, can be incorporated into the system architecture if desired.

A findings file is attached that shows two figures, with explanation:

1. Screenshot of a prototype workspace set up for 'The Art of Climate Modeling' course

2. Relation of the workspace to other science gateway capabilities

**Collaborative Research: CDI-Type II: Scaling up: Introducing commoditized governance into community Earth science modeling**

Supplementary information for first Annual Report

December 23, 2010

**Figure 1: Screenshot of workspace set up for “The Art of Climate Modeling” course**

This figure is a screenshot of the collaborative workspace developed for the Commodity Governance (CoG) project by Luca Cinquini. The tools displayed enable users to upload documents and images and annotate and describe them using a variety of formats, including blogs. The workspace is set up here to demonstrate how it could be used to support a class at the University of Michigan entitled “The Art of Climate Modeling.” In the course, students engage in a variety of hands-on projects that involve running a climate model, analyzing the resulting output, and discussing and presenting the results in an on-line forum. *(Image courtesy of Luca Cinquini)*

Embedded Wiki Application with Image and File upload.tiff

**Figure 2: Relation of the workspace to other science gateway capabilities**

The diagram shows how the CoG workspace is anticipated to act as a central hub that enables a user to interact with many part of a large science gateway. Close integration with scientific functions such as data access and invocation of workflows distinguish it from generic wikis and other collaborative tools. Integration of the workspace with the Earth System Grid climate data distribution portal is scheduled to occur in the next phase of the CoG project. The workspace will also be integrated with metadata capabilities developed under previous NSF support through the Earth System Curator project. *(Image courtesy of Luca Cnquini.)*

