SUPPLEMENT REQUEST #1 for
"Integrated Data Management System for Critical Zone Observatories" (NSF EAR-1332257)

Summary of Proposed Work

This request for supplemental funding proposes three additional tasks related to enhancing the integrated website for the Critical Zone Observatory program (i.e. http://criticalzone.org/). These web system development tasks will be primarily conducted at the University of Colorado at Boulder, although PI Aufdenkampe will continue to oversee their work. All requested supplemental funds will be directed to Boulder via an amendment to their existing subcontract. The scope of this supplement is for one additional year, after which the responsibility for http://criticalzone.org/ will be transferred to the soon-to-be-named National CZO Network Office.

The proposed work will update the CriticalZone.org website with the three following goals:

1) HOST FOUR ADDITIONAL CZOS, which will enable site visitors find info about all ten CZOs as well as their cross-CZO activities. Lubinski and Parrish will work closely with the new CZOs to import their content and make sure it's consistent with the existing CZOs.

2) PROVIDE BETTER INTERACTION WITH THE CENTRAL DATA SYSTEM, which will help site visitors more easily use granular search and data display capabilities. Lubinski and Parrish work closely with the integrated data team including those involved in the "BiG CZ" Scientific Software Integration project. Depending on final plans, Parrish may work individually with each CZO as well.

3) IMPROVE KEY FUNCTIONALITY - such as site search, faster page loading and better home page content - which will improve the visitor experience and better meet CZO's communication goals. Lubinski and Parrish will work closely with CZO web personnel (ie data managers, education/outreach folks). This team will determine which of the highest priority items can be addressed with remaining salary after efforts #1 and #2 are accomplished.

Justification for Supplement

Over the last year, NSF has requested two major changes to the originally proposed scope of the integrated CZO website system. The first was the unification of dataset pages, and the second was the expansion of the CZO network from 6 to 10 CZOs.

Building unified data presentation pages on CriticalZone.org was never part of the originally proposed scope. At the inception of the CZO program, CZO PIs had concerns that a central web system for browsing and downloading datasets might not present their

data as well as they could on their own. In 2010 the CZOs reached a compromise that they would post as many datasets as possible as "CZO Display files" for the San Diego Supercomputing Center (SDSC) to automatically harvest into a central database. However, after hearing feedback from the national CZO Steering Committee in May 2012 in Puerto Rico and with encouragement from NSF, CZO PIs became open to the idea of unifying data presentation on CriticalZone.org. One of the major accomplishments of the Dec 2012 meeting of the IMC was coming up with plan on how to do this that everyone was happy with. Aufdenkampe thus led the CZO web development team (David Lubinski and Eric Parrish from Boulder, and Heather Brooks from Stroud Water Research Center) to work closely with 1-2 web/data managers from each CZO to act on these overall recommendations. The group met for weekly conference calls to flesh out design details, prepare and load datasets, and implement the website components for the back end and front end of the system. Lubinski spent 25%-40% of his time from Jan to the present on these tasks, and the data pages of the website had a soft launch in early June 2013 and the few remaining details have been finalized throughout this summer. This was a huge accomplishment. Not only do we have an nice, uniform and integrated user interface for browsing these files, but we have also built in functions to the website backend that simultaneously load datasets into the integrated database at SDSC. However, because of this enormous effort, substantial funds were diverted from our originally proposed scope, which included developing a tight integration with the central CZO data system for granular data searches and also included improvements to key functionality and ongoing maintenance for another year.

The increase in the number of CZOs from 6 to 10 will require a redesign of "frontend" of the CriticalZone.org web system, including the navigation approach, to accommodate the additional CZOs, and will also require an expansion of the "backend" content management system. In addition, the web/data managers from the new CZOs will require training and support to learn and use our system.