CSDMS

COMMUNITY SURFACE DYNAMICS MODELING SYSTEM

DRAFT: September 5, 2008

THE EDUCATION AND KNOWLEDGE TRANSFER (EKT) WORKING GROUP MEETING

Date: October 10, 2008
Location: CSDMS Integration Facility
University of Colorado at Boulder
Time: 8:00 AM – 5:00 PM
Contact for Meeting and Lodging: Marlene Lofton (Tel: 303-735-5482; Email: marlene.lofton@colorado.edu)
Advance Confirmation Required

Focus: Fully integrated EKT components focused on three end-user groups: researchers, planners and educators

- Researchers with model and visualization tools for the testing of hypotheses in support of data interpretation, and development of field programs. The archiving of benchmark data sets, documented source code, and the ability to download models with user-friendly graphical interfaces are key objectives.
- Planners with decision-making tools to run scenarios, and relate GIS output to environmental factors and land use while quantifying uncertainties.
- Educators with pre-packaged models to help illustrate surface processes, teaching tools to build intuition with "what-if"-type model runs, case studies that integrate field data and model simulations, and exploratory exercises for students. Our principal audiences are university students, professionals, teachers at the secondary school and college levels, and the general public.

Preliminary Agenda:

Hour	Topic	Presenter(s)	Duration
08:30	Welcome: Coffee and Introductions	*	*30 min*
09:00	Overview of CSDMS	James Syvitski	*45 min*
09:45	Learning Members' Interests and Work Related to EKT Participants: Please bring your 10 min. presentations	Meeting Participants	*60 min (10 min ea)*
10:45	*Morning Break*		*15 min*
11:00	Technology Presentation Questions/Clarifications/Discussion	Scott Peckham	*20 min* *20 min*
11:40	Presentation of CSDMS Website: EKT-Related Questions/Clarifications/Discussion	Albert Kettner	*20 min* *20 min*
12:20	*Lunch*	*	*100 min*
14:00	Facilitated Discussion: Idea Generation	Irina Overeem	*90 min*
15:30	*Afternoon Break*	*	*15 min*
15:45	Facilitated Discussion: Chair/Intermediate- and Long-Term Goals	Irina Overeem	*90 min*
17:15	Facilitated Discussion: Next Steps	James Syvitski	*45 min*
18:00	Meeting Ends		

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Background Material:

The following notes were used in the CSDMS Strategic Plan and were largely taken from the original proposal. They should be only viewed for ideas and a little guidance.

Our principal Education audiences are university students, professionals, teachers at the secondary school and college levels, and the general public. Resources to support this effort will not become available until the third year of the CSDMS effort, due to NSF budget reductions. CSDMS will jump-start our Education and KT activities by coordinating them closely with the EKT programs at the National Center for Earth-surface Dynamics (NCED), a funded NSF Science and Technology Center devoted to developing a predictive, quantitative understanding of the processes that shape the Earth's Surface.

Year 2+ (2008/09+)

1) Provide professional training in the use of CSDMS and its components. This first goal will be accomplished by hosting weeklong short courses for U.S. graduate students, post-docs, and professionals. These short courses will be taught by CSDMS working group members and other volunteers, and will cover topics such as: CSDMS modules, developing process algorithms, modeling multiple-process environments (e.g., longshore transport), coupling models (e.g. hillslope-fluvial, or estuarine-shelf), and complete source-to-sink modeling. These courses will be closely coordinated with the short course program already in place at NCED.

Year 3+ (2009/10+)

2) Use CSDMS technology to enhance undergraduate earth science education. This second goal will be addressed through its contributions to undergraduate and graduate earth-science education, by developing, deploying, and formally assessing a set of instructional modules centered on interactive, animated simulations of earth-surface processes. Here the goal is to further authentic inquiry, by engaging students in real problems. CU courses have been identified to test out these course materials and laboratory exercises once the education modules are developed. The effectiveness of the materials will be assessed using before-and-after survey methods and, in the case of a large introductory course for non-majors, interactive ("clicker") feedback technology.

3) Provide CSDMS-based tools for enhancing secondary-school teaching in earth-surface science. This education goal will build on the teacher-training program already in place at NCED. This has two components: the ESTREAMS teachers in research program, in which 4-12 level teachers participate in research at NCED facilities and then develop activities based on their experience, which are then made available via the NCED website. The second component is a series of summer Teacher Institutes and school residencies run in collaboration with the Science Museum of Minnesota in St Paul. 35 teachers have participated in these programs over three years. CSDMS will work with these programs by providing research opportunities and products to the teacher-participants using CSDMS technology, including hosting teachers at the National CSDMS facility.

4) Contribute to the public understanding of Earth-surface dynamics by working with informal education institutions such as science museums. CSDMS will contribute to public understanding of science by working with NCED to develop, using CSDMS technology, a three-dimensional movie that will convey the excitement of earth-surface science, while emphasizing the space-time complexity. The movie will be produced at the Science Museum of Minnesota, a national leader in this exciting new visualization technology, and will travel nationally to reach audiences in the millions of people. Funding for the movie will be provided by NCED, and is an opportunity ideally suited to showcasing CSDMS technology as well.

CSDMS will support diversity efforts by engaging the CU SMART program that nationally targets historically underserved undergraduates in science and engineering through ten-week research internships each summer http://www.colorado.edu/graduateschool/SMART/SMARTWebsite. The internships provide hands-on experience in research and an introduction to graduate education at a major research institution. Under the guidance of a CSDMS faculty mentor, interns would design, carry out, and formally present research projects. Interns will earn 3 hours of upper division credit, and receive all expenses and stipend. Application deadline is mid-February.