EKT Working Group Discussions

October 10th, 2008

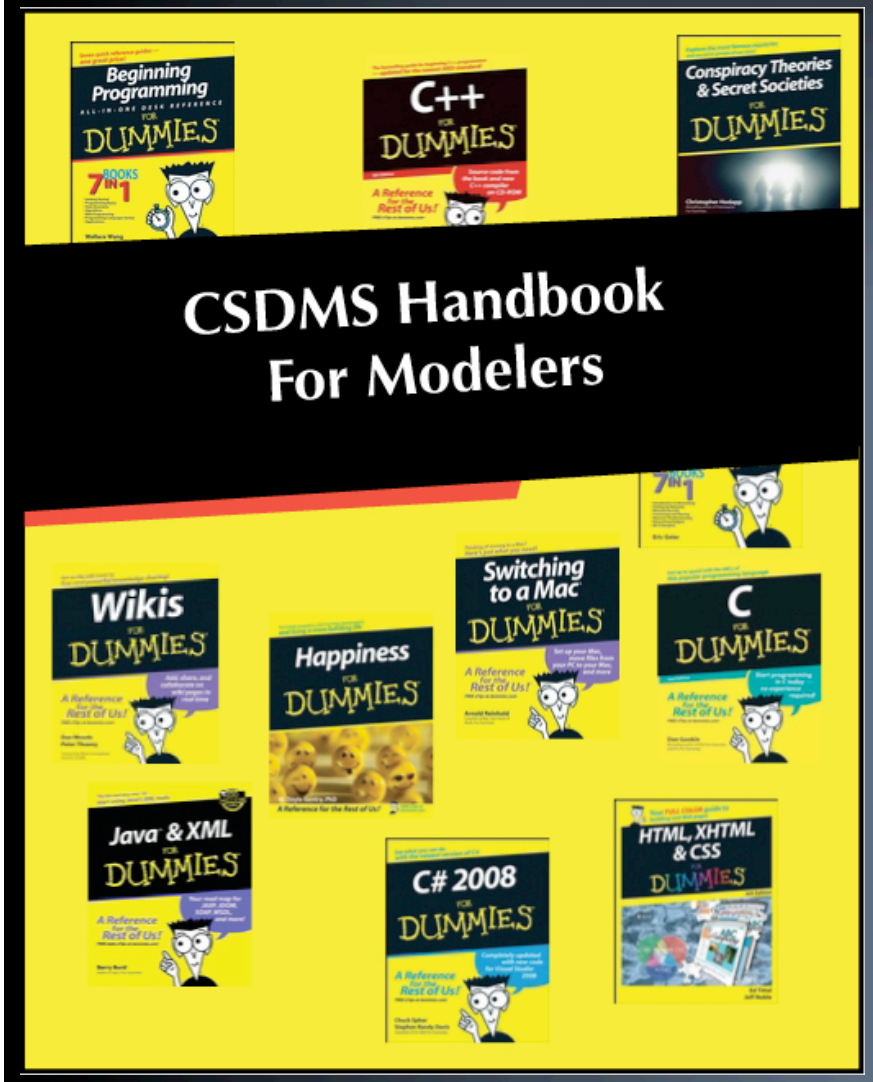
Discussion Topics

- Education of CSDMS modelers
- CSDMS website
- Knowledge Transfer to Industry and Federal Agencies
- Educational Material for
  1) undergraduates
  2) general public
- EKT short-term and long-term goals
- EKT Working Group organization

Modeler Education

- Handbook on website to guide CSDMS modelers
- 'Coding Camps'
- Working Group Meetings with focused, but condensed technical instruction (e.g. use of Subversion, use of the Wiki website, use of CCA)
- Individual Model websites with instruction on use and discussion forums.

Modeler Education

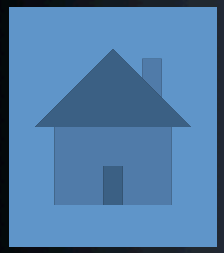


Interactive Handbook available on website to guide CSDMS modelers:

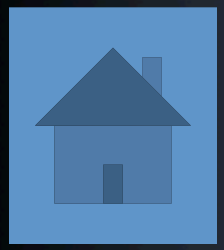
1) **Explains requirements for code contributors, e.g IRF interface**
2) **Explains linking tools and procedures (CCA, OpenMI)**

Web Link to Handbook

Modeler Education



CHILD Model: Key model information hosted on CSDMS web



SedFlux Model Home with downloads, installation and input explanations, and issues discussion

Modeler Education

Critical skills for modelers in general. Parallel, computer sciences, coding, OO languages, vizualization, GUI programming skills?

Applied skills to CSDMS compliancy and model linking, best practices on test data and manuals

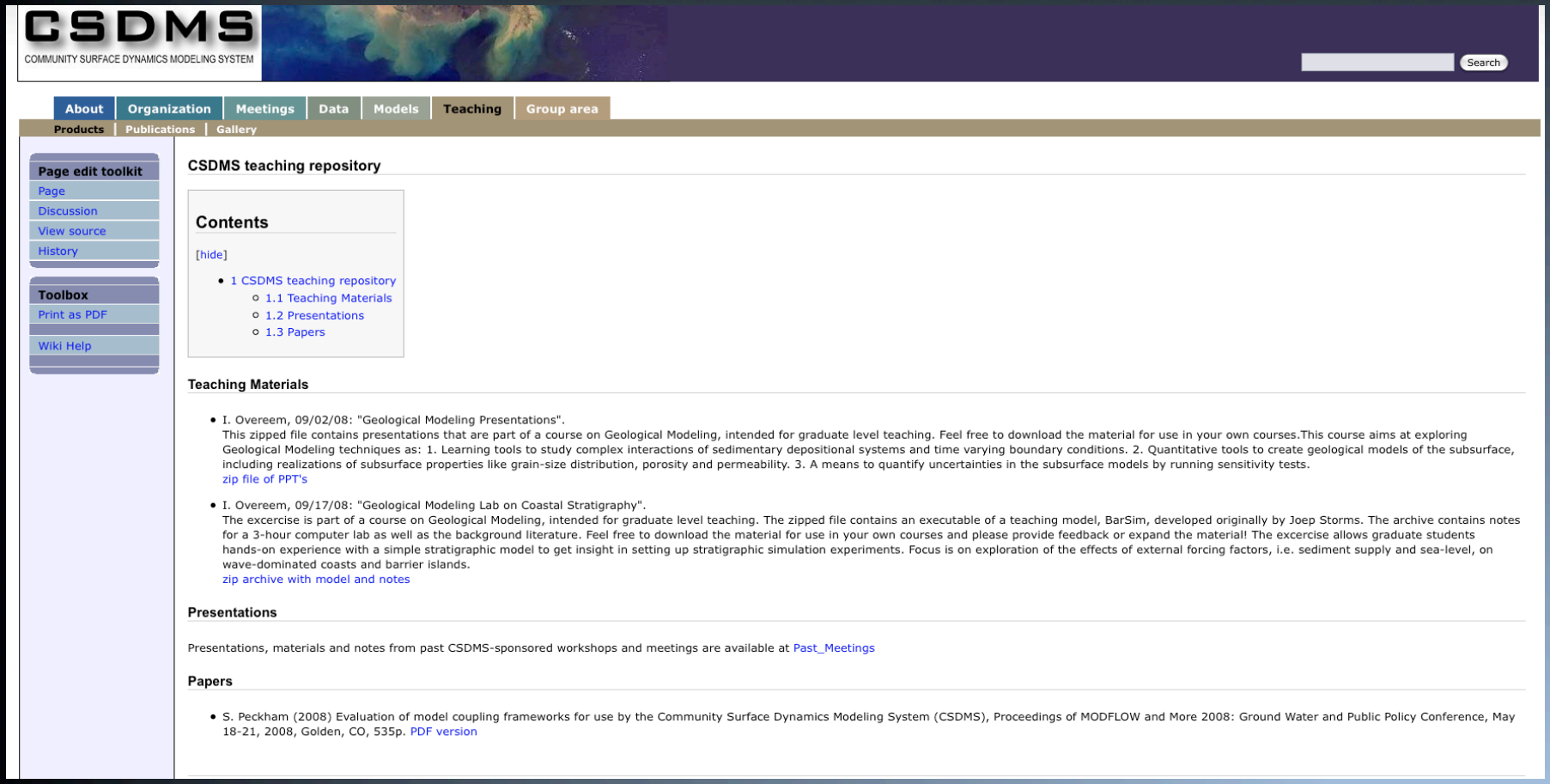
Modeler/Scientist Education

- Links to interested field scientists are being made through Workshop, ie. SEPM Clinoforms, SEDIBUD, AAPG deepwater session. These are CSDMS co-sponsored and explicitly bring modelers into field, explicitly invite modelers to give keynotes at more observational conferences of workshops

SEDIBUD, September 2008

Clinoform excursion, August 2008

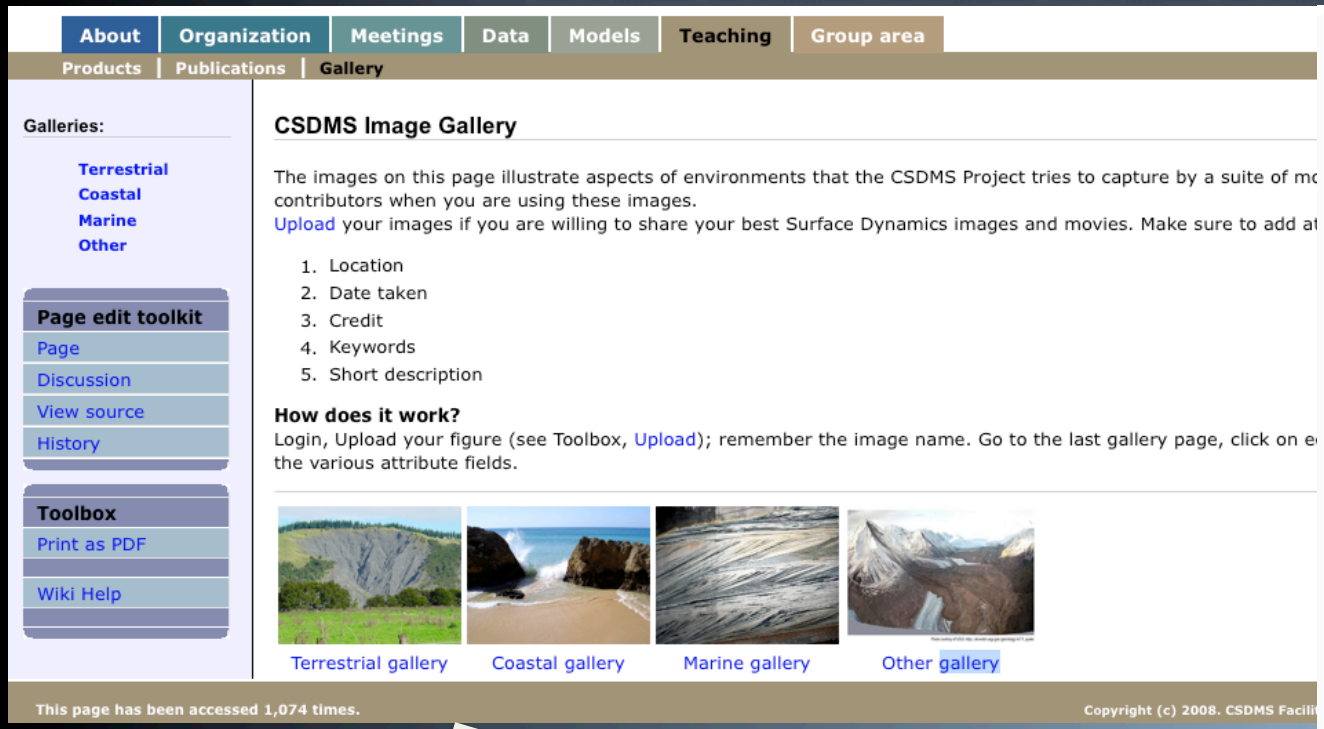
CSDMS Website



Teaching Materials now contains PPT's of a geological modeling course and model excercises
Intented for download for teaching faculty, animation of wave modeling

CSDMS Website

Image Gallery has been started, extend to 'Animation Gallery'
Intented for download for teaching faculty, students and the general public



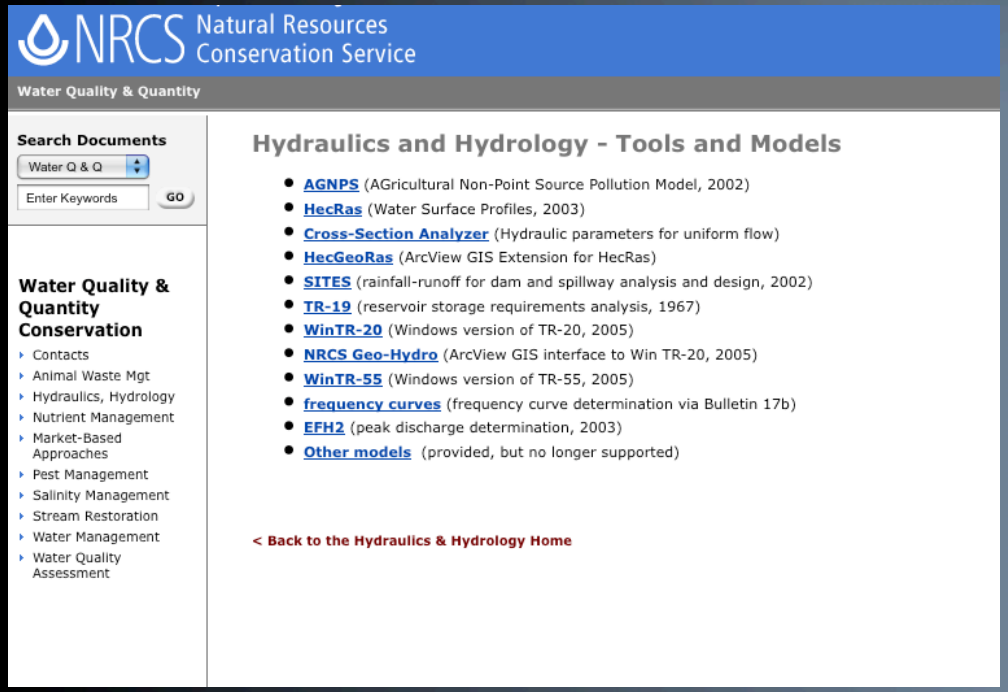
Location:North Slope, AK
Date: June 2008
Credit: Irina Overeem
Keywords:
Description:Connected Thaw Lakes and Patterned Ground

CSDMS website

- Is the present website efficient for EKT purposes?
- How to advertise existing materials?
- How to get CSDMS members to actively add content?
- What can be added?
- Is there a need or use for forum/threads?

Knowledge Transfer to Industry and Federal Agencies

Longterm objective: modeling in a virtual numerical laboratory, accessible for non specialist users.



Example: USDA model Tools

Example:Engineers without Borders

Knowledge Transfer to Industry And Federal Agencies

- **Annual Industry Consortium Meeting with a review of research activities and experimental data and demonstrations of products in development.**

- **To provide opportunity for consortium members to help plan and guide research and product development in directions that are relevant to their respective businesses, thus directly benefiting their companies.**

- **Semiannual Newsletter on CSDMS Highlights**

Educational material

- Well-documented real-world and/or model animations to explain surface-dynamics processes. Every movie should have a short description, and more detailed explanation, key words.

Ashton and Murray Model, Coastal Evolution of Wave-dominated coast

Educational material

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Arctic Coastal Erosion

-Summer of 2008, time-lapse coast observation

- Warming permafrost and longer sea-ice free Arctic Ocean promote rapid coastal retreat

-- Discussion and Recommended Reading

-- Authors: Cameron Wobus (CIRES), Irina Overeem, Bob Anderson, Nora Matell (INSTAAR), Gary Clow, Frank Urban, Ben Jones (USGS)

Worked with Andrew Revkin, NY Times journalist, posted on DotEarth Blog.

Educational material

- Selected models to be developed as teaching tools for hands-on modeling experience. These modules will have a summary, learning objectives and student sheets.

BARSIM

Simulating Coastal Evolution

BARSIM Student Sheet

-**Construct a falling sea-level curve**

- **Run falling sea level scenario for 20,000 yrs**

- **Study effects of falling sea-level on barrier deposits**

-- **Discussion and Recommended Reading**

--Authors: Irina Overeem and Joep Storms

Educational material

- Brainstorm on new materials
- Materials to be integrated in problem-based, real world examples? (TIES example)
- How to get individual members to actively contribute material?
- Assignments to different working groups to develop educational material?

Short-term Goals

- EKT Goals for 2009?

- One really good example to showcase educational module
- Same module could be targeted at different levels, link to more datasets (Predator-prey example)

- Really good examples: include metrics for assesment of learning, interactive modules

- AGU session?

Long-term Goals

Vision for EKT: virtual numerical lab for non-specialist users.

EKT Goals for 2010-2012: BIG IDEAS?

Educational Material for undergraduate and general public

Education for Modelers

Knowledge Transfer to Industry and Government

Website

BIG IDEAS ON EKT

-Series of labs with added process complexity
-Make the EKT modeling framework so that it can keep improving and growing. Tool for module use and student assessment for individual teachers.
- 'GOOGLE Earth' like application that set your model input-conditions automatically streamed. Recommended model linkages
- Testing of scaling across time and scales within CSDMS, educate on geomorphic effectiveness
-Publish in educational journals
-Surface Processes Animations for NP's
-GEoWall as a visualization tools

EKT Organization

- **EKT Working Group needs a chair!**

KAREN!!!

- **Additional membership?**
- **Help give input on profile for an EKT person**

Examples of Education and Outreach Websites

- http://www.edumedia-sciences.com
- http://geology.com/teacher
- National Earth Science Teachers Association (NESTA features a journal)
- http://www.nestanet.org/php/index.php
- www.pooljaar.nl