CSDMS

community surface
dynamics modeling system

ON THE SURFACE

CSDMS Newsletter
       September 2022

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CSDMS 2022 Fall Webinar Series
Register Now!

Please join us for the CSDMS 2022 Fall Webinar Series. Registration is required and links/details are provided below. The upcoming webinars are:

Removing the Headache of Running and Coupling Hydrological Models by using the eWaterCycle Platform Built on BMI

September 22nd, 2022 @11:15AM MDT

Rolf Hut, Delft University of Technology

A wide variety of hydrological models are used by hydrologists: some differ because they were designed for different applications, some because of personal preferences of the modeller. All of them share the property that, like most scientific research code, it is rather hard to get someone else's model to run. The recently launched eWaterCycle platform takes away the headache of working with each other's models. In eWaterCycle models are run in containers and communicate with the central (Jupyter based) runtime environment through BMI. In this way a user can be talking to a Fortran model from Python without having to know anything about Fortran. Removing this headache allows hydrologists to easily run and couple each other's models facilitating science questions like the impact of model choice on results, or coupling different (regional, processes) models together with ease. In this talk I will highlight (and demonstrate) both the technology behind the eWaterCycle platform as well as the current and future research being done using the platform.

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Modeling Long-term Arid Cliffs and Sub-cliff Slopes Evolution under Short Duration Extreme Rainstorm Events

November 8th, 2022 @10:00AM MST

Yuval Shmilovich, The Hebrew University of Jerusalem

In dry regions, escarpments are key landforms for exploring landform-rainfall interactions. Here we present a modeling approach for arid cliffs and sub-cliff slopes evolution incorporating rainfall forcing at the scale of individual rainstorms. We used numerical experiments to mechanistically test how arid cliffs and sub-cliff slopes evolve according to different geomorphic characteristics and variations in rainstorm properties.

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Machine Learning - Part 1

November 10th, 2022 @10:00AM MST

Dan Buscombe, USGS/Marda Science and Evan Goldstein, University of North Carolina, Greensboro

Part 1 will focus on the use of Doodler, a 'human-in-the-loop' labeling tool for image segmentation (described in this paper. We'll cover the two primary uses of Doodler; a) for relatively rapid image segmentation of a small set of images, and b) for making libraries of labeled imagery for training Machine Learning models to automate the process of image segmentation on larger datasets. We'd ideally like participants to label the same imagery in-class so we can discuss image interpretation and label agreement. This may even result in a publishable dataset; participants would receive co-authorship and could opt-in/out.

We will provide example datasets and models, but participants will also be encouraged to bring their own imagery sets. That way, participants will have time to familiarize themselves with the burgeoning Doodleverse tools in between classes on their own data.

REGISTER

Machine Learning - Part 2

November 17th, 2022 @10:00AM MST

Dan Buscombe, USGS/Marda Science and Evan Goldstein, University of North Carolina, Greensboro

Part 2 will focus on the use of Segmentation Gym, for training and implementing deep-learning-based image segmentation models. Participants will be given datasets and models to use for their on model building and implementation, or optionally theyin Part 1. Hardware needs, and common problems and their workarounds will be discussed.

REGISTER

Previous CSDMS-sponsored webinars are archived here and available for viewing anytime. If you have suggestions for future webinars, please contact csdms@colorado.edu.

CSDMS 2023 Annual Meeting - Call for Clinics!

Please join us for the CSDMS Annual Meeting, **_"CSDMS 2023: Patterns and Processes Across Scales"_**, taking place May 16-18, 2023 in Boulder, Colorado. As always, there will be a great lineup of keynote talks and clinics! Lively poster sessions and breakout sessions/jams will provide a chance to meet with old and new friends, and learn about new tools and resources.

- **Student Modeler Competition** submission deadline is January 20th, 2023. Submission requirements and additional details can be found here.
- **Call for Clinic presentations!** Each year a variety of clinics are available for registered meeting attendees. If you would like to provide a clinic, additional details and the submission form can be found here. Deadline to submit is December 16th, 2022. Submitters will be notified of acceptance decisions by January 6th, 2023.

Registration will open in mid-January.

Earth Surface Processes Institute (ESPIn)

The Earth Surface Processes Institute (ESPIn) is a six-day in-person summer school for 25 students, organized around the CSDMS Annual Meeting. ESPIn offers hands-on training in numerical modeling, collaborative coding, and open-source software development, with an emphasis on best practices such as version control, unit testing, continuous integration, and open metadata/modeling standards. ESPIn introduces students to cyberinfrastructure such as the CSDMS Workbench via tutorials delivered on the OpenEarthscape JupyterHub. Students will also attend the CSDMS Annual Meeting and be provided an opportunity to present their ESPIn team projects. Travel and subsistence support will be provided for all students. Limited stipend support will also be available to increase participation of underrepresented groups. Application details for the 2023 ESPIn will be announced in a few months!

Come Celebrate with CSDMS at AGU!

Community Members are cordially invited to join CSDMS in celebrating it's 5-year renewal at the **Fatpour Tap Works** from 4-6PM on Tuesday, December 13th, 2022 (2206 S. Indiana Ave, Chicago - adjacent to the convention center). Updates on new CSDMS offerings will be provided in a brief presentation by CSDMS Executive Director, Greg Tucker. Come meet the CSDMS Team and network with your community colleagues! Food and beverages will be provided!

Between the Bytes Blog
"Keeping the Geo-Stories"
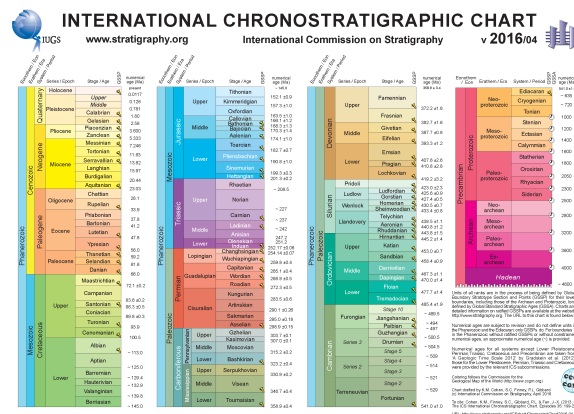
The late cosmologist Carl Sagan described science as "more than a body of knowledge: it's a way of thinking, a way of skeptically interrogating the universe" (Carl Sagan, 1996). In the case of Earth science, Sagan might have added that this way of thinking, this method of interrogating the universe, has revealed some truly incredible stories of our planet's past, its present, and what might be its future. Each rising generation of Earth and environmental scientists joins the field as custodians both of the stories themselves and of the methods that continue to reveal and refine them.

Read the complete blog post by Greg Tucker, CSDMS Executive Director here.

"How to Make Models More Useful"

New PNAS publication of interest to our community on best-practice standards for publishing model code and making your models more FAIR. Authors: Michael Barton, Allen Lee and Marco Janssen, Arizona State University and Bert Jagers, Deltares.

https://doi.org/10.1073/pnas.22021121

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