



# ON THE SURFACE

CSDMS Quarterly Newsletter  
August 2021

Join CSDMS



**[Register Now!](#)**  
**CSDMS 2021 Fall Webinar Series**

You are cordially invited to join us for the CSDMS 2022 Fall Webinar Series focusing on the [CSDMS Workbench](#). **Registration is required and links/details are provided below.** The upcoming webinars are:

***Modeling Earth's Surface with Landlab 2.0***

Friday, September 17th, 2021 @ 10:00AM MDT

**Greg Tucker**

CSDMS Executive Director, Department of Geological Sciences, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder

*This webinar presents an overview of Landlab 2.0, a Python programming toolkit for rapidly building and exploring numerical models of various Earth-surface processes. We'll look at how to set up a numerical grid in just a few lines of code, and how to populate your grid with fields of data. We will also take a look at some of Landlab's numerical functions, input-output utilities, and plotting routines. Finally, we will explore Landlab components: what they are, how to assemble them into integrated numerical models, and how to create new ones. Examples include surface-water hydrology, landscape evolution, tidal-marsh flow, and lithosphere flexure, among others.* **[REGISTER](#)**

Friday, November 12th, 2021 @ 10:00AM MST

**Tian Gan and Mark Piper**

CSDMS IF Research Software Engineers (Gan-Postdoc), Institute of Arctic and Alpine Research, University of Colorado, Boulder

*A data component is a software tool that wraps an API for a data source with a Basic Model Interface ([BMI](#)). It is designed to provide a consistent way to access various types of datasets and subsets of them without needing to know the original data API. Each data component can also interact with numerical models that are wrapped in the [pymt](#) modeling framework. This webinar will introduce the data component concept with a demonstration of several examples for time series, raster, and multidimensional space-time data. [REGISTER](#)*

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***Shuffling Landscapes: the Impact of Landslides on Topographical Evolution through a Modeler's Lens***

Tuesday, November 30th, 2021 @ 10:00AM MST

**Benjamin Campforts**

CSDMS IF Postdoc/Research Software Engineer, Institute of Arctic and Alpine Research, University of Colorado, Boulder

*Landslides mobilize tons of sediment in the blink of an eye. From an engineering perspective, one typically looks at topographical relief as a causal factor triggering landslides. From a geomorphological perspective, one could wonder how landslides and landslide derived sediment alter the evolution of landscapes. Curious to find out what landslides do with the evolution of landscapes? Tune in for this webinar to figure out how to use the Landlab HyLands component to address this question. [REGISTER](#)*

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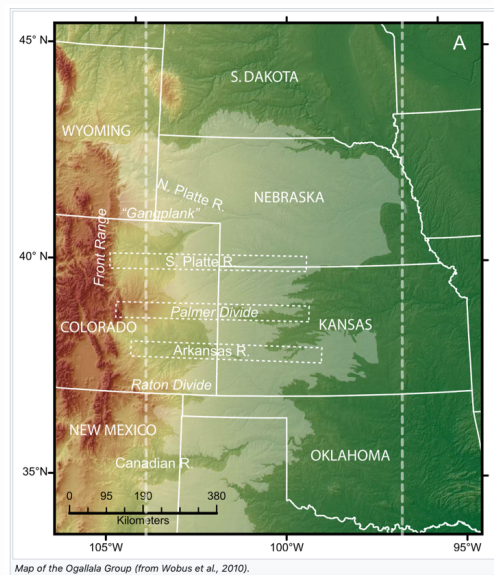
*Previous CSDMS-sponsored webinars are [archived here](#) and available for viewing anytime. If you have suggestions for future Webinars, please contact [csdms@colorado.edu](mailto:csdms@colorado.edu).*

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**Between the Bytes Blog: "High Plains Mystery"**

The central United States contains one of the longest hills in the world. From





Davenport, Iowa stretching west 800 miles to the Rocky Mountains is the Ogallala Group, a thin but widespread deposit of sand and gravel left behind by east-flowing streams between about 12 to 6 million years ago. The mysteries of the Ogallala's birth and demise are discussed in [Greg Tucker's most recent Blog "High Plains Mystery"](#).



**Save the Date!**

**CSDMS 2022 Annual Meeting (Onsite)**

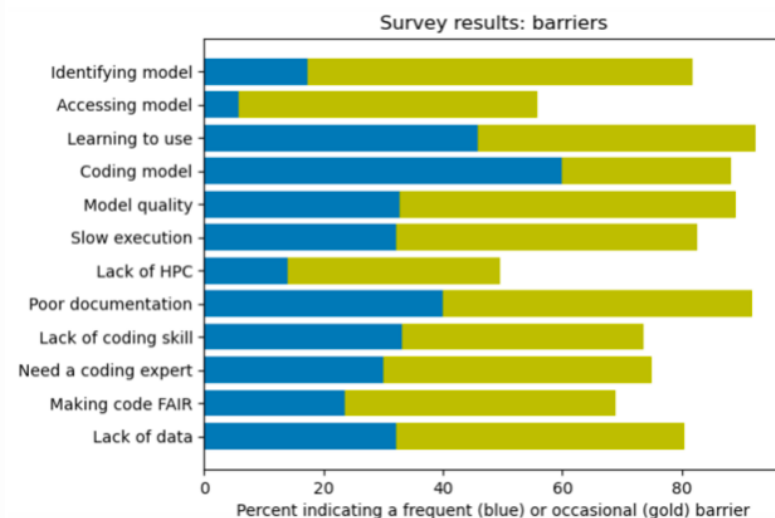
Please join us for the CSDMS 2022 Annual Meeting, **May 17th - 19th, 2022 at the**

**University of Colorado in Boulder, CO.** The theme of next year's meeting will be announced soon! As always, there will be a great lineup of Keynote Talks and Clinics. Lively poster sessions and breakout sessions will provide a chance to meet with old and new friends, and learn about new tools and resources.

## Registration and Abstract Submission Opens in January!

### CSDMS Community Survey Results

**Thank you to all of the community members** who participated in the community survey this past spring and also those who provided comments/guidance in various community meetings/breakout sessions over the past 3 years. These results can be viewed in the report ["CSDMS 2021: Listening to Community Feedback", CSDMS CIF, July 2021.](#) Demographics indicate the same lack of diversity that applies across the US geosciences. The survey indicates strong interest in CSDMS' community-building activities, and suggests that CSDMS has succeeded in lowering the barrier to code sharing and access. Continuing technical barriers



*Barriers to Modeling in the Next Decade.*

relate in part to developing and debugging codes for modeling and model-data analysis, and to learning and using software created by colleagues. There is a strong need for cyber-learning opportunities, with desired training modes include multi-day in-person courses, and self-paced online materials. Interest is

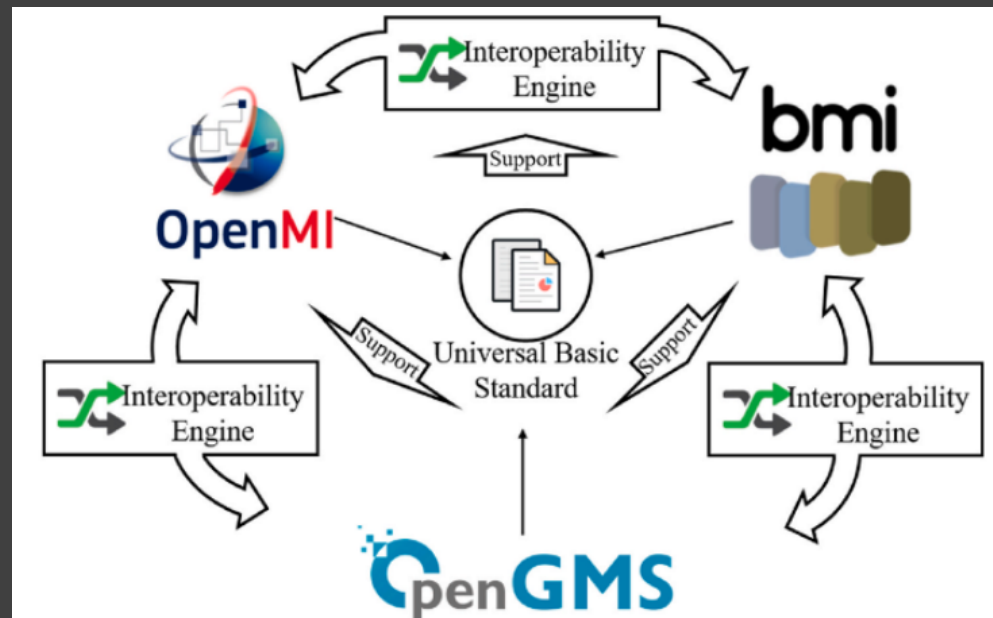
growing in CSDMS products such as Landlab, and services such as research software consulting. Collectively, the survey highlights continuing needs for community engagement on a variety of levels: more training opportunities; networking and interaction; technical support and assistance; barrier-bridging technologies; and

proactive outreach to broaden access to and participation in the Earth-surface process community.

DOI link: <https://doi.org/10.4211/hs.16a66381293a4977887ffa4df8fd1b0f>

## CSDMS Initiative on Exploring Interoperability of Open Modeling Platforms Update

Over the past decade+, several initiatives have developed open model standards so that models can operate in specific frameworks, and as such, CSDMS has developed the BMI standard, so models can be operated in PyMT. Unfortunately, these models still cannot be shared between different frameworks. To overcome this and make models more interoperable (the I in FAIR models), Zhang et al. (2021) has developed several methods to make models interoperable between three model standards: CSDMS (BMI), OpenMI and OpenGMS-IS so that your model can operate among a variety of frameworks. Read more about this in “Interoperability engine design for model sharing and reuse among OpenMI, BMI and OpenGMS-IS model standards”, <https://doi.org/10.1016/j.envsoft.2021.105164>



## CSDMS Resources for Community Members

CSDMS offers a number of products and services to enhance your teaching and research. We encourage community members to explore the [Education, Products and Services tabs](#) on the CSDMS website for the full suite of resources. The following are just a few examples:

CSDMS [Education and Knowledge Transfer Repository](#). The repo now contains 24 labs covering a variety of earth surface processes that can be run in Jupyter Notebooks or Binder. New labs are added regularly! We encourage CSDMS members to donate labs to the EKT repo for the benefit of your fellow community members and students. [Labs can be submitted here](#).

CSDMS offers a [JupyterHub](#) for community member usage. If you're interested in a dedicated, always-on computational resource for a workshop or class this fall, consider using the CSDMS JupyterHub. Most of the labs from the [EKT Repository](#) are already hosted, and with the help of a CSDMS research software engineer, getting your own labs hosted is a snap. See our [JupyterHub wiki page](#) for more information, including instructions on how to sign up for an account.

Through the [Research Software Engineering as a Service \(RSEaaS\) program](#), CSDMS offers community members one-on-one consulting with a CIF software engineer. Through our NSF-funding, we are able to dedicate several pro-bono hours to a project and if additional time is required, we can discuss hourly rate-based options and/or collaborations.

CSDMS also offers a free [HPC resource Blanca!](#) Gaining access is easy and it's a great resource for students.

Have a question or need assistance? The [CSDMS Help Desk](#) is available! Every

question asked helps build a stronger community resource - so ask away!

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## Join us on Twitter!



Be the first to know!! For job postings, events, breaking science, training opportunities and more, please follow us [@CSDMS](https://twitter.com/CSDMS) on Twitter.



**CSDMS is an NSF  
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