



# ON THE SURFACE

CSDMS Newsletter  
April 2025

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## Live-Streaming Keynote Presentations

CSDMS invites you to remotely join the Keynote Sessions each morning (9AM to 10:30AM MDT) of the CSDMS 2025 Annual Meeting, May 13th - 15th, 2025. The Final Agenda can be found [HERE](#). Register for the sessions here: <https://cuboulder.zoom.us/meeting/register/QpLNrVjFR7WPb22H8HQ-7A>



## **CSDMS Spring 2025 Webinar Series Register Now!**

Please join us for the [CSDMS 2025 Spring Webinar Series](#). Registration link/details are provided below.

### ***How to Use Convolutional Neural Networks (CNN) for Spatial Data***

April 15th, 2025 @ 10:00AM MST

**Jo Martin, University of Colorado, Boulder**

Convolutional Neural Networks have driven a revolution in computer vision and "AI" due to their ability to recognize complex spatial patterns. They are also finding more and more use in the geosciences. In this webinar we will go through what a CNN is, how to implement one using the PyTorch library, and some of the ways that we can interpret them to help our science.

**[REGISTER](#)**

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### ***Demystifying Modelling: An Interactive, Educational and Exploratory Approach***

May 7th, 2025 @ 9:00AM MST

**Penuela Fernandez, Universidad de Cordoba, Spain**

Addressing environmental challenges requires models that are not only scientifically robust but also accessible to diverse stakeholders, including non-technical users. However, for many, these models remain "black boxes," creating barriers to understanding and trust. These barriers hinder effective collaboration between modellers and decision-makers, ultimately limiting the impact of scientific insights.

This webinar introduces an innovative approach to modelling that emphasizes accessibility and understanding through learning-by-doing. We will explore an interactive toolbox ([impact-erosion.github.io](https://impact-erosion.github.io)) built using Jupyter Notebooks, designed to guide users through essential modelling concepts and processes—from basic initial tasks such as data pre-processing to advanced techniques like uncertainty and sensitivity analysis.

By integrating interactive elements and visualization, iMPACT-erosion promotes an easier and more fluent user-model conversation, making models approachable for students, professors, researchers, and decision-makers. Beyond showcasing the toolbox, the webinar also empowers attendees to create their own accessible and interactive tools by integrating Jupyter Notebooks, interactive visualizations, and basic Python programming. Participants will learn how to deploy these tools on the cloud at no cost, making them easily shareable and usable by anyone with a web browser.

While the webinar focuses on hydrology and soil erosion, the underlying philosophy of interactive, educational and exploratory modelling is highly transferable across disciplines, offering a pathway to democratize modelling

in various scientific domains.

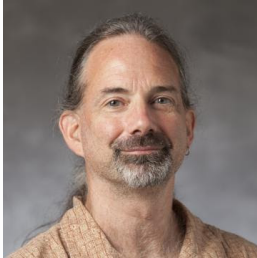
## [REGISTER](#)

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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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## CSDMS Community News



Congratulations to [Brad Murray](#), Professor of Geomorphology and Coastal Processes, Director of Graduate Studies, Earth and Climate Sciences, Nicholas School of the Environment, Duke University for being selected as the CSDMS 2025 Lifetime Achievement Awardee! Brad is recognized for his innovative and insightful research on earth-surface dynamics, as well as for his longstanding contributions to community modeling and community science. See Brad's full citation [HERE](#).



CSDMS is also happy to announce that [Marie-Christin Wimmeler](#), PhD student and Chair of Forest Biometrics and Systems Analysis, Technische Universität, Dresden has been awarded the CSDMS 2025 Student Modeler Award. Her submission, "**pyMANGA: A Modular, Open and Extendable Software Platform for Modelling Forest and Vegetation Dynamics**" introduces the pyMANGA modeling platform, which is designed to improve the study of vegetation dynamics and their response to environmental change. See Marie-Christin's full citation [HERE](#). She will provide a [keynote presentation](#) on Tuesday, May 13th at 10:20AM MDT at the CSDMS 2025 Annual Meeting.

[Ari Koeppel](#), PostDoc, Dartmouth College, Department of Earth Sciences, is the first runner-up for the CSDMS 2025 Student Modeler Award. His submission, "**A Novel Surface Energy Balance Method for Thermal Inertia Studies of Terrestrial Analogs**" introduces a new approach for relating remote temperature observations to regolith physical properties. Ari will provide a [keynote presentation](#) on Thursday, May 15th at 10AM MDT at the CSDMS 2025 Annual Meeting.



## CSDMS Community Teaching and Research Resources

**CSDMS Workbench** - <https://csdms.colorado.edu/wiki/Workbench>

**CSDMS Model Repo** - [https://csdms.colorado.edu/wiki/Model\\_download\\_portal](https://csdms.colorado.edu/wiki/Model_download_portal)

**Open Earthscape Jupyter Hub** - <https://csdms.colorado.edu/wiki/JupyterHub>

**CSDMS EKT Labs** - [https://csdms.colorado.edu/wiki/Labs\\_portal](https://csdms.colorado.edu/wiki/Labs_portal)

**Office Hours** (via Zoom) with a CSDMS Research Software Engineer - 9AM on Wednesdays. To register - <https://csdms.colorado.edu/wiki/OfficeHours>

**CSDMS Help Desk** - <https://csdms.github.io/help-desk/>

**CSDMS Forum** - <https://forum.csdms.io>

**CSDMS YouTube Channel** - <https://www.youtube.com/@CSDMSmovie/videos>

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Please follow us and be the first to know about all the new CSDMS events and resources!!

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[@CSDMS@fediscience.org](https://mastodon.social/@CSDMS) on Mastodon, [@CSDMSmovie](https://www.youtube.com/@CSDMSmovie) on YouTube and [Community Surface Dynamics Modeling System on LinkedIn](#).



**CSDMS is an NSF  
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