

The CSDMS Model Repository

Mark Piper*, Greg Tucker, Irina Overeem, Albert Kettner, Eric Hutton and Lynn McCreedy

Community Surface Dynamics Modeling System
University of Colorado Boulder

What is CSDMS?

The Community Surface Dynamics Modeling System (CSDMS), an international organization of over 1700 members, has a mission to enable model use and development for research in earth surface processes. CSDMS strives to expand the use of quantitative modeling techniques, promotes best practices in coding, and advocates for the use of open-source software.

The CSDMS Integration Facility operates under continuing grant EAR-1831623 from the U.S. National Science Foundation.



What is the Model Repository?

As a service for its members, CSDMS maintains a code repository for numerical models. The CSDMS Model Repository, initialized in 2009, currently holds over 300 open source models and tools.

To submit code to the Repository, a community member completes an online form, providing metadata for their code and selecting an open source license.

What does the Model Repository provide?

CSDMS provides a home for the model on its website. The model's wiki page is initially populated with the metadata provided by the author, but it can be edited and expanded to include documentation, examples, references, and graphics. If the code is available on a public repository, such as GitHub, a link to it is provided; otherwise, the code is added to the Repository's GitHub repository. The version of the code submitted to the Repository is assigned a DOI, making it citable. A QR code, suitable for display on a conference poster, is also created. Finally, the CSDMS IF has devised a model h-index, which gives a measure of a model's visibility through citations in journals.

Why should you use the Model Repository?

By submitting code to the CSDMS Model Repository, a modeler gets

- visibility,
- findability,
- accessibility,
- storage, and
- preservation

of their model code.

In return, CSDMS gets a library of open source models that can be used for research. This can help accelerate science, since it's often easier to use or modify an existing model than it is to start from scratch. The Repository also helps prevent model codes from going "dark" and being forgotten. Above all, the Repository serves the ethos of community modeling promoted by CSDMS.

Sedflux

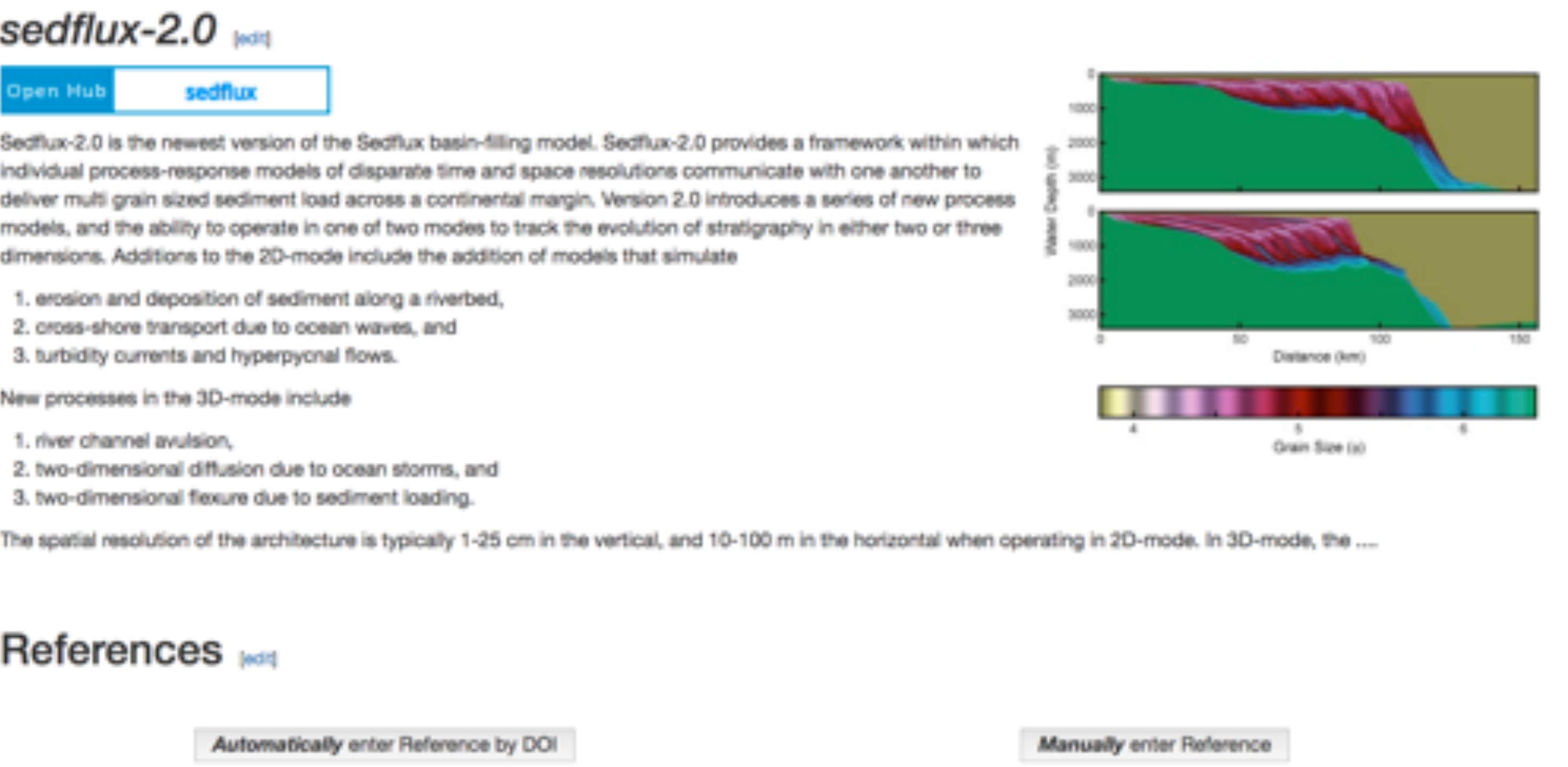
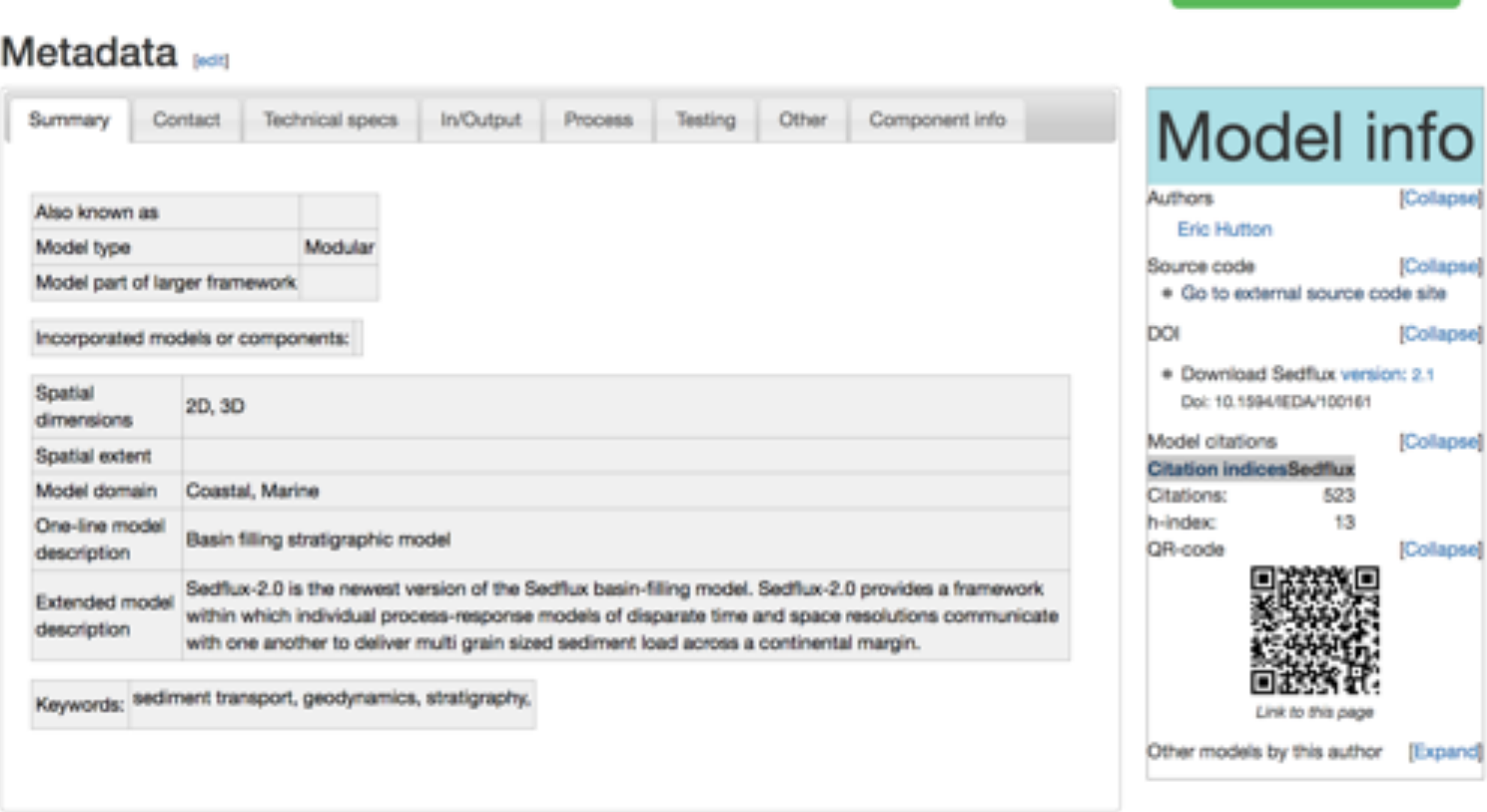


Figure 1. A sample model page from the CSDMS Model Repository.

* Let's connect! — mark.piper@colorado.edu
— [@mdpiper](https://twitter.com/mdpiper)

Model name

Metadata
(mine it!)

Author

Link to source

DOI

Model h-index

QR code
(use it!)

Documentation
(read it!)

Help

References