Newly certified models in the CoMSES model library and newly published models added to the model library.

... a node in the CoMSES Network

CoMSES Digest: Summer 2014

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Fall is here, temperatures are dropping, and classes are starting or, in many places, are already underway. We hope the summer has been productive, and that you are looking forward to a new academic year full of using and teaching social-ecological models. If you are looking for models to use to demonstrate good modeling structure and practice to students in your courses or in your labs, look into OpenABM's newly certified models. Francesc Bellaubi, Georg Holtz, and Claudia Pahl-Wostl have seen their recently added model on "An agent-based model to identify management practices, integrity and performance in Kenya's and Ghana's Water Service Delivery" achieve certification; Marco Janssen and Kim Hill have also contributed a newly certified model on Ache hunting. Certification means that the models are not only archived on OpenABM but are reviewed and affirmed to be runnable and well-documented.

There have been three additions to the model repository this summer. The 'Garbage Can Model' of organizational choice- a venerable model published by Cohen, March, and Olsen in 1972- has been replicated in a contribution by Ivan Smarzhevskiy.
Dedicated CoMSES Digest readers will note that one of the contributed models in the inaugural issue (Vol 1., No. 1) was also a replication of the GCM; this was one of the most downloaded models in last quarter's Digest as well (Vol. 2, No. 2). That submission, by Guido Fioretti, used NetLogo; this one uses Excel VBA Macros- a convenient and often powerfully transparent modeling environment.

The second new submission, by Arika Ligmann-Zielinska, is 'IDEAL', a land-use change ABM. This model is another step away from platforms like Repast and NetLogo: it is written in Python. Of special note is the author's contribution of an assignment handout that accompanies the model and can be used to incorporate an exploration of the dynamics found in IDEAL into a lesson- on land use change, on ABMs, or on feedbacks in complex systems in general. This is an excellent example of the model repository both as an archive of published models for the purpose of replication- the model was used for publications by Ligmann-Zielinska in 2009 and 2013- and as a trove of teaching materials.

The third new submission is by Michael Barton; it is also a land use model, this one of swidden agriculture (also known as slash-and-burn agriculture or shifting cultivation). A NetLogo model, this model can be run in two different modes: one in which the agents' values, which drive their land use decisions, are determined by the modeler, and one in which those values are allowed to adapt. This submission also accompanies a publication (C. M. Barton 2013, in Archaeological Method and Theory) and takes advantage of OpenABM's capacity to include media files by providing a movie of a full model run.

Another land use model has arrived at the top spot in our most-downloaded model list: Julia Schindler's "GH-LUDAS" model has returned to the top 5, and is joined by two newcomers: Janmaat and Lapp's Nepali Village Model, contributed in April, and Michael Barton's model of Swidden agriculture, contributed this summer. The top five spots are filled out by two other models that continue to be downloaded often: the Artificial Anasazi model, as implemented by Marco Janssen, and the MayaSim model, by Scott Heckbert.

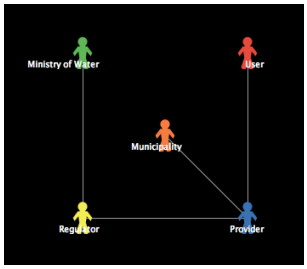
As usual, we encourage contributions to the model repository throughout the research and teaching process, but especially when your models are published. Many publishers are now requiring that models be available and archived on OpenABM, but even if they do not you should post them here for the community to examine and benefit from, and to discuss and comment on them in the forums.

We hope the discussion of SES models will be lively in and out of the classroom throughout the new academic year, and look forward to your submissions in the next quarter.

Best Regards,
John T. Murphy
CoMSES Digest Editor
Member, CoMSES Interim Executive Board

Newly Certified Models in the Model Library

An agent-based model to identify management practices, integrity and performance in Kenya's and Ghana's Water Service Delivery

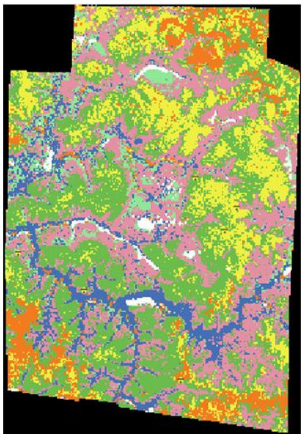


Francesc Bellaubi, Georg Holtz, Claudia Pahl-Wostl
The agent-based model is based on empirical research carried out by Transparency International Kenya and Ghana Integrity Initiative. In this the main actors involved in Water Service Delivery (WSD) are modelled in terms of a principal and an agent playing different games that reflect different social dilemmas.

Ache Hunting

Marco A. Janssen, Kim Hill

We develop an agent based model of foraging behavior based on parameters of the environment and prey characteristics found in the Mbaracayu Reserve Paraguay. We then compare predicted human foraging behavior in our model to actual ethnographically observed behavior of Ache hunter-gatherers who inhabit the region.



More Information About Model Certification

Newly Published Models in the Model Library

Garbage can model Excel reconstruction

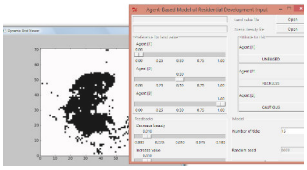
Ivan Smarzhevskiy

Reconstruction of the original code of the classical model M. Cohen, J. March, and J. Olsen (garbage can model, GCM or CMO). Using the obtained tool detected that the content model of many researchers interpreted the surface, due to the lack of attention to the algorithmic part of the source.

IDEAL

Arika Ligmann-Zielinska

IDEAL is a land use change ABM in which developer agents make decisions on where to locate new residential land. The agent operate on a lattice of grid cells with up-to-three landscape characteristics: scenic beauty, accessibility, and land value.



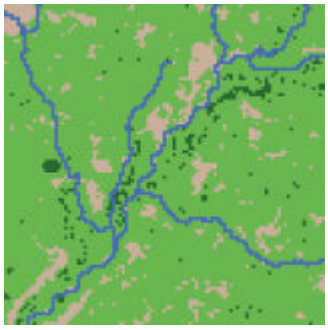
Swidden Farming Version 2.0

C. Michael Barton

This model simulates some of the dynamics of household level swidden agriculture (also called shifting cultivation or slash-and-burn agriculture).

Most Downloaded Models in the Model Library

(June 17, 2014 – September 15, 2014)



1. (63 Downloads) A land-use model to illustrate ambiguity in design ***by Julia Schindler***

2. (61 downloads) Artificial Anasazi ***by Marco A. Janssen***

3. (46 downloads) Nepali Village Model ***by*** **John A Janmaat, Suzan L Lapp**

4. (45 Downloads) MayaSim: An agent-based model of the ancient Maya social-ecological system ***by Scott Heckbert***

5. (45 downloads) Swidden Farming Version 2.0 ***by*** **C. Michael Barton**
