

CoMSES Digest: Winter 2020

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Editor's Note

Welcome to the Winter 2020 issue of CoMSES Digest. We are nearing the end of 2020, a year that has challenged all of us- some of us as modelers, some of us as researchers, but, I believe, all of us as citizens, colleagues, friends, and family members. In some places, Covid-19 is quiescent; in others- including where I am writing- it is resurgent. The vaccines have been developed, but not distributed widely yet. The task of distributing billions of doses is immense- another part of the pandemic that can surely be modeled.

The vaccines exist, and this brings hope. I hope that the end of your year brings rest and renewal, and that the many challenges of 2020 will be soon overcome. May 2021 be full of light, kindness, and hope- and, of course, excellent models.

Best,

John T. Murphy, CoMSES Digest Editor

CoMSES News

Annual Report

As 2020 comes to a close at last, we wanted to give you a more global view of the CoMSES Network. In spite of the many challenges posed by the past year, CoMSES.Net has continued to grow, serving a larger and more diverse community with an expanding collection of resources for modeling in the social and ecological sciences. The following metrics are for the 12-month period between September 1, 2019 - September 1, 2020. Membership in the CoMSES scientific network increased to 2,775 members (up 6% in the past year), with the addition of 460 new members. This included 145 new full members (up 25% over last year) who agree to contribute to network governance, model review, and other activities, in addition to ethical practices of model use and citation. Use of the CoMSES Science Gateway (<https://comses.net>) increased significantly over the past year. The 29,603 unique users (21% increase) came from nearly every country in the world (170 out of 195) and visited the site at around 3,000 individuals per month prior to a slight pandemic-related decline after April 2020. Most users were from the USA, but the gateway saw significant use by European and Asian scientists. This large number of users connected to CoMSES.Net science gateway resources 4,000-6,000 times per month prior to pandemic impact, for an annual total of 52,836 unique sessions (up 24% over last year).

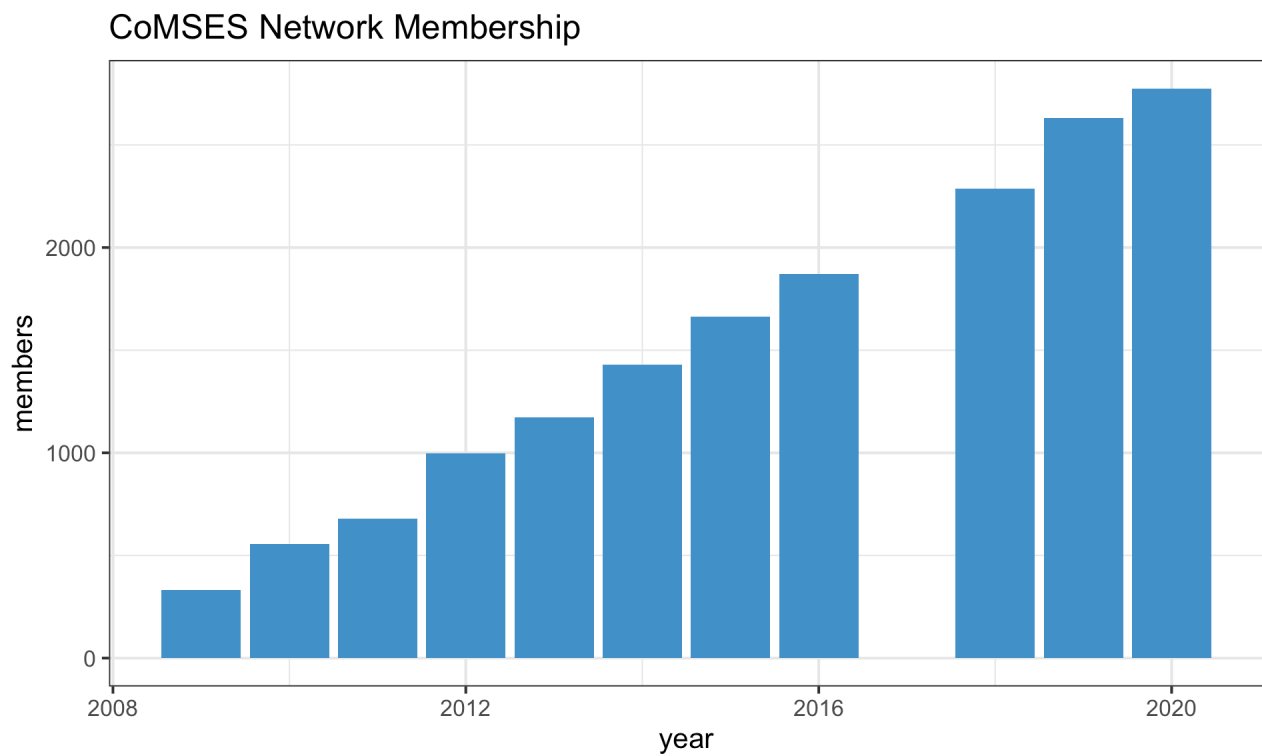
CoMSES.Net staff worked with the Science Gateways Community Institute (funded by the National Science Foundation) and Scientific Software Registry Collaboration (funded by the Alfred P Sloan Foundation) to improve the usability and usefulness of the CoMSES Science Gateway. As a result, we are restructuring aspects of the gateway to make resources easier to find and use, and have made models published in the Computational Model Library more easily discoverable in web searches.

The use and usefulness of the Model Library continues to grow. There are now 802 models published in the library, an annual increase of 22%, with 147 new models published last year (67% higher than the previous year). Downloads of models also grew to 48,327, 9% higher than last year. As far as we know, the CoMSES Model Library is the largest, most comprehensive, and most intensively used public repository in the USA for computational models in the social and natural sciences.

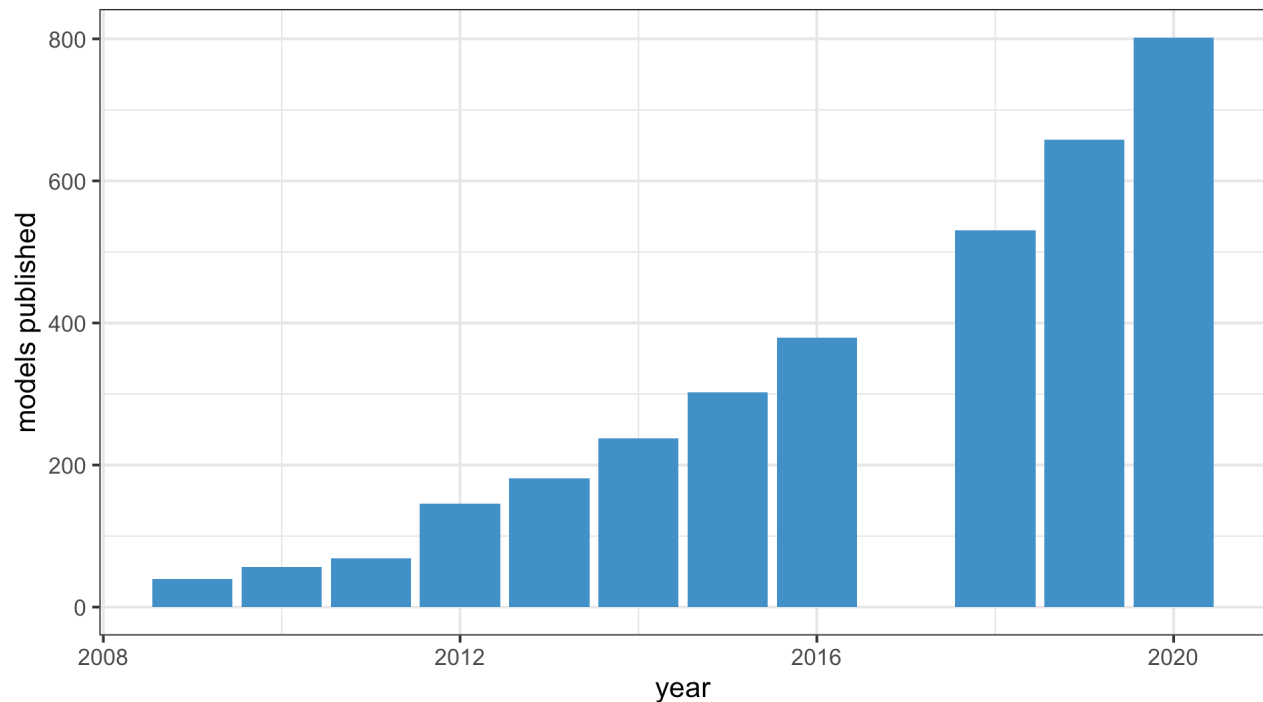
In April 2020, with the rapid spread of Coronavirus infections accompanied by the growing importance and public visibility of modeling epidemics and their societal consequences, CoMSES.Net opened a public forum on relevant data and models, and updated our

Science Gateway home page to provide rapid access to relevant models in the Model Library. Building on a statement calling for transparency in model code, developed initially by the Executive Board, CoMSES.Net coordinated an open access letter in the journal Science, signed by 32 modeling organizations world-wide (<https://doi.org/10.1126/science.abb8637>).

Finally, we include graphs below that show the continuous and parallel growth of the CoMSES.Net membership and its open access Model Library. Thank you, the members of CoMSES.Net, for your continued participation that has made this scientific network a truly global community providing valuable contributions to science and society.



CoMSES Model Library



Best wishes for safe and happy holidays to you all,

Michael Barton, Marco Janssen, Allen Lee, Ken Buetow, and the CoMSES Net Executive Board and Development Team

Calendar of Events

Note that the calendar of events has been heavily disrupted; many events have been canceled, postponed, or converted to online-only. Please follow the links to the local event organizers for the latest information.

Upcoming Deadlines

UK's Software Sustainability Institute's Annual Collaborations Workshop 2021 (CW21)

March 30 - April 1, 2021

Online

Submission Deadline: January 31, 2021

<https://www.comses.net/events/589/>

Conferences and Workshops

SocSimFesT 2021

Online

Monday, March 15-20, 2021

<https://www.comses.net/events/587/>

Courses

Winter School on Agent-Based Modeling of Socio-Ecological Systems

Online, January 4-15, 2021

<https://www.comses.net/events/584/>

Summer school on simulation models eX Modelo

Chatenay-sur-Seine (Paris)

May 30th -June 4th 2021

Application Deadline: February 12th, 2021

<https://www.comses.net/events/588/>

Model Library

Newly Reviewed

Seven models passed CoMSES's [peer review process](#). These included models of watershed management (Samuel Assefa, Aad Kessler, Luuk Fleskens); colonization and social differentiation (Sebastian Fajardo, Andrés Bernal, Gert Jan Hofstede, Mark R Kramer, Martijn de Vries); mutation in genetic algorithms (Cosimo Leuci); covid-19 (Jennifer Badham); dynamics of ecological communities (Steve Peck); the German manufacturing industry (Laura Merz); and status construction and consensus (Grow, André, Andreas Flache, and Rafael P. M. Wittek). For those who keep track of such things: all seven are NetLogo models. Four of these can now be reached via an assigned DOI, making their permanent status in our model library even more solid and visible.

New Model Uploads

Apropos of the alignment this month of Jupiter and Saturn, 25 new models were uploaded- exactly the same as last quarter. In the past year, 113 new models have been uploaded. This quarter's cohort includes several venerable topics, such as water management,

archaeology, smallholder agriculture, information transmission, opinion dynamics, political campaigns, and, of course, a model related to Covid-19.

You can find these and more of the most recently modified models at the [CoMSES Model Library](#).

Most Downloaded Models

The most downloaded model was another entry from Kristin Crouse, focusing again on evolutionary dynamics. Also in the top 5 were the venerable MayaSim and Joshua Watts hurricane evacuation model, which first made the list in summer of last year. Crouse's model was downloaded more than 100 times, but this was a lower number than any of the other quarters this year. The other models in the top five downloads were also downloaded fewer times than the top of the list in previous quarters; in the last 5 quarters, the top five downloads have accounted for at least 500 downloads in total, but this quarter it was only 334. However, this may merely mean that this quarter's downloads were less top-heavy: Autumn quarter's total downloads included 801 unique code bases and 6656 total downloads, while this quarter's included 828 different code bases and 7312 total downloads- nearly a 10 percent increase.

1. [B3GET \(version 1.1.0\)](#) by Kristin Crouse (102 downloads)
2. [Spread of COVID-19 in University Dormitory Setting \(version 1.0.0\)](#) by sunnyxjy (62 downloads)
3. [MayaSim: An agent-based model of the ancient Maya social-ecological system \(version 1.3.0\)](#) by Scott Heckbert (59 downloads)
4. [JuSt-Social COVID-19 \(version 1.1.0\)](#) by Jennifer Badham (57 downloads)
5. [CHIME ABM Hurricane Evacuation Model \(version 1.4.0\)](#) by Joshua Watts (54 downloads)

We would like to thank the National Science Foundation for their support via grants NSF BCS-0623162, GEO-0909394, and IIS-1636796 and [Compute Canada](#) and their regional partner [WestGrid](#) for their continuing support via their [Research Platforms and Portals Competition](#).



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