Landscape Dynamics Modeling

Dr. Britaldo Soares-Filho

**August 20-24** from 9am - 5pm, UVM

Open enrollment. Students may register for up to 2 credits as NR 285/385.

Contact to sign up for the workshop.
Gillian L. Galford, Ph.D.
Research Assistant Professor
The Gund Institute for Ecological Economics
Rubenstein School of Environment & Natural Resources
Gillian.Galford@uvm.edu
802.656.2920

**Instructor:** Dr. Britaldo Soares-Filho is a pre-eminent Brazilian scholar who is donating his time to build capacity in this area. He is a collaborator of mine and it is an honor for us to host him. As you can see from the publication list below, this modeling framework has been used for a wide range of applications and purposes ranging from academic publications to government reports and policy documents.

Everyone is invited to an opening lecture on **Tuesday, August 20th at 9 am** by Dr. Soares-Filho on applications of landscape dynamics modeling, including deforestation simulation, forest fire spreading, carbon cycling and emissions, fluvial regimes, urban growth and much more. This will also set some of the basic theory and overview of Dinimica-EGO, so if you are into spatial analysis this will be good exposure for you.

The course will run **August 20-24** from 9am - 5pm and will include: using the Dinamica EGO modeling framework including the visual interface, library of analytical and simulation algorithms; analyzing landscape metrics; design, calibration, validation, and operation of landscape dynamics models; applying the models to real studies. Advanced users may learn how to develop Genetic Algorithms and Model Wizards. The course is free and open to students, staff, faculty and collaborators. Students taking this course may like to apply their new skills through the Vermont Climate Assessment (NR 385). **Note:** It is expected that participants in the course have a foundation in GIS.

This modeling framework was used for independent projects in NR 228 this semester. My students were able to create simulation models to: site community gardens in Burlington, site wind power in Vermont, estimate carbon storage due to land conservation, estimate birch range on Mt. Mansfield under shifting climate, simulate at-risk areas of salamander migration routes, and simulate the impacts of hunting on populations. That is to say, this is a very manageable modeling skill to pick up and could be very useful to you! Plus, we will work on Brazilian time, which includes a healthy lunch break and coffee.
Dinamica EGO has increasingly drawn the attention of many scholars worldwide, who have applied this freeware to various modeling studies (www.csr.ufmg.br/dinamica). The course aims to introduce the potential of Dinamica EGO freeware modeling platform for environmental studies, focusing on landscape dynamics. Dinamica EGO provides a complete set of tools to develop landscape dynamics modeling, from analysis of landscape structure to the simulation of spatial patterns of change and model validation. By simply dragging and connecting data operators in a model diagram, its friendly graphical interface allows for the design from the very simple static spatial model to very complex ones, which can ultimately involve nested iterations, multi-transitions, dynamic feedbacks, and multi-region and scale approaches.

Select publications

2013

Oliveira, L.J.C.; Costa, M.H.; Soares-Filho B. S.; Coe, M.T. Large-scale expansion of agriculture in Amazonia may be a no-win scenario. Environmental Research Letters Volume 8 Number 2. 2013.


2012


2011


2010


2009


2008


2006


Article
Online supplemental