Introduction to Dynamic Modeling (Session 1000)

Goals of the workshop

- Examine the implications of adding time to a model.
- Explore the different modeling types and how integrating time into a model expands the types of models that can be addressed within a GIS.
- Provide an overview of the tools that are necessary to implement a time explicit model.
- Explain why randomness can be an integral aspect to time explicit models.
- Demonstrate how to incorporate time into the modeling process.

Major topics covered

- Integrate time based models within various model categorization:
    - Descriptive versus process
    - Static versus dynamic
    - Deterministic versus stochastic.
- Highlight the considerations and the necessary functionality when creating a time explicit model:
    - Define the time step
    - Create a rule set
    - Incorporate branching
    - Utilize feedback loops
    - Save multiple output
    - Add randomness
- Present number generators, the seed, and random number distributions and how they apply to dynamic modeling.
- Introduce how to create and place random points.
- Examine through actual dynamic models the workflow and issues when creating a time and spatially explicit model.
- Describe how to create a model within a model with the inner model having a different time step than the outer model.
- Demonstrate how to present the results of a dynamic simulation model in a meaningful way.