Heatbugs

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Model Objectives: Heatbugs is one of the prototype Swarm models that is available for download in the swarmapps package. A heatbug is an agent that has an ideal temperature and moves about myopically searching for positions in which the heat level is more satisfactory. The heatbugs live in a grid on which their heat collects. Each heatbug searches in a local neighborhood and emits a certain amount of heat, which diffuses throughout neighboring cells in the grid.

Software: Versions of the Heatbugs model are available in both Objective C and Java.

Tutorial component: The code is well commented and should be seen as the culmination of the Swarm tutorial exercises that are also available in the swarmapps package.

Grid: Swarm's space library is used to create the grid in which the agents move and is tightly integrated with the visual display. In the display, the background colors indicate the heat at a location (black represents "cold" while bright red represents "hot")

Graphics: The "Heat World" offers a visual display of heatbug movement in the grid as well as the heat level in the environment. The "Unhappiness" graph plots a summary measure of the discomfort experienced by the heatbugs.