



Fig. 1. Simulation process for the multi-agent system

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Consciousness for the environmental problem of individual trip maker is important for eco-commuting promotion. Consciousness for environment would be changed by influence of other people. Therefore, the multi-agent transport simulation model with social network in small world is developed to describe the local interaction on commuting mode choice process in the study. The outline of the multi-agent simulation system is shown in Fig. 1. The developed simulator consists of four interactive procedures such as the agent travel behavior model, the traffic environment model, the agent eco-consciousness alteration model and the agent interaction model. The commuting mode choice is described considering with the social interaction in the agent travel behavior model. On the other hand, the carbon dioxide emission from the traffic flow on urban network is estimated in traffic environment model. Moreover, the agent updates the consciousness for environment according to the evaluation of traffic environment in the agent eco-consciousness alteration model. Furthermore, the eco-consciousness of the agent is influenced by the related agents in the agent interaction model. Particularly, the relation between agents is defined based on the small world network.

Keywords : multi-agent simulation, social interaction, small world network, consciousness for environment, transport mode choice

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