NASS: SYSTEM SIMULATION OF INLAND WATERWAYS

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ABSTRACT
The Navigation System Simulation (NaSS) suite of tools has been developed by the Institute for Water Resources of the U.S. Army Corps of Engineers (Corps), as part of the Navigation Technologies Research Program. NaSS is composed of two primary applications, a Monte Carlo simulation model of vessel movements on an inland waterway system and a data processing and analysis tool for mining of historical data. The NaSS tools are used in concert for economic analyses of an inland waterway system. The NaSS suite was designed to answer potential questions of a waterway system under examination, for example; What is the overall system performance of a waterway network under different operating, demand load and reliability conditions?; How effective are alternative lockage polices at reducing delays and delay costs?; How does any single lock improvement project affect delays at other locks? This paper focuses on the Monte Carlo waterway simulation component called BasinSym.

Keywords: Monte Carlo simulation, waterway transportation, engineering reliability, queuing analysis.

REFERENCES


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Mr. Hofseth has served as an economist at the Corp of Engineers for over 24 years; conducting studies in flood control, deep draft navigation, inland navigation and hydropower. He co-authored the first guidance for major rehabilitation analysis and was a pioneer in bringing risk and uncertainty into the Corp’s planning process. Mr. Hofseth started with the Corps in the Seattle district and later served as the Chief Economist for the Alaska District. He is currently the Technical Director of the Navigation Economic Technologies research program at the Institute for Water Resources and is a graduate of the Corps’ Planners Associate Program. Mr. Hofseth holds a B.S. degree in Finance and Economics from the University of Montana and an M.A. degree in Applied Economics from Johns Hopkins University.

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Mr. Rogers is a computer scientist currently serving as the National Practice Leader for Applications Development at Camp Dresser & McKee, Inc. He has 15 years of experience in the design and development of software applications to solve complex decision making problems. He has managed teams to develop successful software applications ranging from single-user desktop applications to web-enabled systems with a user base of thousands. Prior to joining Camp Dresser McKee, Inc, he served as the Director for Software Engineering for a small consulting firm and was a founding member of the Curriculum Advisory Board for the Information Systems Technology program at Southern Illinois University. He has worked on numerous decision support software models which are currently being used to perform crucial functions such as estimating flood damages caused by coastal storms, investigate the economic feasibility of improvements to the U.S. inland waterway and port infrastructure and manage financial risk at global food and beverage companies.