

MODELING & SIMULATION'S ROLE AS A SERVICE TO MILITARY AND HOMELAND SECURITY DECISION MAKERS

Todd E. Combs

Global Security Sciences Division
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439-4854

ABSTRACT

Scientists, engineers, and analysts have played a key role in providing decision support to military and homeland security decision makers since World War II. This keynote addresses the role of modeling and simulation in providing this critical service to national leaders. It highlights the use of discrete event, agent-based, and continuous simulation, as well as system dynamics to support decision making in a number of areas such as military transportation planning, infectious disease modeling, airport security, and military force structure planning. The address culminates by describing the role that modeling and simulation played in supporting the recently negotiated Joint Comprehensive Plan of Action (JCPOA), intended to ensure the peaceful use of Iran's nuclear program.

AUTHOR BIOGRAPHY

TODD COMBS is Director of the Global Security Sciences Division (GSS) at Argonne National Laboratory. In addition to his division management duties, Dr. Combs leads the Department of Homeland Security team within Argonne's National Security Program and manages Argonne's advanced grid modeling research program for the Department of Energy (DOE) Office of Electricity Delivery and Energy Reliability. Dr. Combs came to ANL from Oak Ridge National Laboratory, where he served as group leader of the Transportation Planning and Decision Science Group. Dr. Combs' research has spanned energy systems analysis for DOE sponsors, and the application of modeling and simulation techniques to national and homeland security issues for Department of Defense and Department of Homeland Security sponsors. He holds a master's degree and a Ph.D. in operations research from the Air Force Institute of Technology. He is a graduate of the U.S. Military Academy at West Point. Dr. Combs' military experience includes assignments at The Air Force Research Laboratory, the Air Force Office of Scientific Research, and the Air Force Studies and Analyses Agency.