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"Adapting C2 to the 21st Century"
An Emergent Behavior Modeling Approach for ISR Operations
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ABSTRACT

An ongoing challenge for defense policy makers has been proper evaluation of the value of ISR assets in operations. Current simulation tools often lack the capacity to consider the value of information gained by ISR assets in a way that impacts the modeled win/lose result of an operation. This limitation can be overcome by modeling information available as a local quantity for each element, limited modeling of the communication of that information, and a lack of reactive emergent behavior in the simulation agents that can make use of the information.

Originally created as a test bed for JHU/APL research in UXV robotic control algorithms, the SWARM/SimTool autonomous sensor-allocation and engagement simulator was designed from the ground up to model independent agent information and communications across a wide variety of possible sensors and platforms. Rather than suggest this particular tool as *the solution*, this paper offers it as a case study of what can be done, the critical value added by the approach (as well as limitations), and a standard of what decision makers should be able to expect in terms of modeling behavior, local information, and communications, as part of their suite of engagement models.