MAP19

ARMS CONTROL TREATY VERIFICATION & MONITORING SYSTEM EFFICACY EVALUATION

Jen Willis, Jan Irvahn, Rachel Pulliam, Jonathan Mills, Robert Brigantic
Pacific Northwest National Laboratory, Richland, Washington, USA

Abstract

Nuclear arms control treaties have included inspections where treaty partners are permitted to employ agreed-upon monitoring and verification (M&V) systems to agreed-upon items. We aim to calculate efficacy of potential M&V systems using mathematical and statistical models to aid negotiators in the selection of these systems. We weigh the expected components of efficacy (accuracy, burden, and security/invasiveness) for each system and have developed definitions and models to quantify each and, in turn, quantify efficacy. Each system's efficacy can then be compared to determine the expected best. Sensitivity studies on efficacy can be performed using the model to compare impacts of each M&V system. We are currently developing a graphical user interface to support treaty negotiations in making such comparisons easily through intuitive and interactive data visualizations.

Conference Track

Military Applications