## Day 3- April 5, 2006

**Solidarity/Occupational Dynamics Modeling -** Keven Ruby, Ph.D Candidate, Department of Political Science, University of Chicago

Ruby then discussed his research effort to build a baseline model for understanding occupational dynamics, an effort informed by his social science research in this area. Although his project does not deal with insurgency directly, studying occupation involves understanding similarly complex issues.  His model of occupation investigates the relationship between the publicly observable levels of compliance with occupation and the private and mostly unobservable "hearts and minds" of those affected.  His model looks at the interrelations of the occupation authority, the occupied public, and the counter-authority as it relates to sanctions, and support for the occupation. The individuals that are part of the occupied public are the agents and what they feel may be different from what they demonstrate to authorities on both sides.  They have a network of friends and enemies and their actions are informed by those network relations.  The authorities compete with one another and are the external drivers in the model.  They have various strategies they can employ to gain support and enforce sanctions.  The model looks at these decision making processes and Ruby suggests that the three end results of a simulations could include polarization, struggle, or victory for each of the authorities. Preliminary results seem to suggest that strategic choices seem to matter more for the occupation authority than the counter authority. In the future, he plans to add other elements to the model to investigate how identity in group formation can affect the dynamics and interaction processes.

**Discussant -** Jonathan Ozik, Post-doctoral Fellow, Joint Threat Anticipation Center

Ozik indicated that the interweaving of modeling and history is one example of the interdisciplinary research that JTAC does to integrate the computational and social sciences/humanities.  He highlighted the importance of establishing common frames of reference for the disciplines.  A term, theory, or concept can mean one thing to the computational scientist and another to the social scientist. One example is the term

"model."  Since these concepts and theories inform what questions are asked, it is important to establish a common understanding among the groups if they are to work together.

He suggested that the collaboration efforts should be bi-directional (between the computational and social sciences/humanities). Elements in this type of collaboration include formulating social science theories in model amenable forms, the identification of relevant social theories and ways to bridge theoretical gaps, the introduction of social complexity into computational models, and the identification of areas that require further social science theory and computational tools. The collaborative process also needs to be intra-disciplinary in nature. Various social sciences need to be integrated as each discipline has contributions to make.  The same should be said of the computational sciences (e.g., agent based simulation, information modeling, geographic information systems). The large challenge in this integration is incorporating the richness of the social sciences and humanities into the computational tools.