

verification regime will be to identify the operational factors that influence effectiveness in the routine deterrence of inadvertent yet militarily significant treaty violations. A model, derived from the binomial probability distribution, is presented in the third section of the paper, in which the relationship of key factors to overhead monitoring system effectiveness is explored.

Certain terms mentioned in this respect require further elaboration. The first is "verification system effectiveness." As used here, "system" refers to monitoring instruments and procedures that function as a combined and self-contained whole. Thus, the focus is not with particular sensors, e.g., aircraft-mounted Synthetic Aperture Radars (SARs), but rather with complete systems of surveillance, including, in this example, aircraft and sensor coverage, sortie rates, data analysis, etc.

"Effectiveness" is a somewhat nebulous concept, a composite of both operational technical factors and political judgments. In the model, it is expressed as a detection standard specifying a probability of detection and a search interval. Both represent, ultimately, a political judgment of what is required to deter an inadvertent, militarily significant treaty violation. The standard is summarized in statements such as,

*"the verification system must have a 50 per cent chance of detecting an inadvertent treaty violation within five days of its occurrence"; or,*

*"the verification system must have a 95 per cent chance of detecting an inadvertent treaty violation within ten days of its occurrence."*

The particular standard for verification system effectiveness is determined, in the end, by what political authorities feel they can accept in the post-reductions world.

Finally, there are two aspects to a treaty violation. First, it is "militarily significant." The definition of this term derives from a related measure offered for consideration in a CFE agreement — prenotification of out-of-garrison activities. This proviso requires participants to provide advance notice of military activities undertaken outside designated garrison areas. The unauthorized presence of unit formations, e.g., brigades, divisions, armies, etc., outside these areas constitutes a violation. This definition is used to distinguish violations related to operational military formations with significant combat capability from less-threatening "technical" violations such as small breaches of weapons ceilings.

Second, the violations most often encountered during the life of the treaty are likely to be "inadvertent." It is reasonable to assume that participants enter a treaty based on a positive appreciation of the resulting security environment for their national interests. While it is possible that some may try to use the treaty as