

Part 3. Modeling the Verification Problem

The technical performance of these systems in routine operations is familiar. Less certain, however, is their effectiveness in the unfamiliar world of conventional arms control verification. Here, "effectiveness" requires that systems have a fair chance of detecting a treaty violation within a reasonable period of time. Their success depends, in part, upon the operating environment defined by the treaty. It is essential, therefore, that negotiators recognize these operational factors so that appropriate parameters can be incorporated into the agreement. The following model highlights the relationship of such factors to the effectiveness of aerial and spaced-based systems.

Treaty Violation — Definition

Effectiveness cannot be considered, however, without first defining a "treaty violation." In practice, there are as many types of violations as limiting clauses in the agreement. For example, one tank in excess of a 20 000-tank limit is technically a violation of the treaty, although not one to which a great deal of military importance is attached. In the model presented here, the concern is not with detection of small breaches of weapon ceilings, but rather with detection of militarily significant violations. The definition of "militarily significant" is shaped by the following "stabilizing measure" that could be included as part of a CFE supporting measures package — prenotification of out-of-garrison activities.

This provision was included in NATO's MBFR proposal tabled in December 1979 and again in its stage-one proposal of 5 December 1985.¹ It required notification of out-of-garrison activities by one or more "division formations"² within the area of reductions — the NATO Guidelines Area (NGA)³ — and the western military districts of the Soviet Union. A schedule of these activities would be published in an annual calendar with supplemental information provided no later than 30 days prior to the activity.⁴

The September 1989 supporting measures package included provisions for prior notification of the movement of ground treaty-limited equipment exceeding (within a two-week period) 600 main battle tanks, 400 artillery, and 1 200 armoured troop carriers. Written notice would be required 42 days in advance, including the purpose of the movement, the numbers involved, their normal peacetime locations, and the intended destination and length of stay.⁵ Similarly, notification would be required at least 12 months in advance for the one military activity involving over 40 000 troops or 800 main battle tanks allowed each participant over a two-year period.⁶