This, however, does not negate the usefulness of airborne sensors in CFE verification. Aerial surveillance can be very effective when operating within smaller geographic zones. Consider, for example, a coverage area limited to the "frontline" East European states — the German Democratic Republic and Czechoslovakia (herein referred to as the "East Europe sub-region"). Their combined area is 236 068 km^2 or approximately 4 per cent of the coverage area in the base case. Recall the probability of observation equals the ratio of the search swath [s] to the coverage area [c]. Aircraft coverage per sortie using a SAR is unchanged at 75 000 km^2; therefore, the probability of observation equals 75 000/ 236 068 or .32 (in the base case, p(o) = .012). That is, there is a 32 per cent chance that the search swath of the airborne sensor will pass over a target located in the critical East Europe sub-region. In Figure A-4, the overall detection probabilities calculated for the East Europe sub-region are compared with the full-region, "heightened-sortie" case. The figure illustrates that aerial detection capabilities increase dramatically as the coverage area becomes smaller. Moreover, the number of "looks" taken by airborne sensors during the five-day interval need not be affected by restrictions on coverage-area size, whereas the frequency of satellite overflights falls as the size of that area is reduced.

Finally, the overall probability of detection can be raised by relaxing the requirements on interval length [t], thereby increasing the number of "looks" taken by the monitoring system. For example, assuming a heightened sortie rate of 2.18 sorties per day [r], the aerial surveillance system searches some part of the coverage area 11 times in a five-day period. However, extending the search interval to ten days, for example, allows the system to take 22 "looks" in the same coverage area. Figure A-5 compares the overall detection probabilities for five- and ten-day search intervals in the East Europe sub-region. Not surprisingly, detection probabilities are higher (given the level of system sophistication/efficiency) as the monitoring system "looks" more often at the coverage area.

To this point, the analysis has focused on means to enhance the overall probability of detection, implicitly assuming that the higher the detection probability, the greater the deterrent effect of the verification regime. What, however, are the lower limits that satisfy the demands for effective deterrence beyond which increases in detection probabilities are superfluous? In other words, what are the minimum detection standards needed to deter inadvertent treaty violations? Understandably, the inspector wants to maximize verification system performance to reassure himself that no violation will go undetected. Thus, the demands on the verification system often approach standards on the order of a 95 per cent chance of detecting a militarily-significant violation within a five-day interval, for example. Assuming the coverage area is limited to the East Europe sub-region, this standard [p(D) = .95] demands a heightened sortie rate [L = 11] and relatively high system sophistication/efficiency [p(i) = .75] (see Appendix, Table A-4). However, does the standard overstate what is needed to deter an