The overlapping alarms model is based on the assumption that a missile would be launched if a second false alarm went off before the previous alarm had been resolved. The model estimates the probability that this juxtaposition of alarms would occur, during a given time period, on the basis of three parameters:

a) the average frequency of false alarms;
b) the average time taken to resolve each alarm;
c) the time interval under consideration.

The model shows that the average length of time until a lethal juxtaposition of false alarms occurred would be inversely proportional to the square of the frequency of false alarms. That is, if the number of false alarms per unit time doubles, the average amount of time before an overlapping alarm occurs is cut by a factor of four. Assuming a 3.5-minute false-alarm resolution time, 100 false alarms per year would give a 6.4 per cent chance of an overlapping alarm during that year. A doubling of alarms to 200 per year would increase this probability to 23.4 per cent and tripling the number to 300 per year would increase the probability of overlapping alarms to 45.1 per cent. (This figure is considerably greater than that provided by the US Department of Defence.)

Sennott's dual phenomenology model examines the military's key assertion that false alarms are not as dangerous as they might appear because of the policy of dual phenomenology, which requires that any indication of attack by one family of sensors, such as infra-red sensing satellites, must be confirmed by another family, such as radars. Sennott's model evaluates the claim that this form of redundancy would drastically reduce the likelihood of a "false positive" detection of incoming missiles. It shows that if "each stream" (satellites, radars) has 200 false alarms per year, the average time until an alarm occurs simultaneously in both systems is less than four years. (It is appropriate to note here that Bruce Blair asserted later in the conference that the "dual phenomenology" doctrine sometimes uses what he calls "strategic warning," that is, independent information from political or intelligence sources that an attack appears to be imminent.)

Sennott concluded that command, control and communications systems cannot be made completely secure by technological means and that detection errors *cannot* be eliminated. In attempting to eliminate as many detection errors as possible the military sensors must try to strike a balance between Type 1 errors, that is, failure to detect an incoming missile or missiles, and Type 2 errors, that is, detecting a non-present target. Sennott argued that the proportion of Type 2 errors will increase as decision time shortens. Most troubling to Sennott was her conclusion that:

> We are reaching a situation of contradiction, namely, the time available for human intervention in the decision-making process