

These occurred in 1978, 1979 and 1980. According to public sources a missile attack conference (MAC), which would have involved the president, has never been called.

Table I
NORAD FALSE ALARMS 1977-1984

Year	MDCs	TACs
1977	43	0
1978	70	2
1979	78	2
1980	149	2
1981	186	0
1982	218	0
1983	255	0
1984	153	0

MDC = missile display conference (non-routine)
TAC = threat assessment conference

In a paper entitled "Accidental Nuclear War: A Risk Assessment," Michael Wallace, Brian Crissey and Linn Sennott use the information described above to estimate the percentage of serious false alarms (i.e., those resulting in a threat assessment conference) that would take longer to resolve than the decision time available. They then estimate the probability that such an unresolved false alarm will occur during a time of international crisis. Of course the probability rises as the duration of the crisis rises. The key assumption here is that a serious unresolved false alarm which arrives during a time of high tension could lead to a mistaken launch of nuclear weapons. Their model predicts that, as decision time decreases, the chance of accidental nuclear war during a prolonged international crisis rises dramatically. For example if the decision time is 15 minutes and it takes 2 minutes to resolve a false alarm, the probability of an unresolvable false alarm, occurring during a crisis which goes on for 30 days, is estimated at about 0.2%. If decision times drops to 6 minutes, the probability increases to over 50%.⁷

In her thesis, Marsh criticizes the Wallace/Sennott/Crissey model and develops her own. She estimates that if the US were to adopt a launch on warning policy, an accidental nuclear war could occur within one year. However, under the current policy, which requires warning signals from both satellite sensors and ground based radars, she estimates that it would take at least 20,000 years before we might expect an accidental nuclear war. In other words she finds that the probability of accidental nuclear war, under current policies, is vanishingly small.

ESCALATION

In addition to the danger of a strategic launch in response to unresolved false alarms, there is a more

complex scenario: the escalation of local conflict, involving conventional weapons, to an all-out nuclear war between the superpowers. There are many ways such an escalation could come about. For example, Soviet and American forces patrol the Persian Gulf. An incident at sea during a time of international crisis could escalate to direct confrontation between the superpowers.

Another plausible scenario is escalation of a conventional war in Europe.⁸ Tactical nuclear weapons are deployed close to the borders that would become the frontline in a European war, and field commanders would want to have control over the use of those installations. There would be intense pressure on political leaders to release the electronic codes that 'unlock' the permissive action links (PALs) described earlier, and to pre-delegate the authority to use those weapons. Under these circumstances, the 'nuclear threshold' could be easily crossed, especially if a commanding officer feared that those nuclear weapons might be captured or destroyed by opposing forces.

During any conflict involving the conventional forces of the US and the USSR, strategic nuclear systems would be on a high state of alert. This means that many of the 'safety catches,' the negative controls, would be taken off. As soon as nuclear weapons are used on the battlefield, the crisis would intensify. There would be growing pressure to respond rapidly to any sign that the other side might be preparing to launch a strategic attack. Indeed, there would be strong incentives on both sides to launch a pre-emptive strike against the strategic forces and the command and control centres of the adversary. The political and military calculation is simple: the damage suffered in a retaliatory strike would be less than the destruction resulting from a coordinated first strike by the enemy. The confusion, the intense pressure on decision-makers, and the elimination of peacetime safeguards would create the kind of momentum that leads to escalation.

RECOMMENDATIONS TO REDUCE THE RISKS

A purely accidental nuclear war seems unlikely under normal peacetime conditions. Standard nuclear operating procedures include a number of negative controls that work to prevent an accidental or unauthorized launch. Analysts warn, first and foremost, against the adoption of a launch on warning posture. While it is true that such a posture would increase the time between initial tactical warning and launch, giving precious time for consultation and decision-making, it would also greatly increase the risk of accidental nuclear war.

The models for assessing the risk of accidental nuclear war point to some fairly obvious policy