2.2 Space-to-Space Weapons Situation (Continued)

Decades of the 1990's and the 2000's would see the next generation of ASAT weapons being developed and deployed. These weapons would be based on beam technology, being either electromagnetic (laser) beam or particle beam. For deployment in space, laser beam technology is the most promising and hence would be the first of the two to be used. Extensive testing for at least ten years preceding deployment of any of the three generations is assumed.

While it is beyond the scope of this study to envisage all of the possible configurations for an effective ASAT, given the range of targets against which they might be directed, there are certain general observations that would hold true for most systems.

Damage or destruction of satellites in geostationary orbit can be accomplished by ASAT's with short range capability since an ASAT weapon drifting slowly in or near geostationary orbit will eventually come within a few kilometers of all of the satellites in that orbit.

Damage or destruction to satellites in Molniya orbits or 12 hour circular orbits would require an ASAT with a stand-off capability. The only alternative would be to employ a close range weapon and place the weapon platform in a co-orbit with the target satellite, clearly a provocative act requiring no further verification.

A stand-off weapon with a range of several hundred kilometers could be effective against many of the low altitude reconnaissance satellites shown at inclinations between 60° and 80°. A low altitude satellite with a nuclear warhead would be particularly effective against targets in this range of orbits. Satellites with weapons to be used against earth targets, if optimally deployed, would be found in the same low altitude range.

By similar reasoning, a satellite with a range of a few hundred kilometers at an inclination corresponding to sun-synchronous operation could present a threat to the military photo reconnaissance satellites and civilian remote sensing satellites operating in the sun-synchronous orbits.