

Proposal Abstract J95(A85)

1. Arms Control Problem:

- Nuclear weapons - ballistic missiles
- cruise missiles
- comprehensive test ban
- partial test ban
- missile tests

2. Verification Type:

- (a) Remote sensors - satellites
  - aerial
  - ELINT
  - ground-based
  - radar
- (c) Seismic sensors
- (b) On-site inspection - selective
- (d) Short-range sensors - monitoring devices

3. Source:

Smith, R. Jeffrey. "High-Tech Vigilance". Science 85 (December 1985): 26-33.

4. Summary:

For more than 30 years the US has used its monitoring technologies to check for ominous international developments. Nations that know what their enemies are doing are less likely to increase world tensions through actions resulting from fear. Nations that know that their enemies are similarly observing them are less likely to threaten peace by rash behaviour. Governments are also more likely to conclude treaties if they can verify their opponent's compliance.

In the past, as weapons technology advanced, so too did monitoring technology. This bought time for diplomats to work out ways to prevent tensions escalating into war. Recently, however, some high US officials have questioned the ability of monitoring technology to keep up with Soviet weapons development.

US monitoring systems fall into two categories: "surrogate eyes" and "surrogate ears". The former includes the KH-9 or "Big Bird" satellite which orbits about 100 miles above the earth and can photograph all of the USSR and China every three and a half days. Events in other nations can also be observed as was the case for suspected nuclear tests in India in 1979 and South Africa in 1977. The KH-8 whose orbit is more elliptical than that of the KH-9 can photograph from 80 miles altitude. It was used in 1981 to monitor Soviet troop movements near Poland. Both the KH-8 and KH-9 carry a variety of cameras. Exposed film is parachuted back to earth where it is collected by planes or retrieved by divers. A resolution of