

J114(A72)

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Proposal Abstract J114(A72)

1. Arms Control Problem:

- Nuclear weapons - missile tests
- reentry vehicles

2. Verification Type:

- Remote sensors - radar
- satellite
- shipboard

3. Source:

Greenwood, T. Reconnaissance, Surveillance and Arms Control, Adelphi Papers no. 88. London: International Institute of Strategic Studies, 1972, pp. 15-22.

4. Summary:

Greenwood commences with a discussion of methods presently used by the United States to monitor Soviet and Chinese missile tests. These include:

- (1) Line-of-sight radar: These comprise installations in Turkey and the Pacific area as well as the BMEWS radars in Greenland and Alaska. They provide the information on the following:
 - (a) the existence of a test, unless it is arranged so as not to come within range of any radars or unless there is a mechanical failure,
 - (b) the missile's trajectory and hence range and impact area, and
 - (c) some characteristics of the missile and reentry vehicle, like size and shape.

On the basis of these data, second order information can be deduced. "For example, the type of missile or reentry vehicle may be determinable from the radar echo and thus it might be possible to judge when a new missile system is being tested. From the frequency of the tests, the progression of such a new system through its development, test and deployment cycle might be monitored" (p. 16)

- (2) Over-the-horizon (OTH) radar: By reflecting off the ionosphere OTH radar can achieve long-ranges. There are two types: back-scatter OTH which can determine the velocity and acceleration of a missile, and forward scatter OTH which can identify a missile by its exhaust signature.
- (3) Satellite systems: As is the case for OTH radars, satellite systems which can detect and track missiles were developed primarily to provide early warning of a missile attack. The main sensors employed for this task are infra-red telescopes and television. Newer satellites have the capability of real time monitoring of tests.