

Non-Seismological Identification:

The authors contend that on-site inspection and satellite reconnaissance must be regarded as complements to seismological monitoring. They cannot detect new explosions, but rather can only help identify events already detected and located by seismological means. It is difficult for the authors to understand why on-site inspection has been regarded by some states as a necessary verification method for a CTB. On-site inspections cannot increase the detection capability of the verification system nor counter possible evasion techniques since the idea behind such methods is that the illicit test would go undetected. Visual inspection could be useful for identifying earthquakes either by observing the effect on the environment or, especially, the lack of human activity in the area that would have been necessary if a nuclear test had been conducted. However, lack of human activity could also be verified by satellites. Only in relation to PNEs would on-site inspections be essential.

Because of the magnitude of effort required to cover large areas with high resolution satellite sensors continuous monitoring of whole countries seems unrealistic. Instead, satellite data would be used to supplement seismic data when an event was detected and located seismologically but not identified. The precautions needed to avoid such satellite reconnaissance would greatly complicate the violator's task. However, such satellite verification is applicable only to areas where there is no legitimate mining activity. Also reconnaissance satellites technology is today available only to a few states. If this method is included for monitoring a CTB then the satellite data must be made generally and easily available either directly or through an international data center.

Technical and non-technical intelligence methods could also be employed to monitor a CTB but because of the secrecy surrounding such methods it is not possible to estimate the kind or amount of information that can be achieved by such methods. The authors mention in particular the monitoring of communications in a state. Generally, the efficiency of intelligence methods does not depend on the yield of the tested explosion, but rather on the overall size and structure of the operation.

One other non-seismological verification method is monitoring of the mass media as well as public debate in a country. This could help in assessing particular events (eg. earthquakes) and general public reactions to certain proposals (eg. for a PNE).

A Monitoring System:

The authors propose a system for monitoring a CTB which, apart from being more scientifically detailed, is essentially the same as that suggested by Sweden in CCD/482* (26 March 1976). For the authors, the military significance of any nuclear test increases with the yield of the explosion and explosions below 1 kt have little military significance. The current detection limit of seismic verification is about magnitude 4 or the equivalent of a 1 kt explosion in hard rock. Their system is designed to provide this detection capability.

* See abstract K25(G76).