

which the neutrons generated by fusion are allowed to split the uranium nuclei in a uranium “blanket” surrounding the weapon. Atomic fission weapons and thermonuclear weapons, including the fission-fusion-fission devices, have all come to be called “nuclear weapons.”

All explosions which result from the release of a large amount of energy in a confined volume create a rapid increase in the temperature and pressure and consequently convert the surrounding materials into hot, compressed gases which expand, causing a shock wave in the atmosphere, in the ground or in water. Nuclear explosions produce other important effects as well. These are thermal radiation and nuclear radiation, the latter involving harmful rays released both immediately after the explosion and over a longer period of time.

By November 1987, well over 1,600 nuclear test explosions of different sizes and varieties had been carried out in different environments by the five nuclear weapon powers mentioned above — the great majority of them by the USA and the USSR. (In addition, one was conducted by India, which, however, maintains that it has no nuclear weapons.) A number of concerns arise in connection with this continuous testing activity, regarding the necessity for explosive tests; the difficulties encountered in the negotiations for a test ban and the value of the treaties they have produced; the problems of verification; the consequences of a possible cessation of tests; and prospects for further test limitations. The following sections address these questions.