

**Table 12B.2.** Estimated number of nuclear explosions, 1945–2006

a = atmospheric (or in a few cases underwater); u = underground.

Year	USA <sup>a</sup>		USSR/ Russia		UK <sup>a</sup>		France		China		India		Pakistan		North Korea		Total
	a	u	a	u	a	u	a	u	a	u	a	u	a	u	a	u	
1945	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
1946	2 <sup>b</sup>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
1947	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1948	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
1949	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1950	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1951	15	1	2	–	–	–	–	–	–	–	–	–	–	–	–	–	18
1952	10	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	11
1953	11	–	5	–	2	–	–	–	–	–	–	–	–	–	–	–	18
1954	6	–	10	–	–	–	–	–	–	–	–	–	–	–	–	–	16
1955	17 <sup>b</sup>	1	6 <sup>b</sup>	–	–	–	–	–	–	–	–	–	–	–	–	–	24
1956	18	–	9	–	6	–	–	–	–	–	–	–	–	–	–	–	33
1957	27	5	16 <sup>b</sup>	–	7	–	–	–	–	–	–	–	–	–	–	–	55
1958 <sup>c</sup>	62 <sup>d</sup>	15	34	–	5	–	–	–	–	–	–	–	–	–	–	–	116
1959 <sup>c</sup>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1960 <sup>c</sup>	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	–	3
1961 <sup>c</sup>	–	10	58 <sup>b</sup>	1	–	–	1	1	–	–	–	–	–	–	–	–	71
1962	39 <sup>b</sup>	57	78	1	–	2	–	1	–	–	–	–	–	–	–	–	178
1963 <sup>e</sup>	4	43	–	–	–	–	–	3	–	–	–	–	–	–	–	–	50
1964	–	45	–	9	–	2	–	3	1	–	–	–	–	–	–	–	60
1965	–	38	–	14	–	1	–	4	1	–	–	–	–	–	–	–	58
1966	–	48	–	18	–	–	6	1	3	–	–	–	–	–	–	–	76
1967	–	42	–	17	–	–	3	–	2	–	–	–	–	–	–	–	64
1968	–	56	–	17	–	–	5	–	1	–	–	–	–	–	–	–	79
1969	–	46	–	19	–	–	–	–	1	1	–	–	–	–	–	–	67
1970	–	39	–	16	–	–	8	–	1	–	–	–	–	–	–	–	64
1971	–	24	–	23	–	–	5	–	1	–	–	–	–	–	–	–	53
1972	–	27	–	24	–	–	4	–	2	–	–	–	–	–	–	–	57
1973	–	24	–	17	–	–	6	–	1	–	–	–	–	–	–	–	48
1974	–	22	–	21	–	1	9	–	1	–	–	1	–	–	–	–	55
1975	–	22	–	19	–	–	–	2	–	1	–	–	–	–	–	–	44
1976	–	20	–	21	–	1	–	5	3	1	–	–	–	–	–	–	51
1977	–	20	–	24	–	–	–	9	1	–	–	–	–	–	–	–	54
1978	–	19	–	31	–	2	–	11	2	1	–	–	–	–	–	–	66
1979	–	15	–	31	–	1	–	10	1	–	–	–	–	–	–	–	58
1980	–	14	–	24	–	3	–	12	1	–	–	–	–	–	–	–	54
1981	–	16	–	21	–	1	–	12	–	–	–	–	–	–	–	–	50
1982	–	18	–	19	–	1	–	10	–	1	–	–	–	–	–	–	49
1983	–	18	–	25	–	1	–	9	–	2	–	–	–	–	–	–	55
1984	–	18	–	27	–	2	–	8	–	2	–	–	–	–	–	–	57
1985 <sup>f</sup>	–	17	–	10	–	1	–	8	–	–	–	–	–	–	–	–	36
1986 <sup>f</sup>	–	14	–	–	–	1	–	8	–	–	–	–	–	–	–	–	23
1987 <sup>f</sup>	–	14	–	23	–	1	–	8	–	1	–	–	–	–	–	–	47
1988	–	15	–	16	–	–	–	8	–	1	–	–	–	–	–	–	40
1989	–	11	–	7	–	1	–	9	–	–	–	–	–	–	–	–	28
1990	–	8	–	1	–	1	–	6	–	2	–	–	–	–	–	–	18

Year	USA <sup>a</sup>		USSR/ Russia		UK <sup>a</sup>		France		China		India		Pakistan		North Korea		Total
	a	u	a	u	a	u	a	u	a	u	a	u	a	u	a	u	
1991 <sup>g</sup>	–	7	–	–	–	1	–	6	–	–	–	–	–	–	–	–	14
1992 <sup>g</sup>	–	6	–	–	–	–	–	–	–	2	–	–	–	–	–	–	8
1993 <sup>g</sup>	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
1994 <sup>g</sup>	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	2
1995 <sup>g</sup>	–	–	–	–	–	–	–	5	–	2	–	–	–	–	–	–	7
1996 <sup>g</sup>	–	–	–	–	–	–	–	1	–	2	–	–	–	–	–	–	3
1997	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
1998	–	–	–	–	–	–	–	–	–	–	–	2 <sup>h</sup>	–	2 <sup>h</sup>	–	–	4
1999	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
2000	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
2001	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
2002	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
2003	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
2004	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
2005	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
2006	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Subtotal	217	815	219	496	21	24	50	160	23	22	–	3	–	2	–	1	2 053
<b>Total</b>	<b>1 032</b>		<b>715</b>		<b>45</b>		<b>210</b>		<b>45</b>		<b>3</b>		<b>2</b>		<b>1</b>		

*Note:* For the purposes of this table ‘underground nuclear test’ is defined according to Section I, para. 2 of the 1990 Protocol to the 1974 US–Soviet Treaty on the Limitation of Underground Nuclear Weapon Tests (Threshold Test Ban Treaty, TTBT): ‘either a single underground nuclear explosion conducted at a test site, or two or more underground nuclear explosions conducted at a test site within an area delineated by a circle having a diameter of two kilometers and conducted within a total period of time of 0.1 second’. For the text of the TTBT and the Protocol see URL <<http://www.state.gov/t/ac/trt/5204.htm>>. ‘Underground nuclear explosion’ is defined according to the 1976 US–Soviet Treaty on Underground Nuclear Explosions for Peaceful Purposes (Peaceful Nuclear Explosions Treaty, PNET): ‘any individual or group underground nuclear explosion for peaceful purposes’ (Article II.a). ‘Group explosion’ is defined as ‘two or more individual explosions for which the time interval between successive individual explosions does not exceed five seconds and for which the emplacement points of all explosives can be interconnected by straight line segments, each of which joins two emplacement points and each of which does not exceed 40 kilometers’ (PNET, Article II.c). For the text of the PNET see URL <<http://www.state.gov/t/ac/trt/5182.htm>>. For brief descriptions of the TTBT and PNET see annex A in this volume.

<sup>a</sup> All British tests from 1962 were conducted jointly with the USA at the US Nevada Test Site but are listed only under ‘UK’ in this table. Thus, the number of US tests is higher than shown. Safety tests carried out by the UK are not included in the table.

<sup>b</sup> 1 of these tests was carried out under water.

<sup>c</sup> The UK, the Soviet Union and the USA observed a moratorium on testing from Nov. 1958 to Sep. 1961.

<sup>d</sup> 2 of these tests were carried out under water.

<sup>e</sup> On 5 Aug. 1963 the USSR, the UK and the USA signed the Partial Test-Ban Treaty (PTBT), prohibiting nuclear explosions in the atmosphere, in outer space and under water. It was subsequently opened for signature by all other states. For a description of the treaty and a list of the signatories and parties see annex A in this volume.

<sup>f</sup> The USSR observed a unilateral moratorium on testing between Aug. 1985 and Feb. 1987.

<sup>g</sup> The USSR and then Russia observed a moratorium on testing from Jan. 1991 and the USA from Oct. 1992, until they signed the Comprehensive Nuclear Test-Ban Treaty (CTBT);

France observed a similar moratorium from Apr. 1992 to Sep. 1995. The CTBT was opened for signature by all states on 24 Sep. 1996, and all 5 of the Non-Proliferation Treaty (NPT)-defined nuclear weapon states signed it on that day. It has not yet entered into force. For a brief description of the CTBT and lists of the states that have signed or ratified it see annex A in this volume.

<sup>h</sup> India's detonations on 11 and 13 May 1998 are listed as 1 test for each date. The 5 detonations by Pakistan on 28 May 1998 are also listed as 1 test.

*Sources:* Swedish Defence Research Agency (FOI), various estimates, including information from the CTBTO International Data Center; Reports from the Australian Seismological Centre, Australian Geological Survey Organisation, Canberra; US Department of Energy (DOE), *United States Nuclear Tests: July 1945 through September 1992* (DOE: Washington, DC, 1994); Norris, R. S., Burrows, A. S. and Fieldhouse, R. W., 'British, French and Chinese nuclear weapons', *Nuclear Weapons Databook, Vol. V* (Natural Resources Defense Council: Washington, DC, 1994); Direction des centres d'experimentations nucléaires (DIRCEN) and Commissariat à l'Énergie Atomique (CEA), *Assessment of French Nuclear Testing* (DIRCEN and CEA: Paris, 1998); Russian Ministry of Atomic Energy and Russian Ministry of Defense, *USSR Nuclear Weapons Tests and Peaceful Nuclear Explosions, 1949 through 1990* (All-Russian Research Institute of Experimental Physics, Russian Federal Nuclear Center (VNIIEF): Sarov, 1996); Natural Resources Defense Council, 'Archive of nuclear data', URL <<http://www.nrdc.org/nuclear/nudb/datainx.asp>>; and Swedish Defence Research Agency (FOI), Swedish National Data Centre, Information provided to the authors, Feb. 2007.