Table 1.1 Distribution and size of glaciers in the Canadian Arctic and Northern Alaska *(after: Heberli et al., 1989)*

Geographical region	Area of glaciers (km^2)
Ellesmere Island	80 500
Axel Heiberg Island	11 700
Devon Island	16 200
Bylot Island	5 000
Baffin Island	37 000
Coburg Island	225
Meighen Island	85
Melville Island	160
North Kent Island	152
Other islands	736
Brooks Range, Alaska	722
Alaska Range	13 900
Total	**166 380**

Table 1.2 Distribution and size of glaciers in the Atlantic sector of Arctic *(after: Björnsson, 1986; Haeberli et al. 1989; Weidick et al., 1992; Hagen et al. 1993)*

Geographical region	Total area (km^2)	Area of glaciers (km^2)	Glacier cover (%)	Ice volume (km^3)
Greenland (total)	2 186 000	1 802 600	82	c. 3 000 000
Inland Ice		1 726 400		
Other glaciers		76 200		
Iceland	103 000	11 260	11	c. 5 000
Jan Mayen	380	114	30	c. 11
Svalbard	61 680	36 598	59	6 988
Northern Scandinavia	?	1 441	?	?
Total	-	**1 852 013**	-	-

Notes: ? - lack of data

Table 1.3 Distribution and size of glaciers in the Russian Arctic ***(after: Krenke, 1982; Govorukha, 1989; Dolgushin and Osipova, 1989)***

Geographical region	Total area (km^2)	Area of glaciers (km^2)	Glacier cover (%)	Ice volume (km^3)
Victoria Island	10.8	10.7	99	0.7
Franz Josef Land	16 134	13 735	81.5	2 500
Novaya Zemlya	81 270	23 645	29.1	9 500
Polar Urals	?	28.7	?	0.8
Ushakov Island	325	325	100	57
Severnaya Zemlya	36 788	18 326	49.8	5 500
Byrranga Mts. (Taymyr Peninsula)	?	30.5	?	3.4
De Long Islands	225	80.6	35.8	11
Wrangel Island	7 300	3.5*	0.005	0.1
Chuckchi Peninsula	?	3	?	0.1
Total	**-**	**56 188**	**-**	**17 573.1**

Notes: ? - missing data, * - glacierets and permanent snow patches

Table 2.1. Glacier mass balance locations in Alaska

Glacier name	Lat. N	Long. W	Area (km^2)	Period observed
Gulkana	63°16'	145°25'	19.3	1966-1996
West Fork	63°31	147°21'	311	1981-1983
Susitna	63°30'	147°01'	36	1981-1983
East Fork	63°26'	146°47'	17	1982-1983
Maclaren	63°19'	146°31'	17	1981-1983
McCall	69°18'	143°50'	7	1969-1972
Wolverine	60°24'	148°55'	24.9	1966-1996

Table 2.2 Mass balance (m w.e.) of the Gulkana Glacier ***(from: USGS database)***

Balance year	Winter balance	Summer balance	Net balance
1966	0.93	-1.03	-0.10
1967	1.10	-1.02	0.08
1968	1.52	-1.64	-0.12
1969	0.67	-1.63	-0.96
1970	0.70	-0.32	0.38
1971	1.26	-0.96	0.30
1972	1.03	-1.40	-0.37
1973	1.41	-0.91	0.50
1974	0.54	-1.67	-1.13
1975	1.09	-1.37	-0.28
1976	0.95	-1.92	-0.97
1977	1.36	-1.65	-0.29
1978	0.96	-1.22	-0.26
1979	1.33	-1.93	-0.60
1980	1.09	-1.22	-0.13
1981	0.95	-0.95	0
1982	1.49	-1.67	-0.18
1983	1.10	-1.17	-0.07
1984	1.25	-1.63	-0.38
1985	1.37	-0.75	0.62
1986	1.07	-1.07	0
1987	1.21	-1.40	-0.19
1988	1.24	-1.52	-0.28
1989	?	?	-1.90
1990	1.33	-2.07	-0.74
1991	1.29	-1.43	-0.14
1992	0.97	-1.26	-0.29
1993	0.81	-2.41	-1.60
1994	1.34	-1.89	-0.55
1995	0.90	-1.82	-0.92
Cumulative	**-**	**-**	**-10.47**
Average	**1.11**	**-1.41**	**-0.35**

Notes: ? - missing data

Table 2.3 Mass balance (m w.e.) of the Alaska Range glaciers: West Fork, Susitna, East and Maclaren ***(after: Clarke, Harrison and Johnson, from: Haeberli and Müller, 1988)***

Glacier name Balance year	Annual accumulation	Annual ablation	Annual balance
West Fork			
1981	0.86	-0.87	-0.01
1982	0.78	-1.02	-0.24
1983	0.93	-0.81	0.12
Susitna			
1981	0.73	-1.03	-0.30
1982	0.65	-0.87	-0.22
1983	0.78	-0.38	0.40
East Fork			
1982	0.77	-0.97	-0.02
1983	0.78	-0.69	0.09
Maclaren			
1981	0.83	-0.52	0.31
1982	1.14	-1.00	0.14
1983	1.07	-0.70	0.37

Table 2.4 Mass balance (m w. e.) of the Wolverin Glacier *(from: USGS database)*

Balance year	Winter balance	Summer balance	Net balance
1966	1.63	-2.41	-0.78
1967	1.55	-3.64	-2.09
1968	1.83	-2.68	-0.85
1969	1.73	-2.29	-0.56
1970	3.37	-1.86	1.51
1971	2.11	-1.96	0.15
1972	0.84	-2.37	-1.53
1973	1.59	-1.34	0.25
1974	1.50	-3.10	-1.60
1975	2.50	-2.72	-0.22
1976	0.97	-2.17	-1.20
1977	4.21	-2.82	1.39
1978	3.34	-2.89	0.45
1979	1.44	-3.02	-1.58
1980	4.60	-2.27	2.33
1981	5.83	-4.23	1.60
1982	2.02	-2.35	-0.33
1983	2.72	-2.61	0.11
1984	2.34	-2.71	-0.37
1985	1.87	-1.45	0.42
1986	2.14	-2.38	-0.24
1987	3.27	-1.93	1.34
1988	3.33	-1.31	2.02
1989	1.33	-3.23	-1.90
1990	1.22	-3.69	-2.47
1991	2.13	-2.45	-0.32
1992	2.26	-3.69	-1.43
1993	2.33	-2.96	-0.63
1994	2.18	-2.92	-0.74
1995	2.50	-3.13	-0.63
Cumulative	**-**	**-**	**-7.90**
Average	**2.36**	**-2.62**	**-0.26**

Table 2.5 Mass balance of the McCall Glacier ***(after: Wendler and Benson, from: Müller 1977)***

Balance year	Net balance (m w.e.)	ELA (m a.s.l.)	AAR (%)
1969	-0.33	1 987	60
1970	-0.18	2 104	47
1971	-0.25	2 110	40
1972	-0.37	2 070	44
Cumulative	**-1.13**	**-**	**-**
Average	**-0.28**	**2 068**	**48**

Table 2.6 Glacier mass balance locations in the Canadian Arctic

Glacier name	Lat N	Long W	Area (km^2)	Period observed	Years missed
ELLESMERE ISLAND					
Ward Hunt Ice Shelf	83°07'	73°30'	660	1960-1985	1977-1979
Ward Hunt Ice Rise	83°07'	74°10'	32	1958-1985	1977-1979
Gilman Glacier	82°06'	70°37'	480	1957-1969	
Un-named ice cap	81°57'	64°12'	7	1966-1976	1968, 1969
Per Ardua Glacier	81°31'	76°27'	4	1964-1971	
Agassiz Ice Cap	80°00'	75°00'	17 326	1977-present	
Leffert Glacier	78°41'	75°01'	593	1979-80	
Un-named glacier	78°39'	74°55'	50	1979-80	
COBURG ISLAND					
Laika Glacier	75°53'	79°05'	0.3	1973-1980	1976-1978
Laika Ice Cap	75°55'	79°09'	10	1974-1980	1976-1978
Wolf Glacier	75°54'	79°12'	2	1979-1980	
AXEL HEIBERG ISLAND					
White Glacier	79°26'	90°40'	39	1959-present	1980-1983
Baby Glacier	79°26'	90°58'	0.6	1959-present	1973,1978-1988
MEIGHEN ISLAND					
Meighen Ice Cap	79°57'	99°08'	90	1959-present	1972,1979
MELVILLE ISLAND					
Melville S. Ice Cap	75°25'	125°10'	68	1963-present	1968,72,1975-79
Melville W. Ice Cap	75°38'	124°45'	36	1963-1973	1968,1972
Melville E. Ice Cap	75°39'	124°29'	16	1963-1973	1968,1972
Leopold Glacier	75°49'	124°49'	28	1963-1973	1968,1972
DEVON ISLAND					
Devon Ice Cap (NW)	75°20'	82°30'	12 825	1961-present	1968
BAFFIN ISLAND					
Lewis Glacier	70°26'	74°46'	182	1963-1965	
Barnes Ice Cap	70°10'	74°46'	6 200	1963-1984	
Decade Glacier	69°38'	69°50'	9	1965-1973	1972
Akudnirmiut Glacier	67°35'	65°15'	0.6	1971-1972	
Boas Glacier	67°34'	65°16'	1.4	1969-1975	

Table 2.7 Mass balance (m w.e.) the Devon Ice Cap (Northwest side)

Year	Winter balance	Summer balance	Balance
1961	0.109	-0.306	-0.197
1962	0.097	-0.456	-0.359
1963	0.150	-0.106	0.044
1964	0.115**	0.010	0.125
1965	0.087	-0.023	0.064
1966	0.104	-0.239	-0.135
1967	0.151	-0.178	-0.027
1968	0.112	-0.287	-0.175*
1969	0.115**	-0.290**	-0.175*
1970	0.115	-0.076	0.039
1971	0.120	-0.189	-0.069
1972	0.116	-0.014	0.102
1973	0.106	-0.201	-0.095
1974	0.110	-0.187	-0.077
1975	0.094	-0.163	-0.069
1976	0.111	0.065	0.171
1977	0.134	-0.233	-0.099
1978	0.107	-0.08	0.027
1979	0.101	-0.062	0.039
1980	0.101	-0.158	-0.057
1981	0.115**	-0.261**	-0.146
1982	0.108	-0.203	-0.095
1983	0.147	-0.042	0.105
1984	0.127	-0.158	-0.031
1985	0.137	-0.245	-0.108
1986	0.104	0.081	0.185
1987	0.144	-0.100	0.044
1988	0.086	-0.302	-0.216
1989	0.113	-0.182	-0.069
1990	0.144	-0.310	-0.166
1991	0.084	-0.314	-0.230
1992	0.139	-0.043	0.096
1993	0.103	-0.165	-0.062
1994	0.062	-0.094	-0.032
1995	0.087	-0.234	-0.147
Cumulative	**-**	**-**	**-1.80**
Average	**0.11**	**-0.16**	**-0.05**

Notes: * - mean of 2-year balance, ** - based on mean value for winter snowfall which was not measured that year.

Table 2.8 Mass balance (m w.e.) of the Drambuie Glacier

Year	Annual balance
1977	-0.260
1978	-0.400
1979	-0.200
1980	-0.210
1981	-0.470
1982	-0.450
1983	-0.300
1984	-0.370
1985	-0.460
1986	-0.070
1987	-0.425*
1988	-0.425*
1989	-0.350
1990	-0.510
1991	-0.640
1992	-0.190
1993	-0.740
1994	-0.410
1995	-0.470
Cumulative	**-7.35**
Average	**-0.39**

Notes: * - values marked with are the mean of a 2 year balance

Table 2.9 Mass balance (m w.e.) of the Ward Hunt Ice Rise

Year	Winter balance	Summer balance	Balance
1959	0.173	-0.283	-0.110
1960	0.255	-0.323	-0.068
1961	?	?	-0.288*
1962	?	?	-0.288*
1963	0.251	-0.134	0.117
1964	0.171	-0.067	0.104
1965	0.177	0.025	0.202
1966	?	?	-0.137
1967	0.152	-0.243	-0.091
1968	0.174	-0.181	-0.007
1969	0.146	?	?
1970	?	?	?
1971	0.180	?	?
1972	0.164	-0.269	-0.105
1973	0.179	-0.033	0.146
1974	0.144	0.024	0.168
1975	0.176	-0.036	0.140
1976	0.173	-0.134	0.039
1977	?	?	-0.177**
1978	?	?	-0.177**
1979	?	?	-0.177**
1980	0.136	?	-0.140***
1981	?	?	-0.140***
1982	0.134	?	-0.150
1983	0.221	-0.185	0.360
1984	0.176	-0.204	-0.280
Cumulative	**-**	**-**	**-1.06**
Average	**0.18**	**-0.15**	**-0.05**

Notes: * and, *** - mean of 2 year balance, ** - mean of 3 year balance, ? - missing data

Table 2.10 Mass balance (m w.e.) of the Meighen Ice Cap

Year	Winter balance	Summer balance	Balance
1960	0.130	-0.920	-0.790
1961	0.180	-0.330	-0.150
1962	0.160	-1.200	-1.040
1963	0.200	-0.460	-0.260
1964	0.330	0	0.330
1965	0.180	-0.150	0.030
1966	0.160	-0.270	-0.110
1967	0.110	-0.200	-0.090
1968	0.190	-0.170	0.020
1969	0.180	-0.140	0.040
1970	0.120	-0.140	-0.020
1971	0.190	-0.570	-0.380
1972	?	?	-0.010*
1973	?	?	-0.010*
1974	0.170	-0.260	-0.090
1975	0.120	-0.120	0
1976	0.160	-0.120	0.040
1977	0.120	-0.470	-0.350
1978	0.140	-0.260	-0.120
1979	?	?	-0.030*
1980	?	?	-0.030*
1981	0.190	-0.410	-0.220
1982	0.170	-0.050	0.120
1983	0.100	-0.340	-0.240
1984	0.200	0.030	0.230
1985	0.170	-0.230	-0.060
1986	0.200	-0.020	0.180
1987	0.180	-0.380	-0.200
1988	0.170	-0.480	-0.410
1989	0.250	0	0.250
1990	0.150	-0.450	-0.300
1991	0.130	-0.390	-0.260
1992	0.150	-0.170	-0.020
1993	0.100	-0.700	-0.600
1994	0.150	-0.350	-0.200
1995	0.410	-0.360	0.050
Cumulative	**-**	**-**	**-4.7**
Average	**0.17**	**-0.32**	**-0.13**

Notes: * - indicates the mean of a 2 year balance, ? -missing data

Table 2.11 Mass balance (m w.e.) of the Melville South Ice Cap

Year	Winter balance	Summer balance	Balance
1963	0.170	-0.295	-0.124
1964	0.310	-0.023	0.288
1965	0.140	-0.071	0.069
1966	0.150	-0.303	-0.153
1967	0.140	-0.010	0.130
1968	?	?	0.021*
1969	0.150	?	0.021*
1970	0.160	-0.434	-0.284
1971	0.180	-0.674	-0.491
1972	?	?	-0.402*
1973	?	?	-0.402*
1974	0.260	-0.518	-0.258
1975	0.160	?	-0.080**
1976	?	?	-0.080**
1977	?	?	-0.080**
1978	?	?	-0.080**
1979	?	?	-0.080**
1980	?	?	-0.080**
1981	0.180	-0.371	-0.188
1982	0.180	-0.499	-0.319
1983	0.160	-0.234	-0.074
1984	0.150	-0.112	0.038
1985	0.150	-0.260	-0.056
1986	0.240	-0.032	0.208
1987	0.240	-0.224	0.016
1988	0.200	-0.829	-0.629
1989	0.180	-0.522	-0.342
1990	0.190	-0.452	-0.262
1991	0.250	-0.051	0.199
1992	0.170	-0.490	-0.320
1993	0.130	-0.882	-0.752
1994	0.140	-0.250	-0.110
1995	0.120	-0.590	-0.470
Cumulative	**-**	**-**	**-5.13**
Average	**0.18**	**-0.35**	**-0.16**

Notes: * - indicate mean of a 2 year balance, ** - indicate mean of a 6 year balance,? -missing data

Table 2.12 Mass balance (m w.e.) of glaciers on Axel Heiberg Island

Baby Glacier	Year	White Glacier
-0.878	1960	-0.404
0.106	1961	0.023
-0.979	1962	-0.781
-0.150	1963	-0.154
0.250	1964	0.350
0.150	1965	-0.009
0.070	1966	-0.022
0.210	1967	0.121
-0.506	1968	-0.406
0.140	1969	0.074
0.110	1970	-0.004
-0.476	1971	-0.184
0.321	1972	0.115
?	1973	0.190
0.132	1974	-0.046
0.319	1975	0.247
0.149	1976	0.112
?	1977	-0.372
?	1978	-0.134
?	1979	-0.109
?	1980	?
?	1981	?
?	1982	?
?	1983	-0.083
?	1984	-0.055
?	1985	-0.012
?	1986	-0.259
?	1987	-0.617
?	1988	0.128
0.838	1989	0.028
-0.352	1990	-0.448
-0.058	1991	-0.179
-0.060	1992	?
?	1993	?
?	1994	-0.314
?	1995	-0.362
-0.67	**Cumulative**	**-3.57**
-0.33	**Average**	**-0.12**

Notes: ? - missing data

Table 2.13 Mass balance (m w.e.) as a function of altitude for the Qamanârssup sermia in the period 1980-1987 ***(after: Braithwaite from: Haeberli and Hoelzle, 1993)***

Altitude	Balance year							
(m a.s.l.)	1980	1981	1982	1983	1984	1985	1986	1987
110	-5.2	-5.3	-4.9	-4.7	-4.6	?	?	?
190	-4.4	-4.5	-4.9	-4.3	-4.3	-5.7	-5.8	?
320	-5.4	-5.9	-5.4	-4.9	-4.5	-5.7	-5.4	?
370	?	-6.3	-5.3	-4.7	-4.6	-6.0	-5.4	?
580	?	-3.9	-3.7	-3.4	-3.7	-5.0	-3.8	-4.7
680	?	?	-3.6	-2.7	-3.2	?	-3.5	-4.7
760	-3.5	-4.1	-4.6	-3.3	-3.1	-5.6	?	-4.9
790	-4.1	-4.7	-4.7	-3.7	-4.3	-5.9	-4.5	?
790	-3.1	-4.2	-5.1	-2.5	-3.2	?	?	?
880	-2.8	-3.9	-3.4	-2.7	?	-4.4	-3.7	?
910	-2.3	-2.5	-2.2	-2.2	-2.0	-3.0	-2.6	-2.8
930	-2.5	-1.9	-2.1	-0.7	-0.8	-2.4	-2.3	-2.9
940	-2.5	-2.0	-1.8	-0.8	-1.9	-2.7	-2.1	?
1 000	-2.0	-1.4	-1.6	-0.6	-0.9	-2.3	?	?
1 090	?	-2.0	-1.6	-0.9	-1.3	-2.5	-2.2	?
1 200	?	-.04	-0.3	0.8	0.4	-1.0	-1.0	-0.6
1 410	?	-0.5	-0.3	0.4	0.3	-0.4	-0.6	-0.4
ELA (m a.s.l.)	**1 470**	**1 490**	**1 510**	**1 250**	**1 250**	**1 600**	**1 580**	**1 600**

Notes: ? - missing data

Table 2.14 Mass balance of the Valhaltindegletscher ***(after: GGU data, from: Haeberli, 1985; Haeberli and Mülle, 1988)***

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)
1979	0.63	-0.64	-0.01	1 375
1980	0.45	-0.67	-0.22	1 440
1981	0.57	-070	-0.50	1 400
1982	0.28	-0.55	-0.27	1 440
1983	0.55	-0.38	0.17	1 340
Cumulative	**-**	**-**	**-0.83**	**-**
Average	**0.50**	**-0.66**	**-0.17**	**1 399**

Table 2.15 Mass balance of the Narssaq Brae ***(after: GGU data, from: Haeberli and Müller, 1988)***

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)
1981	1.58	-1.94	-0.36	1 130
1982	0.93	-1.26	-0.32	1 150
1983	1.16	-0.76	0.40	1 100
Cumulative	**-**	**-**	**-0.28**	**-**
Average	**1.22**	**-1.32**	**-0.09**	**1 127**

Table 2.16 Mass balance of the Qapiarfiup sermia ***(after: GGU data, from: Haeberli and Müller, 1988)***

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)
1981	1.05	-1.09	-0.04	790
1982	1.12	-1.18	-0.05	800
1983	1.31	-0.44	0.87	550
1984	1.28	-0.63	0.65	620
1985	0.84	-1.47	-0.63	860
Cumulative	**-**	**-**	**0.80**	**-**
Average	**1.12**	**-0.96**	**0.16**	**724**

Table 2.17 Mass balance (km^3 of water) of the whole Greenland Ice Sheet as results of estimation and modellig by various authors

Accumulation	Ablation	Calving	Balance	Authors
630	-120 to -270	-240	+270 to +120	Bader (1961)*
500	-272	-215	+13	Benson (1962)*
500	-330	-280	-110	Bauer (1968)*
500 +/-100	-295 +/-100	-205 +/-60	0 (assumed)	Weidick (1984)
487	-169	-318	0 (assumed)	Reeh (1985)
488	-289	-200	-1	Bindschadler (1985)
535[a]	280[b]	255[b]	0	Warrick & Oerlemans (1990)
532	-398	-134	0 (assumed)	Oerlemans *et al.*(1993)

Notes: [a] - estimated accuracy 15%; [b] - estimated accuracy 30%; * - from Oerlemans *et al.*(1993)

Table 2.18 Glacier mass balance locations in Iceland

Glacier name	Lat. N	Long. W	Area (km^2)	Period observed
Tungnaarjökull (Vatnajökull)	64°20'	10°00'	309	1985/1986, 1992-1994
Köldukvislarjökull (Vatnajökull)	64°35'	17°40'	313	1991/1992, 1994/1995
Dyngjujökull (Vatnajökull)	64°40'	17°10'	1 040	1992-1995
Bruarjökull (Vatnajökull)	64°30'	16°20'	1 695	1993-1995
Sidujökull (Vatnajökull)	64°15'	17°50'	380	1991/1992
Satujökull (Hofsjökull)	65°00'	19°00'	68	1988-1993

Table 2.19 Mass balance of theTungnaarjökull in Vatnajökull

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)	AAR (%)
1986	1.51	-1.48	0.03	1155	62
1992	1.75	-1.51	0.24	1125	67
1993	1.87	-1.74	0.13	1130	65
1994	1.70	-1.83	-0.13	1160	60
Cumulative	-	-	**0.27**	-	-
Average	**1.71**	**1.64**	**0.70**	**1142**	**63**

Table 2.20. Mass balance as a function of altitude of the ice drainage basin of Tungnaarjökull in 1993/1994

Altitude (m a.s.l.)	Area (km^2)	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)
690-700	1.1	1.16	-5.72	-4.56
700-750	4.8	1.18	-5.40	-4.23
750-800	6.8	1.20	-4.89	-3.69
800-850	9.3	1.20	-4.39	-3.19
850-900	11.3	1.20	-3.84	-2.64
900-950	13.6	1.18	-3.59	-2.42
950-1 000	14.8	1.09	-3.68	-2.59
1 000-1 050	20.2	1.01	-3.72	-2.71
1 050-1 100	21.5	1.14	-2.79	-1.65
1 100-1 150	25.3	1.35	-1.81	-0.05
1 150-1 200	20.4	1.61	-1.52	0.09
1 200-1 250	22.6	1.82	-1.27	0.56
1 250-1 300	23.8	1.97	-1.07	0.90
1 300-1 350	20.1	2.09	-0.90	1.19
1 350-1 400	21.4	2.18	-0.73	1.45
1 400-1 450	12.6	2.25	-0.54	1.71
1 450-1 500	14.4	2.30	-0.35	1.95
1 500-1 550	14.4	2.30	-0.17	2.13
1 550-1 600	11.6	2.28	-0.02	2.26
1 600-1 650	17.2	2.26	0.08	2.34
1 650-1 666	2.5	2.24	0.14	2.38
Total	**309.3**	**1.70**	**-1.83**	**-0.13**

Table 2.21. Mass balance of the Köldukvislarjökull in Vatnajökull

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)	AAR (%)
1992	c. 1.83	c. -0.85	c. 0.98	1 200	66
1994	?	?	?	1 300	55
1995	1.30	-1.89	-0.59	1 410	47
Cumulative	**-**	**-**	**0.39**	**-**	**-**
Average	**1.57**	**-1.37**	**0.20**	**1 303**	**56**

Notes: ? - missing data

Table 2.22. Mass balance of the Dyngjujökull in Vatnajökull

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)	AAR (%)
1992	c. 2.08	c. -0.43	c. 1.65	1 200	80
1993	1.60	-0.33	1.27	1 100	86
1994	1.44	-1.25	0.19	1 250	71
1995	1.47	-1.45	0.02	1 310	66
Cumulative	**-**	**-**	**3.13**	**-**	**-**
Average	**1.65**	**-0.87**	**0.78**	**1 215**	**76**

Table 2.23. Mass balance as a function of altitude for the ice drainage basin of Dyngjujökull in year 1993/1994

Altitude (m a.s.l.)	Area (km^2)	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)
700-750	1.4	0.31	-9.40	-9.08
750-800	12.0	0.33	-8.78	-8.46
800-850	20.7	0.36	-7.81	-7.45
850-900	22.6	0.42	-6.74	-6.32
900-950	26.5	0.56	-5.48	-2.92
950-1 000	29.8	0.72	-4.14	-3.43
1 000-1 050	35.3	0.87	-2.87	-2.00
1 050-1 100	31.0	1.00	-2.33	-1.34
1 100-1 150	33.8	1.09	-2.14	-1.05
1 150-1 200	48.7	1.22	-1.93	-0.71
1 200-1 250	44.6	1.27	-1.56	-0.28
1 250-1 300	40.9	1.33	-1.12	0.14
1 300-1 350	35.8	1.31	-0.92	0.40
1 350-1 400	43.8	1.32	-0.62	0.70
1 400-1 450	61.2	1.38	-0.42	0.96
1 450-1 500	67.0	1.42	-0.30	1.13
1 500-1 550	85.7	1.56	-0.21	1.35
1 550-1 600	100.5	1.72	-0.12	1.56
1 600-1 650	116.0	1.96	-0.07	1.89
1 650-1 700	72.7	1.96	-0.05	1.91
1 700-1 750	36.7	1.88	-0.02	1.85
1 750-1 800	22.3	1.87	0.00	1.87
1 800-1 850	11.2	1.78	0.01	1.79
1 850-1 900	13.9	1.86	0.03	1.89
1 900-1 950	20.2	2.05	0.05	2.11
1 950-2 000	5.4	2.15	0.09	2.24
Total	**1 040**	**1.44**	**-1.25**	**0.18**

Table 2.24. Mass balance of the Bruarjökull in Vatnajökull

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)	AAR (%)
1993	1.63	-0.54	1.09	1 060	77
1994	1.75	-1.47	0.28	1 140	67
1995	1.64	-1.84	-0.20	1 260	49
Cumulative			**1.17**		
Average	**1.67**	**-1.28**	**0.39**	**1 153**	**64**

Table 2.25 Mass balance of the Satujökull in Hofsjökull

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)
1988	1.31	-2.27	-0.96
1989	1.74	-1.24	0.50
1990	1.45	-2.05	-0.60
1991	1.94	-3.35	-1.41
1992	1.87	-0.81	1.06
1993	1.77	-0.86	0.91
Cumulative	**-**	**-**	**-0.50**
Average	**1.68**	**-1.76**	**-0.08**

Table 2.26 Glacier mass balance locations in Svalbard

Glacier name	Lat. N	Long. E	Area (km^2)	Period observed
Austre Brøggerbreen	$78^0 54'$	$11^0 50'$	11.80	1967-1995
Midre Lovénbreen	$78^0 53'$	$12^0 04'$	5.95	1968-1991
Vøringbreen	$78^0 03'$	$13^0 58'$	2.10	1974-1991
Boggerbreen	$78^0 55'$	$11^0 44'$	5.20	1975-1986
Bertilbreen	$78^0 41'$	$16^0 16'$	5.40	1975-1985
Longyearbreen	$78^0 11'$	$15^0 30'$	4.00	1977-1982
Daudbreen	$78^0 19'$	$16^0 07'$	1.60	1978-1983
Kongsvegen	$78^0 51'$	$12^0 26'$	6.20	1987-1995
Grønfjordbreen	$77^0 54'$	$14^0 15'$	38.30	1988-1991
Fridtjovbreen	$77^0 50'$	$14^0 26'$	48.70	1986-1991
Hansbreen	$77^0 04'$	$15^0 38'$	57.00	1989-1995
Nordenskioldbreen	$78^0 42'$	$17^0 11'$	242.00	1991
Werenskioldbreen	$77^0 05'$	$15^0 22'$	27.40	1980

Table 2.27 Mass balance of the Finsterwalderbreen

Balance years	Net balance (m w.e.)
1950-52	-1.35
1952-54	0.05
1954-56	-1.20
1956-58	0.20
1958-60	-0.05
1960-62	-1.15
1962-64	-0.10
1964-66	-0.40
1966-68	-0.55
Cumulative	**-4.55**
Average	**-0.51**

Table 2.28 Mass balance of the Austre Brøggerbreen

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)	AAR (%)
1967	0.77	-1.42	-0.65	450	7
1968	0.57	-0.67	-0.10	250	65
1969	0.40	-1.33	-0.93	650	0
1970	0.37	-0.91	-0.54	490	7
1971	0.65	-1.23	-0.58	400	23
1972	0.95	-1.26	-0.31	360	32
1973	0.74	-0.82	-0.08	270	60
1974	0.75	-1.67	-0.92	550	2
1975	0.78	-1.09	-0.31	340	35
1976	0.72	-1.17	-0.45	410	20
1977	0.76	-0.87	-0.11	320	45
1978	0.75	-1.31	-0.56	410	20
1979	0.77	-1.48	-0.71	550	2
1980	0.75	-1.27	-0.52	430	17
1981	0.46	-1.01	-0.55	450	14
1982	0.64	-0.68	-0.04	280	56
1983	0.70	-0.97	-0.27	345	34
1984	0.69	-1.42	-0.73	500	6
1985	0.93	-1.48	-0.55	450	14
1986	0.98	-1.30	-0.32	380	25
1987	0.82	-0.60	0.22	200	83
1988	0.61	-1.13	-0.52	440	15
1989	0.56	-1.01	-0.45	420	18
1990	0.75	-1.41	-0.66	500	8
1991	0.92	-0.79	0.13	275	58
1992	0.69	-0.89	-0.10	340	39
1993	0.54	-1.57	-1.03	>600	0
1994	0.79	-0.95	-0.16	310	48
1995	0.56	-1.34	-0.78	500	8
Cumulative	**-**	**-**	**-12.58**	**-**	**-**
Average	**0.70**	**-1.14**	**-0.43**	**404**	**26**

Table 2.29 Mass balance of the Midre Lovénbreen

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	ELA (m a.s.l.)	AAR (%)
1968	0.48	-0.51	-0.03	295	61
1969	0.41	-1.25	-0.84	650	0
1970	0.36	-0.89	-0.53	500	6
1971	0.70	-1.16	-0.46	385	37
1972	0.98	-1.20	-0.22	350	46
1973	0.82	-0.84	-0.02	310	58
1974	0.70	-1.59	-0.89	550	2
1975	0.83	-1.04	-0.21	340	48
1976	0.75	-1.10	-0.35	420	29
1977	0.80	-0.84	-0.04	300	60
1978	0.81	-1.29	-0.48	420	29
1979	0.80	-1.46	-0.66	480	9
1980	0.83	-1.26	-0.43	415	30
1981	0.51	-0.97	-0.46	435	23
1982	0.66	-0.64	0.02	290	62
1983	0.75	-0.92	-0.17	330	52
1984	0.74	-1.42	-0.68	440	21
1985	0.98	-1.46	-0.48	445	20
1986	1.06	-1.27	-0.21	370	42
1987	0.82	-0.58	0.24	225	77
1988	0.56	-1.05	-0.49	425	27
1989	0.63	-0.87	-0.24	375	41
1990	0.87	-1.38	-0.51	450	19
1991	0.98	-0.88	0.10	265	68
1992	0.84	-0.98	-0.14	375	40
1993	0.68	-1.56	-0.88	>600	0
Cumulative	**-**	**-**	**-9.98**	**-**	**-**
Average	**0.74**	**-1.10**	**-0.36**	**393**	**35**

Table 2.30 Mass balance (m w.e.) of the Vøringbreen

Balance year	Winter balance	Summer balance	Net balance
1974	0.64	-1.80	-1.16
1975	0.73	-0.99	-0.26
1976	1.44	-1.61	-1.17
1977	0.62	-0.75	-0.13
1978	0.50	-1.66	-1.16
1979	0.54	-1.43	-0.89
1980	0.55	-1.05	-0.50
1981	0.49	-1.43	-0.94
1982	0.50	-0.52	-0.02
1983	0.60	-1.13	-0.53
1984	0.70	-1.80	-1.10
1985	0.76	-1.21	-0.45
1986	0.70	-1.26	-0.56
1987	0.62	-0.94	-0.32
1988	0.84	-1.38	-0.54
1989	0.65	-1.19	-0.54
1990	0.66	-1.53	-0.87
1991	0.90	-1.52	-0.42
Cumulative	**-**	**-**	**-11.56**
Average	**0.69**	**-1.29**	**-0.64**

Table 2.31 Mass balance (m w.e.) of the Boggerbreen

Balance year	Winter balance	Summer balance	Net balance
1975	0.57	-0.57	0
1976	?	?	-0.20
1977	0.62	-0.88	-0.26
1978	0.34	-1.15	-0.81
1979	0.61	-1.68	-1.07
1980	0.48	-1.13	-0.65
1981	0.56	-0.92	-0.36
1982	0.38	-0.13	0.25
1983	0.48	-0.78	-0.30
1984	0.62	-1.23	-0.61
1985	0.54	-1.11	-0.57
1986	?	?	-0.60
Cumulative	**-**	**-**	**-5.18**
Average	**0.52**	**-0.96**	**-0.43**

Notes: ? - missing data

Table 2.32 Mass balance (m w.e.) of the Bertilbreen

Balance year	Winter balance	Summer balance	Net balance
1975	?	?	-0.29
1976	0.34	-1.06	-0.72
1977	0.48	-1.07	-0.59
1978	0.44	-1.44	-1.00
1979	0.50	-1.35	-0.85
1980	0.31	-1.23	-0.92
1981	0.42	-1.08	-0.66
1982	0.34	-0.51	-0.17
1983	0.41	-0.88	-0.47
1984	0.43	-1.46	-1.03
1985	0.44	-1.41	-0.93
Cumulative	**-**	**-**	**-7.63**
Average	**0.41**	**-1.15**	**-0.67**

Notes: ? - missing data

Table 2.33 Mass balance (m w.e.) of the Longyearbreen

Balance year	Winter balance	Summer balance	Net balance
1977	0.57	-0.99	-0.42
1978	0.45	-1.18	-0.73
1979	0.48	-1.71	-1.23
1980	0.50	-1.19	-0.69
1981	0.49	-0.82	-0.33
1982	0.41	-0.29	0.12
Cumulative	**-**	**-**	**-3.28**
Average	**0.48**	**-1.03**	**-0.55**

Table 2.34 Mass balance (m w.e.) of the Daudbreen

Balance year	Winter balance	Summer balance	Net balance
1976	0.72	?	?
1978	0.69	-1.35	-0.66
1979	0.54	-1.12	-0.58
1980	0.67	-1.24	-0.57
1981	0.69	-0.81	-0.12
1982	0.49	-0.37	-0.12
1983	?	?	-0.10
Cumulative	**-**	**-**	**-2.15**
Average	**0.63**	**-0.98**	**-0.36**

Notes: ? - missing data

Table 2.35 Mass balance (m w.e.) of the Vestre Grønfjordbreen

Balance year	Winter balance	Summer balance	Net balance
1988	0.80	-1.21	-0.44
1989	0.70	-1.20	-0.50
1990	0.75	-1.24	-0.49
1991	1.02	-1.19	-0.17
Cumulative	**-**	**-**	**-1.60**
Average	**0.82**	**-1.21**	**-0.40**

Table 2.36 Mass balance (m w.e.) of the Astre Grønfjordbreen

Balance year	Winter balance	Summer balance	Net balance
1986	0.84	-1.63	-0.79
1987	0.79	-0.21	-0.42
1988	0.74	-1.49	-0.75
1989	0.67	-1.33	-0.66
1990	0.68	-1.50	-0.82
1991	0.95	-1.29	-0.34
Cumulative	**-**	**-**	**-3.78**
Average	**0.78**	**-1.24**	**-0.63**

Table 2.37 Mass balance (m w.e.) of the Fridtjovbreen

Balance year	Winter balance	Summer balance	Net balance
1987	0.73	-0.90	-0.17
1988	0.80	-1.17	-0.37
1989	0.71	-1.04	-0.33
1990	0.74	-1.15	-0.41
1991	0.96	-0.91	-0.05
Cumulative	**-**	**-**	**-1.28**
Average	**0.74**	**-1.06**	**-0.32**

Table 2.38 Mass balance (m w.e.) of the Kongsvegen

Balance year	Winter balance	Summer balance	Net balance
1987	0.96	-0.42	0.54
1988	0.70	-0.75	-0.05
1989	0.55	-0.70	-0.15
1990	0.80	-1.10	-0.30
1991	0.88	-0.45	0.43
1992	0.92	-0.60	0.32
1993	0.74	-1.12	-0.38
1994	1.00	-0.50	0.50
1995	0.64	-0.89	-0.35
Cumulative	**-**	**-**	**0.56**
Average	**0.80**	**-0.73**	**0.06**

Table 2.39 Mass balance of the Hansbreen

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance* (m w.e.)	Net balance** (m w.e.)	ELA (m a.s.l.)	AAR (%)
1989	0.91	-1.00	-0.09	-0.44	365	39
1990	0.90	-1.44	-0.54	-0.89	380	27
1991	1.16	-1.03	0.13	-0.22	280	54
1992	0.89	-1.16	-0.27	-0.08	380	27
1993	0.93	-1.61	-0.68	-1.03	400	22
1994	0.76	-0.56	0.20	-0.15	240	69
1995	0.76	-1.21	-0.45	-0.80	390	25
Cumulative	**-**	**-**	**-1.70**	**-3.61**	**-**	**-**
Average	**0.90**	**-1.14**	**-0.24**	**-0.52**	**348**	**38**

Notes: * - net balance of the glacier surface, ** - net balance including calving flux,

Table 2.40 Glacier mass balance locations in Northern Scandinavia

Glacier name	Lat. N	Long. E	Area (km^2)	Period observed
Storglaciären	$68^0 00'$	$18^0 30'$	3.12	1946-1995
Engabreen	$67^{00}0'$	$14^0 00'$	38.00	1970-1995
Storsteinsfjellbreen	$68^0 30'$	$18^0 00'$	6.00	1964-68, 1991-93
Langfjordjøkulen	$70^0 30'$	$22^0 00'$	5.00	1989-1993

Table 2.41 Mass balance (m w.e.) of the Storglaciären

Balance year	Winter balance	Summer balance	Net balance
1946	1.13	-2.26	-1.13
1947	1.03	-3.10	-2.07
1948	1.45	-1.45	0
1949	2.23	-1.32	0.91
1950	1.42	-2.71	-1.29
1951	0.81	-1.45	-0.64
1952	0.87	-1.03	-0.16
1953	1.94	-2.74	-0.80
1954	1.13	-2.10	-0.97
1955	1.61	-1.77	-0.16
1956	1.29	-1.77	-0.48
1957	1.61	-1.94	-0.33
1958	1.45	-2.10	-0.65
1959	0.97	-1.94	-0.97
1960	0.68	-2.29	-1.61
1961	0.81	-1.90	-1.09
1962	1.10	-0.77	0.33
1963	1.45	-1.65	-0.20
1964	1.58	-1.10	0.48
1965	1.47	-1.06	0.41
1966	1.20	-1.73	-0.53
1967	1.35	-1.58	-0.23
1968	1.27	-1.37	-0.10
1969	0.98	-2.02	-1.04
1970	0.99	-2.51	-1.52
1971	1.33	-1.52	-0.19
1972	1.39	-2.44	-1.05
1973	1.67	-1.62	0.05
1974	1.31	-1.65	-0.34
1975	1.98	-0.81	1.17
1976	1.93	-1.66	0.27
1977	1.23	-1.03	0.20
1978	1.46	-1.54	-0.08
1979	1.54	-1.76	-0.22
1980	0.98	-2.17	-1.19
1981	1.16	-1.36	-0.20
1982	1.49	-1.23	0.26
1983	1.47	-1.19	0.28
1984	1.83	-1.71	0.12
1985	0.99	-1.71	-0.72
1986	1.62	-1.68	-0.06
1987	1.69	-1.22	0.47
1988	1.42	-2.26	-0.84
1989	2.58	-1.34	1.24
1990	2.26	-1.67	0.59
1991	1.68	-1.51	0.17
1992	2.24	-1.36	0.88
1993	2.25	-1.25	1.00
1994	1.06	-1.43	-0.37
1995	1.93	-1.23	0.70
Cumulative	**-**	**-**	**-11.7**
Average	**1.45**	**-1.68**	**-0.23**

Table 2.42 Mass balance (m w.e.) of the Engabreen

Balance year	Winter balance	Summer balance	Net balance
1970	2.05	-3.04	-0.99
1971	3.20	-2.19	1.01
1972	3.22	-3.29	-0.07
1973	4.37	-1.65	2.72
1974	3.39	-2.59	0.80
1975	3.18	-1.57	1.61
1976	3.86	-1.45	2.41
1977	2.08	-1.20	0.88
1978	2.48	-2.99	-0.51
1979	3.64	-3.22	0.42
1980	2.68	-3.18	-0.50
1981	2.91	-1.93	0.98
1982	2.27	-1.43	0.84
1983	2.34	-1.28	1.06
1984	3.83	-2.78	1.05
1985	1.50	-2.40	-0.90
1986	2.70	-2.45	0.25
1987	2.57	-1.63	0.94
1988	2.26	-4.05	-1.79
1989	4.62	-1.45	3.17
1990	3.49	-2.64	0.85
1991	2.83	-2.14	0.69
1992	4.05	-1.71	2.34
1993	3.06	-2.02	1.04
1994	1.95	-1.53	0.42
1995	3.50	-1.76	1.74
Cumulative	**-**	**-**	**20.46**
Average	**3.00**	**-2.21**	**0.79**

Table 2.43 Mass balance (m w.e.) of the Storsteinsfjellbreen

Balance year	Winter balance	Summer balance	Net balance
1964	1.85	-1.20	0.65
1965	1.69	-1.25	0.44
1966	1.05	-1.88	-0.83
1967	1.37	-1.77	-0.40
1968	1.44	-0.99	0.45
1991	1.56	-1.60	-0.04
1992	2.07	-1.03	1.04
1993	2.17	-1.22	0.95
1994	1.14	-1.35	-0.21
1995	1.81	-1.24	0.57
Cumulative	**-**	**-**	**2.62**
Average	**1.61**	**-1.35**	**0.26**

Table 2.44 Mass balance (m w.e.) of the Langfjordjøkulen

Balance year	Winter balance	Summer balance	Net balance
1989	2.46	-3.03	-0.57
1990	2.64	-3.04	-0.40
1991	2.31	-2.23	0.08
1992	2.76	-2.48	0.28
1993	2.47	-2.39	0.08
Cumulative	**-**	**-**	**-0.53**
Average	**2.53**	**-2.63**	**-0.11**

Table 2.45 Mean summer air temperature (June-August) at mean ELA and mean estimated accumulation and solid precipitation in the Russian Arctic glaciated areas ***(after: Krenke, 1982, modified)***

Glaciated region	Mean ELA (m a.s.l.)	Accumulation (m w.e).	Solid precipitation (m w.e.)	Mean T_{6-8} at ELA (^{o}C)	Mean T_{6-8} * (^{o}C)
Victoria Island	100	0.38	0.54	-2.2	-1,2 (8 m a.s.l.)
Franz Josef Land	260	0.30	0.30	-2.6	-0,4 (50 m a.s.l.)
Novaya Zemlya	480	0.61	0. 61	-0.9	1,2 (?)
Polar Urals	850	1.70	1.06	2.9	8,5 (?)
Ushakov Island	250	0.31	0.44	-3.1	-1,2 (47 m a.s.l.)
Severnaya Zemlya	450	0.23	0.20	-2.3	-0,1 (7 m a.s.l.)
Byrranga Mts.	850	0.33	0.21	-2.9	?
De Long Islands	200	0.22	0.31	-2.8	-0,7 (48 m a.s.l.)

Notes: $T_{6\text{-}8}$ - mean summer air temperature (June-August), *nearest meteorological station on island or archipelago, elevation of the stations indicated in brackets, ? - lack of data

Table 2.46. Area distribution of different ice facies zones on glaciers in the Russian Arctic *(after: Govorukha, 1989)*

Ice facies	Ablation zone	Accumulation zone		
Glaciated region	**(km^2)**	**Total (km^2)**	**Firn zone* (km^2)**	**Superimposed ice zone (km^2)**
Victoria Island	10	1	-	1
Franz Josef Land	8 430	5 300	3 400	1 900
Novaya Zemlya	13 400	10 900	7 600	3 300
Severnaya Zemlya	9 130	9 200	4 750	4 450
De Long Islands	50	27	-	27
Byrranga Mts.	30	1	-	1

Table 2.47 General estimation of the mass balance of the glaciers in the Russian Arctic ***(after: Barkov et al., 1992; Chiznov, 1976; Govorukha, 1970, 1989; Grossvald et al., 1973, Koryakin, 1988; Kotlyakov, 1992)***

Territory and glacier name	Year	Area (km^2)	ELA (m a.s.l.)	AAR (%)	B_w (m w.e.)	B_s (mw.e.)	B_n (mw.e.)	C (m w.e.)	B_n + C (m w.e.)
Victoria Island Ice Cap	1960	10.7	(70)	33	0.27	(-0.38)	(-0.011)	? but low	(-0.11)
	1962		(46)						
	1960 - 1969		(60)						
	1960 - 1972				0.28	-0.31	-0.03	0.09	-0.12
Franz Josef Land (FJL)	1958 m	5.5	340	38	0.04*	-0.33*	-0.29	0.22	-0.51
Sedov Glacier	1930 - 1959		300		0.07*	-0.25*	-0.18	0.22	-0.40
	1958 m	50	340		0.05*	-0.24*	-0.19	0.05	-0.24
Jackson Ice Cap	1930 - 1959		300		0.09*	-0.17*	-0.08	0.05	-0.13
	1958	13 735	200-350	33	0.18	-0.41	-0.23	0.13	-0.36
FJL total					0.05*	-0.28*	-0.23	0.13	-0.36
	1930 - 1959		150-300		0.28	-0.41	-0.13	0.13	-0.26**
					0.28	-0.32	-0.04	0.17	-0.21**
Novaya Zemlya									
Shokalskogo Gl.	1958 m	515	680	46	0.41	-0.40	0.01	0.03	-0.02
	1959 m		(720)	(33)	0.61	-0.90	-0.29	0.03	-0.32
	1969		(500)	(72)	0.43	-0.29	0.14	0.03	0.11
	1933 - 1962		(450)	(76)	0.72	-0.45	0.32	0.03	0.29
	1950 - 1959		(530)	(68)	0.74	-0.49	0.25	0.03	0.22
	1960 - 1969		(580)	(61)	(0.54)	(-0.45)	(0.09)	0.03	(0.50)
Novaya Zemlya Ice Cap	1955	19 740	250-550	76	0.66	-0.62	0.04	0.10	-0.06
	1959		450-750	32	0.43	-1.03	-0.06	0.10	-0.70
	1933 - 1962		350-650	55	0.54	-0.57	-0.03	0.10	-0.13
	1950 - 1959				0.52	-0.63	-0.11	0.10	-0.21
	1960 - 1969				0.33	-0.50	-0.17	0.10	-0.27
Ushakov Island	1935 - 1965	325	200	15	0.30	-0.30	0	0.035	-0.035
	1956		100	46	0.22	-0.22	0	0.03	-0.03
	1961		160	28	0.22	-0.40	-0.18	0.03	-0.21
	1955 - 1969		130	37	0.22	-0.30	0.08	0.03	-0.11
Severnaya .Zemlya (total)	1931 -1965	17 470	300-600	35	0.20	-0.40	-0.20	0.02	-0.22
	1965				0.20	-0.68	-0.48	0.02	-0.50
	1929 -1972				0.25	-0.35	-0.10	0.03	-0.13
De Long Islands	1956 - 1972				0.18	-0.27	-0.09	0.11	-0.10

Notes: B_w - winter balance, B_s - summer balance, B_n - net balance, C - calving, m - measured, * - in cells for B_w and B_s there are net balances in accumulation and ablation areas but not the winter and summer balances, ** - two variants of estimation

Table 2.48 Data from accumulation measurements on the ice domes of Franz Josef Land

Geographical location	Years of observation	Accumulation (m w.e.)
Top of Salm Ice Dome,	1949	0.55
Top of Lee-Smith Ice Dome	1949	0.35
Tops of 5 ice domes on George Island	1949	0.34
Top of ice dome on Vilchek Land	1949	0.34
Top of ice dome on Rudolf Island,	1960	0.30
Churlyonis Ice Dome and Sedov Glacier, Hooker Island	1958, 1959	0.35
Jackson Ice Dome, Hooker Island	1959	0.41
Hydrografov Ice Dome, Heis Island	1958, 1959, 1960	0.30
Top of Lunny Ice Dome, Alexandra Land	1960, 1994	0.40
Top of Vetreny Ice Dome, Graham Be ll Land	1961, 1994	0.50

Table 2.49 Mass balance (m w.e.) of the Vavilov Glacier ***(after: Barkov et al., 1992)***

Balance year	Winter balance	Summer balance	Net balance
1975	0.12	-0.33	-0.21
1976	0.39	-0.04	0.35
1977	0.31	-0.16	0.15
1978	0.17	-0.70	-0.53
1979	0.21	-0.82	-0.63
1980	0.16	-0.32	-0.16
1981	0.38	-0.13	0.26
1986	0.36	-0.28	0.08
1987	0.31	-0.38	-0.07
1988	0.44	0.02	0.46
Cumulative	**-**	**-**	**-0.29**
Average	**0.28**	**-0.31**	**-0.03**

Table 2.50 Mass balance of the IGAN Glacier *(after: Voloshina 1988)*

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	AAR (%)	ELA (m a.s.l.)
1958	1.15	-1.45	-0.30	-	-
1959	2.65	-3.00	-0.35	-	-
1960	1.40	-2.08	-0.68	19	1 015
1961	2.20	-2.46	-0.26	28	1 004
1962	3.20	-3.20	0	41	1 003
1963	2.10	-3.37	-1.27	5	1 057
1964	1.00	-2.00	-1.00	8	1 042
1965	2.50	-3.16	-0.66	16	1 020
1966	1.75	-1.95	-0.20	34	983
1967	3.14	-2.86	0.31	56	938
1968	3.41	-0.92	2.49	100	-
1969	1.42	-2.00	-0.58	22	998
1970	1.78	-1.77	0.01	32	992
1971	1.84	-1.98	-0.14	31	986
1972	2.91	-2.53	0.38	42	940
1973	3.00	-2.68	0.32	65	924
1974	2.19	-3.12	-0.93	11	1 022
1975	2.72	-1.80	0.92	86	886
1976	2.51	-3.83	-1.32	4	990
1977	2.36	-4.02	-1.66	5	1 015
1978	?	?	0.89	80	898
1979	?	?	-0.37	32	959
1980	?	?	1.02	86	895
1981	?	?	-1.11	17	1 039
Cumulative	**-**	**-**	**-4.49**	**-**	**-**
Average	**2.26**	**-2.51**	**-0.19**	**37**	**981**

Notes: ? - missing data

Table 2.51 Mass balance of the Obruchev Glacier *(after: Voloshina 1988)*

Balance year	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)	AAR (%)	ELA (m a.s.l.)
1958	1.85	-2.35*	-0.50*	?	?
1959	2.90	-3.45*	-0.55*	?	?
1960	1.75	-2.25	-0.50	48	530
1961	2.80	-3.01	-0.21	51	522
1962	3.50	-3.65	-0.15	56	516
1963	2.50	-3.23	-0.73	19	562
1964	1.10	-2.40	-1.30	15	566
1965	2.42	-2.78	-0.36	40	540
1966	2.03	-1.75	0.28	65	507
1967	3.76	-3.56	0.20	69	497
1968	3.41	-1.60	1.81	88	471
1969	1.48	-2.03	-0.55	23	556
1970	2.20	-1.86	0.34	71	490
1971	2.26	-2.47	-0.21	48	517
1972	3.65	-2.80	0.85	73	483
1973	3.08	-2.90	0.18	62	520
1974	2.62	-3.30	-0.68	30	581
1975	2.75	-2.58	0.17	68	502
1976	3.52	-4.87	-1.35	20	574
1977	3.35	-4.99	-1.64	16	584
1978	3.76	-2.20	1.56	81	484
1979	2.98	-2.99	-0.01	44	543
1980	?	?	1.07	81	491
1981	?	?	-0.94	25	574
Cumulative	**-**	**-**	**-3.22**	**-**	**-**
Average	**2.71**	**-2.86**	**-0.13**	**50**	**528**

Notes: ? - missing data, * - the balance value reconstructed from relation of IGAN and Obruchev values ($r = 0.86$ for B_n - B_n and B_w - B_w relations)

Table 2.52 Mass balance of the IGAN Glacier as a function of the altitude, averaged over period 1960-1977

Altitude (m a.s.l.)	Area (km^2)	Area (%)	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)
830-850	0.020	2.2	1.98	-2.47	-0.49
850-900	0.163	18.1	1.68	-2.68	-1.00
900-950	0.197	21.9	1.94	-2.61	-0.67
950-1 000	0.200	22.2	2.47	-2.55	-0.08
1 000-1 050	0.175	19.4	2.65	-2.45	0.20
1 050-1 100	0.083	9.2	2.79	-2.40	0.39
1 100-1 150	0.057	6.3	2.90	-2.34	0.56
1 150-1 200	0.004	0.5	3.55*	-2.30*	1.25*
1 200-1 217	0.001	0.2	3.55*	-2.30*	1.25*
Total	**0.900**	**100**	**2.30**	**-2.54**	**-0.24**

* extrapolated value

Table 2.53 Mass balance of the Obruchev Glacier as a function of the altitude, averaged over period 1960-1977

Altitude (m a.s.l.)	Area (km^2)	Area (%)	Winter balance (m w.e.)	Summer balance (m w.e.)	Net balance (m w.e.)
390-400	0.001	0.3	2.04	-2.95	-0.91
400-450	0.026	8.7	1.84	-3.10	-1.26
450-500	0.051	17.0	1.90	-3.21	-1.31
500-550	0.122	40.7	2.49	-2.86	-0.37
550-600	0.079	26.3	3.41	-2.72	0.69
600-650	0.020	6.7	3.89	-2.53	1.36
Total	**0.300**	**100**	**2.68**	**-2.89**	**-0.21**

Table 2.54 Approximate estimations of internal accumulation on Arctic archipelagoes ice masses by melted water and liquid precipitation which refreeze in snow residual, firn and as a superimposed ice *(based: Krenke, 1982)*

Geographical region	Accumulation area and AAR (km^2)/(%)	Total accumulation (km^3)	Net snow residual accumulation (km^3)	Internal accumulation (km^3)	Volume of melted water (km^3)	Total liquid water input in glaciers (km^3)	Loss of total water input for internal accumulation (%)
Franz Josef Land	5 300 /39	4.1	1.0	1.2	2.8	3.5	34
Novaya Zemlya	13 000 /55	14.4	3.8	4.0	15.9	17.3	23
Severanya Zemlya	9 600 /52	4.3	1.3	1.8	5.3	6.1	30
De Long, Ushakov, Wrangel Islands	154 /38	0.12	0.027	0.0	0.1	0.1	-
Total	**28 054 /50**	**22.9**	**6.1**	**7.0**	**24.1**	**27.0**	**26**

Table 2.55 Estimation of the mean mass balance of glaciers in the Russian Arctic ***(after: Govorukha, 1989)***

Glaciated region	Period	Accumulation (m w.e.)	Ablation (m w.e.)	Calving (m w.e.)	Balance (m w.e.)
Franz Josef Land	1929-1959	0.28	-0.32	-0.17	-0.21
Novaya Zemlya	1930-1960	0.35	-0.52	-0.08	-0.25
Severnaya Zemlya	1929-1972	0.25	-0.35	-0.03	-0.13
De Long Islands	1956-1972	0.18	-0.27	-0.01	-0.10
Ushakov Island	1935-1965	0.30	-0.30	-0.04	-0.04
Victoria Island	1960-1972	0.28	-0.31	-0.09	-0.12
Byrranga Mts.	1929-1972	0.70	-1.00	-	-0.30
Average		**0.30**	**-0.41**	**-0.09**	**-0.20**