

No. 621/1

KAIKOURA RANGE

NZMS 260 sheet O 30

Rock Glacier, snowline & AAR theoretical

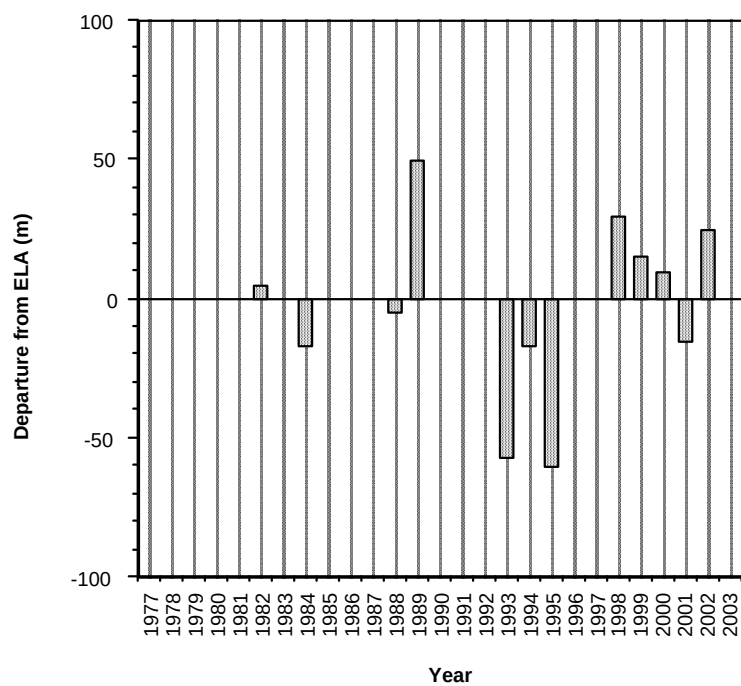
GLACIER DATA		
AREA	45.42	ha
Debris area	41.66	ha
Max Elev	2640	m
Min Elev	2200	m
Mean Elev	2420	m
Length	1.4	km
Elev Range	440	m
Gradient	0.31	

SNOWLINE DATA		
Aspect	S	
ELA	2490	m
Max SL	2540	m, 1989
Min SL	2430	m, 1995
Mean SL	2487	m
SL Range	110	m
No. surveys	12	

MEASUREMENTS Digitised values shaded

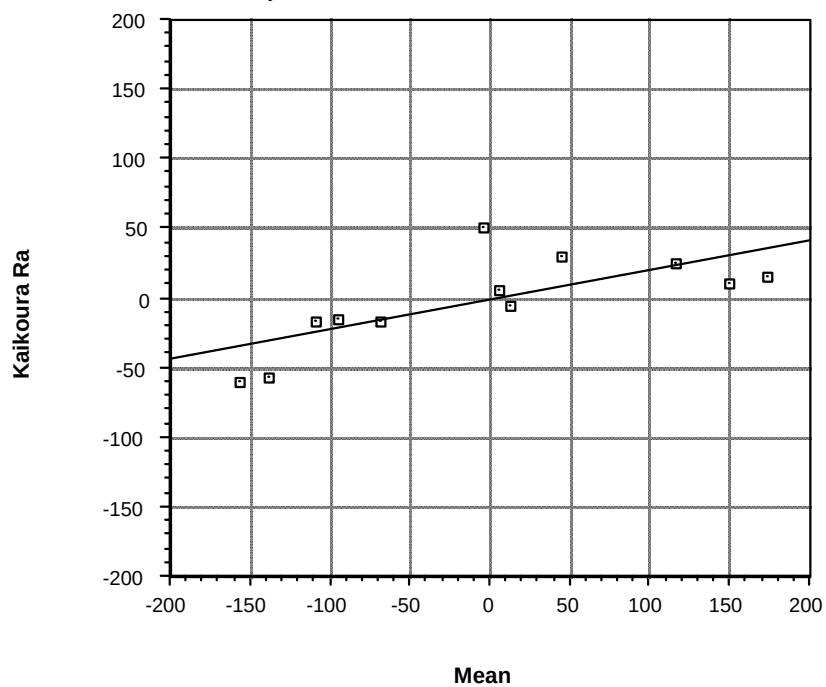
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	DEBRIS	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	2490	0	3.88	41.66	45.54	0.09	0
1977							
1978							
1979							
1980							
1981							
1982	2495	5	3.90	41.64	45.54	0.09	-5
1983							
1984	2473	-17	6.74	38.80	45.54	0.15	17
1985							
1986							
1987							
1988	2485	-5	5.14	40.40	45.54	0.11	5
1989	2540	50	0.90	44.64	45.54	0.02	-50
1990							
1991							
1992							
1993	2433	-57	12.84	32.70	45.54	0.28	57
1994	2473	-17	6.74	38.80	45.54	0.15	17
1995	2430	-60	13.29	32.25	45.54	0.29	60
1996							
1997							
1998	2520	30	2.29	43.25	45.54	0.05	-30
1999	2505	15	2.74	42.80	45.54	0.06	-15
2000	2500	10	3.44	42.10	45.54	0.08	-10
2001	2475	-15	6.52	38.90	45.54	0.14	15
2002	2515	25	2.32	43.10	45.54	0.05	-25
2003							
MEAN	2487	-3.00	5.57	39.95		0.12	3.00

Kaikoura Ra



Kaikouras Correlation

$$y = -1.7613 + 0.21577x \quad R^2 = 0.534$$



No. 932B/12

Mt ELLA

NZMS 260 sheet M30

Glacierette, reliability A

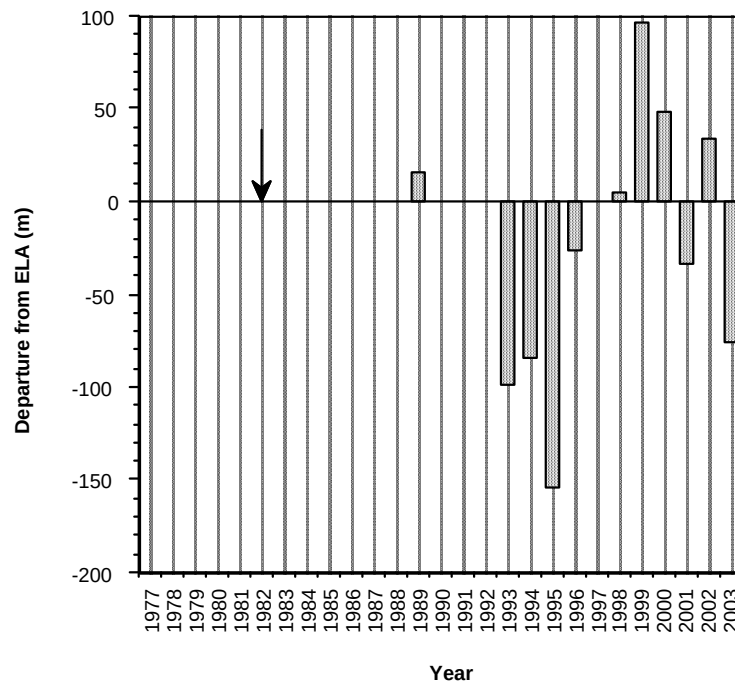
GLACIER DATA		
Aspect	E	
AREA	5.32	ha
Max Elev	2250	m
Min Elev	2080	m
Mean Elev	2165	m
Length	0.34	km
Elev Range	170	m
Gradient	0.5	

SNOWLINE DATA		
ELA	2142	m
Max SL	2250	m, 2000
Min SL	2000	m, 1995
Mean SL	2131	m
SL Range	250	m
No. surveys	12	

MEASUREMENTS Digitised values shaded

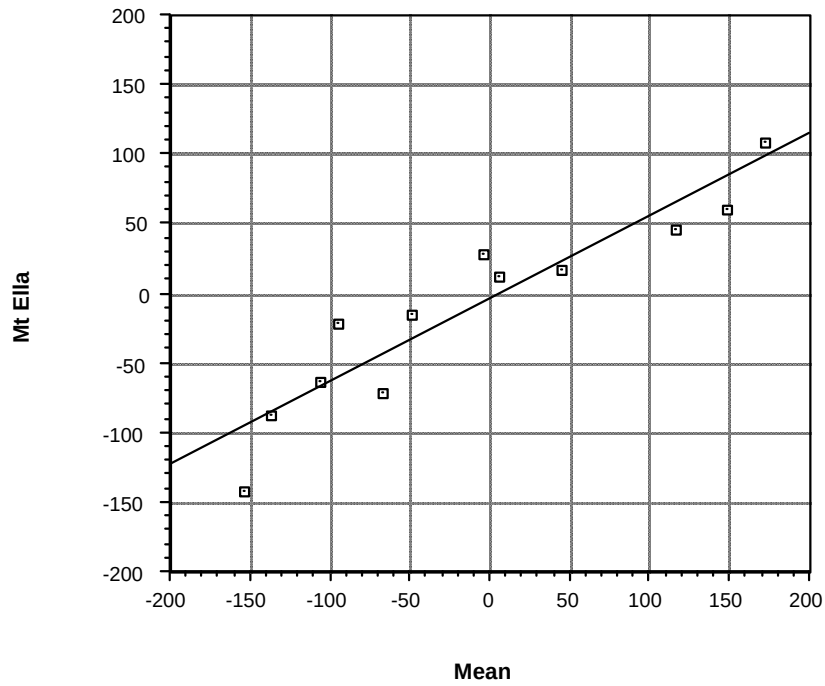
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	2142	0	3.19	1.45	5.32	0.60	0
1977							
1978							
1979							
1980							
1981							
1982	2154	12	5.32	0.00	5.32	1.00	-12
1983							
1984							
1985							
1986							
1987							
1988							
1989	2170	28	2.17	3.15	5.32	0.41	-28
1990							
1991							
1992							
1993	2055	-87	5.91	0.00	5.32	1.00	87
1994	2070	-72	5.74	0.00	5.32	1.00	72
1995	2000	-142	15.10	0.00	5.32	1.00	142
1996	2127	-15	4.42	0.90	5.32	0.83	15
1997							
1998	2159	17	2.92	2.40	5.32	0.55	-17
1999	2250	108	0	5.17	5.32	0.00	-108
2000	2202	60	0.1	2.46	5.32	0.02	-60
2001	2120	-22	4.57	0.75	5.32	0.86	22
2002	2188	46	0.33	1.61	5.32	0.06	-46
2003	2078	-64	5.32	0.00	5.32	1.00	64
MEAN	2131	-11	4.33	1.37		0.64	11

Mt. Ella



Mt Ella Correlation

$$y = -4.6307 + 0.59330x \quad R^2 = 0.869$$



No. 646/6

FAERIE QUEENE

NZMS 260 sheet M 31

Glacierette, reliability B

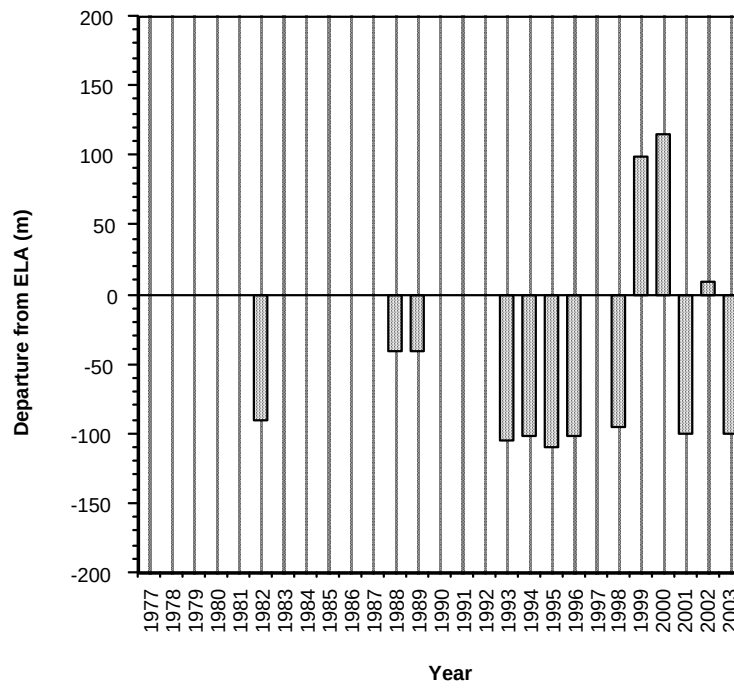
GLACIER DATA		
Aspect	SE	
AREA	5.74	ha
Max Elev	2200	m
Min Elev	1940	m
Mean Elev	2070	m
Length	0.36	km
Elev Range	260	m
Gradient	0.72	

SNOWLINE DATA		
ELA	2030	m
Max SL	2145	m, 2000
Min SL	1920	m, 1995
Mean SL	1983	m
SL Range	225	m
No. Surveys	13	

MEASUREMENTS Digitised values shaded

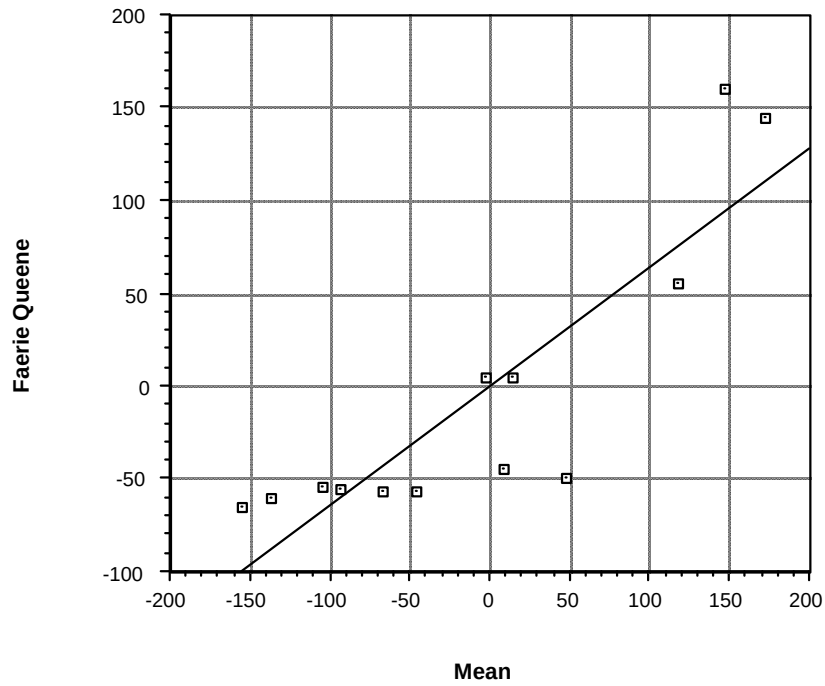
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	2030	0	3.44	2.30	5.74	0.60	0
1977							
1978							
1979							
1980							
1981							
1982	Min Elev		5.74	0.00	5.74	1.00	0
1983							
1984							
1985							
1986							
1987							
1988	1990	-40	4.55	1.19	5.74	0.79	40
1989	1990	-40	4.55	1.19	5.74	0.79	40
1990							
1991							
1992							
1993	1925	-105	6.09	0.00	5.74	1.00	105
1994	1928	-102	5.99	0.00	5.74	1.00	102
1995	1920	-110	8.04	0.00	5.74	1.00	110
1996	1928	-102	5.99	0.00	5.74	1.00	102
1997							
1998	1935	-95	5.84	0.00	5.74	1.00	95
1999	2130	100	0.00	5.74	5.74	0.00	-100
2000	2145	115	0.00	5.74	5.74	0.00	-115
2001	1930	-100	4.57	0.00	5.74	0.80	100
2002	2040	10	3.09	2.65	5.74	0.54	-10
2003	1931	-99	4.57	0.00	5.74	0.80	99
MEAN	1983	-47	4.54	1.27		0.75	44

Faerie Queene



Faerie Queene Correlation

$$y = -0.57156 + 0.64215x \quad R^2 = 0.756$$



Not numbered

Mt WILSON
Snow patch, reliability B

NZMS 260 sheet K33

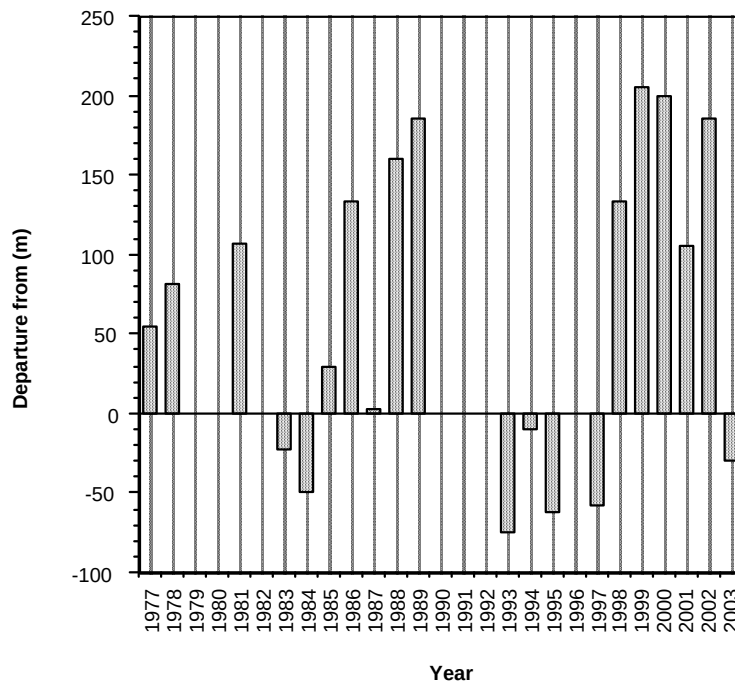
"GLACIER" DATA		
Aspect	S	
AREA	17.58 to 0.68	ha
Max Elev	2030	m
Min Elev	1740	m
Mean Elev	1885	m
Length	N/A	
Elev Range	290	m
Gradient		

SNOWLINE DATA		
ELA	1820	@ 7.03 ha
Max SL	2025	m, 1999
Min SL	1745	m, 1993
Mean SL	1884	m
SL Range	280	m
No. Surveys	20	

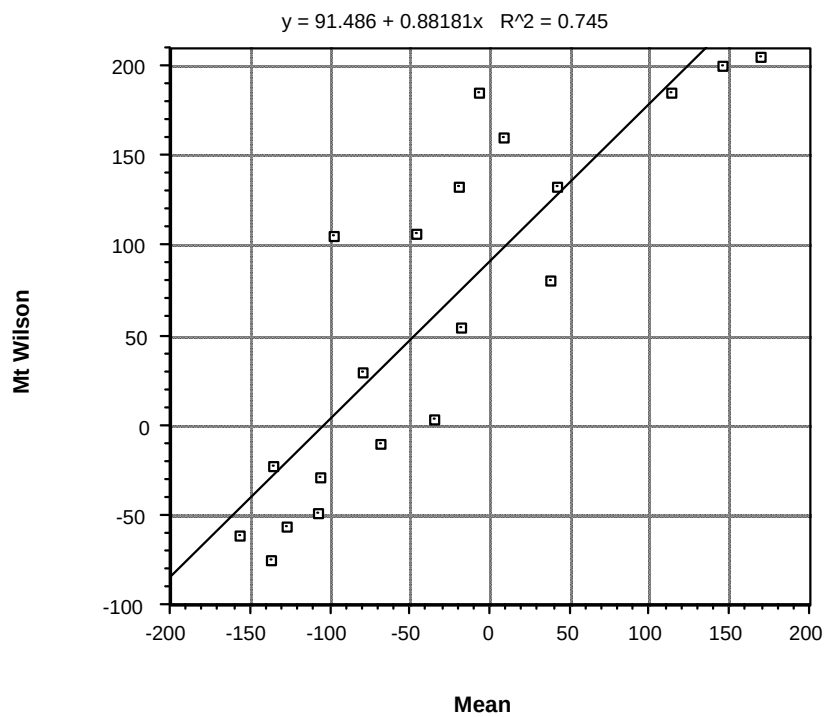
MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	N/A	ha	(AAR)	INDEX
ELAo	1820		10.55		7.03	N/A	
1977	1875	55	6.28		6.28		-55
1978	1901	81	4.68		4.68		-81
1979							
1980							
1981	1927	107	3.28		3.28		-107
1982							
1983	1797	-23	4.88		4.88		23
1984	1771	-49	14.78		14.78		49
1985	1849	29	8.38		8.38		-29
1986	1953	133	2.28		2.28		-133
1987	1823	3	10.48		10.48		-3
1988	1980	160	1.48		1.48		-160
1989	2005	185	0.70		0.70		-185
1990							
1991							
1992							
1993	1745	-75	17.13		17.13		75
1994	1810	-10	11.38		11.38		10
1995	1758	-62	15.98		15.98		62
1996							
1997	1763	-57	15.48		15.48		57
1998	1953	133	2.28		2.28		-133
1999	2025	205	0.13		0.13		-205
2000	2020	200	0.28		0.68		-200
2001	1925	105	3.56		3.56		-105
2002	2005	185	0.63		0.63		-185
2003	1791	-29	4.40		4.40		29
Mean	1884	64	6.42				-64

Mt. Wilson



Mt Wilson Correlation



No. 911A/2

Mt. FRANKLIN
Cirque, reliability B

NZMS 260 sheet K33

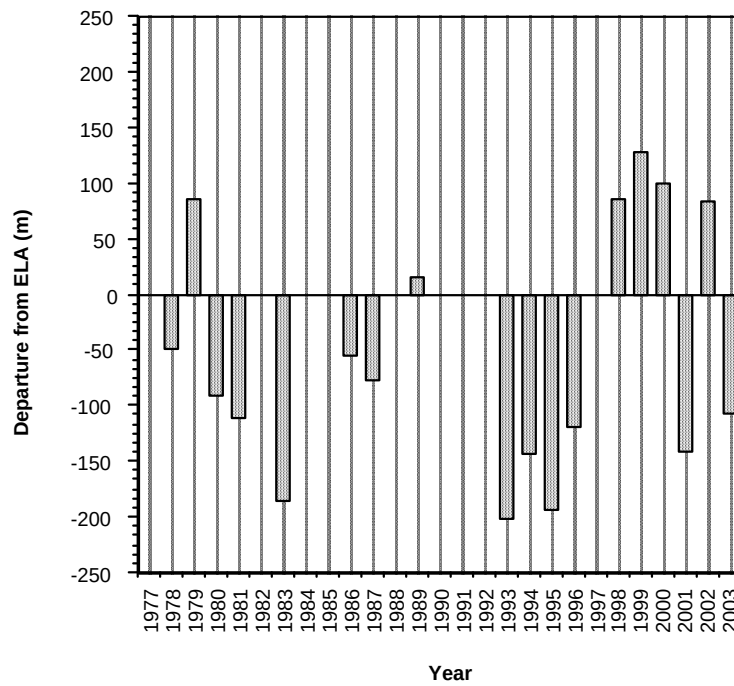
GLACIER DATA		
Aspect	E	
AREA	8.85	ha
Max Elev	2010	m
Min Elev	1680	m
Mean Elev	1845	m
Length	0.5	km
Elev Range	330	m
Gradient	0.66	

SNOWLINE DATA		
ELA	1814	m
Max SL	1978	m, 1999
Min SL	1650	m, 1993
Mean SL	1799	m
SL Range	328	m
No. Surveys	19	

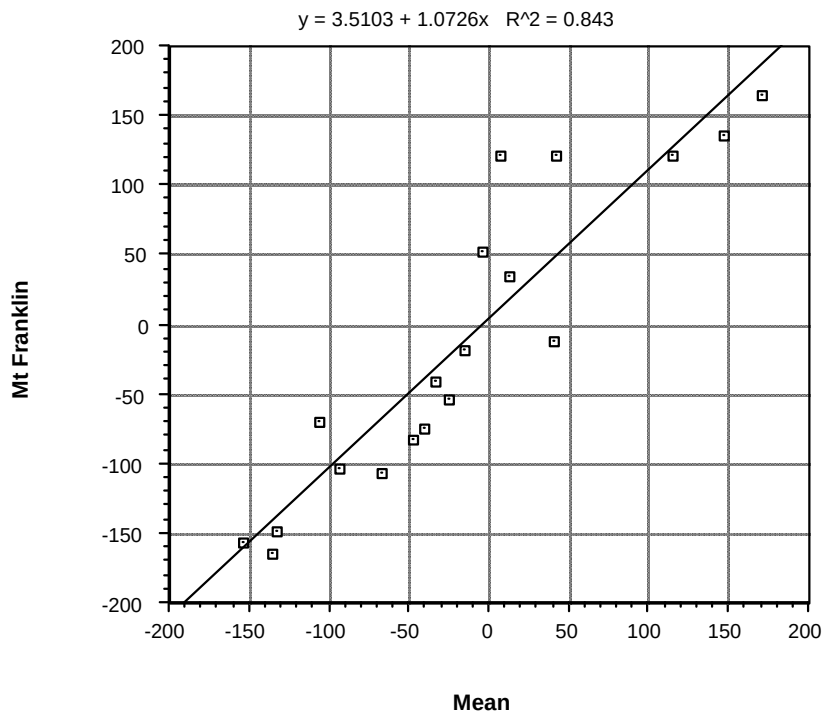
MEASUREMENTS

YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1814	0	7.45	1.40	8.85	0.84	0
1977							
1978	1802	-12	7.74	1.11	8.85	0.87	12
1979	1936	122	0.84	8.01	8.85	0.09	-122
1980	1760	-54	8.40	0.45	8.85	0.95	54
1981	1740	-74	8.60	0.25	8.85	0.97	74
1982							
1983	1666	-148		0.00			148
1984							
1985							
1986	1796	-18	8.00	0.85	8.85	0.90	18
1987	1773	-41	8.30	0.55	8.85	0.94	41
1988	1849	35	5.30	3.55	8.85	0.60	-35
1989	1866	52	4.62	4.23	8.85	0.52	-52
1990							
1991							
1992							
1993	1650	-164	13.04	0.00	8.85	1.00	164
1994	1707	-107	8.80	0.05	8.85	0.99	107
1995	1658	-156	12.00	0.00	8.85	1.00	156
1996	1732	-82	8.65	0.20	8.85	0.96	82
1997							
1998	1936	122	0.84	8.01	8.85	0.09	-122
1999	1978	164	0.26	8.59	8.85	0.03	-164
2000	1950	136	0.57	8.28	8.85	0.06	-136
2001	1710	-104	8.85	0.00	8.85	1.00	104
2002	1935	121	0.87	7.98	8.85	0.10	-121
2003	1744	-70	8.60	0.25	8.85	0.97	70
Mean	1799	-15	6.35	2.76		0.67	15

Mt. Franklin



Mt Franklin Correlation



No. 911A /4

ROLLESTON GL.

NZMS 260 sheet K33

Cirque, reliability A

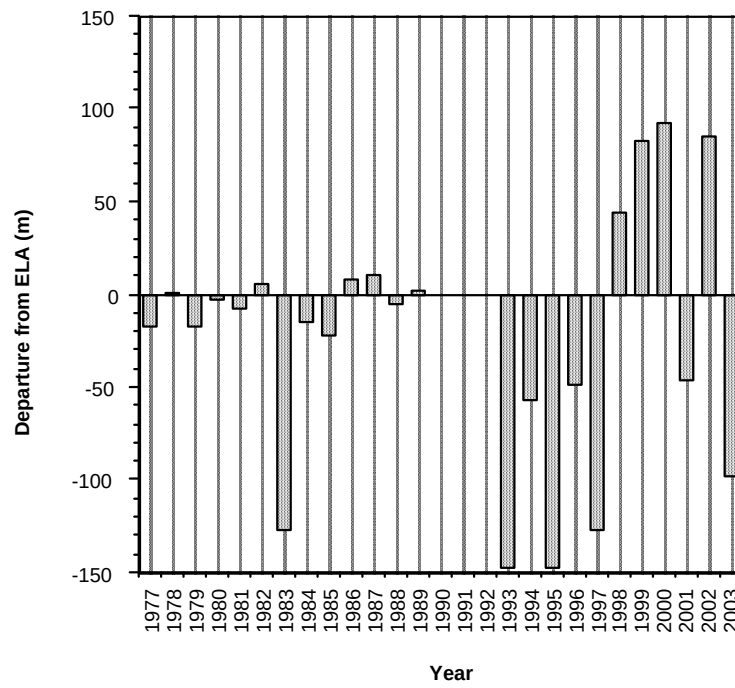
GLACIER DATA		
Aspect	SE	
AREA	19.07	ha
Max Elev	1900	m
Min Elev	1690	m
Mean Elev	1795	m
Length	0.36	km
Elev Range	210	m
Gradient	0.58	

SNOWLINE DATA		
ELA	1763	m
Max SL	1860	m, 1993, 95
Min SL	1620	m, 2000
Mean SL	1744	m
SL Range	240	m
No. Surveys	24	

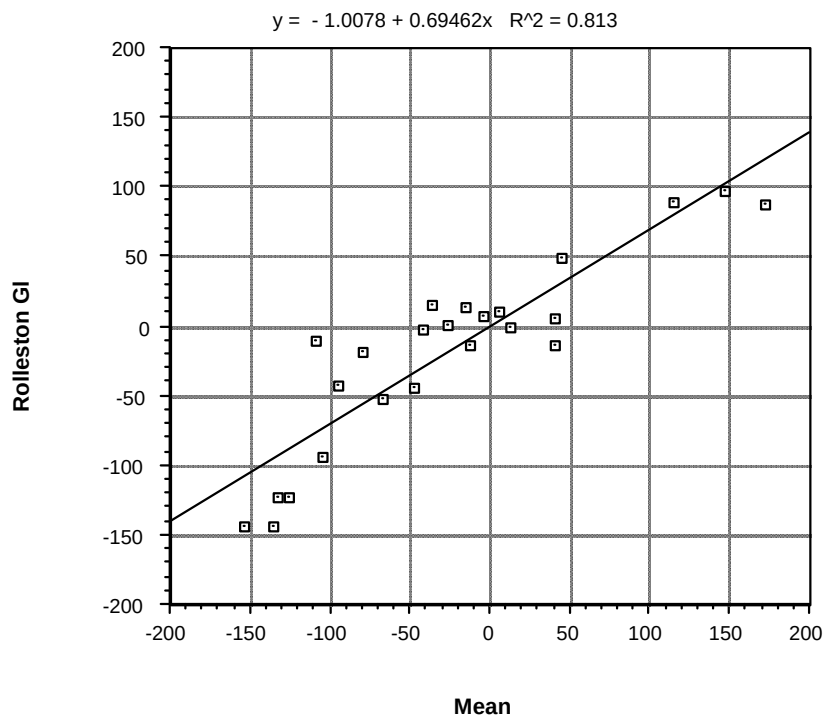
MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
1955	1800	29					
1960	1800	29					-29
ELAo	1763	0	12.07	7.00	19.07	0.63	0
1977	1750	-13	13.67	5.40	19.07	0.72	13
1978	1768	5	11.45	7.62	19.07	0.60	-5
1979	1750	-13	13.67	5.40	19.07		13
1980	1764	1	12.07	7.00	19.07	0.63	-1
1981	1760	-3	12.47	6.60	19.07	0.65	3
1982	1773	10	10.57	8.50	19.07	0.55	-10
1983	1640	-123	?	0.00			123
1984	1753	-10	13.32	5.75	19.07	0.70	10
1985	1745	-18	14.17	4.90	19.07	0.74	18
1986	1776	13	10.47	8.60	19.07	0.55	-13
1987	1778	15	10.47	8.60	19.07	0.55	-15
1988	1762	-1	12.17	6.90	19.07	0.64	1
1989	1770	7	19.07	8.00	19.07	1.00	-7
1990							
1991							
1992							
1993	1620	-143	25.34	0.00	19.07	1.00	143
1994	1710	-53	17.39	1.68	19.07	0.91	53
1995	1620	-143	25.34	0.00	19.07	1.00	143
1996	1719	-44	16.77	2.30	19.07	0.88	44
1997	1640	-123	23.27	0.00	19.07	1.00	123
1998	1812	49	4.78	14.29	19.07	0.25	-49
1999	1850	87	0.79	18.28	19.07	0.04	-87
2000	1860	97	0.6	18.47	19.07	0.03	-97
2001	1721	-42	16.56	2.51	19.07	0.87	42
2002	1852	89	0.71	18.36	19.07	0.04	-89
2003	1669	-94	19.07	0.00	19.07	1.00	94
MEAN	1744	-19	13.23	6.63		0.65	19

Rolleston



Rolleston



No. 664C/21

Mt CARRINGTON
Cirque, reliability A

NZMS sheet K33

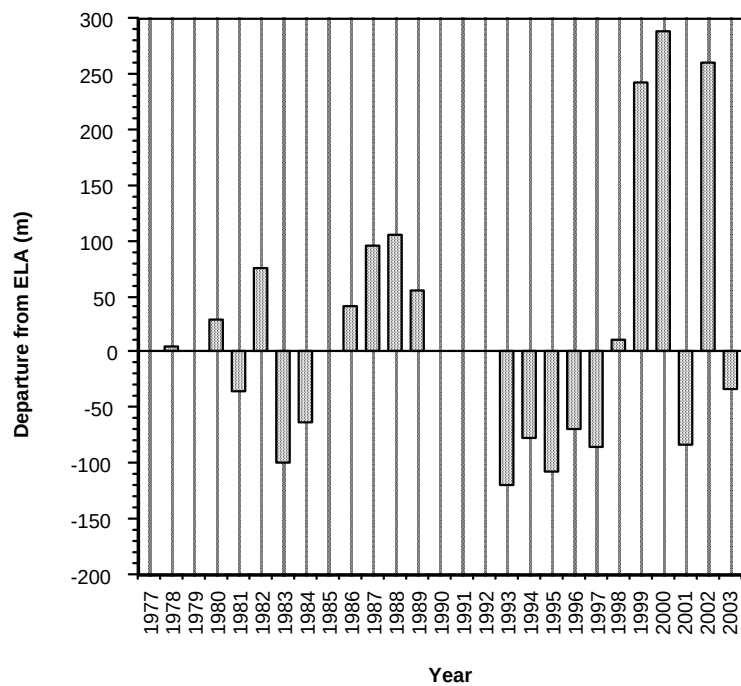
GLACIER DATA		
Aspect	S	
AREA	15.5	ha
Max Elev	1960	m
Min Elev	1595	m
Mean Elev	1778	m
Length	0.71	km
Elev Range	365	m
Gradient	0.51	

SL DATA		
ELA	1715	m
Max SL	1952	m, 2000
Min SL	1545	m, 1993
Mean SL	1685	m
SL Range	407	m
No. Surveys	21	

MEASUREMENTS Digitised values shaded

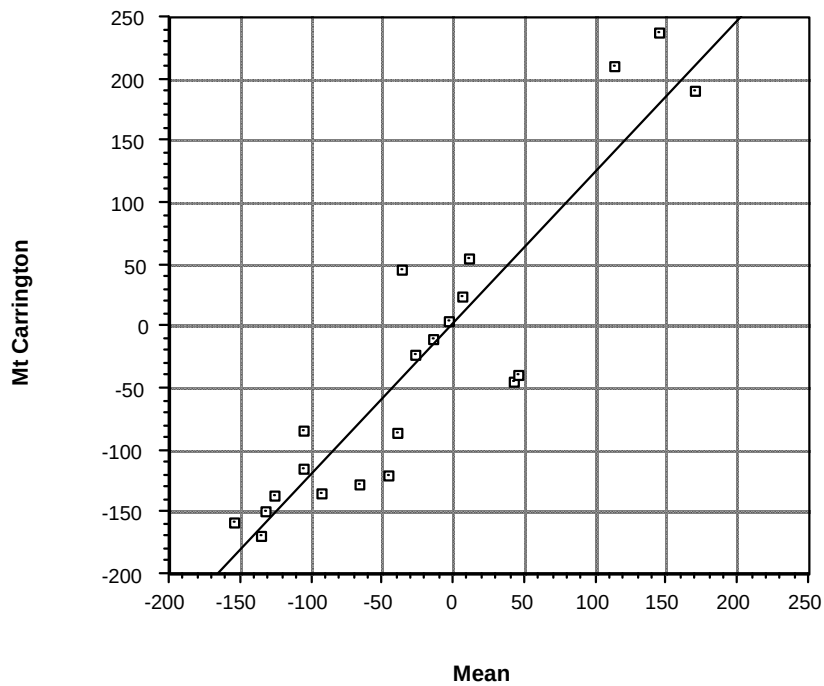
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1715	0	7	8.5	15.5	0.45	0
1977							
1978	1670	-45	8.86	6.64	15.50	0.57	45
1979							
1980	1693	-22	7.70	7.80	15.50	0.50	22
1981	1628	-87	11.60	3.90	15.50	0.75	87
1982	1740	25	6.50	9.00	15.50	0.42	-25
1983	1565	-150	18.50	0.00	15.50	1.00	150
1984	1600	-115	14.50	1.00	15.50	0.94	115
1985							
1986	1705	-10	7.20	8.30	15.50	0.46	10
1987	1760	45	6.00	9.50	15.50	0.39	-45
1988	1770	55	5.80	9.70	15.50	0.37	-55
1989	1720	5	6.90	8.60	15.50	0.45	-5
1990							
1991							
1992							
1993	1545	-170	20.55	0.00	15.50	1.00	170
1994	1587	-128	15.70	0.00	15.50	1.00	128
1995	1557	-158	16.60	0.00	15.50	1.00	158
1996	1595	-120	14.90	0.60	15.50	0.96	120
1997	1578	-137	17.43	0.00	15.50	1.00	137
1998	1676	-39	8.69	6.81	15.50	0.56	39
1999	1905	190	2.94	12.56	15.50	0.19	-190
2000	1952	237	0.48	15.02	15.50	0.03	-237
2001	1580	-135	17.30	0.00	15.50	1.00	135
2002	1925	210	1.30	6.70	15.50	0.08	-210
2003	1631	-84	11.60	3.90	15.50	0.75	84
MEAN	1685	-30	10.53	5.24		0.64	30

Mt. Carrington



Mt Carrington Correlation

$$y = 2.0669 + 1.2178x \quad R^2 = 0.835$$



No. 685F/4

Mt AVOCA
Glacierette, reliability B

NZMS sheet K34

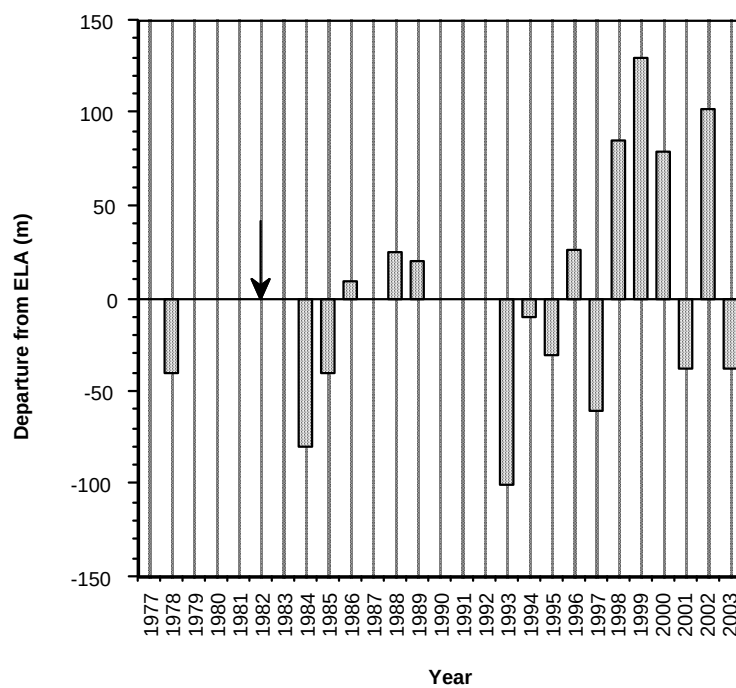
GLACIER DATA		
Aspect	E	
AREA	9.803	m
Max Elev	2080	m
Min Elev	1890	m
Mean Elev	1985	m
Length	0.36	km
Elev Range	190	m
Gradient	0.53	

SNOWLINE DATA		
ELA	1965	m
Max SL	2080	m, 1999
Min SL	1850	m, 1993
Mean SL	1953	m
SL Range	230	m
No. Surveys	18	

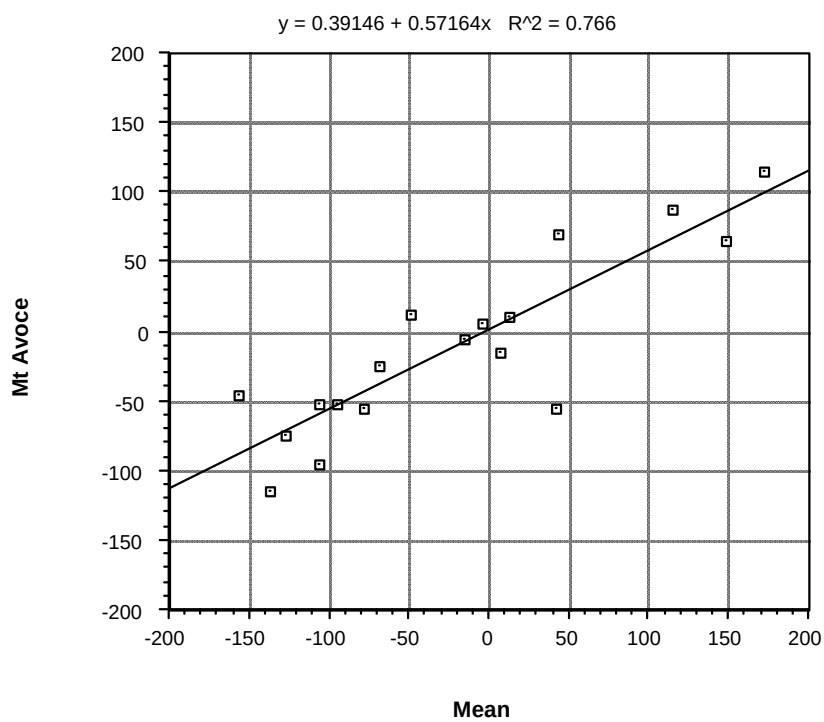
MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1965	0	4.40	5.40	9.80	0.45	0
1977							
1978	1910	-55					55
1979							
1980							
1981							
1982	1950	-15	5.88	3.92	9.80	0.60	15
1983							
1984	1870	-95					95
1985	1910	-55					55
1986	1960	-5					5
1987							
1988	1975	10					-10
1989	1971	6	3.97	5.83	9.80	0.41	-6
1990							
1991							
1992							
1993	1850	-115	11.38	0.00	9.80	1.00	115
1994	1940	-25	7.20	2.60	9.80	0.73	25
1995	1920	-45	8.80	1.00	9.80	0.90	45
1996	1977	12	3.57	6.23	9.80	0.36	-12
1997	1890	-75	9.80	0.00	9.80	1.00	75
1998	2035	70	0.98	8.82	9.80	0.10	-70
1999	2080	115	0.00	3.22	9.80	0.00	-115
2000	2030	65	1.11	8.69	9.80	0.11	-65
2001	1913	-52	0.00	7.13	9.80	0.00	52
2002	2053	88	0.44	3.14	9.80	0.04	-88
2003	1913	-52	0.00	7.13	9.80	0.00	52
MEAN	1953	-12	4.09	4.44		0.40	12

Mt. Avoca



Mt Avoca



664C/12

MARMADUKE DIXON GL
Mountain gl, reliability A

NZMS 260 sheet K33

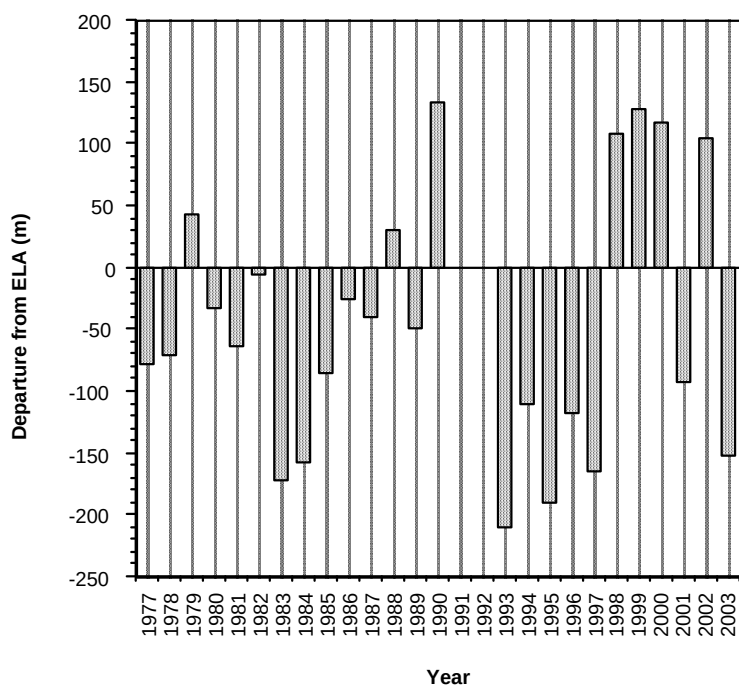
GLACIER DATA		
Aspect	E	
AREA	92.52	m
Max Elev	2100	m
Min Elev	1615	m
Mean Elev	1858	m
Length	1.7	km
Elev Range	485	m
Gradient	0.285	

SNOWLINE DATA		
ELA	1830	m
Max SL	1998	m, 1990
Min SL	1655	m, 1993
Mean SL	1819	m
SL Range	343	m
No. Surveys	25	

MEASUREMENTS Digitised values shaded

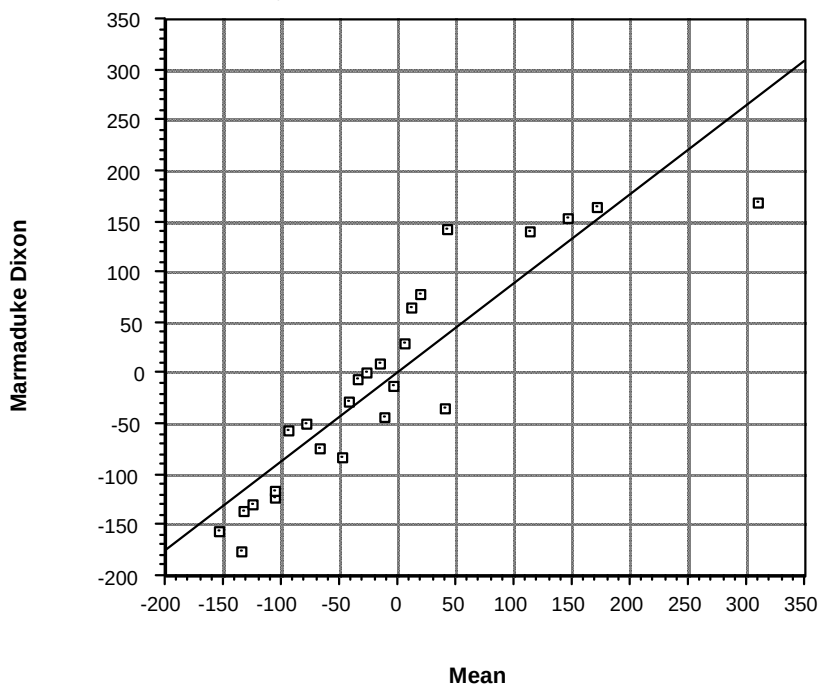
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1830	0	63.72	28.8	92.52	0.69	0
1977	1788	-43					43
1978	1795	-35					35
1979	1908	78	44.50	48.02	92.52	0.48	-78
1980	1832	2					-2
1981	1803	-28					28
1982	1860	30	49.65	42.87	92.52	0.54	-30
1983	1694	-136	86.72	5.80	92.52	0.94	136
1984	1708	-122					122
1985	1780	-50	73.97	18.55	92.52	0.80	50
1986	1839	9					-9
1987	1825	-5	64.77	27.75	92.52	0.70	5
1988	1895	65					-65
1989	1818	-13					13
1990	1998	168	22.52	70.00	92.52	0.24	-168
1991							
1992							
1993	1655	-175	90.34	2.18	92.52	0.98	175
1994	1755	-75	78.48	14.04	92.52	0.85	75
1995	1675	-155	92.14	0.38	92.52	1.00	155
1996	1748	-82	82.22	10.30	92.52	0.89	82
1997	1701	-129	91.87	0.65	92.52	0.99	129
1998	1973	143	26.81	65.71	92.52	0.29	-143
1999	1994	164	21.50	71.02	92.52	0.23	-164
2000	1983	153	23.75	68.77	92.52	0.26	-153
2001	1773	-57	75.32	17.20	92.52	0.81	57
2002	1970	140	28.38	53.42	92.52	0.31	-140
2003	1713	-117	74.50	7.30	92.52	0.81	117
MEAN	1819	-11	60.44	30.82		0.65	11

Marmaduke Dixon



Marmaduke Dixon Correlation

$$y = 0.47863 + 0.87906x \quad R^2 = 0.817$$



No. 906A/4

RETREAT GL.

NZMS 260 sheet K33

Mountain gl, reliability C

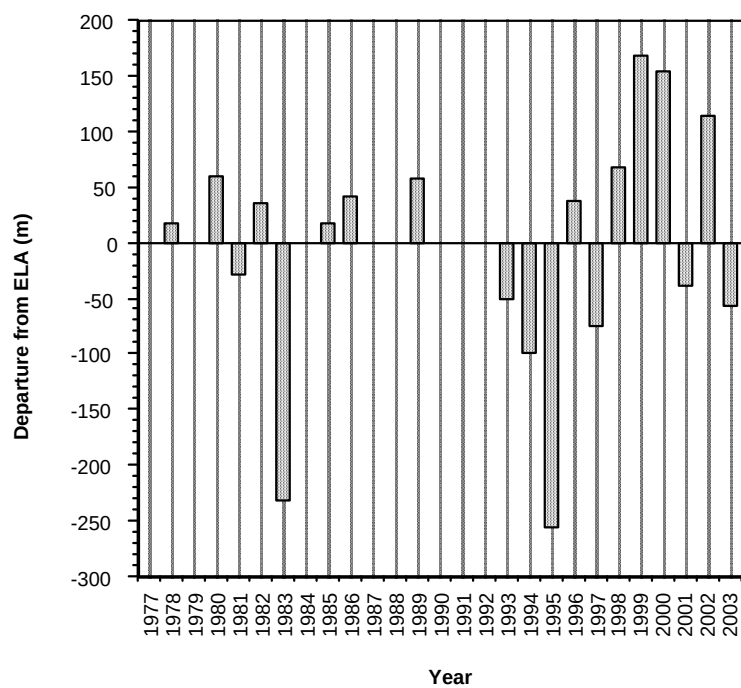
GLACIER DATA		
Aspect	SW	
AREA	28.7	ha
Max Elev	1930	m
Min Elev	1570	m
Mean Elev	1750	m
Length	1.05	km
Elev Range	360	m
Gradient	0.343	

SNOWLINE DATA		
ELA	1742	m
Max SL	1888	m, 1999
Min SL	1465	m, 1995
Mean SL	1717	m
SL Range	423	m
No. Surveys	19	

MEASUREMENTS Digitised values shaded

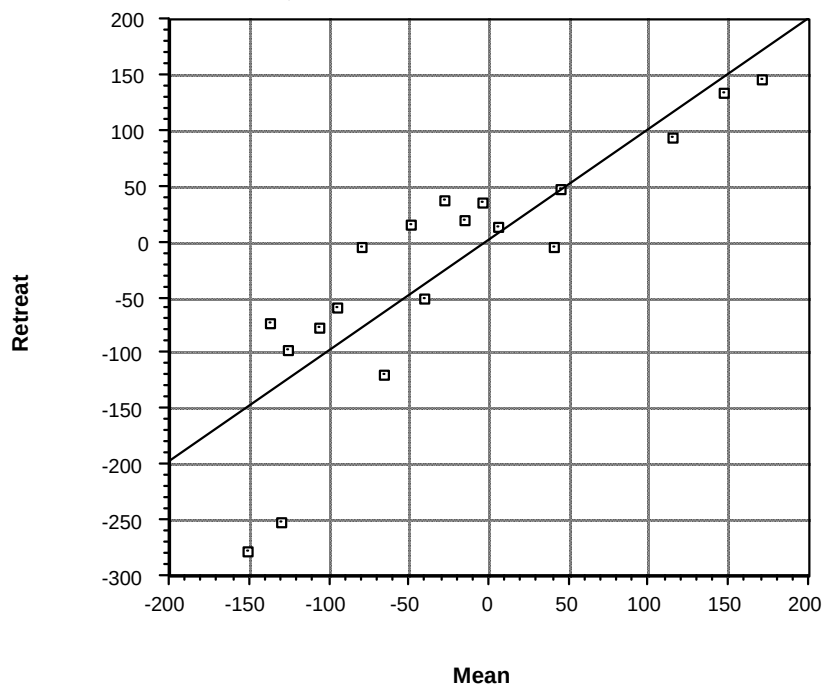
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1742	0	13.90	14.80	28.70	0.48	0
1977							
1978	1738	-4					4
1979							
1980	1780	38	8.29	20.41	28.70	0.29	-38
1981	1692	-50					50
1982	1756	14					-14
1983	1490	-252	31.59	-2.89	28.70	1.00	252
1984							
1985	1738	-4	14.83	13.87	28.70	0.52	4
1986	1762	20	10.78	17.92	28.70	0.38	-20
1987							
1988							
1989	1778	36	8.87	19.83	28.70	0.31	-36
1990							
1991							
1992							
1993	1669	-73	22.82	5.88	28.70	0.80	73
1994	1622	-120	27.20	1.50	28.70	0.95	120
1995	1465	-277	32.41	-3.71	28.70	1.00	277
1996	1758	16	11.65	17.05	28.70	0.41	-16
1997	1645	-97	25.20	3.50	28.70	0.88	97
1998	1789	47	7.28	21.42	28.70	0.25	-47
1999	1888	146	1.91	26.79	28.70	0.07	-146
2000	1875	133	2.39	26.31	28.70	0.08	-133
2001	1682	-60	21.43	7.27	28.70	0.75	60
2002	1835	93	2.88	9.43	28.70	0.10	-93
2003	1664	-78	11.51	0.80	28.70	0.40	78
MEAN	1717	-25	15.07	11.59		0.51	25

Retreat



Retreat Correlation

$$y = 1.6800 + 0.99214x \quad R^2 = 0.726$$



906A/1

BROWNING RA.
Small cirque, reliability A

NZMS 260 sheet J33

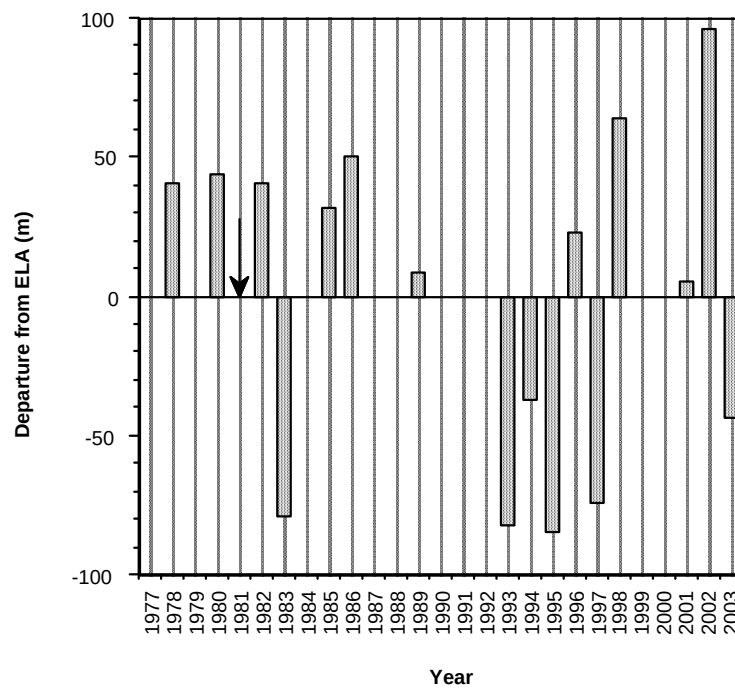
GLACIER DATA		
Aspect	S	
AREA	4.08	ha
Max Elev	1700	m
Min Elev	1530	m
Mean Elev	1615	m
Length		km
Elev Range	170	m
Gradient		

SNOWLINE DATA		
ELA	1598	m
Max SL	1660	m, 2000
Min SL	1480	m, 1995
Mean SL	1564	m
SL Range	180	m
No. Surveys	19	

MEASUREMENTS Digitised values in bold type

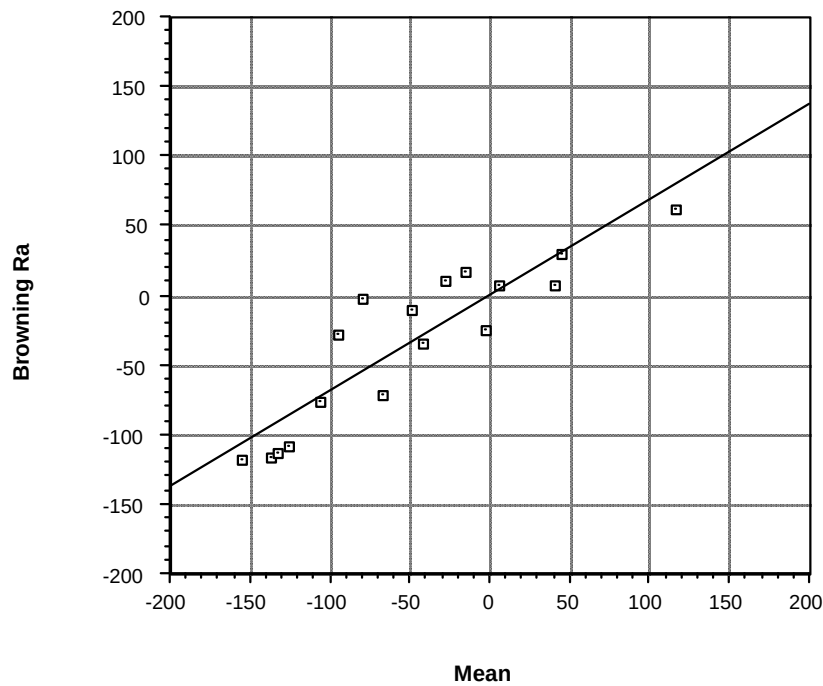
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1598	0	1.01	3.07	4.08	0.25	0
1977							
1978	1605	7	0.78	3.3	4.08	0.19	-7
1979							
1980	1608	10	0.74	3.34	4.08	0.18	-10
1981	1564	-34	2.45	1.63	4.08	0.60	34
1982	1605	7	0.78	3.3	4.08	0.19	-7
1983	1485	-113	7.48	0	4.08	1.00	113
1984							
1985	1596	-2	1.01	3.07	4.08	0.25	2
1986	1615	17	0.68	3.4	4.08	0.17	-17
1987							
1988							
1989	1573	-25	2.01	2.07	4.08	0.49	25
1990							
1991							
1992							
1993	1482	-116	2.03	2.05	4.08	0.50	116
1994	1527	-71	4.33	0	4.08	1.00	71
1995	1480	-118	20.38	0	4.08	1.00	118
1996	1587	-11	1.38	2.7	4.08	0.34	11
1997	1490	-108	12.81	0	4.08	1.00	108
1998	1628	30	0.55	3.53	4.08	0.13	-30
1999	>>1790		0	above gl	4.08	0.00	
2000	>>1790		0	above gl	4.08	0.00	
2001	1570	-28	2.18	1.9	4.08	0.53	28
2002	1660	62	0	1.14	4.08	0.00	-62
2003	1521	-77	4.08	0	4.08	0.00	77
MEAN	1564	-34	3.35	1.85		0.40	34

Browning Ra



Browning Ra Correlation

$$y = -0.12448 + 0.68484x \quad R^2 = 0.811$$



No. 685B/1

DOUGLAS GL
Small mountain gl, reliability C

NZMS 260 sheet J35

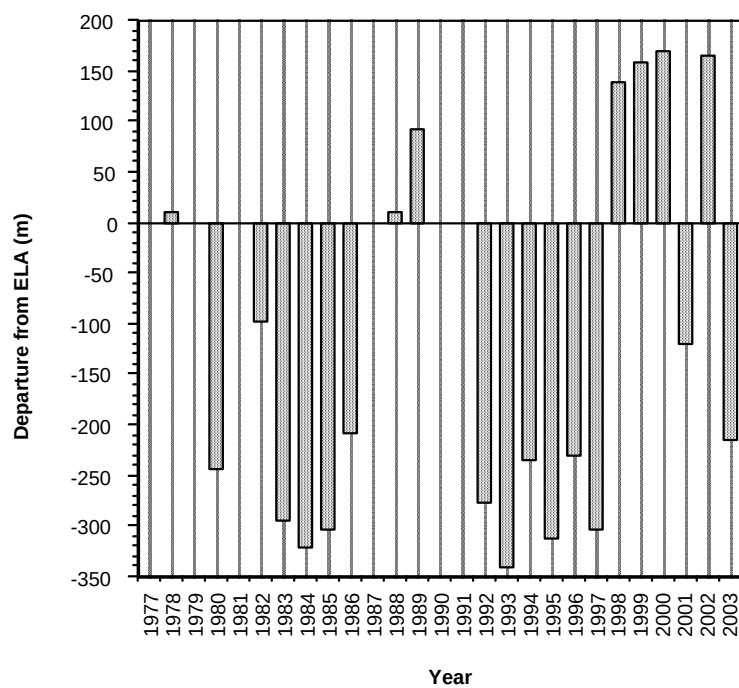
GLACIER DATA		
Aspect	SE	
AREA	33.93	ha
Max Elev	2440	m
Min Elev	1820	m
Mean Elev	2130	m
Length	1.18	km
Elev Range	620	m
Gradient	0.508	

SNOWLINE DATA		
ELA	2040	m
Max SL	2290	m, 2000
Min SL	1780	m, 1993
Mean SL	1989	m
SL Range	510	m
No. Surveys	20	

MEASUREMENTS Digitised values shaded

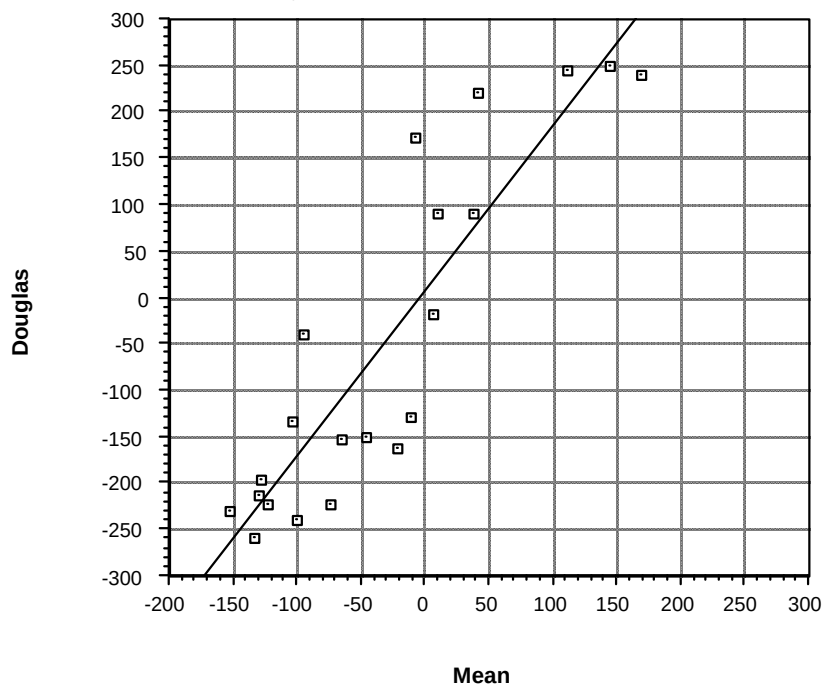
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
1974	2450				14.04		
ELAo	2040	0	24.73	9.20	33.93	0.73	0
1977							
1978	2131	91	19.93	14.00	33.93	0.59	-91
1979							
1980	1877	-163	32.03	1.90	33.93	0.94	163
1981							
1982	2022	-18	25.80	8.13	33.93	0.76	18
1983	1826	-214	33.73	0.20	33.93	0.99	214
1984	1800	-240	35.73	-1.80	33.93	1.00	240
1985	1817	-223	34.23	-0.30	33.93	1.00	223
1986	1912	-128	30.13	3.80	33.93	0.89	128
1987							
1988	2131	91	19.93	14.00	33.93	0.59	-91
1989	2212	172	15.74	18.19	33.93	0.46	-172
1990							
1991							
1992	1843	-197	33.13	0.80	33.93	0.98	197
1993	1780	-260	42.42	-8.49	33.93	1.00	260
1994	1886	-154	31.23	2.70	33.93	0.92	154
1995	1809	-231	35.43	-1.50	33.93	1.00	231
1996	1890	-150	31.43	2.50	33.93	0.93	150
1997	1817	-223	34.23	-0.30	33.93	1.00	223
1998	2260	220	10.71	23.22	33.93	0.32	-220
1999	2280	240	8.91	25.02	33.93	0.26	-240
2000	2290	250	7.96	25.97	33.93	0.23	-250
2001	2000	-40	22.21	6.60	33.93	0.65	40
2002	2285	245	8.43	25.50	33.93	0.25	-245
2003	1906	-134	25.61	3.20	33.93	0.75	134
Mean	1989	-51	25.66	7.78		0.74	51

Douglas



Douglas Correlation

$$y = 6.4353 + 1.7800x \quad R^2 = 0.804$$



No. 685C/60

Mt BUTLER
Mountain GI, reliability A

NZMZ 260 sheet J34

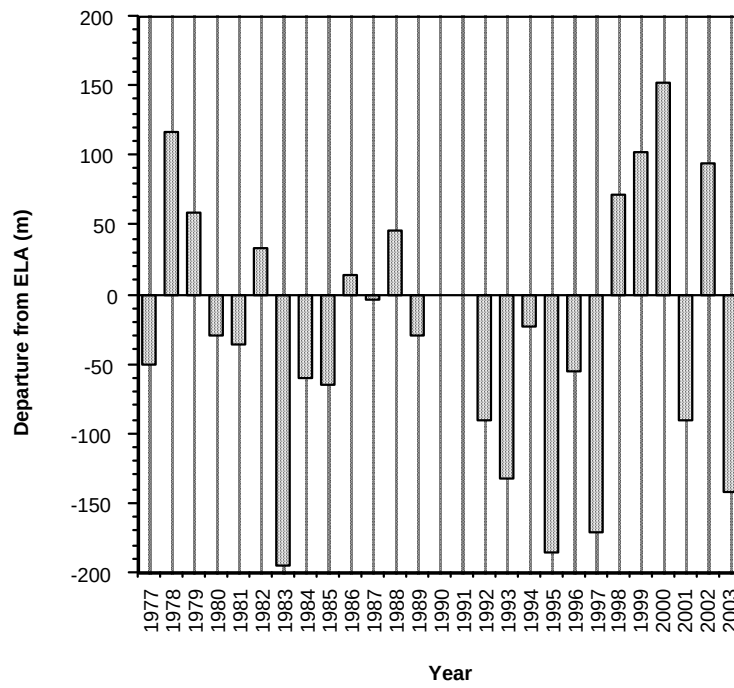
GL DATA		
Aspect	E	
AREA	74.56	ha
Max Elev	2040	m
Min Elev	1680	m
Mean Elev	1860	m
Length	0.66	km
Elev Range	360	m
Gradient	0.455	

SL DATA		
ELA	1840	m
Max SL	1988	
Min SL	1640	m, 1995
Mean SL	1809	m
SL Range	348	m
No. surveys	25	

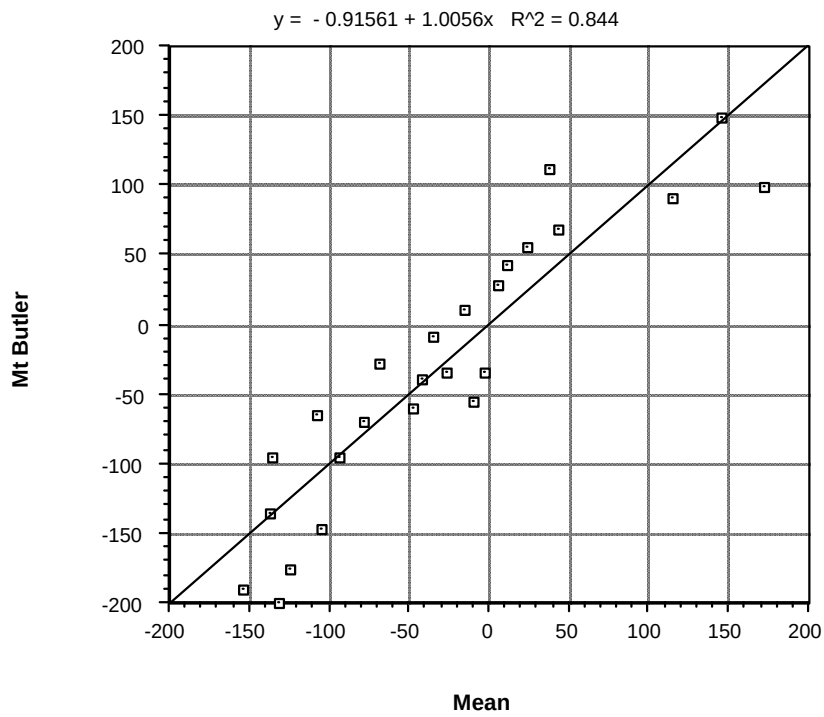
MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1840	0	42.76	31.8	74.56	0.57	0
1977	1785	-55	60.69	13.87	74.56	0.81	55
1978	1952	112	6.39	68.17	74.56	0.09	-112
1979	1895	55	21.46	53.10	74.56	0.29	-55
1980	1806	-34	55.76	18.80	74.56	0.75	34
1981	1800	-40	57.44	17.12	74.56	0.77	40
1982	1868	28	32.10	42.46	74.56	0.43	-28
1983	1640	-200	89.56	0.00	74.56	1.00	200
1984	1775	-65	62.66	11.90	74.56	0.84	65
1985	1770	-70	63.61	10.95	74.56	0.85	70
1986	1850	10	39.36	35.20	74.56	0.53	-10
1987	1831	-9	46.76	27.80	74.56	0.63	9
1988	1882	42	26.56	48.00	74.56	0.36	-42
1989	1806	-34	55.76	18.80	74.56	0.75	34
1990							
1991							
1992	1745	-95	67.36	7.20	74.56	0.90	95
1993	1704	-136	72.06	2.50	74.56	0.97	136
1994	1812	-28	53.56	21.00	74.56	0.72	28
1995	1650	-190	94.10	0.00	74.56	1.00	190
1996	1780	-60	62.06	12.50	74.56	0.83	60
1997	1664	-176	76.56	0.00	74.56	1.00	176
1998	1908	68	16.05	58.51	74.56	0.22	-68
1999	1938	98	8.04	66.52	74.56	0.11	-98
2000	1988	148	3.58	70.98	74.56	0.05	-148
2001	1745	-95	67.30	7.26	74.56	0.90	95
2002	1930	90	8.72	65.84	74.56	0.12	-90
2003	1693	-147	73.36	1.20	74.56	0.98	147
Mean	1809	-31	48.83	27.19		0.64	31

Mt. Butler



Mt Butler Correlation



No. 897-19

DAINTY GL.
Mountain gl, reliability A

NZMS sheet J34

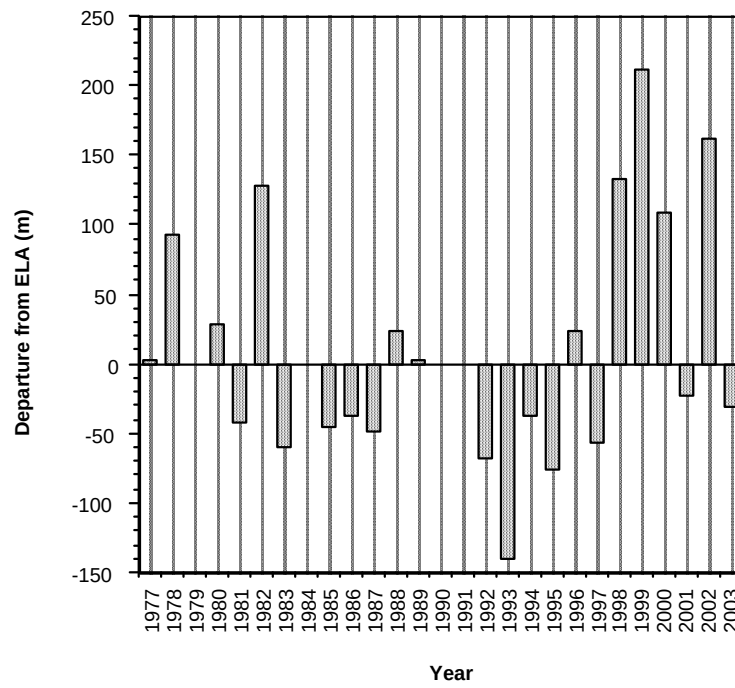
GL DATA		
Aspect	W	
AREA	45.29	ha
Max Elev	2330	m
Min Elev	1750	m
Mean Elev	2040	m
Length	1.45	km
Elev Range	580	m
Gradient	0.4	

SL DATA		
ELA	1954	m
Max SL	2130	m, 1999
Min SL	1778	m, 1993
Mean SL	1930	m
SL Range	352	m
No. Surveys	23	

MEASUREMENTS Digitised values in bold type

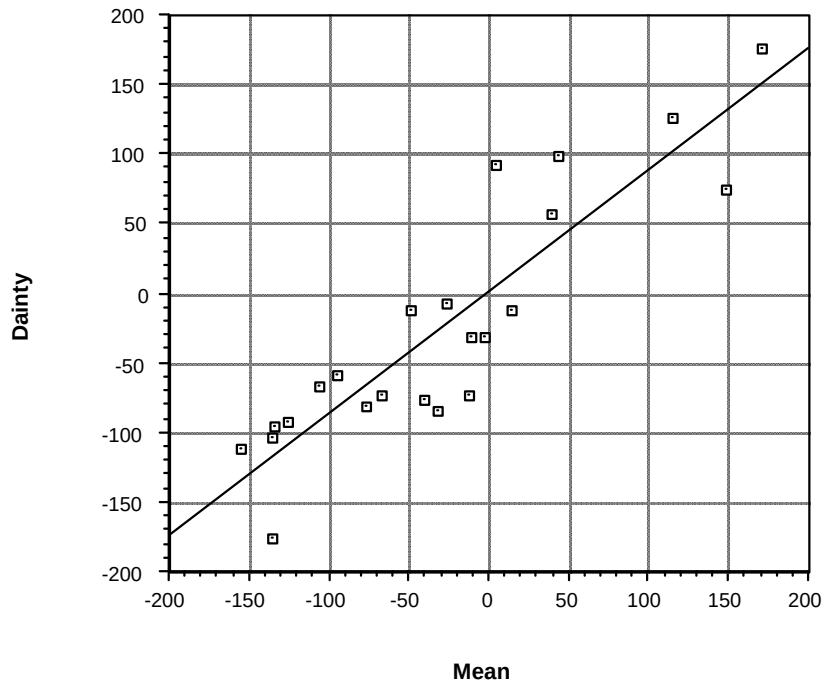
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
1955	2100						
ELAo	1954	0	18.29	27	45.29	0.40	0
1977	1922	-32	25.81	19.48	45.29	0.57	32
1978	2011	57	13.09	32.20	45.29	0.29	-57
1979							
1980	1947	-7	20.19	25.10	45.29	0.45	7
1981	1877	-77	37.59	7.70	45.29	0.83	77
1982	2047	93	10.49	34.80	45.29	0.23	-93
1983	1858	-96	40.89	4.40	45.29	0.90	96
1984							
1985	1873	-81	38.29	7.00	45.29	0.85	81
1986	1881	-73	36.92	8.37	45.29	0.82	73
1987	1870	-84	39.09	6.20	45.29	0.86	84
1988	1942	-12	20.96	24.33	45.29	0.46	12
1989	1922	-32	25.81	19.48	45.29	0.57	32
1990							
1991							
1992	1851	-103	41.39	3.90	45.29	0.91	103
1993	1778	-176	43.71	1.58	45.29	0.97	176
1994	1881	-73	36.92	8.37	45.29	0.82	73
1995	1843	-111	41.94	3.35	45.29	0.93	111
1996	1942	-12	20.96	24.33	45.29	0.46	12
1997	1862	-92	40.29	5.00	45.29	0.89	92
1998	2052	98	10.23	35.06	45.29	0.23	-98
1999	2130	176	4.15	41.14	45.29	0.09	-176
2000	2028	74	11.79	33.50	45.29	0.26	-74
2001	1896	-58	32.95	12.34	45.29	0.73	58
2002	2080	126	8.25	37.04	45.29	0.18	-126
2003	1887	-67	36.09	9.20	45.29	0.80	67
Means	1930	-24	27.73	17.56		0.61	24

Dainty



Dainty Correlation

$$y = 1.3249 + 0.87567x \quad R^2 = 0.797$$



No. 897/7

KEA GL
Cirque, reliability A

NZMS 260 sheet J34

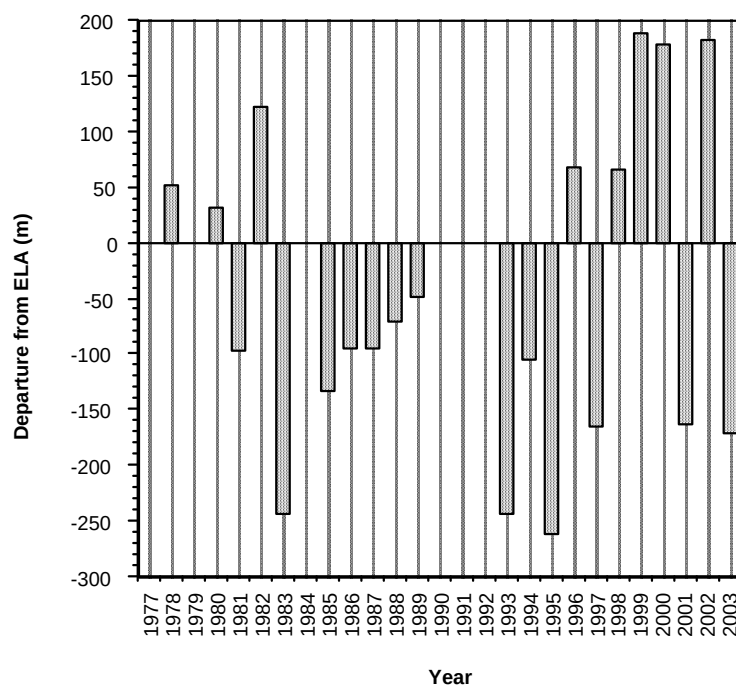
GL DATA		
Aspect	S	
AREA	76.94	ha
Max Elev	2030	m
Min Elev	1650	m
Mean Elev	1840	m
Length	0.95	km
Elev Range	380	m
Gradient	0.453	

SL DATA		
ELA	1820	m
Max SL	2020	m, 1999
Min SL	1570	m, 1995
Mean SL	1785	m
SL RANGE	450	m
No. Surveys	21	

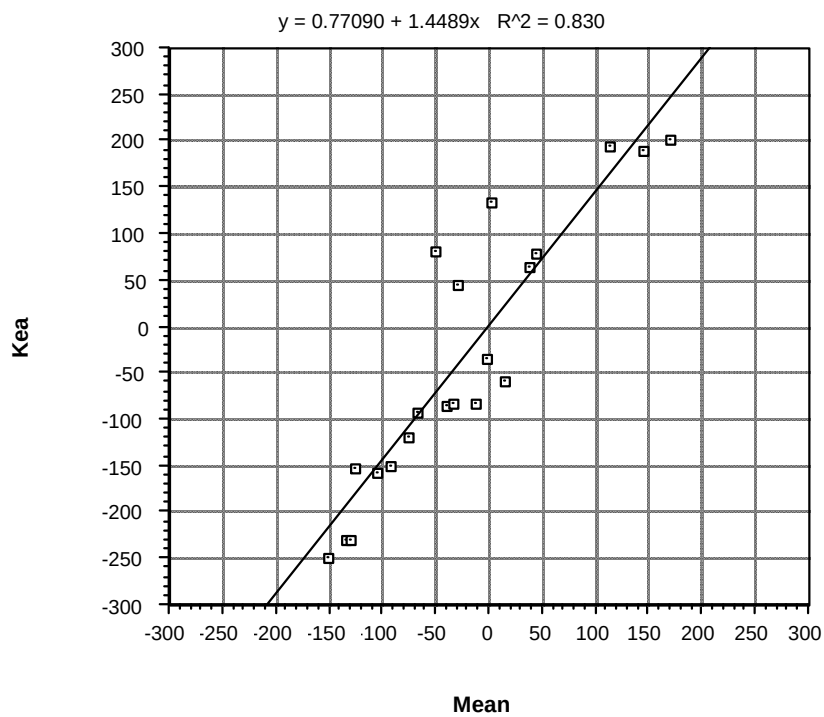
MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1820	0	43.62	23.5	67.12	0.65	0
1977							
1978	1885	65	34.25	42.69	67.12	0.51	-65
1979							
1980	1864	44	39.34	37.60	67.12	0.59	-44
1981	1735	-85	66.64	10.30	67.12	0.99	85
1982	1954	134	16.53	60.41	67.12	0.25	-134
1983	1590	-230	96.44	29.32	67.12	1.00	230
1984							
1985	1700	-120	73.10	3.84	67.12	1.00	120
1986	1738	-82	66.54	10.40	67.12	0.99	82.2
1987	1737	-83	66.59	10.35	67.12	0.99	83.2
1988	1762	-58	60.94	16.00	67.12	0.91	58
1989	1784	-36	56.43	20.51	67.12	0.84	36
1990							
1991							
1992							
1993	1590	-230	94.83	27.71	67.12	1.00	230
1994	1728	-92	68.13	8.81	67.12	1.00	92
1995	1570	-250	100.75	33.63	67.12	1.00	250
1996	1900	80	31.26	45.68	67.12	0.47	-80
1997	1668	-152	80.79	13.67	67.12	1.00	152
1998	1898	78	31.74	45.20	67.12	0.47	-78
1999	2020	200	1.47	75.47	67.12	0.02	-200
2000	2010	190	2.30	74.64	67.12	0.03	-190
2001	1670	-150	76.94	0.00	67.12	1.00	150
2002	2015	195	0.92	66.20	67.12	0.01	-195
2003	1661	-159	67.12	0.00	67.12	1.00	159
MEAN	1785	-35	53.95	30.12		0.72	35

Kea



Kea Correlation



No. 897/1 to 5

JASPUR GL.
Glacierette, reliability B

NZMS sheet I34

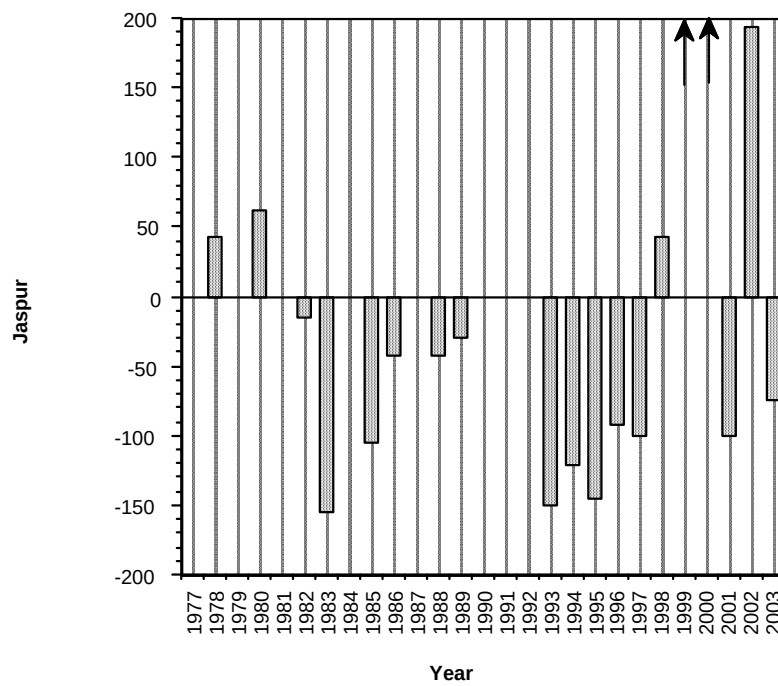
GLACIER DATA		
Aspect	SW	
AREA	14.09	ha
Max Elev	1920	m
Min Elev	1600	m
Mean Elev	1760	m
Length		km
Elev Range	320	m
Gradient		

SNOWLINE DATA		
ELA	1725	m
Max SL	1920	m, 2000
Min SL	1570	m, 1983
Mean SL	1676	m
SL Range	350	m
No. Surveys	19	

MEASUREMENTS Digitised values shaded

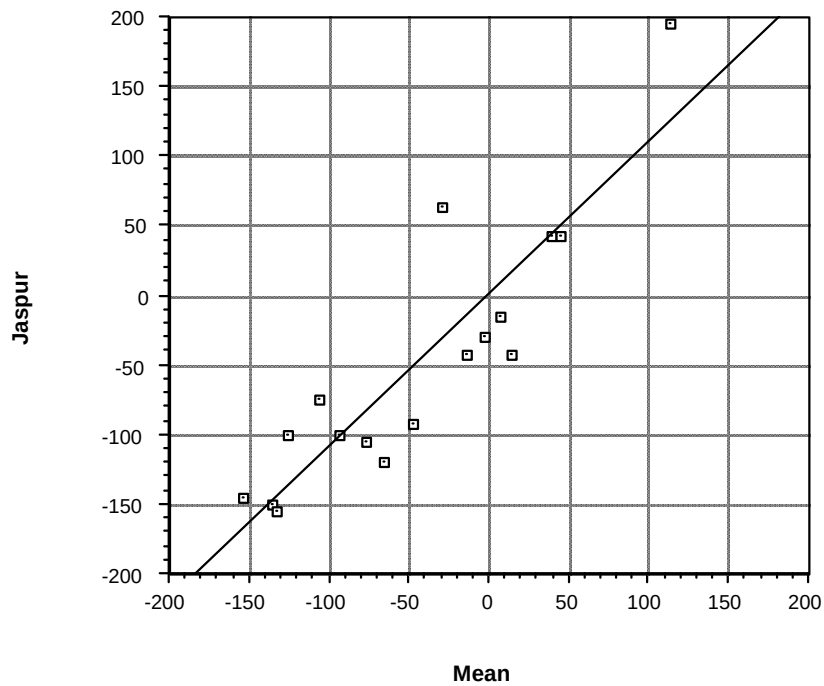
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1725	0	9.39	4.7	14.09	0.67	0
1977							
1978	1768	43	6.49	7.60	14.09	0.46	-43
1979							
1980	1788	63	4.29	9.80	14.09	0.30	-63
1981							
1982	1710	-15	10.34	3.75	14.09	0.73	15
1983	1570	-155	14.09	0.00	14.09	1.00	155
1984					14.09		
1985	1620	-105	14.09	0.00	14.09	1.00	105
1986	1683	-42	11.84	2.25	14.09	0.84	42
1987							
1988	1683	-42	11.84	2.25	14.09	0.84	42
1989	1696	-29	11.23	2.86	14.09	0.80	29
1990							
1991							
1992							
1993	1575	-150	25.59	0.00	14.09	1.00	150
1994	1605	-120	17.39	0.00	14.09	1.00	120
1995	1580	-145	19.24	0.00	14.09	1.00	145
1996	1633	-92	13.59	0.00	14.09	0.96	92
1997	1625	-100	16.55	0.00	14.09	1.00	100
1998	1768	43	5.77	8.32	14.09	0.41	-43
1999	>1950		0.00	14.09	14.09	0.00	
2000	>1950		0.00	7.84	14.09	0.00	
2001	1625	-100	13.89	0.20	14.09	0.99	100
2002	1920	195	0.00	7.84	14.09	0.00	-195
2003	1651	-74	13.59	0.00	14.09	0.96	74
MEAN	1676	-49	11.04	3.52		0.70	49

Jaspur



Jaspur Correlation

$$y = 0.97015 + 1.0963x \quad R^2 = 0.799$$



No. 893A-6

SIEGE GL.
Valley gl, reliability B

NZMS 260 sheet I35

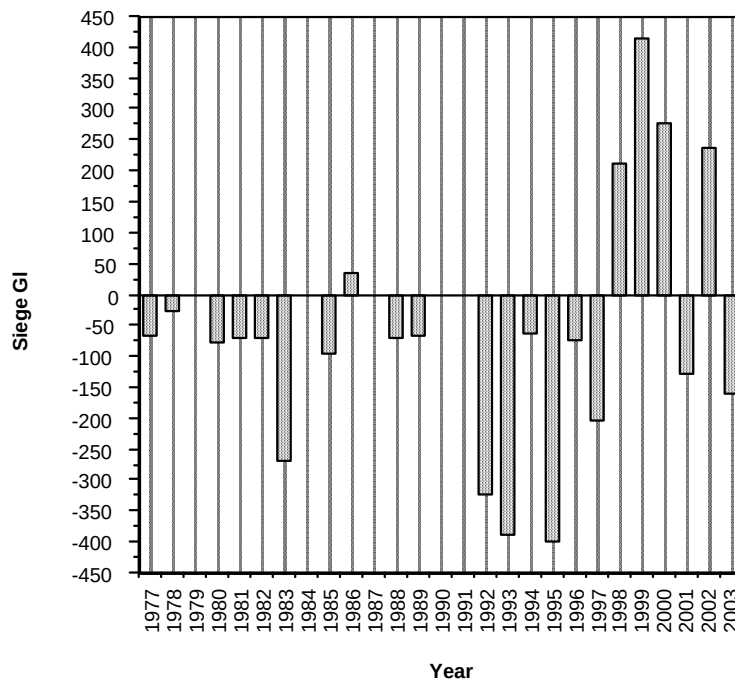
GLACIER DATA		
Aspect	SE	
AREA	151.9	ha
Max Elev	2130	m
Min Elev	1370	m
Mean Elev	1750	m
Length	3.186	km
Elev Range	760	m
Gradient	0.239	

SNOW LINE DATA		
ELA	1736	m
Max SL	2150	m, 1999
Min SL	1340	m, 1995
Mean SL	1675	m
SL Range	810	m
No. Surveys	22	

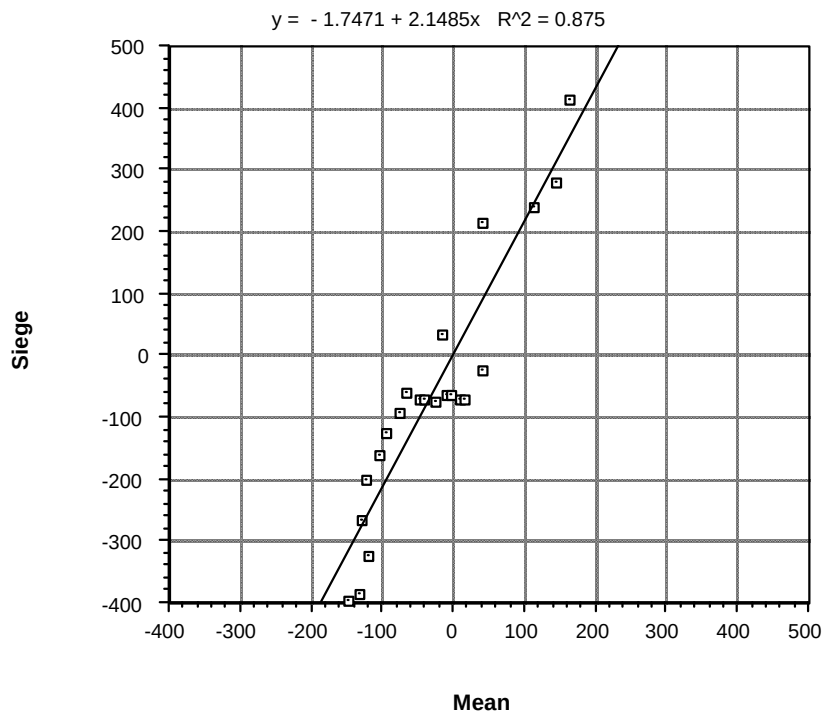
MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1736	0	61.4	90.5	151.9	0.40	0
1977	1672	-64	78.90	73.00	151.90	0.52	64
1978	1712	-24	67.66	84.24	151.90	0.45	24
1979							
1980	1660	-76	82.19	69.71	151.90	0.54	76
1981	1666	-70	80.40	71.50	151.90	0.53	70
1982	1666	-70	80.40	71.50	151.90	0.53	70
1983	1468	-268	130.57	21.33	151.90	0.86	268
1984							
1985	1642	-94	87.96	63.94	151.90	0.58	94
1986	1771	35	48.32	103.58	151.90	0.32	-35
1987							
1988	1666	-70	80.40	71.50	151.90	0.53	70
1989	1672	-64	78.81	73.09	151.90	0.52	64
1990							
1991							
1992	1413	-323	141.90	10.00	151.90	0.93	323
1993	1350	-386	153.90	0.00	151.90	1.00	386
1994	1674	-62	78.40	73.50	151.90	0.52	62
1995	1340	-396	155.40	0.00	151.90	1.00	396
1996	1664	-72	80.47	71.43	151.90	0.53	72
1997	1533	-203	116.40	35.50	151.90	0.77	203
1998	1950	214	30.83	121.07	151.90	0.20	-214
1999	2150	414	4.36	147.54	151.90	0.03	-414
2000	2015	279	24.27	127.63	151.90	0.16	-279
2001	1610	-126	97.61	54.29	151.90	0.64	126
2002	1975	239	28.90	123.00	151.90	0.19	-239
2003	1576	-160	107.40	44.50	151.90	0.71	160
MEAN	1675	-61	83.43	68.72		0.55	61

Siege



Siege Correlation



893A-12

VERTEBRAE COL No 12
Cirque gl, reliability A

NZMS 260 sheet I35

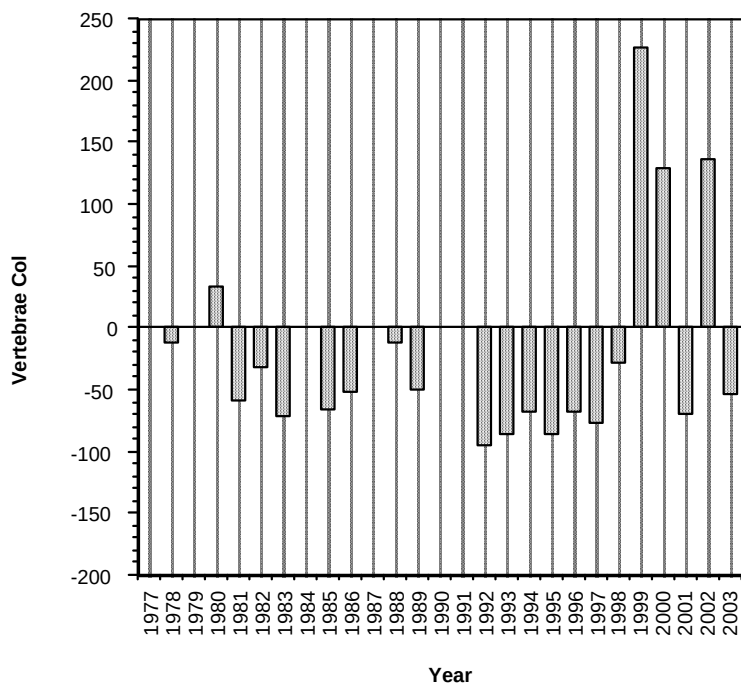
GLACIER DATA		
Aspect	SW	
AREA	30.45	ha
Max Elev	2100	m
Min Elev	1730	m
Mean Elev	1915	m
Length	0.63	km
Elev Range	370	m
Gradient	0.592	

SNOWLINE DATA		
ELA	1864	m
Max SL	2090	m, 1999
Min SL	1768	m, 1992
Mean SL	1842	m
SL Range	322	m
No. surveys	21	

MEASUREMENTS Digitised values shaded

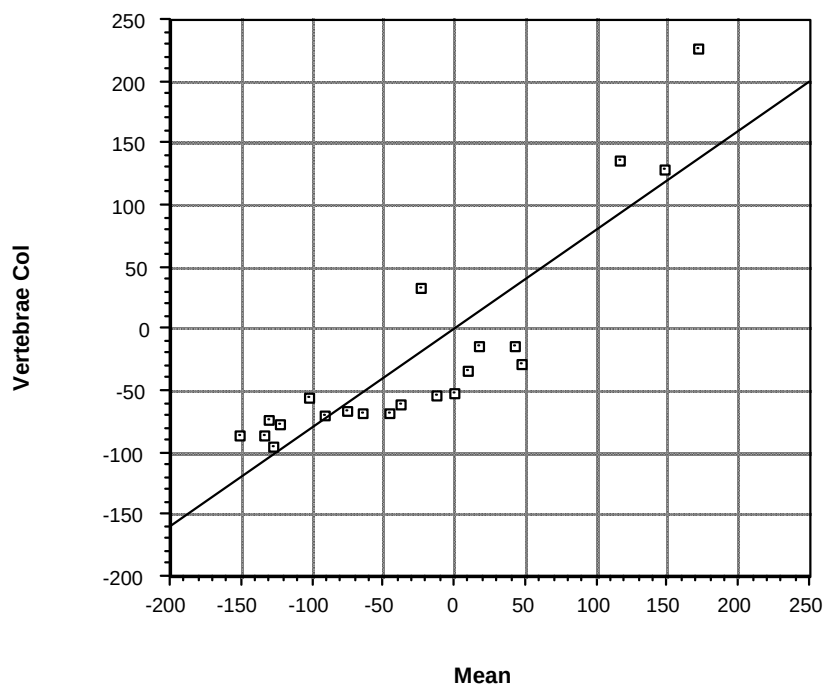
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1864	0	22.95	7.50	30.45	0.75	0
1977							
1978	1851	-13	24.15	6.30	30.45	0.79	13
1979							
1980	1897	33	19.58	10.87	30.45	0.64	-33
1981	1804	-60	27.45	3.00	30.45	0.90	60
1982	1831	-33	25.65	4.80	30.45	0.84	33
1983	1791	-73	28.35	2.10	30.45	0.93	73
1984							
1985	1797	-67	27.95	2.50	30.45	0.92	67
1986	1811	-53	27.05	3.40	30.45	0.89	53
1987							
1988	1851	-13	24.15	6.30	30.45	0.79	13
1989	1813	-51	26.96	3.49	30.45	0.89	51
1990							
1991							
1992	1768	-96	29.35	1.10	30.45	0.96	96
1993	1778	-86	28.95	1.50	30.45	0.95	86
1994	1796	-68	28.05	2.40	30.45	0.92	68
1995	1778	-86	28.94	1.51	30.45	0.95	86
1996	1796	-68	28.05	2.40	30.45	0.92	68
1997	1786	-78	28.55	1.90	30.45	0.94	78
1998	1835	-29	25.50	4.95	30.45	0.84	29
1999	2090	226	0.73	29.72	30.45	0.02	-226
2000	1993	129	5.53	24.92	30.45	0.18	-129
2001	1794	-70	27.87	2.58	30.45	0.92	70
2002	2000	136	4.45	26.00	30.45	0.15	-136
2003	1809	-55	27.35	3.10	30.45	0.90	55
MEAN	1842	-22	23.55	6.90		0.77	22

Vertebrae #12



Vertebrae #12

$$y = -0.99912 + 0.80064x \quad R^2 = 0.780$$



893A/ 25

VERTEBRAE COL No. 25
Mountain gl, reliability A

NZMS 260 sheet I35

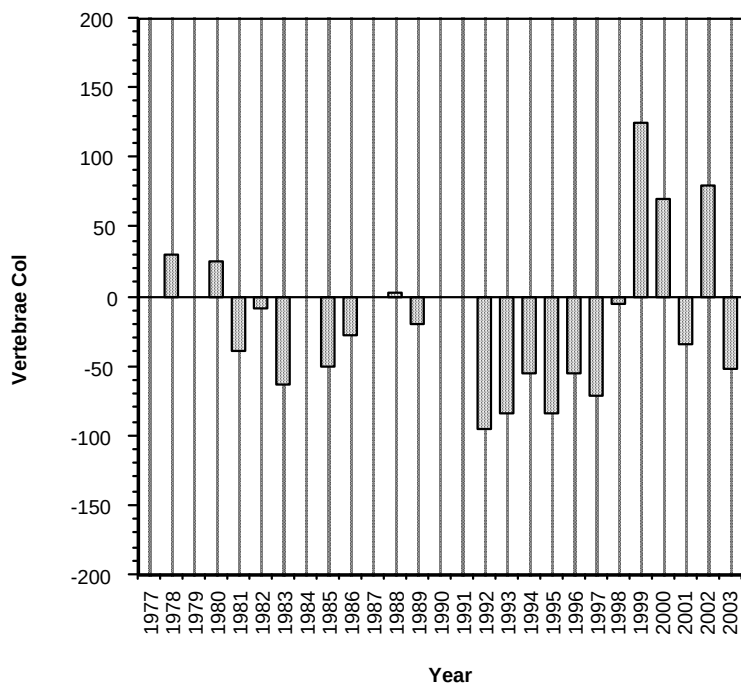
GLACIER DATA		
Aspect	SW	
Area	75.55	ha
Max Elev	2040	m
Min Elev	1700	m
Mean Elev	1850	m
Length	1.15 Km	km
Elev Range	360 m	m
Gradient	0.313	

SNOWLINE DATA		
ELA	1840	m
Max SL	1965	m, 1999
Min SL	1746	m, 1992
Mean SL	1821	m
SL Range	219	m
No. surveys	21	

No 25
MEASUREMENTS Digitised values shaded

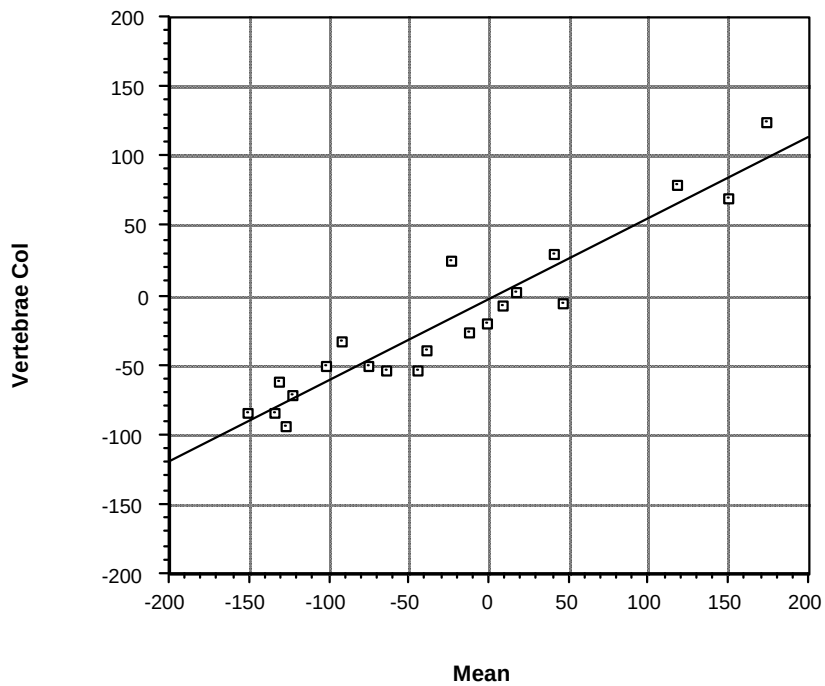
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1840	0	45.33	30.22	75.55	0.60	0
1977							
1978	1870	30	49.49	26.06	75.55	0.66	-30
1979							
1980	1865	25	52.12	23.43	75.55	0.69	-25
1981	1802	-39	70.44	5.11	75.55	0.93	39
1982	1832	-8	65.53	10.02	75.55	0.87	8
1983	1778	-62	71.55	4.00	75.55	0.95	62
1984							
1985	1790	-50	70.55	5.00	75.55	0.93	50
1986	1813	-27	67.05	8.50	75.55	0.89	27
1987							
1988	1843	3	60.35	15.20	75.55	0.80	-3
1989	1820	-20	65.56	9.99	75.55	0.87	20
1990							
1991							
1992	1746	-94	73.65	1.90	75.55	0.97	94
1993	1756	-84	73.08	2.47	75.55	0.97	84
1994	1786	-54	71.05	4.50	75.55	0.94	54
1995	1756	-84	73.08	2.47	75.55	0.97	84
1996	1786	-54	71.05	4.50	75.55	0.94	54
1997	1770	-71	72.25	3.30	75.55	0.96	71
1998	1835	-5	61.98	13.57	75.55	0.82	5
1999	1965	125	2.64	72.91	75.55	0.03	-125
2000	1910	70	18.08	57.47	75.55	0.24	-70
2001	1807	-33	68.03	7.52	75.55	0.90	33
2002	1920	80	12.55	63.00	75.55	0.17	-80
2003	1789	-51	70.75	4.80	75.55	0.94	51
MEAN	1821	-19	59.09	16.46		0.78	19

Vertebrae #25



Vertebrae #25

$$y = -3.3731 + 0.58343x \quad R^2 = 0.900$$



711L-24

RIDGE GL.
Mountain gl, reliability B

NZMS sheet L24

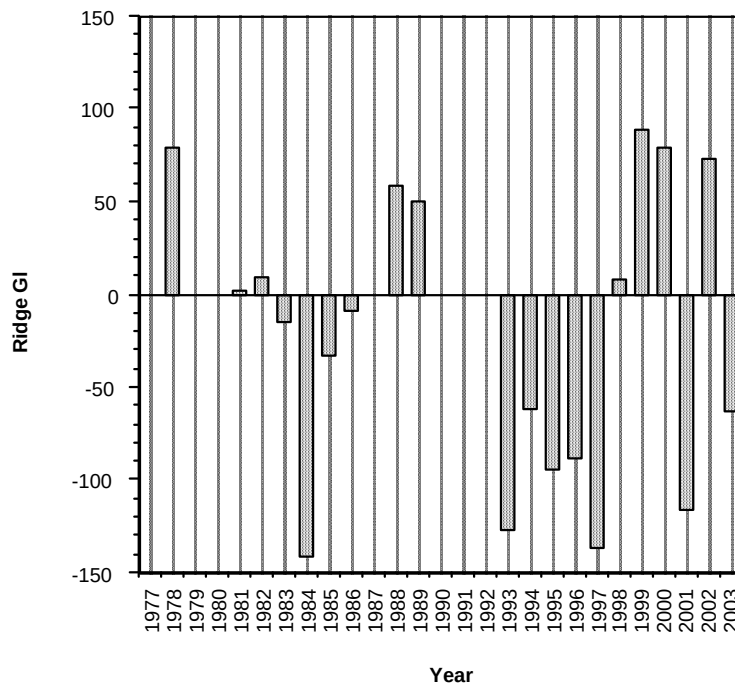
GLACIER DATA		
Aspect	SE	
AREA	73.52	ha
Max Elev	2490	m
Min Elev	2110	m
Mean Elev	2300	m
Length	1.04	km
Elev Range	380	m
Gradient	0.365	

SNOWLINE DATA		
ELA	2226	m
Max SL	2315	m,1999
Min SL	2085	m,1984
Mean SL	2205	m
SL Range	230	m
No. surveys	20	

MEASUREMENTS Digitised values shaded

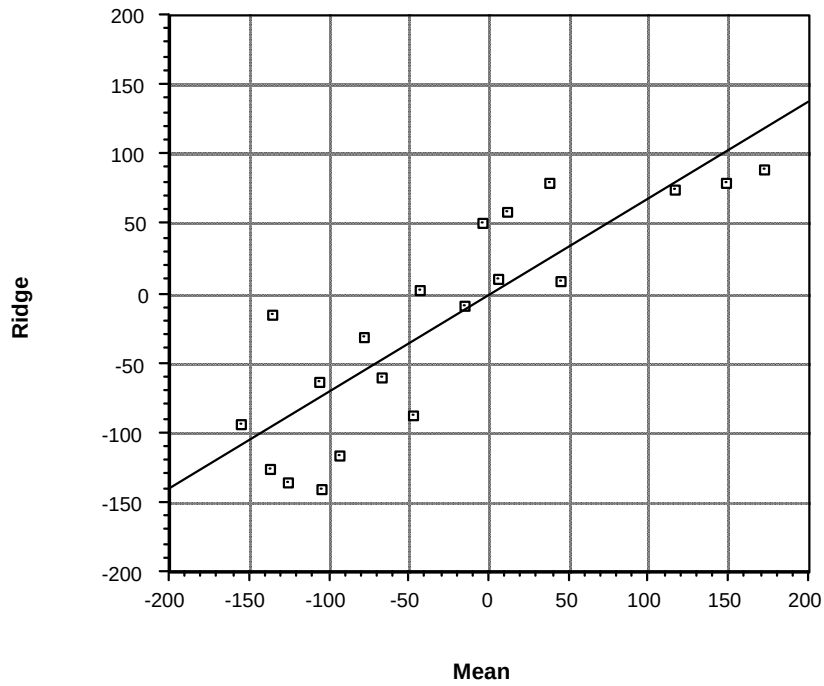
YEAR	SNOWLINE ELEVATION	DEPARTURE FROM ELA	AREAS ACCUM.	AREAS ABL.	ACCUM. TOTAL	MASS AREA RATIO (AAR)	MASS BALANCE INDEX
	m	m	ha	ha	ha		
ELAo	2226	0	51.72	21.80	73.52	0.70	0
1977							
1978	2305	79	22.22	51.30	73.52	0.30	-79
1979							
1980							
1981	2228	2	49.41	24.11	73.52	0.67	-2
1982	2236	10	47.98	25.54	73.52	0.65	-10
1983	2211	-15	56.32	17.20	73.52	0.77	15
1984	2085	-141	76.52	0.00	73.52	1.00	141
1985	2194	-32	60.40	13.12	73.52	0.82	32
1986	2217	-9	55.02	18.50	73.52	0.75	9.1
1987							
1988	2285	59	27.82	45.70	73.52	0.38	-59
1989	2277	51	30.01	43.51	73.52	0.41	-51
1990							
1991							
1992							
1993	2100	-126	75.02	0.00	73.52	1.00	126
1994	2165	-61	66.32	7.20	73.52	0.90	61
1995	2132	-94	70.83	2.69	73.52	0.96	94
1996	2138	-88	70.01	3.51	73.52	0.95	88
1997	2090	-136	76.32	0.00	73.52	1.00	136
1998	2235	9	47.02	25.50	73.52	0.64	-9
1999	2315	89	53.30	20.22	73.52	0.72	-89
2000	2305	79	44.87	28.65	73.52	0.61	-79
2001	2110	-116	73.52	0.00	73.52	1.00	116
2002	2300	74	23.12	50.40	73.52	0.31	-74
2003	2163	-63	66.22	7.30	73.52	0.90	63
MEAN	2205	-21	54.61	19.22		0.74	21

Ridge



Ridge Correlation

$$y = -1.4394 + 0.69316x \quad R^2 = 0.722$$



No. 711 I/35

LANGDALE GL.
Cirque gl, reliability B

NZMS 260 sheet H36

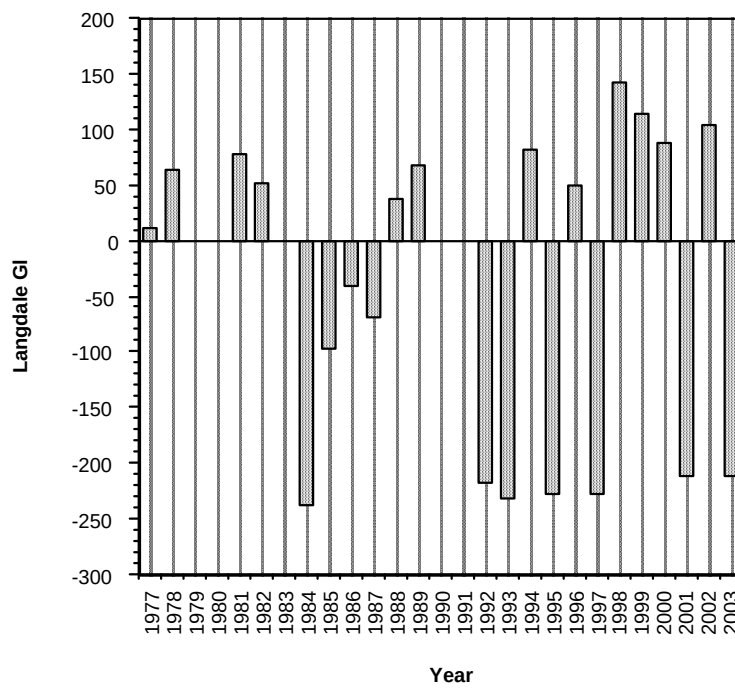
GLACIER DATA		
Aspect	NW	
AREA	40.42	ha
Max Elev	2580	m
Min Elev	2090	m
Mean Elev	2335	m
Length	1.03	km
Elev Range	490	m
Gradient	0.478	

SNOWLINE DATA		
ELA	2186	m
Max SL	2328	m,1998
Min SL	1950	m,1984
Mean SL	2148	m
SL Range	378	m
No. surveys	23	

MEASUREMENTS Digitised values shaded

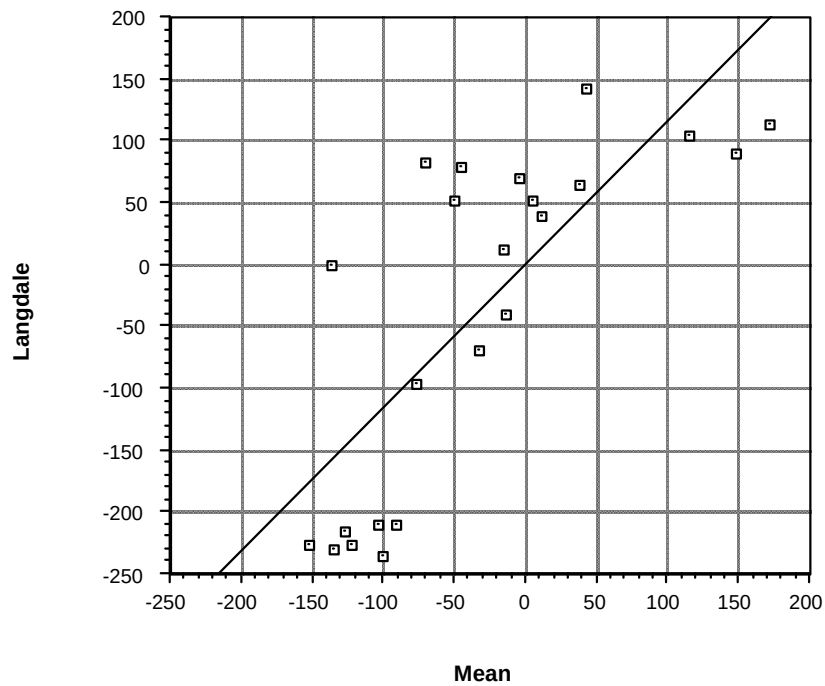
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	2186	0	29.42	11.00	40.42	0.73	0
1977	2198	12	32.62	7.80	40.42	0.81	-12
1978	2251	65	19.42	21.00	40.42	0.48	-65
1979							
1980							
1981	2265	79	15.12	25.30	40.42	0.37	-79
1982	2238	52	24.25	16.17	40.42	0.60	-51.9
1983	2185	-1	33.72	6.70	40.42	0.83	1
1984	1950	-236	47.33	0.00	40.42	1.00	236
1985	2090	-96	38.73	1.69	40.42	0.96	96
1986	2145	-41	36.22	4.20	40.42	0.90	41
1987	2118	-69	37.52	2.90	40.42	0.93	68.5
1988	2225	39	27.92	12.50	40.42	0.69	-38.6
1989	2255	69	18.37	22.05	40.42	0.45	-69
1990							
1991							
1992	1970	-216	45.42	0.00	40.42	1.00	216
1993	1955	-231	47.33	0.00	40.42	1.00	231
1994	2269	83	13.85	26.57	40.42	0.34	-83
1995	1960	-226	47.33	0.00	40.42	1.00	226
1996	2237	51	24.58	15.84	40.42	0.61	-51
1997	1960	-226	47.33	0.00	40.42	1.00	226
1998	2328	142	5.40	35.02	40.42	0.13	-142
1999	2300	114	7.62	32.80	40.42	0.19	-114
2000	2275	89	12.42	28.00	40.42	0.31	-89
2001	1975	-211	45.42	0.00	40.42	1.00	211
2002	2290	104	9.42	31.00	40.42	0.23	-104
2003	1975	-211	45.42	0.00	40.42	1.00	211
MEAN	2148	-38	29.69	12.59		0.69	38

Langdale



Langdale Correlation

$$y = -1.7712e-2 + 1.1576x \quad R^2 = 0.589$$



No. 711I/12

TASMAN GL.
Valley gl, reliability B

NZMS 260 sheet

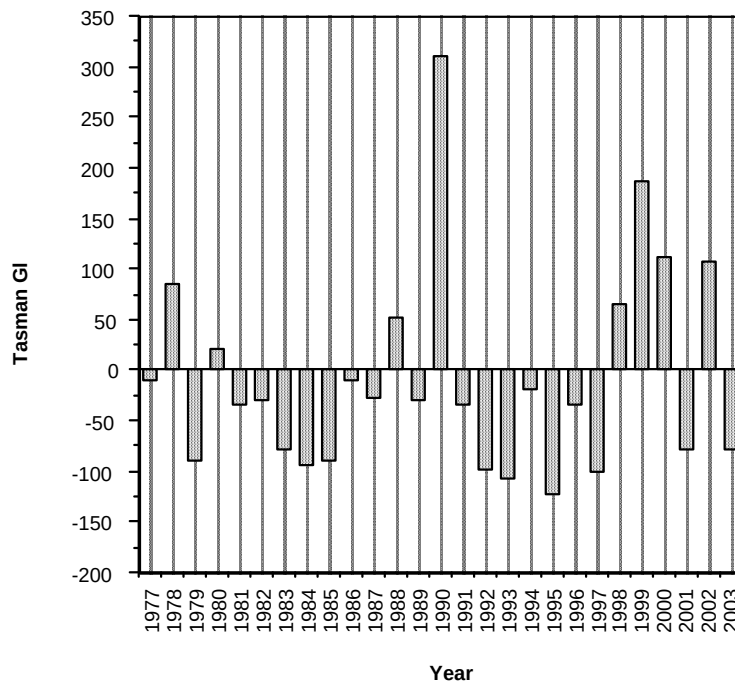
GLACIER DATA		
Aspect	SW	
Max Elev		
Min Elev		
Mean Elev		
Elev Range		
Length		
Gradient		
Gradient @ SL	0.096	

SNOWLINE DATA		
Full ELA	1790	1955 to 2001
ELA	1781	1977 to 2001
Max SL	2100	m, 1990
Min SL	1666	m, 1995
Mean SL	1781	m
SL Range	434	m
No. surveys	27	

MEASUREMENTS Values from contour counts shaded

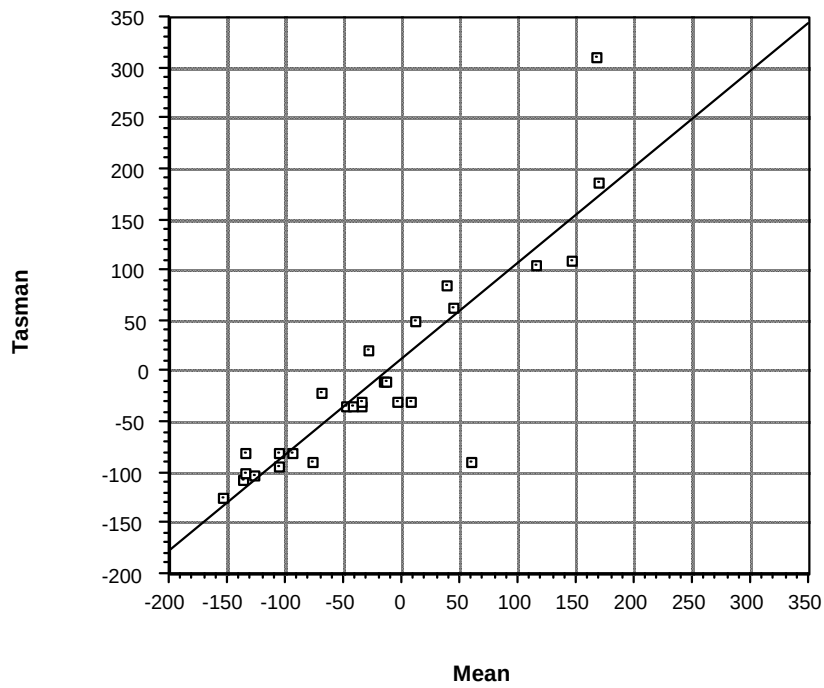
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
1955 to 1977	1829	Too large to measure					
1977	1780	-10					10
1978	1875	85					-85
1979	1700	-90					90
1980	1810	20					-20
1981	1755	-35					35
1982	1760	-30					30
1983	1710	-80					80
1984	1695	-95					95
1985	1700	-90					90
1986	1780	-10					10
1987	1761	-29					29
1988	1840	50					-50
1989	1760	-30					30
1990	2100	310					-310
1991	1755	-35					35
1992	1690	-100					100
1993	1682	-108					108
1994	1770	-20					20
1995	1666	-124					124
1996	1755	-35					35
1997	1688	-102					102
1998	1853	63					-63
1999	1976	186					-186
2000	1900	110					-110
2001	1710	-80					80
2002	1895	105					-105
2003	1710	-80					80
MEAN	1781	-9					9

Tasman



Tasman Correlation

$$y = 11.504 + 0.94545x \quad R^2 = 0.780$$



No. 888B/3

SALISBURY SNOWFIELD
Mountain gl, reliability B

NZMS 260 sheet H35

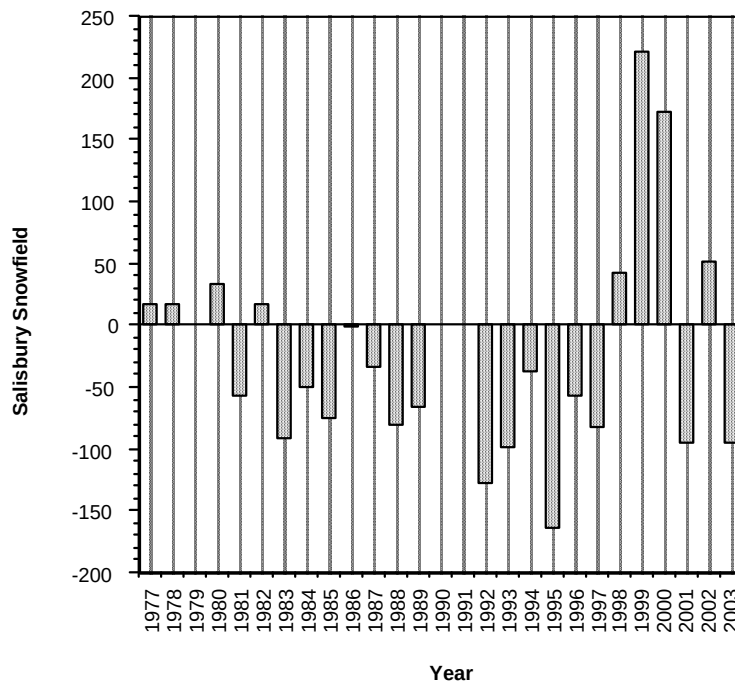
GLACIER DATA		
Aspect	SW	
AREA	311.90	ha
Max Elev	2390	m
Min Elev	1340	m
Mean Elev	1865	m
Length	2.98	km
Elev Range	1050	m
Gradient	0.352	

SNOWLINE DATA		
ELA	1810	m
Max SL	2030	m, 1999
Min SL	1645	m, 1995
Mean SL	1783	m
SL Range	385	m
No. surveys	24	

MEASUREMENTS Digitised values shaded

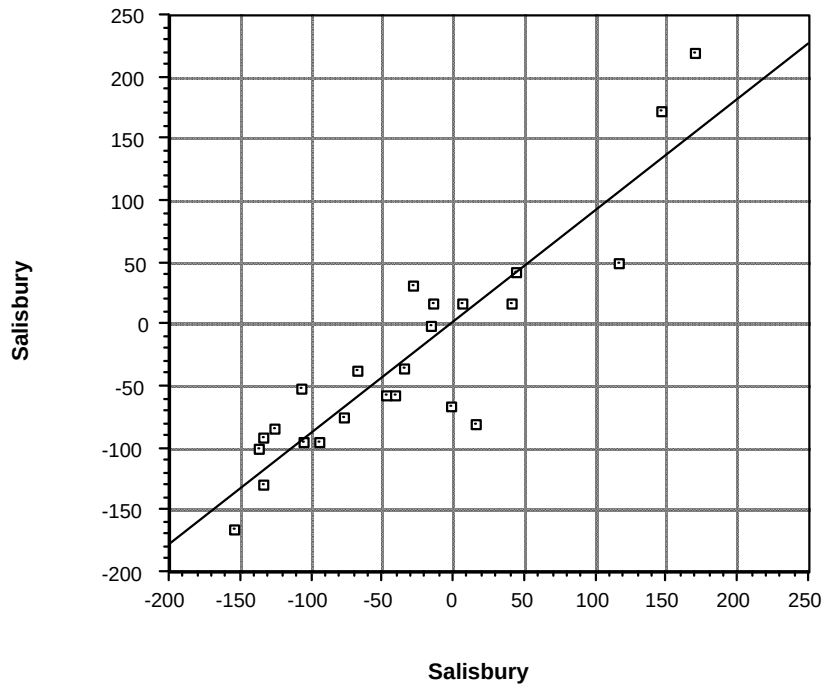
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1810	0	246.90	65.00	311.90	0.79	0
1977	1827	17	239.90	72.00	311.90	0.77	-16.6
1978	1827	17	239.90	72.00	311.90	0.77	-16.6
1979							
1980	1842	32	228.51	83.39	311.90	0.73	-32
1981	1752	-58	268.90	43.00	311.90	0.86	58.2
1982	1827	17	239.90	72.00	311.90	0.77	-16.6
1983	1718	-92	279.56	32.34	311.90	0.90	92
1984	1760	-51	266.90	45.00	311.90	0.86	50.5
1985	1734	-76	275.90	36.00	311.90	0.88	76.2
1986	1809	-1	250.90	61.00	311.90	0.80	1.4
1987	1775	-35	261.90	50.00	311.90	0.84	35
1988	1729	-81	268.90	43.00	311.90	0.86	81.4
1989	1744	-66	271.90	40.00	311.90	0.87	65.9
1990							
1991							
1992	1681	-129	289.90	22.00	311.90	0.93	129
1993	1710	-100	279.90	32.00	311.90	0.90	100
1994	1772	-38	228.96	82.94	311.90	0.73	37.6
1995	1645	-165	296.67	15.23	311.90	0.95	165
1996	1752	-58	267.90	44.00	311.90	0.86	58.2
1997	1726	-84	276.90	35.00	311.90	0.89	84
1998	1852	42	223.24	88.66	311.90	0.72	-42
1999	2030	220	116.70	195.20	311.90	0.37	-220
2000	1982	172	132.50	179.40	311.90	0.42	-172
2001	1715	-95	281.66	30.24	311.90	0.90	95
2002	1860	50	219.00	92.00	311.90	0.70	-50
2003	1715	-95	279.90	32.00	311.90	0.90	95
Mean	1783	-27	249.4	62.4		0.8	27.4

Salisbury



Salisbury Correlation

$$y = 1.9996 + 0.89800x \quad R^2 = 0.815$$



No. 886/2 & 888B/7

JALF GL. and Baumann GL.
Small saddle gl. reliability C

NZMS 260 sheet H35

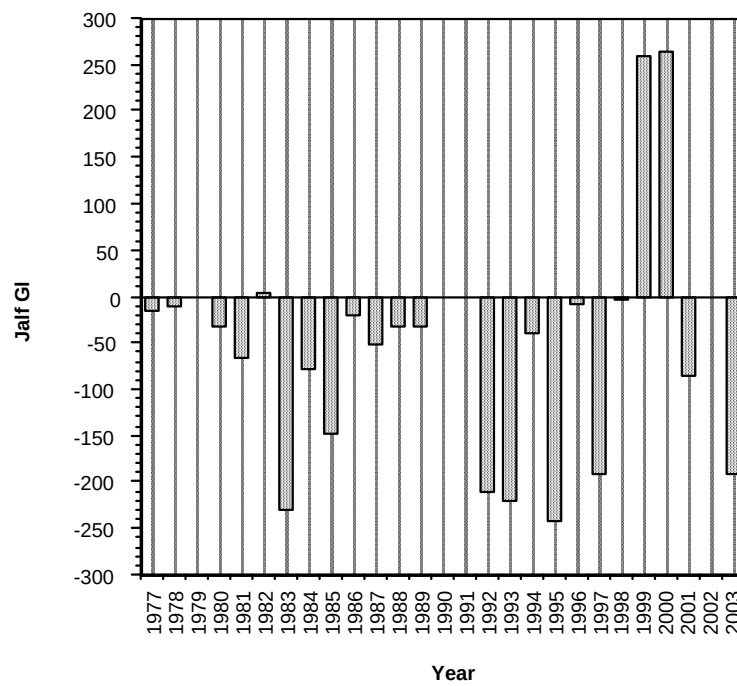
GLACIER DATA		
Aspects	N & S, E & W	
AREA	102.10	ha
Max Elev	1985	m
Min Elev	1580	m
Mean Elev	1783	m
Length	na	
Elev Range	405	m
Gradient	na	

SNOWLINE DATA		
ELA	1790	m
Max SL	2055	m, 2000
Min SL	1550	m, 1995
Mean SL	1731	m
SL Range	505	m
No. surveys	23	

MEASUREMENTS Digitised values shaded

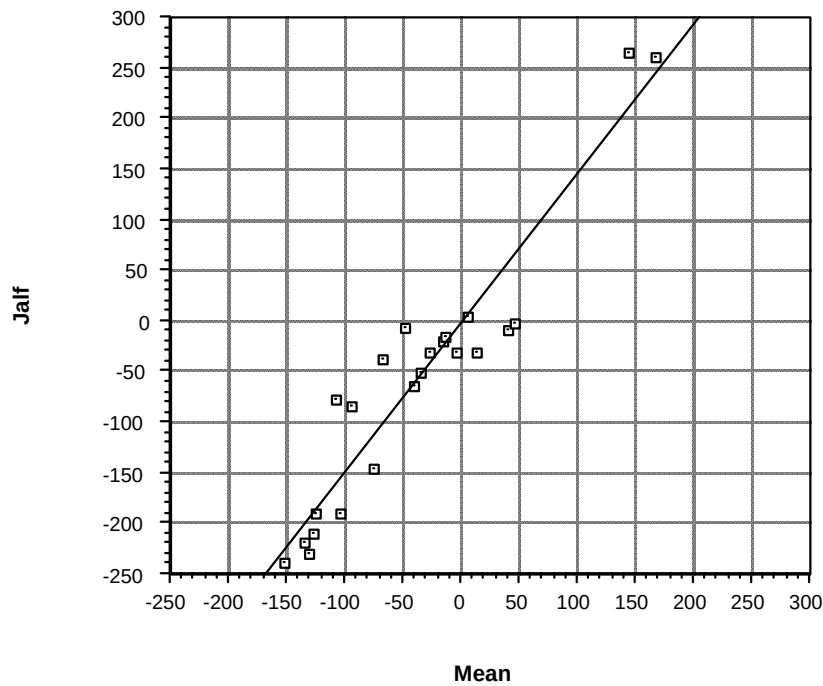
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1790	0	14.10	88.00	102.10	0.14	0
1977	1775	-15	21.30	80.80	102.10	0.21	15
1978	1780	-10	19.10	83.00	102.10	0.19	10
1979							
1980	1758	-32	36.41	65.69	102.10	0.36	32
1981	1725	-65	66.10	36.00	102.10	0.65	65
1982	1795	5	13.10	89.00	102.10	0.13	-5
1983	1560	-230	104.60	0.00	102.10	1.00	230
1984	1712	-78	72.96	29.14	102.10	0.71	78
1985	1644	-146	92.18	9.92	102.10	0.90	146
1986	1770	-20	24.40	77.70	102.10	0.24	20
1987	1739	-51	56.10	46.00	102.10	0.55	51
1988	1758	-32	36.10	66.00	102.10	0.35	32
1989	1759	-31	35.62	66.48	102.10	0.35	31
1990							
1991							
1992	1580	-210	102.10	0.00	102.10	1.00	210
1993	1570	-220	103.60	0.00	102.10	1.01	220
1994	1752	-38	41.47	60.63	102.10	0.41	38
1995	1550	-240	106.10	0.00	102.10	1.00	240
1996	1782	-8	17.25	84.85	102.10	0.17	8
1997	1599	-191	99.54	2.56	102.10	0.97	191
1998	1787	-3	15.82	86.28	102.10	0.15	3
1999	2050	260	0.00	102.10	102.10	0.00	-260
2000	2055	265	0.00	102.10	102.10	0.00	-265
2001	1705	-85	76.06	26.04	102.10	0.74	85
2002							
2003	1600	-190	99.10	3.00	102.10	0.97	190
MEAN	1731	-59	53.87	48.58		0.52	59

Jalf



Jalf Correlation

$$y = -3.0161 + 1.4742x \quad R^2 = 0.898$$



No. 882A/7

CHANCELLOR DOME
Cirque gl, reliability A

NZMS 260 sheet H35 & H36

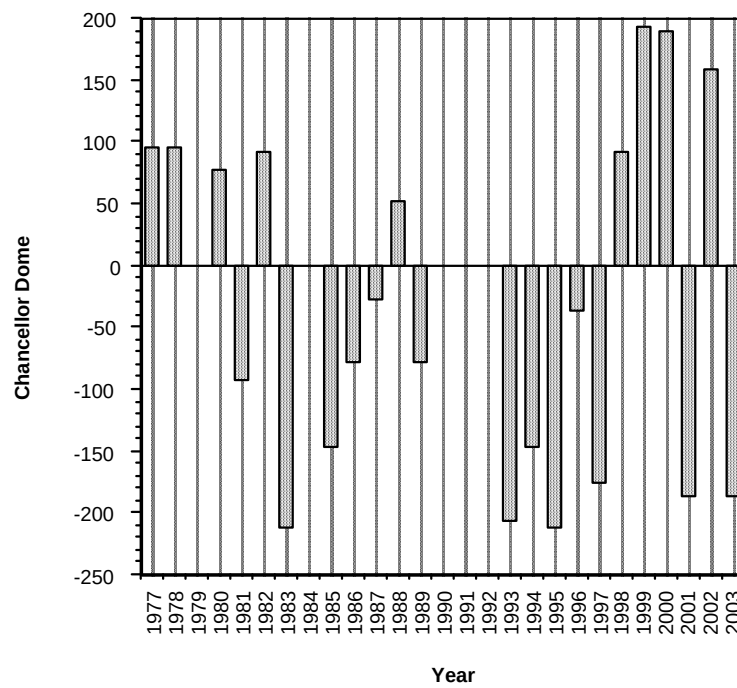
GLACIER DATA		
Aspect	SW	
AREA	24.08	ha
Max Elev	1960	m
Min Elev	1580	m
Mean Elev	1770	m
Length	0.55	km
Elev Range	380	m
Gradient	0.436	

SNOWLINE DATA		
ELA	1756	m
Max SL	1950	m, 1999
Min SL	1545	m, 1995
Mean SL	1723	m
SL Range	405	m
No. surveys	22	

MEASUREMENTS Digitised values shaded

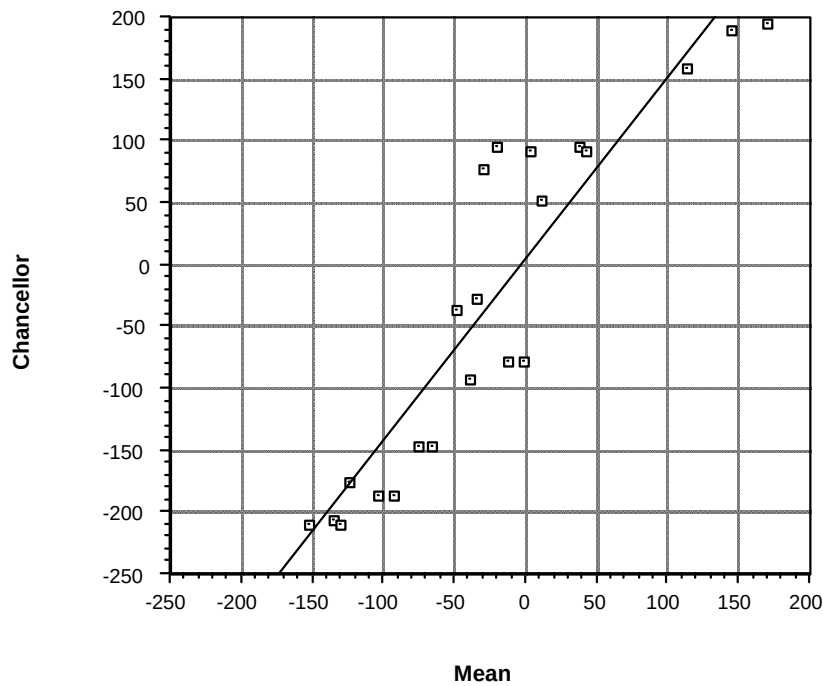
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1756	0	18.83	5.25	24.08	0.78	0
1977	1852	96	9.45	14.63	24.08	0.39	-96
1978	1851	95	9.63	14.45	24.08	0.40	-95
1979							
1980	1833	77	13.85	10.23	24.08	0.58	-77
1981	1663	-93	21.05	3.03	24.08	0.87	93
1982	1848	92	10.67	13.41	24.08	0.44	-92
1983	1545	-211	28.90	0.00	24.08	1.00	211
1984							
1985	1609	-147	22.95	1.13	24.08	0.95	147
1986	1678	-78	20.65	3.43	24.08	0.86	78
1987	1728	-28	19.33	4.75	24.08	0.80	28
1988	1808	52	17.33	6.75	24.08	0.72	-52
1989	1678	-78	20.59	3.49	24.08	0.86	78
1990							
1991							
1992							
1993	1550	-206	27.99	0.00	24.08	1.00	206
1994	1609	-147	22.95	1.13	24.08	0.95	147
1995	1545	-211	28.90	0.00	24.08	1.00	211
1996	1720	-36	7.42	16.66	24.08	0.31	36
1997	1580	-176	24.08	0.00	24.08	1.00	176
1998	1848	92	10.67	13.41	24.08	0.44	-92
1999	1950	194	0.00	24.08	24.08	0.00	-194
2000	1945	189	0.00	15.46	24.08	0.00	-189
2001	1570	-186	0.00	24.08	24.08	0.00	186
2002	1915	159	1.38	22.70	24.08	0.06	-159
2003	1570	-186	0.00	24.08	24.08	0.00	186
MEAN	1723	-34	14.45	9.86		0.57	34

Chancellor



Chancellor Correlation

$$y = 2.7176 + 1.4664x \quad R^2 = 0.843$$



No. 711F/6

GLENMARY GL.
Cirque gl, reliability B

NZMS 260 sheet H37

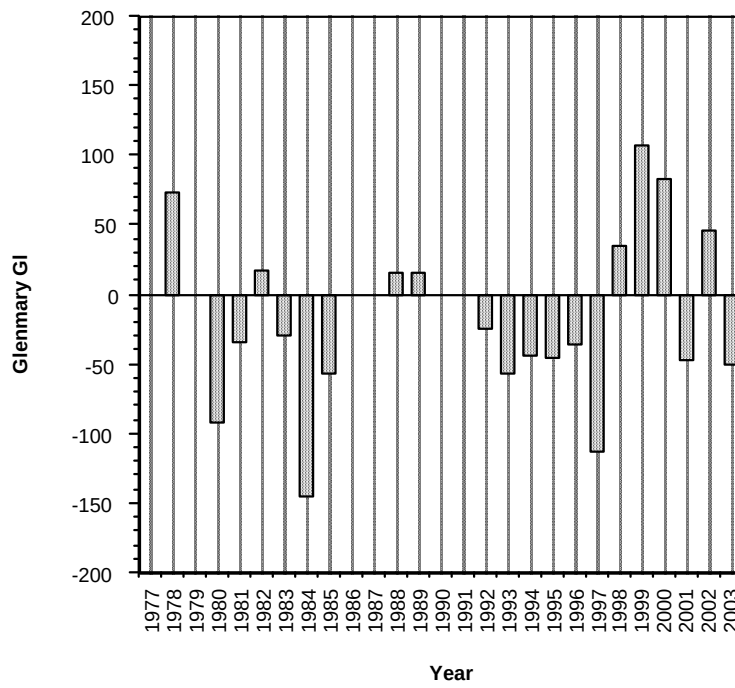
GLACIER DATA		
Aspect	S	
AREA	58.51	ha
Max Elev	2350	m
Min Elev	2010	m
Mean Elev	2180	m
Length	1.19	km
Elev Range	340	m
Gradient	0.277	

SNOWLINE DATA		
ELA	2164	m
Max SL	2272	m, 1999
Min SL	2020	m, 1984
Mean SL	2115	m
SL Range	252	m
No. Surveys	21	

MEASUREMENTS Digitised values shaded

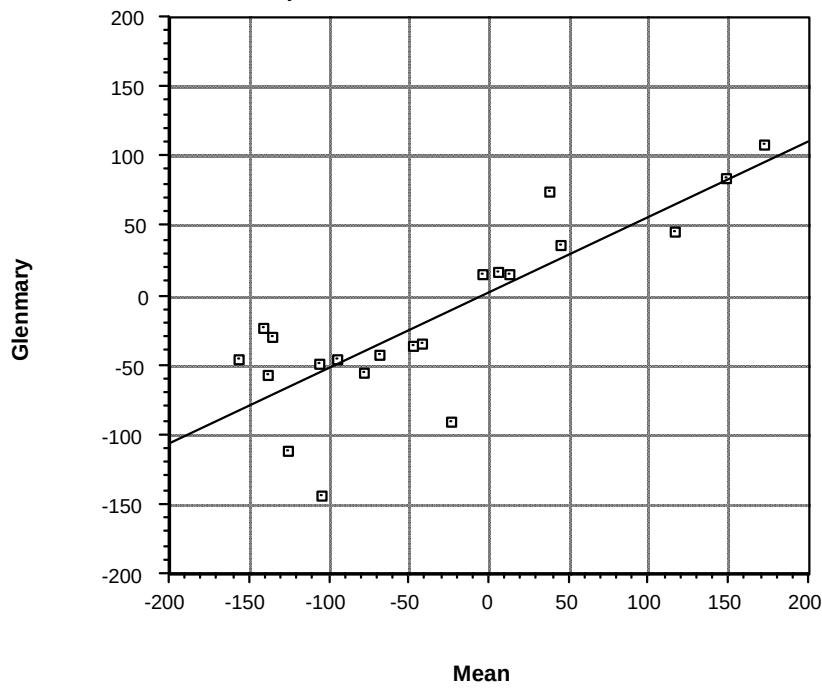
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	2164	0	39.51	19.00	58.51	0.68	0
1977							
1978	2238	74	22.93	35.58	58.51	0.39	-74
1979							
1980	2073	-91	53.45	5.06	58.51	0.91	91
1981	2130	-34	46.11	12.40	58.51	0.79	34
1982	2181	17	36.00	22.51	58.51	0.62	-17
1983	2135	-29	44.85	13.66	58.51	0.77	29
1984	2020	-144	57.31	1.20	58.51	0.98	144
1985	2108	-56	49.42	9.09	58.51	0.84	56
1986							
1987							
1988	2180	16	36.51	22.00	58.51	0.62	-16
1989	2180	16	36.02	22.49	58.51	0.62	-16
1990							
1991							
1992	2140	-24	44.31	14.20	58.51	0.76	24
1993	2107	-57	49.51	9.00	58.51	0.85	57
1994	2121	-43	47.41	11.10	58.51	0.81	43
1995	2119	-45	47.64	10.87	58.51	0.81	45
1996	2128	-36	46.26	12.25	58.51	0.79	36
1997	2052	-112	55.52	2.99	58.51	0.95	112
1998	2200	36	32.34	26.17	58.51	0.55	-36
1999	2272	108	13.37	45.14	58.51	0.23	-108
2000	2248	84	20.19	38.32	58.51	0.35	-84
2001	2118	-46	47.78	10.73	58.51	0.82	46
2002	2210	46	30.01	28.50	58.51	0.51	-46
2003	2115	-49	48.31	10.20	58.51	0.83	49
Mean	2115	-18	41	17		0.70	18

Glenmary



Glenmary Correlation

$$y = 1.3224 + 0.54315x \quad R^2 = 0.672$$



No. 711-D/38

BLAIR GL.
Mountain gl, reliability B

NZMS 260 sheet H37 & G37

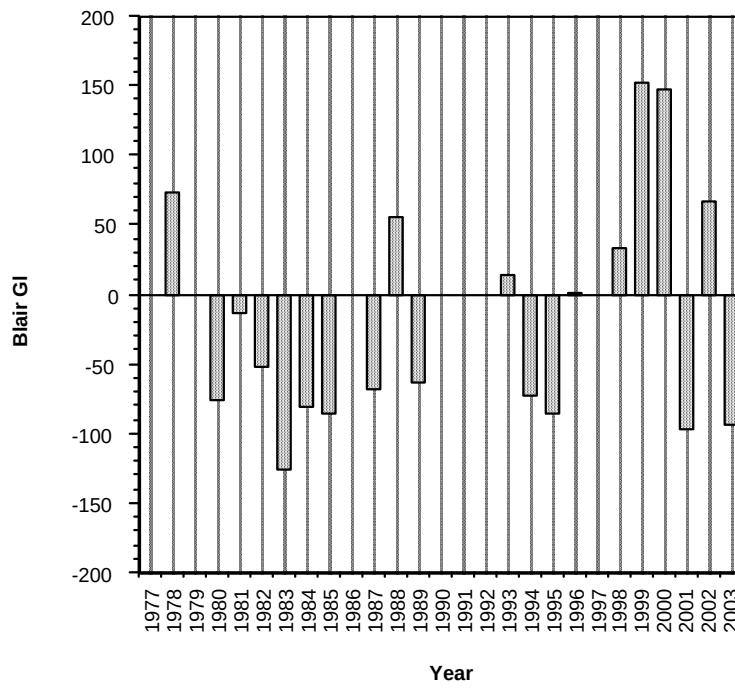
GLACIER DATA		
Aspect	SE	
AREA	24.62	ha
Max Elev	2240	m
Min Elev	1790	m
Mean Elev	2015	m
Length	0.63	km
Elev Range	450	m
Gradient	0.71	

SNOWLINE DATA		
ELA	1938	m
Max SL	2090	m, 1999
Min SL	1812	m, 1983
Mean SL	1920	m
SL Range	278	m
No. Surveys	20	

MEASUREMENTS Digitised values shaded

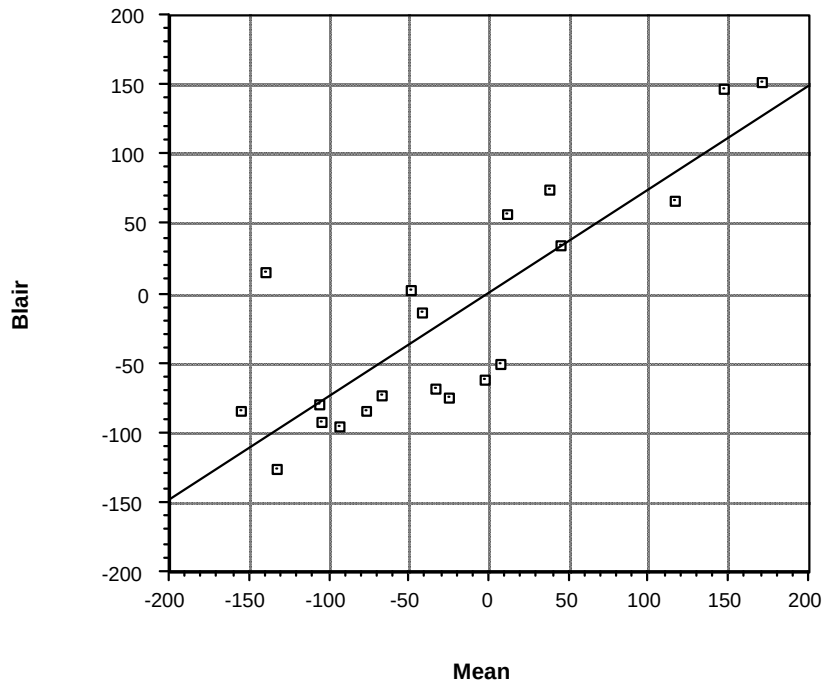
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS	
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE	
	m	m	ha	ha	ha	(AAR)	INDEX	
ELAo	1938	0	18.52	7.90	26.42	0.70	0	
1977								
1978	2012	74	13.42	13.00	26.42	0.51	-74	
1979								
1980	1863	-75	22.82	3.60	26.42	0.86	75	
1981	1925	-13	19.23	7.19	26.42		0.73	13
1982	1887	-51	21.52	4.90	26.42		0.81	51
1983	1812	-126	25.28	1.14	26.42		0.96	126
1984	1858	-80	23.12	3.30	26.42		0.88	80
1985	1853	-85	23.28	3.14	26.42	0.88	85	
1986								
1987	1870	-68	22.43	3.99	26.42	0.85	68	
1988	1995	57	14.82	11.60	26.42	0.56	-57	
1989	1876	-62	22.10	4.32	26.42	0.84	62	
1990								
1991								
1992								
1993	1953	15	17.69	8.73	26.42	0.67	-15	
1994	1865	-73	22.72	3.70	26.42	0.86	73	
1995	1853	-85	23.28	3.14	26.42	0.88	85	
1996	1940	2	18.44	7.98	26.42	0.70	-2	
1997								
1998	1972	34	16.36	10.06	26.42	0.62	-34	
1999	2090	152	6.04	20.38	26.42	0.23	-152	
2000	2085	147	6.17	20.25	26.42	0.23	-147	
2001	1842	-96	23.75	2.67	26.42	0.90	96	
2002	2005	67	14.02	12.40	26.42	0.53	-67	
2003	1845	-93	23.62	2.80	26.42	0.89	93	
MEAN	1920	-18	19.01	7.41		0.72	18	

Blair



Blair Correlation

$$y = 0.53561 + 0.74456x \quad R^2 = 0.702$$



No. 711D/21

Mt. McKENZIE
Mountain gl, reliability A

NZMS 260 sheet G37

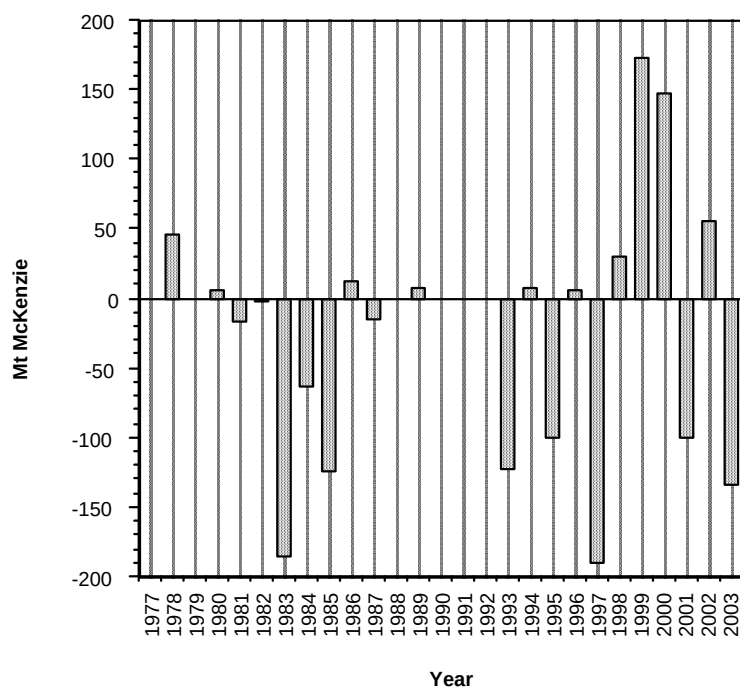
GLACIER DATA		
Aspect	S	
AREA	48.67	ha
Max Elev	2100	m
Min Elev	1760	m
Mean Elev	1930	m
Length	0.69	km
Elev Range	340	m
Gradient	0.49	

SNOWLINE DATA		
ELA	1904	m
Max SL	2078	m, 1999
Min SL	1715	m, 1983
Mean SL	1878	m
SL Range	363	m
No. Surveys	21	

MEASUREMENTS Digitised values shaded

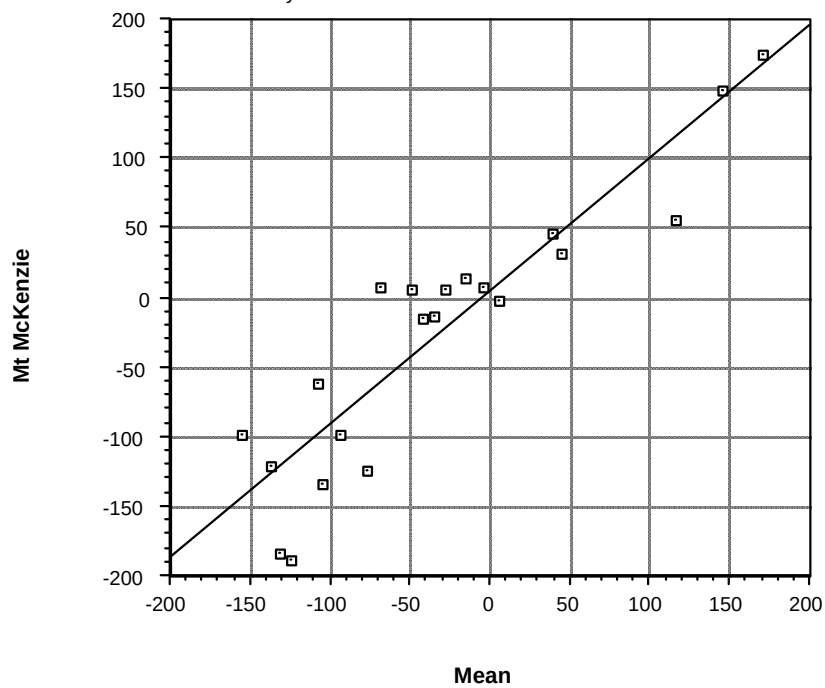
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1904	0	30.87	17.80	48.67	0.63	0
1977							
1978	1950	46	22.78	25.89	48.67	0.47	-46
1979							
1980	1910	6	29.86	18.81	48.67	0.61	-6
1981	1888	-16	33.48	15.19	48.67	0.69	16
1982	1902	-2	31.35	17.32	48.67	0.64	2
1983	1720	-184	60.63	-11.96	48.67	1.00	184
1984	1842	-62	39.64	9.03	48.67	0.81	62
1985	1780	-124	48.67	0.00	48.67	1.00	124
1986	1917	13	28.87	19.80	48.67	0.59	-13
1987	1890	-14	33.23	15.44	48.67	0.68	14
1988							
1989	1912	8	29.70	18.97	48.67	0.61	-8
1990							
1991							
1992							
1993	1782	-122	46.35	2.32	48.67	0.95	122
1994	1912	8	29.70	18.97	48.67	0.61	-8
1995	1805	-99	43.86	4.81	48.67	0.90	99
1996	1910	6	29.86	18.81	48.67	0.61	-6
1997	1715	-189	60.63	-11.96	48.67	1.00	189
1998	1935	31	25.53	23.14	48.67	0.52	-31
1999	2078	174	2.81	45.86	48.67	0.06	-174
2000	2052	148	5.83	42.84	48.67	0.12	-148
2001	1805	-99	43.87	4.80	48.67	0.90	99
2002	1960	56	20.67	28.00	48.67	0.42	-56
2003	1770	-134	47.72	0.95	48.67	0.98	134
MEAN	1878	-26	34.05	14.62		0.68	26

McKenzie



Mt McKenzie Correlation

$$y = 3.3545 + 0.95321x \quad R^2 = 0.835$$



No. 868B/94

JACKSON GL
Mountain gl, reliability B

NZMS 260 sheet H37

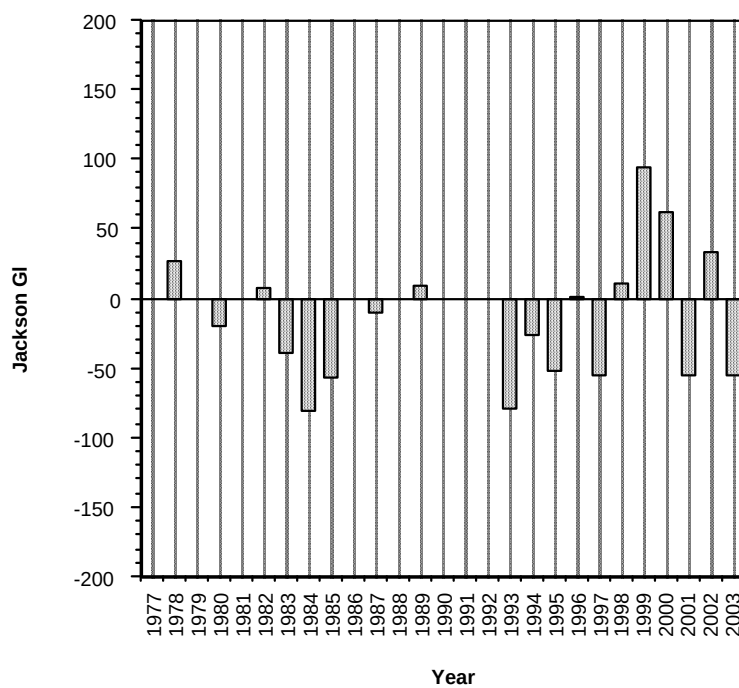
GLACIER DATA		
Aspect	NW	
AREA	52.15	ha
Max Elev	2300	m
Min Elev	1920	m
Mean Elev	2110	m
Length	0.5	km
Elev Range	380	m
Gradient	0.76	

SNOWLINE DATA		
ELA	2070	m
Max SL	2165	m, 1999
Min SL	1990	m, 1984
Mean SL	2056	m
SL Range	175	m
No. Surveys	19	

MEASUREMENTS Digitised values shaded

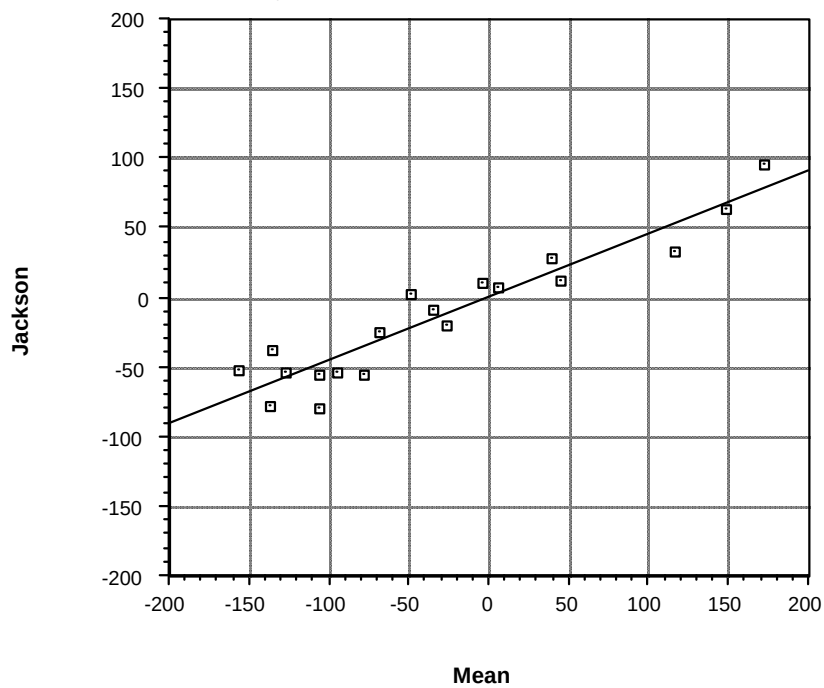
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
55	2100						
ELAo	2070	0	30.15	22.00	52.15	0.58	0
1977							
1978	2098	28	23.37	28.78	52.15	0.45	-28
1979							
1980	2050	-20	35.65	16.50	52.15	0.68	20
1981							
1982	2078	8	28.15	24.00	52.15	0.54	-8
1983	2032	-38	41.85	10.30	52.15	0.80	38
1984	1990	-80	49.05	3.10	52.15	0.94	80
1985	2014	-56	45.32	6.83	52.15	0.87	56
1986							
1987	2061	-9	32.71	19.44	52.15	0.63	9
1988							
1989	2080	10	27.75	24.40	52.15	0.53	-10
1990							
1991							
1992							
1993	1992	-78	48.97	3.18	52.15	0.94	78
1994	2045	-25	37.12	15.03	52.15	0.71	25
1995	2018	-52	44.31	7.84	52.15	0.85	52
1996	2072	2	29.97	22.18	52.15	0.57	-2
1997	2016	-54	44.85	7.30	52.15	0.86	54
1998	2082	12	27.05	25.10	52.15	0.52	-12
1999	2165	95	8.64	43.51	52.15	0.17	-95
2000	2133	63	15.49	36.66	52.15	0.30	-63
2001	2016	-54	45.00	7.15	52.15	0.86	54
2002	2103	33	22.77	29.38	52.15	0.44	-33
2003	2015	-55	50.65	1.50	52.15	0.97	55
MEAN	2056	-14	34.67	17.48		0.66	14

Jackson



Jackson Correlation

$$y = 0.20946 + 0.45786x \quad R^2 = 0.890$$



No. 875/15

JACK GL.
Cirque gl, reliability A

NZMS 260 sheet G37

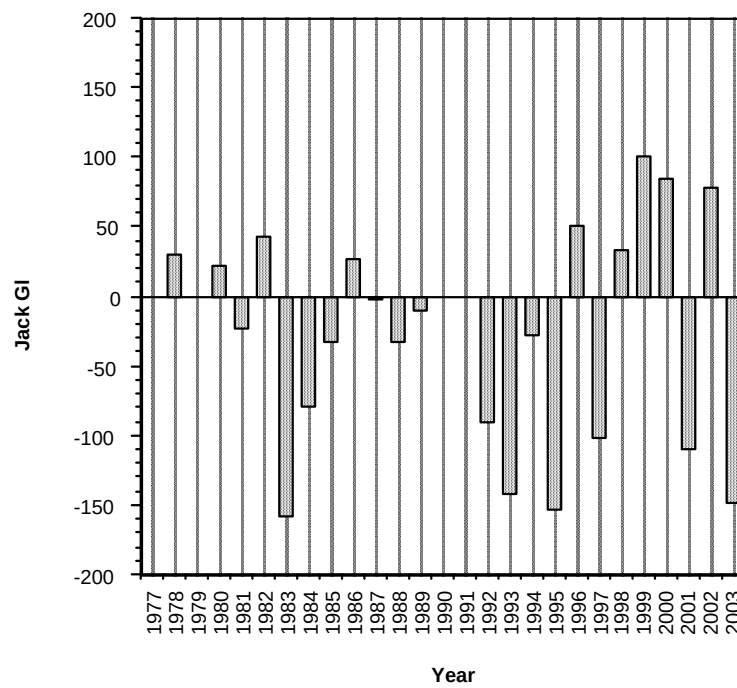
GLACIER DATA		
Aspect	W	
AREA	21.48	ha
Max Elev	2280	m
Min Elev	1800	m
Mean Elev	2040	m
Length	0.337	km
Elev Range	480	m
Gradient	1.42	

SNOWLINE DATA		
ELA	1907	m
Max SL	2008	m, 1999
Min SL	1750	m, 1983
Mean SL	1880	m
SL Range	258	m
No. Surveys	23	

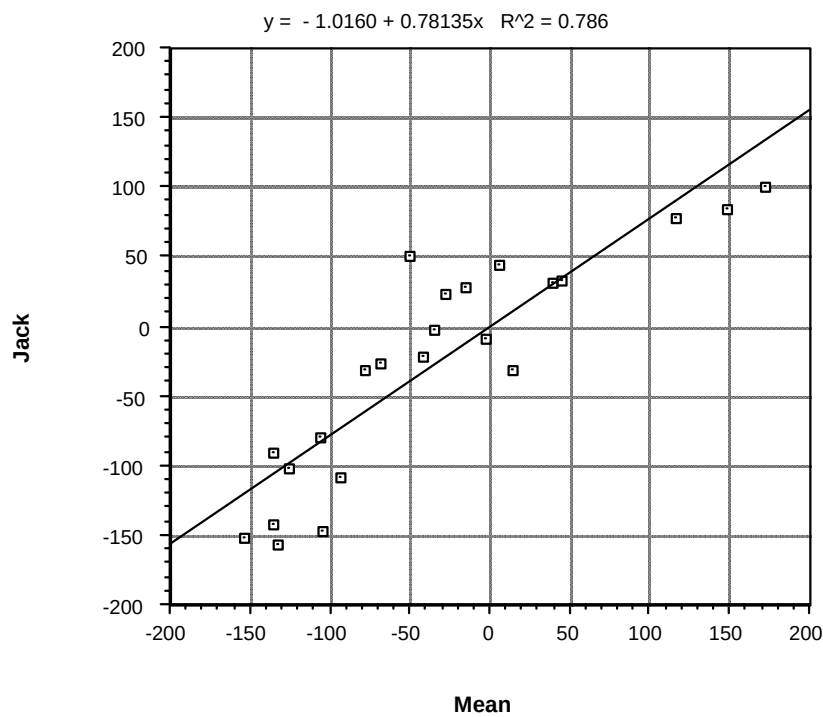
MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1907	0	15.68	5.80	21.48	0.73	0
1977							
1978	1938	31	11.48	10.00	21.48	0.53	-31
1979							
1980	1930	23	12.88	8.60	21.48	0.60	-23
1981	1885	-22	17.35	4.13	21.48	0.81	22
1982	1951	44	9.00	12.48	21.48	0.42	-44
1983	1750	-157	29.77	-8.29	21.48	1.00	157
1984	1828	-79	19.68	1.80	21.48	0.92	79
1985	1875	-32	17.88	3.60	21.48	0.83	32
1986	1935	28	11.98	9.50	21.48	0.56	-28
1987	1905	-2	15.88	5.60	21.48	0.74	2
1988	1875	-32	17.88	3.60	21.48	0.83	32
1989	1898	-9	16.55	4.93	21.48	0.77	9
1990							
1991							
1992	1817	-90	19.88	1.60	21.48	0.93	90
1993	1765	-142	21.13	0.35	21.48	0.98	142
1994	1880	-27	17.68	3.80	21.48	0.82	27
1995	1755	-152	26.98	0.49	21.48	1.00	152
1996	1958	51	7.63	13.85	21.48	0.36	-51
1997	1805	-102	20.19	1.29	21.48	0.94	102
1998	1940	33	11.15	10.33	21.48	0.52	-33
1999	2008	101	1.96	19.52	21.48	0.09	-101
2000	1992	85	2.86	18.62	21.48	0.13	-85
2001	1798	-109	20.40	1.08	21.48	0.95	109
2002	1985	78	3.68	17.80	21.48	0.17	-78
2003	1760	-147	21.48	0.00	21.48	1.00	147
MEAN	1880	-27	15.45	6.29		0.69	27

Jack



Jack Correlation



No. 711B/39

Mt. St. MARY
Rock glacier, reliability C

NZMS 260 sheet G38

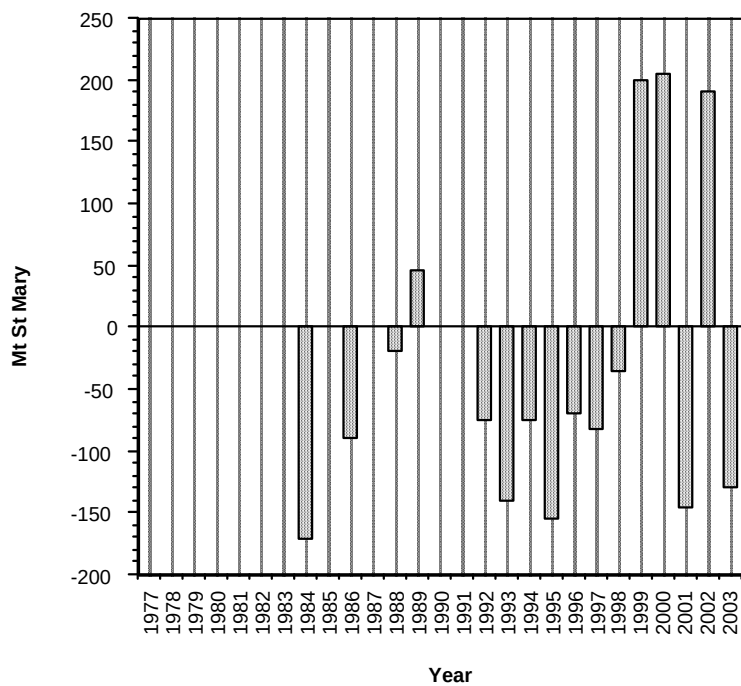
GLACIER DATA		
Aspect	SE	
AREA	28.32	ha
Max Elev	2200	m
Min Elev	1760	m
Mean Elev	1980	m
Length	0.7	km
Elev Range	440	m
Gradient	0.629	

SNOWLINE DATA		
ELA	1926	m
Max SL	2130	m, 2000
Min SL	1755	m, 1984
Mean SL	1891	m
SL Range	375	m
No. Surveys	16	

MEASUREMENTS Digitised values shaded

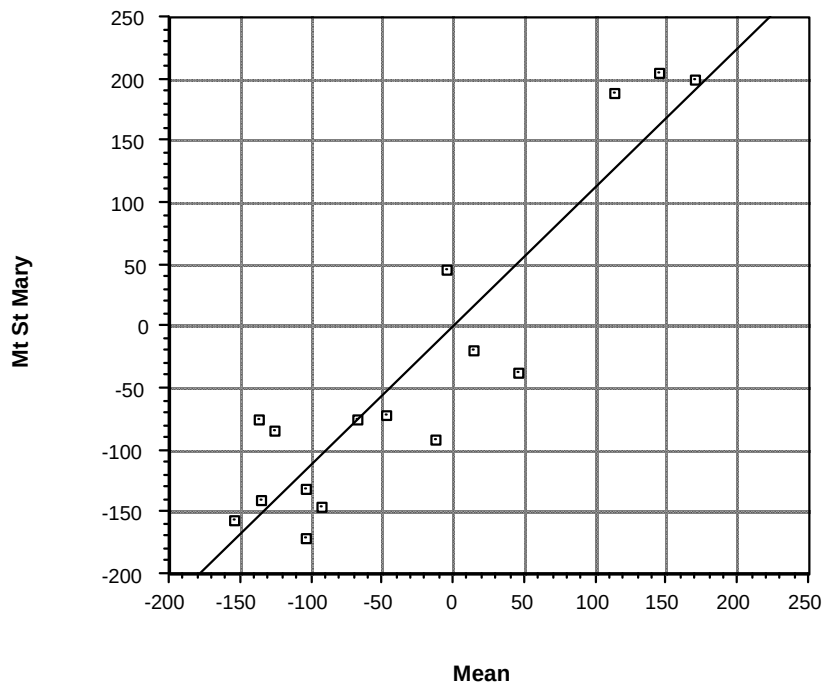
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1926	0	6.52	21.80	28.32	0.23	0
1977							
1978							
1979							
1980							
1981							
1982							
1983							
1984	1755	-171	20.32	8.00	28.32	0.72	171
1985							
1986	1835	-91	12.33	15.99	28.32	0.44	91
1987							
1988	1907	-19	7.92	20.40	28.32	0.28	19
1989	1972	46	4.41	23.91	28.32	0.16	-46
1990							
1991							
1992	1850	-76	11.32	17.00	28.32	0.40	76
1993	1785	-141	16.69	11.63	28.32	0.59	141
1994	1850	-76	11.32	17.00	28.32	0.40	76
1995	1770	-156	18.39	9.93	28.32	0.65	156
1996	1855	-71	11.08	17.24	28.32	0.39	71
1997	1842	-84	11.75	16.57	28.32	0.41	84
1998	1889	-37	8.93	19.39	28.32	0.32	37
1999	2125	199	0.42	27.90	28.32	0.01	-199
2000	2130	204	0.37	27.95	28.32	0.01	-204
2001	1780	-146	17.22	11.10	28.32	0.61	146
2002	2115	189	0.52	27.80	28.32	0.02	-189
2003	1795	-131	15.72	12.60	28.32	0.56	131
MEAN	1891	-35	10.54	17.78		0.37	35

St Mary



Mt St Mary Correlation

$$y = 6.6580e-2 + 1.1239x \quad R^2 = 0.843$$



No. 711B/12

THURNEYSTON GL.
Mountain gl, reliability C

NZMS 260 sheet G38

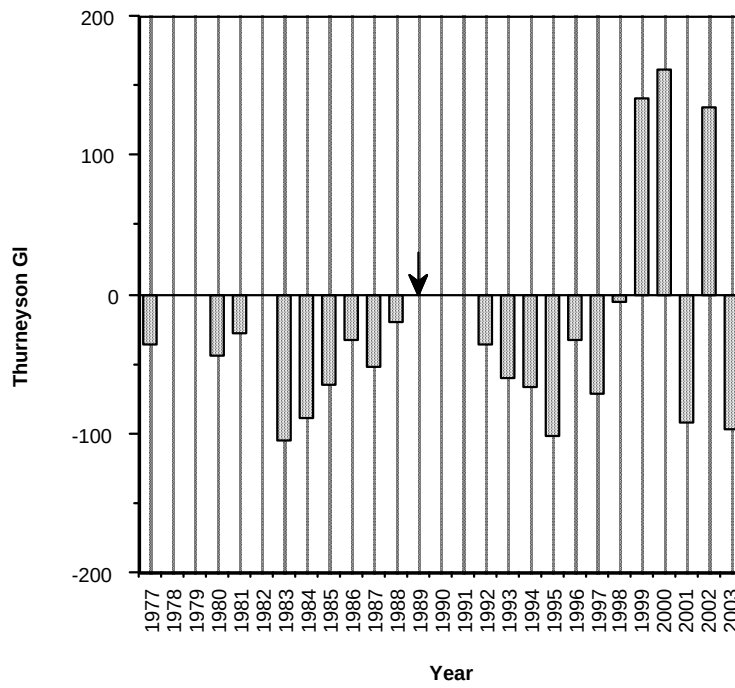
GLACIER DATA		
Aspect	S	
AREA	117.8	ha
Max Elev	2450	m
Min Elev	1720	m
Mean Elev	2085	m
Length	1.23	km
Elev Range	730	m
Gradient	0.59	

SNOWLINE DATA		
ELA	1970	m
Max SL	2132	m, 2000
Min SL	1865	m, 1983
Mean SL	1943	m
SL Range	267	m
No. Surveys	22	

MEASUREMENTS Digitised values shaded

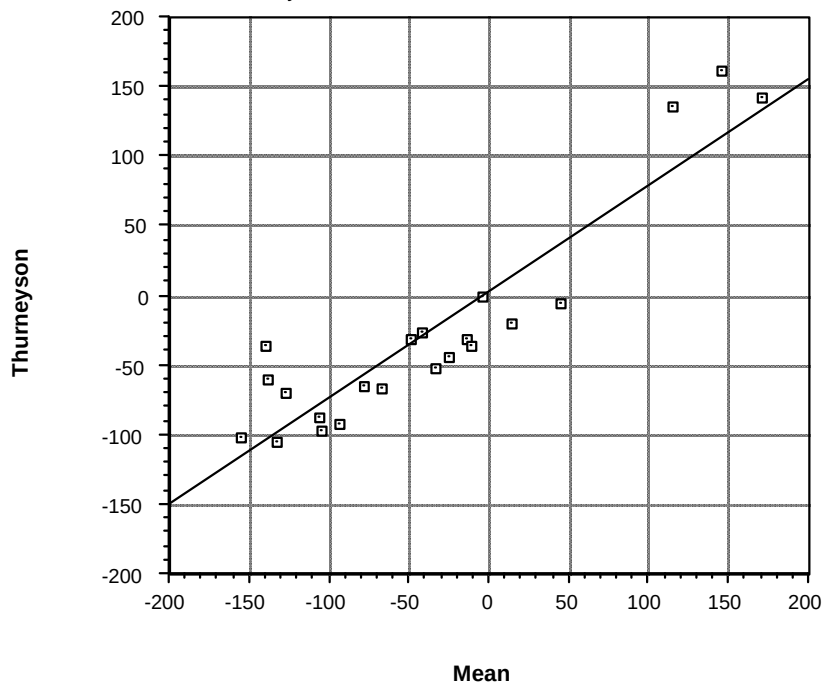
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1970	0	84.60	33.20	117.80	0.72	0
1977	1934	-36	95.30	22.50	117.80	0.81	36
1978							
1979							
1980	1926	-44	98.00	19.80	117.80	0.83	44
1981	1943	-27	92.80	25.00	117.80	0.79	27
1982							
1983	1865	-105	109.80	8.00	117.80	0.93	105
1984	1882	-88	107.00	10.80	117.80	0.91	88
1985	1905	-65	103.40	14.40	117.80	0.88	65
1986	1938	-32	94.08	23.72	117.80	0.80	32
1987	1918	-52	100.30	17.50	117.80	0.85	52
1988	1950	-20	90.80	27.00	117.80	0.77	20
1989	1970	0	84.60	33.20	117.80	0.72	0
1990							
1991							
1992	1934	-36	95.30	22.50	117.80	0.81	36
1993	1910	-60	101.90	15.90	117.80	0.87	60
1994	1904	-66	103.40	14.40	117.80	0.88	66
1995	1868	-102	109.40	8.40	117.80	0.93	102
1996	1938	-32	94.08	23.72	117.80	0.80	32
1997	1900	-70	103.85	13.95	117.80	0.88	70
1998	1965	-5	85.28	32.52	117.80	0.72	5
1999	2112	142	38.69	79.11	117.80	0.33	-142
2000	2132	162	31.67	86.13	117.80	0.27	-162
2001	1878	-92	107.84	9.96	117.80	0.92	92
2002	2105	135	40.80	77.00	117.80	0.35	-135
2003	1873	-97	108.60	9.20	117.80	0.92	97
MEAN	1943	-27	90.77	27.03		0.77	27

Thurneyson



Thurneyson Correlation

$$y = 2.1454 + 0.76365x \quad R^2 = 0.846$$



No. 868C-20

BREWSTER GL.
Mountain gl, reliability A

NZMS 260 sheet G38

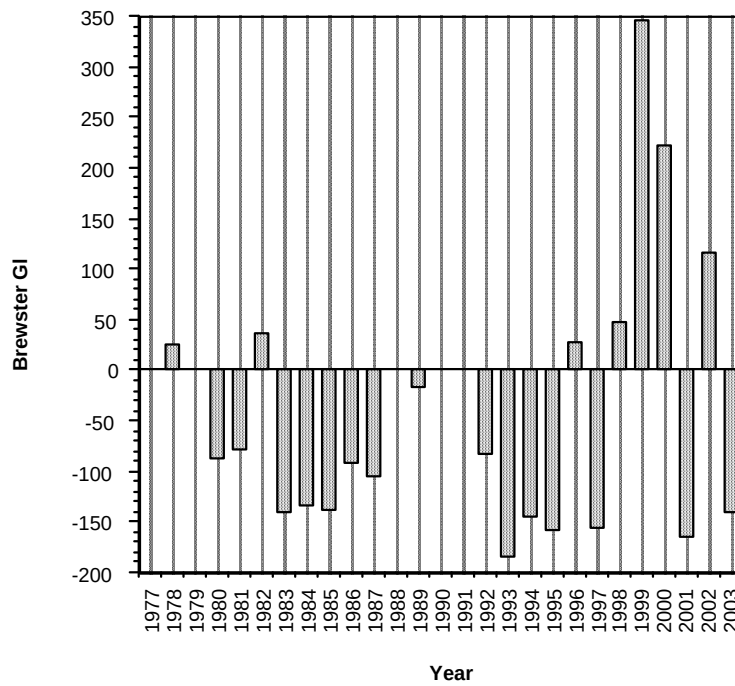
GLACIER DATA		
Aspect	S	
AREA	249.5	ha
Max Elev	2390	m
Min Elev	1655	m
Mean Elev	2023	m
Length	2.69	km
Elev Range	735	m
Gradient	0.27	

SNOWLINE DATA		
ELA	1935	m
Max SL	2280	m, 1999
Min SL	1750	m, 1993
Mean SL	1889	m
SL Range	530	m
No. Surveys	22	

MEASUREMENTS Digitised values shaded

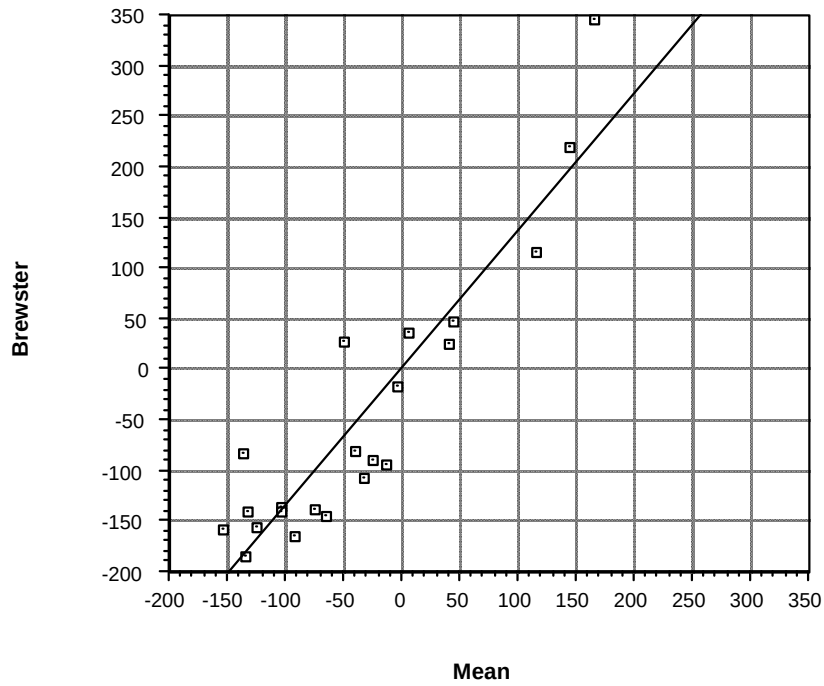
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1935	0	121.50	128.00	249.50	0.49	0
1977							
1978	1960	25	98.72	150.78	249.50	0.40	-25
1979							
1980	1846	-89	193.50	56.00	249.50	0.78	89
1981	1855	-80	188.50	61.00	249.50		80
1982	1971	36	80.18	169.32	249.50		-36
1983	1794	-141	221.30	28.20	249.50		141
1984	1800	-135	218.40	31.10	249.50	0.88	135
1985	1796	-139	220.50	29.00	249.50	0.88	139
1986	1842	-93	195.50	54.00	249.50	0.78	93
1987	1828	-107	205.60	43.90	249.50	0.82	107
1988							
1989	1918	-17	140.40	109.10	249.50	0.56	17
1990							
1991							
1992	1851	-84	190.50	59.00	249.50	0.76	84
1993	1750	-185	234.70	14.80	249.50	0.94	185
1994	1790	-145	222.50	27.00	249.50	0.89	145
1995	1777	-158	227.60	21.90	249.50	0.91	158
1996	1962	27	89.93	159.57	249.50	0.36	-27
1997	1779	-156	226.30	23.20	249.50	0.91	156
1998	1982	47	66.96	182.54	249.50	0.27	-47
1999	2280	345	8.18	241.32	249.50	0.03	-345
2000	2155	220	29.15	220.35	249.50	0.12	-220
2001	1770	-165	228.66	20.84	249.50	0.92	165
2002	2050	115	203.00	46.50	249.50	0.81	-115
2003	1794	-141	221.30	28.20	249.50	0.89	141
MEAN	1889	-46	168.70	80.80		0.68	46

Brewster



Brewster Correlation

$$y = 1.3461 + 1.3554x \quad R^2 = 0.842$$



No. 752 I-104

Mt. STUART
Mountain glacier, reliability A

NZMS 260 sheet G38

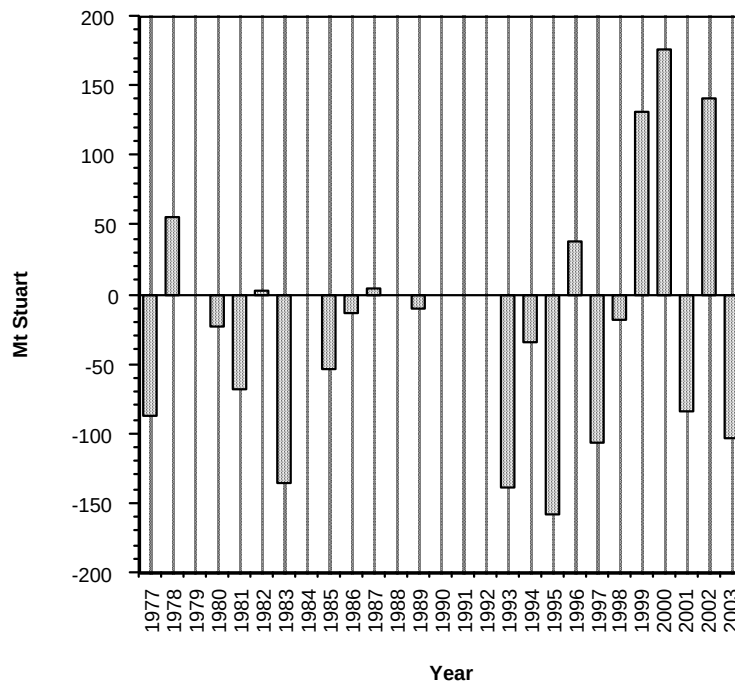
GLACIER DATA		
Aspect	SE	
AREA	31.55	ha
Max Elev	1860	m
Min Elev	1570	m
Mean Elev	1715	m
Length	0.54	km
Elev Range	290	m
Gradient	0.54	

SNOWLINE DATA		
ELA	1673	m
Max SL	1850	m, 2000
Min SL	1515	m, 1995
Mean SL	1651	m
SL Range	335	m
No. Surveys	21	

MEASUREMENTS Digitised values shaded

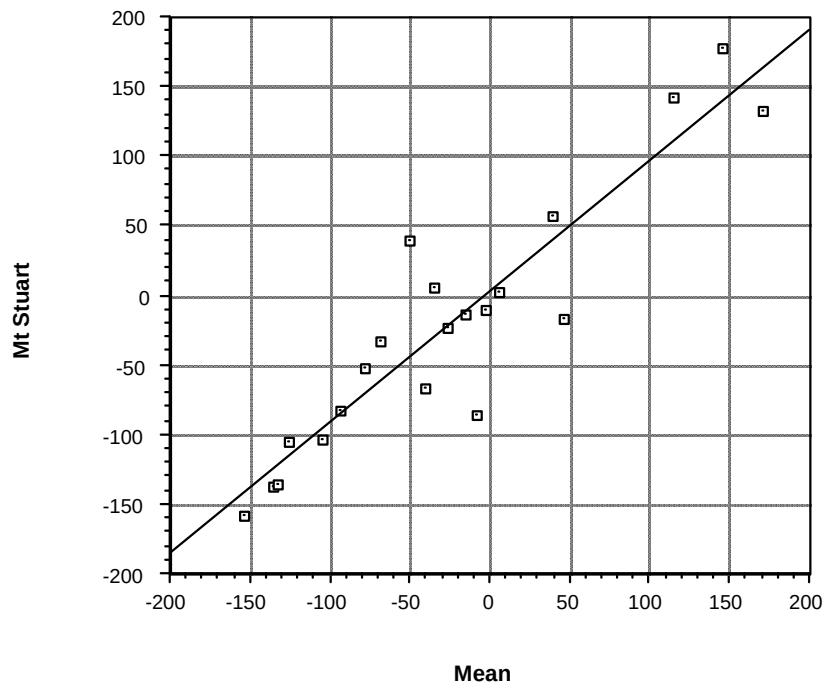
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1673	0	21.05	5.00	26.05	0.81	0
1977	1587	-86	30.86	0.69	26.05	1.00	86
1978	1730	57	18.53	13.02	26.05	0.71	-57
1979							
1980	1650	-23	27.25	4.30	26.05	1.00	23
1981	1606	-67	29.85	1.70	26.05	1.00	67
1982	1676	3	25.33	6.22	26.05	0.97	-3
1983	1538	-135	63.56	0.00	26.05	1.00	135
1984							
1985	1620	-53	29.10	2.45	26.05	1.00	53
1986	1660	-13	26.55	5.00	26.05	1.00	13
1987	1678	5	25.07	6.48	26.05	0.96	-5
1988							
1989	1663	-10	26.32	5.23	26.05	1.00	10
1990							
1991							
1992							
1993	1535	-138	65.05	0.00	26.05	1.00	138
1994	1640	-33	27.95	3.60	26.05	1.00	33
1995	1515	-158	73.05	0.00	26.05	1.00	158
1996	1712	39	21.20	10.35	26.05	0.81	-39
1997	1567	-106	42.89	0.00	26.05	1.00	106
1998	1656	-17	26.87	4.68	26.05	1.00	17
1999	1805	132	5.46	26.09	26.05	0.21	-132
2000	1850	177	0.00	26.05	26.05	0.00	-177
2001	1590	-83	25.09	0.96	26.05	0.96	83
2002	1815	142	4.37	21.68	26.05	0.17	-142
2003	1570	-103	31.55	0.00	26.05	1.00	103
MEAN	1651	-22	29.80	6.60		0.85	22

Stuart



Mt Stuart Correlation

$$y = 2.3034 + 0.93826x \quad R^2 = 0.851$$



No. 867/2

LINDSAY GL.
Mountain shelf gl, reliability A

NZMS 260 sheet F37

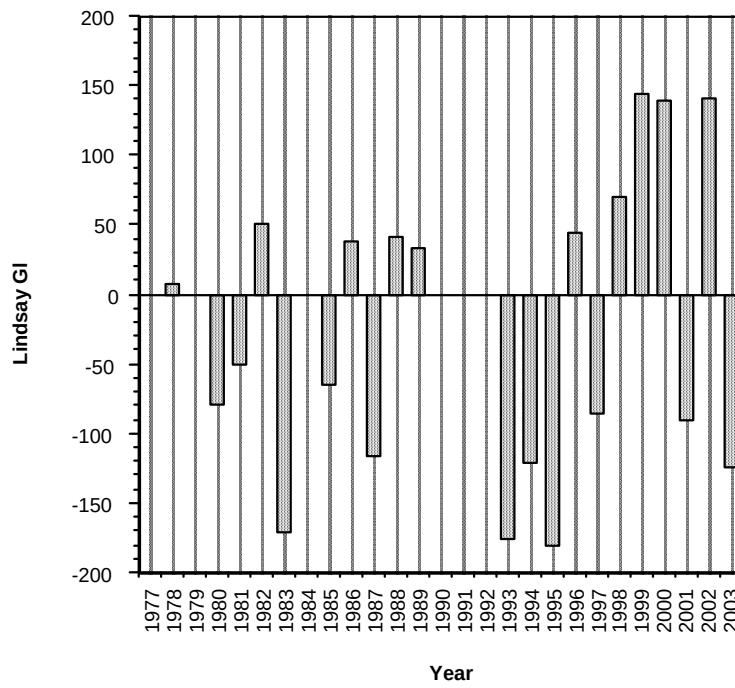
GLACIER DATA		
Aspect	S	
AREA	52.53	ha
Max Elev	1880	m
Min Elev	1610	m
Mean Elev	1745	m
Length	0.57	km
Elev Range	270	m
Gradient	0.47	

SNOWLINE DATA		
ELA	1730	m
Max SL	1875	m, 1999
Min SL	1550	m, 1995
Mean SL	1705	m
SL Range	325	m
No. Surveys	21	

MEASUREMENTS Digitised values shaded

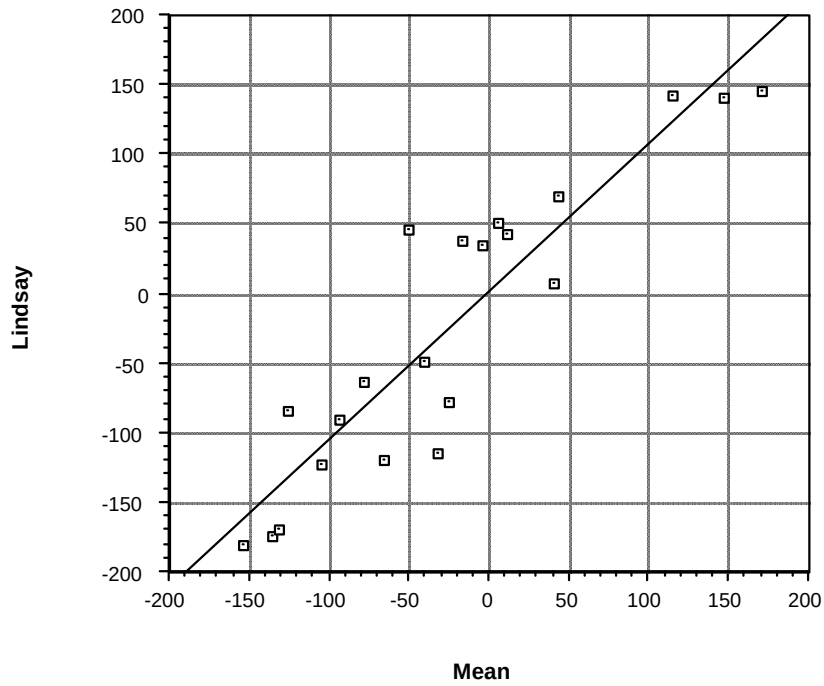
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1730	0	39.23	13.30	52.53	0.75	0
1977							
1978	1738	8	37.09	15.44	52.53	0.71	-8
1979							
1980	1652	-78	50.51	2.02	52.53	0.96	78
1981	1681	-49	48.60	3.93	52.53	0.93	49
1982	1781	51	22.41	30.12	52.53	0.43	-51
1983	1560	-170	65.66	0.00	52.53	1.00	170
1984							
1985	1666	-64	49.63	2.90	52.53	0.94	64
1986	1768	38	27.53	25.00	52.53	0.52	-38
1987	1615	-115	52.33	0.20	52.53	1.00	115
1988	1772	42	24.63	27.90	52.53	0.47	-42
1989	1764	34	28.49	24.04	52.53	0.54	-34
1990							
1991							
1992							
1993	1555	-175	69.94	0.00	52.53	1.00	175
1994	1610	-120	52.53	0.00	52.53	1.00	120
1995	1550	-180	73.50	0.00	52.53	1.00	180
1996	1775	45	24.47	28.06	52.53	0.47	-45
1997	1645	-85	69.00	1.65	52.53	1.00	85
1998	1800	70	14.45	38.08	52.53	0.28	-70
1999	1875	145	0.94	51.59	52.53	0.02	-145
2000	1870	140	1.47	51.06	52.53	0.03	-140
2001	1640	-90	51.09	1.44	52.53	0.97	90
2002	1872	142	1.05	51.48	52.53	0.02	-142
2003	1607	-123	52.53	0.00	52.53	1.00	123
MEAN	1705	-25	38.95	16.90		0.68	25

Lindsay



Lindsay Correlation

$$y = 1.1652 + 1.0592x \quad R^2 = 0.831$$



No. 752 E/51

FOG PK.
Cirque gl, reliability A

NZMS 260 sheet F39

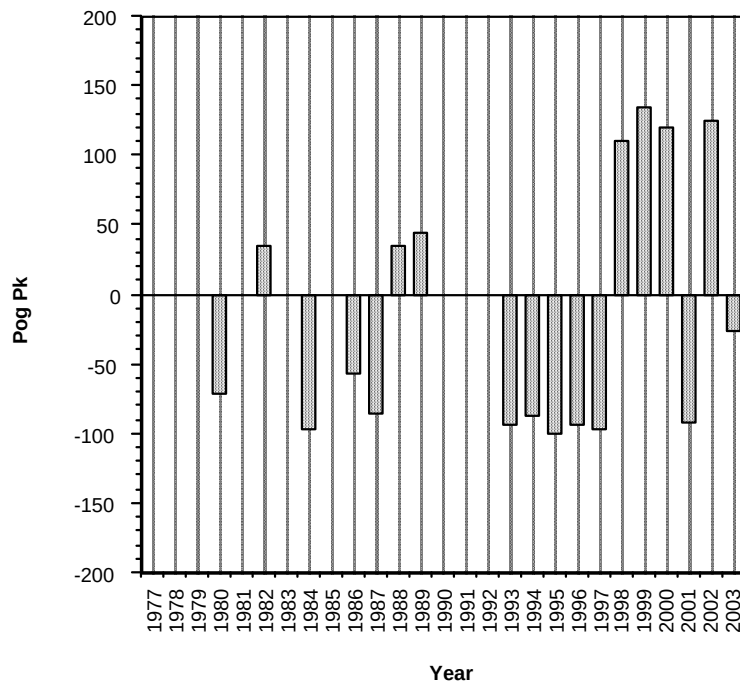
GLACIER DATA		
Aspect	SE	
AREA	18.22	ha
Max Elev	2150	m
Min Elev	1840	m
Mean Elev	1995	m
Length	0.4	km
Elev Range	310	m
Gradient	0.775	

SNOWLINE DATA		
ELA	1987	m
Max SL	2122	m, 1999
Min SL	1888	m, 1995
Mean SL	1971	m
SL Range	234	m
No. Surveys	18	

MEASUREMENTS Digitised values shaded

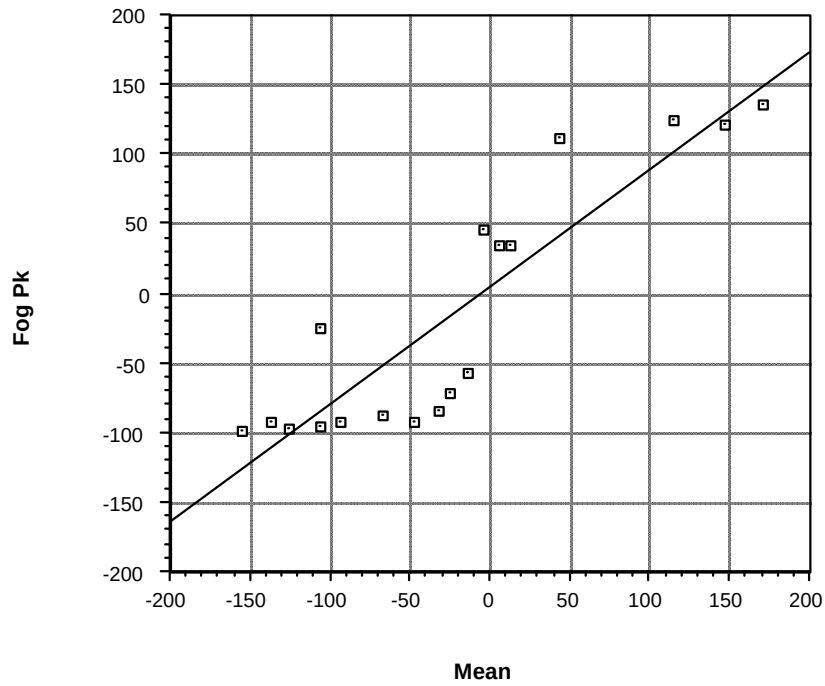
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1987	0	12.02	6.20	18.22	0.66	0
1977							
1978							
1979							
1980	1916	-71	34.40	0.00	18.22	1.00	71
1981							
1982	2022	35	14.75	3.47	18.22	0.81	-35
1983							
1984	1891	-96	42.80	0.00	18.22	1.00	96
1985							
1986	1930	-57	30.40	0.00	18.22	1.00	57
1987	1902	-85	39.00	0.00	18.22	1.00	85
1988	2022	35	14.75	3.47	18.22	0.81	-35
1989	2032	45	6.62	11.60	18.22	0.36	-45
1990							
1991							
1992							
1993	1894	-93	37.80	0.00	18.22	1.00	93
1994	1900	-87	17.58	0.64	18.22	0.96	87
1995	1888	-99	44.36	0.00	18.22	1.00	99
1996	1894	-93	41.70	0.00	18.22	1.00	93
1997	1890	-97	43.25	0.00	18.22	1.00	97
1998	2098	111	1.77	16.45	18.22	0.10	-111
1999	2122	135	0.74	17.48	18.22	0.04	-135
2000	2108	121	1.28	16.94	18.22	0.07	-121
2001	1895	-92	17.42	0.80	18.22	0.96	92
2002	2112	125	1.13	17.09	18.22	0.06	-125
2003	1962	-25	15.40	2.82	18.22	0.85	25
MEAN	1971	-16	22.51	5.04		0.72	16

Fog



Fog Pk Correlation

$$y = 3.8911 + 0.84523x \quad R^2 = 0.799$$



No. 752C/103

SNOWY CK
Cirque gl, reliability B

NZMS 260 sheet E40

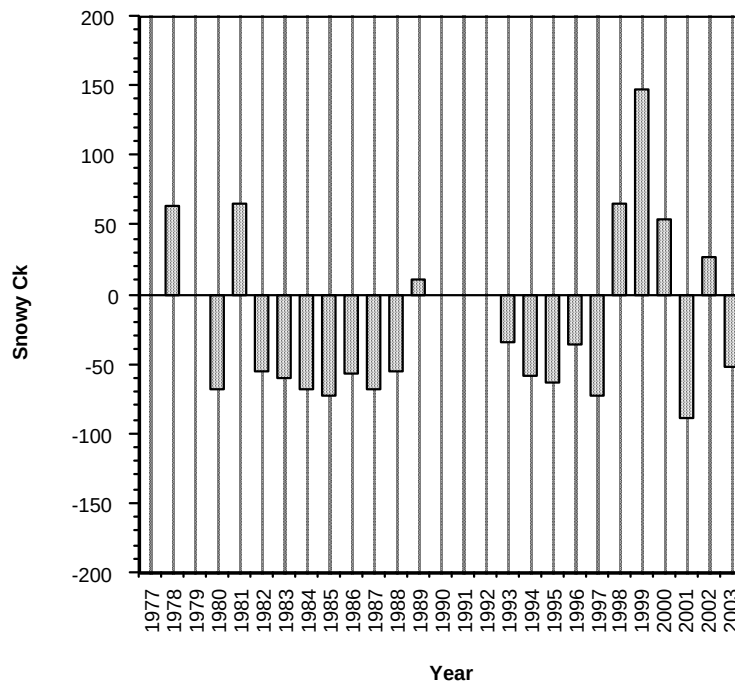
GLACIER DATA		
Aspect	W	
AREA	53.13	ha
Max Elev	2210	m
Min Elev	2000	m
Mean Elev	2105	m
Length	0.73	km
Elev Range	210	m
Gradient	0.29	

SNOWLINE DATA		
ELA	2092	m
Max SL	2240	m, 1999
Min SL	2004	m, 1997
Mean SL	2071	m
SL Range	236	m
No. Surveys	22	

MEASUREMENTS Digitised values shaded

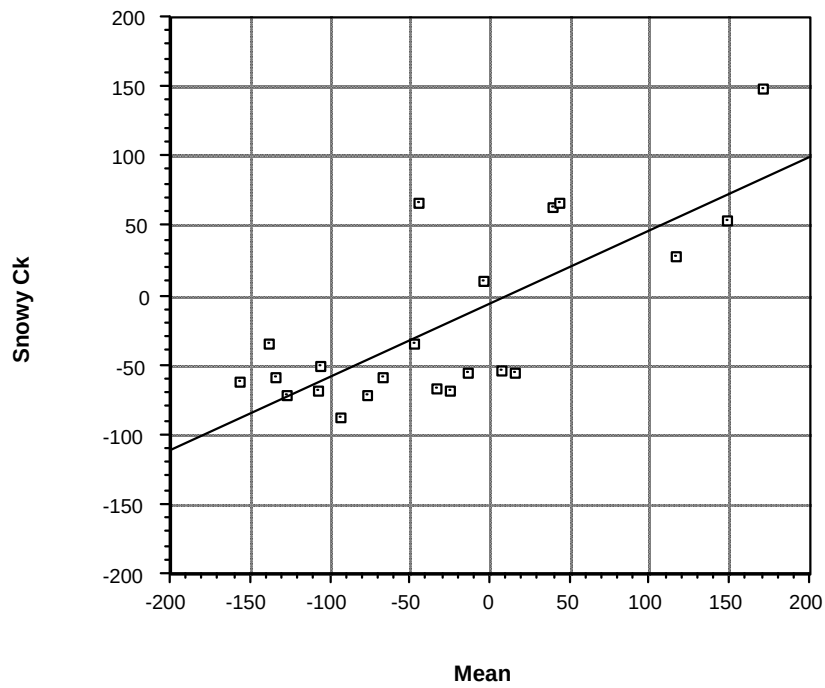
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	2092	0	31.88	21.25	53.13	0.60	0
1977							
1978	2156	64	6.86	46.27	53.13	0.13	-64
1979							
1980	2024	-68	48.36	4.77	53.13	0.91	68
1981	2158	66	6.42	46.71	53.13	0.12	-66
1982	2038	-54	45.43	7.70	53.13	0.86	54
1983	2033	-59	53.13	0.00	53.13	1.00	59
1984	2024	-68	48.33	4.80	53.13	0.91	68
1985	2020	-72	49.13	4.00	53.13	0.92	72
1986	2036	-56	45.93	7.20	53.13	0.86	56
1987	2025	-67	48.19	4.94	53.13	0.91	67
1988	2037	-55	45.93	7.20	53.13	0.86	55
1989	2103	11	28.18	24.95	53.13	0.53	-11
1990							
1991							
1992							
1993	2058	-34	40.69	12.44	53.13	0.77	34
1994	2034	-58	46.13	7.00	53.13	0.87	58
1995	2030	-62	47.13	6.00	53.13	0.89	62
1996	2057	-35	41.04	12.09	53.13	0.77	35
1997	2020	-72	64.34	-11.21	53.13	1.00	72
1998	2158	66	6.42	46.71	53.13	0.12	-66
1999	2240	148	53.13	0.00	53.13	1.00	-148
2000	2146	54	10.50	42.63	53.13	0.20	-54
2001	2004	-88	52.73	0.40	53.13	0.99	88
2002	2120	28	21.83	31.30	53.13	0.41	-28
2003	2041	-51	44.73	8.40	53.13	0.84	51
MEAN	2071	-21	38.84	14.29		0.72	21

Snowy



Snowy Ck Correlation

$$y = -5.7634 + 0.52588x \quad R^2 = 0.570$$



No. 863B/1

Mt. CARIA
Small cirque, reliability A

NZMS 260 sheet E39

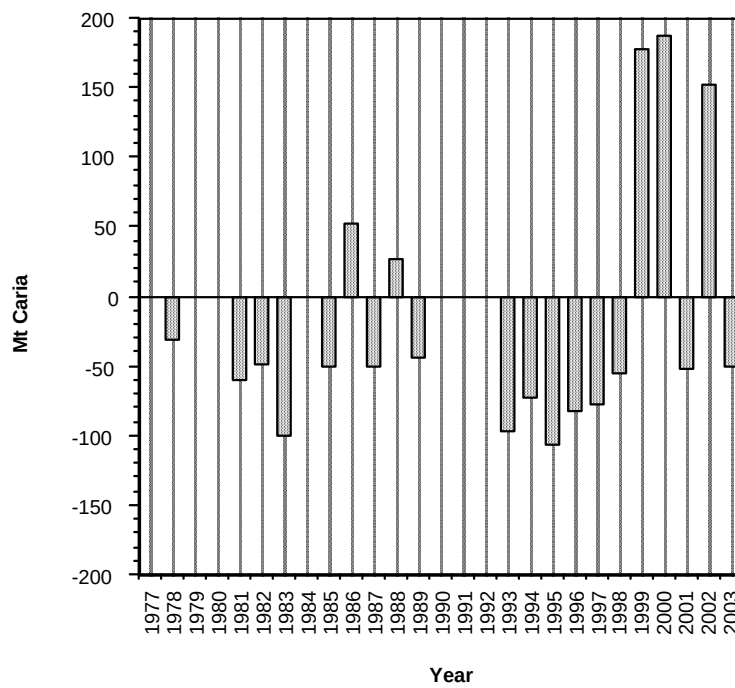
GLACIER DATA		
Aspect	SE	
AREA	17.13	ha
Max Elev	1600	m
Min Elev	1400	m
Mean Elev	1500	m
Length	0.3	km
Elev Range	200	m
Gradient	0.67	

SNOWLINE DATA		
ELA	1472	m
Max SL	1660	m, 2000
Min SL	1366	m, 1995
Mean SL	1454	m
SL Range	294	m
No. Surveys	20	

MEASUREMENTS Digitised values shaded

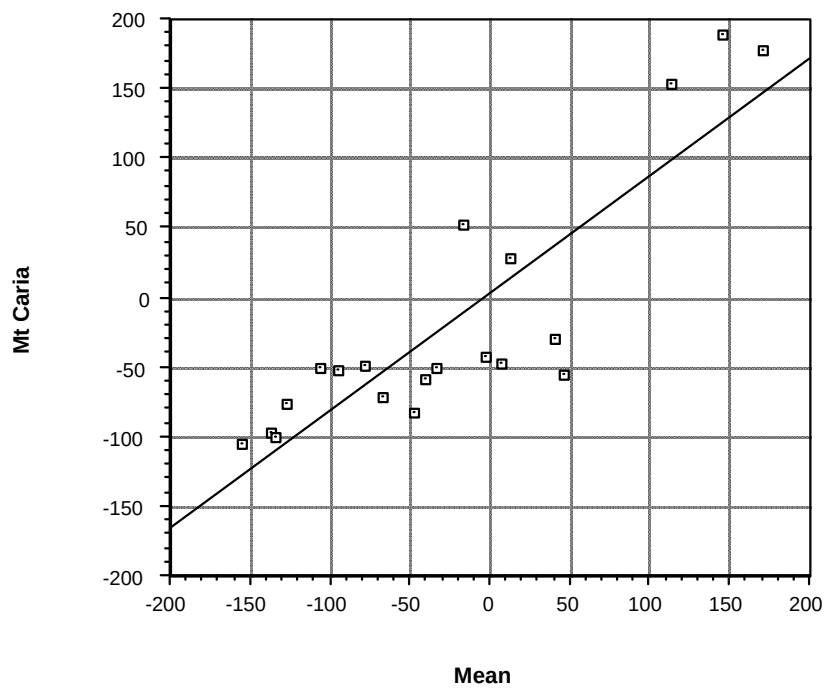
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1472	0	2.83	14.30	17.13	0.17	0
1977							
1978	1442	-30	7.05	10.08	17.13	0.41	30
1979							
1980							
1981	1413	-59	13.66	3.47	17.13	0.80	59
1982	1424	-48	10.74	6.39	17.13	0.63	48
1983	1372	-100	42.80	0.00	17.13	1.00	100
1984							
1985	1423	-49	10.84	6.29	17.13	0.63	49
1986	1525	53	9.80	7.33	17.13	0.57	-53
1987	1422	-50	11.06	6.07	17.13	0.65	50
1988	1500	28	6.43	10.70	17.13	0.38	-28
1989	1429	-43	9.80	7.33	17.13	0.57	43
1990							
1991							
1992							
1993	1375	-97	35.98	0.00	17.13	1.00	97
1994	1400	-72	17.13	0.00	17.13	1.00	72
1995	1366	-106	54.48	0.00	17.13	1.00	106
1996	1390	-82	22.00	0.00	17.13	1.00	82
1997	1395	-77	19.50	0.00	17.13	1.00	77
1998	1417	-55	12.46	4.67	17.13	0.73	55
1999	1650	178	0.00	17.13	17.13	0.00	-178
2000	1660	188	0.00	8.74	8.74	0.00	-188
2001	1420	-52	9.15	3.50	12.65	0.72	52
2002	1625	153	0.00	8.74	17.13	0.00	-153
2003	1422	-50	16.53	0.60	17.13	0.96	50
MEAN	1454	-19	15.47	5.05		0.65	19

Caria



Mt Caria Correlation

$$y = 2.7410 + 0.84161x \quad R^2 = 0.753$$



No. 859/9

FINDLAY GL.
Cirque gl, reliability A

NZMS 260 sheet E39

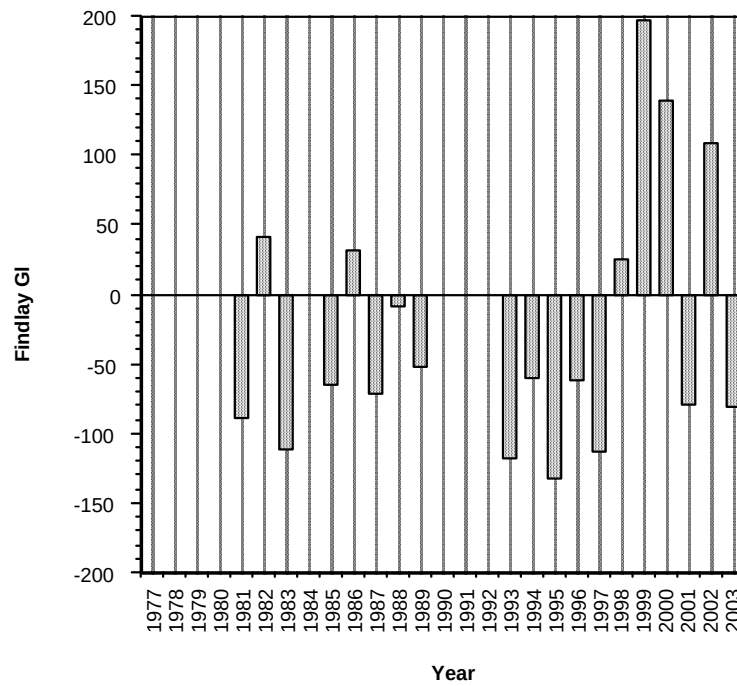
GLACIER DATA		
Aspect	SW	
AREA	67.15	ha
Max Elev	1900	m
Min Elev	1550	m
Mean Elev	1725	m
Length	0.875	km
Elev Range	350	m
Gradient	0.4	

SNOWLINE DATA		
ELA	1693	m
Max SL	1890	m, 1999
Min SL	1561	m, 1995
Mean SL	1667	m
SL Range	329	m
No. Surveys	19	

MEASUREMENTS Digitised values shaded

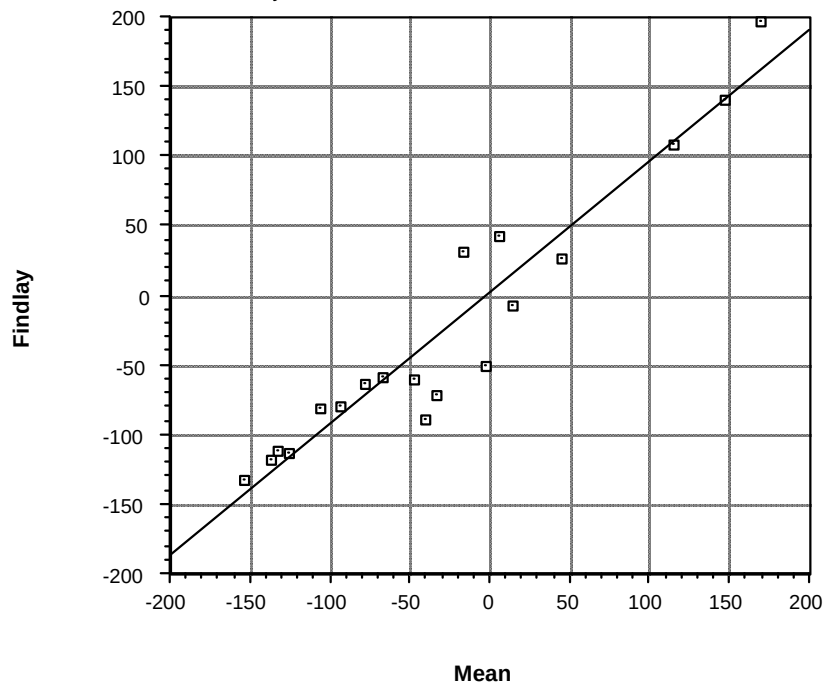
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1693	0	35.95	31.2	67.15	0.54	0
1977							
1978							
1979							
1980							
1981	1604	-89	57.53	9.62	67.15	0.86	89
1982	1735	42	25.85	41.30	67.15	0.38	-42
1983	1582	-111	61.52	5.63	67.15	0.92	111
1984							
1985	1629	-64	48.89	18.26	67.15	0.73	64
1986	1725	32	27.95	39.20	67.15	0.42	-32
1987	1622	-71	51.05	16.10	67.15	0.76	71
1988	1685	-8	35.15	32.00	67.15	0.52	8
1989	1642	-51	44.15	23.00	67.15	0.66	51
1990							
1991							
1992							
1993	1575	-118	62.90	4.25	67.15	0.94	118
1994	1634	-59	46.87	20.28	67.15	0.70	59
1995	1561	-132	65.17	1.98	67.15	0.97	132
1996	1632	-61	47.54	19.61	67.15	0.71	61
1997	1580	-113	62.00	5.15	67.15	0.92	113
1998	1719	26	29.05	38.10	67.15	0.43	-26
1999	1890	197	2.11	65.04	67.15	0.03	-197
2000	1833	140	7.82	59.33	67.15	0.12	-140
2001	1614	-79	54.01	13.14	67.15	0.80	79
2002	1802	109	10.79	46.63	67.15	0.16	-109
2003	1612	-81	55.35	11.80	67.15	0.82	81
Mean	1667	-26	41.88	24.76		0.62	26

Findlay



Findlay Correlation

$$y = 0.99296 + 0.94090x \quad R^2 = 0.914$$



No. 752 B/48

PARK PASS GL.
Valley gl, reliability B

NZMS 260 sheet E 40

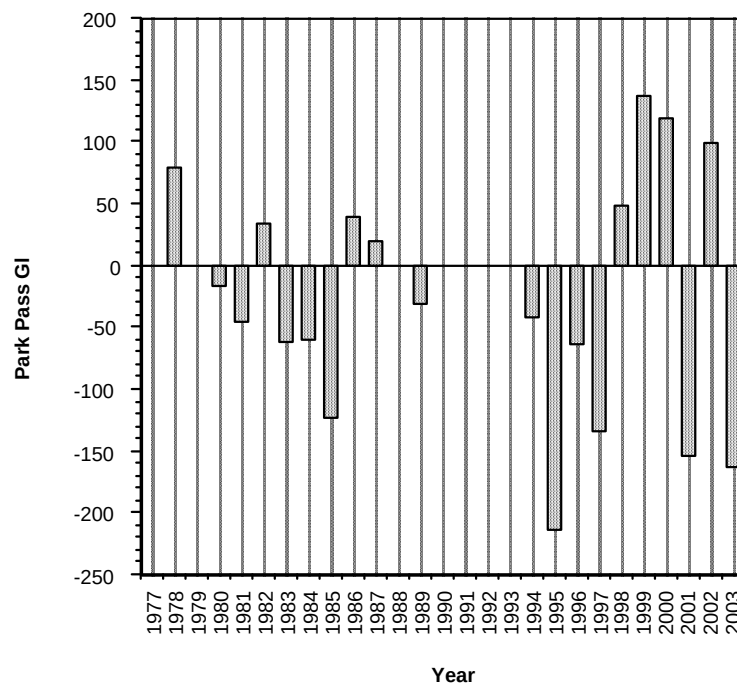
GLACIER DATA		
Aspect	S	
AREA	213.6	ha
Max Elev	2200	m
Min Elev	1500	m
Mean Elev	1850	m
Length	2.63	km
Elev Range	700	m
Gradient	0.267	

SNOWLINE DATA		
ELA	1824	m
Max SL	1962	m, 1999
Min SL	1610	m, 1995
Mean SL	1798	m
SL Range	352	m
No. Surveys	20	

MEASUREMENTS Digitised values shaded

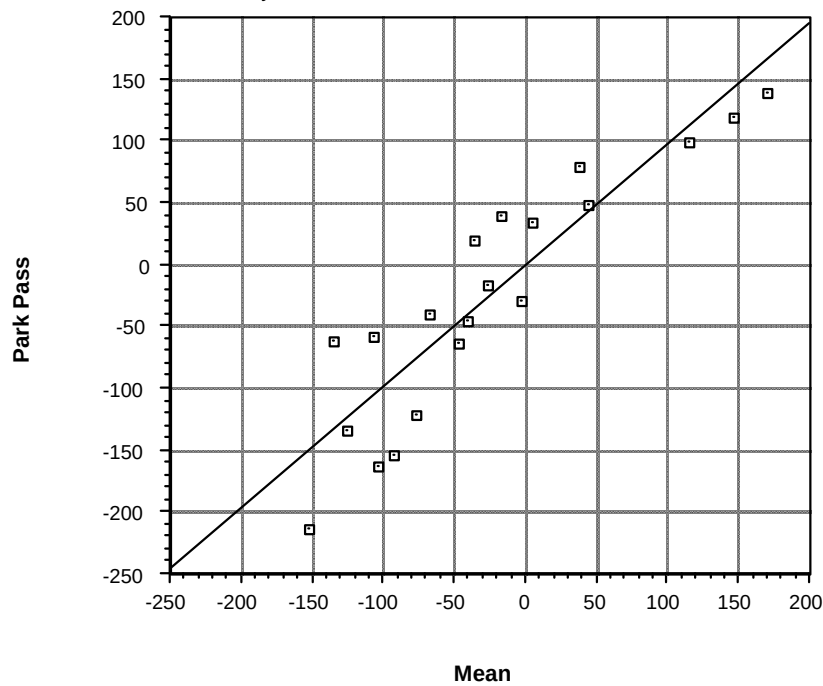
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1824	0	127.90	85.70	213.60	0.60	0
1977							
1978	1903	79	91.29	122.31	213.60	0.43	-79
1979							
1980	1808	-16	131.60	82.00	213.60	0.62	16
1981	1778	-46	139.20	74.40	213.60	0.65	46
1982	1858	34	112.40	101.20	213.60	0.53	-34
1983	1762	-62	142.67	70.93	213.60	0.67	62
1984	1765	-59	141.60	72.00	213.60	0.66	59
1985	1702	-122	156.60	57.00	213.60	0.73	122
1986	1863	39	110.10	103.50	213.60	0.52	-39
1987	1843	19	117.60	96.00	213.60	0.55	-19
1988							
1989	1794	-30	134.60	79.00	213.60	0.63	30
1990							
1991							
1992							
1993							
1994	1783	-41	138.10	75.50	213.60	0.65	41
1995	1610	-214	187.60	26.00	213.60	0.88	214
1996	1760	-64	143.17	70.43	213.60	0.67	64
1997	1690	-134	160.20	53.40	213.60	0.75	134
1998	1872	48	105.80	107.80	213.60	0.50	-48
1999	1962	138	62.07	151.53	213.60	0.29	-138
2000	1943	119	71.34	142.26	213.60	0.33	-119
2001	1670	-154	168.24	45.36	213.60	0.79	154
2002	1923	99	82.82	130.78	213.60	0.39	-99
2003	1661	-163	169.10	44.50	213.60	0.79	163
Mean	1798	-27	128.31	85.30		0.60	27

Park Pass



Park Pass Correlation

$$y = -1.4376 + 0.97906x \quad R^2 = 0.821$$



No. 752 E/2

MT. LARKINS
Glacierette, reliability B

NZMS sheet E 41

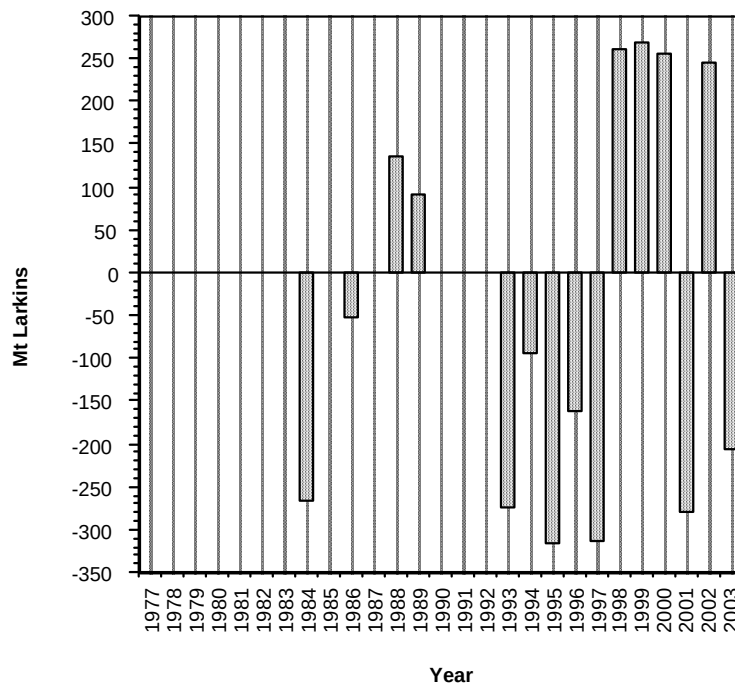
GLACIER DATA		
Aspect	SE	
AREA	27.47	ha
Max Elev	2220	m
Min Elev	1680	m
Mean Elev	1950	m
Length	0.5	km
Elev Range	540	m
Gradient	1.08	

SNOWLINE DATA		
ELA	1945	m
Max. SL	2215	m, 1998
Min. SL	1630	m, 1995
Mean SL	1898	m
SL Range	585	m
No. surveys	16	

MEASUREMENTS Digitised values shaded

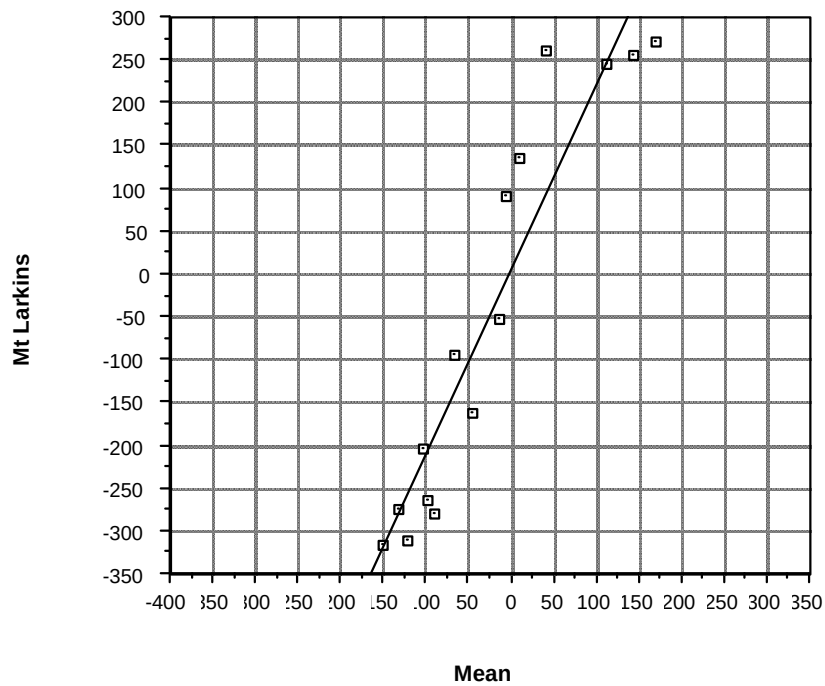
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1945	0	17.67	9.80	27.47	0.64	0
1977							
1978							
1979							
1980							
1981							
1982							
1983							
1984	1680	-265	33.82	0.00	27.47	1.00	265
1985							
1986	1892	-53	33.82	0.00	27.47	1.00	53
1987							
1988	2080	135	9.47	18.00	27.47	0.34	-135
1989	2036	91	10.84	16.63	27.47	0.39	-91
1990							
1991							
1992							
1993	1670	-275	39.50	0.00	27.47	1.00	275
1994	1850	-95	23.40	4.07	27.47	0.85	95
1995	1630	-315	43.61	0.00	27.47	1.00	315
1996	1782	-163	27.47	0.00	27.47	1.00	163
1997	1633	-312	36.80	0.00	27.47	1.34	312
1998	2206	261	0.92	26.55	27.47	0.03	-261
1999	2215	270	0.95	26.52	27.47	0.03	-270
2000	2200	255	1.46	14.75	27.47	0.05	-255
2001	1665	-280	27.47	0.00	27.47	1.00	280
2002	2190	245	2.17	25.30	27.47	0.08	-245
2003	1740	-205	26.77	0.70	27.47	0.97	205
MEAN	1898	-47	21.23	8.83		0.67	47

Larkins



Mt Larkins Correlation

$$y = 4.3668 + 2.1554x \quad R^2 = 0.887$$



No. 752B/25

BRYANT GL.
Mountain gl, reliability C B

NZMS sheet E41

GLACIER DATA		
Aspect	SE	
AREA	29.7	ha
Max Elev	2180	m
Min Elev	1660	m
Mean Elev	1920	m
Length	0.94	km
Elev Range	520	m
Gradient	0.55	

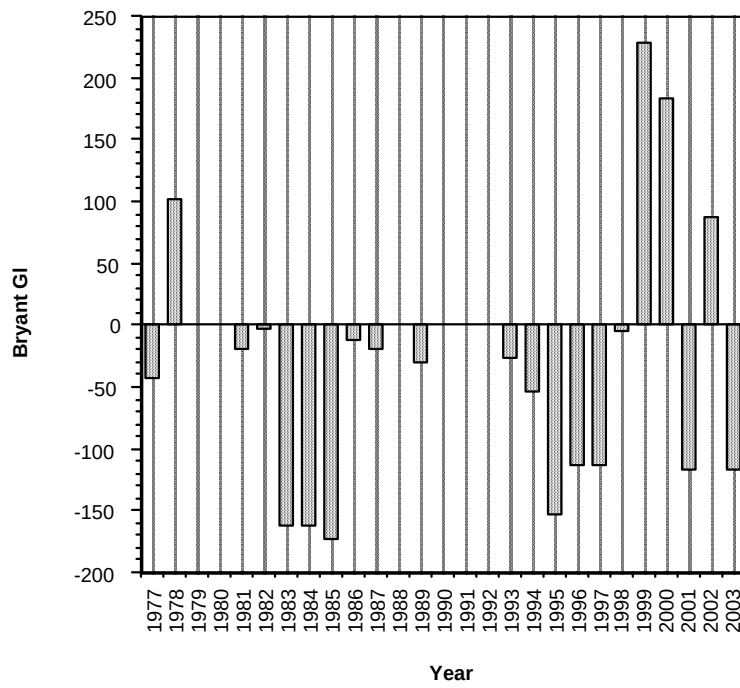
SNOWLINE DATA		
ELA	1783	m
Max. SL	2010	m, 1999
Min. SL	1610	m, 1995
Mean SL	1748	m
SL Range	400	m
No. surveys	21	

MEASUREMENTS

Digitised values shaded

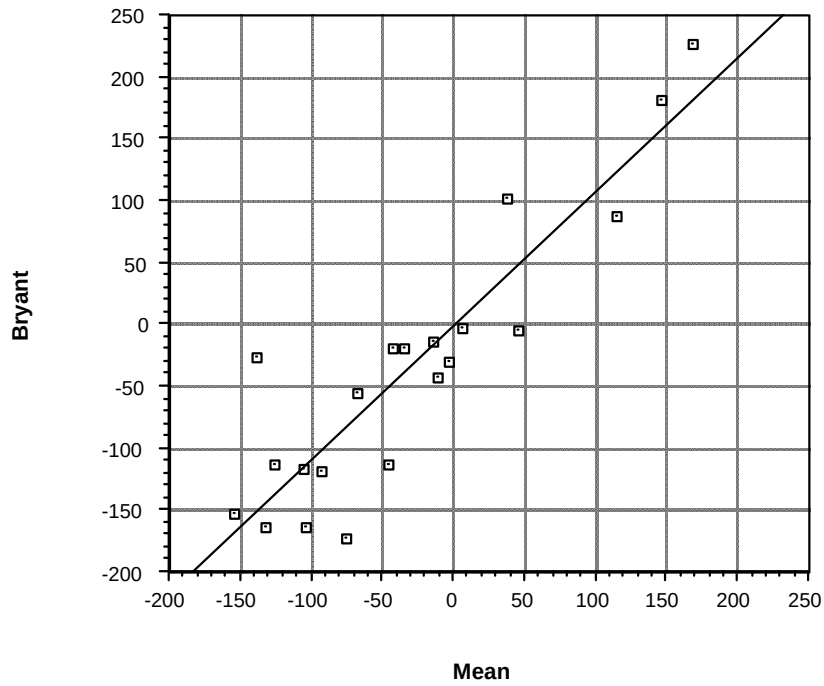
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1783	0	12.20	17.50	29.7	0.41	0
1977	1740	-43	20.90	8.80	29.7	0.70	43
1978	1884	101	4.90	24.80	29.7	0.16	-101
1979							
1980							
1981	1763	-20	15.70	14.00	29.7	0.53	20
1982	1780	-3	12.70	17.00	29.7	0.43	3
1983	1620	-163	34.50	0.00	29.7	1.00	163
1984	1620	-163	31.80	0.00	29.7	1.00	163
1985	1610	-173	37.30	0.00	29.7	1.00	173
1986	1770	-13	14.08	15.62	29.7	0.47	13
1987	1763	-20	15.70	14.00	29.7	0.53	20
1988							
1989	1753	-30	17.40	12.30	29.7	0.59	30
1990							
1991							
1992							
1993	1756	-27	17.20	12.50	29.7	0.58	27
1994	1728	-55	23.40	6.30	29.7	0.79	55
1995	1630	-153	40.17	0.00	29.7	1.00	153
1996	1670	-113	29.10	0.60	29.7	0.98	113
1997	1670	-113	29.01	0.69	29.7	0.98	113
1998	1778	-5	13.16	16.54	29.7	0.44	5
1999	2010	227	0.97	28.73	29.7	0.03	-227
2000	1965	182	1.85	27.85	29.7	0.06	-182
2001	1665	-118	29.20	0.50	29.7	0.98	118
2002	1870	87	5.50	24.20	29.7	0.19	-87
2003	1666	-117	28.80	0.90	29.7	0.97	117
MEAN	1748	-35	20.16	10.73		0.64	35

Bryant



Bryant Correlation

$$y = -2.4668 + 1.0818x \quad R^2 = 0.816$$



No. 752B-13

AILSA MTS
Cirque gl, reliability A

NZMS 260 sheet D40

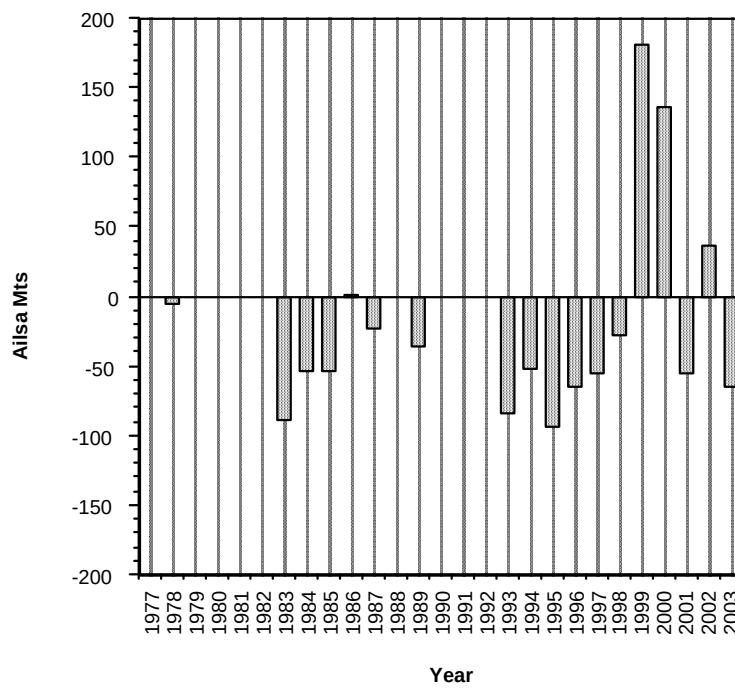
GL DATA		
Aspect	S	
AREA	22.91	ha
Max Elev	1830	m
Min Elev	1530	m
Mean Elev	1680	m
Length	0.75	km
Elev Range	300	m
Gradient	0.4	

SNOWLINE DATA		
ELA	1648	m
Max SL	1830	m, 1999
Min SL	1555	m, 1995
Mean SL	1626	m
SL Range	275	m
No. surveys	18	

MEASUREMENTS Digitised values shaded

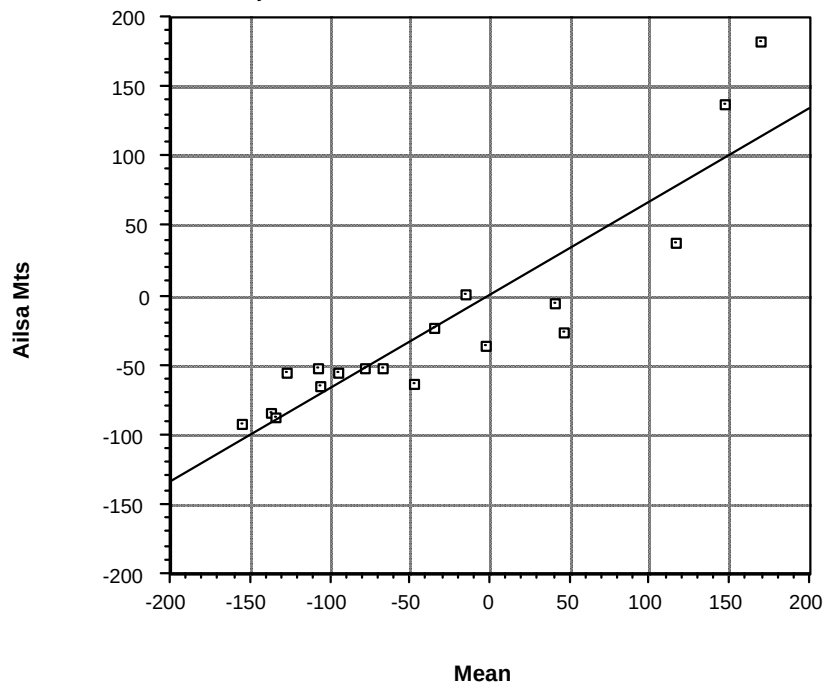
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1648	0	7.72	10.50	18.22	0.42	0
1977							
1978	1643	-5	9.32	13.59	18.22	0.51	5
1979							
1980							
1981							
1982							
1983	1560	-88	19.21	3.70	18.22	1.00	88
1984	1595	-53	14.91	8.00	18.22	0.82	53
1985	1595	-53	14.91	8.00	18.22	0.82	53
1986	1649	1	8.57	14.34	18.22	0.47	-1
1987	1625	-23	11.48	11.43	18.22	0.63	23
1988							
1989	1612	-36	12.78	10.13	18.22	0.70	36
1990							
1991							
1992							
1993	1564	-84	18.81	4.10	18.22	1.00	84
1994	1596	-52	14.71	8.20	18.22	0.81	52
1995	1555	-93	19.79	3.12	18.22	1.00	93
1996	1584	-64	16.27	6.64	18.22	0.89	64
1997	1593	-55	15.15	7.76	18.22	0.83	55
1998	1621	-27	11.91	11.00	18.22	0.65	27
1999	1830	182	0.00	22.91	18.22	0.00	-182
2000	1785	137	0.77	22.14	18.22	0.04	-137
2001	1593	-55	10.52	7.70	18.22	0.58	55
2002	1685	37	4.35	13.87	18.22	0.24	-37
2003	1583	-65	13.42	4.80	18.22	0.74	65
MEAN	1626	-22	12.05	10.08		0.65	22

Ailsa



Ailsa Mts Correlation

$$y = -1.7076e-2 + 0.67035x \quad R^2 = 0.827$$



No. 851B/57

Mt. GUNN
Cirque gl, reliability A

NZMS 260 sheet D40

GLACIER DATA		
Aspect	SE	
AREA	53.72	ha
Max Elev	1820	m
Min Elev	1470	m
Mean Elev	1645	m
Length	0.75	km
Elev Range	350	m
Gradient	0.47	

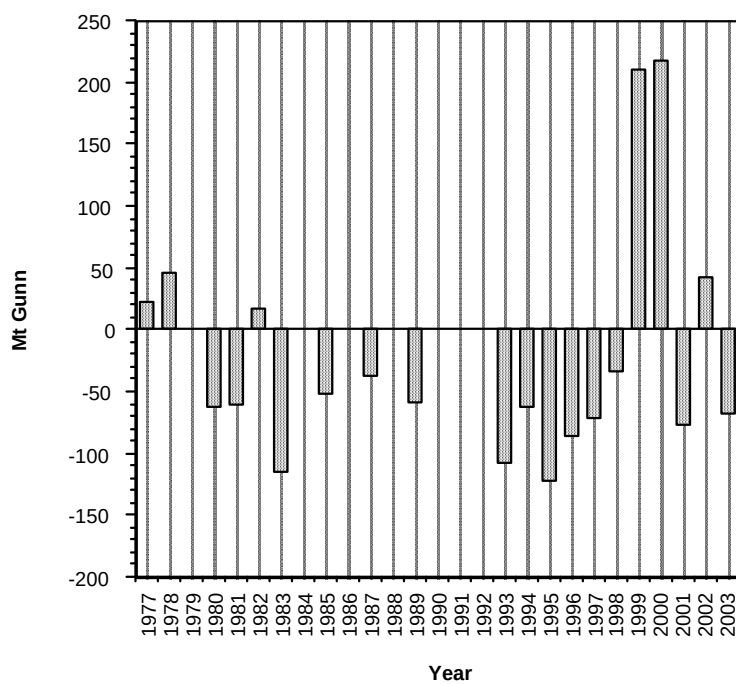
SNOWLINE DATA		
ELA	1593	m
Max SL	1810	m, 2000
Min SL	1471	m, 1995
Mean SL	1569	m
SL Range	339	m
No. surveys	20	

MEASUREMENTS

Digitised values shaded

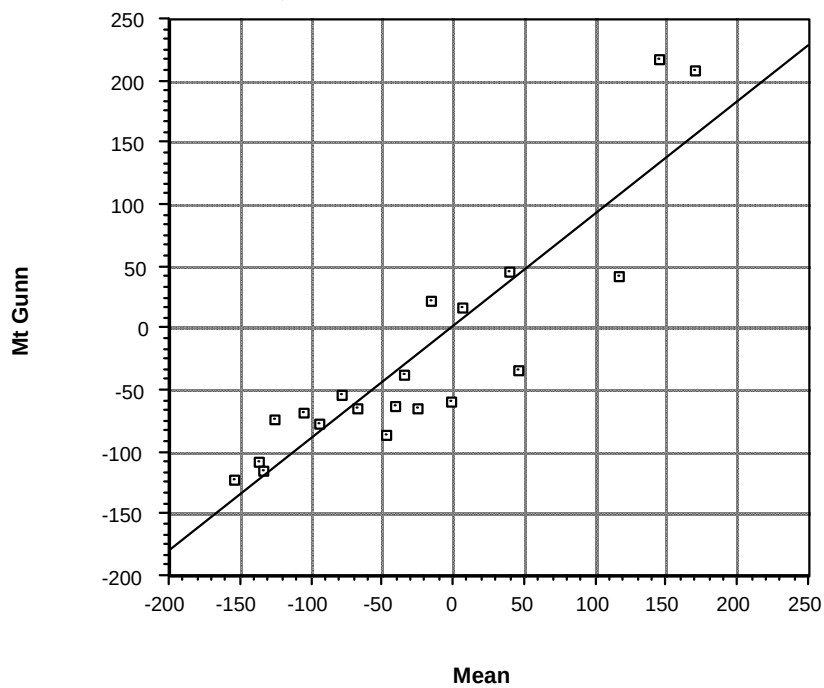
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1593	0	14.67	21.00	35.67	0.41	0
1977	1615	22	14.72	39.00	35.67	0.41	-22
1978	1638	45	12.11	41.61	35.67	0.34	-45
1979							
1980	1529	-64	33.40	20.32	35.67	0.94	64
1981	1531	-62	32.44	21.28	35.67	0.91	62
1982	1610	17	15.50	38.22	35.67	0.43	-17
1983	1478	-115	51.31	2.41	35.67	1.00	115
1984							
1985	1540	-53	30.24	23.48	35.67	0.85	53
1986							
1987	1555	-38	26.32	27.40	35.67	0.74	38
1988							
1989	1534	-59	31.84	21.88	35.67	0.89	59
1990							
1991							
1992							
1993	1485	-108	48.12	5.60	35.67	1.00	108
1994	1529	-64	33.40	20.32	35.67	0.94	64
1995	1471	-122	53.32	0.40	35.67	1.00	122
1996	1507	-86	40.12	13.60	35.67	1.00	86
1997	1520	-73	36.19	17.53	35.67	1.00	73
1998	1559	-34	25.42	28.30	35.67	0.71	34
1999	1802	209	0.77	52.95	35.67	0.02	-209
2000	1810	217	0.49	53.23	35.67	0.01	-217
2001	1515	-78	19.29	16.38	35.67	0.54	78
2002	1635	42	8.83	26.84	35.67	0.25	-42
2003	1525	-68	25.97	9.70	35.67	0.73	68
MEAN	1569	-24	26.99	24.02		0.69	24

Gunn



Mt Gunn Correlation

$$y = 0.94084 + 0.90557x \quad R^2 = 0.805$$



No. 797G/33

Mt. GENDARME
Mountain gl, reliability B

NZMS sheet D40 & 41

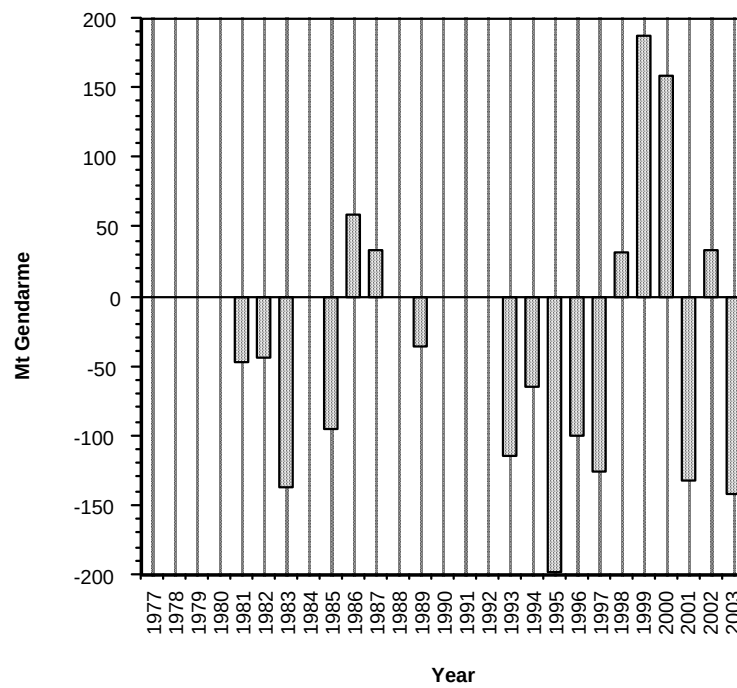
GLACIER DATA		
Aspect	S	
Area	49.35	ha
Max Elev	1900	m
Min Elev	1440	m
Mean Elev	1670	m
Length	0.525	km
Elev Range	460	m
Gradient	0.88	

SNOWLINE DATA		
ELA	1616	m
Max SL	1804	m, 1999
Min SL	1418	m, 1995
Mean SL	1578	m
SL range	386	m
No. surveys	18	

MEASUREMENTS Digitised values shaded

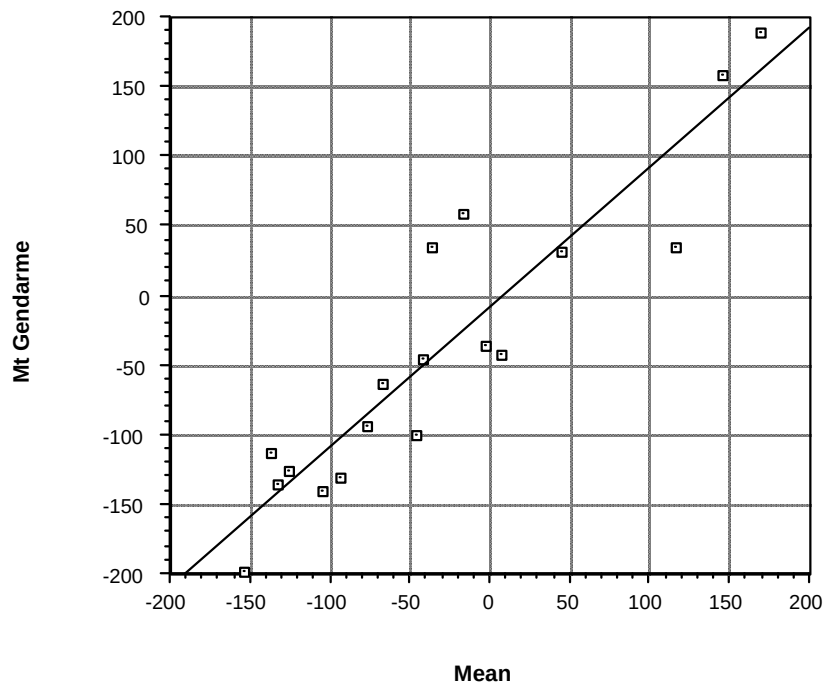
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1616	0	31.85	17.50	49.35	0.65	0
1977							
1978							
1979							
1980							
1981	1570	-46	38.36	10.99	49.35	0.78	46
1982	1573	-43	37.85	11.50	49.35	0.77	43
1983	1480	-136	55.97	0.00	49.35	1.00	136
1984							
1985	1522	-94	44.53	4.82	49.35	0.90	94
1986	1675	59	21.95	27.40	49.35	0.44	-59
1987	1650	34	25.87	23.48	49.35	0.52	-34
1988							
1989	1580	-36	35.50	13.85	49.35	0.72	36
1990							
1991							
1992							
1993	1502	-114	46.42	2.93	49.35	0.94	114
1994	1552	-64	40.55	8.80	49.35	0.82	64
1995	1418	-198	58.67	0.00	49.35	1.00	198
1996	1516	-100	45.20	4.15	49.35	0.92	100
1997	1490	-126	47.25	2.10	49.35	0.96	126
1998	1648	32	26.45	22.90	49.35	0.54	-32
1999	1804	188	2.33	47.02	49.35	0.05	-188
2000	1775	159	6.08	43.27	49.35	0.12	-159
2001	1485	-131	48.45	0.90	49.35	0.98	131
2002	1650	34	25.85	23.50	49.35	0.52	-34
2003	1520	-96	47.95	1.40	49.35	0.97	96
MEAN	1578	-39	36.34	14.01		0.72	39

Gendarme



Mt Gendarme Correlation

$$y = -9.3961 + 1.0050x \quad R^2 = 0.850$$



No. 846/35

LIAWRENNY PKS.
Cirque gl, reliability A

NZMS 260 sheet D40

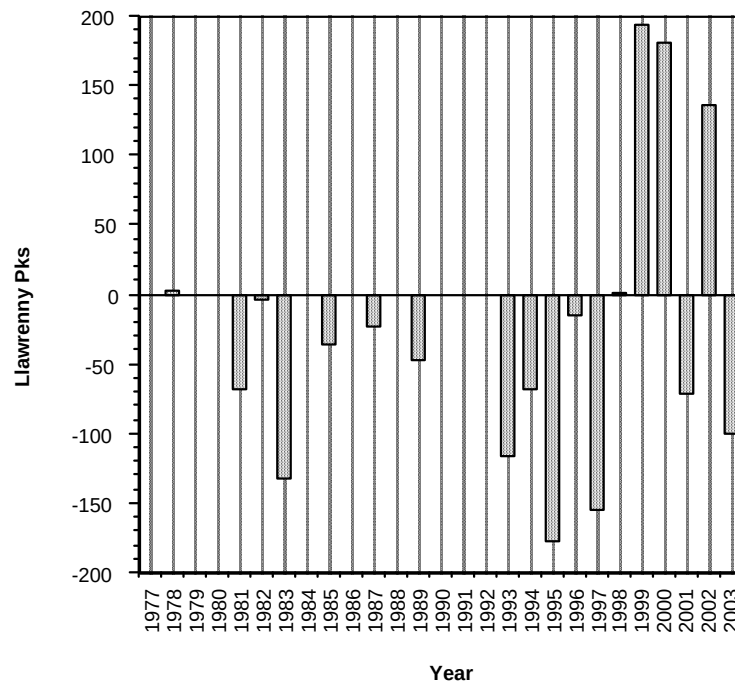
GLACIER DATA		
Aspect	SW	
AREA	18.06	ha
Max Elev	1680	m
Min Elev	1310	m
Mean Elev	1495	m
Length	0.75	km
Elev Range	370	m
Gradient	0.49	

SNOWLINE DATA		
ELA	1476	m
Max SL	1670	m, 1999
Min SL	1300	m, 1995
Mean SL	1449	m
SL Range	370	m
No. surveys	18	

MEASUREMENTS Digitised values shaded

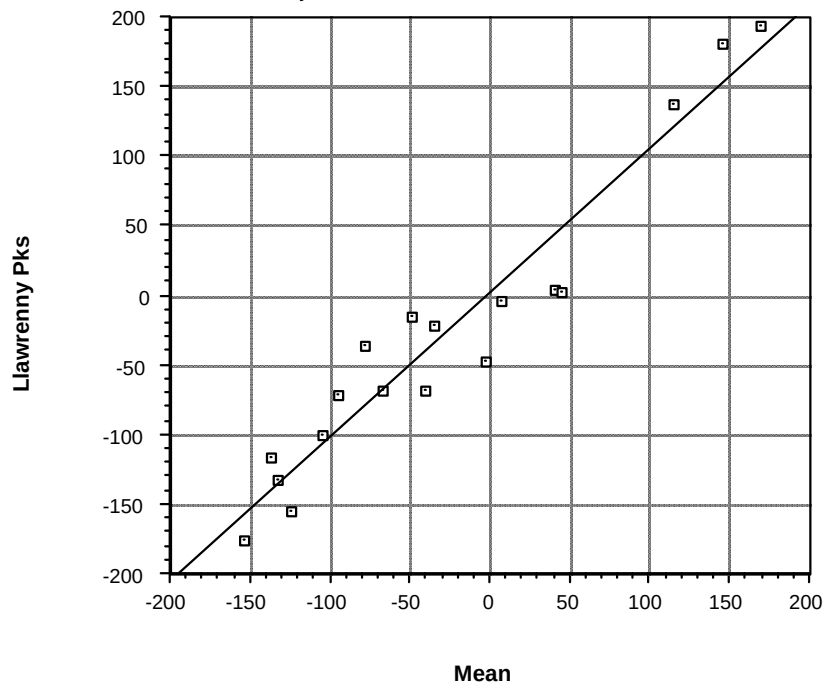
YEAR	SNOWLINE	DEPARTURE		AREAS		ACCUM.	MASS
	ELEVATION	FROM ELA	ACCUM.	ABL.	TOTAL	AREA RATIO	BALANCE
	m	m	ha	ha	ha	(AAR)	INDEX
ELAo	1476	0	9.26	8.80	18.06	0.51	0
1977							
1978	1480	4	8.96	9.10	18.06	0.50	-4
1979							
1980							
1981	1408	-68	15.56	2.50	18.06	0.86	68
1982	1472	-4	9.35	8.71	18.06	0.52	4
1983	1344	-132	17.46	0.60	18.06	0.97	132
1984							
1985	1440	-36	12.77	5.29	18.06	0.71	36
1986							
1987	1454	-22	11.40	6.66	18.06	0.63	22
1988							
1989	1429	-47	13.96	4.10	18.06	0.77	47
1990							
1991							
1992							
1993	1360	-116	17.12	0.94	18.06	0.95	116
1994	1408	-68	15.60	2.46	18.06	0.86	68
1995	1300	-176	27.80	0.00	18.06	1.00	176
1996	1461	-15	10.54	7.52	18.06	0.58	15
1997	1321	-155	17.70	0.36	18.06	0.98	155
1998	1478	2	9.17	8.89	18.06	0.51	-2
1999	1670	194	0.28	17.78	18.06	0.02	-194
2000	1657	181	0.63	17.43	18.06	0.03	-181
2001	1405	-71	15.72	2.34	18.06	0.87	71
2002	1613	137	2.07	15.99	18.06	0.11	-137
2003	1376	-100	16.96	1.10	18.06	0.94	100
MEAN	1449	-27	12.39	6.21		0.66	27

Llawrenny



Llawrenny Pks Correlation

$$y = 1.4358 + 1.0363x \quad R^2 = 0.928$$



No. 797G/4

BARRIER Pk.
Mountain gl, reliability A

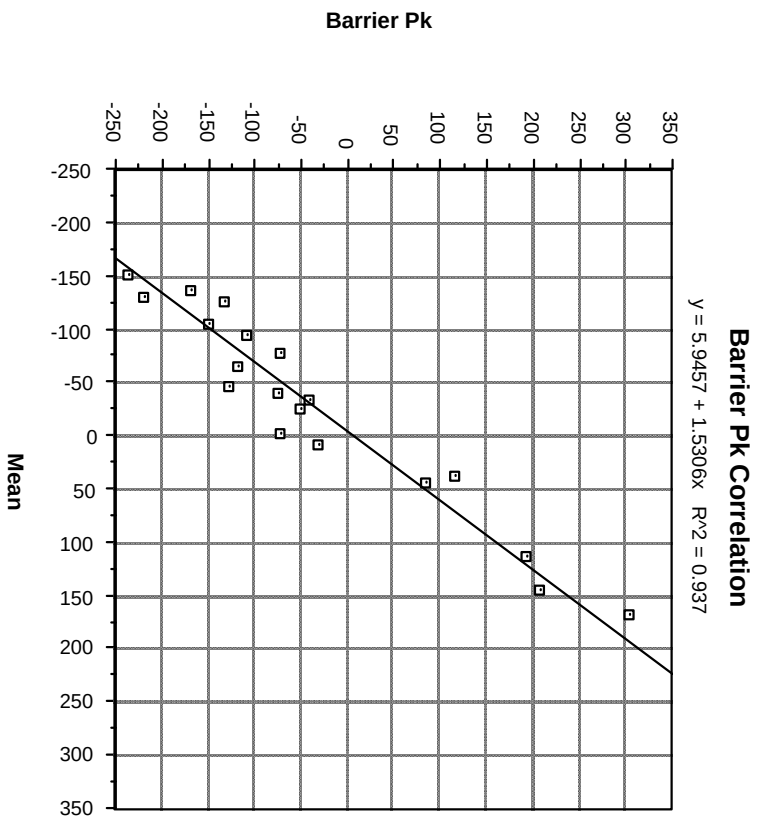
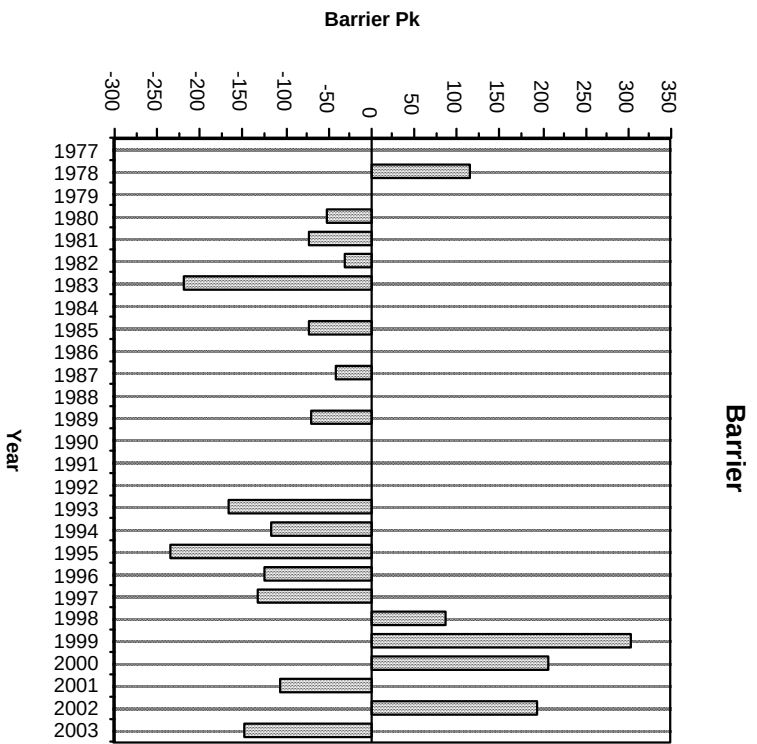
NZMS 260 sheet D41

GLACIER DATA		
Aspect	S	
AREA	57.56	ha
Max Elev	1900	m
Min Elev	1420	m
Mean Elev	1660	m
Elev Range	480	m
Length	0.75	km
Gradient	0.64	

SNOWLINE DATA		
ELA	1596	m
Max SL	1900	m, 1999
Min SL	1360	m, 1995
Mean SL	1560	m
SL Range	540	m
No. Surveys	19	

MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE ELEVATION m	DEPARTURE FROM ELA m	ACCUM. ha	AREAS ABL. ha	TOTAL ha	ACCUM. AREA RATIO (AAR)	MASS BALANCE INDEX
ELAo	1596	0	40.36	17.20	57.56	0.70	0
1977							
1978	1712	116	20.06	37.5	57.56	0.35	-116
1979							
1980	1545	-51	48.56	9	57.56	0.84	51
1981	1523	-73	51.23	6.33	57.56	0.89	73
1982	1565	-31	45.36	12.2	57.56	0.79	31
1983	1378	-218	63.9	0	57.56	1.00	218
1984							
1985	1524	-72	51.19	6.37	57.56	0.89	72
1986							
1987	1555	-41	46.86	10.7	57.56	0.81	41
1988							
1989	1525	-71	50.96	6.6	57.56	0.89	71
1990							
1991							
1992							
1993	1428	-168	60.7	0	57.56	1.00	168
1994	1478	-118	55.23	2.33	57.56	0.96	118
1995	1360	-236	65.03	0	57.56	1.00	236
1996	1470	-126	55.51	2.05	57.56	0.96	126
1997	1464	-132	56.75	0.81	57.56	0.99	132
1998	1682	86	25.14	32.42	57.56	0.44	-86
1999	1900	304	0	57.56	57.56	0.00	-304
2000	1803	207	3.28	54.28	57.56	0.06	-207
2001	1488	-108	54.56	3	57.56	0.95	108
2002	1790	194	5.36	52.2	57.56	0.09	-194
2003	1448	-148	56.56	1.00	57.56	0.98	148
MEAN	1560	-36	42.96	15.49		0.73	36



No. 797D/1

Mt. IRENE
Glacierette, reliability B

NZMS 260 sheet C42

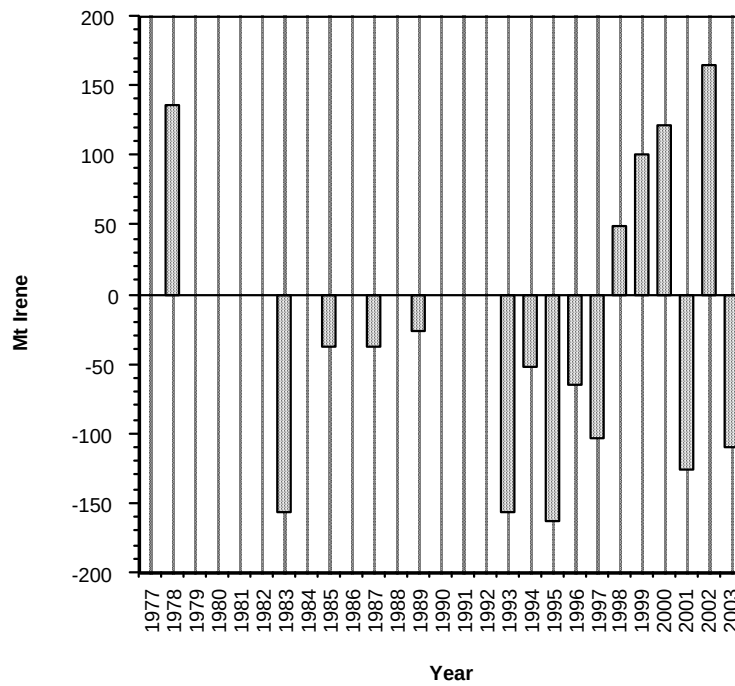
GLACIER DATA		
Aspect	E	
AREA	12.78	ha
Max Elev	1800	m
Min Elev	1450	m
Mean Elev	1625	m
Elev Range	350	m
Length	0.5	km
Gradient	0.7	

SNOWLINE DATA		
ELA	1563	m
Max SL	1728	m, 1978
Min SL	1400	m, 1995
Mean SL	1535	m
SL Range	328	m
No. Surveys	16	

MEASUREMENTS Digitised values shaded

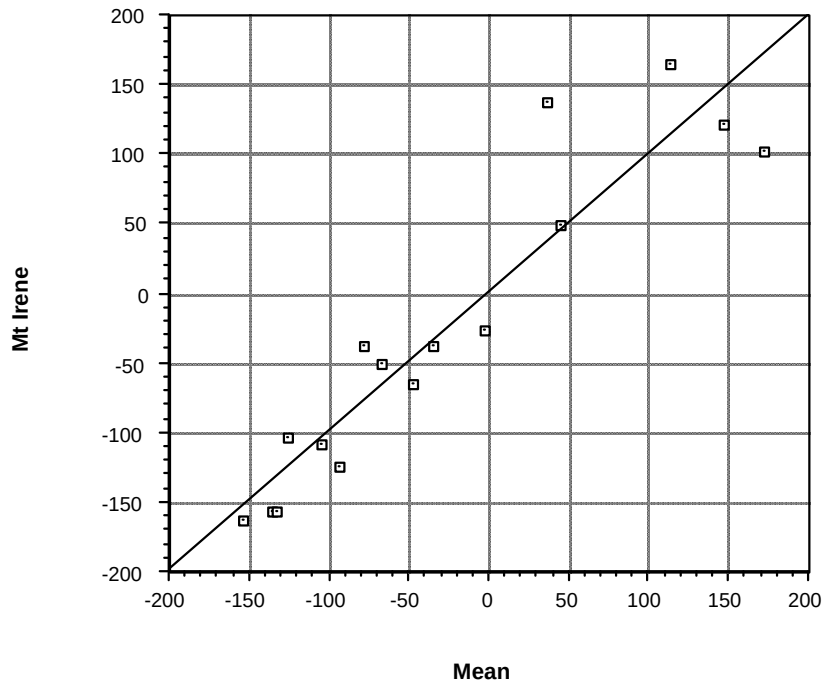
YEAR	SNOWLINE ELEVATION m	DEPARTURE FROM ELA m	ACCUM. ha	AREAS ABL. ha	TOTAL ha	ACCUM. AREA RATIO (AAR)	MASS BALANCE INDEX
ELAo	1563	0	7.55	10.40	17.95	0.42	0
1977							
1978	1700	137	1.00	16.95	17.95	0.06	-137
1979							
1980							
1981							
1982							
1983	1407	-156	31.25	-13.30	17.95	1.00	156
1984							
1985	1526	-37	10.05	7.90	17.95	0.56	37
1986							
1987	1526	-37	10.05	7.90	17.95	0.56	37
1988							
1989	1537	-26	9.25	8.70	17.95	0.52	26
1990							
1991							
1992							
1993	1407	-156	31.25	-13.30	17.95	1.00	156
1994	1512	-51	11.05	6.90	17.95	0.62	51
1995	1400	-163	32.65	-14.70	17.95	1.00	163
1996	1498	-65	12.13	5.82	17.95	0.68	65
1997	1460	-103	20.00	-0.05	17.95	1.00	103
1998	1612	49	4.73	13.22	17.95	0.26	-49
1999	1665	102	2.20	15.75	17.95	0.12	-102
2000	1685	122	1.47	16.48	17.95	0.08	-122
2001	1438	-125	17.59	0.36	17.95	0.98	125
2002	1728	165	0.57	17.38	17.95	0.03	-165
2003	1454	-109	16.05	1.90	17.95	0.89	109
MEAN	1535	-28	13.21	4.87		0.58	28

Irene



Mt Irene Correlation

$$y = 0.54480 + 0.99281x \quad R^2 = 0.872$$



No. 797 B/10

MERRIE RA
Patchy glacierette, reliability C

NZMS 260 sheet C44

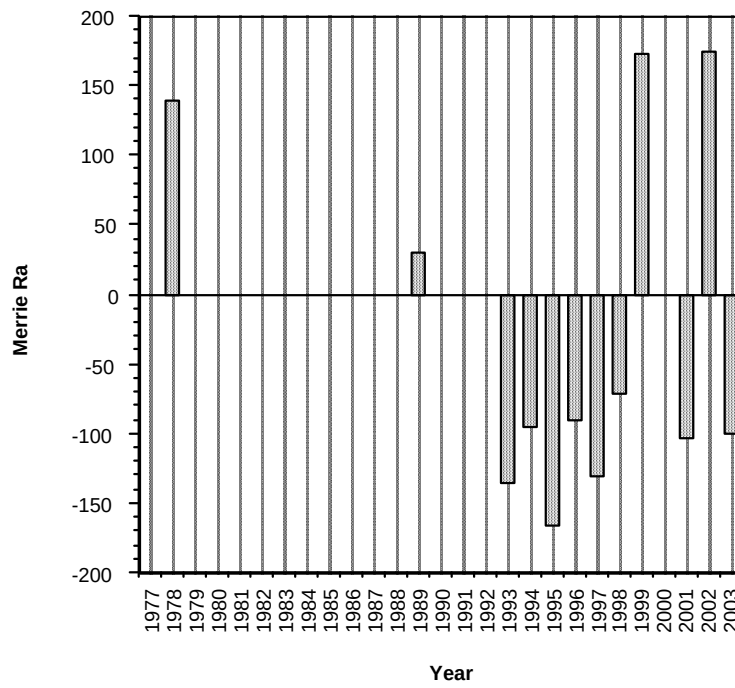
GLACIER DATA		
Aspect	E	
AREA	12.78	ha
Max Elev	1700	m
Min Elev	1400	m
Mean Elev	1550	m
Elev Range	300	m
Length	0.5	km
Gradient	0.6	

SNOWLINE DATA		
ELA	1515	m
Max SL	1688	m, 1999
Min SL	1350	m, 1995
Mean SL	1484	m
SL Range	338	m
No. Surveys	14	

MEASUREMENTS Digitised values shaded

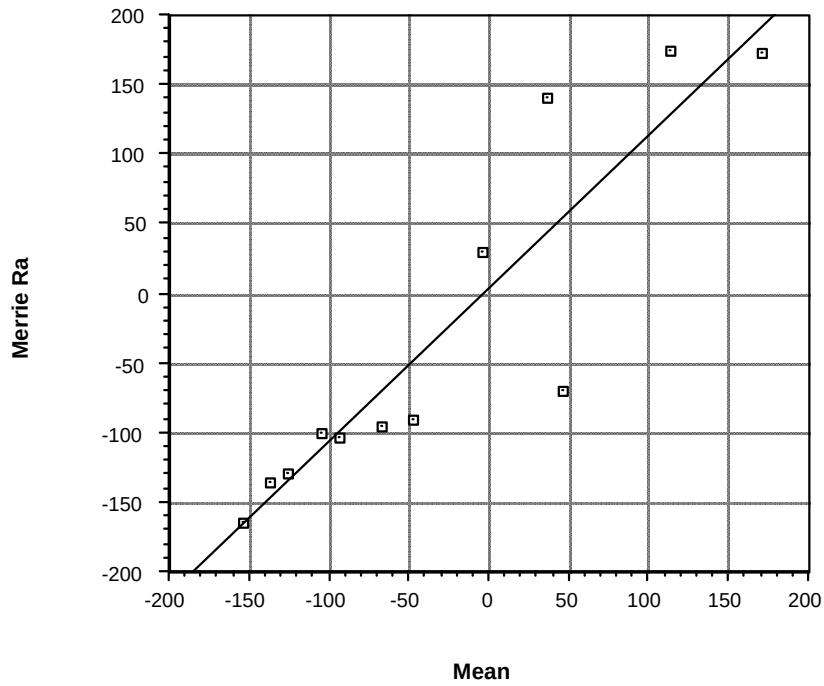
YEAR	SNOWLINE ELEVATION m	DEPARTURE FROM ELA m	ACCUM. ha	AREAS ABL. ha	TOTAL ha	ACCUM. AREA RATIO (AAR)	MASS BALANCE INDEX
ELAo	1515	0	7.13	5.65	12.78	0.56	0
1977							
1978	1655	140	1.34	11.44	12.78	0.10	-140
1979							
1980							
1981							
1982							
1983							
1984							
1985							
1986							
1987							
1988							
1989	1545	30	5.83	6.95	12.78	0.46	-30
1990							
1991							
1992							
1993	1380	-135	16.20	0.00	12.78	1.00	135
1994	1420	-95	11.73	1.05	12.78	0.92	95
1995	1350	-165	19.34	0.00	12.78	1.00	165
1996	1425	-90	11.53	1.25	12.78	0.90	90
1997	1385	-130	15.65	0.00	12.78	1.00	130
1998	1445	-70	10.67	2.11	12.78	0.83	70
1999	1688	173	0.47	12.31	12.78	0.04	-173
2000							
2001	1412	-103	12.38	0.4	12.78	0.97	103
2002	1690	175	0.42	12.36	12.78	0.03	-175
2003	1415	-100	11.88	0.9	12.78	0.93	100
MEAN	1484	-31	9.79	4.06		0.68	31

Merrie



Merrie Ra Correlation

$$y = 2.7399 + 1.1000x \quad R^2 = 0.823$$



No. 803/1

CAROLINE Pk.
Glacierette, reliability B

NZMS 260 sheet C45

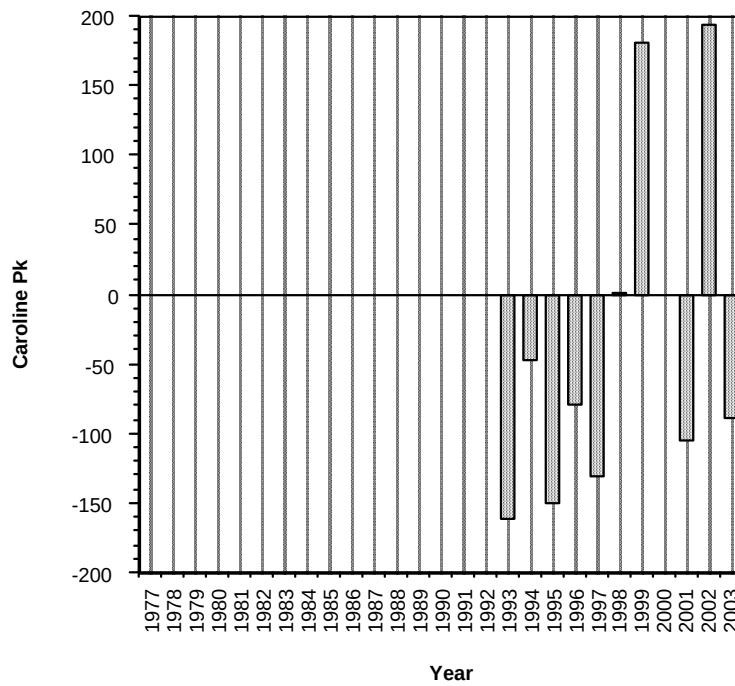
GLACIER DATA		
Aspect	SE	
AREA	9.99	ha
Max Elev	1600	m
Min Elev	1260	m
Mean Elev	1430	m
Elev Range	340	m
Length	0.5	km
Gradient	0.68	

SNOWLINE DATA		
ELA	1380	m
Max SL	1575	m, 1999
Min SL	1220	m, 1993
Mean SL	1342	m
SL Range	355	m
No. Surveys	10	

MEASUREMENTS Digitised values shaded

YEAR	SNOWLINE ELEVATION m	DEPARTURE FROM ELA m	ACCUM. ha	AREAS ABL. ha	TOTAL ha	ACCUM. AREA RATIO (AAR)	MASS BALANCE INDEX
ELAo	1380	0	7.50	2.50	10	0.75	0
1977							
1978							
1979							
1980							
1981							
1982							
1983							
1984							
1985							
1986							
1987							
1988							
1989							
1990							
1991							
1992							
1993	1220	-160	15.79	0.00	10	1.00	160
1994	1333	-47	8.95	1.04	10	0.90	47
1995	1230	-150	14.90	0.00	10	1.00	150
1996	1302	-78	8.92	1.07	10	0.89	78
1997	1250	-130	13.30	0.00	10	1.33	130
1998	1382	2	7.43	2.56	10	0.74	-2
1999	1562	182	0.69	9.31	10	0.07	-182
2000							
2001	1275	-105	9.40	0.60	10	0.94	105
2002	1575	195	0.46	9.54	10	0.05	-195
2003	1291	-89	9.10	0.90	10	0.91	89
MEAN	1342	-38	8.89	2.50		0.78	38

Caroline



Caroline Pk Correlation

$$y = 6.7932 + 1.1142x \quad R^2 = 0.935$$

