VATNAJÖKULL:
Mass balance, meltwater drainage and surface velocity of the glacial year 2008_09

Institute of Earth Sciences
University of Iceland
and
National Power Company
Finnur Pálsson
Helgi Björnsson
Hannes H. Haraldsson
RH-03-2010

Contents:

Figures:

Tables:

Appendixes:

1. INTRODUCTION

In 1992 (glacial year 1991_1992) a program of mass balance measurements was started for Vatnajökull by the Science Institute University of Iceland (now Institute of Earth Sciences, IES) in collaboration with the National Power Company (NPC). For the first year the program was limited to the western part of the glacier, but then expanded to include the northern outlets as well. In 1996 this study was further expanded to include southern outlets, with support from The European Union (Framework IV - Environment and Climate, TEMBA project 1996-1997). This program was extended 1998–2000 with further support from EU (Framework IV - Environment and Climate, ICEMASS project, 1998-2000). In 2000-2002 NPC and IES continued the program. In 2003-2005 IES participated in a multinational research project, which was financially supported by The European Union (EVK2-CT-2002-00152 SPICE). IES was responsible for obtaining data sets for calibration of models of the mass balance and dynamics of Vatnajökull. This work was also supported by The National Power Company of Iceland and The National Road Authority, and is a continuation of the TEMBA-project of 1996-97 and ICEMASS project 1998-2001.

In 2008-2009 IES and NPC continued a similar program. Mass balance measurements on the southeast outlet Breiðamerkurjökull is financially supported by the National Road Authority.

The aim of the collaborative work of NPC and IES is to improve our understanding of the mass balance and melt water runoff from glaciers. This work in combination with energy balance measurements by NPC and IES on Vatnajökull will be used for calibration of models of the energy and mass balance of Vatnajökull.

This report describes the field measurements and the initial results, the mass balance and melt water runoff for the glacial year 2008_09.

2. DIARY

February 22: mass balance measurements, set up of new ablation wires on Breiðamerkurjökull.
March 10: mass balance wires on Breiðamerkurjökull measured.
March 23: mass balance measurements, set up of new ablation wire on Hoffellsjökull lowest site.
May 8 - 17: measurements of the winter balance.
May 29 – June 5: measurements of the winter balance.
July 17-19: length of mass balance wires and stakes measured.
August 29: mass balance wires on Breiðamerkurjökull measured.
October 10 - 11 and 13 - 16: summer balance measurements.
January 8-10 (2010): mass balance measurements, set up of new ablation wires on Breiðamerkurjökull and Hoffellsjökull.

In all expeditions and short visits to the glacier the locations of mass balance stakes were measured with Kinematic GPS (or fast static and a few with DGPS) for surface velocity calculation.

The following members of staff of the Institute of Earth Sciences, University of Iceland, carried out the fieldwork on Vatnajökull: Finnur Pálsson, Þorsteinn Jónsson, Sveinbjörn Steinþórsson, Sverrir Guðmundsson, Eyjólfur Magnússon and Björn Oddsson. Also Hannes H. Haraldsson and Andri Gunnarsson (National Power Company) and Hlynur Skagfjörð Pálsson (Reykjavík Rescue Team). Members of the Iceland Glaciological Society, as well as members of Reykjavík, Hafnarfjörður and Hornafjörður Rescue teams assisted in the fieldwork.

3. MASS BALANCE MEASUREMENTS

The purpose of the mass balance measurements is to describe the temporal and spatial distribution of the components of the mass balance. The mean annual values of the components and their variation from year to year are analyzed and related to meteorological conditions and climatic variability. The results will be used in studies of changes in the glacier volume, estimates of meltwater contribution to glacial rivers, mass balance modeling, evaluation of altitudinal and regional variations of mass balance in response to climatic variations, and to assess the hydrometeorological and dynamic response of the ice cap to climate change.

The mass balance was determined by a stratigraphic method, measuring changes in thickness and density relative to the summer surface. The winter balance was estimated by drilling ice cores through the winter layer in the spring. Ablation was monitored from markers; snow stakes were put up on the glacier and wires were drilled down in the ablation area. The summer balance was measured in the autumn.

3.1 Methods

Measurements of the surface mass balance on a large ice cap like Vatnajökull are impractical in terms of cost with conventional techniques and sampling density that are typically used on small glaciers. The spatial variability of the mass balance may, however, be predictable on the flat large outlets of such an ice cap given data on several profiles extending over the elevation range of the glacier. The precipitation generally increases with elevation and decreases with the distance from the coast, but both the distribution of snowfall and redistribution of snow by drift depend on the prevailing wind direction during the winter. The summer melting depends mainly on the altitude and the albedo of the glacier surface. Therefore, we have used observations along a limited number of flowlines, which span the elevation range of the outlets to assess aerial estimates of surface mass balance. Each profile describes the variation with elevation, but together they also describe the lateral variation of the mass balance. Recently, modern over-snow vehicles and helicopters have allowed fast traverses to ensure successful fieldwork in spite of frequently poor weather conditions. Error limits for the area integrals of the mass balance components must nevertheless be within 15%.

The winter mass balance (b_w) is defined as the mass of snow accumulated during the winter months, the summer balance (b_s) is the mass balance during the summer, and the net balance (b_n) is defined as their sum. The specific mass balance is expressed in terms of the equivalent thickness of water. All mass balance components apply to a time interval between given measurement dates, which are not fixed from one year to another. The dates in the autumn are separated by approximately one calendar year, which roughly coincides with the glaciological year defined as October 1st to September 30th. Snow cores are drilled in April-May through the winter layer and profiles of the density are measured. The summer balance is derived in the autumn from measurements of the changes in the snow core density during the summer in the accumulation area and from readings at stakes and wires drilled into the ice in the ablation areas.

Digital maps are created for winter, summer and net balance for the whole ice cap based on site measurements. The mass balance is calculated over both the ice and water drainage basins. The summer balance over the water basin is an estimate of meltwater contribution to rivers and groundwater storage. This estimate, however, does not include precipitation that falls as rain on the glacier nor snow, which falls and melts during the summer. The meltwater contribution is compared with river runoff at streamflow gauges closest to the glacier. For this comparison, we define the glaciological year from the start of October to the end of September and the period draining meltwater from the glacier during the summer from June through September. It would be misleading to include May in the summer period because runoff from the glacier melt in May is delayed due to refreezing during elimination of the cold wave.

3. 2 Results of mass balance measurements.

Mass balance measurements were done at 54 sites in spring 2008 (Fig. 1) and summer balance at 15 additional sites, in the vicinity of the Grímsvötn. The specific mass balance at individual sites is shown in Fig. 2. Most sites are on central flow lines at individual outlets. The specific mass balance along flow lines is given in Fig. 3 as a function of elevation for each glacier outlet: Síðujökull, Tungnaárjökull, Dyngjujökull, Köldukvíslarjökull, Brúarjökull (west and east), Eyjabakkajökull, Hoffellsjökull and Breiðamerkurjökull.

Digital maps for winter, summer and net balance are shown in Figure 4. Although no balance measurements are available for Skeiðarárjökull, the balance has been estimated by interpolating the balance values from the neighboring outlets, based on our experience from previous years. The mass balance of individual large outlets is discussed in the following subsections. A DEM of Vatnajökull showing the surface of ca. 2000, is the base for all area distributions and delineation of ice drainage basins.

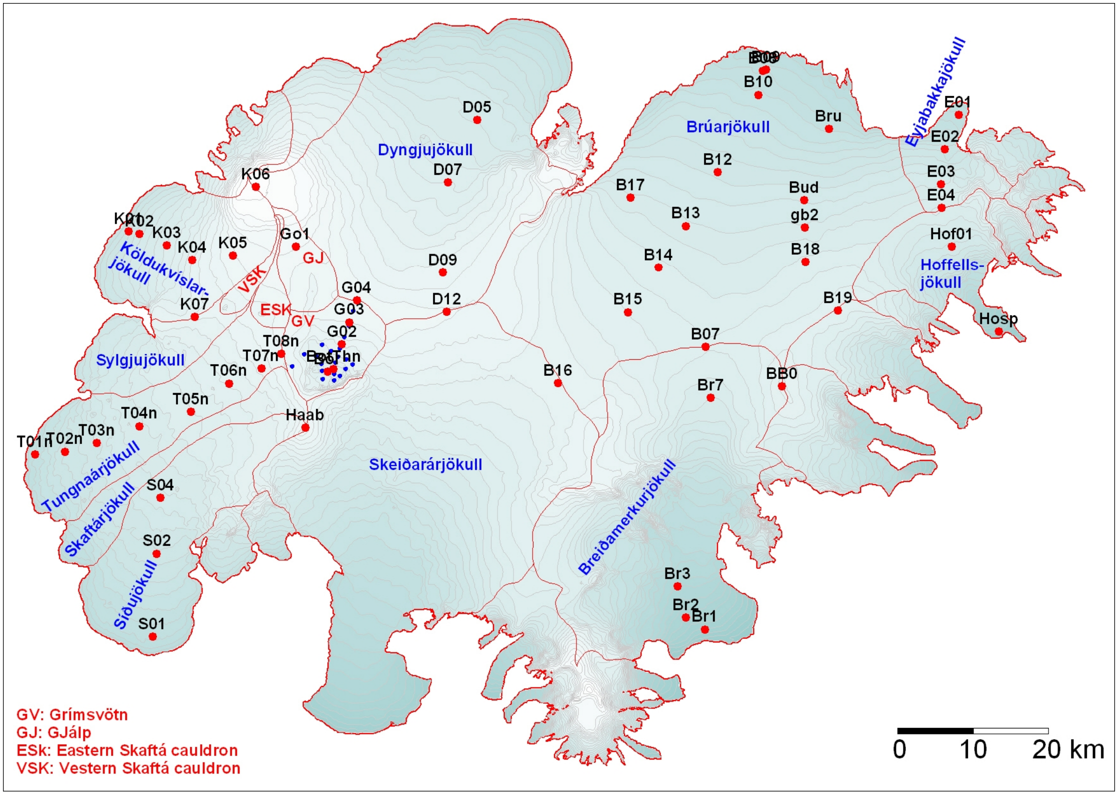

Figure 1. Outlets of Vatnajökull and location of mass balance measurement sites 2008_09. At blue points only summer ablation was measured.

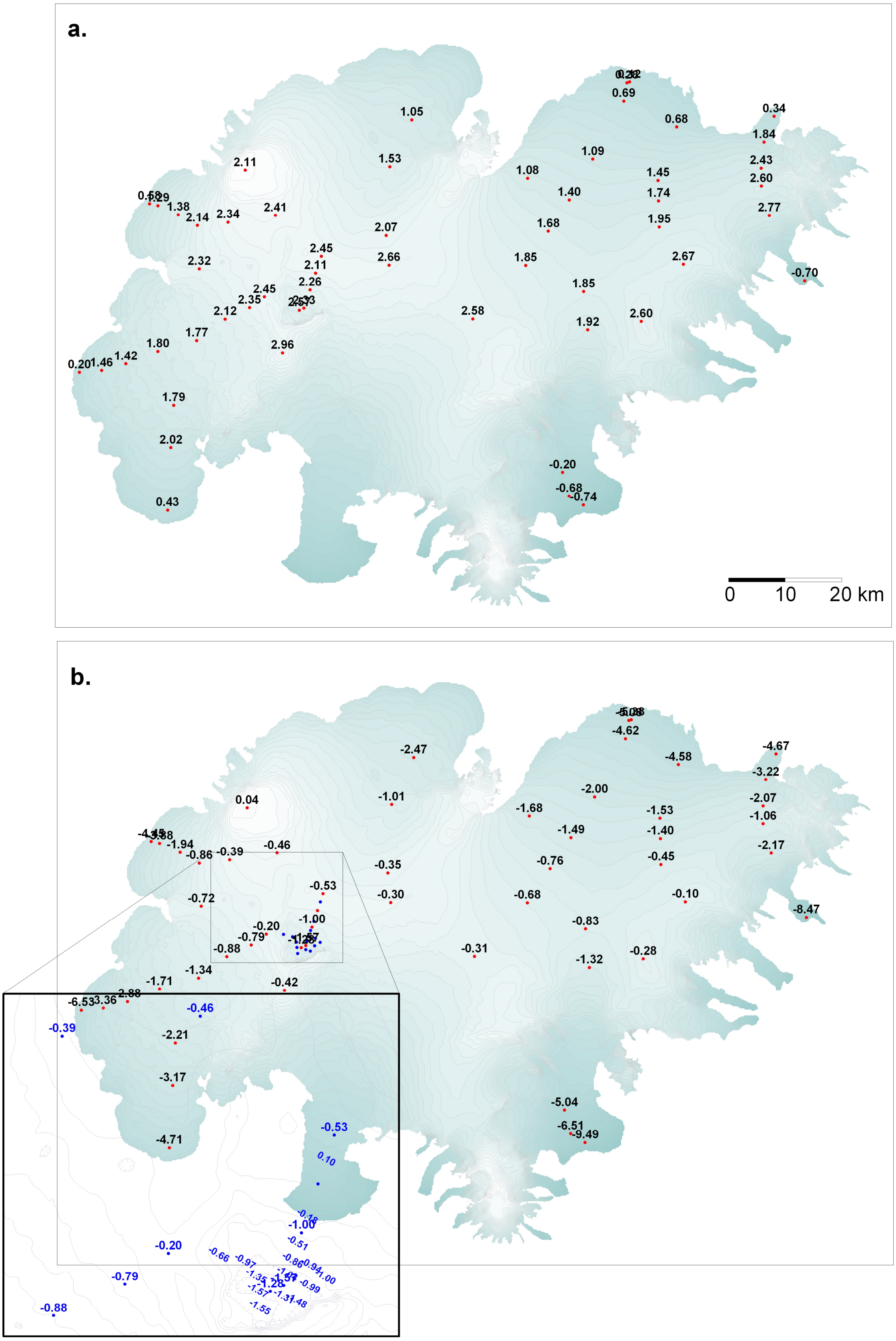

Figure 2. a. Map showing point values of specific winter mass balance in m water equivalent (m w. eq.), 2008_09. b. Map showing point values of specific summer balance (m w. eq.) in 2009.

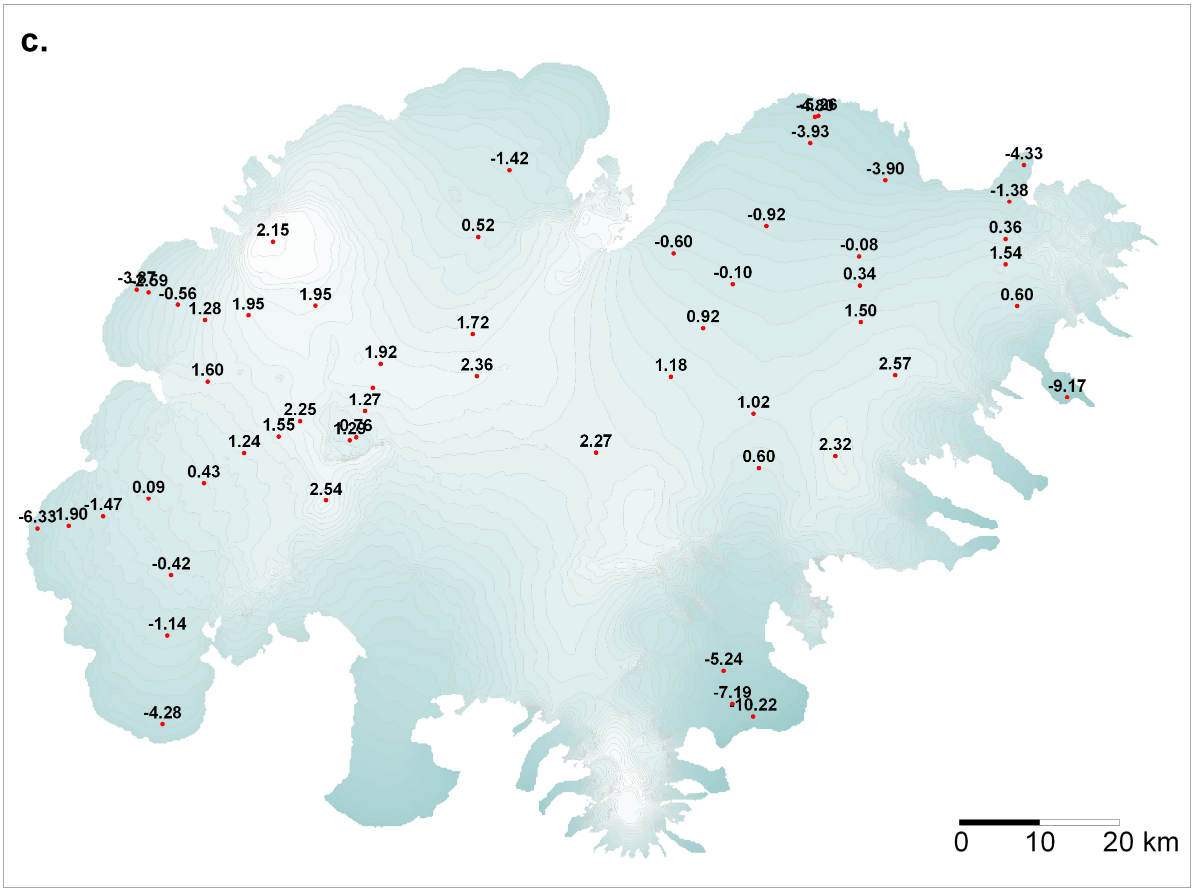

Figure 2. c. Map showing point values of specific net mass balance (m w. eq.), 2008_09.

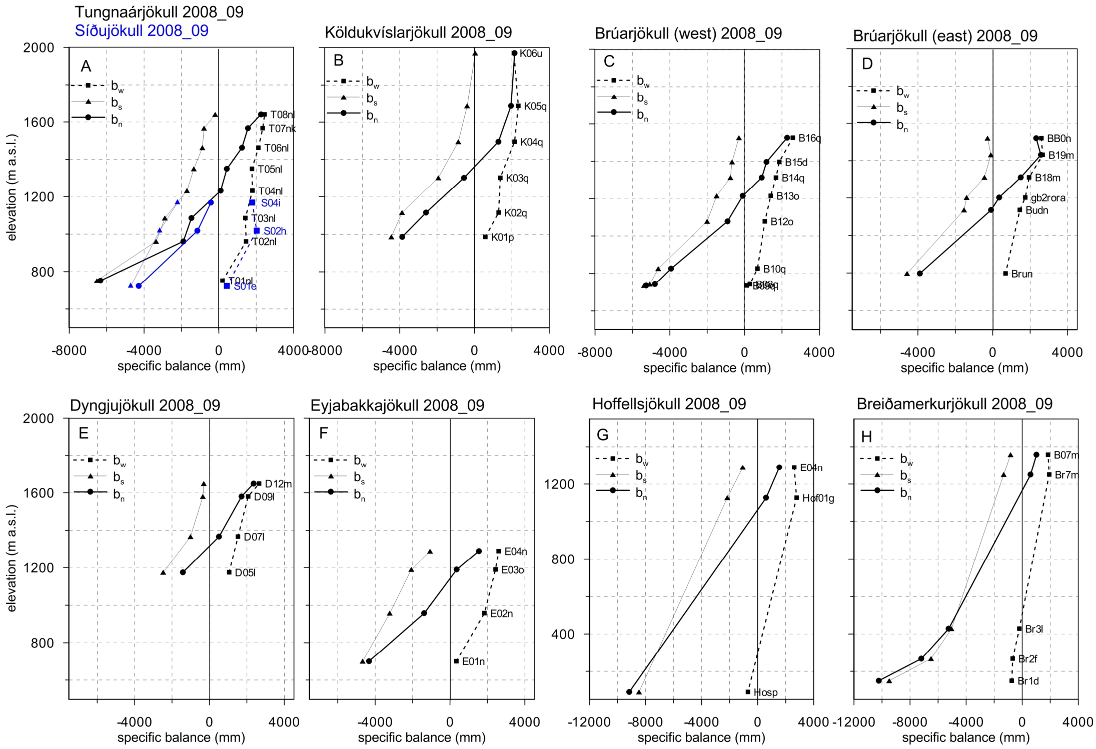

Figure 3. Mass balance 2008_09 as a function of elevation on central flow lines on Vatnajökull outlets.

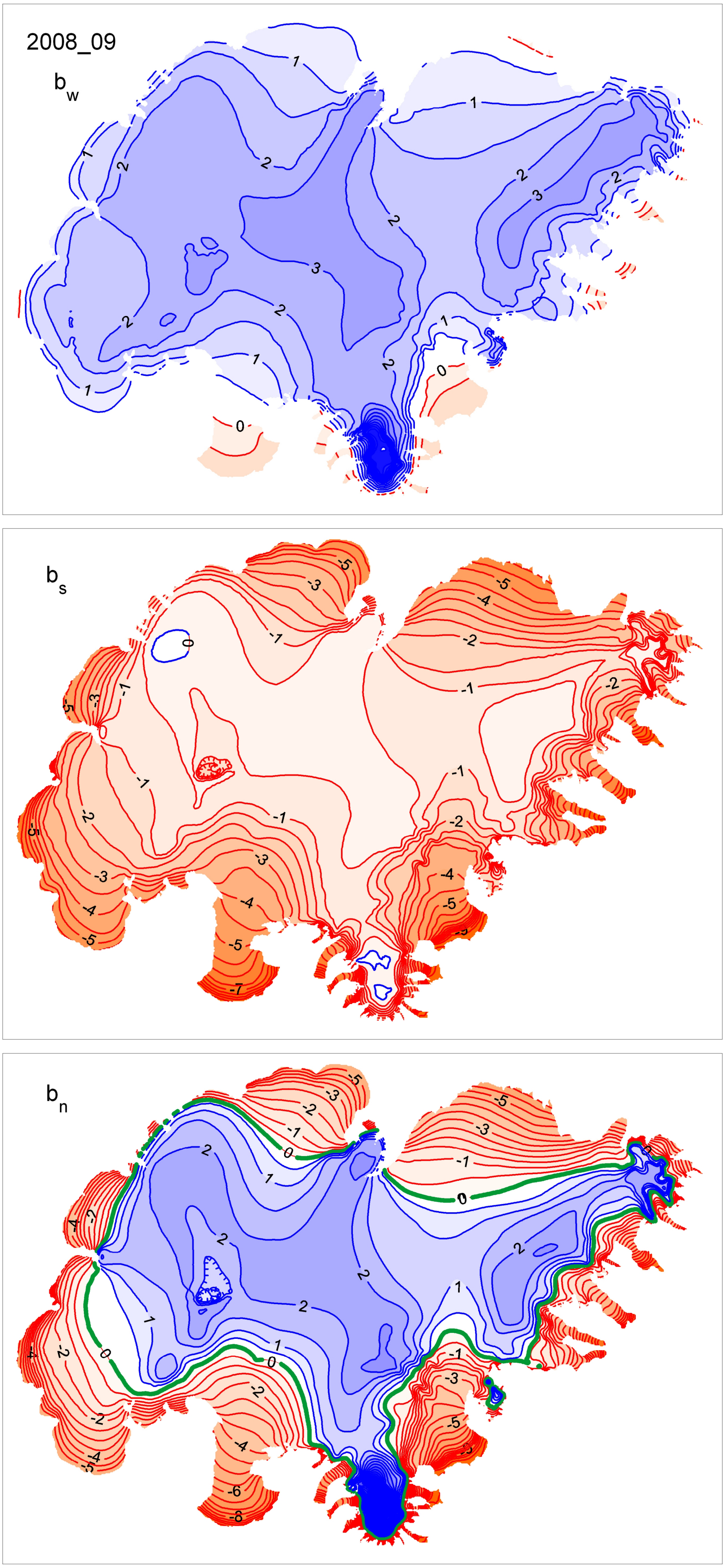

Figure 4. Specific mass balance of Vatnajökull 2008_09. Top: winter balance b_w (m w. eq.). Centre: summer balance b_s (m w. eq.). Bottom: net balance b_n (m w. eq.).

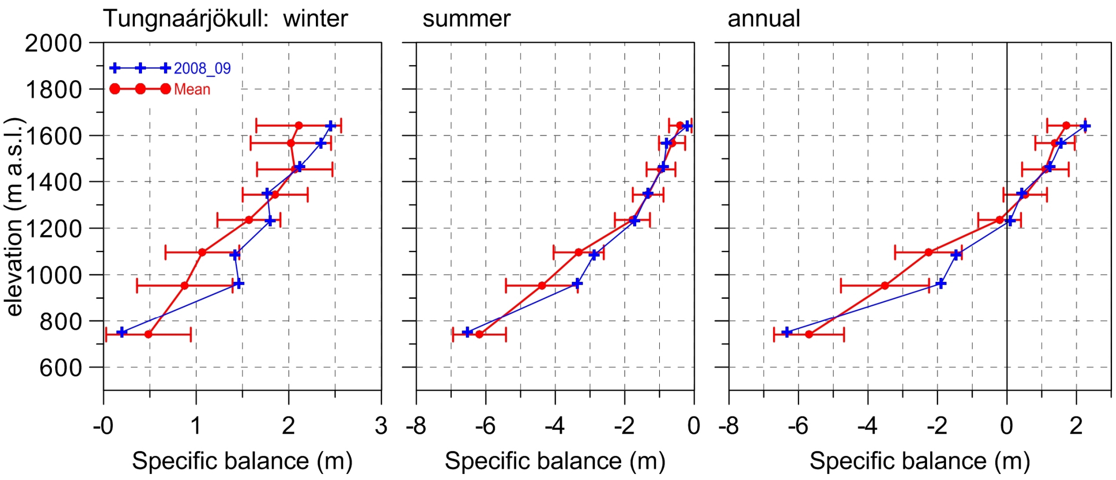

Figure 5. Mass balance at a central flow line of Tungnaárjökull 2008_09, and average mass balance 1991_92 to 2008_09.

3.2.1 Tungnaárjökull.

Area = 361 km^2
B_w= 0.60 km^3 ; b_w = 1.65 m
B_s = -0.89 km^3 ; b_s = -2.46 m
B_n = -0.29 km^3 ; b_n = -0.81 m
ELA = 1225 m (at profile)
AAR = 48 %

(The terms are defined at the foot of this page)

Variation of mass balance along a central flow line on Tungnaárjökull is shown in Fig. 5. The winter balance was higher than average at most sites, in total 12% over the 1991_92-2008_09 average. The accumulation at mid elevation range was extreme. Summer melting was close to average at the upper sites, but less than average in the ablation zone, probably due to the thick winter snow cover. The total ablation was close to average during the survey period. The net balance was negative the 16th year in a row, by 80% of the average over the survey period.

3.2.2 Köldukvíslarjökull

Area = 314 km^2
B_w = 0.54 km^3 ; b_w = 1.72 m
B_s = -0.58 km^3 ; b_s = -1.85 m
B_n = -0.04 km^3 ; b_n = -0.13 m
ELA = 1360 m (at profile)
AAR = 57 %

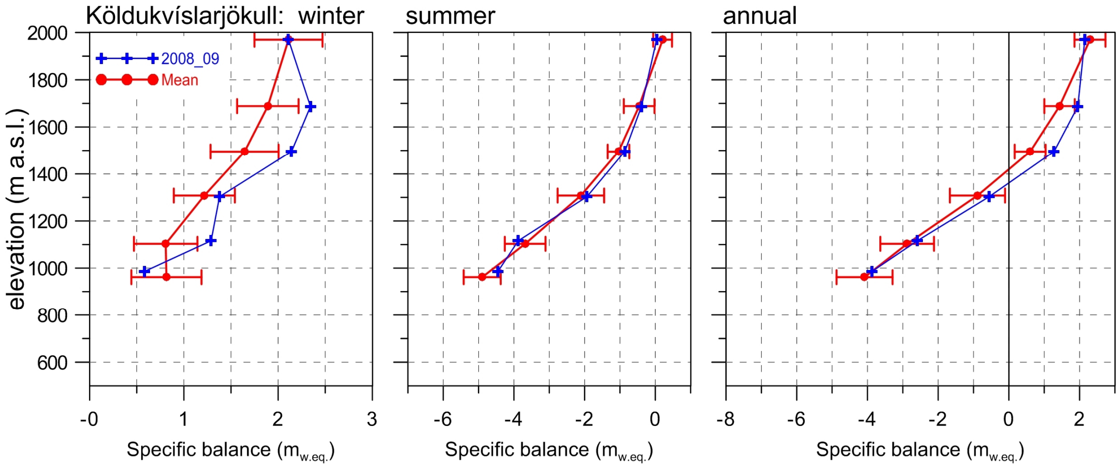

Figure 6. Mass balance at a central flow line of Köldukvíslarjökull 2008_09, and average mass balance 1991_92 to 2008_09.

B_w,B_s and B_n are water equivalent volumes of winter, summer and net balance, ELA the equilibrium line altitude, and AAR is the accumulation area ratio.

Variation of mass balance along a central flow line on Köldukvíslarjökull is shown in Fig. 6. Winter balance was about 19% higher than average since 1991_92. The accumulation was extreme at most sites especially above 1400 m elevation. Summer ablation was average at all sites. The net balance was negative the 15th year in a row, by 33% of the average over the survey period.

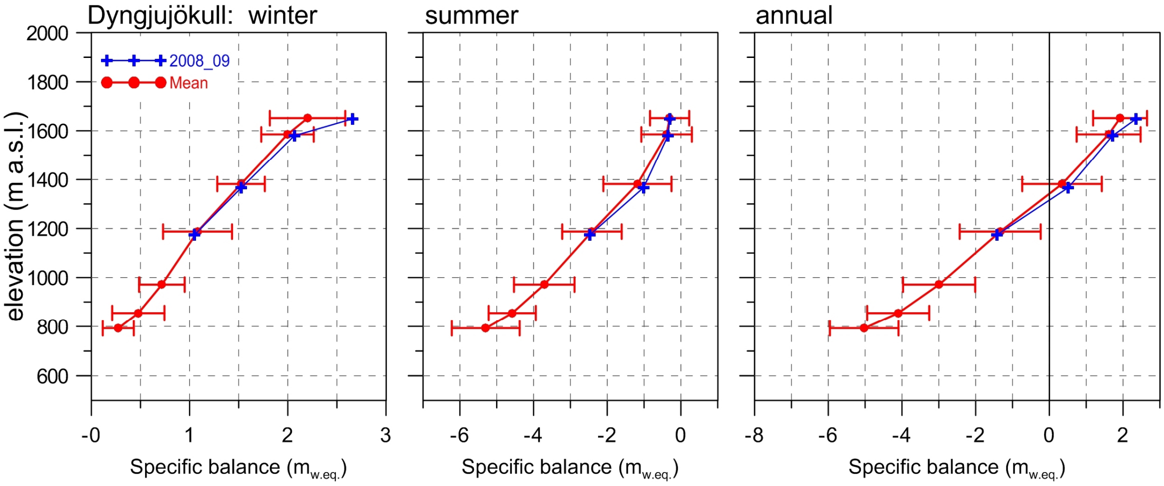

Figure 7. Mass balance at a central flow line on Dyngjujökull 2008_09, and average mass balance 1991_92 to 2008_09 (except 1998_99 – 2003_04 at all but the top elevation).

3.2.3 Dyngjujökull

Area = 1053 km^2
B_w= 1.78 km^3 ; b_w = 1.69 m
B_s = -1.54 km^3 ; b_s = -1.46 m
B_n = 0.24 km^3 ; b_n = 0.23 m
ELA = 1315 m (at profile)
AAR = 64 %

Variation of mass balance along a flow line on Dyngjujökull is shown on Fig. 7. The winter balance in 2008_09 was close to average at all sites except the highest ones, where snow accumulation was extreme. In total the winter balance was 10% higher than average.
The summer ablation was close to average at all sites. The net balance was slightly positive. Mass balance is not measured at the lowest elevations, but assumed to be similar (as a function of elevation) to that of Brúarjökull and Köldukvíslarjökull.

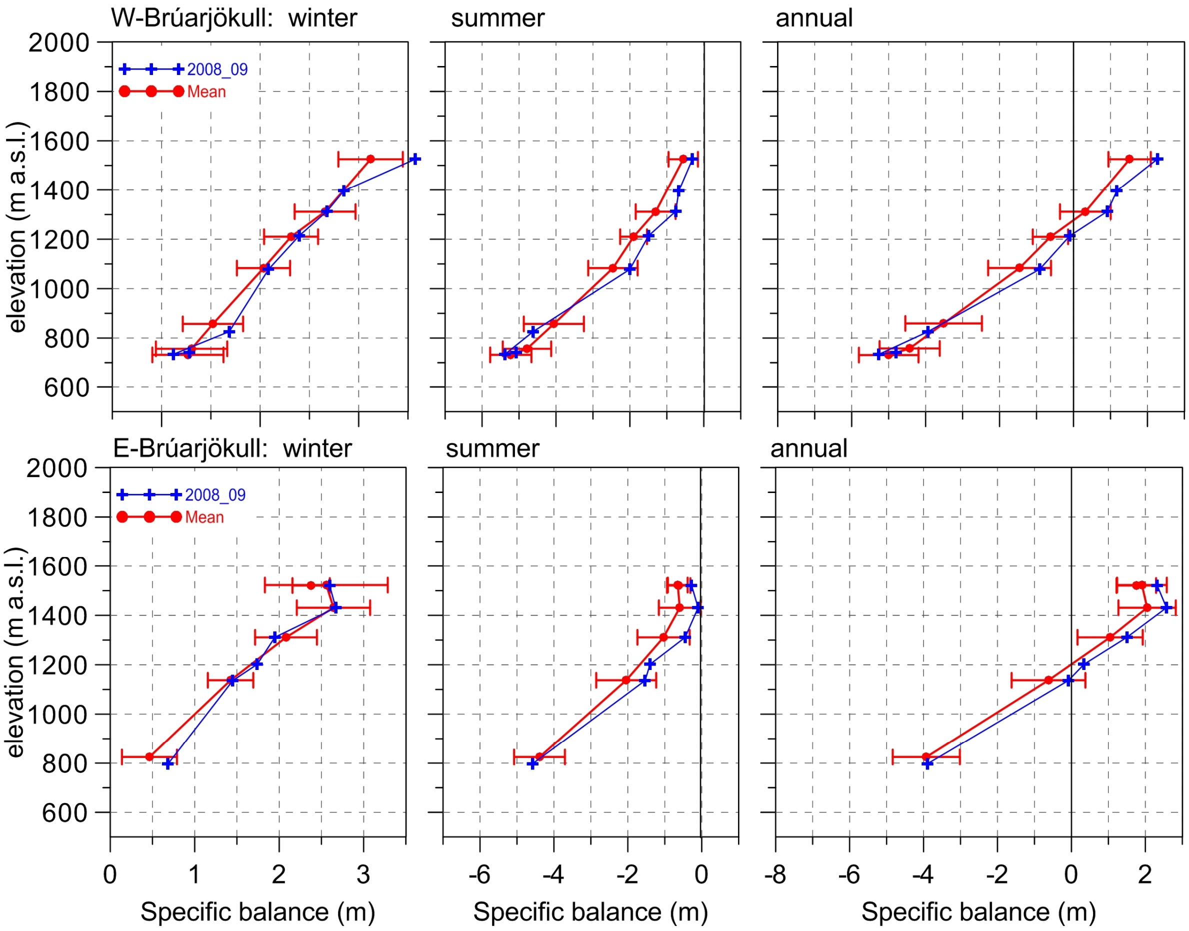

Figure 8. Mass balance at two flow lines on Brúarjökull 2008_09, and average mass balance 1992_93 to 2008_09.

3.2.4 Brúarjökull

Area = 1601 km^2
B_w= 2.51 km^3 ; b_w = 1.17 m
B_s = -2.71 km^3 ; b_s = -1.69 m
B_n = -0.20 km^3 ; b_n = -0.12 m
ELA = 1225 m (western flow line)
ELA = 1225 m (eastern flow line)
AAR = 59 %

Variation of mass balance along two flow lines on Brúarjökull is shown on Fig. 8. The winter balance was slightly higher (4%) than average, due to more accumulation in the highest area and mid ablation zone of the western part. At the eastern sites snow accumulation was close to average except at the lowest sites where more snow accumulated than in an average winter. Summer ablation was less than average at all sites except the lowest ones. The total ablation was about 90% of the average. The net balance was close to zero, -0.12 m, ~1/3 of the average net balance of the survey period (-0.39 m). During most of the summer the prevailing wind direction was northeast, and thus this part of the ice cap did not enjoy the extremely warm and sunny summer as the western and southwestern outlets.

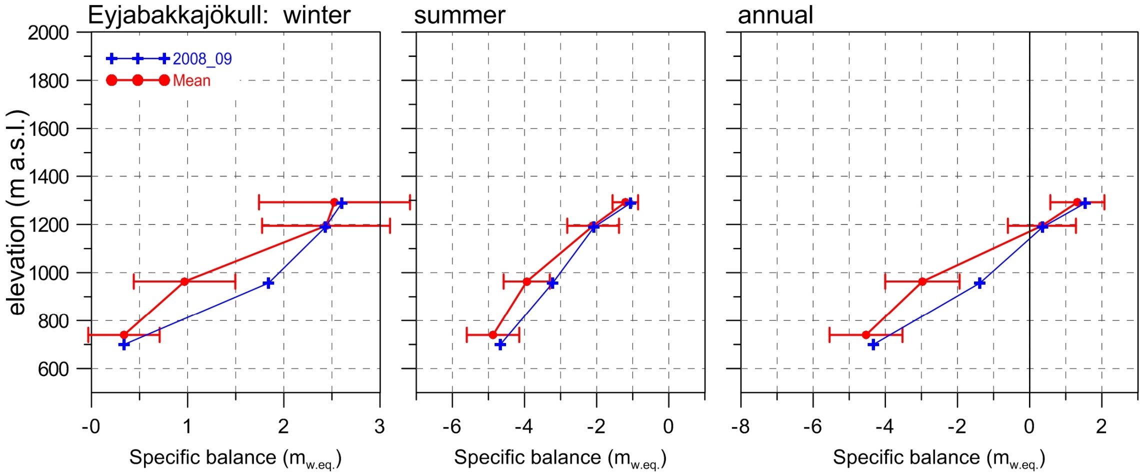

Figure 9. Mass balance at a central flow line of Eyjabakkajökull 2008_09 and average mass balance 1995_96 to 2008_09.

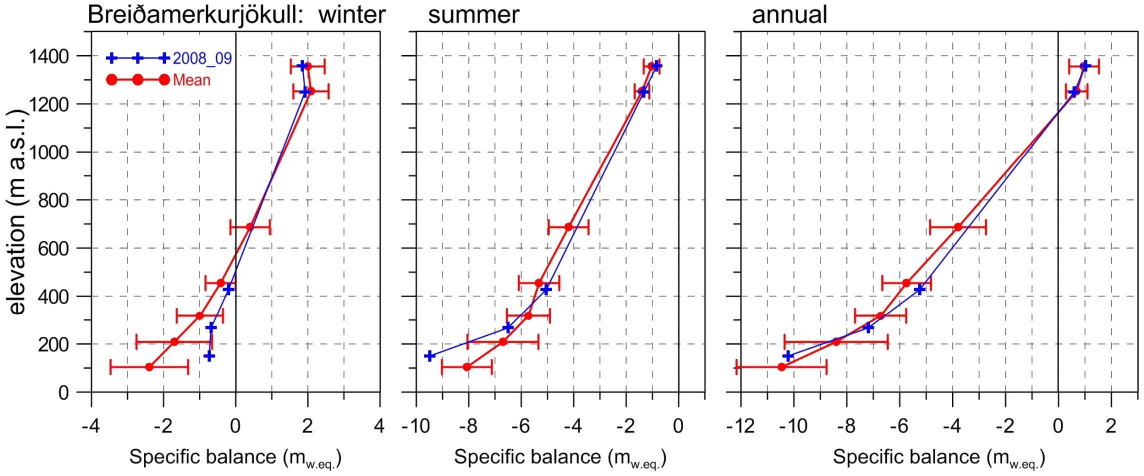

Figure 10. Mass balance at a central flow line of Breiðamerkurjökull 2008_09, and average mass balance 1995_96 to 2008_09.

3.2.5 Eyjabakkajökull

Area = 113 km^2
B_w= 0.22 km^3 ; b_w = 2.00 m
B_s = -0.28 km^3 ; b_s = -2.50 m
B_n = -0.06 km^3 ; b_n = -0.50 m
ELA = 1140 m (at profile)
AAR = 42 %

Variation of mass balance along a central flow line on Eyjabakkajökull is shown on Fig. 9. Winter balance was higher than average in the mid and lower elevation range, in total the winter balance was 18% higher than average. Summer ablation was less than average in the mid and lower elevation range, probably due to unusually thick snow cover. The total ablation was 90% of the average. Annual balance was negative, but only half of the average since 1995_96.

3.2.6 Breiðamerkurjökull

Area = 994 km^2
B_w= 1.49 km^3 ; b_w = 1.52 m
B_s = -2.21 km^3 ; b_s = -2.25 m
B_n = -0.72 km^3 ; b_n= -0.73 m
ELA = 1140 m (at profile)
AAR = 55 %

Variation of mass balance along a

central flow line on Breiðamerkurjökull is shown on Fig. 10. Snow accumulation was close to average in the upper area. No snow accumulated below about 500 m, but winter ablation was less than average at the lowest sites. The latter half of winter was cold. The winter balance was 16% above average. Ablation was 90% of the average; the warm and sunny summer did not reach this part of the country. The net balance was negative but only 60% of the average.

3.3 The mass balance record for Vatnajökull.

From the digital maps the total volumes of winter, summer and net balance have been calculated by integration (appendix D, gives balance values as a function of elevation) and are as follows:

$$\mathbf{B_w = 13.95\ km^3\ ;\ b_w = 1.71\ m}$$
$$\mathbf{B_s = -16.23\ km^3\ ;\ b_s = -1.99\ m}$$
$$\mathbf{B_n = -2.28\ km^3\ ;b_n = -0.28\ m}$$

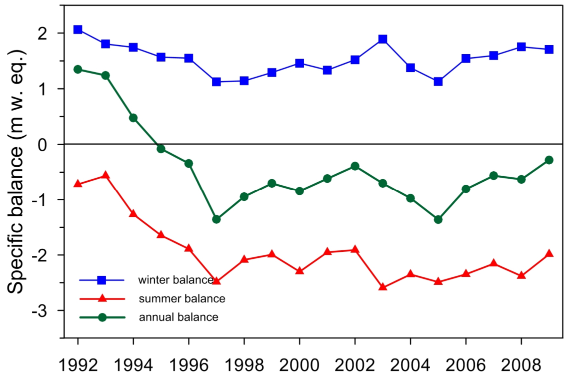

Figure 11. Specific mass balance of Vatnajökull 1991_92 – 2008_09.

Most of the winter was warm and wet, with prevailing southerly winds. This lead to higher than average winter balance by 15% (over the observation period 1991_92-2008_09, Fig. 11). The 0 mass balance turnover for Vatnajökull (current topography) is close to 13.4 km^3 (1.64 m w. eq.) and the winter balance 2008_09 is 4% higher. The summer was extremely warm and sunny in west and south Iceland but not very sunny in east- and southeast-Iceland. This lead to high ablation on the southwestern and western outlets. The summer ablation was ~22% higher than average over the survey period, 45% higher than for zero balance turnover. Although the net balance was negative, the mass loss was only 85% of the average (-0.74 m) the past 14 consecutive years of negative balance.

The glacial year of 2008_09 was the

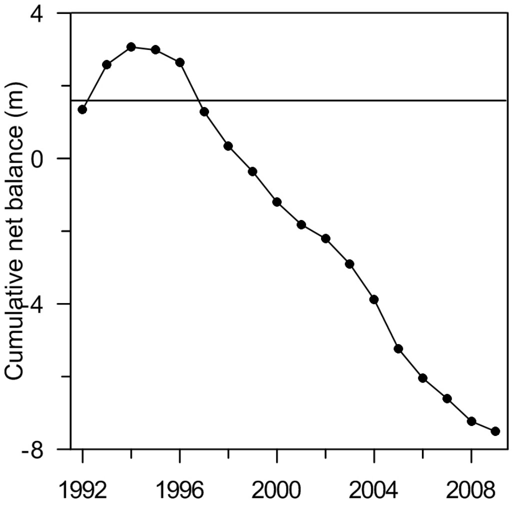

Figure 12. Cumalative specific mass balance of Vatnajökull 1991_92 – 2008_09.

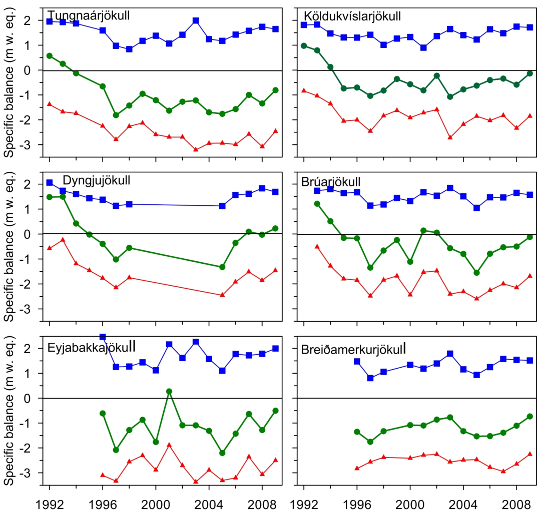

Figure 13. Specific mass balance of Vatnajökull outlets 1991_92-2008_09.

14th in a row with negative mass balance for Vatnajökull (Fig. 11, Fig. 12), contributing to a total loss of 10.6 m w. eq. (ice volume of ~95 km^3) since 1994_95.

The temporal variability of mass balance for different outlets is shown in Fig. 13. The greatest variability of the winter balance is for Eyjabakkajökull the eastern most of studied outlets. This part of the glacier is open to precipitation from all south- and east- and north-easterly wind directions, and thus has high snow accumulation in winters when the paths of the North Atlantic lows is just east of Iceland. This is also the case for the eastern part of Brúarjökull.

Breiðamerkurjökull shows lowest variability. It is a maritime glacier with climate controlled by the stable sea temperature and humid air mass. The longest winter balance records seem to reveal periodic behavior, with peaks in ~1991_92 and 2002_03 and a low in ~1998.

The cumulative net balance curves for the outlets of Vatnajökull in Fig. 14 show that all outlets have been losing mass since 1994_95. The slope for mass loss is about 0.7 ma^{-1} for northern outlets but 1.5 ma^{-1} for the south and western outlets.

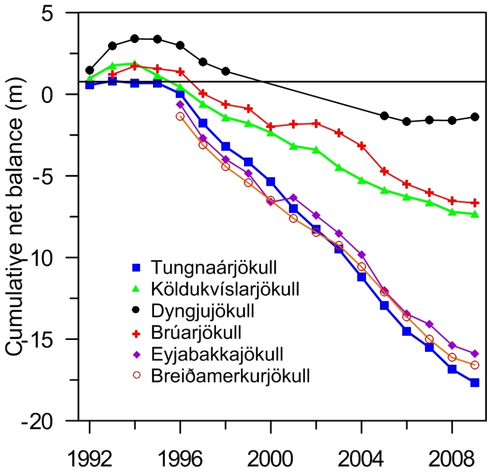

Figure 14. Cumulative specific mass balance for several of Vatnajökull outlets 1991_92 – 2008_09.

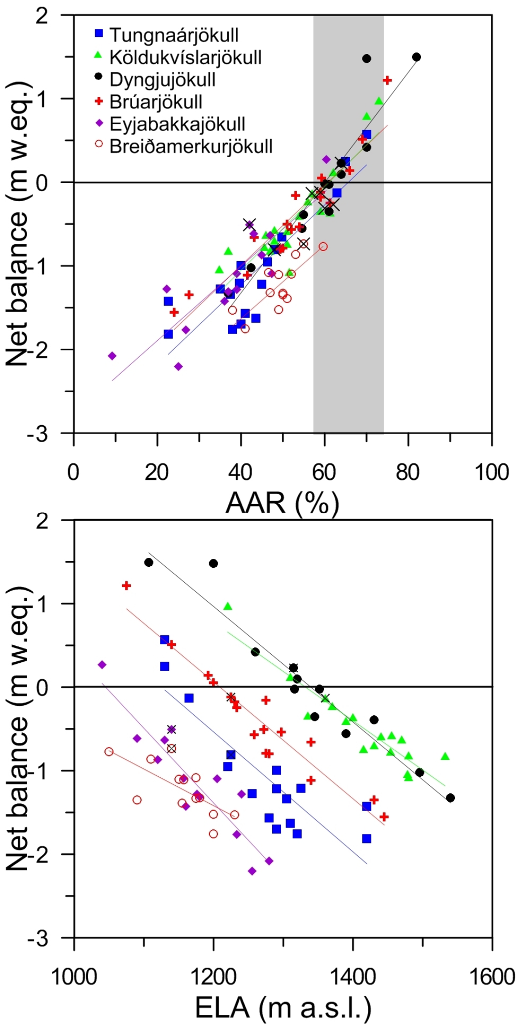

Figure 15. The relation between net annual balance (b_n) and accumulation area ratio (AAR)(upper) and b_n and equilibrium line altitude (ELA), for Vatnajökull outlets during the survey period. (This years points are marked with a black x).

In Fig. 15 the relation of the annual net balance to the accumulation area ratio (AAR) and equilibrium line altitude (ELA) is shown for different outlets over the survey period. The b_n-AAR gradient is similar for all outlets, about 0.5 $m_{w.eq.}$ for 10% change in AAR. The zero-balance AAR varies for different outlets from about 60-65%, similar for all outlets except for the southern outlet Breiðamerkurjökull.

Breiðamerkurjökull is far from equilibrium, the ablation area is too large. A large part of the glacier has carved 200-300 m through the former sediment bed, and the surface elevation has lowered accordingly. Breiðamerkurjökull is now retreating at a high rate.

Similarly the zero-balance ELA varies from about 1000-1100 m for the southern outlets to 1400 m for the NW outlets. The b_n-ELA slope is similar for all outlets -0.7 m w. eq. per 100 m.

3.4 ELA derived from satellite images.

The strong correlation of ELA and net balance (Fig. 15) suggest that a record of ELA could be used to estimate the net balance record. Position of the ELA can be identified on aerial photographs, oblique photographs and satellite images taken just before the first winter snow. All clear sky MODIS images of Vatnajökull in late August (29) and September (4, 8, 12, 13, 15) (Fig. 16) were used to delineate the snow-firn interface (The MODIS Rapid Response System, onboard Terra and Aqua, NASA satellites). The same was done for an ENVISAT image (synthetic aperture radar onboard an ESA satellite) of September 17th (Fig. 17).

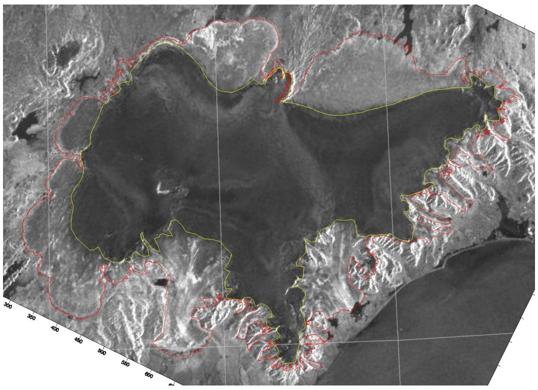

Figure 17. ENVISAT image of Vatnajökull, September 17th 2009. The yellow line is the interpreted snow-firn boundary.

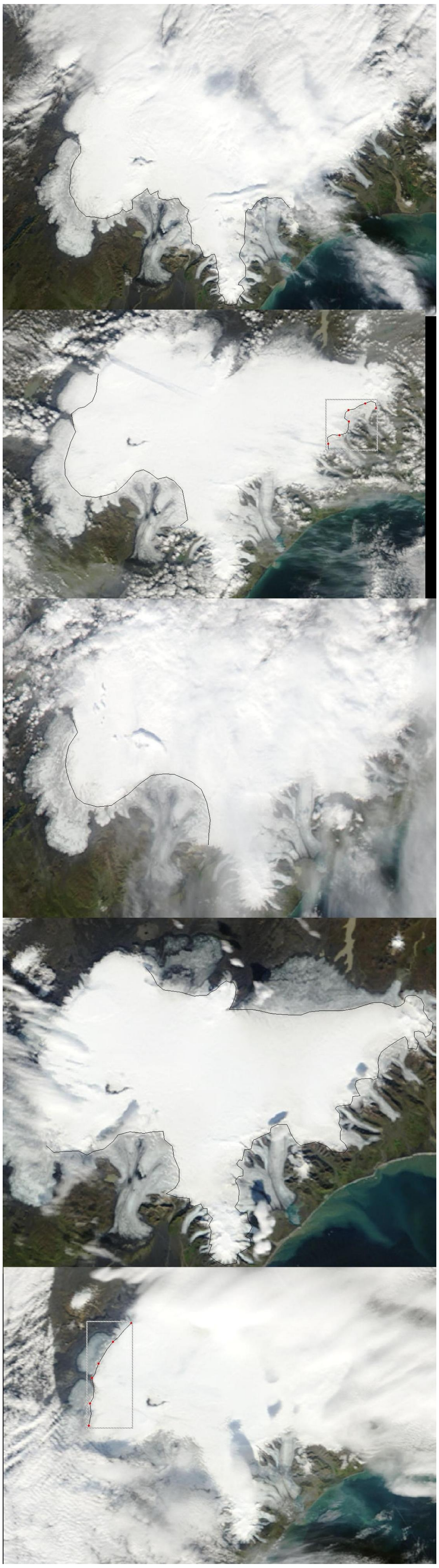

Figure 16. MODIS images of Vatnajökull, August 29th September 4, 8, 12 and 13th, 2009 (top - down respectively). The black lines show the interpreted snow-firn boundary.

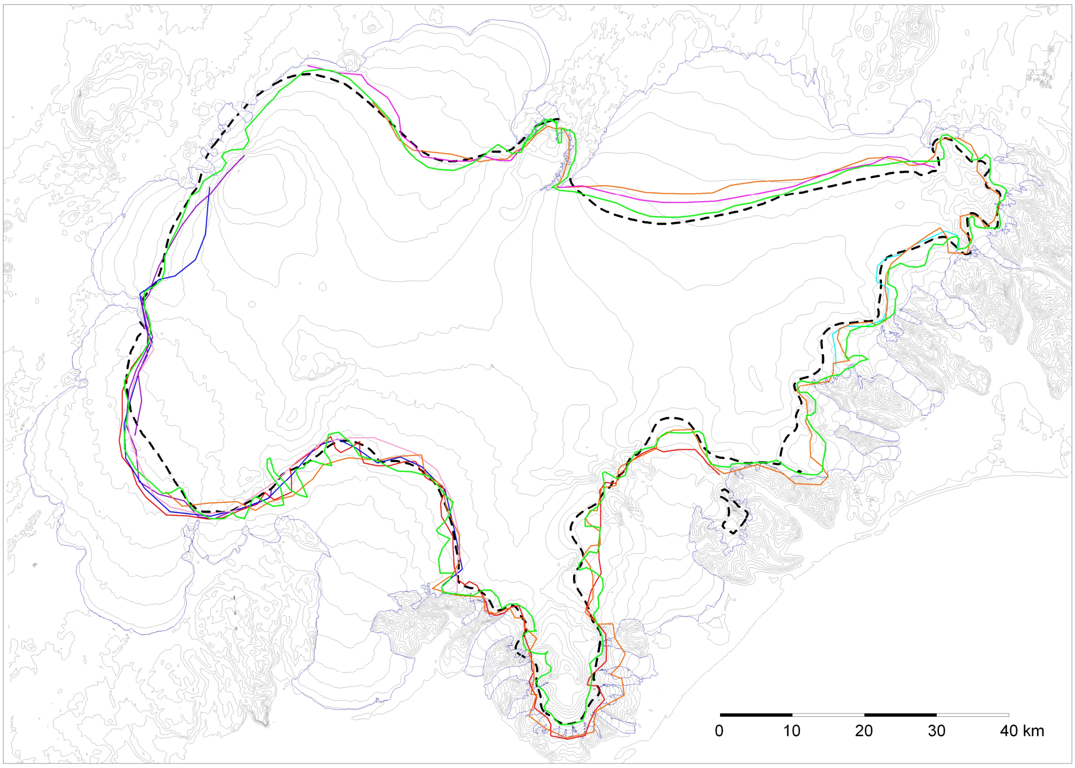

Figure 18. Comparison of ELA and snow-firn boundary observed on satellite images. The black hatched line is ELA estimated from mass balance measurements, green the snow-firn boundary from ENVISAT (Sept. 17th), other lines are snow-firn boundary from MODIS images (Aug. 29th and Sept. 4, 8, 12, 13, 15th).

The estimated (roughly estimated, drawn by hand on top of the images) snow-firn boundary from the satellite images and ELA (as calculated from the mass balance maps) is shown in Figure 18. The ELA and the snow-firn estimate from the ENVISAT image coincide more or less, and this is also true for most of the MODIS lines. On Brúarjökull the snow-firn boundary has moved upwards with time (the orange line is Sept.12th, the violet the 15th, and the green 17th.); there has been some ablation on Brúarjökull in mid September, in the relatively warm southerly winds. The largest discrepancy between ELA and the satellite derived snow-firn boundary is on Síðujökull and Skálafellsjökull. On Síðujökull a mass balance measurement site is located in the area between ELA and the snow-firn lines, this difference is unexplained. On outlets where no mass balance measurements are conducted, the mass balance is estimated from measurements on neighboring outlets. We have reason to believe that the winter balance in the lowest part of the accumulation zone is underestimated on some of the south-east outlets.

The general good agreement of the satellite derived snow-firn boundary and ELA from mass balance measurements suggests that if the snow-firn boundary can be determined at the start of winter, this can be used as an estimate of ELA. From ELA b_n can be estimated (see fig. 15). These results suggest a method to estimate mass balance from remote sensing data in the future and perhaps backwards in time from the wealth of satellite images existing from the 1970's.

4. SURFACE VELOCITY MEASUREMENTS

The surface velocity of the glacier was calculated from DGPS (accuracy within 1 m), fast static (accuracy about 1 cm) and kinematic GPS (accuracy about 3 cm) positioning of the ablation stakes. All sites were surveyed in spring and autumn (most kinematic, some DGPS), and many also in June (kinematic), August (fast static) and October (kinematic). At a few sites stakes from previous years were found and resurveyed, making it possible to calculate surface velocity over a year or longer time span. The average summer surface velocity is shown on Figure 19.

The use of more accurate instruments and setup, allows estimation of vertical as well as horizontal velocities. Two 6 metre long 4 inch metal poles where set up in the accumulation zone of the western outlet Tungnaárjökull and one on east Brúarjökul to directly measure the vertical displacement. Small GPS units are also attached to the poles and run continuously. At sites close to the glacier edge very small horizontal movement is measured. This indicates that the glacier snouts are almost stagnant. In the centre areas of some of the outlets especially close to the equilibrium line, there is an increase in velocity during summer compared to winter. The summer velocity is of the order of two-fold the winter velocity. This suggests that basal sliding is increased in the melting season, and is of the same magnitude as the deformation velocity.

From previous velocity measurements, surging of outlets has been predicted. No signs of a starting surge are seen from this year's survey.

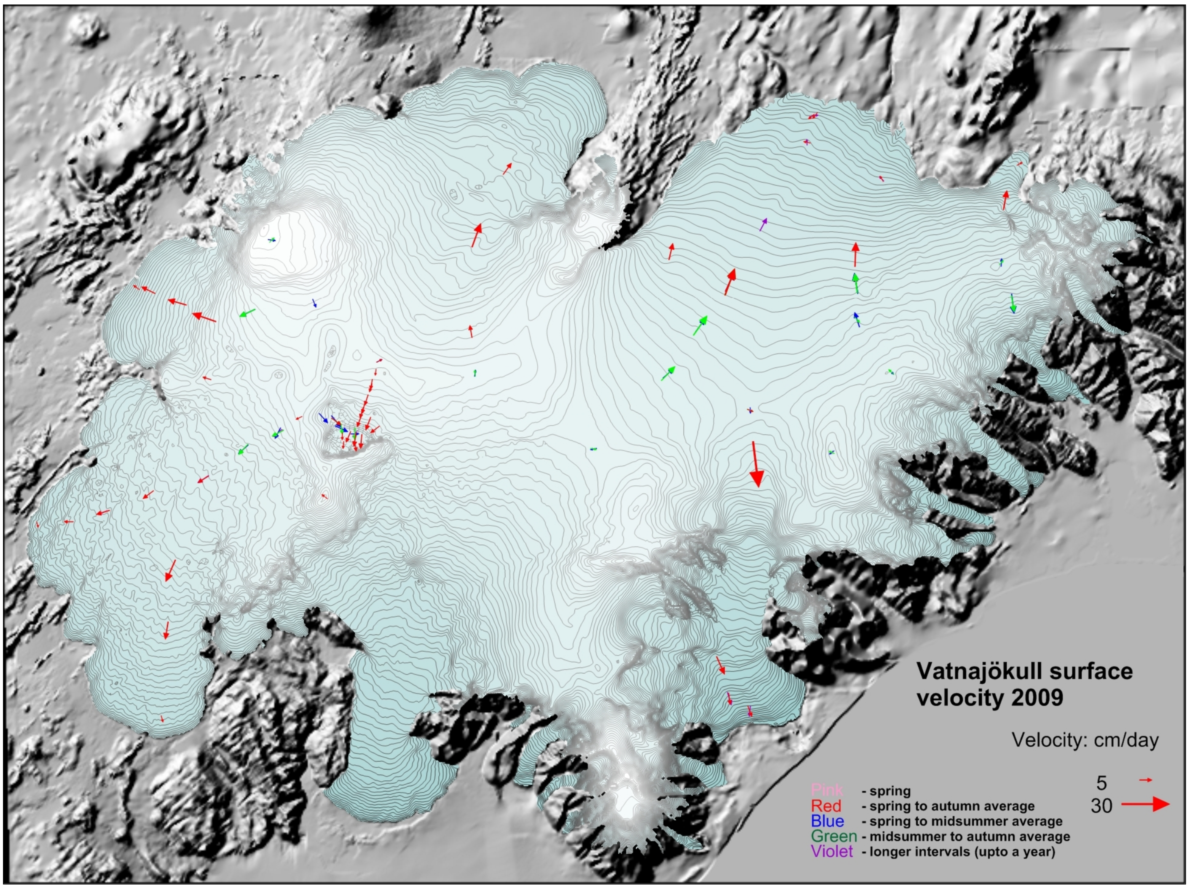

Figure 19. Average surface velocity during 2009.

5. Melt water runoff.

Water divides and drainage basins for rivers draining water from Vatnajökull have been defined from water pressure potential maps. The potential maps were produced from existing surface (year 2000) and bedrock digital elevation models.

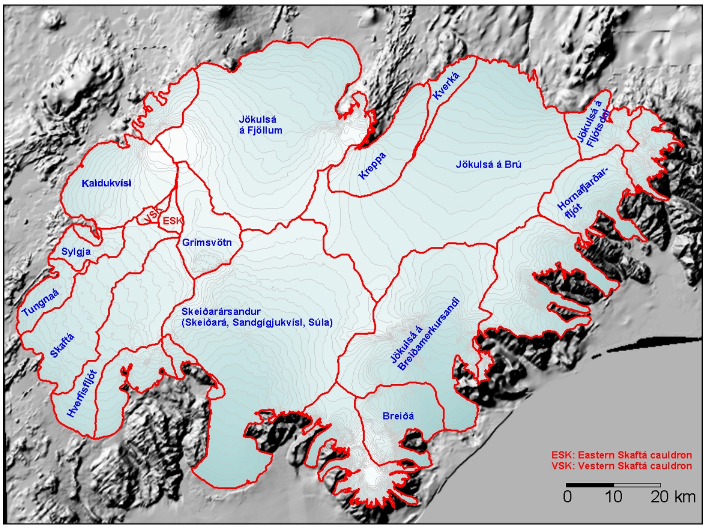

Figure 20. Water divides and drainage basins of selected rivers draining water from Vatnajökull.

Figure 20 shows the water divides and drainage areas for selected rivers draining melt water from Vatnajökull. The summer balance over the water basin is an estimate of meltwater contribution to rivers and groundwater storage. This estimate, however, does not include precipitation that falls as rain on the glacier, nor snow, which falls and melts during the summer. The meltwater contribution can be compared with river runoff at streamflow gauges closest to the glacier. For this comparison, we define the glaciological year from the start of October to the end of September and the period draining meltwater from the glacier during the summer from June through September. It would be misleading to include May in the summer period because runoff from the glacier melt in May is delayed due to refreezing during elimination of the cold wave and because of the contribution of the spring melt from the highlands to the runoff. Some melting also occurs during winter, especially in the low snouts of the

Table I. Melt water drainage to selected rivers.

Water Catchment:	Area (km^2)	ΣQ_s ($10^6 m^3$)	Q_s ($m^3 s^{-1}$)	Q_a ($m^3 s^{-1}$)	q_s ($ls^{-1} km^{-2}$)
Vatnajökull	8190	163230	1548,6	517,6	63,2
Tungnaá	98	395	37,5	12,5	127,9
Sylgja	81	1620	15,4	5,1	63,2
Kaldakvísl	347	6270	59,5	19,9	57,3
Jökulsá á Fjöllum	1161	16280	154,4	51,6	44,5
Kreppa	236	3460	32,8	11,0	46,5
Kverká	66	2670	25,3	8,5	128,5
Jökulsá á Brú	1350	21140	200,6	67,0	49,7
Jökulsá á Fljótsdal	132	3340	31,7	10,6	80,3
Hornafjarðarfljót	248	5820	55,2	18,5	74,5
Jökulsá á Breiðamerkursandi	757	15820	150,1	50,2	66,3
Breiðá	233	8380	79,5	26,6	113,9
Skeiðarársandur	1375	28520	270,6	90,4	65,8
Brunná	37	1600	15,2	5,1	137,1
Djúpá	85	2920	27,7	9,3	108,9
Hverfisfljót	392	7870	74,7	25,0	63,7
Skaftá	375	9360	88,8	29,7	79,2
Grímsvötn	204	1260	12,0	4,0	19,6
Eystri Skaftárketill	29	100	0,9	0,3	11,0
Vestari Skaftárketill	20	100	0,9	0,3	15,9

ΣQ_s: total summer melt water; Q_s: average runoff (averaged over summer, 4 months, June – September)
Q_a: average runoff (averaged over a whole year); q_s : average runoff per km^2 (averaged over a whole year)

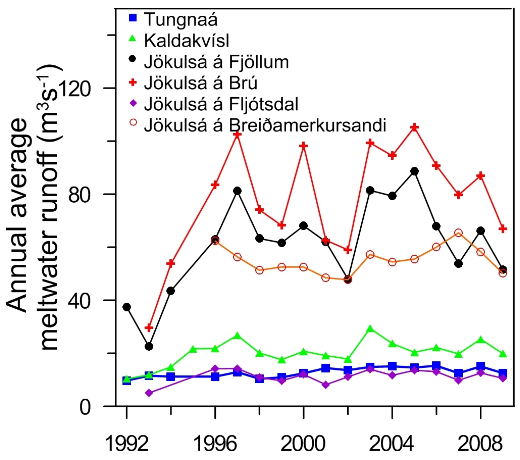

Figure 21. The temporal variation of the average annual meltwater runoff to different river catchments.

southern outlets.

Average melt water runoff to different rivers is given in Table I, and temporal variation of the average meltwater runoff in Fig. 21. The average specific runoff (q_s) differs from basin to basin from 11 to 137 ls^{-1}km^{-2}. This is mainly due to different elevation distributions, for example, the water drainage basins for Tungnaá and Kverká are within the ablation area, while that of Grímsvötn and Skaftárkatlar are high in the accumulation zone.

6. Conclusions

October 2008 was cold and wet but December extremely warm, most of the snow that had accumulated in lower areas melted. January was warm and wet and most of the snow accumulated in March and April.

For a large part of the summer north and northeast winds were prevailing, resulting in rather cold and dim conditions in the north east and southeast, but sunny in the west and southwest parts of Vatnajökull. This changed in August and September, and warm southerly winds were prevailing for the rest of the summer and autumn. Integration over the entire Vatnajökull ice cap mass balance maps, shown in Fig. 2, yields:

B_w of 13.95 km^3, B_s : -16.23 km^3 and B_n : -2.28 km^3 ,

(b_w= 1.71 m, b_s= -1.99, b_n= -0.28 m).

The winter balance was 11% over average the survey period (1991_92-2008_09). Some snow accumulated in the last months of winter on all snouts, except on the low lying southeast outlets, where the winter ablation was ~1 m w.eq. at 100 m a.s.l.. The total summer ablation was 2% higher than average during the survey period. The glacial year of 2008_09 is the 15th in a row with negative average mass balance for Vatnajökull, contributing to a total loss of 10.6 m w. eq. (volume of 96 km^3 of ice) since 1994_95. One outlet, Dyngjujökull, had positive annual mass balance 0.2 m w.eq. .

Appendix A: Mass balance at measurement sites 2008_09.

b_w: specific winter balance, **b_s**: specific summer balance, **b_n**: specific net balance,
l_a: new snow in autumn (all in water equivalent).

Site	Position				Elevation	Date	Date	b_w	b_s	b_n	la
	Latitude		Longitude		(m a.s.l.)	in spring	in autumn	(mm)	(mm)	(mm)	(mm)
B09q	64	45,4587	16	5,2331	734	90515	91014	118	-5383	-5265	0
B08q	64	45,3993	16	5,8020	742	90515	91014	282	-5079	-4797	0
B10q	64	43,6839	16	6,7012	826	90515	91014	686	-4619	-3933	35
B12o	64	38,2851	16	14,1520	1078	90514	91014	1085	-2003	-918	122
B13o	64	34,5253	16	19,7672	1214	90514	91014	1396	-1494	-98	161
B14q	64	31,6400	16	24,6896	1313	90514	91014	1678	-760	918	196
B15d	64	28,5013	16	29,9941	1397	90514	91014	1851	-675	1176	199
B16q	64	23,6096	16	42,0684	1526	90514	91014	2576	-306	2270	367
B17o	64	36,7314	16	28,8105	1213	90514	91014	1077	-1680	-603	161
Br1d	64	5,53373	16	19,486	150	90413	90930	-738	-9486	-10224	0
Br2f	64	6,43391	16	22,55	267	90222	90930	-682	-6507	-7189	0
Br3l	64	8,69538	16	23,705	428	90222	90930	-200	-5042	-5242	0
Br7m	64	22,1424	16	16,9246	1250	90516	91014	1923	-1323	600	203
B07m	64	25,7872	16	17,4287	1358	90516	91014	1850	-831	1020	241
BB0n	64	22,7155	16	5,0502	1521	90516	91013	2597	-275	2322	402
B19m	64	27,9367	15	55,1800	1431	90516	91013	2669	-98	2571	350
B18m	64	31,5719	16	0,1324	1311	90516	91013	1948	-448	1500	237
gb2rora	64	34,0511	16	0,0112	1202	90515	91013	1740	-1398	342	157
Budn	64	35,9865	15	59,9061	1136	90515	91013	1451	-1534	-83	122
Brun	64	40,9943	15	55,2175	797	90515	91013	684	-4581	-3897	35
D05l	64	42,7001	16	54,0373	1174	90516	91015	1050	-2472	-1422	115
D07l	64	38,2970	16	59,2475	1367	90516	91015	1528	-1012	516	185
D09l	64	31,8020	17	0,5687	1580	90516	91015	2067	-351	1716	315
D12m	64	28,9876	17	0,1355	1649	90516	91015	2659	-301	2358	392
E01n	64	41,5163	15	33,4078	700	90515	91013	340	-4669	-4329	17
E02n	64	39,1324	15	35,9871	957	90515	91013	1842	-3219	-1377	52
E03o	64	36,6504	15	36,9142	1189	90515	91013	2432	-2072	360	210
E04n	64	34,9584	15	37,1019	1289	90515	91013	2604	-1060	1544	245
Hosp	63	25,8545	15	28,6982	89	90327	90930	-700	-8466	-9166	0
Hof01g	64	32,1278	15	35,6686	1127	90515	91013	2771	-2171	600	150
K01p	64	35,3537	17	52,7796	986	90510	91015	583	-4453	-3870	0
K02q	64	35,1587	17	50,9262	1116	90510	91015	1289	-3878	-2589	0
K03q	64	34,2657	17	46,4240	1303	90510	91015	1378	-1936	-558	52
K04q	64	33,2077	17	42,2508	1496	90510	91015	2142	-864	1278	87
K05q	64	33,4612	17	35,4648	1687	90510	91015	2343	-393	1950	322
K06u	64	38,3530	17	31,3727	1971	90604	91015	2109	40	2149	535
K07l	64	29,1064	17	42,0269	1541	90510	91015	2321	-725	1596	210
S01e	64	6,2275	17	50,0055	723	90509	91011	428	-4712	-4284	0
S02h	64	12,1578	17	49,0280	1018	90509	91011	2023	-3166	-1143	0
S04i	64	16,1981	17	48,2629	1167	90509	91011	1790	-2213	-423	105
T01nl	64	19,4512	18	8,8001	752	90509	91010	200	-6527	-6327	0
T02nl	64	19,6120	18	3,9366	962	90509	91010	1461	-3360	-1899	17
T03nl	64	20,2063	17	58,6018	1085	90509	91011	1416	-2883	-1467	52
T04nl	64	21,3496	17	51,5106	1231	90509	91015	1800	-1710	90	70
T05nl	64	22,3152	17	42,9155	1349	90510	91015	1768	-1338	430	140
T06nl	64	24,2762	17	36,5758	1463	90517	91015	2120	-884	1236	237
T07nk	64	25,3110	17	31,1501	1567	90517	91015	2346	-792	1554	237

T08nl	64	26,3046	17	27,7924	1641	90513	91015	2450	-200	2250	98
HAABi	64	20,9588	17	24,1054	1731	90604	91015	2955	-420	2535	175
BORTHNb	64	25,1335	17	19,1470	1398	90604	91015	2330	-1574	756	122
BORad	64	24,9452	17	20,1706	1400	90604	91015	2574	-1284	1290	108
G02f	64	26,8619	17	17,6932	1563	90604	91015	2262	-996	1266	199
G03g	64	28,4374	17	16,3568	1657	90604	91015	2105			248
G04n	64	30,0099	17	15,0252	1688	90604	91015	2450	-530	1920	301
Go1m	64	34,0004	17	24,9505	1760	90604	91015	2411	-458	1953	364
Gh01c	64	29,2448	17	15,6484	1676	90604	91015		95		350
Gh03c	64	27,3944	17	17,2083	1620	90604	91015		-181		199
Gh04c	64	26,5502	17	17,9976	1545	90604	91015		-511		118
Gh05c	64	25,9896	17	18,4016	1502	90604	91015		-861		118
Gh06c	64	25,5527	17	18,8384	1421	90604	91015		-1041		230
Gh09c	64	25,8034	17	17,0232	1506	90604	91015		-942		171
Gh10c	64	25,3973	17	15,9867	1509	90604	91015		-1000		213
Gh11c	64	25,0977	17	17,1808	1440	90604	91015		-994		203
Gh12c	64	24,6083	17	18,1987	1406	90604	91015		-1482		217
Gh13c	64	24,7531	17	19,1482	1396	90604	91015		-1314		161
Gh14b	64	24,3027	17	19,1368	1382	90604	91015				171
Gh15c	64	26,2454	17	23,9803	1545	90604	91015		-661		168
Gh16c	64	26,0021	17	21,9968	1476	90604	91015		-972		182
Gh17c	64	25,4976	17	21,2031	1424	90604	91015		-1348		168
Gh18c	64	24,9929	17	21,1116	1421	90604	91015		-1570		98
Gh19c	64	24,4034	17	20,9862	1417	90604	91015		-1554		175

Appendix B: Balance distribution by elevation in 2008_09.

ΔS : area in elevation range, $\sum\Delta S$: cumulative area above given elevation, b_w: specific winter balance, b_s: specific summer balance. b_n: specific winter balance, ΔB_w : winter balance at a given elevation range, $\sum\Delta B_w$: cumulative winter balance above given elevation, ΔB_s summer balance at a given elevation range, $\sum\Delta B_s$: cumulative summer balance above given elevation, ΔB_n: net annual balance in a given elevation range, $\sum B_n$: cumulative net annual balance above given elevation.

Vatnajökull

Elevation (m a.s.l.)			ΔS (km^2)	å ΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w ($10^6 m^3$)	å ΔB_w ($10^6 m^3$)	ΔB_s ($10^6 m^3$)	å ΔB_s ($10^6 m^3$)	ΔB_n ($10^6 m^3$)	å B_n ($10^6 m^3$)
2000	2050	2025	1	1	6213	-138	6074	3	3	0	0	3	3
1950	2000	1975	17	18	2644	24	2669	46	49	0	0	46	49
1900	1950	1925	44	63	2577	-15	2561	115	163	-1	0	114	163
1850	1900	1875	36	99	3113	-121	2992	115	279	-5	-5	111	274
1800	1850	1825	48	146	3533	-116	3417	154	433	-5	-10	149	423
1750	1800	1775	54	200	3019	-209	2810	166	599	-12	-21	155	578
1700	1750	1725	97	297	2680	-277	2403	258	857	-27	-48	232	809
1650	1700	1675	230	527	2568	-374	2193	589	1446	-86	-134	503	1312
1600	1650	1625	357	884	2576	-373	2202	919	2364	-133	-267	786	2098
1550	1600	1575	354	1238	2467	-419	2048	858	3222	-145	-412	712	2810
1500	1550	1525	415	1653	2391	-459	1931	1004	4226	-193	-604	812	3622
1450	1500	1475	446	2098	2282	-576	1706	1035	5261	-261	-865	774	4395
1400	1450	1425	503	2601	2214	-651	1563	1105	6366	-325	-1191	780	5176
1350	1400	1375	578	3179	2088	-785	1303	1189	7555	-447	-1638	742	5917
1300	1350	1325	557	3736	1975	-943	1031	1109	8664	-531	-2168	578	6496
1250	1300	1275	522	4258	1914	-1198	716	1004	9667	-629	-2797	375	6870
1200	1250	1225	486	4745	1769	-1637	132	866	10534	-804	-3601	63	6933
1150	1200	1175	445	5189	1639	-2013	-374	726	11260	-897	-4498	-171	6763
1100	1150	1125	376	5566	1549	-2325	-776	580	11840	-880	-5377	-300	6463
1050	1100	1075	363	5928	1424	-2643	-1218	509	12349	-958	-6335	-449	6014
1000	1050	1025	323	6252	1311	-3003	-1692	428	12777	-994	-7329	-567	5447
950	1000	975	291	6543	1210	-3322	-2111	350	13126	-976	-8305	-627	4821
900	950	925	256	6798	1111	-3591	-2480	285	13411	-943	-9248	-658	4162
850	900	875	243	7041	974	-3900	-2926	234	13645	-965	-10213	-731	3431
800	850	825	208	7249	817	-4122	-3305	172	13817	-896	-11109	-724	2707
750	800	775	174	7423	633	-4352	-3719	110	13926	-784	-11893	-674	2033
700	750	725	132	7554	558	-4278	-3720	77	14003	-625	-12518	-548	1485
650	700	675	97	7652	481	-4240	-3758	44	14047	-428	-12946	-384	1101
600	650	625	84	7736	400	-4083	-3683	31	14078	-354	-13300	-323	777
550	600	575	52	7788	335	-3895	-3560	20	14097	-272	-13573	-253	525
500	550	525	47	7834	223	-4061	-3838	10	14107	-212	-13785	-203	322
450	500	475	47	7881	23	-4263	-4240	1	14108	-245	-14029	-244	79
400	450	425	48	7929	-163	-4608	-4772	-8	14100	-263	-14292	-270	-192
350	400	375	42	7971	-317	-4987	-5304	-14	14086	-262	-14554	-277	-468
300	350	325	44	8015	-417	-5429	-5846	-19	14067	-283	-14837	-302	-770
250	300	275	44	8059	-508	-5896	-6405	-23	14045	-307	-15144	-329	-1099
200	250	225	41	8100	-602	-6328	-6931	-25	14020	-314	-15458	-339	-1438
150	200	175	33	8132	-688	-6614	-7303	-23	13997	-285	-15743	-308	-1745
100	150	125	30	8162	-779	-6826	-7606	-22	13976	-252	-15995	-274	-2019
50	100	75	22	8184	-869	-6935	-7805	-16	13960	-169	-16163	-184	-2203
0	50	25	5	8190	-936	-7312	-8249	-7	13954	-70	-16234	-77	-2280

Tungnaárjökull

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w (10^6m^3)	åΔB_w (10^6m^3)	ΔB_s (10^6m^3)	åΔB_s (10^6m^3)	ΔB_n (10^6m^3)	åB_n (10^6m^3)
1650	1700	1675	3,1	3,1	2447	-409	2038	8	8	-1	-1	6	6
1600	1650	1625	18,8	21,9	2418	-600	1818	46	53	-11	-13	34	41
1550	1600	1575	18,7	40,6	2367	-730	1637	44	97	-14	-26	31	71
1500	1550	1525	17,0	57,6	2295	-787	1507	39	136	-13	-40	26	97
1450	1500	1475	18,8	76,4	2177	-864	1313	41	178	-16	-56	25	122
1400	1450	1425	21,3	97,7	1996	-994	1001	43	220	-21	-77	21	143
1350	1400	1375	19,1	116,8	1866	-1222	643	36	256	-23	-101	12	155
1300	1350	1325	25,1	141,9	1791	-1485	306	45	301	-37	-138	8	163
1250	1300	1275	21,3	163,2	1776	-1606	169	38	339	-34	-172	4	167
1200	1250	1225	28,9	192,1	1724	-1864	-139	50	388	-54	-226	-4	163
1150	1200	1175	22,3	214,4	1590	-2318	-728	36	424	-52	-278	-16	146
1100	1150	1125	23,1	237,5	1481	-2684	-1202	34	458	-62	-340	-28	119
1050	1100	1075	23,4	260,9	1479	-3059	-1580	35	493	-72	-411	-37	82
1000	1050	1025	22,5	283,4	1457	-3400	-1942	33	526	-76	-488	-44	38
950	1000	975	19,0	302,4	1368	-3945	-2577	26	551	-75	-563	-49	-11
900	950	925	17,8	320,2	1184	-4598	-3414	21	573	-82	-644	-61	-72
850	900	875	17,2	337,4	853	-5443	-4589	15	587	-94	-738	-79	-151
800	850	825	11,5	348,9	512	-6083	-5571	6	593	-70	-808	-64	-215
750	800	775	8,3	357,2	251	-6462	-6210	2	595	-54	-862	-52	-266
700	750	725	3,0	360,2	186	-6557	-6370	1	596	-20	-881	-19	-286
650	700	675	1,1	361,3	214	-6519	-6305	0	596	-7	-888	-7	-292

Sylgjujökull

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w (10^6m^3)	åΔB_w (10^6m^3)	ΔB_s (10^6m^3)	åΔB_s (10^6m^3)	ΔB_n (10^6m^3)	åB_n (10^6m^3)
1600	1650	1625	1,4	1,4	2398	-653	1744	3	3	-1	-1	2	2
1550	1600	1575	7,5	8,9	2368	-723	1644	18	21	-5	-6	12	15
1500	1550	1525	15,3	24,2	2321	-713	1608	36	57	-11	-17	25	39
1450	1500	1475	12,8	37,0	2186	-883	1303	28	85	-11	-29	17	56
1400	1450	1425	8,8	45,8	1998	-1103	894	18	102	-10	-38	8	64
1350	1400	1375	9,1	54,9	1851	-1333	517	17	119	-12	-50	5	69
1300	1350	1325	11,6	66,5	1777	-1559	218	21	140	-18	-69	3	71
1250	1300	1275	13,9	80,4	1763	-1687	76	25	164	-23	-92	1	72
1200	1250	1225	15,2	95,6	1709	-1929	-219	26	190	-29	-121	-3	69
1150	1200	1175	17,3	112,9	1565	-2291	-725	27	217	-40	-161	-13	56
1100	1150	1125	17,0	129,9	1311	-2725	-1413	22	240	-46	-207	-24	32
1050	1100	1075	12,0	141,9	1029	-3267	-2237	12	252	-39	-247	-27	5
1000	1050	1025	5,3	147,2	925	-3805	-2879	5	257	-20	-267	-15	-10
950	1000	975	2,2	149,4	834	-4947	-4112	2	259	-11	-278	-9	-19
900	950	925	1,1	150,5	729	-6049	-5320	1	259	-7	-284	-6	-25
850	900	875	0,1	150,6	659	-6563	-5904	0	260	-1	-285	-1	-25

Köldukvíslarjökul

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w ($10^6 m^3$)	åΔB_w ($10^6 m^3$)	ΔB_s ($10^6 m^3$)	åΔB_s ($10^6 m^3$)	ΔB_n ($10^6 m^3$)	åB_n ($10^6 m^3$)
1950	2000	1975	5,2	5,2	2165	52	2218	11	11	0	0	12	12
1900	1950	1925	12,4	17,6	2293	-18	2275	29	40	0	0	28	40
1850	1900	1875	5,6	23,2	2307	-118	2189	13	53	-1	-1	12	52
1800	1850	1825	5,8	29,0	2307	-182	2124	13	66	-1	-2	12	65
1750	1800	1775	10,6	39,6	2339	-218	2120	25	91	-2	-4	23	87
1700	1750	1725	18,3	57,9	2330	-280	2050	43	134	-5	-9	38	125
1650	1700	1675	15,0	72,9	2323	-478	1845	35	169	-7	-16	28	152
1600	1650	1625	14,1	87,0	2313	-628	1685	33	201	-9	-25	24	176
1550	1600	1575	20,6	107,6	2294	-712	1581	47	248	-15	-40	33	209
1500	1550	1525	21,6	129,2	2248	-709	1539	49	297	-15	-55	33	242
1450	1500	1475	19,0	148,2	2110	-841	1268	40	337	-16	-71	24	266
1400	1450	1425	13,8	162,0	1915	-1072	843	27	363	-15	-86	12	278
1350	1400	1375	15,6	177,6	1710	-1356	353	27	390	-21	-107	6	283
1300	1350	1325	17,8	195,4	1485	-1758	-273	26	417	-31	-139	-5	278
1250	1300	1275	17,0	212,4	1380	-2308	-928	23	440	-39	-178	-16	262
1200	1250	1225	18,3	230,7	1384	-2927	-1542	25	465	-54	-231	-28	234
1150	1200	1175	17,5	248,2	1350	-3456	-2106	24	489	-61	-292	-37	197
1100	1150	1125	17,8	266,0	1156	-3883	-2727	21	510	-69	-361	-49	149
1050	1100	1075	16,5	282,5	843	-4267	-3424	14	524	-70	-431	-56	92
1000	1050	1025	15,4	297,9	567	-4580	-4012	9	532	-70	-502	-62	31
950	1000	975	10,4	308,3	405	-4849	-4444	4	536	-50	-552	-46	-15
900	950	925	4,9	313,2	313	-5069	-4756	2	538	-25	-577	-23	-39
850	900	875	0,6	313,8	272	-5594	-5321	0	538	-4	-580	-3	-42

Dyngjujökull

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w ($10^6 m^3$)	åΔB_w ($10^6 m^3$)	ΔB_s ($10^6 m^3$)	åΔB_s ($10^6 m^3$)	ΔB_n ($10^6 m^3$)	åB_n ($10^6 m^3$)
2000	2050	2025	0,0	0,0	2086	43	2129	0	0	0	0	0	0
1950	2000	1975	6,4	6,4	2141	45	2186	14	14	0	0	14	14
1900	1950	1925	19,0	25,4	2349	6	2355	45	58	0	0	45	59
1850	1900	1875	16,0	41,4	2452	-126	2325	39	98	-2	-2	37	96
1800	1850	1825	15,8	57,2	2587	-134	2452	41	138	-2	-4	39	135
1750	1800	1775	15,8	73,0	2513	-218	2294	40	178	-3	-7	36	171
1700	1750	1725	23,1	96,1	2496	-255	2241	58	236	-6	-13	52	223
1650	1700	1675	66,9	163,0	2519	-301	2217	169	404	-20	-33	148	371
1600	1650	1625	100,2	263,2	2449	-308	2141	245	650	-31	-64	215	585
1550	1600	1575	89,8	353,0	2195	-338	1856	197	847	-30	-95	167	752
1500	1550	1525	82,9	435,9	2047	-392	1654	170	1016	-33	-127	137	889
1450	1500	1475	69,9	505,8	1929	-499	1429	135	1151	-35	-162	100	989
1400	1450	1425	60,0	565,8	1818	-657	1161	109	1261	-40	-201	70	1059
1350	1400	1375	58,7	624,5	1682	-854	827	99	1359	-50	-252	49	1108
1300	1350	1325	39,7	664,2	1538	-1146	392	61	1420	-46	-297	16	1123
1250	1300	1275	43,2	707,4	1387	-1570	-183	60	1480	-68	-365	-8	1115
1200	1250	1225	66,0	773,4	1206	-2070	-863	80	1560	-137	-502	-57	1058
1150	1200	1175	59,4	832,8	1031	-2573	-1542	61	1621	-153	-654	-92	967
1100	1150	1125	35,4	868,2	940	-2954	-2013	33	1654	-105	-759	-71	896
1050	1100	1075	33,6	901,8	890	-3252	-2361	30	1684	-109	-868	-79	816
1000	1050	1025	39,0	940,8	841	-3583	-2742	33	1717	-140	-1008	-107	709
950	1000	975	33,6	974,4	714	-4087	-3372	24	1741	-137	-1145	-113	596
900	950	925	25,6	1000,0	569	-4548	-3978	15	1756	-116	-1261	-102	494
850	900	875	23,9	1023,9	445	-4980	-4534	11	1766	-119	-1380	-108	386
800	850	825	17,5	1041,4	352	-5341	-4988	6	1773	-93	-1474	-87	299
750	800	775	9,4	1050,8	310	-5517	-5207	3	1775	-52	-1525	-49	250
700	750	725	2,1	1052,9	295	-5582	-5286	1	1776	-12	-1537	-11	239

Brúarjökull

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w (10^{6}m^3)	åΔB_w (10^{6}m^3)	ΔB_s (10^{6}m^3)	åΔB_s (10^{6}m^3)	ΔB_n (10^{6}m^3)	åB_n (10^{6}m^3)
1800	1850	1825	0,0	0,0	2649	-167	2481	0	0	0	0	0	0
1750	1800	1775	1,2	1,2	2653	-157	2496	3	3	0	0	3	3
1700	1750	1725	2,8	4,0	2634	-179	2455	8	11	-1	-1	7	10
1650	1700	1675	4,2	8,2	2627	-237	2390	11	22	-1	-2	10	20
1600	1650	1625	49,2	57,4	2649	-283	2365	130	152	-14	-16	116	137
1550	1600	1575	46,3	103,7	2555	-312	2242	118	271	-15	-30	104	241
1500	1550	1525	72,8	176,5	2423	-343	2079	176	447	-25	-55	151	392
1450	1500	1475	73,3	249,8	2164	-469	1695	159	606	-34	-90	124	516
1400	1450	1425	106,8	356,6	2129	-522	1607	227	833	-56	-145	172	688
1350	1400	1375	158,2	514,8	2006	-571	1435	317	1151	-90	-236	227	915
1300	1350	1325	158,0	672,8	1843	-604	1239	291	1442	-95	-331	196	1111
1250	1300	1275	151,0	823,8	1768	-844	923	267	1709	-128	-459	139	1250
1200	1250	1225	116,8	940,6	1589	-1296	292	186	1895	-152	-610	34	1284
1150	1200	1175	115,2	1055,8	1418	-1611	-193	163	2058	-186	-796	-22	1262
1100	1150	1125	90,6	1146,4	1250	-1915	-665	113	2171	-174	-970	-60	1202
1050	1100	1075	80,8	1227,2	1112	-2326	-1214	90	2261	-188	-1158	-98	1104
1000	1050	1025	72,2	1299,4	979	-2899	-1919	71	2332	-209	-1367	-139	965
950	1000	975	61,3	1360,7	868	-3416	-2547	53	2385	-210	-1577	-156	809
900	950	925	55,0	1415,7	781	-3897	-3115	43	2428	-214	-1791	-171	638
850	900	875	55,1	1470,8	708	-4360	-3652	39	2467	-240	-2031	-201	436
800	850	825	47,3	1518,1	541	-4778	-4236	26	2493	-226	-2257	-200	236
750	800	775	37,7	1555,8	369	-5181	-4811	14	2507	-195	-2452	-181	55
700	750	725	28,4	1584,2	222	-5529	-5306	6	2513	-157	-2610	-151	-96
650	700	675	13,2	1597,4	100	-5784	-5684	1	2515	-76	-2686	-75	-171
600	650	625	3,9	1601,3	-11	-6024	-6035	0	2515	-23	-2709	-23	-195
550	600	575	0,2	1601,5	-66	-6139	-6205	0	2515	-1	-2710	-1	-196

Eyjabakkajökull

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w (10^{6}m^3)	åΔB_w (10^{6}m^3)	ΔB_s (10^{6}m^3)	åΔB_s (10^{6}m^3)	ΔB_n (10^{6}m^3)	åB_n (10^{6}m^3)
1500	1550	1525	0,0	0,0	2534	-109	2425	0	0	0	0	0	0
1450	1500	1475	1,2	1,2	2604	-204	2399	3	3	0	0	3	3
1400	1450	1425	1,7	2,9	2599	-267	2331	4	8	-1	-1	4	7
1350	1400	1375	2,8	5,7	2594	-508	2086	7	15	-1	-2	6	13
1300	1350	1325	4,9	10,6	2592	-766	1825	13	28	-4	-6	9	22
1250	1300	1275	12,3	22,9	2576	-1081	1495	32	59	-13	-19	18	40
1200	1250	1225	13,8	36,7	2504	-1607	897	35	94	-22	-41	12	53
1150	1200	1175	14,6	51,3	2363	-2177	186	35	128	-32	-73	3	55
1100	1150	1125	10,3	61,6	2228	-2601	-372	23	151	-27	-100	-4	51
1050	1100	1075	10,4	72,0	2084	-2833	-749	22	173	-29	-129	-8	44
1000	1050	1025	9,0	81,0	1842	-3092	-1250	17	189	-28	-157	-11	32
950	1000	975	6,9	87,9	1677	-3302	-1625	12	201	-23	-180	-11	21
900	950	925	4,8	92,7	1474	-3572	-2097	7	208	-17	-197	-10	11
850	900	875	4,8	97,5	1342	-3814	-2472	6	214	-18	-215	-12	-1
800	850	825	6,0	103,5	1032	-4088	-3055	6	221	-25	-240	-19	-19
750	800	775	5,1	108,6	547	-4473	-3925	3	223	-23	-263	-20	-39
700	750	725	3,0	111,6	330	-4776	-4446	1	224	-14	-277	-13	-52
650	700	675	1,0	112,6	221	-5005	-4783	0	225	-5	-282	-5	-57

Hoffellsjökull

Elevation (m a.s.l.)			ΔS (km^2)	å ΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w (10^6m^3)	å ΔB_w (10^6m^3)	ΔB_s (10^6m^3)	å ΔB_s (10^6m^3)	ΔB_n (10^6m^3)	å B_n (10^6m^3)
1450	1500	1475	1,1	1,1	2626	-204	2421	3	3	0	0	3	3
1400	1450	1425	7,0	8,1	2631	-248	2382	19	21	-2	-2	17	19
1350	1400	1375	9,4	17,5	2599	-356	2243	25	46	-3	-5	21	41
1300	1350	1325	16,3	33,8	2568	-502	2065	42	88	-8	-14	34	74
1250	1300	1275	35,0	68,8	2576	-924	1652	90	178	-32	-46	58	132
1200	1250	1225	25,2	94,0	2640	-1343	1297	66	244	-34	-80	33	165
1150	1200	1175	20,1	114,1	2660	-1849	810	53	298	-37	-117	16	181
1100	1150	1125	17,7	131,8	2524	-2217	306	45	343	-39	-156	6	187
1050	1100	1075	12,2	144,0	2277	-2484	-207	28	370	-30	-186	-3	184
1000	1050	1025	10,3	154,3	2121	-2649	-527	22	392	-28	-214	-6	178
950	1000	975	8,5	162,8	1973	-2790	-817	17	409	-25	-239	-9	170
900	950	925	5,8	168,6	1832	-2899	-1067	11	420	-19	-258	-8	162
850	900	875	4,4	173,0	1709	-2992	-1282	8	427	-16	-274	-8	154
800	850	825	3,9	176,9	1700	-3048	-1348	7	434	-14	-288	-8	146
750	800	775	4,2	181,1	1606	-3153	-1546	7	441	-16	-304	-10	137
700	750	725	3,9	185,0	1473	-3290	-1816	6	446	-16	-320	-11	126
650	700	675	3,3	188,3	1284	-3463	-2178	4	451	-15	-335	-11	115
600	650	625	2,0	190,3	1095	-3658	-2563	2	453	-10	-345	-8	108
550	600	575	1,6	191,9	938	-3842	-2904	2	454	-8	-353	-6	101
500	550	525	1,0	192,9	807	-4013	-3206	1	455	-6	-359	-5	97
450	500	475	1,1	194,0	670	-4226	-3556	1	456	-6	-365	-5	91
400	450	425	0,7	194,7	541	-4468	-3927	0	456	-4	-369	-4	88
350	400	375	0,8	195,5	415	-4732	-4316	0	457	-5	-374	-5	83
300	350	325	1,7	197,2	274	-5073	-4798	1	457	-11	-385	-11	72
250	300	275	3,4	200,6	71	-5430	-5358	0	457	-24	-409	-24	48
200	250	225	3,0	203,6	-232	-5642	-5875	-1	457	-22	-432	-23	25
150	200	175	3,0	206,6	-518	-5778	-6297	-2	455	-24	-456	-26	0
100	150	125	2,7	209,3	-754	-6002	-6756	-2	453	-23	-479	-25	-25
50	100	75	2,5	211,8	-994	-6538	-7532	-3	451	-23	-501	-25	-50
0	50	25	0,6	212,4	-1147	-7028	-8176	-1	450	-5	-506	-6	-56

Breiðamerkurjökull

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w (10^6m^3)	åΔB_w (10^6m^3)	ΔB_s (10^6m^3)	åΔB_s (10^6m^3)	ΔB_n (10^6m^3)	åB_n (10^6m^3)
1850	1900	1875	0,2	0,2	6664	36	6701	1	1	0	0	1	1
1800	1850	1825	0,4	0,6	6318	19	6338	3	4	0	0	3	4
1750	1800	1775	0,6	1,2	5598	-52	5546	3	7	0	0	3	7
1700	1750	1725	2,1	3,3	3799	-156	3643	8	15	0	0	8	15
1650	1700	1675	4,8	8,1	3171	-194	2977	15	30	-1	-1	14	29
1600	1650	1625	18,6	26,7	2843	-235	2607	53	83	-4	-6	49	78
1550	1600	1575	25,5	52,2	2645	-295	2349	68	151	-8	-13	60	138
1500	1550	1525	32,8	85,0	2482	-369	2112	81	232	-12	-25	69	207
1450	1500	1475	44,4	129,4	2364	-437	1926	105	337	-19	-45	86	293
1400	1450	1425	62,4	191,8	2263	-577	1686	141	478	-36	-81	105	398
1350	1400	1375	89,8	281,6	2143	-735	1408	193	671	-66	-147	127	524
1300	1350	1325	95,2	376,8	2051	-944	1107	195	866	-90	-237	105	630
1250	1300	1275	59,3	436,1	2010	-1170	840	119	985	-69	-306	50	680
1200	1250	1225	43,5	479,6	1952	-1380	572	85	1070	-60	-366	25	704
1150	1200	1175	31,9	511,5	1893	-1573	319	60	1131	-50	-416	10	715
1100	1150	1125	31,0	542,5	1822	-1768	54	56	1187	-55	-471	2	716
1050	1100	1075	29,8	572,3	1767	-1938	-170	53	1240	-58	-529	-5	711
1000	1050	1025	28,6	600,9	1728	-2072	-343	49	1289	-60	-588	-10	701
950	1000	975	34,4	635,3	1652	-2246	-593	57	1346	-77	-666	-21	680
900	950	925	28,6	663,9	1507	-2367	-860	43	1389	-69	-734	-26	654
850	900	875	32,8	696,7	1349	-2517	-1168	44	1433	-88	-822	-44	611
800	850	825	30,9	727,6	1179	-2689	-1509	36	1469	-95	-916	-58	553
750	800	775	27,4	755,0	943	-2923	-1980	26	1495	-95	-1011	-69	484
700	750	725	31,3	786,3	731	-3122	-2391	23	1518	-116	-1127	-93	390
650	700	675	28,3	814,6	508	-3303	-2794	14	1532	-110	-1238	-96	294
600	650	625	30,0	844,6	324	-3413	-3089	10	1542	-124	-1361	-114	181
550	600	575	18,4	863,0	129	-3562	-3432	2	1544	-81	-1442	-79	102
500	550	525	19,4	882,4	-37	-3718	-3755	-1	1544	-89	-1532	-90	12
450	500	475	16,1	898,5	-184	-3902	-4086	-3	1541	-78	-1610	-81	-69
400	450	425	16,6	915,1	-397	-4230	-4627	-6	1534	-85	-1695	-92	-161
350	400	375	12,4	927,5	-569	-4687	-5256	-7	1527	-70	-1765	-77	-238
300	350	325	12,0	939,5	-667	-5209	-5876	-8	1519	-74	-1839	-82	-320
250	300	275	11,9	951,4	-710	-5851	-6562	-8	1511	-88	-1927	-96	-416
200	250	225	11,0	962,4	-734	-6470	-7205	-8	1503	-96	-2023	-104	-520
150	200	175	8,4	970,8	-784	-6843	-7627	-7	1496	-81	-2104	-87	-608
100	150	125	9,1	979,9	-851	-7142	-7994	-7	1489	-83	-2186	-90	-697
50	100	75	9,0	988,9	-896	-7344	-8240	-2	1487	-21	-2208	-23	-721
0	50	25	4,6	993,5	-930	-7399	-8329	0	1487	-1	-2209	-1	-722

Síðujökull

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w (10^6m^3)	åΔB_w (10^6m^3)	ΔB_s (10^6m^3)	åΔB_s (10^6m^3)	ΔB_n (10^6m^3)	åB_n (10^6m^3)
1700	1750	1725	0,6	0,6	2939	-483	2456	2	2	0	0	1	1
1650	1700	1675	1,4	2,0	2874	-513	2360	4	6	-1	-1	3	5
1600	1650	1625	1,6	3,6	2735	-583	2152	5	10	-1	-2	4	8
1550	1600	1575	3,4	7,0	2577	-648	1928	9	19	-2	-4	7	15
1500	1550	1525	6,8	13,8	2429	-742	1687	17	36	-5	-9	12	26
1450	1500	1475	27,6	41,4	2308	-857	1451	64	99	-24	-33	40	67
1400	1450	1425	20,9	62,3	2138	-1006	1131	45	144	-21	-54	24	90
1350	1400	1375	20,7	83,0	2031	-1260	770	42	186	-26	-80	16	106
1300	1350	1325	17,6	100,6	1968	-1521	446	35	221	-27	-107	8	114
1250	1300	1275	15,6	116,2	1900	-1633	266	30	250	-26	-132	4	118
1200	1250	1225	24,1	140,3	1907	-1802	104	46	296	-44	-176	3	121
1150	1200	1175	21,7	162,0	1904	-2209	-304	41	338	-48	-224	-7	114
1100	1150	1125	18,8	180,8	1938	-2541	-602	36	374	-48	-272	-11	103
1050	1100	1075	24,1	204,9	1901	-2868	-966	46	420	-69	-341	-23	79
1000	1050	1025	23,0	227,9	1836	-3208	-1371	42	462	-74	-414	-32	48
950	1000	975	23,5	251,4	1525	-3589	-2064	36	498	-84	-499	-49	-1
900	950	925	24,7	276,1	1313	-3860	-2547	32	530	-95	-594	-63	-64
850	900	875	28,2	304,3	1047	-4159	-3111	30	560	-117	-711	-88	-151
800	850	825	29,9	334,2	763	-4437	-3674	23	583	-133	-844	-110	-261
750	800	775	31,0	365,2	493	-4768	-4274	15	598	-148	-991	-133	-393
700	750	725	19,2	384,4	297	-5099	-4801	6	604	-98	-1089	-92	-485
650	700	675	10,6	395,0	184	-5339	-5155	2	606	-57	-1146	-55	-540
600	650	625	5,7	400,7	123	-5472	-5348	1	606	-31	-1177	-30	-571
550	600	575	0,4	401,1	99	-5492	-5392	0	607	-2	-1180	-2	-573

Skaftárjökull

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w (10^6m^3)	åΔB_w (10^6m^3)	ΔB_s (10^6m^3)	åΔB_s (10^6m^3)	ΔB_n (10^6m^3)	åB_n (10^6m^3)
1700	1750	1725	0,0	0,0	2953	-485	2468	0	0	0	0	0	0
1650	1700	1675	4,6	4,6	2818	-481	2337	13	13	-2	-2	11	11
1600	1650	1625	7,8	12,4	2590	-579	2010	20	33	-5	-7	16	27
1550	1600	1575	5,1	17,5	2460	-684	1775	13	46	-4	-10	9	36
1500	1550	1525	9,7	27,2	2367	-747	1620	23	69	-7	-18	16	51
1450	1500	1475	11,5	38,7	2246	-847	1399	26	95	-10	-27	16	67
1400	1450	1425	7,2	45,9	2088	-975	1112	15	110	-7	-34	8	75
1350	1400	1375	7,5	53,4	1915	-1215	700	14	124	-9	-43	5	81
1300	1350	1325	5,8	59,2	1809	-1464	345	11	135	-9	-52	2	83
1250	1300	1275	6,1	65,3	1777	-1610	167	11	145	-10	-62	1	84
1200	1250	1225	6,2	71,5	1748	-1870	-121	11	156	-12	-73	-1	83
1150	1200	1175	6,4	77,9	1673	-2301	-627	11	167	-15	-88	-4	79
1100	1150	1125	8,6	86,5	1570	-2677	-1106	14	181	-23	-111	-10	69
1050	1100	1075	11,0	97,5	1522	-2975	-1452	17	197	-33	-144	-16	53
1000	1050	1025	10,5	108,0	1506	-3349	-1842	16	213	-35	-179	-19	34
950	1000	975	6,4	114,4	1490	-3658	-2168	10	223	-23	-203	-14	20
900	950	925	6,4	120,8	1438	-3965	-2527	9	232	-26	-228	-16	4
850	900	875	6,5	127,3	1312	-4254	-2942	9	241	-28	-256	-19	-15
800	850	825	6,7	134,0	985	-4592	-3607	7	247	-31	-287	-24	-40
750	800	775	4,1	138,1	590	-4978	-4388	2	250	-21	-307	-18	-58
700	750	725	3,1	141,2	397	-5278	-4881	1	251	-17	-324	-15	-73
650	700	675	1,5	142,7	280	-5495	-5215	0	251	-8	-332	-8	-81
600	650	625	0,3	143,0	195	-5618	-5422	0	251	-2	-334	-2	-82

Vestari Skaftárketill

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w ($10^6 m^3$)	åΔB_w ($10^6 m^3$)	ΔB_s ($10^6 m^3$)	åΔB_s ($10^6 m^3$)	ΔB_n ($10^6 m^3$)	åB_n ($10^6 m^3$)
1900	1950	1925	0,2	0,2	2378	-134	2243	1	1	0	0	0	0
1850	1900	1875	0,2	0,4	2381	-186	2194	1	1	0	0	1	1
1800	1850	1825	0,4	0,8	2382	-246	2136	1	2	0	0	1	2
1750	1800	1775	1,3	2,1	2382	-282	2099	3	5	0	-1	3	5
1700	1750	1725	5,8	7,9	2384	-272	2111	14	19	-2	-2	12	17
1650	1700	1675	6,5	14,4	2392	-470	1921	16	35	-3	-5	13	29
1600	1650	1625	5,4	19,8	2395	-626	1768	13	48	-3	-9	10	39
1550	1600	1575	3,1	22,9	2386	-691	1695	7	55	-2	-11	5	44
1500	1550	1525	0,4	23,3	2382	-700	1681	1	56	0	-11	1	45

Eystri Skaftárketill

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w ($10^6 m^3$)	åΔB_w ($10^6 m^3$)	ΔB_s ($10^6 m^3$)	åΔB_s ($10^6 m^3$)	ΔB_n ($10^6 m^3$)	åB_n ($10^6 m^3$)
1900	1950	1925	0,4	0,4	2382	-141	2240	1	1	0	0	1	1
1850	1900	1875	0,4	0,8	2384	-209	2175	1	2	0	0	1	2
1800	1850	1825	0,4	1,2	2384	-278	2106	1	3	0	0	1	3
1750	1800	1775	1,0	2,2	2386	-304	2081	3	5	0	-1	2	5
1700	1750	1725	7,1	9,3	2413	-270	2142	17	22	-2	-3	15	20
1650	1700	1675	15,3	24,6	2443	-326	2116	37	60	-5	-8	32	52
1600	1650	1625	7,5	32,1	2437	-513	1924	18	78	-4	-11	15	67
1550	1600	1575	0,6	32,7	2437	-534	1903	2	80	0	-12	1	68

Gjálp

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w ($10^6 m^3$)	åΔB_w ($10^6 m^3$)	ΔB_s ($10^6 m^3$)	åΔB_s ($10^6 m^3$)	ΔB_n ($10^6 m^3$)	åB_n ($10^6 m^3$)
1900	1950	1925	2,2	2,2	2384	-107	2277	5	5	0	0	5	5
1850	1900	1875	2,0	4,2	2392	-238	2154	5	10	-1	-1	4	9
1800	1850	1825	2,5	6,7	2392	-316	2076	6	16	-1	-2	5	15
1750	1800	1775	8,6	15,3	2401	-385	2016	21	37	-3	-5	17	32
1700	1750	1725	19,0	34,3	2432	-416	2015	46	83	-8	-13	38	70
1650	1700	1675	31,9	66,2	2408	-489	1918	77	160	-16	-28	61	131
1600	1650	1625	4,8	71,0	2373	-554	1819	11	171	-3	-31	9	140
1550	1600	1575	0,0	71,0	2375	-560	1814	0	171	0	-31	0	140

Grímsvötn

Elevation (m a.s.l.)			ΔS (km^2)	åΔS (km^2)	b_w (mm)	b_s (mm)	b_n (mm)	ΔB_w ($10^6 m^3$)	åΔB_w ($10^6 m^3$)	ΔB_s ($10^6 m^3$)	åΔB_s ($10^6 m^3$)	ΔB_n ($10^6 m^3$)	åB_n ($10^6 m^3$)
1700	1750	1725	0,2	0,2	2341	-508	1832	1	1	0	0	0	0
1650	1700	1675	37,2	37,4	2392	-479	1913	89	90	-18	-18	71	72
1600	1650	1625	32,4	69,8	2354	-540	1814	76	166	-18	-36	59	130
1550	1600	1575	18,0	87,8	2364	-650	1714	43	209	-12	-47	31	161
1500	1550	1525	15,8	103,6	2363	-838	1524	37	246	-13	-61	24	186
1450	1500	1475	11,8	115,4	2384	-1026	1357	28	274	-12	-73	16	202
1400	1450	1425	8,8	124,2	2463	-1297	1166	22	296	-12	-84	10	212
1350	1400	1375	7,8	132,0	2500	-1422	1077	19	315	-11	-95	8	220

Appendix C: Coordinates at velocity measurement stakes.

Position of velocity measurement stakes determined by GPS sub-metre differential (I), fast static (FS) and kinematic (K).
(Accuracy of horizontal position 0.5 – 1.0 m, and vertical accuracy 1-2 m for DGPS, about 1cm for fast static, and 3 cm for kinematic).
The station Hofn in Höfn í Hornafirði is used as a stationary reference for all measurements, ÍSN93 datum, h_l is elevation above ellipsoid, dL antenna height, N estimated difference between ellipsoid and sea-level, H elevation in metres above sea level (H= h_l+N+dL). X and Y are ÍSN93 Lambert conformal conic projected coordinates. M is a quality marker.

Site	time	Date	Calender Day #	Year	Latitude	Longitude	h_l (m a. e.)	dL (m)	N (m)	H (m a. s. l.)	X	Y	M
B07o	13,271	14 10	287	2009	64 25,78695	16 17,42802	1422,15	0,00	-67,05	1355,10	630497,34	439228,84	K
B08p	17,129	10 2	41	2009	64 45,39947	16 5,80017	808,38	0,00	-66,66	741,72	638151,76	476044,79	K
B08q	9,163	15 5	135	2009	64 45,39932	16 5,80202	808,78	0,00	-66,66	742,12	638150,30	476044,45	K
B08q	15,871	14 10	287	2009	64 45,39853	16 5,80446	804,46	0,00	-66,66	737,80	638148,44	476042,89	K
B09p	15,725	10 2	41	2009	64 45,45883	16 5,23054	801,07	0,00	-66,65	734,42	638598,11	476175,75	K
B09q	9,559	15 5	135	2009	64 45,45872	16 5,23308	801,03	0,00	-66,65	734,38	638596,11	476175,45	K
B09q	16,059	14 10	287	2009	64 45,45772	16 5,23514	796,91	0,00	-66,65	730,26	638594,56	476173,51	K
B10p	10,679	10 2	41	2009	64 43,68421	16 6,69948	894,05	0,00	-66,71	827,34	637584,60	472828,48	K
B10q	8,709	15 5	135	2009	64 43,68391	16 6,70121	892,73	0,00	-66,71	826,03	637583,26	472827,86	K
B10q	15,654	14 10	287	2009	64 43,68413	16 6,70325	889,23	0,00	-66,71	822,52	637581,62	472828,20	K
B12n	21,863	9 2	40	2009	64 38,28897	16 14,12936	1141,90	0,00	-66,90	1075,00	632128,04	462549,99	K
B12o	18,767	14 5	134	2009	64 38,28507	16 14,15197	1144,80	0,00	-66,90	1077,90	632110,35	462541,95	K
B12o	19,350	14 10	287	2009	64 38,29513	16 14,14219	1141,71	0,00	-66,90	1074,81	632117,33	462560,96	K
B13o	16,350	14 5	134	2009	64 34,52534	16 19,76717	1281,02	0,00	-67,01	1214,01	627935,15	455370,36	K
B13o	11,338	19 7	200	2009	64 34,52875	16 19,76308	1278,90	0,00	-67,01	1211,89	627938,15	455376,82	K
B13o	14,284	14 10	287	2009	64 34,53930	16 19,75822	1278,52	0,00	-67,01	1211,46	627943,02	455390,04	K
B14q	13,450	14 5	134	2009	64 31,63996	16 24,68964	1379,98	0,00	-67,11	1312,87	624226,57	449850,35	K
B14q	10,617	19 7	200	2009	64 31,64214	16 24,68568	1378,50	0,00	-67,11	1311,40	624229,57	449854,52	K
B14q	13,917	14 10	287	2009	64 31,64696	16 24,67701	1374,54	0,00	-67,11	1307,44	624236,14	449863,74	K
B15d	12,529	14 5	134	2009	64 28,50129	16 29,99412	1463,81	0,00	-67,21	1396,60	620216,55	443852,50	K
B15d	10,367	19 7	200	2009	64 28,50261	16 29,99033	1462,00	0,00	-67,21	1394,79	620219,49	443855,08	K
B15d	13,621	14 10	287	2009	64 28,50588	16 29,98246	1460,67	0,00	-67,21	1393,45	620225,55	443861,39	K
B16q	10,184	14 5	134	2009	64 23,60961	16 42,06837	1593,10	0,00	-67,34	1525,76	610874,99	434402,49	K
B16q	22,533	17 7	198	2009	64 23,60957	16 42,06901	1591,50	0,00	-67,34	1524,15	610874,47	434402,39	K
B16q	19,275	14 10	287	2009	64 23,60951	16 42,06840	1591,44	-1,05	-67,34	1523,05	610874,96	434402,30	FS
B17o	17,325	14 5	134	2009	64 36,73142	16 28,81050	1280,56	0,00	-67,12	1213,44	620555,26	459169,56	K
B17o	17,854	14 10	287	2009	64 36,73786	16 28,80641	1277,91	0,00	-67,12	1210,79	620558,04	459181,65	K
B18m	10,388	16 5	136	2009	64 31,57194	16 0,13240	1377,96	0,00	-66,92	1311,04	643861,20	450591,94	K
B18m	14,321	19 7	200	2009	64 31,57432	16 0,13387	1376,11	0,00	-66,92	1309,19	643859,82	450596,29	K
B18m	20,284	13 10	286	2009	64 31,57371	16 0,13267	1373,19	0,00	-66,92	1306,27	643860,83	450595,20	K
B19m	11,242	16 5	136	2009	64 27,93672	15 55,17997	1498,01	0,00	-66,88	1431,13	648148,12	444036,14	K
B19m	14,692	19 7	200	2009	64 27,93653	15 55,17958	1495,66	0,00	-66,88	1428,78	648148,46	444035,81	K
B19m	14,709	13 10	286	2009	64 27,93700	15 55,18063	1493,96	0,00	-66,88	1427,08	648147,58	444036,63	K
BB0n	13,029	16 5	136	2009	64 22,71553	16 5,05019	1587,59	0,00	-66,85	1520,74	640689,41	433970,25	K
BB0n	15,183	19 7	200	2009	64 22,71547	16 5,05040	1585,38	0,00	-66,85	1518,53	640689,25	433970,14	K
BB0n	14,221	13 10	286	2009	64 22,71554	16 5,05072	1583,96	0,00	-66,85	1517,10	640688,99	433970,25	K
BORad	13,363	4 6	155	2009	64 24,94521	17 20,17058	1467,74	0,00	-67,70	1400,04	580190,01	435923,18	K
BORad	14,813	16 10	289	2009	64 24,94221	17 20,17376	1479,22	0,00	-67,70	1411,52	580187,61	435917,55	K
BORTHNb	11,179	9 2	40	2009	64 25,13401	17 19,14664	1464,40	0,00	-67,70	1396,70	581003,00	436295,61	K
BORTHNb	12,984	17 5	137	2009	64 25,13357	17 19,14674	1465,61	0,00	-67,70	1397,91	581002,94	436294,79	K
BORTHNb	13,163	4 6	155	2009	64 25,13349	17 19,14697	1467,29	-1,57	-67,70	1398,02	581002,76	436294,62	K
BORTHNb	16,750	18 7	199	2009	64 25,13348	17 19,14578	1465,15	0,00	-67,70	1397,45	581003,71	436294,63	K
BORTHNb	17,842	16 10	289	2009	64 25,13130	17 19,14619	1490,05	-4,19	-67,70	1418,16	581003,49	436290,58	K
Br1c	19,330	22 2	53	2009	64 5,53373	16 19,48325	215,50	0,10	-65,84	149,76	630435,90	401561,26	FS
Br1d	19,330	22 2	53	2009	64 5,53373	16 19,48617	215,50	0,00	-65,84	149,66	630438,24	401561,26	FS
Br1d	20,487	29 8	241	2009	64 5,52973	16 19,48330	207,45	-0,70	-65,84	140,91	630440,87	401553,97	I
Br2e	17,100	22 2	53	2009	64 6,43322	16 22,54882	333,28	0,00	-66,04	267,24	627881,53	403126,80	K
Br2f	17,750	22 2	53	2009	64 6,43391	16 22,54980	333,27	0,00	-66,04	267,22	627880,68	403128,04	K
Br2f	17,823	29 8	241	2009	64 6,42944	16 22,54889	325,35	-0,70	-66,04	258,61	627881,77	403119,77	I
Br3kx	15,530	22 2	53	2009	64 8,69538	16 23,70455	494,47	-0,37	-66,28	427,83	626770,23	407287,60	K
Br3l	15,530	22 2	53	2009	64 8,69538	16 23,70455	494,47	0,00	-66,28	428,20	626770,23	407287,60	K
Br3l	10,750	29 8	241	2009	64 8,68600	16 23,69600	430,00	0,00	0,00	430,00	626777,87	407270,47	I

Br7m	14,029	16	5	136	2009	64	22,14237	16	16,92463	1316,70	0,00	-67,01	1249,69	631192,21	432480,80	K
Br7m	12,946	14	10	287	2009	64	22,11901	16	16,92002	1312,28	0,00	-67,01	1245,27	631197,79	432437,59	K
Brum	12,984	10	2	41	2009	64	40,99403	15	55,21839	865,34	0,40	-66,74	798,21	646935,95	468266,30	K
Brun	10,671	15	5	135	2009	64	40,99434	15	55,21754	864,17	0,00	-66,74	797,44	646936,59	468266,90	K
Brun	18,604	13	10	286	2009	64	40,99492	15	55,21824	856,55	0,00	-66,74	789,82	646935,99	468267,96	K
Budn	11,804	15	5	135	2009	64	35,98653	15	59,90605	1202,72	0,00	-66,88	1135,83	643652,81	458793,56	K
Budn	19,013	13	10	286	2009	64	35,99729	15	59,90383	1199,45	0,00	-66,88	1132,57	643653,62	458813,61	K
D05l	18,584	16	5	136	2009	64	42,70010	16	54,03733	1241,70	0,00	-67,32	1174,38	600079,85	469518,33	K
D05l	14,979	16	10	289	2009	64	42,70406	16	54,03019	1238,04	0,00	-67,32	1170,73	600085,28	469525,86	K
D07l	19,184	16	5	136	2009	64	38,29702	16	59,24752	1434,10	0,00	-67,50	1366,60	596202,08	461206,92	K
D07l	14,513	16	10	289	2009	64	38,30774	16	59,23767	1430,98	0,00	-67,50	1363,48	596209,29	461227,06	K
D09l	20,313	16	5	136	2009	64	31,80198	17	0,56873	1647,29	0,00	-67,56	1579,73	595529,75	449111,81	K
D09l	13,892	16	10	289	2009	64	31,80604	17	0,57015	1644,62	0,00	-67,56	1577,06	595528,38	449119,31	K
D12m	16,488	16	5	136	2009	64	28,98757	17	0,13547	1716,27	0,00	-67,55	1648,72	596041,41	443896,20	K
D12m	23,067	17	7	198	2009	64	28,98786	17	0,13534	1714,57	0,00	-67,55	1647,02	596041,49	443896,74	K
D12m	13,604	16	10	289	2009	64	28,98819	17	0,13540	1713,21	0,00	-67,55	1645,66	596041,43	443897,34	K
E01n	14,288	15	5	135	2009	64	41,51625	15	33,40782	766,73	0,00	-66,66	700,06	664210,36	470129,86	K
E01n	17,584	13	10	286	2009	64	41,51642	15	33,40696	759,58	0,00	-66,66	692,92	664211,03	470130,22	K
E02n	15,042	15	5	135	2009	64	39,13242	15	35,98711	1023,95	0,00	-66,79	957,16	662400,31	465596,15	K
E02n	17,171	13	10	286	2009	64	39,14029	15	35,98300	1020,02	0,00	-66,78	953,24	662402,79	465610,92	K
E03o	13,592	15	5	135	2009	64	36,65041	15	36,91424	1256,27	0,00	-66,85	1189,43	661909,78	460951,58	K
E03ox	16,746	13	10	286	2009	64	36,65030	15	36,91637	1251,97	0,00	-66,85	1185,12	661908,10	460951,29	K
E04n	18,746	15	5	135	2009	64	34,95840	15	37,10186	1356,17	0,00	-66,83	1289,33	661928,43	457804,33	K
E04n	12,913	19	7	200	2009	64	34,95903	15	37,10167	1353,61	0,00	-66,83	1286,78	661928,52	457805,51	K
E04n	16,488	13	10	286	2009	64	34,95922	15	37,10126	1352,33	0,00	-66,83	1285,50	661928,84	457805,87	K
G02f	15,267	4	6	155	2009	64	26,86190	17	17,69315	1630,76	0,00	-67,73	1563,03	582083,55	439536,12	K
G02f	18,646	16	10	289	2009	64	26,85890	17	17,69524	1627,51	0,00	-67,73	1559,78	582082,02	439530,49	K
G03g	15,688	4	6	155	2009	64	28,43739	17	16,35676	1724,33	0,00	-67,74	1656,59	583075,52	442491,38	K
G03g	19,079	16	10	289	2009	64	28,43493	17	16,35791	1721,61	0,00	-67,74	1653,87	583074,73	442486,80	K
G04n	16,029	4	6	155	2009	64	30,00988	17	15,02518	1755,54	0,00	-67,73	1687,81	584061,73	445441,31	K
G04n	9,954	18	7	199	2009	64	30,00994	17	15,02491	1753,87	0,00	-67,73	1686,14	584061,95	445441,42	K
G04nx	13,150	16	10	289	2009	64	30,00888	17	15,02721	1752,85	0,00	-67,73	1685,12	584060,16	445439,40	K
gb2rora	12,588	15	5	135	2009	64	34,05113	16	0,01121	1269,07	0,00	-66,90	1202,16	643739,56	455197,67	K
gb2rora	12,342	19	7	200	2009	64	34,05485	16	0,01210	1266,13	3,10	-66,90	1202,33	643738,52	455204,54	K
gb2rora	19,404	13	10	286	2009	64	34,05937	16	0,01286	1268,64	0,00	-66,90	1201,74	643737,52	455212,90	K
gb2c	12,588	15	5	135	2009	64	34,05113	16	0,01121	1269,07	-1,21	-66,90	1200,95	643739,56	455197,67	K
gb2c	12,342	19	7	200	2009	64	34,05485	16	0,01210	1266,13	0,00	-66,90	1199,23	643738,52	455204,54	K
gb2c	19,404	13	10	286	2009	64	34,05937	16	0,01286	1268,64	-3,90	-66,90	1197,84	643737,52	455212,90	K
Gh01c	15,879	4	6	155	2009	64	29,24483	17	15,64836	1744,06	0,00	-67,73	1676,33	583601,93	444006,61	K
Gh01c	19,204	16	10	289	2009	64	29,24433	17	15,64853	1742,16	0,00	-67,73	1674,43	583601,82	444005,67	K
Gh02c	15,579	4	6	155	2009	64	28,20404	17	16,48218	1718,73	0,00	-67,73	1651,00	582986,85	442055,24	K
Gh02c	18,896	16	10	289	2009	64	28,20240	17	16,48352	1716,72	0,00	-67,73	1648,98	582985,86	442052,17	K
Gh03c	15,388	4	6	155	2009	64	27,39441	17	17,20825	1687,58	0,00	-67,73	1619,84	582445,69	440535,68	K
Gh03c	18,750	16	10	289	2009	64	27,39168	17	17,21046	1685,39	0,00	-67,73	1617,65	582444,05	440530,56	K
Gh04c	15,059	4	6	155	2009	64	26,55016	17	17,99757	1612,32	0,00	-67,72	1544,60	581854,93	438950,53	K
Gh04c	18,521	16	10	289	2009	64	26,54745	17	17,99969	1609,75	0,00	-67,72	1542,03	581853,36	438945,46	K
Gh05c	14,925	4	6	155	2009	64	25,98960	17	18,40159	1570,01	0,00	-67,72	1502,29	581558,69	437900,70	K
Gh05c	18,375	16	10	289	2009	64	25,98643	17	18,40461	1567,30	0,00	-67,72	1499,58	581556,42	437894,73	K
Gh06c	14,813	4	6	155	2009	64	25,55267	17	18,83836	1488,80	0,00	-67,71	1421,09	581229,80	437079,80	K
Gh06c	17,996	16	10	289	2009	64	25,55002	17	18,84120	1484,72	0,00	-67,71	1417,01	581227,65	437074,80	K
Gh07c	14,146	4	6	155	2009	64	26,89773	17	21,00747	1574,22	0,00	-67,75	1506,47	579423,25	439532,11	K
Gh08c	14,321	4	6	155	2009	64	26,39657	17	19,49376	1585,93	0,00	-67,73	1518,20	580662,11	438633,22	K
Gh09c	14,550	4	6	155	2009	64	25,80341	17	17,02316	1573,33	0,00	-67,70	1505,63	582674,35	437584,71	K
Gh09c	17,838	16	10	289	2009	64	25,79946	17	17,02688	1569,89	0,00	-67,70	1502,18	582671,56	437577,30	K
Gh10c	10,748	4	6	155	2009	64	25,39725	17	15,98671	1577,14	0,00	-67,68	1509,45	583526,94	436853,06	K
Gh10c	17,671	16	10	289	2009	64	25,39555	17	15,99216	1573,71	0,00	-67,68	1506,02	583522,65	436849,78	K
Gh11c	11,738	4	6	155	2009	64	25,09768	17	17,18079	1507,30	0,00	-67,69	1439,61	582583,37	436270,51	K
Gh11b	17,471	16	10	289	2009	64	25,09344	17	17,18866	1503,42	0,00	-67,69	1435,73	582577,26	436262,48	K
Gh12c	12,000	4	6	155	2009	64	24,60828	17	18,19871	1473,81	0,00	-67,68	1406,13	581790,39	435339,48	K
Gh12c	17,263	16	10	289	2009	64	24,60382	17	18,19987	1484,70	0,00	-67,68	1417,02	581789,68	435331,18	K
Gh13c	12,925	4	6	155	2009	64	24,75311	17	19,14820	1463,73	0,00	-67,69	1396,04	581020,56	435588,11	K
Gh13c	16,888	16	10	289	2009	64	24,74878	17	19,15008	1484,59	0,00	-67,69	1416,90	581019,27	435580,02	K
Gh14c	12,121	4	6	155	2009	64	24,30270	17	19,13676	1449,38	0,00	-67,68	1381,71	581052,00	434751,78	K
Gh14c	17,088	16	10	289	2009	64	24,30020	17	19,13586	1470,43	0,00	-67,68	1402,75	581052,85	434747,17	K
Gh15c	13,971	4	6	155	2009	64	26,24535	17	23,98031	1612,61	0,00	-67,75	1544,87	577069,30	438259,05	K
Gh15c	16,213	18	7	199	2009	64	26,24439	17	23,97840	1610,18	0,00	-67,75	1542,43	577070,87	438257,31	K

Gh16c	13,846	4	6	155	2009	64	26,00214	17	21,99676	1543,80	0,00	-67,73	1476,07	578672,70	437848,05	K
Gh16c	16,304	18	7	199	2009	64	26,00087	17	21,99444	1544,43	0,00	-67,73	1476,70	578674,62	437845,74	K
Gh16c	13,921	16	10	289	2009	64	25,99952	17	21,99034	1540,92	0,00	-67,73	1473,19	578677,97	437843,31	K
Gh17c	13,700	4	6	155	2009	64	25,49759	17	21,20308	1491,24	0,00	-67,72	1423,52	579334,10	436927,43	K
Gh17c	16,488	18	7	199	2009	64	25,49696	17	21,20010	1487,89	0,00	-67,72	1420,17	579336,52	436926,32	K
Gh17c	14,179	16	10	289	2009	64	25,49502	17	21,19962	1488,72	0,00	-67,72	1421,00	579337,00	436922,74	K
Gh18c	13,559	4	6	155	2009	64	24,99286	17	21,11158	1488,55	0,00	-67,71	1420,84	579432,00	435991,89	K
Gh18c	14,346	16	10	289	2009	64	24,99182	17	21,11174	1486,44	0,00	-67,71	1418,74	579431,93	435989,95	K
Gh19c	12,738	4	6	155	2009	64	24,40336	17	20,98615	1484,22	0,00	-67,69	1416,53	579561,32	434899,59	K
Gh19c	14,621	16	10	289	2009	64	24,40234	17	20,98645	1481,92	0,00	-67,69	1414,23	579561,13	434897,70	K
Gh20c	18,504	4	6	155	2009	64	25,39766	17	25,99655	1712,23	0,00	-67,72	1644,51	575490,35	436643,99	K
Go1m	16,321	4	6	155	2009	64	34,00044	17	24,95051	1827,80	0,00	-67,84	1759,96	575929,70	452643,85	K
Go1m	10,325	18	7	199	2009	64	33,99990	17	24,95003	1826,21	0,00	-67,84	1758,37	575930,11	452642,85	K
G01mx	12,825	16	10	289	2009	64	33,99939	17	24,95259	1825,31	0,00	-67,84	1757,47	575928,09	452641,85	K
HAABi	18,879	4	6	155	2009	64	20,95884	17	24,10535	1799,01	0,00	-67,54	1731,47	577217,25	428437,32	K
HAABi	20,046	16	10	289	2009	64	20,95945	17	24,10707	1797,70	0,00	-67,54	1730,16	577215,84	428438,40	K
Hof01g	17,809	15	5	135	2009	64	32,12776	15	35,66863	1193,24	0,00	-66,65	1126,59	663354,35	452614,05	K
Hof01g	13,446	19	7	200	2009	64	32,12414	15	35,66798	1190,41	0,00	-66,65	1123,75	663355,22	452607,35	K
Hof01g	16,150	13	10	286	2009	64	32,12028	15	35,66712	1187,87	0,00	-66,65	1121,21	663356,30	452600,23	K
K01p	20,638	10	5	130	2009	64	35,35370	17	52,77957	1053,30	0,00	-67,57	985,74	553656,88	454682,26	K
K01p	10,421	16	10	289	2009	64	35,35437	17	52,78165	1046,97	0,00	-67,57	979,40	553655,20	454683,47	K
K02q	21,204	10	5	130	2009	64	35,15868	17	50,92620	1183,15	0,00	-67,59	1115,55	555142,72	454346,54	K
K02q	10,117	16	10	289	2009	64	35,16133	17	50,93849	1179,24	0,00	-67,59	1111,65	555132,82	454351,30	K
K03q	19,938	10	5	130	2009	64	34,26565	17	46,42399	1370,38	0,00	-67,67	1302,71	558768,65	452755,20	K
K03q	9,854	16	10	289	2009	64	34,26806	17	46,44258	1365,51	0,00	-67,67	1297,84	558753,71	452759,39	K
K04q	19,004	10	5	130	2009	64	33,20765	17	42,25079	1563,29	0,00	-67,73	1495,55	562141,82	450856,34	K
K04q	11,121	16	10	289	2009	64	33,21177	17	42,27664	1559,46	0,00	-67,73	1491,73	562121,00	450863,58	K
K05q	17,379	10	5	130	2009	64	33,46115	17	35,46482	1754,61	0,00	-67,82	1686,79	567554,22	451443,27	K
K05q	12,021	18	7	199	2009	64	33,45996	17	35,47125	1752,38	0,00	-67,82	1684,56	567549,13	451440,94	K
K05q	11,488	16	10	289	2009	64	33,45836	17	35,47975	1751,18	0,00	-67,82	1683,37	567542,40	451437,81	K
K06p	16,692	4	6	155	2009	64	38,35296	17	31,37272	2040,17	-1,68	-67,88	1970,61	570611,38	460604,39	K
K06p	11,134	18	7	199	2009	64	38,35290	17	31,37186	2037,12	0,00	-67,88	1969,24	570612,07	460604,29	K
K06p	12,359	16	10	289	2009	64	38,35316	17	31,37118	2037,44	-1,60	-67,88	1967,97	570612,60	460604,80	K
K07l	15,425	10	5	130	2009	64	29,10640	17	42,02688	1609,15	0,00	-67,68	1541,47	562477,39	443241,52	K
K07l	9,246	16	10	289	2009	64	29,10704	17	42,03146	1604,60	0,00	-67,68	1536,91	562473,70	443242,64	K
S01e	20,388	9	5	129	2009	64	6,22748	17	50,00548	789,35	0,00	-66,79	722,56	556869,56	400614,66	K
S01e	15,879	11	10	284	2009	64	6,22667	17	50,00499	785,11	0,00	-66,79	718,32	556869,99	400613,16	K
S02g	16,592	11	10	284	2009	64	12,13349	17	49,04639	1079,49	-0,20	-67,04	1012,25	557443,46	411600,81	K
S02h	19,346	9	5	129	2009	64	12,15778	17	49,02795	1084,97	0,00	-67,04	1017,93	557457,54	411646,21	K
S04i	18,492	9	5	129	2009	64	16,19807	17	48,26292	1234,63	0,00	-67,21	1167,42	557934,85	419163,46	K
S04i	14,879	11	10	284	2009	64	16,18832	17	48,27346	1229,53	-0,30	-67,21	1162,03	557926,68	419145,19	K
T01nl	11,992	9	5	129	2009	64	19,45123	18	8,80013	818,85	0,00	-67,25	751,60	541268,62	424938,54	K
T01nl	15,288	10	10	283	2009	64	19,45097	18	8,79999	811,35	0,00	-67,25	744,11	541268,75	424938,07	K
T02nl	14,004	9	5	129	2009	64	19,61201	18	3,93659	1028,80	0,00	-67,27	961,53	545184,09	425292,66	K
T02nl	15,888	10	10	283	2009	64	19,61206	18	3,94168	1023,28	0,00	-67,27	956,01	545179,99	425292,70	K
T03nl	16,292	9	5	129	2009	64	20,20630	17	58,60177	1152,57	0,00	-67,30	1085,26	549465,44	426463,30	K
T03nl	12,846	30	5	150	2009	64	20,20617	17	58,60240	1152,15	0,00	-67,30	1084,85	549464,94	426463,05	K
T03nl	14,254	11	10	284	2009	64	20,20499	17	58,61197	1148,33	-0,30	-67,30	1080,73	549457,26	426460,73	K
T04nl	17,284	9	5	129	2009	64	21,34956	17	51,51064	1298,23	0,00	-67,36	1230,86	555139,46	428684,94	K
T04nl	11,075	16	10	289	2009	64	21,34680	17	51,51947	1294,40	0,00	-67,36	1227,03	555132,45	428679,69	K
T05nk	16,900	8	2	39	2009	64	22,31635	17	42,91158	1417,99	-2,90	-67,47	1347,62	562025,00	430613,73	K
T05nl	11,034	10	5	130	2009	64	22,31515	17	42,91550	1417,91	-1,20	-67,47	1349,24	562021,89	430611,43	K
T05nl	19,221	16	10	289	2009	64	22,31296	17	42,92357	1416,99	-4,56	-67,47	1344,96	562015,48	430607,24	K
T05rord	16,900	8	2	39	2009	64	22,31635	17	42,91158	1417,99	0,00	-67,47	1350,52	562025,00	430613,73	K
T05rord	11,034	10	5	130	2009	64	22,31515	17	42,91550	1417,91	0,00	-67,47	1350,44	562021,89	430611,43	K
T05rord	14,467	30	5	150	2009	64	22,31491	17	42,91635	1417,77	0,00	-67,47	1350,30	562021,21	430610,97	K
T05rord	19,221	16	10	289	2009	64	22,31296	17	42,92357	1416,99	0,00	-67,47	1349,52	562015,48	430607,24	K
T06nl	17,538	17	5	137	2009	64	24,27617	17	36,57579	1530,26	0,00	-67,61	1462,65	567041,87	434362,06	K
T06nl	15,113	30	5	150	2009	64	24,27594	17	36,57639	1530,48	0,00	-67,61	1462,87	567041,40	434361,63	K
T06nl	12,767	18	7	199	2009	64	24,27498	17	36,57897	1528,49	0,00	-67,61	1460,87	567039,36	434359,81	K
T06nl	11,788	16	10	289	2009	64	24,27281	17	36,58366	1527,40	0,00	-67,61	1459,79	567035,69	434355,68	K
T07nk	18,154	8	2	39	2009	64	25,31232	17	31,14528	1635,93	-2,04	-67,70	1566,19	571360,10	436385,82	K
T07nk	15,000	17	5	137	2009	64	25,31099	17	31,15014	1635,15	-0,84	-67,70	1566,60	571356,25	436383,25	K
T07nk	15,700	18	7	199	2009	64	25,30972	17	31,15211	1631,99	0,00	-67,70	1564,28	571354,73	436380,86	K
T07nk	9,521	16	10	289	2009	64	25,30860	17	31,15759	1634,47	-3,13	-67,70	1563,64	571350,38	436378,66	K
T07rore	18,154	8	2	39	2009	64	25,31232	17	31,14528	1635,93	0,00	-67,70	1568,23	571360,10	436385,82	K
T07rore	15,000	17	5	137	2009	64	25,31099	17	31,15014	1635,15	0,00	-67,70	1567,44	571356,25	436383,25	K
T07rore	16,104	30	5	150	2009	64	25,31085	17	31,15073	1635,07	0,00	-67,70	1567,37	571355,79	436382,97	K
T07rore	15,700	18	7	199	2009	64	25,30972	17	31,15211	1631,99	2,45	-67,70	1566,73	571354,73	436380,86	K
T07rore	9,521	16	10	289	2009	64	25,30860	17	31,15759	1634,47	0,00	-67,70	1566,77	571350,38	436378,66	K
T08nl	10,954	13	5	133	2009	64	26,30458	17	27,79239	1708,35	0,00	-67,75	1640,60	574007,51	438293,15	K
T08nl	13,529	16	10	289	2009	64	26,30423	17	27,79417	1705,59	0,00	-67,75	1637,84	574006,09	438292,47	K
Vbord98a	12,588	4	6	155	2009	64	23,98375	17	20,54336	1417,38	0,00	-67,67	1349,71	579937,48	434129,53	K

Appendix D: Measured surface velocity on Vatnajökull in 2009.

Site	date	Calendar day #	date	Calendar day #	# of days	translation (m)	(°)	velocity (cm/day)	(m/annum)
B07o	20090516	136	20090717	198	62	0,22	182	0,36	1,31
B07o	20090717	198	20091014	287	89	0,6	113	0,68	2,48
B08p	20080503	124	20090210	41	282	0,17	251	0,06	0,22
B08q	20090515	135	20091014	287	152	2,43	233	1,6	5,82
B09p	20080503	124	20090210	41	282	2,35	87	0,83	3,04
B09q	20090515	135	20091014	287	152	2,47	221	1,62	5,93
B10p	20080503	124	20090210	41	282	1,35	359	0,48	1,75
B10q	20090515	135	20091014	287	152	1,67	284	1,1	4,01
B12n	20080503	124	20090209	40	281	18,08	30	6,44	23,49
B12o	20090514	134	20091014	287	153	20,19	23	13,2	48,18
B13o	20090514	134	20090719	200	66	7,11	27	10,77	39,32
B13o	20090719	200	20091014	287	87	19,92	11	22,9	83,57
B14q	20090514	134	20090719	200	66	5,13	38	7,77	28,38
B14q	20090719	200	20091014	287	87	11,3	38	12,99	47,42
B15d	20090514	134	20090719	200	66	3,9	51	5,91	21,56
B15d	20090719	200	20091014	287	87	8,74	46	10,05	36,68
B16q	20090514	134	20090717	198	64	0,52	262	0,81	2,96
B16q	20090717	198	20091014	287	89	0,5	103	0,56	2,06
B17o	20090514	134	20091014	287	153	12,36	15	8,08	29,5
B18m	20090516	136	20090719	200	64	4,56	345	7,13	26,02
B18m	20090719	200	20091013	286	86	1,48	140	1,72	6,29
B19m	20090516	136	20090719	200	64	0,47	138	0,74	2,68
B19m	20090719	200	20091013	286	86	1,21	316	1,41	5,14
BB0n	20090516	136	20090719	200	64	0,2	237	0,32	1,15
BB0n	20090719	200	20091013	286	86	0,29	297	0,34	1,22
BORad	20090604	155	20091016	289	134	6,11	205	4,56	16,66
BORTHNb	20080928	272	20090209	40	133	2,28	218	1,71	6,26
BORTHNb	20090209	40	20090517	137	97	0,82	186	0,84	3,08
BORTHNb	20090517	137	20090604	155	18	0,24	231	1,32	4,8
BORTHNb	20090604	155	20090718	199	44	0,96	91	2,17	7,93
BORTHNb	20090718	199	20091016	289	90	4,05	185	4,5	16,43
Br1c	20080225	56	20090222	53	362	13,03	167	3,6	13,14
Br1d	20090222	53	20090829	241	188	7,77	163	4,13	15,08
Br2e	20080225	56	20090222	53	362	19,96	165	5,51	20,12
Br2f	20090222	53	20090829	241	188	8,31	175	4,42	16,14
Br3l	20090222	53	20090829	241	188	18,7	158	9,95	36,31
Br7m	20090516	136	20091014	287	151	43,42	175	28,76	104,96
Brum	20080504	125	20090210	41	281	2,07	316	0,74	2,69
Brun	20090515	135	20091013	286	151	1,21	333	0,8	2,92
Budn	20090515	135	20091013	286	151	20,01	5	13,25	48,36
D05l	20090516	136	20091016	289	153	9,27	38	6,06	22,12
D07l	20090516	136	20091016	289	153	21,35	22	13,95	50,93
D09l	20090516	136	20091016	289	153	7,6	351	4,97	18,14
D12m	20090516	136	20090717	198	62	0,55	11	0,88	3,22
D12m	20090717	198	20091016	289	91	0,61	356	0,67	2,46
E01n	20090515	135	20091013	286	151	0,75	65	0,5	1,82
E02n	20090515	135	20091013	286	151	14,94	13	9,89	36,11
E04n	20090515	135	20090719	200	65	1,18	7	1,81	6,61
E04n	20090719	200	20091013	286	86	0,48	43	0,56	2,04

G02f	20090604	155	20091016	289	134	5,8	197	4,33	15,81
G03g	20090604	155	20091016	289	134	4,65	191	3,47	12,66
G04n	20090604	155	20090718	199	44	0,24	63	0,55	2,02
gb2rora	20080927	271	20090515	135	229	12,48	354	5,45	19,89
gb2rora	20090515	135	20090719	200	65	6,93	354	10,66	38,89
gb2rora	20090719	200	20091013	286	86	8,39	356	9,76	35,62
gb2c	20080927	271	20090515	135	229	12,48	354	5,45	19,89
gb2c	20090515	135	20090719	200	65	6,93	354	10,66	38,89
gb2c	20090719	200	20091013	286	86	8,39	356	9,76	35,62
Gh01c	20090604	155	20091016	289	134	0,94	188	0,7	2,55
Gh02c	20090604	155	20091016	289	134	3,22	199	2,4	8,78
Gh03c	20090604	155	20091016	289	134	5,36	199	4	14,59
Gh04c	20090604	155	20091016	289	134	5,3	199	3,95	14,43
Gh05c	20090604	155	20091016	289	134	6,35	202	4,74	17,3
Gh06c	20090604	155	20091016	289	134	5,41	205	4,04	14,74
Gh09c	20090604	155	20091016	289	134	7,9	202	5,9	21,52
Gh10c	20090604	155	20091016	289	134	5,39	234	4,02	14,68
Gh12c	20090604	155	20091016	289	134	8,31	186	6,2	22,64
Gh13c	20090604	155	20091016	289	134	8,16	191	6,09	22,23
Gh14c	20090604	155	20091016	289	134	4,69	171	3,5	12,76
Gh15c	20090604	155	20090718	199	44	2,35	139	5,33	19,47
Gh16c	20090604	155	20090718	199	44	3	142	6,82	24,88
Gh16c	20090718	199	20091016	289	90	4,13	127	4,59	16,76
Gh17c	20090604	155	20090718	199	44	2,66	116	6,05	22,08
Gh17c	20090718	199	20091016	289	90	3,61	174	4,01	14,65
Gh18c	20090604	155	20091016	289	134	1,93	184	1,44	5,26
Gh19c	20090604	155	20091016	289	134	1,9	187	1,42	5,19
Go1m	20090604	155	20090718	199	44	1,07	159	2,43	8,88
HAABi	20090604	155	20091016	289	134	1,79	309	1,33	4,87
Hof01g	20090515	135	20090719	200	65	6,72	176	10,35	37,76
Hof01g	20090719	200	20091013	286	86	7,18	175	8,35	30,48
K01p	20090510	130	20091016	289	159	2,07	307	1,3	4,76
K02q	20090510	130	20091016	289	159	10,97	297	6,9	25,18
K03q	20090510	130	20091016	289	159	15,5	287	9,75	35,58
K04q	20090510	130	20091016	289	159	22,02	290	13,85	50,54
K05q	20090510	130	20090718	199	69	5,59	247	8,1	29,57
K05q	20090718	199	20091016	289	90	7,41	246	8,23	30,05
K06p	20090604	155	20090718	199	44	0,69	99	1,58	5,76
K06p	20090718	199	20091016	289	90	0,72	48	0,81	2,94
K07l	20090510	130	20091016	289	159	3,86	288	2,42	8,85
S01e	20090509	129	20091011	284	155	1,55	165	1	3,65
S02g	20080428	119	20091011	284	530	45,85	190	8,65	31,58
S04i	20090509	129	20091011	284	155	19,96	205	12,88	47,01
T01nl	20090509	129	20091010	283	154	0,49	167	0,32	1,17
T02nl	20090509	129	20091010	283	154	4,1	271	2,66	9,72
T03nl	20090509	129	20090530	150	21	0,56	245	2,67	9,76
T03nl	20090530	150	20091011	284	134	8,01	254	5,98	21,82
T04nl	20090509	129	20091016	289	160	8,75	234	5,47	19,97
T05nk	20080928	272	20090208	39	132	7,28	239	5,52	20,14
T05nl	20090510	130	20091016	289	159	7,65	238	4,81	17,57
T05rord	20080928	272	20090208	39	132	7,28	239	5,52	20,14
T05rord	20090208	39	20090510	130	91	3,86	235	4,24	15,47
T05rord	20090510	130	20090530	150	20	0,82	237	4,08	14,88
T05rord	20090530	150	20091016	289	139	6,84	238	4,92	17,96

T06nl	20090517	137	20090530	150	13	0,64	229	4,95	18,06
T06nl	20090530	150	20090718	199	49	2,73	229	5,57	20,34
T06nl	20090718	199	20091016	289	90	5,51	223	6,12	22,34
T07nk	20080928	272	20090208	39	132	4,91	226	3,72	13,57
T07nk	20090208	39	20090517	137	98	4,61	238	4,71	17,19
T07nk	20090517	137	20090718	199	62	2,83	214	4,57	16,69
T07nk	20090718	199	20091016	289	90	4,86	245	5,4	19,73
T07rore	20090208	39	20090517	137	98	4,61	238	4,71	17,19
T07rore	20090517	137	20090530	150	13	0,54	241	4,15	15,16
T07rore	20090530	150	20090718	199	49	2,37	208	4,83	17,64
T07rore	20090718	199	20091016	289	90	4,86	245	5,4	19,73
T08nl	20090513	133	20091016	289	156	1,57	246	1,01	3,67

Appendix E: Melt water runoff to selected rivers in summer 2009, derived from summer ablation

ΔS: area in a given elevation range where summer balance is negative (i.e. net melting in the area) , **$\Sigma\Delta S$**: cumulative area above a given elevation, **ΔQ_s**: melt water runoff from a given elevation range, **$\Sigma\Delta Q_s$** : cumulative melt water runoff from an area above given elevation.

Tungnaá water drainage basin

Elevation (m a. s. l.)		ΔS km^2	$\Sigma\Delta S$ km^2	ΔQ_s (10^6m^3)	$\Sigma\Delta Q_s$ (10^6m^3)
1300	1350	0,0	0	0	0
1250	1300	2,0	2,1	3	3
1200	1250	3,9	6	8	11
1150	1200	10,8	16,7	26	38
1100	1150	12,2	29	33	71
1050	1100	11,0	40	33	105
1000	1050	12,0	51,9	42	147
950	1000	10,3	62,2	43	190
900	950	10,4	72,7	50	241
850	900	10,9	83,6	61	302
800	850	7,2	90,8	45	347
750	800	5,2	96	34	382
700	750	1,6	97,6	10	393
650	700	0,4	97,9	2	395

Sylgja water drainage basin

Elevation (m a. s. l.)		ΔS km^2	$\Sigma\Delta S$ km^2	ΔQ_s (10^6m^3)	$\Sigma\Delta Q_s$ (10^6m^3)
1500	1550	5,8	5,8	3	3
1450	1500	7,4	13,1	6	10
1400	1450	6,8	20,0	7	18
1350	1400	5,9	25,9	7	25
1300	1350	5,1	31,0	8	34
1250	1300	7,0	38,0	11	45
1200	1250	9,8	47,7	18	64
1150	1200	10,7	58,4	24	88
1100	1150	11,0	69,4	30	119
1050	1100	7,7	77,1	25	144
1000	1050	2,8	79,9	10	154
950	1000	1,0	80,8	4	159
900	950	0,4	81,3	2	161
850	900	0,0	81,4	0	162

Western Skaftá cauldron water drainage basin

Elevation (m a. s. l.)		ΔS km^2	$\Sigma\Delta S$ km^2	ΔQ_s (10^6m^3)	$\Sigma\Delta Q_s$ (10^6m^3)
1750	1800	0,0	0,0	0	0
1700	1750	2,7	2,8	0	0
1650	1700	5,9	8,6	2	3
1600	1650	6,7	15,4	4	7
1550	1600	4,2	19,5	2	10
1500	1550	0,4	19,9	0	10

Eastern Skaftár cauldoron water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s ($10^6 m^3$)	åΔQ_s ($10^6 m^3$)
1900	1950	0	0	0	0
1850	1900	0	0	0	0
1750	1800	0,5	0,6	0	0
1700	1750	5,7	6,3	1	1
1650	1700	13,8	20,1	4	6
1600	1650	8	28,2	4	10
1550	1600	0,6	28,8	0	10

Grímsvötn water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s ($10^6 m^3$)	åΔQ_s ($10^6 m^3$)
1850	1900	2,2	2,6	0	0
1800	1850	2,9	5,5	0	1
1750	1800	9,6	15	3	5
1700	1750	20,4	35,5	8	13
1650	1700	67,9	103,4	33	46
1600	1650	37,6	140,9	20	66
1550	1600	18,4	159,3	11	78
1500	1550	15,9	175,2	13	92
1450	1500	11,8	187	12	104
1400	1450	8,8	195,8	11	115
1350	1400	7,8	203,6	11	126

Kaldakvísl water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s ($10^6 m^3$)	åΔQ_s ($10^6 m^3$)
1900	1950	7,5	7,5	0	0
1850	1900	6,6	14,1	0	1
1800	1850	6,5	20,6	1	2
1750	1800	12,2	32,9	2	5
1700	1750	22,6	55,4	6	11
1650	1700	17,4	72,9	8	19
1600	1650	14,4	87,3	8	28
1550	1600	20,6	107,9	14	43
1500	1550	23,2	131,1	16	59
1450	1500	20,6	151,7	17	76
1400	1450	15,2	166,9	16	93
1350	1400	17,2	184,2	23	116
1300	1350	19,3	203,4	33	150
1250	1300	19,6	223	44	194
1200	1250	21,2	244,3	59	253
1150	1200	20,2	264,4	66	319
1100	1150	21,6	286	78	398
1050	1100	19	305	77	476
1000	1050	15,8	320,7	71	548
950	1000	10,4	331,1	50	598
900	950	4,9	336	24	623
850	900	0,6	336,6	3	627

Jökulsá á Fjöllum water drainage basin

Elevation (m a. s. l.)		ΔS km^2	å ΔS km^2	ΔQ_s $(10^6 m^3)$	å ΔQ_s $(10^6 m^3)$
1900	1950	9	9	0	0
1850	1900	19	28	2	2
1800	1850	20,2	48,3	2	5
1750	1800	19,8	68,1	4	9
1700	1750	28,3	96,4	6	16
1650	1700	77,3	173,7	22	39
1600	1650	103	276,4	31	71
1550	1600	95,4	371,8	32	103
1500	1550	90,5	462,3	35	139
1450	1500	78	540,2	38	178
1400	1450	69,2	609,4	45	223
1350	1400	66	675,5	56	280
1300	1350	47	722,5	54	334
1250	1300	50,7	773,2	79	414
1200	1250	72,2	845,4	148	563
1150	1200	64,7	910,1	165	729
1100	1150	37,8	947,8	111	840
1050	1100	34,6	982,4	112	952
1000	1050	39,6	1022	142	1094
950	1000	34	1056	138	1233
900	950	26	1082	118	1351
850	900	24,1	1106,1	119	1471
800	850	17,5	1123,6	93	1565
750	800	9,4	1132,9	51	1616
700	750	2,1	1135	11	1628

Kreppa and Kverká water drainage basin

Elevation (m a. s. l.)		ΔS km^2	$\Sigma\Delta S$ km^2	ΔQ_s ($10^6 m^3$)	$\Sigma\Delta Q_s$ ($10^6 m^3$)
1900	1950	0,1	0,1	0	0
1850	1900	0,5	0,6	0	0
1800	1850	0,4	1	0	0
1750	1800	2,1	3,2	0	0
1700	1750	3,4	6,6	0	1
1650	1700	3,6	10,2	0	2
1600	1650	6,2	16,4	1	4
1550	1600	11,4	27,8	3	8
1500	1550	12,2	40	5	13
1450	1500	14,5	54,6	7	21
1400	1450	15,7	70,2	10	31
1350	1400	21,5	91,8	15	46
1300	1350	22,2	114	16	62
1250	1300	18	131,9	20	82
1200	1250	17,4	149,3	28	111
1150	1200	20,2	169,5	36	147
1100	1150	19,8	189,3	40	188
1050	1100	17,6	206,9	41	229
1000	1050	19	225,8	57	287
950	1000	17	242,8	60	347
900	950	15,8	258,6	62	410
850	900	15,7	274,3	68	478
800	850	15	289,2	70	548
750	800	8,3	297,6	42	591
700	750	3	300,5	16	608
650	700	0,9	301,4	5	613

Jökulsá á Brú water drainage basin

Elevation (m a. s. l.)		ΔS km^2	$\Sigma\Delta S$ km^2	ΔQ_s ($10^6 m^3$)	$\Sigma\Delta Q_s$ ($10^6 m^3$)
1700	1750	0,2	0,2	0	0
1650	1700	1,7	1,8	0	0
1600	1650	44,5	46,4	12	13
1550	1600	44,4	90,8	13	26
1500	1550	75	165,8	24	51
1450	1500	66	231,8	30	82
1400	1450	96,3	328,1	49	131
1350	1400	144	471,6	80	211
1300	1350	138	609,5	80	291
1250	1300	133	742,6	106	398
1200	1250	99,7	842,3	123	522
1150	1200	95,6	937,9	149	672
1100	1150	70,6	1008,5	132	805
1050	1100	62,9	1071,4	145	950
1000	1050	52,8	1124,2	150	1101
950	1000	43,9	1168,1	147	1248
900	950	39	1207,1	150	1399
850	900	39,2	1246,3	170	1570
800	850	32,3	1278,6	155	1726
750	800	29,4	1307,9	152	1878
700	750	25,5	1333,4	140	2019
650	700	12,3	1345,7	70	2090
600	650	3,9	1349,6	23	2113
550	600	0,2	1349,8	1	2114

Jökulsá á Fljótsdal water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s $(10^6 m^3)$	åΔQ_s $(10^6 m^3)$
1500	1550	0	0	0	0
1450	1500	1,3	1,3	0	0
1400	1450	1,8	3,1	0	0
1350	1400	3,1	6,2	1	2
1300	1350	6	12,2	5	7
1250	1300	14,2	26,3	15	23
1200	1250	15,4	41,7	24	48
1150	1200	17	58,7	37	85
1100	1150	13,8	72,5	36	122
1050	1100	13,2	85,6	38	160
1000	1050	11,4	97	36	196
950	1000	8,6	105,7	29	226
900	950	5,7	111,4	20	246
850	900	5,4	116,8	20	267
800	850	6,1	122,9	24	292
750	800	5,1	128	22	315
700	750	3	131	14	329
650	700	1	132	4	334

Hornafjarðarfljót water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s (10^6m^3)	åΔQ_s (10^6m^3)
1450	1500	0,8	0,8	0	0
1400	1450	8,9	9,7	2	2
1350	1400	12,9	22,6	4	7
1300	1350	19,9	42,6	11	18
1250	1300	38,7	81,3	36	54
1200	1250	28,5	109,8	38	93
1150	1200	22,7	132,5	42	135
1100	1150	20	152,5	44	180
1050	1100	14,2	166,7	35	216
1000	1050	12,3	179	33	249
950	1000	11	190	32	281
900	950	7,7	197,6	25	306
850	900	5,6	203,3	19	326
800	850	4,8	208	17	344
750	800	4,5	212,6	17	361
700	750	4,1	216,6	17	378
650	700	3,5	220,1	15	394
600	650	2,4	222,5	11	405
550	600	2	224,4	9	415
500	550	1,6	226,1	8	424
450	500	1,4	227,5	7	432
400	450	1	228,5	6	438
350	400	1,1	229,6	6	444
300	350	2	231,6	13	457
250	300	3,7	235,3	26	484
200	250	3,1	238,4	23	507
150	200	3	241,4	24	531
100	150	2,7	244,1	23	555
50	100	2,5	246,6	22	577
0	50	0,6	247,2	5	582

Jökulsá á Breiðamerkursandi water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s (10^6m^3)	åΔQ_s (10^6m^3)
1700	1750	0,9	0,9	0	0
1650	1700	3,4	4,3	0	0
1600	1650	15,6	19,9	3	4
1550	1600	19,5	39,4	5	9
1500	1550	23,6	63	8	18
1450	1500	34,2	97,2	13	32
1400	1450	54	151,1	29	61
1350	1400	77,5	228,6	56	118
1300	1350	85,8	314,4	80	199
1250	1300	51,8	366,2	61	260
1200	1250	36,4	402,6	50	311
1150	1200	26,6	429,2	42	353
1100	1150	24,9	454,2	44	398
1050	1100	24,1	478,2	47	445
1000	1050	20,9	499,1	44	489
950	1000	24,7	523,8	56	546
900	950	21	544,8	50	597
850	900	23,4	568,2	62	659
800	850	21,4	589,5	65	724
750	800	21	610,5	73	798
700	750	25	635,5	92	890
650	700	21,5	657	83	974
600	650	22,4	679,3	91	1066
550	600	9,7	689	42	1108
500	550	8,9	697,9	41	1150
450	500	5	702,9	24	1174
400	450	6,5	709,4	34	1208
350	400	5,1	714,6	29	1238
300	350	5,1	719,7	31	1269
250	300	6,6	726,3	49	1319
200	250	6,9	733,2	61	1380
150	200	5,6	738,9	54	1435
100	150	6,8	745,6	65	1500
50	100	6,9	752,6	52	1553
0	50	3,9	756,5	28	1582

Breiðárlón/Fjallsárlón water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s ($10^6 m^3$)	åΔQ_s ($10^6 m^3$)
2000	2050	0,2	0,2	0	0
1950	2000	0,5	0,6	0	0
1900	1950	0,8	1,4	0	0
1850	1900	0,9	2,3	0	0
1800	1850	1	3,3	0	0
1750	1800	1,6	4,9	0	0
1700	1750	2,2	7,1	0	0
1650	1700	2,6	9,8	0	0
1600	1650	3	12,8	0	1
1550	1600	4,1	16,9	1	2
1500	1550	4,9	21,8	1	4
1450	1500	6,3	28,1	2	6
1400	1450	5,2	33,3	3	10
1350	1400	5,2	38,5	5	15
1300	1350	7,6	46,1	8	23
1250	1300	7,2	53,4	8	32
1200	1250	6,9	60,2	10	42
1150	1200	4,1	64,3	6	49
1100	1150	4,5	68,8	8	57
1050	1100	5	73,8	10	67
1000	1050	6,8	80,6	14	82
950	1000	8,2	88,8	19	101
900	950	6,3	95,1	15	117
850	900	8,1	103,2	23	140
800	850	9	112,3	29	169
750	800	6,4	118,7	22	192
700	750	6,7	125,4	24	217
650	700	7,7	133,1	30	248
600	650	8,4	141,4	34	283
550	600	9,2	150,6	40	323
500	550	10,9	161,5	50	373
450	500	12	173,6	58	432
400	450	11,3	184,9	59	492
350	400	8,6	193,4	48	540
300	350	8	201,5	49	590
250	300	6,8	208,3	49	640
200	250	5,4	213,8	47	687
150	200	4,7	218,4	45	732
100	150	5,2	223,6	51	783
50	100	5,1	228,7	47	831
0	50	1	229,7	7	838

Skeiðarársandur water drainage basin

Elevation (m a. s. l.)		ΔS km^2	å ΔS km^2	ΔQ_s ($10^6 m^3$)	å ΔQ_s ($10^6 m^3$)
1700	1750	1,9	1,9	0	0
1650	1700	19,8	21,7	6	7
1600	1650	81,7	103,4	26	33
1550	1600	87,3	190,7	32	66
1500	1550	105,1	295,8	44	110
1450	1500	104,7	400,5	57	168
1400	1450	104,9	505,4	72	240
1350	1400	89,4	594,7	73	314
1300	1350	71,4	666,1	68	382
1250	1300	64,8	731	76	459
1200	1250	59,6	790,5	92	551
1150	1200	55,6	846,1	105	657
1100	1150	50,3	896,4	108	766
1050	1100	48,4	944,8	118	885
1000	1050	36,7	981,5	100	985
950	1000	38,2	1019,6	114	1099
900	950	43,1	1062,7	141	1241
850	900	37,5	1100,2	131	1372
800	850	30,4	1130,5	111	1483
750	800	26,0	1156,6	101	1585
700	750	20,3	1176,9	84	1669
650	700	19,7	1196,5	87	1756
600	650	25,6	1222,1	119	1876
550	600	17,4	1239,5	85	1961
500	550	14,6	1254,1	75	2036
450	500	15,0	1269,1	81	2118
400	450	17,7	1286,7	102	2220
350	400	17,2	1304	105	2325
300	350	17,5	1321,5	112	2437
250	300	17,2	1338,7	118	2556
200	250	16,4	1355,1	123	2680
150	200	11,4	1366,6	94	2775
100	150	7,3	1373,9	63	2839
50	100	1,5	1375,4	13	2852

Djúpá water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s $(10^6 m^3)$	åΔQ_s $(10^6 m^3)$
1450	1500	0,3	0,3	0	0
1400	1450	0,3	0,6	0	0
1350	1400	1,1	1,8	1	2
1300	1350	3,8	5,6	6	9
1250	1300	3,3	8,9	6	15
1200	1250	3,2	12,1	6	22
1150	1200	4,4	16,4	9	32
1100	1150	4,8	21,2	11	43
1050	1100	9,2	30,4	26	70
1000	1050	10,3	40,8	33	104
950	1000	8,8	49,5	32	136
900	950	9,0	58,5	35	172
850	900	10,1	68,6	42	214
800	850	6,8	75,4	30	245
750	800	4,5	79,9	20	266
700	750	3,4	83,2	16	282
650	700	1,5	84,7	7	290
600	650	0,4	85,2	2	292

Brunná water drainage basin

Elevation (m a. s. l.)		ΔS km^2	åΔS km^2	ΔQ_s $(10^6 m^3)$	åΔQ_s $(10^6 m^3)$
1050	1100	0,0	0	0	0
1000	1050	1,0	1,1	3	3
950	1000	4,0	5,1	14	18
900	950	4,1	9,2	15	33
850	900	5,4	14,6	22	56
800	850	6,1	20,8	26	82
750	800	6,7	27,4	30	113
700	750	4,6	32	22	136
650	700	2,6	34,6	13	149
600	650	1,8	36,4	10	159
550	600	0,0	36,5	0	160

Hverfisfljót water drainage basin

Elevation (m a. s. l.)		ΔS km^2	å ΔS km^2	ΔQ_s (10^{6}m^3)	å ΔQ_s (10^{6}m^3)
1700	1750	0,5	0,5	0	0
1650	1700	7,1	7,6	3	3
1600	1650	19,0	26,6	11	14
1550	1600	18,2	44,8	12	27
1500	1550	24,4	69,1	18	46
1450	1500	50,8	119,9	43	89
1400	1450	36,0	155,9	35	125
1350	1400	38,0	193,8	47	172
1300	1350	30,1	223,9	44	217
1250	1300	18,5	242,4	29	247
1200	1250	21,8	264,3	38	286
1150	1200	14,3	278,6	31	317
1100	1150	9,2	287,8	23	340
1050	1100	7,8	295,6	22	363
1000	1050	10,4	306	33	396
950	1000	9,5	315,5	34	431
900	950	10,4	325,9	40	471
850	900	10,8	336,7	44	516
800	850	15,9	352,6	70	587
750	800	18,8	371,5	91	678
700	750	10,4	381,8	53	731
650	700	6,4	388,3	34	766
600	650	3,4	391,7	18	785
550	600	0,4	392	1	787

Skaftá water drainage basin

Elevation (m a. s. l.)		ΔS km^2	å ΔS km^2	ΔQ_s (10^{6}m^3)	å ΔQ_s (10^{6}m^3)
1650	1700	1,5	1,5	0	0
1600	1650	8,4	10	5	6
1550	1600	16,0	25,9	11	17
1500	1550	17,7	43,6	13	31
1450	1500	14,3	57,9	12	43
1400	1450	15,3	73,2	15	58
1350	1400	12,8	86	16	74
1300	1350	23,8	109,8	35	110
1250	1300	27,2	137	43	154
1200	1250	35,2	172,2	65	220
1150	1200	27,1	199,3	62	282
1100	1150	28,2	227,6	75	357
1050	1100	35,2	262,8	104	462
1000	1050	26,6	289,4	88	550
950	1000	19,9	309,3	74	625
900	950	17,9	327,2	74	699
850	900	16,8	344	77	776
800	850	13,5	357,6	66	843
750	800	8,9	366,5	47	891
700	750	5,4	371,9	29	921
650	700	2,4	374,3	13	935
600	650	0,3	374,6	1	936