GEOGRAPHY

GLACIER MASS BALANCE DATA

2003/2004 and 2004/2005

(Herausgegeben von RAOnline)

SUMMARY

Continuous mass balance statistics are calculated based on the 30 glaciers in 9 mountain ranges. Data are now available for the years 1980-2004 and preliminary values for the year 2005 from 27 glaciers in 9 mountain ranges.

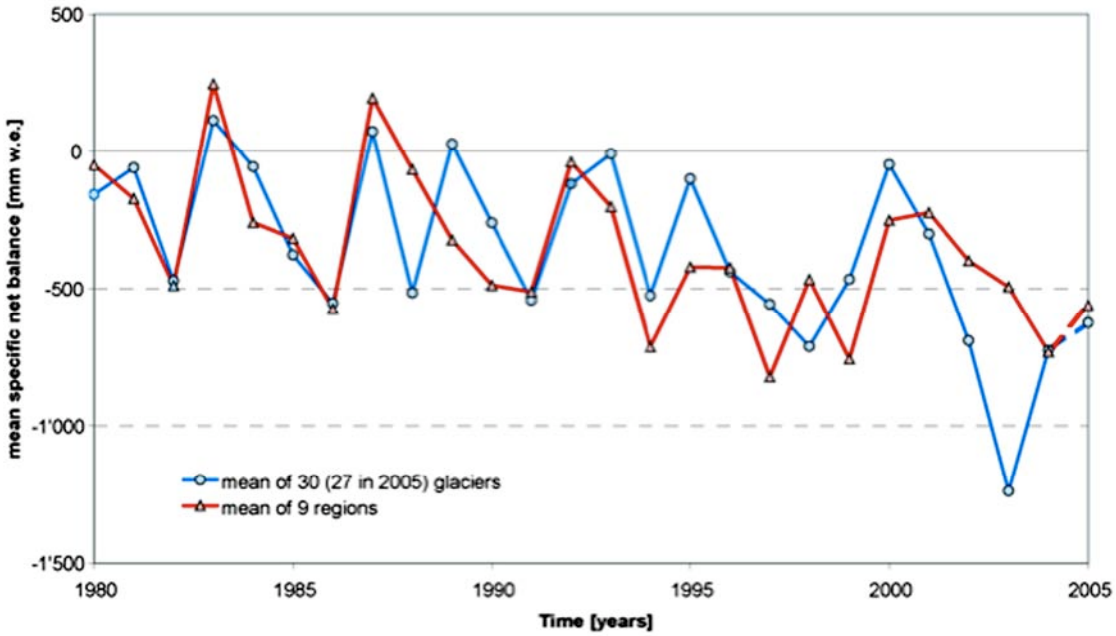
The average mass balance of the reference mountain glaciers around the world continues to decrease, with tentative figures indicating a further thickness reduction of 0.7 m and 0.6 m during 2004 and 2005, respectively. This continues the trend in accelerated ice loss during the past two and a half decades and brings the total loss since 1980 at about 9.6 m.

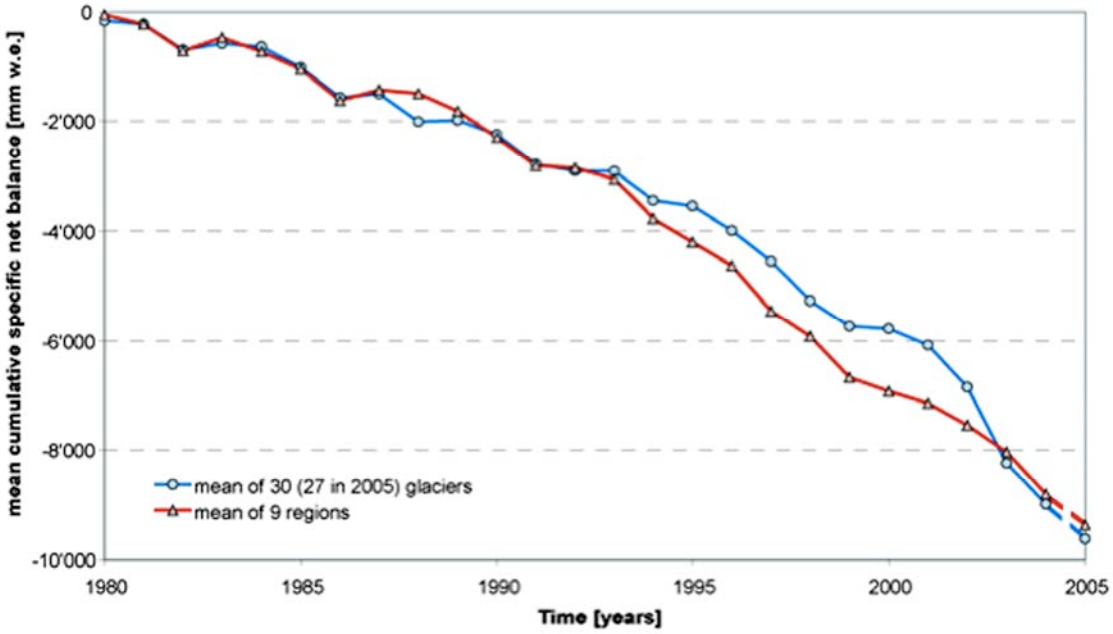
Results of the extreme and mean values for the year 2003/2004 and 2004/2005 have been calculated based on these 30 and 27 glaciers, respectively:

	2003/2004	2004/2005
Mean specific (annual) net balance	**-725 mm w.e.**	**-625 mm w.e.**
Standard deviation	**905 mm w.e.**	**1037 mm w.e.**
Minimum value	**-2820 mm w.e.**	**-3230 mm w.e.**
Maximum value	**550 mm w.e.**	**1100 mm w.e.**
Positive balances	**20%**	**19%**

The corresponding results of this data set from glaciers in the Americas and Eurasia are visualized in the following two figures:

Figure 1a and 1b: Mean specific net balance (top) and mean cumulative specific net balance (bottom) continuously measured on 30 glaciers in 9 mountain ranges for the period 1980 to 2004, and on 27 glaciers in 9 mountain ranges for 2005.





For more details on monitoring strategy, long-term trends and the extraordinary year 2003 in Central Europe (including references), see:

- Bishop, M.P., Olsenholler, J.A., Shroder, J.F., Barry, R.G., Raup, B.H., Bush, A.B.G., Copland, L., Dwyer, J.L., Fountain, A.G., Haeberli, W., Kääb, A., Paul, F., Hall, D.K., Kargel, J.S., Molnia, B.F., Trabant, D.C. and Wessels R. 2004. Global land ice measurements from space (GLIMS): Remote sensing and GIS investigations of the Earth's cyrosphere. Geocarto International, 19/2, 57-84.
- Haeberli, W. 2004. Glaciers and ice caps: historical background and strategies of world-wide monitoring. In: Bamber, J.L. and Payne A.J. (eds). Mass Balance of the Cryosphere. Cambridge University Press, Cambridge, 559-578.
- Haeberli, W. and Holzhauser, H. 2003. Alpine glacier mass changes during the past two millennia. Pages News, 1/11, 13-15.
- Haeberli, W., Maisch, M. and Paul, F. 2002. Mountain glaciers in global glimate-related observation networks. WMO Bulletin, 51/1, 18-25.
- Haeberli, W., Frauenfelder, R., Hoelzle, M. and Maisch, M. 1999. On rates and acceleration trends of global glacier mass changes. Geografiska Annaler, 81A(4), 585–591.
- Zemp, M., Frauenfelder, R., Haeberli, W. and Hoelzle, M. 2005. Worldwide glacier mass balance measurements: general trends and first results of the extraordinary year 2003 in Central Europe. Data of Glaciological Studies [Materialy glyatsiologicheskikh issledovaniy], 99, Moscow, Russia, 3-12.
- Frauenfelder, R., Zemp, M., Haeberli, W. and Hoelzle, M. 2005. Worldwide glacier mass balance measurements: trends and first results of an extraordinary year in Central Europe. Ice and Climate News 6, 9-10.Ice and Climate News 6, 9-10.

Mountain range	Glaciers
Cascade Mtns.	Place, South Cascade
Svalbard	Austre Broeggerbreen, Midre Lovenbreen
Andes	Echaurren Norte
Alaska	Gulkana, Wolverine
Scandinavia	Engabreen, Alfotbreen, Nigardsbreen, Grasubreen, Storbreen, Hellstugubreen, Hardangerjoekulen, Storglaciaeren
Alps	Saint Sorlin, Sarennes, Silvretta, Gries, Sonnblickkees, Vernagtferner, Kesselwandferner, Hintereisferner, Careser
Altai	No. 125 (Vodopadniy), Maliy Aktru, Leviy Aktru
Caucasus	Djankuat
Tien Shan	Ts. Tuyuksuyskiy, Urumqihe S.No.1

Mass Balance Data 2003/04 and 2004/2005

Name	b 04 [mm w.e.]	b 05 [mm w.e.]
ANTARCTICA		
Bahia del Diablo	-110	-230
ARGENTINA		
Martial Este	-1256	-844
AUSTRIA		
Hintereisferner	-667	-1061
Jamtal F.	-228	-975
Kesselwandferner	-189	-59
Sonnblickkees	8	-323
Vernagtferner	-407	-523
Wurten K.	-333	-448
Kleiner Fleisskees	82	-111
Grosser Goldbergkees	132	-260
Pasterze	n.a.	-899
BOLIVIA		
Chacaltaya	-1822	-2057
Charquini sur	-1486	-2498
Zongo	-523	-1693
CANADA		
Helm	-2200	n.a.
Peyto	-1850	n.a.
Place	-1595	-1295
White	37	-612
CHILE		
Echaurren Norte	-570	-850
CHINA		
Urumqihe E-Br.	-706	-850
Urumqihe S.No.1	-755	-748
Urumqihe W-Br.	-844	-692
Ecuador		
Antizana 15 Alpha	-572	-789
FRANCE		
Saint Sorlin	-2450	-2500
Sarennes	-2820	-3230
ICELAND		
Breidamjok. E. B.	-1330	n.a.
Bruarjokull	-800	n.a.
Eyabakkajokull	-1310	n.a.
Hofsjokull E	-1500	-20
Hofsjokull N	-1370	-430
Hofsjokull SW	-1500	-570
Koeldukvislarj.	n.a.	-n.a.
Langjokull Southern Dome	-1487	n.a.
Tungnaarjokull	-1700	n.a.
ITALY		
Careser	-1588	-2005
Ciardoney	-1060	-2230
Fontana Bianca	-994	-1471
Malavalle	n.a.	-787
Pendente	-427	-936
Vedretta Lunga	-1524	-1233
Kazakhstan		
Ts. Tuyuksuyskiy	60	-338

NEW ZEALAND		
Brewster	700	n.a.
RUSSIA		
Aalfotbreen	-100	670
Austdalsbreeen	-960	190
Austre Broeggerbreen	-1120	-1000
Breidalblikkbrea	-950	-280
Engabreen	820	890
Graafjellsbreen	-810	10
Graasubreen	-490	-500
Hansbreen	-570	40
Hansebreen	-510	-90
Hardangerjoekulen	80	720
Hellstugubreen	-840	-290
Irenebreen	-605	-862
Kongsvegen	-770	-480
Langfjordjoekul	-1920	-1260
Midre Lovenbreen	-970	-740
Nigardsbreen	-40	1100
Rundvassbreen	-210	n.a.
Storbreen	-580	-60
Storglombreen	120	330
Waldemarbreen	-641	-722
RUSSIA		
No. 125	-220	n.a.
Maliy Aktru	-150	-30
Leviy Aktru	-240	n.a.
Garabashi	n.a.	200
Djankuat	700	400
SPAIN		
Maladeta	-1516	-1479
SWEDEN		
Marmaglaciaeren	n.a.	-540
Rabots Glaciaer	n.a.	-1170
Riukojietna	n.a.	n.a.
Storglaciaeren	-190	-80
Tarfalaglaciaeren	n.a.	-930
SWITZERLAND		
Basodino	-490	-1170
Gries	-1330	-1670
Silvretta	119	-650
USA		
Colombia (2057)	-1830	-3210
Daniels	-2130	-2900
Easton	-960	-2450
Emmons	n.a.	n.a.
Foss	-1940	-3120
Gulkana	-2290	-250
Ice Worm	-2000	-2850
Lower Curtis	-1510	-2750
Lynch	-1980	-2620
Nisqually	n.a.	n.a.
Noisy Creek	n.a.	-2410
North Klawatti	n.a.	-2060
Rainbow	-1670	-2650
Sandalee	n.a.	-2290
Sholes	-1860	-2840
Silver	n.a.	-1490
South Cascade	-1650	-2450
Wolverine	-2280	n.a.
Yawning	-1780	-3020