Takane MATSUMOTO, Yuji KODAMA, Takayuki SHIRAIWA, Satoru YAMAGUCHI, Toshio SONE, Kouichi NISHIMURA, Yaroslav D. MURAVYEV, Peter A. KHOMENTOVSKY and Kotaro YAMAGATA 1997 Meteorological Observations by Automatic Weather Stations (AWS) in Alpine Regions of Kamchatka, Russia, 1996-1997. *Low Temperature Science,* **Ser. A., 56.** *Data Report.*

Meteorological Observations by Automatic Weather Stations (AWS) in Alpine Regions of Kamchatka, Russia, 1996-1997

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Abstract : In order to understand climatic features of alpine environment and to evaluate east-west climatic contrast in Kamchatka Peninsula, Automatic Weather Stations (AWS) were installed on three alpine regions : Koryto Glacier, Ushkovsky Volcano and Mt. Kozyrevka. Meteorological data were measured and recorded automatically from July, 1996 to September, 1997. The data taken by AWS observations are reported.

要旨：カムチャツカ半島における山岳地域の気候的な特徴，とくに東西断面での気候条件の違いを明らかにするため，カムチャツカ半島の高山地域3ヶ所（カレイタ氷河，ウシュコフスキー火山，コズイレフカ山地）に自動気象観測装置（AWS）を設置した。観測は1996年7月から1997年9月までの期間に行われた。これらのAWS観測によって得られたデータを報告する。

Key words : climate, meteorology, alpine region, glacier, periglacial phenomena, Kamchatka
キーワード：気候，気象，山岳地域，氷河，周氷河現象，カムチャツカ

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1. Introduction

The winter climate of Kamchatka Peninsula is considered to be affected by activities of the Aleutian low and the Siberian high, as well as sea ice extent in the Sea of Okhotsk, while the summer one can be controlled by the Okhotsk (blocking) high. Accordingly, mass balances of glaciers and hydrological regime of alpine regions are influenced by those climatic conditions. Although substantial research on the climate of Kamchatka by Russian scientists has already been published (Kondratyuk, 1974) and the brief review of the climatic conditions by Lydolph (1977) has been easily available for Japanese scientists, we have little information on the climatic conditions of alpine regions where glaciers and periglacial phenomena are found.

In the summer of 1996, we started a three-year Russo-Japanese joint glacier research entitled "Present and Past Cryospheric Hydrologic Cycle in Kamchatka" (Kobayashi *et al.*, 1997). As a part of this project, Automatic Weather Stations (AWS) were installed on three alpine regions in order to understand climatic features of each alpine environment and to evaluate east-west climatic contrast in Kamchatka Peninsula. Almost all instruments were taken off and the data were retrieved from data-loggers in the summer of 1997. The data were carefully checked and calibrated.

In this report, we will describe the characteristics of AWS sites and the meteorological parameters we measured, and then present the data as tabulated forms.

2. Regional Setting

Observation sites and maximum snow depth in Kamchatka are shown in Fig. 1. The isopleth of maximum snow depth shows east-west contrast, as well as topographical influence on the snow depth. The east-west change in climate is the main interest of our project, therefore, the sites were selected according to their longitudinal locations between 54° 50' N and 56° 04' N. They are Koryto Glacier (54° 50'N, 161° 50'E, 1160 m a.s.l.) near the Pacific Ocean, Ushkovsky Volcano (56° 04'N, 160° 28' E, 3900 m a.s.l.) in the central part of the Peninsula, and Mt. Kozyrevka (55° 36'N, 158° 18'E, 1000 m a.s.l.) near the Sea of Okhotsk.

Koryto Glacier is the third largest glacier in Kronotsky Peninsula (Fig. 2). The glacier has the area of 8.9 km^2 and extends from 1200 m to 250 m a.s.l. towards northwest (Vinogradov, 1968). Glaciological and hydrometeorological observations were carried out here in 1996 (Shiraiwa *et al.*, 1997a ; Kodama *et al.*, 1997) and also in 1997. AWS was installed on the ridge between Koryto Glacier and Brovko Glacier (Photo 1). The site is located at a flat interfluve

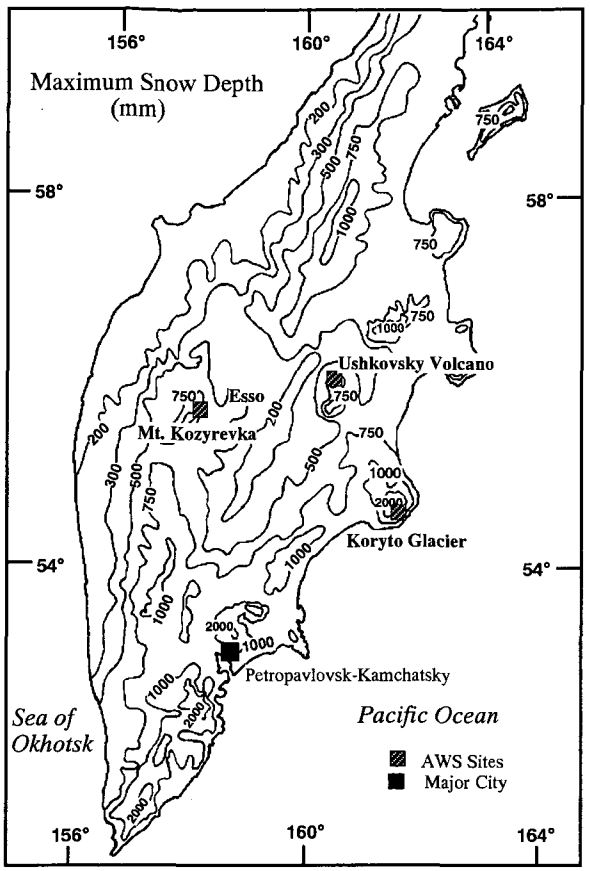


Fig. 1 The locations of the three Automatic Weather Stations (AWS) and the distribution of the maximum snow depth in (mm).

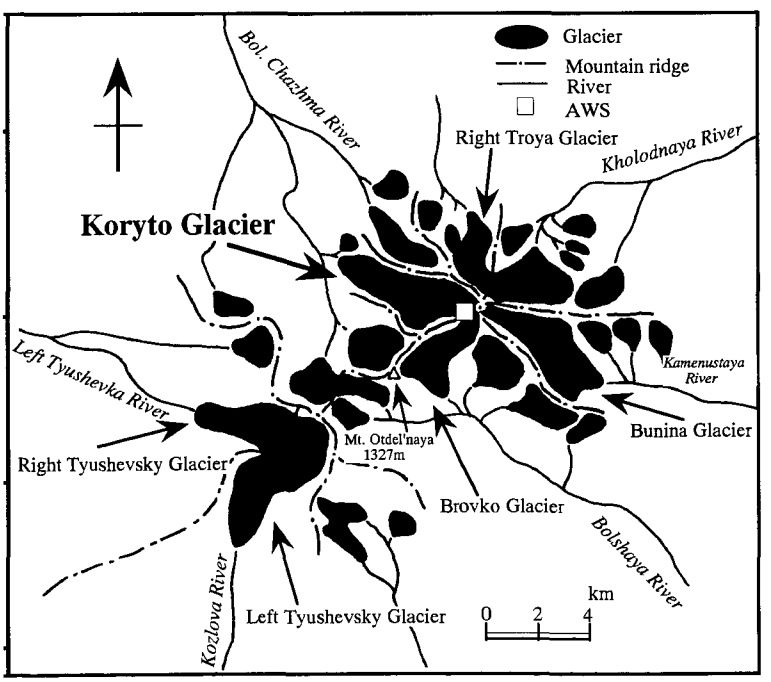


Fig. 2 The distribution of glaciers in Kronotsky Peninsula, Kamchatka and the location of AWS. Data source is Vinogradov (1968).

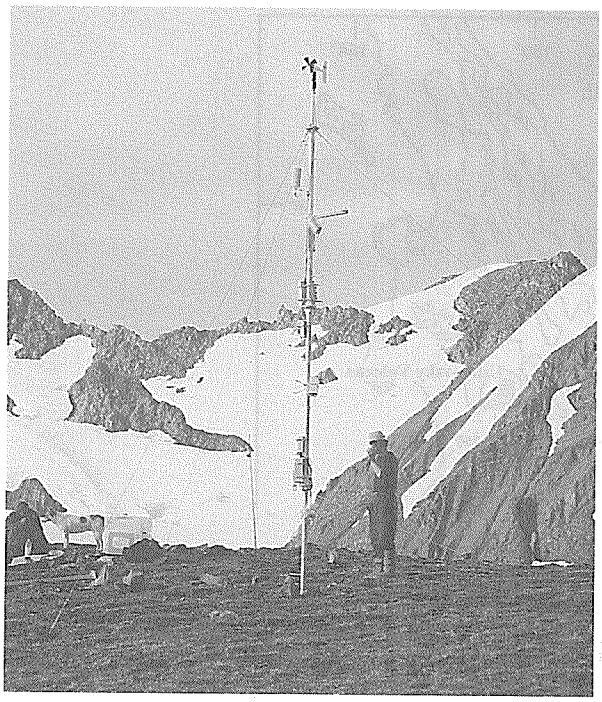


Photo 1 AWS at Koryto Glacier (July, 1996).

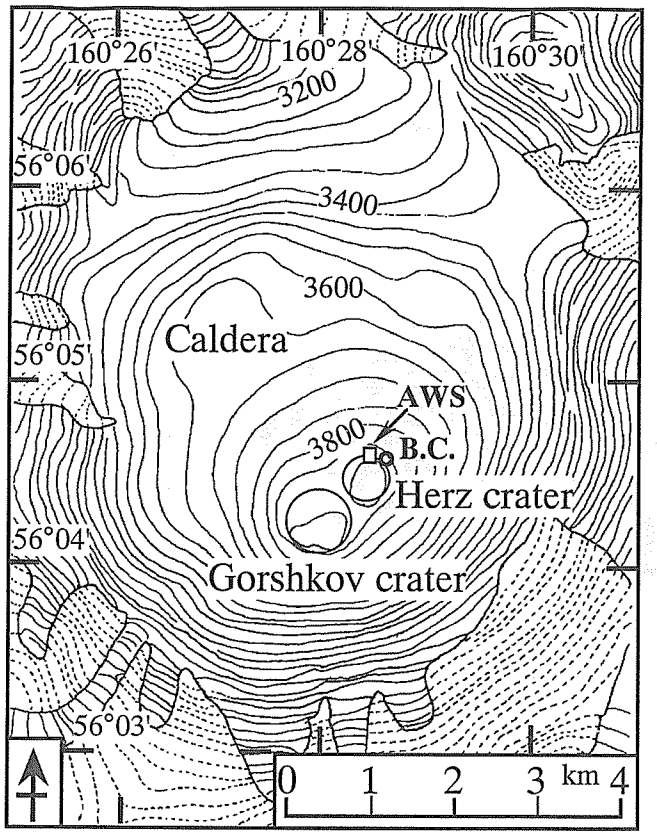


Fig. 3 Topographic map of the summit ice cap of Ushkovsky Volcano and the location of AWS.

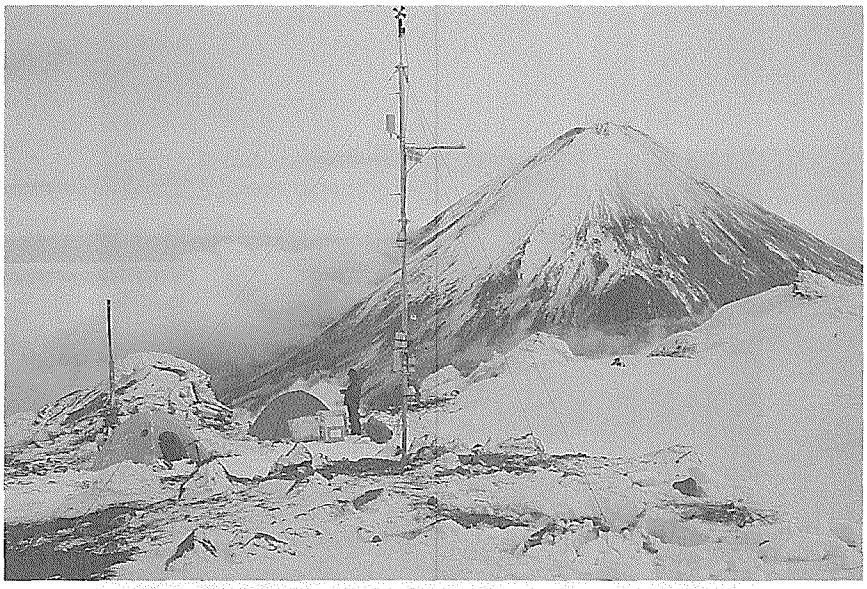
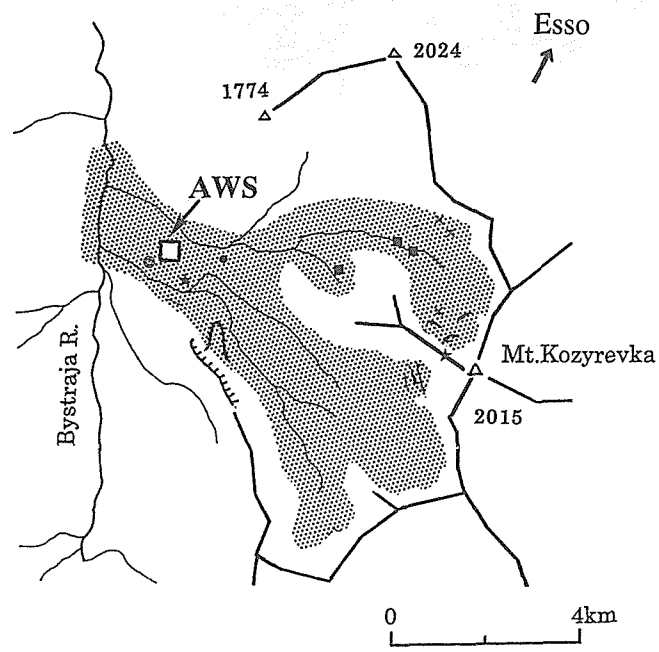


Photo 2 AWS at Ushkovsky Volcano (July, 1996). The background is the highest active volcano in Kamchatka, Klyuchevskoy (4750 m a.s.l.).



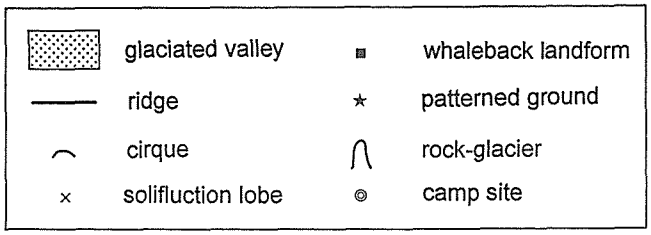


Fig. 4 The distribution of glacial and periglacial landforms in Mt. Kozyrevka (Sone *et al.*, 1997) and the location of AWS.

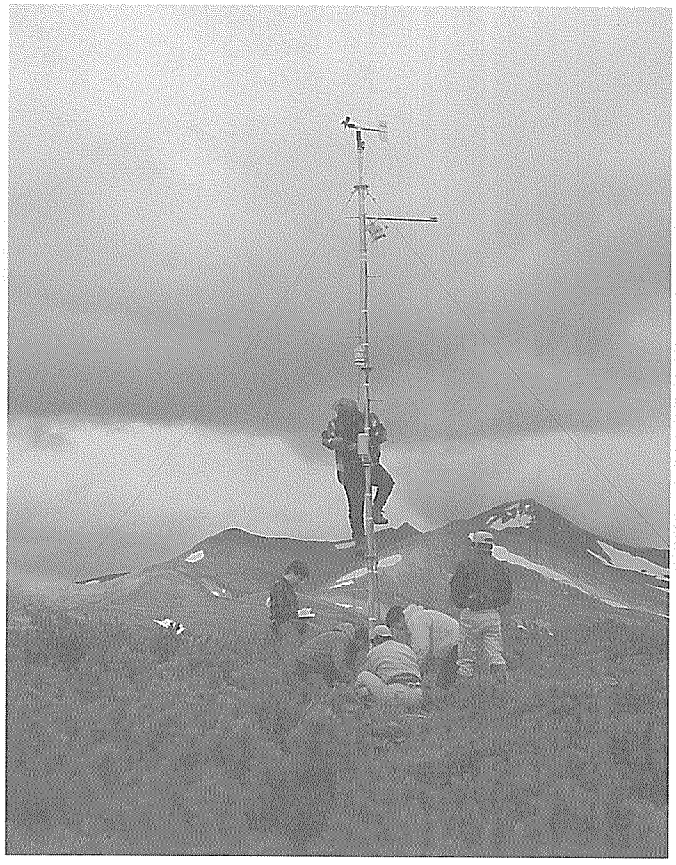


Photo 3 AWS at Mt. Kozyrevka (July,1996).

where step-like patterned grounds and a frost-crack-like groove are developed. According to the unvegetated surface and the periglacial features mentioned above, the site is considered to be the wind-blown surface in winter.

Ushkovsky Volcano is located in the central part of Kamchatka Peninsula. It is 3900 m in elevation and has a caldera of 4 km in diameter in which two small craters, Gorshkov and Herz, exist (Fig. 3). The summit-caldera is covered by an ice cap on which glaciological researches including ice core drillings and radio-echo soundings were carried out both in 1996 and 1997 (Shiraiwa *et al.*, 1997b ; Matsuoka *et al.*, 1997). AWS was installed on the rim of Herz crater near the basecamp (Photo 2). The site is underlain by volcanic ash and detritus. It is scarcely covered with snow because of strong wind and partly by geothermal heating.

Kozyrevka Range, a branch of the Sredinny (central) Mountains, is about 50 km south of the town of Esso (Fig. 4). AWS was installed on the southwest-facing slope at the foot of Mt. Kozyrevka (Photo 3). There is no glacier around the site, although Sone *et al.* (1997) considered that the site is located at the slope glaciated before. Dwarf pine tree (*Pinus pumila*) of approximately 0.5 to 1.0 m high grows around the AWS site. Several periglacial landforms

such as rock glaciers, patterned grounds and solifluction lobes were also found around this area (Sone *et al.*, 1997).

3. Meteorological Data of the Three Sites

Meteorological observations were carried out automatically on the three stations through the following periods ; Koryto Glacier : 20 July, 1996 - 6 September, 1997 (Table 1) ; Ushkovsky Volcano : 27 July, 1996 - 20 June, 1997 (Table 2) ; Mt. Kozyrevka : 28 July, 1996 - 4 September, 1997 (Table 3). The time used in the tables is the Kamchatka Standard Time which is 3 hours ahead of Japan Standard Time.

The meteorological components measured at these sites are : global radiation (height from the ground : 4.5 m), air temperature (4.5 m), relative humidity (4.5 m), wind speed (5.5 m), wind direction (5.5 m), atmospheric pressure (1.0 m), and precipitation (0.5 m). Snow depth sensor was installed at Ushkovsky Volcano only, but precipitation and atmospheric pressure of this site were not observed. In Tables 1 to 3, "Rad" means the global radiation, "AirT" the air temperature, "Hum" the relative humidity, "WSpd" the wind speed, "WDir" the wind direction, "APrs" the atmospheric pressure, "Prec" the precipitation, and "SDep" the snow depth. All these data were measured and recorded at 1-hour interval, and presented here as daily mean values (global radiation, air temperature, relative humidity, wind speed, atmospheric pressure), daily cumulative value (precipitation), and the most frequent direction in each day (wind direction). Value of snow depth shows difference between daily maximum snow depth in each day and that in 2 August, 1996. In Tables 1 and 3, value of precipitation is continuously zero in winter time, but it is due to freezing of the rain gauges.

Due to severe troubles on some instruments, several components were not measured throughout the observation period. Instruments on Ushkovsky Volcano were seriously damaged by precipitation of rime (Photo 4), and consequently could work for only two months.

The data are presented as tabulated forms in this report, but they are also available as digital forms. Those who wish to obtain the digital data are encouraged to contact to the first author of the present report.

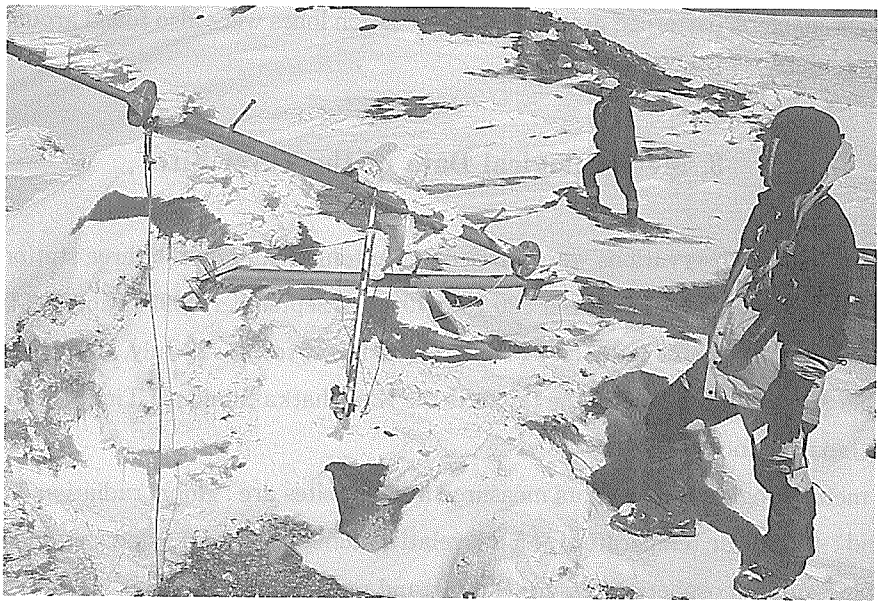


Photo 4 AWS at Ushkovsky Volcano was seriously damaged (June 1997).

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Table 1 Meteorological data collected at Koryto Glacier.

July 1996 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20	283	15.5	73.6	2.4	S	889.0	0.0
21	284	12.8	56.2	4.1	SSW	886.1	0.0
22	283	10.9	80.2	3.8	WSW	879.0	0.0
23	305	14.0	60.4	3.0	WSW	879.4	0.0
24	266	14.7	53.6	2.4	WSW	878.4	0.0
25	209	12.1	76.5	3.2	ENE,ESE	879.3	6.5
26	122	8.1	97.2	4.5	ENE	882.4	12.0
27	277	4.7	70.8	4.2	SSE	882.3	0.0
28	114	6.0	65.0	4.1	SSW	876.2	0.0
29	272	6.6	83.4	1.9	S	876.4	0.0
30	105	4.2	96.2		S	867.4	13.5
31	181	5.6	80.1		WSW	863.3	0.0
Max.	305	15.5	97.2	4.5		889.0	13.5
Min.	105	4.2	53.6	1.9		863.3	0.0
Ave.	225	9.4	76.1	3.4		878.3	2.7

August 1996 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	187	4.7	78.8		SSW	872.4	3.0
2	166	3.3	96.3		NW	876.0	4.0
3	286	6.5	62.7		WSW	884.4	0.0
4	311	8.9	48.0		WSW	888.8	0.0
5	229	6.3	53.0		SSW	885.8	0.5
6	97	4.1	95.5		ENE	881.1	21.0
7	219	8.1	91.1		SSW	876.4	33.5
8	241	4.6	92.6		SW	882.6	0.0
9	293	9.8	65.9		*1	891.7	0.0
10	279	13.7	47.3		WSW,WNW	897.4	0.0
11	267	15.6	46.8		*2	894.6	0.0
12	187	13.2	70.7		SW	883.0	0.0
13	266	12.8	72.9		WSW	877.2	0.0
14	268	12.9	68.6		SSW,WSW	876.3	0.0
15	103	7.4	96.7		N	874.1	12.0
16	137	5.3	100.0		NNW	871.7	34.5
17	56	4.9	100.0		NW	874.1	49.5
18	89	4.3	100.0		NW	877.7	19.5
19	268	10.2	83.4		SSW	885.0	0.0
20	152	13.0	68.9		WSW	888.5	0.0
21	273	13.7	69.6		WSW	893.2	0.0
22	228	15.8	63.6		SSW,SW	893.4	0.0
23	166	13.0	85.7		SW	891.7	0.5
24	116	11.7	99.3		SSW	889.9	0.5
25	191	12.3	94.1		SW	890.9	0.0
26	61	10.6	99.5		SSW	889.2	62.0
27	94	7.9	91.8		SSW,W	868.5	51.5
28	239	6.7	68.1		W	876.4	0.0
29	239	13.7	42.7		WSW,W	887.1	0.0
30	235	15.9	44.8		S	889.5	0.0
31	223	13.8	51.8		SW,W	883.6	0.0
Max.	311	15.9	100.0			897.4	62.0
Min.	56	3.3	42.7			868.5	0.0
Ave.	199	9.8	75.7			883.6	9.4

*1 : N,SSW,SW
*2 : N,SSW,SW,WSW

September 1996 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	78	4.4	85.2		NW,NNW	871.1	25.0
2	103	1.9	79.8		NNW	877.2	0.0
3	237	3.5	77.8		NNW	879.8	0.0
4	195	4.2	86.7		WNW	873.4	0.0
5	132	4.0	90.4		NW	873.5	4.5
6	229	5.2	62.6		WSW	878.9	0.0
7	224	4.5	67.1		SSW	878.9	0.0
8	221	5.9	61.9		S	884.1	0.0
9	136	4.6	57.8		SE	885.9	0.0
10	95	1.4	92.2		NNW	884.8	0.0
11	51	0.8	100.0		NW	884.9	9.5
12	71	0.2	100.0		NW	889.7	7.5
13	145	1.4	94.9		W	890.4	0.5
14	164	3.0	91.0		NNW	890.0	2.0
15	183	5.5	65.4		SSW	889.9	0.0
16	193	7.2	64.1		SSW	886.5	0.0
17	110	6.3	84.9		*1	885.2	0.0
18	82	3.6	98.5		SSW	884.5	0.0
19	151	4.9	90.5		NNW	885.3	0.0
20	186	8.0	73.7		WNW	890.8	0.0
21	187	8.6	55.3		E	894.9	0.0
22	185	7.2	53.9		NW	893.6	0.0
23	168	7.3	75.0		NW	894.2	0.0
24	95	5.5	76.1		SSW	887.3	8.0
25	47	0.5	99.9		ENE	878.7	28.5
26	110	0.3	99.0		NW	882.0	14.0
27	61	1.2	95.1		S	886.6	38.5
28	57	3.0	100.0		SSW	885.8	12.5
29	22	2.8	100.0		SSE	887.3	50.5
30	25	2.7	100.0		SE,S	888.7	110.0
Max.	237	8.6	100.0			894.9	110.0
Min.	22	0.2	53.9			871.1	0.0
Ave.	131	4.0	82.6			884.7	10.4

*1 : NE,ENE,E

October 1996 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	41	2.5	100.0		SSE	891.5	49.0
2	46	0.9	100.0		SSE	889.1	54.5
3	30	0.8	100.0		E,ESE	880.3	93.0
4	63	2.7	99.8		SSE	886.8	65.0
5	44	2.7	100.0		SSW	892.4	6.5
6	129	2.8	100.0		WNW	895.8	19.5
7	124	3.3	100.0		SSW	883.5	0.0
8	33	0.5	98.7		SSE	878.4	1.5
9	53	-0.5	97.9		NW,NNW	863.8	5.5
10	61	-0.3	98.3		NNW	870.3	2.0
11	40	-1.1	97.7		NW	874.0	0.5
12	85	-1.8	97.6		NNW	870.6	0.5
13	113	-2.0	91.5		SSW	867.0	0.0
14	119	-1.8	83.6		SSW	865.5	0.0
15	91	-0.5	71.9		SSW	870.6	0.0
16	41	1.8	98.4		*1	884.0	10.5
17	79	2.3	96.0		SW	872.2	17.0
18	47	0.6	97.5		NNW	865.3	4.0
19	71	-2.1	97.3		NNW	857.1	0.5
20	74	-3.8	97.0		NNW	849.7	0.0
21	38	-3.4	97.1		NW	849.4	0.0
22	40	-1.8	97.6		NW	852.9	0.0
23	80	-2.9	97.6		WNW	863.5	0.0
24	97	-4.0	96.3		SSW,SW	867.2	0.0
25	64	-1.8	98.2		SSW	862.1	0.0
26	36	-1.5	97.6		SSE	873.0	0.0
27	22	-2.5	93.1		NNW	854.1	0.0
28	80	-8.1	73.1		W	856.8	0.0
29	77	-3.1	68.2		WSW	864.0	0.0
30	69	1.4	90.3		SSW	890.5	0.0
31	21	0.4	99.0		SSW	881.6	0.0
Max.	129	3.3	100.0			892.4	93.0
Min.	21	-8.1	68.2			849.4	0.0
Ave.	65	-0.7	94.6			873.3	10.6

*1 : S,SSW,SW

November 1996 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	87	-8.1	66.4		SW,WSW	872.5	0.0
2	53	-8.2	70.0		SSW	877.3	0.0
3	45	-8.1	93.3		NNW	864.1	0.0
4	79	-11.0	85.3		W	869.1	0.0
5	81	-11.8	61.8		W	875.3	0.0
6	26	-6.3	81.6		SSW	883.7	0.0
7	14	-1.7	98.8		SSW	872.2	1.5
8	38	-7.7	92.6		SSW	871.4	0.0
9	68	-11.6	71.5		W	867.7	0.0
10	36	-9.7	74.3		SSW,SW	872.5	0.0
11	61	-8.3	87.7		SW,W	858.5	0.0
12	65	-14.0	65.9		ESE	855.2	0.0
13	64	-15.1	74.1		NW	844.9	0.0
14	68	-13.3	57.2		NW	843.4	0.0
15	60	-12.9	60.6		WSW	844.6	0.0
16	58	-11.9	51.9		W	847.3	0.0
17	55	-10.7	47.1		W	855.0	0.0
18	58	-11.2	44.4		W	859.7	0.0
19	43	-10.4	80.5		ESE	865.1	0.0
20	41	-9.8	91.4		NNW	866.9	0.0
21	50	-10.4	58.6		NNW	873.4	0.0
22	49	-11.4	57.2		*1	877.8	0.0
23	26	-11.9	86.6		SSW,SW	873.2	0.0
24	48	-12.5	44.1		NNE	872.7	0.0
25	18	-9.0	84.1		NNW	875.8	0.0
26	24	-9.1	92.1		NW	880.4	0.0
27	14	-11.1	90.3		NW	881.6	0.0
28	9	-10.6	90.7		NW	883.6	0.0
29	9	-9.5	91.7		NW	881.8	0.0
30	11	-6.2	94.6		NW	874.8	0.0
Max.	87	-1.7	98.8			883.7	1.5
Min.	9	-15.1	44.1			843.4	0.0
Ave.	45	-10.1	74.9			868.1	0.1

*1 : N,S,SSW,NW

December 1996 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	10	-6.1	94.8		NW	863.8	0.0
2	8	-9.1	92.2		N	850.0	0.0
3	9	-10.7	90.7		ENE	857.0	0.0
4	9	-11.8	89.7		E	868.4	0.0
5	11	-12.2	89.4		E	871.5	0.0
6	7	-9.5	91.6		E	869.2	0.0
7	7	-5.9	94.9		ESE	853.1	0.0
8	28	-14.9	87.0		NNE	862.4	0.0
9	19	-11.9	89.2		SSW	866.3	0.0
10	30	-14.1	87.5		W,WNW	865.7	0.0
11	35	-13.3	78.8		WSW	875.2	0.0
12	10	-7.0	91.2		SSW	864.5	0.0
13	16	-12.8	89.0		WSW	853.8	0.0
14	35	-15.6	61.0		W	864.7	0.0
15	30	-12.6	64.8		WSW	871.6	0.0
16	9	-9.1	92.1		NNW	864.7	0.0
17	28	-9.9	77.1		NNW	873.7	0.0
18	18	-10.1	76.3		*1	876.7	0.0
19	19	-4.5	94.7		SSW	867.1	0.0
20	12	-9.5	81.7		SSW	868.5	0.0
21	10	-7.6	83.4		SSE	856.5	0.0
22	29	-14.9	85.9		W	851.8	0.0
23	22	-15.0	80.2		SSW	878.2	0.0
24	15	-8.9	92.3		SSE	889.1	0.0
25	19	-8.9	92.3		NW	882.1	0.0
26	11	-6.7	94.2		ESE,NW	873.7	0.0
27	12	-8.1	94.8		*2	865.2	0.0
28	24	-5.7	95.1		NW	865.7	0.0
29	14	-5.8	95.0		NNW	875.2	0.0
30	23	-7.7	93.2		NNW	880.6	0.0
31	7	-7.1	93.9		NW	875.0	0.0
Max.	35	-4.5	95.1			889.1	0.0
Min.	7	-15.6	61.0			850.0	0.0
Ave.	17	-9.8	87.5			867.8	0.0

*1 : SSE,S,SW
*2 : N,W,NNW

January 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	9	−7.0	94.1		NNW	867.2	0.0
2	14	−10.2	91.3		NNW	865.4	0.0
3	9	−10.8	90.7		NNW	874.3	0.0
4	15	−10.0	91.3		E	878.5	0.0
5	13	−11.7	89.9		WNW	877.6	0.0
6	10	−12.4	89.2		WNW	877.5	0.0
7	*8*	*−12.5*	*89.0*		SE	*877.1*	*0.0*
8	10	−12.4	89.1		SE	875.9	0.0
9	5	−13.0	88.6		SE	874.3	0.0
10	10	−15.2	86.6		SE	867.1	0.0
11	6	−15.4	86.5		*1	864.3	0.0
12	14	−14.8	86.9		SSE	868.0	0.0
13	12	−15.9	86.0		SSE	867.8	0.0
14	14	−17.8	84.3		SSE	865.9	0.0
15	*20*	*−16.1*	*85.6*		SSE	*869.8*	*0.0*
16	10	−13.5	88.1		SSE	864.6	0.0
17	12	−16.0	85.9		ENE	858.5	0.0
18	11	−14.5	87.2		SE	857.6	0.0
19	24	−8.2	92.7		ESE,SE	855.3	0.0
20	18	−9.5	91.7		N	849.1	0.0
21	32	−9.9	91.3		N	854.4	0.0
22	24	−8.7	92.4		N	857.2	0.0
23	22	−6.4	94.4		N,WNW	851.4	0.0
24	15	−5.5	95.3		N	837.7	0.0
25	16	−5.3	95.5		S	850.3	0.0
26	25	−6.6	94.3		SE,SSE	867.6	0.0
27	23	−4.5	96.2		E,SSE	869.6	0.0
28	30	−6.3	94.7		S	878.4	0.0
29	26	−9.6	91.7		SSW	878.0	0.0
30	16	−10.8	90.7		NNE	875.6	0.0
31	13	−13.5	88.3		NNE	871.4	0.0
Max.	32	−4.5	96.2			878.5	0.0
Min.	5	−17.8	84.3			837.7	0.0
Ave.	16	−11.1	90.3			866.0	0.0

*1 : SE,SSE,S

February 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	WSpd	WDir	APrs	Prec
Date							
1	15	−17.8	84.5		NNW	865.8	0.0
2	21	−19.6	82.8		NNW	866.7	0.0
3	25	−18.0	84.0		NNW	868.4	0.0
4	22	−18.7	83.3		WNW	866.6	0.0
5	27	−21.3	81.0		WNW	860.9	0.0
6	30	−22.8	79.9		WNW	855.9	0.0
7	*61*	*−20.9*	*81.5*		N	*854.8*	*0.0*
8	38	−15.0	86.8		N	850.6	0.0
9	43	−13.5	88.1		W	848.4	0.0
10	82	−16.9	84.7		WNW	853.6	0.0
11	76	−16.1	85.6		WNW	863.7	0.0
12	78	−13.5	88.1		ENE,ESE	865.3	0.0
13	95	−10.4	90.7		NNE	863.3	0.0
14	77	−11.7	89.7		NNE	865.2	0.0
15	*58*	*−11.3*	*90.3*		SSW	*867.9*	*0.0*
16	56	−12.7	89.1		NE	868.9	0.0
17	94	−15.3	86.6		WNW	872.3	0.0
18	94	−14.6	87.0		S,SSW	869.7	0.0
19	35	−9.6	91.6		SSW	863.5	0.0
20	39	−7.4	93.6		SSE	858.8	0.0
21	43	−7.9	93.1		S	857.6	0.0
22	75	−8.5	92.6		S	866.2	0.0
23	*53*	−9.2	92.1		SSW	*861.6*	0.0
24	47	−10.8	90.7		N	856.9	0.0
25	138	−13.4	88.4		NNE	859.3	0.0
26	74	−9.8	91.5		E	863.2	0.0
27	93	−7.6	93.4		E	868.8	0.0
28	55	−7.2	93.9		NW	870.8	0.0
Max.	138	−7.2	93.9			872.3	0.0
Min.	15	−22.6	79.9			848.4	0.0
Ave.	59	−13.6	88.0			862.7	0.0

March 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	59	−6.2	94.8		*1	867.2	0.0
2	83	−8.2	93.0		N	855.9	0.0
3	96	−10.0	91.4		SSW	838.2	0.0
4	59	−10.4	91.1		N	841.2	0.0
5	128	−11.0	90.3		NNE	848.9	0.0
6	133	−11.0	90.6		NNE	858.6	0.0
7	*162*	*−11.2*	*90.1*		SW	*872.1*	*0.0*
8	93	−9.8	91.5		SW	872.4	0.0
9	57	−8.4	92.7		SSW	859.0	0.0
10	78	−8.8	92.4		SSW	863.8	0.0
11	111	−9.9	91.4		WSW	853.2	0.0
12	82	−9.6	91.6		SSW	867.5	0.0
13	60	−6.7	94.1		SSE	872.0	0.0
14	82	−6.1	94.8		SSW	889.5	0.0
15	*73*	*−5.9*	*95.0*		*NNE*	*897.6*	*0.0*
16	56	−6.7	94.3		N	894.6	0.0
17	210	−6.4	94.4		SSW	892.2	0.0
18	91	−7.1	94.2		SSE	879.7	0.0
19	45	−10.1	91.7		N	863.5	0.0
20	92	−10.6	91.2		N	861.7	0.0
21	92	−8.7	92.6		N	864.5	0.0
22	100	−5.3	95.7		N	869.8	0.0
23	93	−7.7	93.6		S	*865.9*	0.0
24	89	−7.8	93.5		SSE	863.1	0.0
25	85	−7.7	93.5		N	855.0	0.0
26	157	−9.1	92.4		N	853.2	0.0
27	243	−8.9	92.6		NNE	859.5	0.0
28	162	−9.4	92.0		SSW	872.0	0.0
29	237	−11.4	90.1		WSW	884.1	0.0
30	176	−4.1	89.4		*2	889.7	0.0
31	175	−3.9	68.1		SW	886.1	0.0
Max.	243	−3.9	95.7			897.6	0.0
Min.	45	−11.4	66.1			838.2	0.0
Ave.	111	−8.3	91.7			868.1	0.0

*1 : N,E,NNW
*2 : WSW,WNW,NW

April 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	145	−9.2	92.1		SW	866.0	0.0
2	226	−9.8	90.8		WNW	858.9	0.0
3	242	−10.6	89.2		WNW	856.9	0.0
4	261	−10.2	57.3		WNW,NW	864.5	0.0
5	*253*	*−9.8*	*83.1*		WNW	*871.0*	*0.0*
6	259	−7.1	75.3		*1	867.2	0.0
7	272	−9.2	61.4		NW	875.8	0.0
8	201	−8.1	76.2		SW	879.5	0.0
9	137	−4.3	83.9		SSW	869.5	0.0
10	185	−2.3	98.7		N	870.1	0.0
11	138	−4.7	96.8		N	857.9	0.0
12	123	−4.9	96.2		N	848.7	0.0
13	*151*	*−4.7*	*96.2*		N	*843.4*	*0.0*
14	127	−6.2	94.8		N	833.8	0.0
15	134	−6.7	94.1		N	828.4	0.0
16	146	−8.1	92.8		N	819.1	0.0
17	245	−8.3	92.4		N	813.1	0.0
18	180	−7.1	93.6		N	813.7	0.0
19	211	−3.1	96.1		N	854.8	0.0
20	149	−5.4	93.2		NNW	888.3	0.0
21	*211*	*−4.6*	*88.3*		NNW	*889.6*	*0.0*
22	267	−5.7	78.5		WSW	891.4	0.0
23	207	−7.0	87.8		N,NNE	887.5	0.0
24	231	−9.2	88.1		N	876.4	0.0
25	187	−9.6	90.6		N	866.7	0.0
26	169	−8.8	91.5		NNE	863.2	0.0
27	221	−6.5	93.3		SW	873.4	0.0
28	181	−7.6	92.5		SW	872.3	0.0
29	241	−6.6	93.7		N,NW	873.3	0.0
30	184	−6.6	93.6		SW	872.1	0.0
Max.	272	−2.3	98.7			891.4	0.0
Min.	123	−10.6	57.3			813.1	0.0
Ave.	195	−7.0	87.1			861.6	0.0

*1 : NNE,SSW,WNW,NW

May 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	237	−3.7	95.3		WNW	853.0	0.0
2	284	−7.2	79.9		WSW	832.4	0.0
3	317	−5.2	68.3		ENE	838.1	0.0
4	351	−6.9	71.1		WNW	838.8	0.0
5	*213*	*−4.2*	*68.0*		*WNW*	*846.5*	*0.0*
6	191	−5.2	94.7		SSE,S	842.2	0.0
7	209	−5.1	92.6		WSW	840.1	0.0
8	178	−4.9	95.3		N	832.9	0.0
9	286	−3.6	94.9		N	831.4	0.0
10	235	−4.4	93.1		N	825.0	0.0
11	289	−4.0	81.6		SW,NW	826.4	0.0
12	343	−3.3	65.7		NW	822.3	0.0
13	*260*	*−4.8*	*80.9*		N	*817.1*	*0.0*
14	326	−4.6	75.7		N	835.0	0.0
15	271	−5.2	84.5		N	849.5	0.0
16	308	−7.2	90.7		N	837.3	0.0
17	330	−6.8	85.3		NNE	830.3	0.0
18	358	−5.9	75.9		N	830.7	0.0
19	351	−6.2	80.5		N	828.1	0.0
20	383	−5.9	64.6		N	824.0	0.0
21	371	−2.8	81.0		N	838.7	0.0
22	182	−4.7	86.8		N	843.1	0.0
23	149	−5.4	95.2		N	835.5	0.0
24	90	−5.1	95.1		NNE	832.4	0.0
25	157	−3.5	96.9		E	838.8	0.0
26	145	−3.5	97.4		N	840.6	0.0
27	161	−4.0	97.0		N	834.7	0.0
28	220	−4.5	96.5		N	829.8	0.0
29	117	−2.5	98.3		N	832.4	0.0
30	186	−3.0	98.1		N	839.4	0.0
31	177	−2.0	98.6		N	857.0	0.0
Max.	383	−2.0	98.6			857.0	0.0
Min.	90	−7.2	61.0			817.1	0.0
Ave.	248	−4.7	85.8			835.6	0.0

June 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	311	−0.5	87.4		NNE	892.2	0.0
2	376	8.4	42.7		ENE,E	895.3	0.5
3	365	6.4	46.8		N	894.8	0.0
4	281	0.8	76.2		N	900.0	0.0
5	*327*	*−0.7*	*79.2*		*N*	*906.8*	*0.0*
6	308	4.2	50.7		NNE	903.7	0.0
7	357	9.4	37.7		N	901.6	0.0
8	313	7.0	43.7		NNE,E	898.4	0.0
9	374	6.2	62.5		NNE	894.5	0.0
10	378	7.5	70.7		NNE	903.8	0.0
11	359	10.0	45.4		N	904.8	0.0
12	348	8.6	61.9		NNE	897.0	0.0
13	*373*	*8.9*	*69.2*		*NNE*	*895.5*	*0.0*
14	382	8.2	66.2		NNE	896.1	0.0
15	375	11.7	43.1		NE	895.4	0.0
16	374	13.2	41.2		WNW	892.2	0.0
17	329	12.8	34.9		NW	897.5	0.0
18	376	12.8	38.7		WNW	902.9	0.0
19	328	10.2	66.7		E,ESE	896.0	0.0
20	316	8.5	79.3		WNW,NW	887.5	0.0
21	*131*	*3.0*	*99.3*		N	*886.1*	*0.0*
22	200	1.9	99.8		N	880.8	0.0
23	361	6.7	74.5		NE	882.1	0.5
24	245	5.9	84.3		N	896.0	0.0
25	208	1.9	97.8		NNE,NE	904.1	0.0
26	283	1.9	99.2		N	904.5	0.0
27	372	7.3	76.0		NNE	901.7	0.0
28	368	10.0	62.6		SSW	899.9	0.0
29	383	9.5	43.1		SSW	898.7	0.0
30	368	6.5	54.3		S	899.3	0.0
Max.	383	13.2	99.8			906.8	0.5
Min.	131	−0.7	34.9			880.8	0.0
Ave.	329	6.9	64.5			897.0	0.0

July 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	168	4.3	95.5		E	893.8	0.0
2	352	9.4	78.3		ENE,E	890.9	0.0
3	234	7.3	93.6		NE	891.1	0.0
4	188	6.3	96.5		SW	889.8	1.0
5	145	3.5	98.1		SSE	887.9	1.5
6	136	1.9	100.0		N	890.1	9.0
7	174	2.1	100.0		N	896.2	2.5
8		8.4	76.5		N,NNE	897.3	0.0
9		11.5	42.4		SW	897.7	0.0
10		10.6	59.0		SW	898.2	0.0
11		12.6	46.6		WNW	892.1	0.0
12		11.4	55.4		NNW	892.0	0.0
13		9.2	69.5		N,NNE	892.2	0.0
14		10.3	73.5		*1	891.5	0.0
15		12.4	66.8		SW	890.2	0.0
16		12.5	57.5		NW	894.3	0.0
17		6.0	87.1		WSW	896.6	3.0
18		5.6	98.7		ENE,WSW	886.6	5.0
19		6.0	98.1		NE	883.9	5.5
20		8.5	94.5		N	892.7	1.0
21		9.3	85.2		NE	901.5	0.0
22		11.4	75.8		N	903.5	0.0
23		15.8	51.6		SW	900.7	0.0
24		17.4	50.2		WNW	897.2	0.0
25		14.8	85.4		SW	896.8	4.0
26		9.9	100.0		NNE	894.8	50.5
27		4.8	100.0		N,NNE	891.8	11.5
28		5.4	99.9		N	896.1	5.0
29		6.8	99.4		NNE	900.8	0.5
30		10.5	83.2		SW	905.2	0.0
31		7.1	95.3		N	902.6	0.0
Max.	352	17.4	100.0			905.2	50.5
Min.	136	1.9	42.4			883.9	0.0
Ave.	199	8.8	81.1			894.7	3.2

*1 : N,NNE,NE

August 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1		7.0	94.6		NNE	899.9	0.5
2		6.6	95.5		NNE	898.1	4.5
3		8.1	81.5		NNE	896.6	5.0
4		10.9	66.3		NW	895.8	0.0
5		14.2	46.6		WNW	897.9	0.0
6		10.8	61.5		SW	902.1	15.5
7		4.4	100.0		*1	893.7	69.5
8		4.2	100.0		N	893.7	26.5
9		4.1	100.0		N	899.6	11.5
10		2.9	100.0		ESE	903.7	13.5
11		6.4	82.6		NNE	902.1	0.0
12		11.4	62.8		NNW	898.0	0.0
13		9.4	73.0		N	898.6	0.0
14		10.0	76.5		E,ESE	905.3	0.0
15		11.3	62.6		ESE	907.8	0.0
16		9.3	72.9		SSW	910.1	0.0
17		8.0	66.1		NNE	904.2	0.0
18		4.5	83.8		E,ESE	901.0	0.0
19		4.6	95.2		N,NNE	901.3	0.5
20		8.4	95.9		N	907.9	4.5
21		11.7	73.2		WSW,WNW	909.7	0.0
22		13.4	54.3		WSW	910.9	0.0
23		13.6	44.9		WNW	910.9	0.0
24		6.0	83.8		N	903.2	63.5
25		5.2	98.4		N	901.6	89.5
26		6.2	100.0		N	912.0	14.0
27		11.1	76.9		N	910.8	0.5
28		12.3	81.6		NNE	908.6	0.0
29		12.2	78.4		ENE,ESE	907.4	0.0
30		11.7	61.8		WSW	915.5	0.0
31		11.7	59.9		SW,W	916.9	0.0
Max.		14.2	100.0			916.9	89.5
Min.		2.9	44.9			893.7	0.0
Ave.		8.8	78.4			904.0	10.3

*1 : ESE,SSE,S

September 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1		7.4	83.7		W	913.0	0.0
2		10.6	77.0		WSW	911.6	0.0
3		6.5	97.4		SW	906.7	0.0
4		6.5	93.3		WSW	911.6	0.0
5		9.7	65.3		WNW	906.7	0.0
6		8.4	80.3		NNE	907.8	0.0
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
Max.		10.6	97.4			913.0	0.0
Min.		6.5	65.3			906.7	0.0
Ave.		8.2	82.8			909.6	0.0

Table 2 Meteorological data collected at Ushkovsky Volcano.

July 1996 Ushkovsky Volcano

Element	Rad	AirT	Hum	WSpd	WDir	SDep
Unit	W/m²	℃	%	m/s		cm
Date						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27	342	-7.3	78.7		WSW	
28	208	-8.3	88.4		W	
29	337	-9.5	53.6		WNW	
30	165	-7.9	89.6		SSW	
31	219	-11.1	86.6		WNW	
Max.	342	-7.3	89.6			
Min.	165	-11.1	53.6			
Ave.	254	-8.8	81.4			

August 1996 Ushkovsky Volcano

Element	Rad	AirT	Hum	WSpd	WDir	SDep
Unit	W/m²	℃	%	m/s		cm
Date						
1	293	-11.8	85.9		NNW	
2	285	-13.1	84.4		NW	0
3	171	-14.1	83.6		NW	1
4	371	-11.4	54.9		WNW	-6
5	321	-8.8	30.0		SSW	-8
6	145	-2.9	95.4		SW	1
7	214	-3.8	92.5		SW	10
8	319	-8.0	76.3		SSW,ENE	8
9	371	-5.7	52.9			8
10	257	-1.8	31.3			6
11	244	-1.3	57.1			5
12	146	-2.8	90.1			7
13	225	-5.6	92.5			9
14	115	-7.2	90.7			20
15	228	-8.2	87.2			21
16	208	-7.3	90.1			25
17	235	-6.5	91.9			25
18	145	-5.9	92.5			24
19	284	-6.2	91.7			26
20	153	-4.4	84.9			61
21	249	-5.0	39.1			61
22	113	-1.4	95.4			51
23	164	-4.1	89.9			53
24	56	-1.2	98.0			40
25	80	-2.5	97.4			47
26	57	-1.7	98.3			50
27	99	-5.5	93.2			54
28	103	-13.2	85.3			46
29	56	-6.5	92.1			46
30	69	-8.1	90.1			49
31	82	-8.0	90.6			43
Max.	371	-1.2	98.3			61
Min.	56	-14.1	30.0			-8
Ave.	189	-6.2	81.5			26

September 1996 Ushkovsky Volcano

Element	Rad	AirT	Hum	WSpd	WDir	SDep
Unit	W/m²	℃	%	m/s		cm
Date						
1	224	-14.8	84.6			35
2	280	-11.1	54.0			46
3	334	-5.1	42.4			50
4	316	-6.6	26.6			53
5	234	-12.7	80.9			43
6	152	-16.3	80.2			42
7	338	-18.2	72.7			43
8	307	-13.2	77.0			50
9	291	-12.3	55.0			41
10	326	-13.7	59.7			50
11	348	-15.7	71.7			50
12	259	-14.5	77.3			49
13	347	-13.6	55.4			49
14	269	-13.9	78.8			47
15	216	-12.2	72.5			45
16	40	-9.9	88.1			51
17	40					
18	44					
19	102					
20	277					
21	288					
22	287					
23	261					
24	177					
25	64					
26	273					
27	198					
28	61					
29	105					
30	33					
Max.	348	-5.1	88.1			53
Min.	33	-18.2	26.6			35
Ave.	216	-12.7	67.3			47

Table 3 Meteorological data collected at Mt. Kozyrevka.

July 1996 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28	133	9.2	83.3	3.7	WSW	890.7	1.5
29	170	8	81.4	2.2	ESE,SE	891.2	2.0
30	75	7.1	85.4	4.8	SE	879.3	14.5
31	98	5.3	84.9	6.1	WSW	879.2	3.0
Max.	170	9.2	85.4	6.1		891.2	14.5
Min.	75	5.3	81.4	2.2		879.2	1.5
Ave.	119	7.4	83.8	4.2		885.1	5.3

August 1996 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	108	5.2	83.1	2.7	N	889.8	0.5
2	134	5.2	84.1	1.9	SW	893.9	1.0
3	187	6.9	66.5	4.3	SW,WSW	901.0	0.0
4	287	10.0	43.0	2.9	WSW	902.0	0.0
5	220	10.7	48.9	3.2	SSE	899.1	0.0
6	42	6.6	87.3	3.8	ESE	894.7	12.0
7	137	9.5	87.0	3.4	SSW	891.5	5.0
8	61	6.8	91.4	2.5	WSW	898.4	4.0
9	256	11.3	71.2	1.7	E	907.2	0.0
10	204	14.7	68.5	2.0	E	911.1	0.0
11	198	14.4	70.6	3.0	WSW	908.6	0.0
12	91	14.1	80.0	4.2	SW	896.5	2.5
13	176	11.8	77.4	6.2	SW	892.4	0.0
14	34	10.3	90.7	2.4	SSW	891.4	19.0
15	101	9.3	96.3	1.3	ESE	889.1	7.5
16	88	9.6	90.1	2.0	WNW	889.6	0.0
17	124	10.5	81.8	1.5	S,SW	892.5	0.0
18	80	10.5	88.5	0.7	WNW	894.8	2.0
19	200	11.7	77.3		WSW	899.4	0.0
20	92	12.3	70.6		SW,WSW	900.9	0.0
21	195	12.9	59.5		E	905.8	0.0
22	187	16.8	61.8		SSE	901.8	0.0
23	182	15.6	65.7		*1	898.4	8.0
24	106	15.4	81.4		*2	894.7	8.5
25	76	11.6	83.8		NW	898.6	10.5
26	42	10.5	99.6		WNW,NW	895.2	30.5
27	46	8.8	90.0		W	878.0	21.0
28	128	6.8	76.7		WSW	896.5	1.5
29	208	12.5	55.5		WSW	896.0	0.0
30	227	14.5	53.4		SW	899.2	0.0
31	124	10.6	67.3		SW	893.6	12.0
Max.	287	16.8	99.6	6.2		911.1	30.5
Min.	34	5.2	43.0	0.7		878.0	0.0
Ave.	139	10.9	75.8	2.8		896.5	4.7

*1 : SSE,SW,WSW
*2 : SSE,S,SSW

September 1996 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	147	4.1	79.4		NNW	887.4	2.0
2	236	4.6	62.5		NW,NNW	895.9	0.0
3	222	9.4	42.5		ESE	893.7	0.0
4	82	5.9	74.3		WNW	888.8	3.0
5	113	4.1	84.6		SW	892.4	1.5
6	113	4.4	78.5		SW	893.8	1.0
7	150	3.5	67.0		SW	895.0	0.0
8	145	5.0	75.5		SSW	899.8	0.0
9	103	6.6	75.1		*1	901.7	1.0
10	145	6.8	71.7		E	902.3	0.0
11	101	5.5	84.6		E	902.7	6.5
12	77	4.3	87.3		SSW	906.2	1.0
13	102	4.5	85.7		E,WSW	906.3	0.0
14	121	3.7	81.6		NNE	907.5	0.0
15	92	5.9	59.7		W	905.9	0.0
16	98	6.7	75.4		WSW	902.2	0.0
17	65	8.5	84.0		SW	900.5	3.0
18	64	6.8	84.7		S	898.4	0.5
19	118	7.7	73.2		SSW,WNW	900.7	0.0
20	175	9.3	66.1		ESE	906.6	0.0
21	169	9.8	69.8		E	910.1	0.0
22	176	9.5	68.3		E	909.7	0.0
23	163	10.1	62.8		E	909.9	0.0
24	70	6.8	77.4		E	901.4	1.0
25	65	3.4	89.3		SE	894.0	5.5
26	150	4.2	80.7		SSW	898.8	0.0
27	57	3.8	91.9		SE	899.6	1.0
28	20	5.4	83.5		SE	898.5	1.0
29	98	6.2	77.4		ESE	900.9	0.0
30	50	4.6	89.0		ESE	902.5	2.5
Max.	236	10.1	89.3			910.1	6.5
Min.	20	3.4	42.5			887.4	0.0
Ave.	116	6.0	75.8			900.4	1.0

*1 : E,SSW,SW

October 1996 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	56	5.1	89.3		SE	903.9	4.0
2	78	3.3	86.0		ESE	901.5	1.0
3	47	1.8	90.5		E	893.8	4.5
4	58	2.9	92.4		SSW	896.7	6.0
5	45	4.5	83.4		SE	897.9	1.5
6	89	2.3	87.2		WSW	892.4	1.5
7	76	2.7	76.4		WSW	898.3	0.0
8	24	1.4	84.3		ESE	890.4	1.5
9	50	-0.1	99.3		WSW,NW	885.9	0.0
10	55	-0.2	95.9		ENE	888.2	0.0
11	83	-1.0	90.9		E	891.7	0.0
12	101	-0.7	78.1		E	896.3	2.0
13	105	-1.1	73.0		E,SSW	895.9	0.0
14	74	-1.2	75.9		SSW	893.2	0.0
15	77	-0.5	74.2		SSW	895.7	0.0
16	24	2.4	89.1		ESE	892.6	27.5
17	26	1.1	95.7		SE	878.6	15.5
18	45	0.6	97.5		N,ESE	878.9	5.5
19	59	-1.5	94.0		NNE	881.8	0.0
20	91	-5.5	82.9		*1	882.0	0.0
21	59	-5.7	87.1		E	882.8	0.0
22	27	-3.7	97.2		WNW	888.3	0.0
23	93	-2.4	78.4		E	899.3	0.0
24	72	-2.9	67.3		E	901.1	0.0
25	51	-1.3	77.5		WSW	894.6	0.0
26	30	-4.1	80.1		S	884.1	0.0
27	40	-5.7	85.0		NNW	870.6	0.0
28	55	-7.9	76.0		W	878.8	0.0
29	25	-1.8	81.5		SW	897.4	0.0
30	49	3.6	78.6		SSE	897.7	7.0
31	19	0.8	80.5		SSE	880.2	8.5
Max.	105	5.1	99.3			903.9	27.5
Min.	19	-7.9	67.3			870.6	0.0
Ave.	58	-0.5	84.6			890.7	2.8

*1 : ENE,ESE,NNW

November 1996 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	47	-8.8	78.5		SW	854.9	0.0
2	50	-7.6	70.0		S	857.3	0.0
3	46	-7.7	81.5		E	857.9	0.0
4	45	-11.2	71.4		SW	873.7	0.0
5	51	-11.6	71.6		SW	892.9	0.0
6	21	-6.8	78.1		S,SSW	895.0	0.0
7	20	-0.3	83.7		SE	875.4	0.0
8	45	-8.1	67.3		S	883.7	0.0
9	68	-12.0	70.1		SW	886.0	0.0
10	28	-9.2	75.1		S	884.6	0.0
11	49	-12.0	77.9		N	876.0	0.0
12	66	-17.3	65.4		E	875.1	0.0
13	37	-14.3	72.4		N	866.0	0.0
14	57	-13.9	67.2		WSW	863.9	0.0
15	45	-11.4	70.3		WSW	861.6	0.0
16	43	-10.8	69.7		*1	862.6	0.0
17	46	-11.3	63.7		SSW	870.7	0.0
18	49	-11.5	67.1		SSW	875.2	0.0
19	30	-11.3	72.9		SW	881.3	0.0
20	52	-13.2	59.4		ESE	884.4	0.0
21	28	-11.9	67.6		E	892.9	0.0
22	49	-14.4	62.5		ESE	895.7	0.0
23	48	-13.0	35.4		ESE	890.6	0.0
24	49	-14.4	50.5		ESE	893.5	0.0
25	22	-10.9	82.9		SSW	896.1	0.0
26	40	-10.2	73.6		E	896.6	0.0
27	40	-13.0	77.8		ESE,SE	898.5	0.0
28	36	-11.9	78.2		SSW	900.6	0.0
29	41	-11.8	76.6		SSW	898.3	0.0
30	21	-7.9	83.2		SE	889.2	0.0
Max.	68	-0.3	83.7			900.6	0.0
Min.	20	-17.3	35.4			854.9	0.0
Ave.	42	-11.0	70.7			881.0	0.0

*1 : S,SSW,WSW

December 1996 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	22	-6.9	91.6		N,NW	879.5	0.0
2	35	-10.8	69.2		ESE	874.7	0.0
3	31	-10.1	81.1		E	877.4	0.0
4	32	-13.4	66.7		E	885.6	0.0
5	29	-14.1	60.7		E	886.3	0.0
6	17	-11.4	73.6		SSW	882.5	0.0
7	24	-8.4	75.0		SSW	866.6	0.0
8	25	-13.3	74.9		WSW	880.6	0.0
9	21	-11.0	68.1		S	880.5	0.0
10	22	-13.8	68.0		SW	883.8	0.0
11	28	-11.5	67.3		SSW	890.6	0.0
12	12	-7.5	76.7		SSE,S	877.0	0.0
13	29	-11.9	63.1		SSW	868.1	0.0
14	18	-14.5	72.5		WSW	882.9	0.0
15	20	-12.4	71.2		SSW,SW	887.2	0.0
16	16	-12.6	79.7		N	887.9	0.0
17	22	-16.1	57.8		ESE	893.5	0.0
18	20	-13.7	67.1		WSW	891.6	0.0
19	18	-8.4	71.9		S,WSW	878.7	0.0
20	30	-14.6	61.4		E	884.1	0.0
21	8	-10.4	84.4		NNW	872.4	0.0
22	23	-16.2	67.8		WSW	870.5	0.0
23	25	-16.2	63.4		S	891.7	0.0
24	18	-7.5	85.4		SE	894.5	0.0
25	24	-8.7	81.0		ESE	899.2	0.0
26	14	-6.8	80.4		ESE	888.6	0.0
27	22	-7.6	86.9		E	880.8	0.0
28	20	-6.7	80.2		E	881.8	0.0
29	25	-6.7	79.6		E	888.0	0.0
30	35	-7.0	55.3		ESE	894.9	0.0
31	15	-5.5	73.5		ESE	889.4	0.0
Max.	35	-5.5	91.6			899.2	0.0
Min.	8	-16.2	55.3			866.6	0.0
Ave.	23	-10.8	72.8			883.6	0.0

January 1997 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	22	-7.9	84.8		WSW	882.9	0.0
2	32	-10.5	78.2		SSW	884.5	0.0
3	23	-12.0	78.0		ENE	891.4	0.0
4	23	-9.7	75.4		ESE	895.9	0.0
5	35	-12.8	67.4		S	896.2	0.0
6	28	-14.4	70.1		ESE	895.1	0.0
7	32	-15.3	64.8		ESE	892.9	0.0
8	36	-14.3	61.0		ESE	892.1	0.0
9	40	-17.3	66.7		ESE	891.2	0.0
10	33	-18.9	60.2		ESE	885.1	0.0
11	44	-16.7	36.5		ESE	883.2	0.0
12	44	-18.1	57.6		E	888.0	0.0
13	38	-18.0	61.1		E	886.5	0.0
14	43	-17.6	49.3		ESE	887.0	0.0
15	35	-14.2	30.4		ESE	886.1	0.0
16	28	-12.3	72.9		SW	879.5	0.0
17	28	-16.5	78.3		E	877.1	0.0
18	43	-17.4	77.9		SE	877.1	0.0
19	19	-10.5	81.3		ENE	874.6	0.0
20	27	-9.1	72.1		N	874.2	0.0
21	31	-9.7	73.6		ENE	875.7	0.0
22	34	-8.4	84.8		ENE	877.2	0.0
23	29	-6.3	79.6		ENE	870.5	0.0
24	23	-4.5	87.5		NNW	855.6	0.0
25	20	-3.2	85.1		ESE	860.5	0.0
26	26	-5.7	80.1		ESE	878.5	0.0
27	34	-3.3	84.8		ESE	879.5	0.0
28	39	-4.9	85.0		ESE	888.6	0.0
29	63	-8.4	67.1		E,ESE	893.2	0.0
30	66	-12.9	63.1		ESE	892.2	0.0
31	68	-10.2	51.8		ESE	890.5	0.0
Max.	68	-3.2	87.5			896.2	0.0
Min.	19	-18.9	30.4			855.6	0.0
Ave.	35	-11.6	69.9			883.3	0.0

February 1997 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	72	-13.4	39.2		ESE	888.1	0.0
2	74	-14.9	25.6		ESE	887.9	0.0
3	75	-15.7	41.1		ESE	888.7	0.0
4	79	-20.5	53.0		ESE	888.8	0.0
5	81	-22.1	49.2		ESE	881.3	0.0
6	84	-21.8	54.6		ESE	877.5	0.0
7	84	-20.3	64.3		E,ESE	876.9	0.0
8	61	-18.6	69.2		E	874.3	0.0
9	63	-18.4	68.5		NE,ESE	870.4	0.0
10	93	-20.5	53.2		ESE	872.8	0.0
11	87	-17.4	49.3		E	881.3	0.0
12	92	-12.0	51.8		SSE	881.9	0.0
13	83	-14.3	67.1		E,ESE	881.0	0.0
14	69	-14.9	79.9		E,ESE	882.1	0.0
15	59	-16.1	79.1		ESE	885.5	0.0
16	89	-16.8	70.1		ESE	888.9	0.0
17	98	-18.9	53.6		E	891.5	0.0
18	69	-15.1	40.3		ESE	885.9	0.0
19	85	-10.8	73.4		ESE,SE	878.5	0.0
20	55	-7.6	84.2		ESE	872.8	0.0
21	41	-8.0	85.1		ESE	873.4	0.0
22	92	-8.2	73.8		ESE	880.2	0.0
23	117	-10.1	67.6		ESE	878.0	0.0
24	72	-10.4	72.2		E,ESE	880.2	0.0
25	129	-11.5	37.3		E	880.9	0.0
26	144	-11.2	45.0		SSW	878.3	0.0
27	113	-10.6	73.1		SSW	883.4	0.0
28	87	-8.1	84.6		ESE,SE	886.0	0.0
Max.	144	-7.6	85.1			891.5	0.0
Min.	41	-22.1	25.6			870.4	0.0
Ave.	84	-14.6	60.9			881.2	0.0

March 1997 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	81	-7.3	94.0		NNW	883.5	0.0
2	114	-8.1	82.6		ESE	869.6	0.0
3	72	-8.4	87.3		N	855.2	0.0
4	136	-10.2	76.9		ESE	858.7	0.0
5	142	-13.1	71.1		E	868.4	0.0
6	134	-12.1	70.4		ESE	878.9	0.0
7	111	-11.8	68.3		SW	888.7	0.0
8	95	-9.4	70.8		ESE,SE	885.3	0.0
9	73	-7.0	84.1		E,SE	873.0	0.0
10	77	-8.2	71.9		ESE,SE	876.8	0.0
11	95	-10.2	75.1		NNE,E	870.9	0.0
12	162	-11.0	69.2		E,ESE	882.8	0.0
13	61	-6.0	85.9		ESE	883.5	0.0
14	121	-5.7	79.2		SE	900.8	0.0
15	159	-3.9	82.4		ESE	908.4	0.0
16	114	-5.4	78.7		ESE	907.8	0.0
17	137	-6.2	72.2		SW	905.9	0.0
18	181	-7.1	62.9		ESE	894.9	0.0
19	183	-8.5	68.5		E	880.6	0.0
20	190	-9.6	63.7		ESE	879.6	0.0
21	119	-8.7	80.2		E	882.5	0.0
22	97	-6.0	87.4		ESE	881.5	0.0
23	91	-6.1	84.8		ESE	876.7	0.0
24	114	-8.8	82.2		E	878.8	0.0
25	142	-7.7	88.2		N	877.0	0.0
26	159	-9.1	76.1		N	874.2	0.0
27	218	-12.3	65.9		WSW	879.4	0.0
28	204	-10.9	58.1		E	888.5	0.0
29	224	-9.0	41.3		ESE	899.6	0.0
30	174	-2.3	71.9		SSW	901.3	0.0
31	156	-1.7	68.4		SE	891.1	0.0
Max.	224	-1.7	94.0			908.4	0.0
Min.	61	-13.1	41.3			855.2	0.0
Ave.	134	-8.1	74.8			883.4	0.0

April 1997 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	221	-7.3	69.7		SE	877.5	0.0
2	221	-10.1	64.3		E	873.2	0.0
3	197	-10.5	71.9		WSW	874.9	0.0
4	190	-10.2	70.0		WSW	880.9	0.0
5	236	-8.8	66.2		SSW	886.2	0.0
6	140	-6.8	75.0		NNW	882.0	0.0
7	247	-8.5	63.9		SW	893.8	0.0
8	224	-4.0	71.0		S,SSW	890.0	0.0
9	119	-2.8	69.8		ESE	876.5	0.0
10	247	-1.6	77.3		SSW	879.2	0.0
11	125	-2.8	85.8		ESE	880.2	0.0
12	137	-4.0	85.8		ESE	887.1	0.0
13	197	-3.5	78.7		ESE	893.7	0.0
14	214	-4.0	72.9		ESE	894.1	0.0
15	202	-4.3	76.4		E	894.0	0.0
16	286	-6.0	73.3		E	889.4	0.0
17	288	-3.3	38.6		E	885.1	0.0
18	280	-1.1	42.4		ESE	887.1	0.0
19	282	-1.6	53.8		E	895.5	0.0
20	220	-1.5	66.9		E	899.1	0.5
21	178	-3.3	86.5		SSW	899.6	0.0
22	206	-4.3	92.8		WNW	899.9	0.0
23	287	-6.8	74.3		N,NNE	897.2	0.0
24	307	-9.1	67.0		N	890.6	0.0
25	305	-8.6	65.3		E	884.2	0.0
26	312	-5.9	51.4		E	881.3	0.0
27	223	-4.6	64.1		SE	883.4	0.0
28	213	-4.1	74.4		SE	882.0	0.0
29	251	-5.5	75.9		WSW	885.6	0.0
30	151	-4.5	72.9		*1	880.2	0.0
Max.	312	-1.1	92.8			899.9	0.5
Min.	119	-10.5	38.6			873.2	0.0
Ave.	223	-5.3	69.9			888.8	0.0

*1 : ESE,SE,SSE

May 1997 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	253	-4.9	75.8		WSW	870.8	0.0
2	317	-7.3	66.1		WSW	879.5	0.0
3	263	-5.4	67.2		ESE	877.3	0.5
4	340	-6.1	67.7		WSW	886.6	0.0
5	188	-2.5	67.6		SE	890.4	0.0
6	205	-3.7	85.8		E	871.8	0.0
7	283	-2.8	70.3		SW	870.5	0.0
8	230	-3.7	75.7		WSW	878.2	0.0
9	210	-2.9	83.6		ENE	879.8	0.0
10	246	-3.2	80.9		WSW	876.9	0.0
11	265	-3.9	76.5		WSW	881.8	0.0
12	214	-3.9	77.3		WSW	883.9	0.0
13	317	-4.2	77.3		NNE	884.1	0.0
14	319	-4.8	74.2		N	885.7	0.0
15	308	-4.6	72.4		N	891.1	0.0
16	315	-5.2	73.6		N,ESE	892.5	0.0
17	362	-5.6	67.6		N	894.6	0.0
18	376	-4.9	62.5		N	894.9	0.0
19	354	-5.8	56.7		N	894.5	0.0
20	374	-6.7	67.2		N	894.7	0.0
21	370	-2.5	60.3		ENE,E	895.3	0.0
22	252	-1.1	76.2		NW	893.2	0.0
23	271	-1.4	77.3		SSW,NW	890.8	0.0
24	252	-1.9	70.5		NNW	888.9	0.0
25	214	-1.7	78.8		N	891.5	0.0
26	362	0.3	70.0		N	891.8	0.5
27	277	-0.8	81.1		ESE	889.6	2.0
28	208	-0.9	81.9		ENE	889.0	0.0
29	242	-0.7	81.6		SE	890.6	1.5
30	281	0.8	71.6		ESE,SE	897.3	3.0
31	*361*	*4.1*	*52.5*		*ESE*	*896.5*	*0.0*
Max.	376	4.1	85.8			897.3	3.0
Min.	188	-7.3	52.5			870.5	0.0
Ave.	285	-3.2	72.5			886.9	0.2

June 1997 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	367	5.7	51.0		E,ESE	898.6	0.0
2	372	6.8	58.4		E	901.6	0.0
3	353	5.8	48.2		ESE,WSW	900.0	0.0
4	236	3.1	61.2		N	895.6	0.0
5	341	3.9	68.3		E	897.3	0.0
6	312	7.7	48.3		E	900.1	0.0
7	354	9.5	31.8		NE,NW	899.4	0.0
8	248	8.7	57.0		WSW	896.2	0.0
9	369	9.7	64.7		E	897.2	0.0
10	359	11.4	59.8		E	900.8	0.0
11	341	11.8	61.0		E	902.1	0.0
12	320	11.0	64.6		E	900.8	0.0
13	313	10.7	61.7		E	897.9	0.0
14	230	10.5	55.6		NNE,ESE	897.2	0.0
15	369	12.0	41.7		E	898.9	0.0
16	363	12.9	43.4		E	895.7	0.0
17	351	11.7	42.6		WSW	895.9	0.0
18	202	9.3	65.7		WSW	895.4	0.0
19	162	9.7	76.5		ESE,S	891.0	7.5
20	258	7.9	79.2		SSW,SW	887.1	1.5
21	170	6.7	85.7		SE	886.9	0.5
22	141	6.5	83.1		N,E	881.8	5.5
23	203	7.7	75.4		SW,WSW	884.7	0.0
24	332	10.8	60.6		E,SE	893.6	0.0
25	170	8.1	80.8		SSW	899.2	0.5
26	103	7.3	95.9		SW	901.7	2.0
27	80	8.2	91.7		ESE	900.3	1.0
28	229	10.5	74.3		ESE	897.9	0.0
29	283	12.0	61.8		ESE,SE	897.0	0.0
30	368	11.8	45.3		ESE	894.6	0.0
Max.	372	12.9	95.9			902.1	7.5
Min.	80	3.1	31.8			881.8	0.0
Ave.	277	9.0	63.2			896.2	0.8

July 1997 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	351	13.5	45.9		ESE	890.5	0.0
2	314	15.3	57.5		E	889.0	0.0
3	237	12.1	77.4		ESE,SE	889.1	0.0
4	110	9.8	84.2		ESE,SSW	886.8	0.5
5	48	7.0	88.1		ESE	885.2	0.5
6	223	8.4	79.6		SSE	889.5	0.0
7	311	11.5	65.6		SE	894.9	0.0
8	106	11.9	82.4		W	897.7	6.0
9	170	12.3	82.5		E	894.9	0.0
10	251	13.3	70.9		ESE	893.0	4.0
11	159	12.0	84.8		E,ESE	894.2	0.5
12	152	11.0	84.6		E	895.7	10.5
13	175	10.8	83.7		E	896.2	3.5
14	184	11.5	83.3		E	895.5	4.0
15	254	12.4	72.2		E,NW	894.3	0.0
16	289	12.8	71.7		ESE	893.8	0.0
17	87	9.5	79.4		SE	893.0	0.0
18	95	8.2	87.2		SSW	886.9	1.0
19	123	8.9	88.7		SW	886.1	4.0
20	116	9.0	90.3		WSW	892.9	0.0
21	119	10.0	81.6		NNE,NNW	898.9	0.0
22	306	14.0	62.3		E	901.1	0.0
23	284	16.3	62.1		*1	898.0	0.0
24	208	18.1	68.4		SSW	894.0	0.5
25	217	16.3	80.3		SSW	892.0	5.5
26	175	13.6	74.3		ENE,WNW	892.7	0.0
27	110	11.6	80.2		NNE	892.5	0.5
28	89	10.1	94.9		NW	894.3	4.0
29	115	10.5	88.2		WNW,NW	896.8	1.0
30	114	10.4	88.1		WSW,W	897.9	0.0
31	218	10.2	79.9		NW	895.9	0.0
Max.	351	18.1	94.9			901.1	10.5
Min.	48	7.0	45.9			885.2	0.0
Ave.	184	11.7	78.1			893.3	1.5

*1 : E,SSW,WSW

August 1997 Mt. Kozyrevka

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	170	9.2	81.3		NNW	893.3	1.0
2	42	8.4	89.9		NNE	891.6	10.0
3	122	9.4	83.2		NNE,NNW	891.7	0.0
4	230	11.5	57.5		E,WNW	891.5	0.0
5	307	13.8	47.6		E	891.8	0.0
6	155	12.7	60.3		ESE	890.2	5.0
7	50	7.5	90.5		E	884.9	6.5
8	64	6.5	96.3		NNW	888.3	4.0
9	86	7.5	88.3		SE,SSW	893.0	0.5
10	123	7.5	83.4		ESE	898.3	0.0
11	182	9.8	72.8		ESE	898.7	0.0
12	220	9.2	79.1		N	897.8	0.0
13	113	9.5	79.7		NNW	899.0	0.0
14	281	12.2	73.9		WSW,WNW	903.7	0.0
15	288	13.9	63.1		N,ESE	907.4	0.0
16	276	14.1	61.1		WNW	907.1	0.0
17	276	13.6	57.3		NW	905.4	0.0
18	277	11.5	69.5		NNW	904.4	0.0
19	167	9.5	85.0		N	901.7	0.0
20	279	9.8	69.5		NNE	898.9	0.0
21	259	11.9	69.4		NW	898.8	0.0
22	234	10.1	67.7		WSW	900.9	0.0
23	214	12.0	57.3		ESE	903.7	0.0
24	211	12.4	69.8		ESE	898.2	0.0
25	123	12.4	72.6		ENE	889.2	0.0
26	243	13.5	78.1		W	891.2	0.0
27	216	14.5	70.5		WSW	892.6	0.0
28	193	13.1	74.4		SW	893.8	0.0
29	219	13.0	68.3		SSW	896.9	0.0
30	65	12.3	83.0		SSW	900.7	0.5
31	147	12.9	70.1		SW	899.5	0.0
Max.	307	14.5	96.3			907.4	10.0
Min.	42	6.5	47.6			884.9	0.0
Ave.	188	11.1	73.2			896.9	0.9

September 1997 Koryto Glacier

Element	Rad	AirT	Hum	WSpd	WDir	APrs	Prec
Unit	W/m²	℃	%	m/s		hPa	mm
Date							
1	89	11.4	81.3		SSW,SW	896.9	0.5
2	91	11.1	85.7		SSW	893.3	1.0
3	46	9.4	86.7		ESE	887.9	0.5
4	96	8.4	77.4		SSW	886.3	1.5
5							
6							
7							
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26							
27							
28							
29							
30							
Max.	96	11.4	86.7			896.9	1.5
Min.	46	8.4	77.4			886.3	0.5
Ave.	81	10.1	82.8			891.1	0.9