

Auxiliary material for
Surface Mass Balance over Dome Argus, East Antarctica

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Introduction

This data set contains the surface mass balance measured during Jan 2008-Jan 2011-Jan 2013, and also the surface topography surveyed by high precise Global Positioning System. The surface morphology in Jan 2011 and the snow dune below Dome A automatic weather station (AWS) in Jan 2008 are also illustrated by pictures. Basic data of the paper is given in the table “ts01.docx”, the surface morphology of Dome Argus is showed in “fs01.tif” and the snow dune under Dome A AWS is showed in “fs02.tif”.

1. ts01.docx (Table S1) The characteristics of surface mass balance over Dome Argus.
2. fs01.tif (Figure S1) The surface morphology of Dome Argus. The site names refer with the location in figure 3. Please note the photo data are all in Jan 2011, several dates in the bottom right of pictures are not right.
3. fs02.tif (Figure S2) Snow dune under Dome A AWS. The photo was taken in 24th Jan 2008 by Minghu Ding.

Appendix

Table S1. The characteristics of surface mass balance over Dome Argus.

Site	Lon.(E)	Lat.(S)	Elev. (m)	Surface height change (m)		Density (kg m ⁻³)	Surface mass balance (kg m ⁻² a ⁻¹)		
				08-11	11-13		08-11	11-13	08-13
DZ11	77.96	-80.28	4077.16	0.24	0.09	283.5	22.68	12.76	18.71
DZ12 ^a	77.95	-80.33	--	0.32 ^b	--	307.0	32.24	--	--
DZ13	77.94	-80.37	4082.07	0.22	0.12	261.7	19.19	15.70	17.79
DZ14	77.94	-80.42	4078.99	0.32	0.05	285.0	30.40	7.13	21.09
DZ15	77.93	-80.47	4073.85	0.21	0.31	301.0	21.07	46.65	31.30
DZ16	77.93	-80.51	4072.12	0.24	0.08	295.0	23.60	11.80	18.88
DZ17	77.92	-80.56	4067.95	0.22	0.22	293.5	21.52	31.55	25.53
DZ21	77.69	-80.28	4083.59	0.28	0.08	280.5	26.18	11.22	20.20
DZ22	77.68	-80.33	4087.53	0.30	0.06	280.0	28.00	8.40	20.16
DZ23	77.67	-80.37	4088.03	0.21	0.10	239.3	16.75	11.96	14.83
DZ24	77.66	-80.42	4087.31	0.28	0.10	262.5	24.5	13.13	19.95
DZ25	77.66	-80.47	4083.33	0.33	0.17	262.0	28.82	22.27	26.20
DZ26	77.65	-80.51	4083.02	0.31	0.12	274.0	28.31	16.44	23.56
DZ27	77.64	-80.56	4082.59	0.20	0.22	240.5	16.03	26.46	20.20
DZ31	77.42	-80.28	4089.41	0.12	0.32	335.5	13.42	53.68	29.52
DZ32	77.41	-80.33	4091.82	0.14	0.12	342.0	15.96	19.67	17.44
DZ33	77.4	-80.37	4092.26	0.31	0.20	307.5	31.78	30.75	31.37
DZ34	77.38	-80.42	4091.14	0.24	0.06	277.3	22.19	8.32	16.64
DZ35	77.38	-80.46	4088.60	0.25	0.10	302.5	25.21	14.37	20.87
DZ36	77.37	-80.51	4086.87	0.16	0.22	291.0	15.52	32.01	22.12
DZ37	77.36	-80.56	4084.87	0.18	0.14	297.0	17.82	20.79	19.01
DZ41	77.15	-80.28	4083.28	0.18 ^b	0.13	344.5	20.67	22.39	21.36
DZ42	77.14	-80.33	4089.30	0.16	0.14	356.5	19.01	24.96	21.39
DZ43	77.13	-80.37	4090.32	0.17	0.15	295.0	16.72	22.13	18.88
DZ44	77.12	-80.42	4090.48	--	--	372.5	--	--	--
DZ45	77.11	-80.46	4090.48	0.27	0.17	320.0	28.80	27.20	28.16
DZ46	77.10	-80.51	4088.15	0.12	0.15	283.5	11.34	21.26	15.31
DZ47	77.09	-80.55	4084.88	0.31	0.19	276.5	28.57	26.27	27.65
DZ51	76.88	-80.28	4083.17	0.25	0.16	356.0	29.67	28.48	29.19
DZ52	76.86	-80.32	4083.48	0.10	0.16	369.5	12.32	29.56	19.21
DZ53 ^a	76.85	-80.37	--	0.28 ^b	--	326.0	29.88	--	--
DZ54	76.84	-80.42	4088.46	0.30	0.01	355.0	35.50	1.78	22.01
DZ55	76.83	-80.46	4092.18	0.25	0.18	277.0	23.08	24.93	23.82
DZ56	76.82	-80.51	4091.60	0.23	0.10	260.5	19.97	13.03	17.19
DZ57	76.81	-80.55	4089.43	0.35	0.00	291.8	34.04		20.42
DZ61	76.60	-80.28	4079.06	0.25	0.19	369.0	30.75	35.06	32.47

DZ62	76.59	-80.32	4079.90	0.43	0.17	339.0	48.59	28.82	40.68
DZ63	76.58	-80.37	4079.57	0.11	0.11	349.0	12.80	18.32	15.01
DZ64	76.57	-80.41	4086.01	0.22	0.32	363.0	26.62	58.08	39.2
DZ65	76.55	-80.46	4090.32	0.35	0.25	273.5	31.91	34.19	32.82
DZ66	76.54	-80.50	4089.56	0.31	0.16	268.0	27.69	21.44	25.19
DZ67	76.53	-80.55	4089.96	0.25	0.06	270.0	22.50	8.10	16.74
DZ71	76.33	-80.27	4061.24	0.29	0.02	376.0	36.35	2.82	22.94
DZ72	76.32	-80.32	4067.41	0.17	0.17	376.0	21.31	31.96	25.57
DZ73	76.31	-80.37	4072.86	0.31	0.13	255.5	26.40	16.61	22.48
DZ74	76.29	-80.41	4081.56	0.21	0.19	268.5	18.80	24.84	21.21
DZ75	76.28	-80.46	4084.36	0.14	0.28	292.0	13.63	40.88	24.53
DZ76	76.27	-80.50	4086.53	0.22	0.07	279.0	20.46	9.77	16.18
DZ77	76.25	-80.55	4088.12	0.21	0.17	254.5	17.82	21.63	19.34
Average	--	--	--	0.24±0.07	0.15±0.08	302.77±39.07	23.88±7.41	22.43±12.15	22.92±5.94

^a The longitude and latitude of the site was measured by

^b The surface height change was reconstructed by snow pit profile.

Figure S1. The surface morphology of Dome Argus. The site names refer with the location in figure 3. Please note the photo data are all in Jan 2011, several dates in the bottom right of pictures are not right.

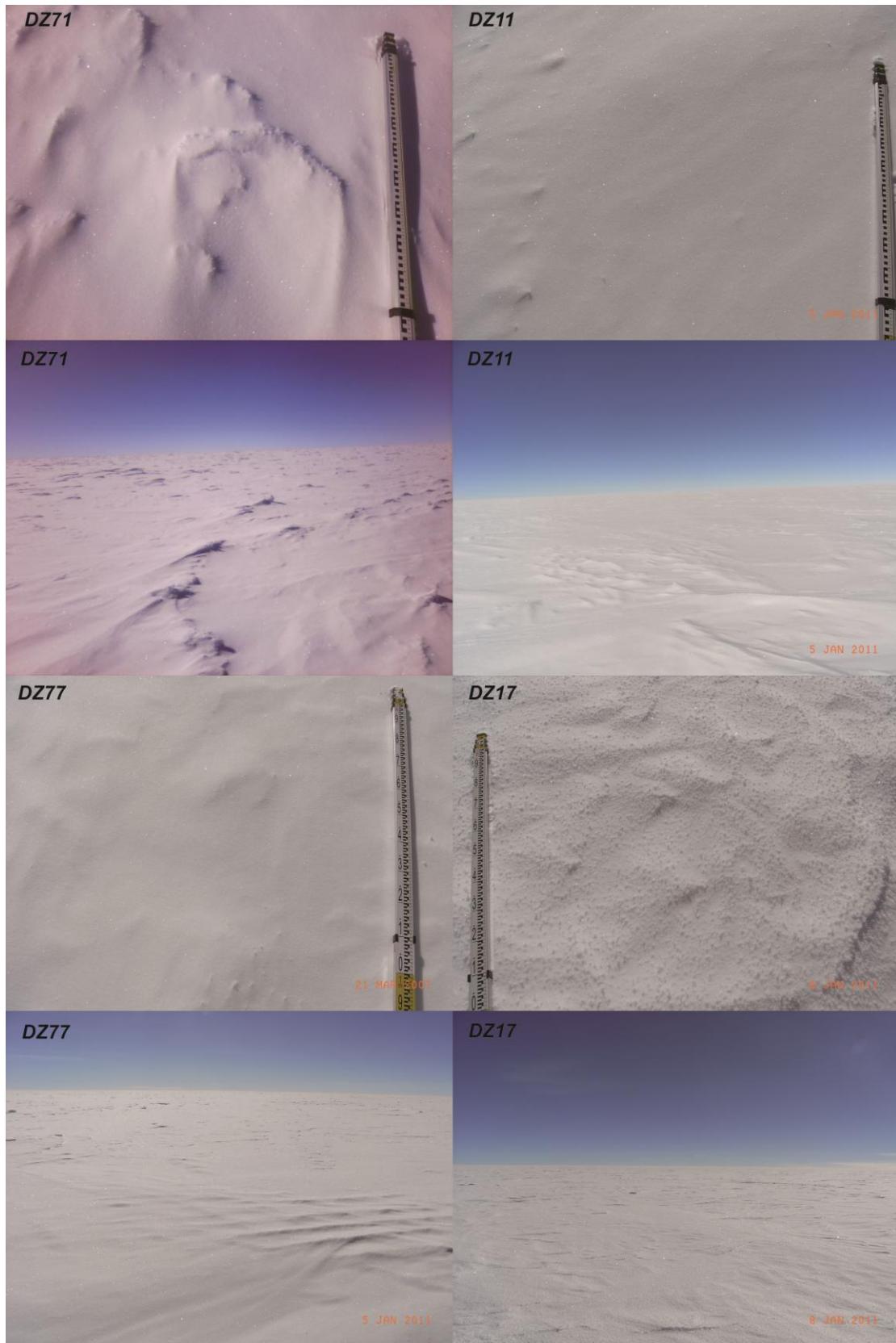


Figure S2. Snow dune under Dome A AWS. The photo was taken in 24th Jan 2008 by Minghu Ding.

