

*Using the significant dust deposition event on the glaciers of Mt. Elbrus, Caucasus Mountains, Russia on 5 May 2009 to develop a method for dating and "provenancing" of desert dust events recorded in snow pack*

Article

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Shahgedanova, M. ORCID: <https://orcid.org/0000-0002-2320-3885>, Kutuzov, S., White, K. H. and Nosenko, G. (2013) Using the significant dust deposition event on the glaciers of Mt. Elbrus, Caucasus Mountains, Russia on 5 May 2009 to develop a method for dating and "provenancing" of desert dust events recorded in snow pack. *Atmospheric Chemistry and Physics*, 13. pp. 1797-1808. ISSN 1680-7316 doi: 10.5194/acp-13-1797-2013 Available at <https://centaur.reading.ac.uk/31089/>

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Supplement 1. Chemical analysis of major elements (%) and trace elements (ppm) in the LTD dust sample from the Garabashi Glacier compared to local sediments (LS) and the Saharan soils from the source region (SS), derived from XRF analysis. Averages of several measured values for GSP-1 and DR-N standards are presented alongside the published values (Govindaraju, 1989).

Major elements	SiO <sub>2</sub>	MgO	Al <sub>2</sub> O <sub>3</sub>	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	CaO	TiO <sub>2</sub>	MnO	Fe <sub>2</sub> O <sub>3</sub>
LTD dust	62.25	6.93	14.97	0.66	0.44	2.57	2.89	1.35	0.10	7.83
LS1	70.03	1.13	13.28	3.72	0.25	3.03	2.77	0.62	0.05	3.60
LS2	66.61	1.21	14.45	4.21	0.23	2.79	3.56	0.7	0.06	3.90
LS3	67.51	1.36	15.32	3.97	0.27	2.81	4.1	0.62	0.05	3.72
SS1	38.15	2.72	10.71	0.21	0.15	2.08	25.9	0.78	0.09	5.18
SS2	40.27	3.47	14.24	0.11	0.2	2.79	18.3	0.85	0.12	7.4
SS3	30.42	2.6	8.66	0.11	0.13	1.74	37.4	0.6	0.08	4.51
GSP-1 measured	67.59	0.92	14.0	2.97	0.27	5.43	2.21	0.60	0.03	3.68
GSP-1 published	67.32	0.97	15.28	2.81	0.28	5.51	2.03	0.66	0.04	4.30
DR-N measured	54.83	4.84	16.42	2.70	0.27	1.68	7.14	1.08	0.22	9.55
DR-N published	52.85	4.4	17.52	2.99	0.25	1.7	7.05	1.09	0.22	9.7

Trace elements	V	Cr	Co	Ni	Cu	Zn	Pb	Rb	Sr	Y	Zr
LTD dust	170	308	25	161	1656	231	13	24	45	8	80
LS1	68	45	8	11	7	59	22	124	265	17	276
LS2	75	37	10	8	7	62	21	125	315	18	249
LS3	72	26	10	12	19	77	28	118	331	15	169
SS1	91	80	12	33	20	70	24	76	281	37	353
SS2	113	113	19	50	25	108	36	102	262	36	191
SS3	74	68	14	30	19	63	20	62	294	32	222
GSP-1 measured	57	6	8	6	29	96	49	233	209	26	455
GSP-1 published	54	12	8	9	33	105	54	250	240	29	500
DR-N measured	156	40	34	15	51	144	47	73	400	30	128
DR-N published	220	45	35	22	52	150	65	75	400	-	125