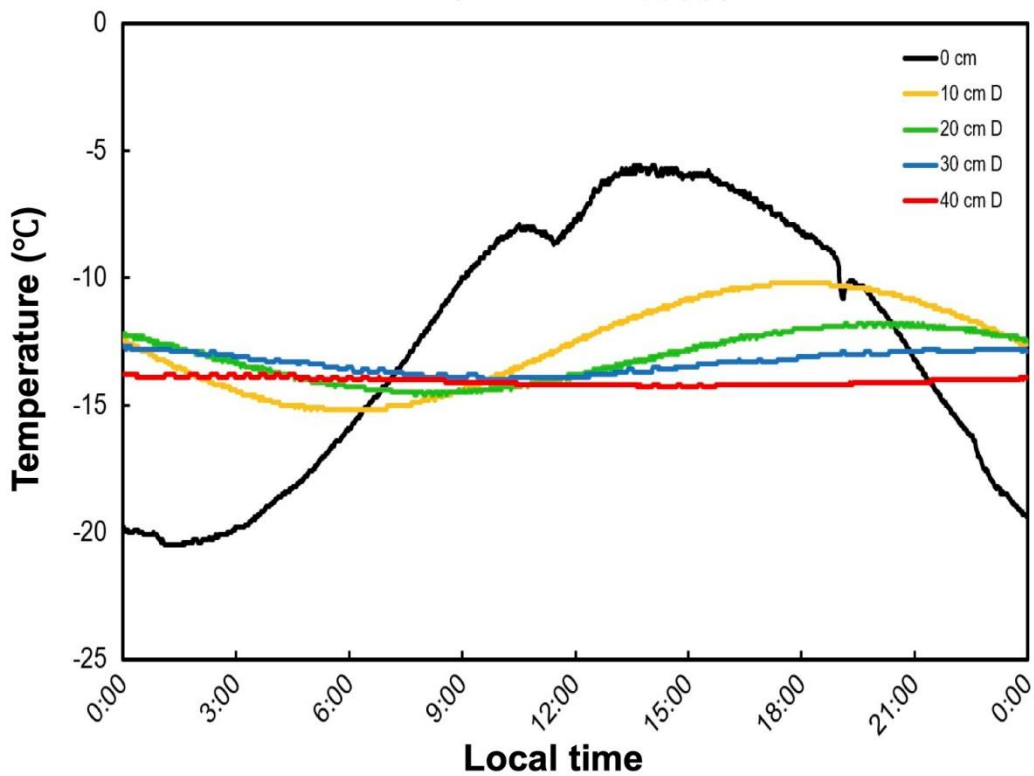
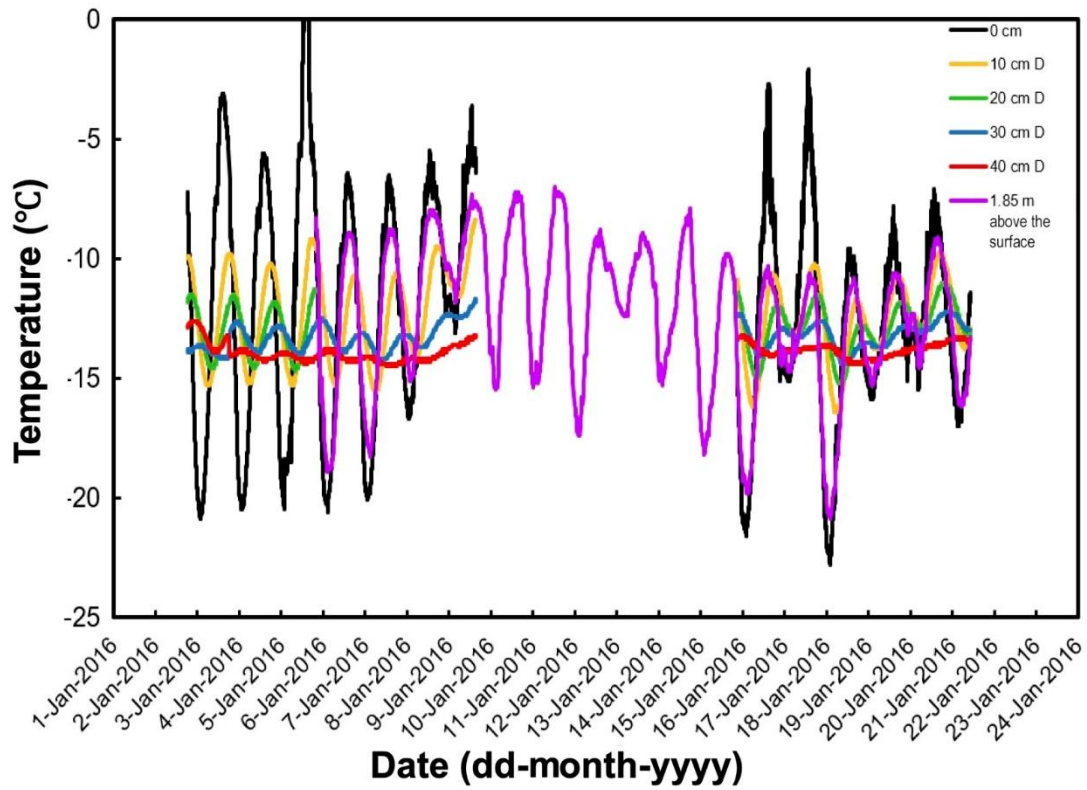


Supplementary material for: Noro K. & Takenaka N. 2020. Post-depositional loss of nitrate and chloride in Antarctic snow by photolysis and sublimation: a field investigation. *Polar Research* 39. Correspondence: Kazushi Noro, Research Institute of Environment, Agriculture and Fisheries, Osaka Prefecture, 442, Shakudo, Habikino, Osaka 583-0862, Japan. E-mail: norok@mbox.kannousuiken-osaka.or.jp.

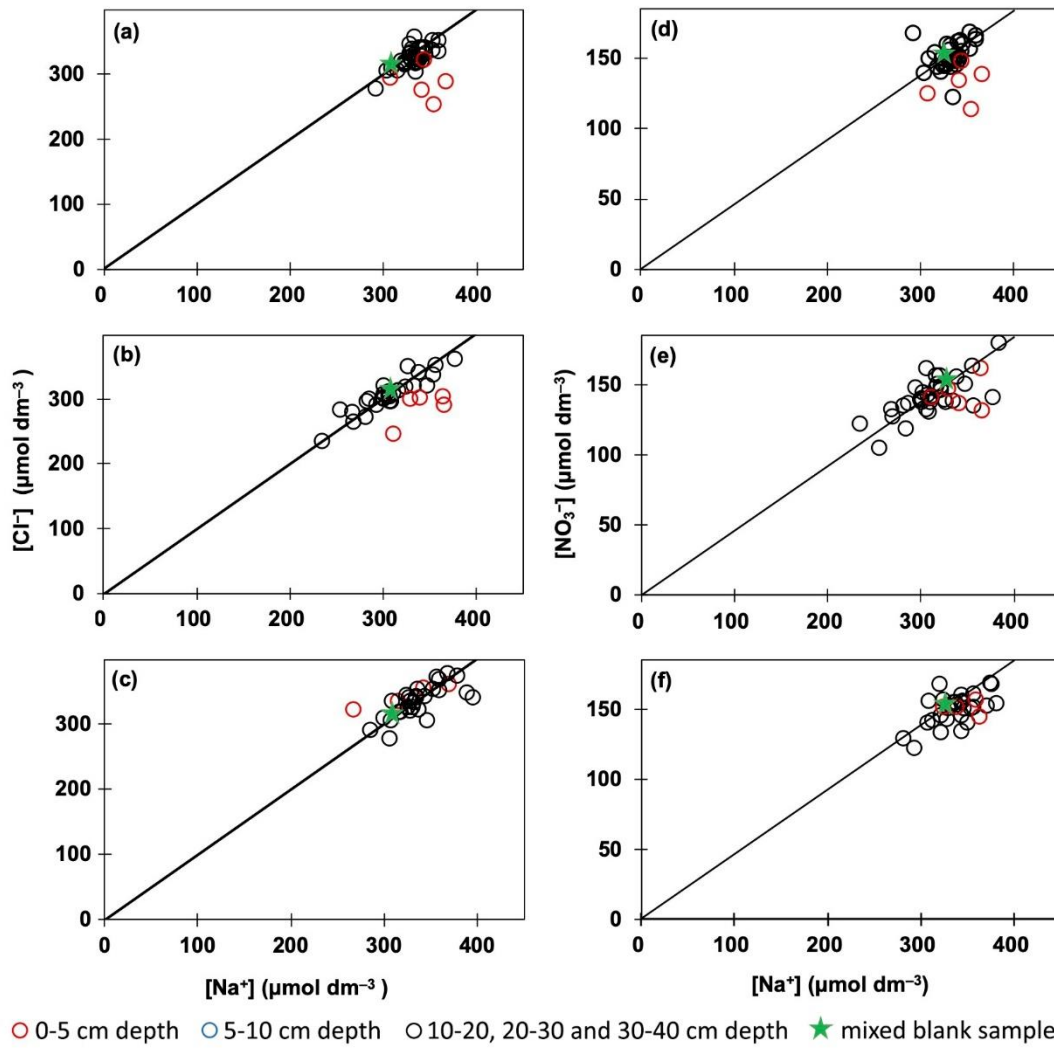
Supplementary Table S1. Ion concentrations and relative of snow from Nagano, Rikubetsu, Gifu and H128, where $n = 5$. The mixed snow was homogenized by a quartation method.

Place	Date	Unmixed/ mixed	Concentration			Relative SD		
			Cl ⁻	NO ₃ ⁻	Na ⁺	Cl ⁻	NO ₃ ⁻	Na ⁺
			(μmol dm ⁻³)			(%)		
Nagano, Japan	17 Jan. 2014	unmixed	54.8	12.2	– ^a	37.2	0.9	– ^a
		mixed	38.7	15.7	– ^a	17.9	1.7	– ^a
Rikubetsu, Japan	1 Feb. 2014	unmixed	27.1	28.5	– ^a	15.3	25.2	– ^a
		mixed	51.2	50.3	– ^a	5.4	12.4	– ^a
Gifu, Japan	1 Feb. 2015	unmixed	51.6	6.0	46.7	33.5	16.7	45.8
		mixed	35.3	5.5	41.3	24.6	3.6	23.5
H128, Antarctica	30 Dec. 2015	unmixed	3.9	1.7	8.4	5.1	29.4	51.2
		mixed	5.6	1.0	4.2	8.3	10.0	21.4

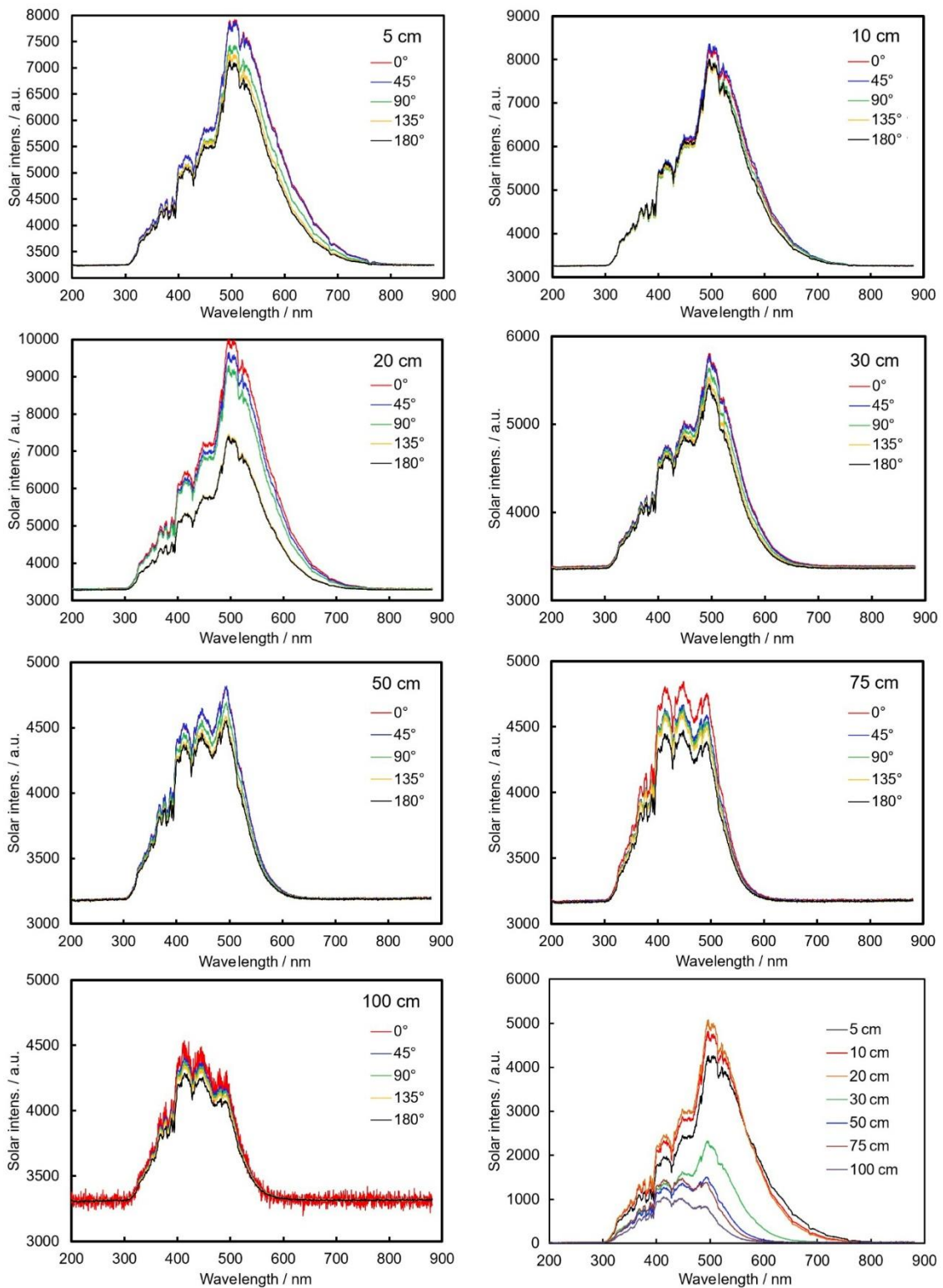
^a Not analysed.



Supplementary Fig. S1. Temperatures at different depths in the snowpack for (a) one month and (b) diurnal variation on 4 January 2016. The atmospheric temperature was taken at 1.85 m above the snow surface.



Supplementary Fig. S2. $[\text{Cl}^-]$ versus $[\text{Na}^+]$ and $[\text{NO}_3^-]$ versus $[\text{Na}^+]$ for the amended samples. The slope of the line is the $[\text{Cl}^-]/[\text{Na}^+]$ and $[\text{NO}_3^-]/[\text{Na}^+]$ of the mixed blank sample. (a) OPEN; (b) COVERED; and (c) DARK for $[\text{Cl}^-]$ versus $[\text{Na}^+]$. (d) OPEN; (e) COVERED; and (f) DARK for $[\text{NO}_3^-]$ versus $[\text{Na}^+]$.



Supplementary Fig. S3. Solar spectrum in snowpack at 5, 10, 20, 30, 50, 75 and 100 cm depth at 0°, 45°, 90°, 135° and 180° and average solar intensities at each depth. Measured at 12:00-16:00 on 14 January 2015.