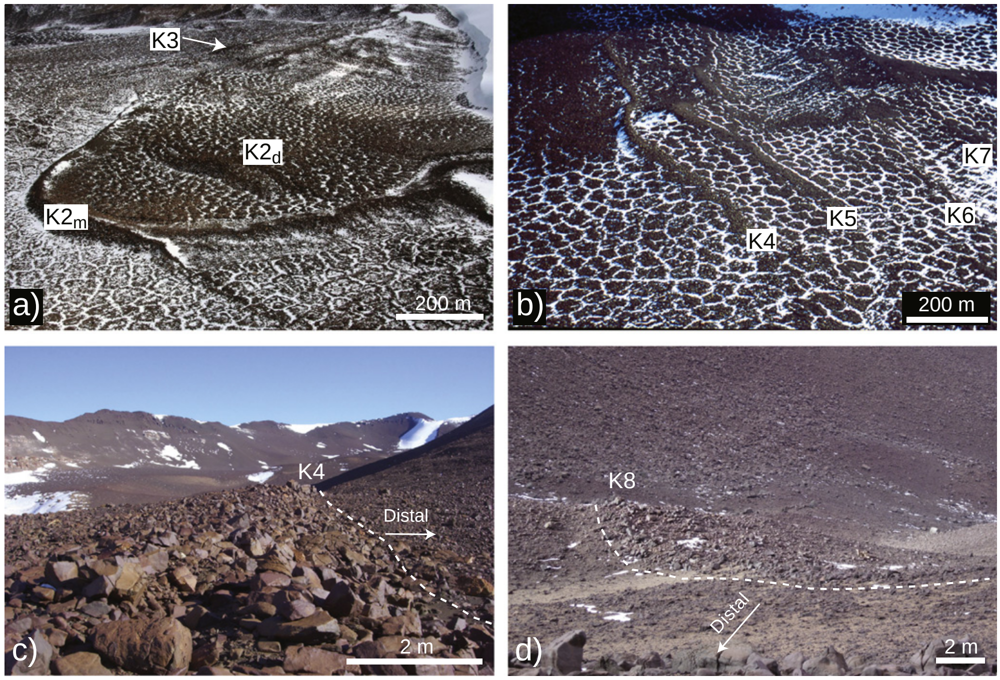

Fig. 3. (a) Oblique aerial photograph looking north, showing K2 drift and bounding moraine. Note the high-centered sublimation polygons in the ice-cored drift ($K2_d$) (location shown in Fig. 2b). (b) Oblique aerial photograph of upper moraines K4–K7; view to the south (location shown in Fig. 2b). (c) Outer limit of K4 drift; view is to the south. (d) Outer limit of K8 drift; view is to the northwest.

3.2. Measuring weathering parameters

To measure progressive changes in the magnitude of surface weathering across Kennar drifts, we examined a minimum of 40 clasts on each drift for morphologic evidence of salt weathering (solution pits), wind abrasion (ventifacts and/or wind-abraded facets), and thermal fracture (fresh rock cores surrounded by thermally cleaved and spalled rock fragments (e.g., “puzzle rocks” of Marchant and Head, 2007)). We restricted analyses to clasts $>10^4$ cm^3 (to ensure sufficient surface area for study), but otherwise samples were selected randomly. We also measured the a-axes of the largest clasts at the surface of each drift (40 clasts per drift). Qualitative measures for wind abrasion and thermal fracture were noted in the field by the presence of wind-polished facets and fractured clasts, whereas the effects of salt weathering (solution pits) were quantified through direct measurement of pit dimensions using digital calipers. For each measured clast, we noted the width and depth of the largest solution pits with a measurement precision of ± 1 mm.

3.3. Cosmogenic ^{3}He sample collection

We collected 27 surface clasts (Ferrar Dolerite) from nine mapped units for cosmogenic-nuclide analyses (Figs. 2 and 3). Each cosmogenic sample was at least 10^3 cm^3. To minimize the effects of potential rock displacement associated with the development of contraction-crack polygons, we restricted sample collection to areas without polygons, or if necessary, to the center of the largest polygons (e.g., Marchant et al., 2002). We also collected samples along ridge crests, in order to reduce

Table 1
Physical characteristics of Kennar Valley drifts.

Drift	Elev.[a] (m)	Height above Taylor Glacier[b] (m)	Relief[c] (m)	dol:sst: con[d]	Grain size[e]	Zingg E:O: P:B[f]	Average maximum clast size (cm)[g] (cm)	Qualitative measures of weathering[h]
K2	1460	55	8	80:20:0	19:76:5	16:49:15:20	200–300	t
K3	1475	70	1.5	82:18:0	32:65:3	15:45:17:23	200	t, h, w
K4	1500	95	2.5	78:22:0	16:74:10	13:62:5:20	100	t, h, w, v, p
K5	1490	85	1	90:0:10	58:38:4	13:44:20:23	100	t, h, w, v, p
K6	1500	95	1.5	94:4:2	59:34:7	22:51:11:16	100	t, h, w, v, p
K7	1495	90	1	68:25:7	11:83:6	20:40:25:15	50	t, h, w, v, p
K8	1610	205	1	97:0:3	18:80:2	15:44:12:29	50	t, h, w, v, p
UD[i]	N/A	N/A	N/A	88:4:8	30:60:10	18:40:25:17	40	t, h, w, v, p

[a] Meters above sea level.
[b] Maximum elevation of moraine compared to present-day average elevation of base of Taylor Glacier at Kennar Valley mouth (1405 masl).
[c] Maximum relief of moraine crests.
[d] Ratio of lithologies in the >16-mm fraction of dolerite:sandstone:rounded quartz pebbles from conglomerates.
[e] Ratio of gravel:sand:mud in the <16-mm fraction.
[f] Ratio of equant:oblate:prolate:blade in the >16-mm fraction. dl = diameter of long axis, di = diameter of intermediate axis, ds = diameter of short axis. Equant = di/dl > 0.67, ds/di > 0.67, Oblate = di/dl > 0.67, ds/di < 0.67. Prolate = di/dl < 0.67, ds/di > 0.67, Blade = di/dl < 0.67, ds/di < 0.67
[g] Average maximum clast size determined by visual analyses in the field and of ground pictures.
[h] Letter indicates presence of: t: thermal fracture (puzzle rocks), h: weathered (oxidized) soil horizon, w: wind faceting on surface clasts, v: varnish >1-mm thick on surface dolerite clasts, and p: development of solution pits >1 mm in diameter.
[i] Undifferentiated drift that lies stratigraphically below moraines K4–K7.