

1 **Supporting Information:**

2 Supporting information includes two figures (Figures S1 and S2).

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6 Figure S1 Surface morphology of the surface snow on Dome A plateau, East Antarctica. The needle
7 crystal ice layer is extensively developed. In general, the depth of the crystal layer is < 1.0 cm, and the
8 snowpack is characterized by soft snow texture.

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12 Figure S2 Surface morphology of the surface snow at ~600 km from the coast, on the traverse from
13 Zhongshan to Dome A, East Antarctica. The large sastrugi with hard smooth surfaces is extensively
14 developed in this region, mainly formed by wind erosion. The ridges of these sastrugi are typically
15 parallel to the prevailing wind direction.

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