

## Supplementary materials

# Vertebrates impact on bacterial community structure of coastal Arctic snowpacks in the spring

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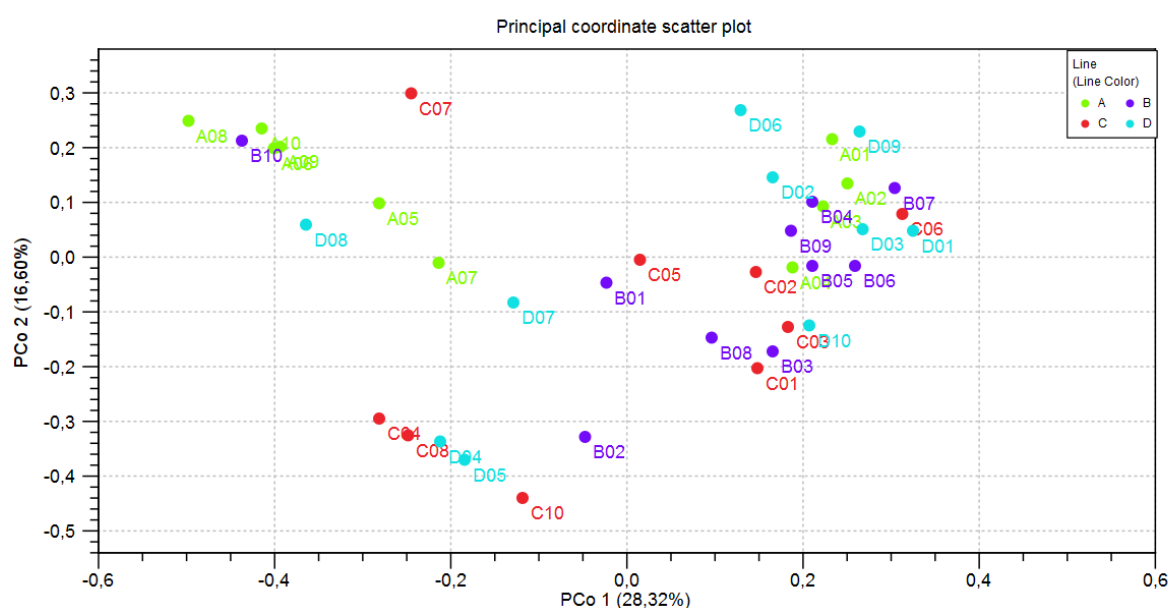


Figure S1. Principal Coordinates Analysis (PCoA) plot of bacterial genetic profiles based on the generalized UniFrac distance  $d^{(0.5)}$  matrix. Different colours mark samples from different transects (lines).

22 Table S1. PERMANOVA analysis of the generalized UniFrac distances  $d^{(0.5)}$  between 16S genetic profiles  
 23 with transect line as the main factor.

| Variable | Groups     | Pseudo-f statistic | <i>P</i> -value |
|----------|------------|--------------------|-----------------|
| Line     | A, B, C, D | 1.596              | <b>0.041</b>    |
| Group 1  | Group 2    | Pseudo-f statistic | <i>P</i> -value |
| A        | B          | 2.439              | <b>0.039</b>    |
| A        | C          | 2.140              | 0.052           |
| B        | C          | 1.099              | 0.336           |
| A        | D          | 1.781              | 0.093           |
| B        | D          | 1.290              | 0.205           |
| C        | D          | 0.884              | 0.503           |

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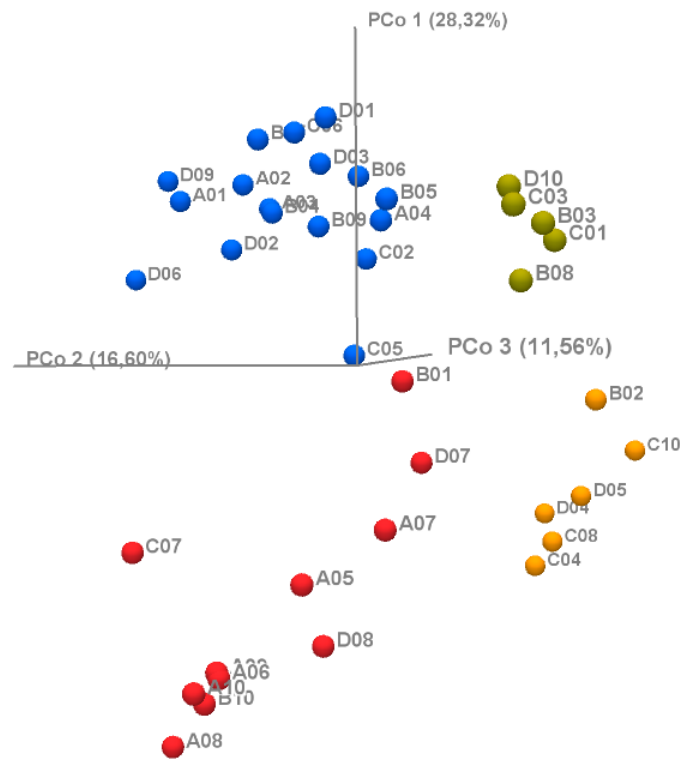


Figure S2. Principal coordinates analysis (PCoA) plot (3D view) of bacterial genetic profiles based on the generalized UniFrac distance  $d^{(0.5)}$  matrix.

30 Table S2. The dominant bacterial classes in the coastal snowpacks.

| Phylum; Class                              | Total number of reads | % content |
|--------------------------------------------|-----------------------|-----------|
| <i>Firmicutes; Bacilli</i>                 | 858,833               | 26.96     |
| <i>Actinobacteriota; Actinobacteria</i>    | 467,916               | 14.69     |
| <i>Proteobacteria; Alphaproteobacteria</i> | 448,493               | 14.08     |
| <i>Cyanobacteria; Cyanobacteriia</i>       | 383,424               | 12.04     |
| <i>Proteobacteria; Gammaproteobacteria</i> | 276,156               | 8.67      |
| <i>Bacteroidota; Bacteroidia</i>           | 249,156               | 7.82      |
| <i>Acidobacteriota; Acidobacteriae</i>     | 84,566                | 2.65      |
| <i>Actinobacteriota; Thermoleophilia</i>   | 58,152                | 1.83      |
| <i>Chloroflexi; Chloroflexia</i>           | 50,558                | 1.59      |
| <i>Firmicutes; Clostridia</i>              | 47,920                | 1.50      |
| Other                                      | 260,413               | 8.17      |
| Total                                      | 3,185,587             | 100       |

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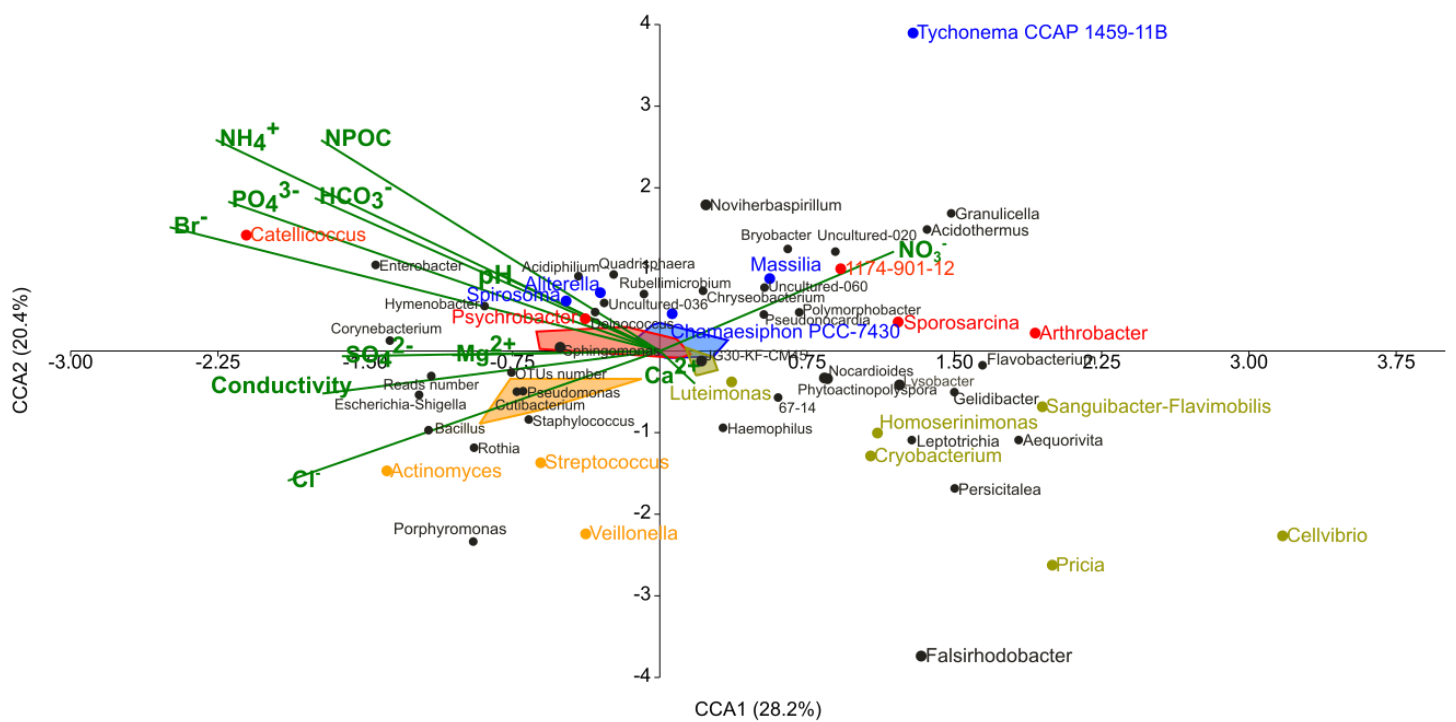


Figure S4. Canonical correspondence analysis of bacterial profiles at the genera level in snow clusters. Triplot of relative abundance of different genera (top 56 genera >1% of total read content, reads, and OTUs number) and 12 environmental snow attributes across four snow clusters. Green lines represent the physicochemical parameters; the line length indicates which physicochemical parameters most strongly determine the genera distribution. Four snow clusters are marked by gold, orange, red and blue colours. The genera significantly more abundant in each snow cluster are marked by cluster colour, and others are shown as black dots and names.