**Supplementary tables**

S1. Brief description of sampling locations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Site name** | **Elevation [m]** | **Distance from shore [m]** | **Presence of marine fauna** | **Occurrence of algae** | **Sample type** |
| **Beach** | 3 | 5 | Occasional  | Only on last year’s snow surface | Snowpack and Snowmelt |
| **Inland** | 235 | 3400 | None | None | Snowpack and Snowmelt |
| **Snowfield 1** | 1 | 20 | None | None | Snowmelt |
| **Snowfield 2** | 4 | 10 | Occasional | Moderate green and red algae bloom | Snowmelt |
| **Coastal 1** | 16 | 90 | Moderately influenced by elephant seal colony | Moderate red and green algae bloom | Snowmelt |
| **Coastal 2** | 3 | 30 | Heavily influenced by elephant seal colony | Intense red and green algae bloom | Snowmelt |
| **Coastal 3** | 0 | 10 | Occasional | Some patches of green algae | Snowmelt |
| **Coastal 4** | 15 | 100 | Occasional | Some patches of green and red algae | Snowmelt |
| **Mountains 1** | 270 | 180 000 | None | None | Snowmelt |
| **Mountains 2** | 290 | 180 000 | None | None | Snowmelt |
| **Mountains 3** | 340 | 180 000 | None | None | Snowmelt |