

A)

B)

C)

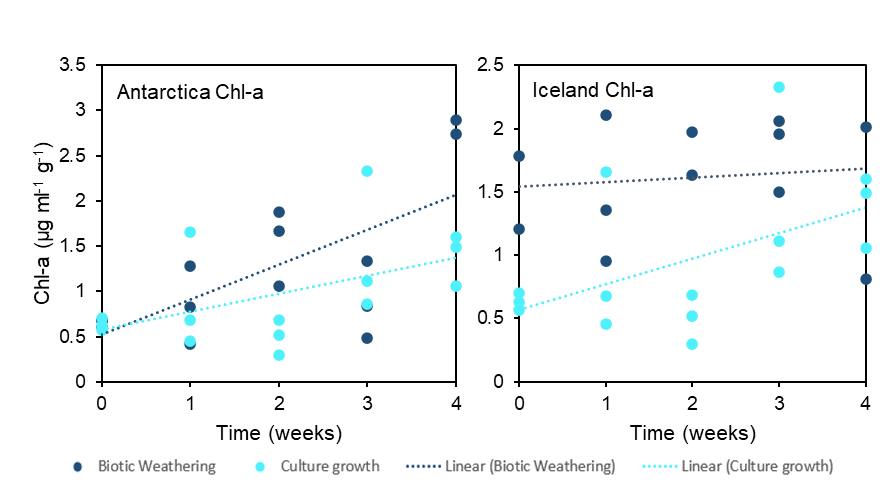


Figure S1. Chl-a concentrations normalized to sample weight (A). We observe an increasing Chl-a trend in both biotic weathering (B) and culture growth (C) experiments. Note the irregular data points in the Icelandic biotic weathering concentrations (A). This is resulting from sediment incorporation in the microbial mat (B) affecting total weight and decreasing the fraction of filaments in the sample. Therefore, sediment attachment artificially decreases the absorbances and thus the calculated Chl-a values. Though we can’t make any correlations between the growth rate and weathering rates because of this issue, we can clearly tell that our culture is growing throughout the experiments, looking at the increasing trends in the culture growth that was set parallel to the biotic weathering experiments (A).

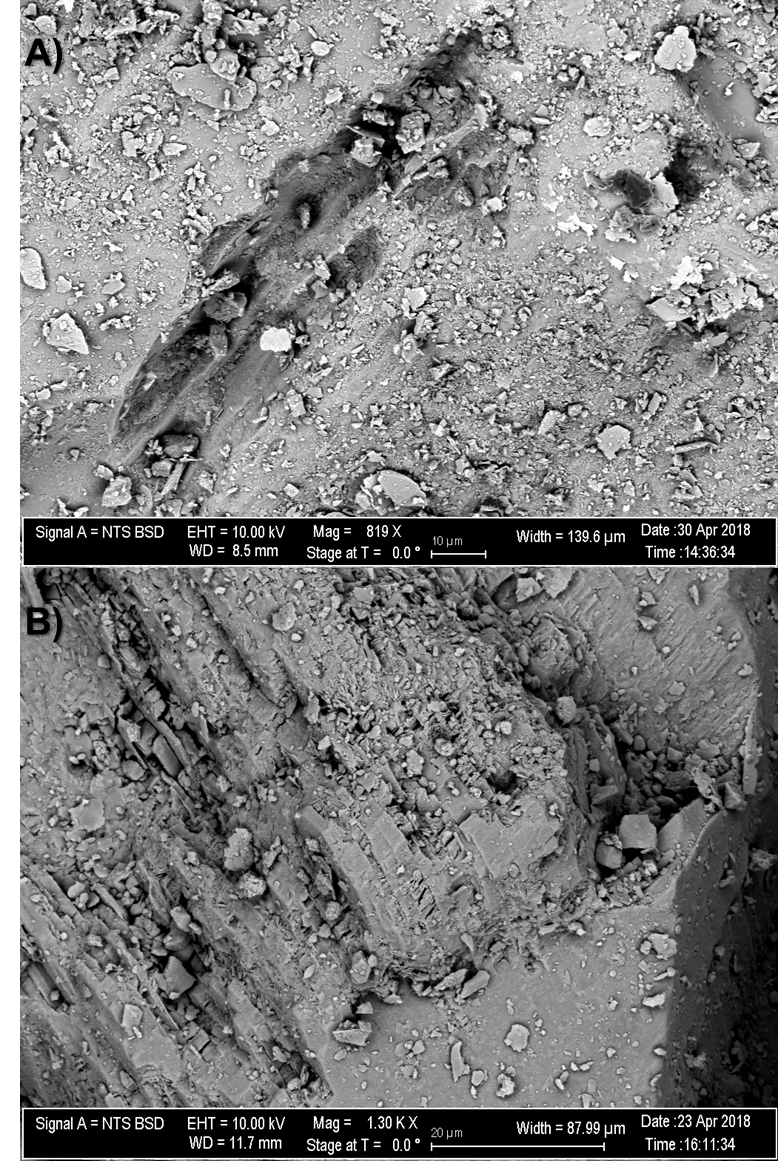


Figure S2. SEM images of physical weathering on silicate grains due to glaciation and glacial movements in MDV: A) Grooves produced by another grain sliding on the mineral B) Parallel fracture planes on a silicate mineral.

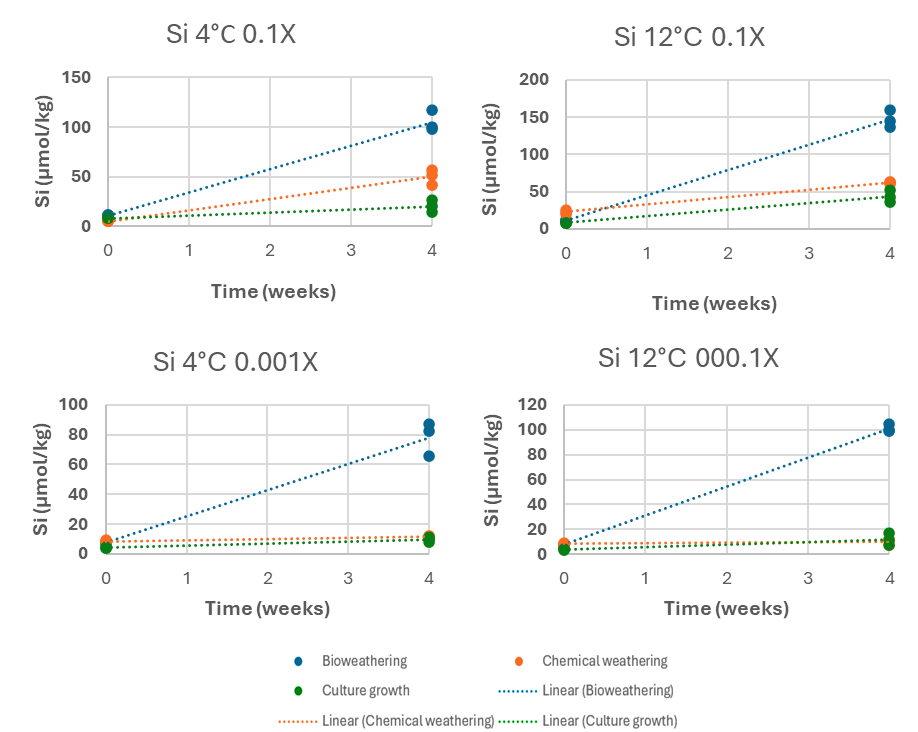


Figure S3. Scatter plots of Si concentrations at week 0 and 4 of the variable nutrient experiments.