Geophysical Research Abstracts
Vol. 21, EGU2019-11169, 2019
EGU General Assembly 2019

Mirroring the effect of geological evolution: Protist speciation in the Atacama Desert

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A comprehensive analysis of the diversity of unicellular eukaryotes (protists) in different habitats (hypersaline waters, desert plant environments, gut of darkling beetles) revealed an astonishing dataset which proved to be distinct and divergent from other regions of the Earth. We used standard isolation and cultivation protocols to elucidate speciation patterns for a variety of very different and independent taxonomic groups of protists such as gregarines and ciliates among alveolates, placidids among stramenopiles, percolomonads and other heteroloboseans among excavates, and choanoflagellates among opisthokonts. The ability to rapidly adapt to extreme environments, which enhance a fast speciation rate at high UV radiation, has only been reported for prokaryotes before. Here we will show that the speciation of unicellular eukaryotes in different phylogenetic groups independently mirror the effect of geological evolution.