Habitat Space on a Snowball Earth: Understanding Life On the Outer Edge of the Habitable Zone

Jonathan Chin\textsuperscript{1}, Francesca Lingo\textsuperscript{2}, Mary Anne Woody\textsuperscript{3}, Linda Sohl\textsuperscript{4}
\textsuperscript{1}Brooklyn Technical HS, \textsuperscript{2}City College-CUNY, \textsuperscript{3}Xavier HS, \textsuperscript{4}NASA/GISS at Columbia University
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What is Snowball Earth?
Variables Tested

Ocean Potential Temperature
Ocean Boundary Layer Depth
Ocean Snow/Ice Cover
Ocean Vertical Heat Diffusivity
Ocean Salinity
Ocean/Lake Ice Coverage

YEAR 400

MODERN CONTROL RUN

YEAR 400
Vertical Heat Diffusivity

YEAR 400

YEAR 2000
Organisms Examined

- Cnidaria
  - Red Sea Fingers
  - Wyvilles crown Jellyfish
  - Kaleidoscope Jellyfish
  - Box Jellyfish
  - Deep-Red Jellyfish

- Demospongiae
  - Barrel Sponge, Red Tree Sponge, Flesh Sponge, Red Boring Sponge

- Synechocystis, Thermosynechococcus, Anabaena, Nostoc

- Cyanobacteria
Ocean Salinity (PSU)

559 meters → 43 meters
Future Research

- Nutrient Distribution
- More Organisms
- Run the Model for 500 More Years
References


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