

Mars for Earthlings

LESSON 15: Ice Ages***In-Class Activity 1****Ice Ages Through Time***Purpose:**

Come to understand climate changes over time, hypothesize the causes of ice ages on Earth, and extrapolate those causes to Mars

I. Ice Ages on Earth:

Watch Earth's Paleogeography through time.

<http://www.youtube.com/watch?v=Q2dAmLnR3tA>

After watching the video, answer the following questions:

1. At what Earth age (ages) was there the greatest extent of ice cover towards the South/Southern Pole?

At what Earth age (ages) was there the greatest extent of ice cover towards the North/Northern Pole?

II. Extreme Ice Survey on Earth

Watch this 21 min. Ted Talk 2009 movie on James Balog: Time-lapse proof of extreme ice loss: <https://www.youtube.com/watch?v=DjeIpjhAqsM>

What is he trying to do and show?

How does he power his equipment?

What is his photography showing?

1. Why do glaciers matter? See extremeicesurvey.org/why-do-glaciers-matter/
Give 3 reasons:
 - a.
 - b.
 - c.



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III. Milankovitch Cycles and Glaciation

1. What are Milankovitch cycles and how do they affect glaciation? (For help use: http://www.indiana.edu/~geol105/images/gaia_chapter_4/milankovitch.htm)
2. What are some major differences between the Milankovitch cycles of both Mars and Earth? (For help use: <http://phoenix.lpl.arizona.edu/mars172.php#1>)
3. How might those differences affect climate changes on Mars compared to Earth especially related to ice ages?

IV. Mars and Ice Ages

1. Would you hypothesize that Mars experiences ice ages as well? Explain your reasoning.
2. Why or how would the orbital parameter of Mars affect potential ice ages?

