

Run-away Warming and Cooling

Warming Scenario: Assume that global climate change causes a warming at the poles.

Question *What begins to happen at the poles in response to the warming?*

Answer The snow and ice begin to melt.

Question *What happens to the albedo or reflectivity in the region?*

Answer It decreases.

Question *With a lower albedo, does the region reflect or absorb more solar energy?*

Answer It absorbs more.

Question *What happens to the temperature in the region?*

Answer It gets warmer.

Question *Then what happens?*

Answer The process begins anew.

Explanation: This is an example of a positive feedback mechanism. It is called the *snow-ice albedo feedback mechanism* and it explains why scientists believe that the poles will warm more than the tropics. If the process continues, it results in run-away warming.

Cooling Scenario: Assume that global climate change causes a cooling in the mid-latitudes.

Question *If it gets cold enough, what might occur during the winter months?*

Answer It will snow more, or snow that occurs won't melt as quickly.

Question *What will happen to the albedo of the region?*

Answer It will increase.

Question *With a higher albedo, does the region reflect or absorb more solar energy?*

Answer It reflects more.

Question *What happens to the temperature of the region?*

Answer It cools.

Question *And then what happens?*

Answer The process begins anew .

Explanation This is another example of a *positive feedback mechanism* in the climate system. If left unchecked, it could result in run-away cooling.