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Atmospheric Education Resource

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Answers:

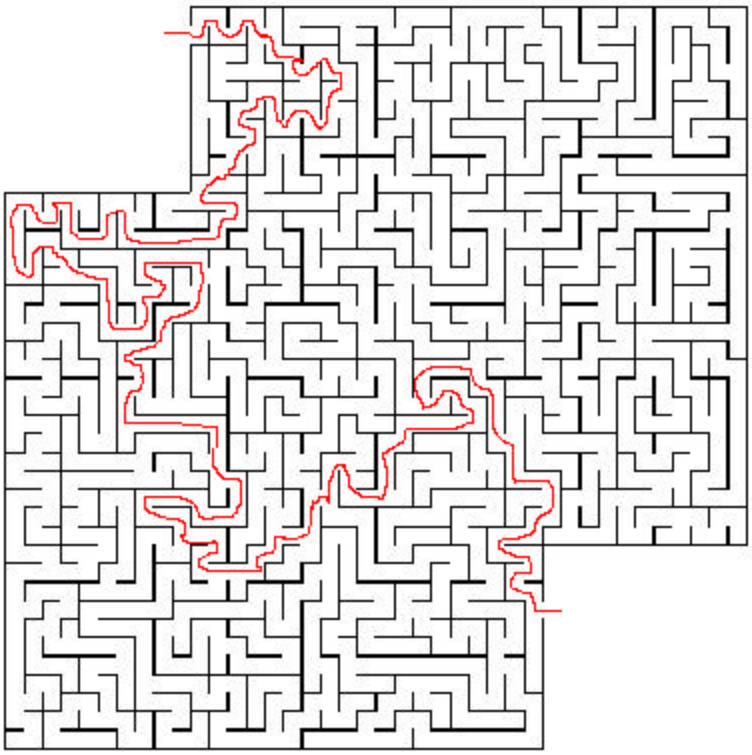
Page 3 “Read the Fine Print”

Students may find it difficult to determine the National Park with the highest and lowest albedos. There is no information on this specifically. The exercise is designed more to get students thinking about *why* albedos would be higher for some parks and lower for others and also why this changes with season. (For example, albedo may be high on the Alaska coast but higher in Yellowstone NP, the effect of the ocean in AK and the snow in Yellowstone may seem counterintuitive for some students) The National Parks Service website is an amazing biological, geological and geographical resource whether students do the albedo exercise or not.

Page 4. “Quick Quiz”

1. Before a layer of ice forms, the water gives off heat to the air, warming the atmosphere and cooling the water to near freezing. After ice forms, the heat exchange stops and the atmosphere is cooled, sometimes to –30 degrees C.
2. Ice in the Southern hemisphere reaches about 1 m thick. Ice in the Northern Hemisphere reaches about 4 meters thick. (Difference is 3, N. hemis. is greater)
3. A glacier is land ice formed in the mountains and not always covering the entire land form. An ice sheet is a huge expanse of ice covering entire continents and is usually flatter.
4. Glaciers and ice sheets hold about 75% of the world’s fresh water.
5. The albedo, or percent of solar radiation reflected, of a light-colored object is higher than that of a dark-colored object. Therefore, as the dark object absorbs more sunlight, it warms.
6. Absorption of solar radiation makes an object warmer.
7. Positive feedback works by adding to the initial change and increasing the impact of that initial change due to the chain of events after it.

Page 4. “Snow Flurries Frustration”



(Sphenisciformes is the Order name and Spheniscidae is the Family name of all penguins.)

Page 5. “Word Scramble”

ALBEDO
FEEDBACK
ICESHEETS
GLACIER
CALVING
ABLATION
ACCUMULATION
ABSORPTION
ICEBERG
“CLIMATE CHAMP”

If you have any questions regarding this issue of Southern AER, please contact me (Paula) at sercc@dnr.state.sc.us.