**Mountain Microclimates**

Today we will explore the climates and microclimates in the present, past, and future.

The key part of this exploration will be your own observations. Make sure that your observations are:

* Specific
* Detailed
* Complete
* Creative

Make sure that someone who is not here today could understand your observations. Include both biotic (living things) and abiotic (non-living things) factors in your observations. Try to “think outside the box” with the types of observations you take. Feel free to include words, pictures, numbers, or other communication in your observations.

**Part I: Microclimate Observations**

For the first part you will take some time to observe three (3) different locations:

* North facing slopes
* South facing slopes
* Riparian zone (the interface between land and water)

Record your observations below.

NORTH FACING SLOPES

SOUTH FACING SLOPES

RIPARIAN ZONE

**Part II Inferences from Observations**

Reflecting on your observations, can you make any inferences (educated guess) about WHY you see the patterns that you see? Think about what might be controlling where you see the biotic and abiotic factors that you observed.

**Part III Hypotheses and Testing**

Based on your inferences make three (3) hypotheses (proposed explanations) for what you are seeing. Make sure that your hypotheses are specific and testable.

1.

2.

3.

Choose one (1) of the hypotheses above. Describe how you might test this hypothesis using an experiment, scientific instruments, or additional observations.

**Part IV Past and Future Climates**

Now we will explore what current observations might tell us about what the climate was like in the past or will be in the future in this location.

Take some time to make observations of what your currently see that can give clues about what the past climate of this location was and what the future climate might be. This is challenging, so think creatively.

After making these observations, how could you gain more information from this landscape to better infer past and future climates. What type of observation might you need or what tools could you use?

**Glossary**

*Abiotic*: Of or characterized by the absence of life or living organisms.

*Biotic*: Of or having to do with life or living organisms.

*Climate*: The weather conditions prevailing in an area in general or over a long period.

*Experiment*: A scientific procedure undertaken to make a discovery, test a hypothesis, or demonstrate a known fact.

*Hypothesis*: An explanation of one or more phenomena in nature that can be tested by observations, experiments, or both.

*Inference*: A conclusion drawn from evidence.

*Microclimate*: The climate of a very small or restricted area, especially when this differs from the climate of the surrounding area.

*Observation*: Receiving knowledge from the outside world by the use of the senses.

*Riparian Zone*: The interface between land and a river, stream, or lake.

*Slope*: The inclined surface that forms a mountainside.

**Resources**

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Utah State University. *Utah Climate Center*. <http://climate.usurf.usu.edu/>

**Questions for further exploration**

How small can a microclimate be? Is there a limit?

How can learning about past climate changes teach us about the future?

What are climate proxies and what do they tell us about past climate?

What factors, other than climate, determine where plants and animals will live?

How do humans contribute to climate changes compared to natural factors?

What are the climate change predictions for Utah in 2050? 2100?

How do you think the plants and animals in Utah’s mountains will deal with a changing climate?

Are animals living in Utah’s mountain more or less sensitive to climate than those living in valleys? Why?

How will climate change impact our water supply in Utah?

How can we test hypotheses about future climate change?

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