

**Student Activity Sheet  
Tree Ring Expeditions (TREX)**

**Lab 5: Warming and the Boreal Forests**

Name: \_\_\_\_\_

**Part 1: Exploring Tree-ring Sites Around the World**

1.1 List the name of each site, investigator, and site coordinates (latitude and longitude) that you found from the ITRDB activity above.

Site Name	Investigator	Latitude	Longitude

1.2 Place your abstract summary here.

**Title of paper -**

**Summary -**

**Part 2 - Explore the Research Sites**

**Explore the Mendenhall Glacier**

2.1 Describe the nature of the forest along the E Glacial Trail.

2.2 To the best of your ability, describe what types of trees you were able to identify along the trail.

2.3 Paste your screen shot of the oldest looking trees you could find on your answer sheet.

### **Explore Ondur Zuun Nuruu in Northern Mongolia**

2.4 What sparked Dr. D'Arrigo's interest in doing research in Mongolia?

2.5 Explain the circumstances that led to Dr. D'Arrigo starting a major research project in Mongolia.

2.6. Describe the forests and trees you see in the two 360 images from Mongolia.

2.7 How does this forest differ from the one you looked at near the Mendenhall glacier in Alaska?

### **Explore the Kamchatka Peninsula in Russia**

2.8 Describe the environment at this site and the trees you see in this region.

2.9 How does this site compare to the site from Alaska and Mongolia? Is there anything that they have in common? Note any significant differences among the three sites.

### **Part 3 – Measuring Ring Width to Determine Climate Change in the Past**

3.1 Does the data from the cores that you measured look similar to the graphs above? Why/why not?

3.2 Looking at that master chronologies above, describe the patterns that you see.

3.3 List any periods of extended periods of cold or warmth in the data climate.

## **Part 4 – Creating Long Tree-Ring Records and Large Volcanic Events**

4.1 What trends did you see in the recorded meteorological temperature data (blue line)?

4.2 Describe the general long-term patterns you discovered in the tree-ring based reconstruction.

4.3 List five period of 5-10 years in duration that were unusually warm or cold over the past 1000 years.

4.4 List the ten most extreme cold years that you identified.

4.5 What happened during 1601 that influenced climate on a global scale? Briefly describe the event and its impacts on people.

4.6 Of the other nine extremely cold years that you identified in the temperature reconstruction above, how many of them were also related to volcanic events. You will need to do some online research here. You may have to search the year before the extreme cold event as well as the year that you identified, this can happen when a volcanic event happens late in the years, and impacts tree growth in the following year.

4.7 Go back to Part 3 of this lab and evaluate the tree-ring samples from the three northern latitude sites. Can you identify narrow rings (cold year) during known volcanic years such as 1601, and any others that you identified.

4.8 How do large-scale volcanic events cool global climate. Research this question online and briefly answer here.