Name(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**How Has Temperature Changed Since the Industrial Revolution?**

**Introduction**

In the previous investigation, you analyzed temperature anomalies that were reconstructed from ice cores drilled in Antarctica and Greenland. In this investigation, you will analyze global average surface temperature anomalies determined by analyzing the past 125-year instrumental record. Each month, three different climate centers collect temperature data from the land and oceans using instruments (such as thermometers at weather stations and on ships, satellites, and weather balloons). These three centers are NASA’s Goddard Institute for Space Studies (GISS), NOAA’s National Climate Data Center (NCDC), and the United Kingdom’s Met Office in conjunction with the Climate Research Unit (CRU) at the University of East Anglia (HadCRUT3). These centers compute the global mean temperature (GMT). In this investigation, you will analyze the global mean temperature (GMT) to answer the question – how has temperature varied over the past 125 years?

**Exploration 1: Temperature Anomaly Patterns For the Past 125 Years**

In this exploration, you will study the past 125 years of instrumental temperature data to identify the changes in temperature anomalies since the industrial revolution.

Use the interactive, time series graphing tool to answer the following questions.

1. What general temperature anomaly trend do you observe during the following time spans?

A. The past 125 years

B. 1910 and the mid-1940s

C. The mid-1940s and the mid-1970s

D. The mid-1970s and 2010

1. How does the variation of decade-long (such as between 2000 and 2010) temperature anomalies compare to the longer time span (such as between the mid-1970s and 2010) temperature anomalies?
2. What year did temperature anomalies begin to remain above normal?