

The composition of the earth's atmosphere may have changed over time. One attempt to discover the nature of the atmosphere long ago studies the gas trapped in bubbles inside ancient amber. Amber is tree resin that has hardened and been trapped in rocks. The gas in bubbles within amber should be a sample of the atmosphere at the time the amber was formed. Measurement on specimens of amber from the late Cretaceous era (75 to 95 million years ago) gives these percents of nitrogen:

63.4 65.0 64.4 63.3 54.8 64.5 60.8 49.1 51.0

These values are quite different from the present 78.1% of nitrogen in the atmosphere, but are these differences significant? Assume (this is not yet agreed on by experts) that these observations are an SRS from the Cretaceous atmosphere.

1. Describe the population of interest and the parameter you want to draw conclusions about.
2. Graph the data and comment on skewness and outliers.
3. What is the critical value t^* for a 95% confidence interval. Identify the curve and mark the t^* value on your sketch.
4. Construct a 95% confidence interval for the mean percent of nitrogen in ancient age.
5. Interpret this confidence interval.