Hypothesis Test for a Population Mean   Name: _Key_

Qori Kalis glacier in Peru 1978 and 2000.

Distributions
tempdiff

Quantiles

Moments

Mean	4.0283333
Std Dev	4.6750362
Std Err Mean	0.6035446
Upper 95% Mean	5.2360232
Lower 95% Mean	2.8206434
N	60

Test Mean=value

Hypothesized Value	0
Actual Estimate	4.02833
DF	59
Std Dev	4.67504

t Test

Test Statistic	6.6745
Prob > |t|	<.0001*
Prob > t	<.0001*
Prob < t	1.0000
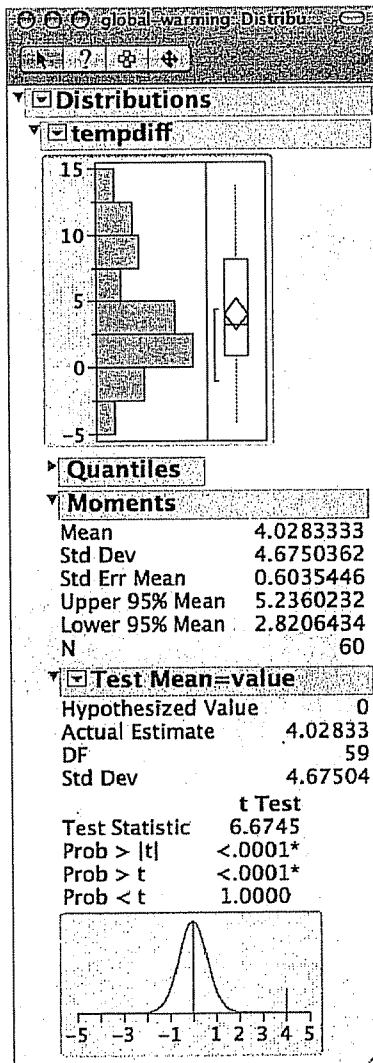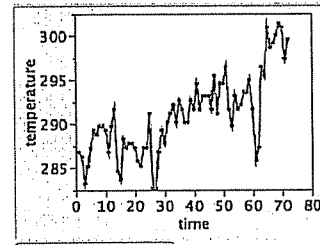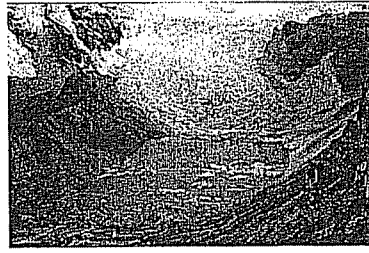
We hear a lot of press about climate change. Several years ago Dr Cook analyzed satellite data over central America, which included monthly average measurements on temperature, pressure, ozone, and cloud cover from 1995 to 2000. She discovered something strange high in the Andes Mountains. Since then she has listened carefully to the news on glacial melt around the globe. In this worksheet we'll look at the data for one location (8.72°S, 72.23°W) in the study region. Temperatures differenced on the 1995 values were calculated, eg Jan 1996-Jan 1995, Jan 1997-Jan 1995, ... (Temperature is given in $°K$. A 4° change in Kelvin corresponds to a 7.5° change in Farenheit.) We want to know if there is evidence of warming at this location.

Using the JMP output answer these questions:

1. What is the sample size, n? _60_

2. What is the sample mean, $\bar{y}$? _4.028_

3. What is the sample standard deviation, s? _4.675_

4. What is the hypothesized mean, μ_0? _0_

5. Write down the null and alternative hypotheses.

   $H_0 : \mu = 0$ $H_A : \mu > 0$

6. What is the value of the test statistic, t? _6.6745_

7. What are the degrees of freedom? _59_

8. What is the P-value? _<.0001_ ≈ 0

9. Decision: _Reject the Null Hypothesis_

10. Conclusion:

    There is Global Warming occuring at this Location.