This work relates regional climate change with global climate change. The data set used was obtained from the Trinidad and Tobago Meteorological Organisation (TTMO) located at Piarco, Trinidad from which two thirty year climate periods, 1961 – 1990 and 1971 – 2000 were examined. A statistical approach was taken where graphs of monthly, seasonal and yearly averages were plotted for; relative humidity, maximum and minimum temperatures, rainfall and rainfall intensity. Also trend analyses for the two climate periods were evaluated. Additionally, the effects of the El Niño and La Niña phenomena on the local climate were investigated. Predictions of Regional Climate Model (RCM) for the Caribbean, PRECIS (Providing Regional Climates for Impact Studies), which were modified and applied by the Cubans was used for the climate change scenarios in 2020 and 2050 for Trinidad. These predictions were analysed in conjunction with the regional climate change investigation.