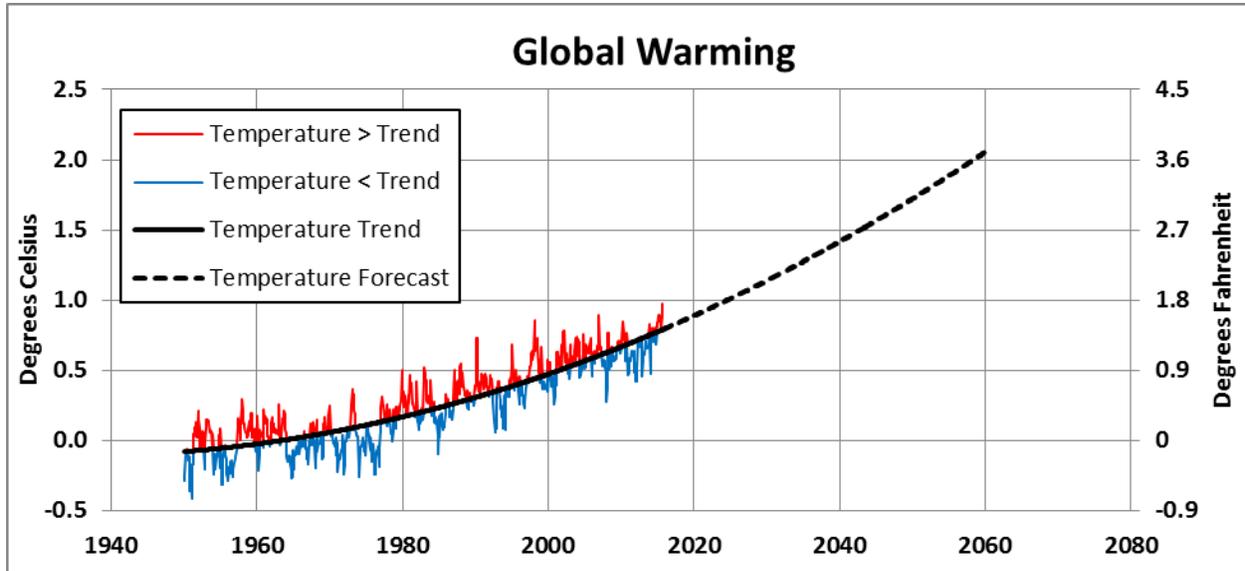


**Global Warming Data, Trend and Forecast**  
**Dr. Rich Ferguson, CEERT**  
**Updated November 2015**



	Trend Value	Forecast Values				
Date	Oct 2015	Jan 2020	Jan 2030	Jan 2040	Jan 2050	Jan 2060
°C	0.79	0.89	1.14	1.42	1.72	2.06
°F	1.42	1.60	2.05	2.55	3.10	3.70

**Update Note** – According to NOAA data released November 18, October 2015 was the warmest October on record at 14.98 °C (58.96 °F), an impressive 0.20 °C higher than October 2014, previously the warmest October on record.

**Data** – Monthly global surface temperature anomaly data (red and blue lines) are monthly differences from the average temperature *for that month* during the years 1901-2000 and are available from [NOAA](http://www.noaa.gov). The red (blue) lines represent monthly temperatures warmer (cooler) than the trend. The average global surface temperature during the 20th century was 13.9 °C (57.0 °F.) The CEERT assessment begins in 1950 when the global warming signal started to emerge from the noise, a few years before high quality measurements of atmospheric carbon dioxide began in 1958.

**Temperature Trend** – The trendline (solid black line) represents a quadratic function with a least squares fit to the anomaly data. The differences between the

data and the trend have a root mean square value of 0.13 °C. The trend is updated monthly with the most recent data available from NOAA and is expected to change gradually over time, as discussed below.

**Temperature Forecast** – The forecast (dashed black line) is simply the projection of the trendline curve that fits the data and is updated monthly. It does not rely on estimates of future greenhouse gas emissions nor on computer models. This forecast is consistent with some of the model forecasts considered by the International Panel on Climate Change (IPCC) in AR5, its most recent Assessment Report.

### **Discussion**

As new data become available and are added to the chart, new data points *above* the previous trend cause the newly calculated trend to *increase more rapidly*. Projected temperatures *increase* accordingly, as well. New data points *below* the previous trend *lower* the newly calculated trend and *lower* projected temperatures.