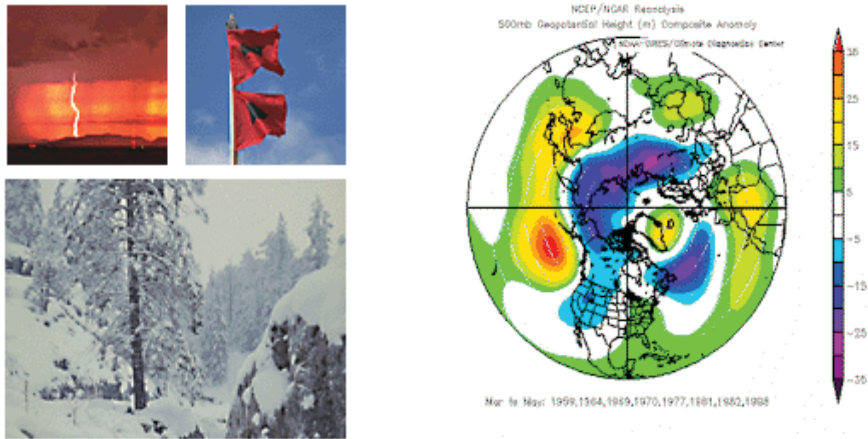


The Pennsylvania Observer

The Pennsylvania State Climatologist



January Climate Highlight:

January's Climate Highlight features an analysis that compares the dew point trend over the past few decades. Two cities, Philadelphia and Pittsburgh were chosen for this study and two different data sets were used. The first set consists of dew point data that was measured by FAA (Federal Aviation Administration) and COOP (National Weather Service Cooperative Observer Program) stations. The second set consists of dew point data from the NARR (North American Regional Reanalysis) database.

NARR is a long-term, dynamically consistent, high-resolution, high-frequency, atmospheric and land surface hydrology dataset for the North American domain. It covers the period ranging from 1979-2007.

The comparison of dew point trends over the past few decades are shown first for Pittsburgh and second Philadelphia. There is a strong correlation between the observed data and the NARR data, thus proving the reliability of the NARR data as a good proxy for actual observations.

The graphs below show that average dew points have been on the rise since the 1960s. There is a gradual increase in the monthly average dew points for Philadelphia and Pittsburgh, with the exception occurring in July and September in Pittsburgh and May in Philadelphia according to the NARR data.

Pittsburgh

Pittsburgh dew point trends over the past four decades using COOP (National Weather Service Cooperative Observer Program) and FAA (Federal Aviation Administration) data.

Each Graph is the monthly average for each respective month for each year from 1961 through 2005. The corresponding trend line is shown as well.

Figure 1

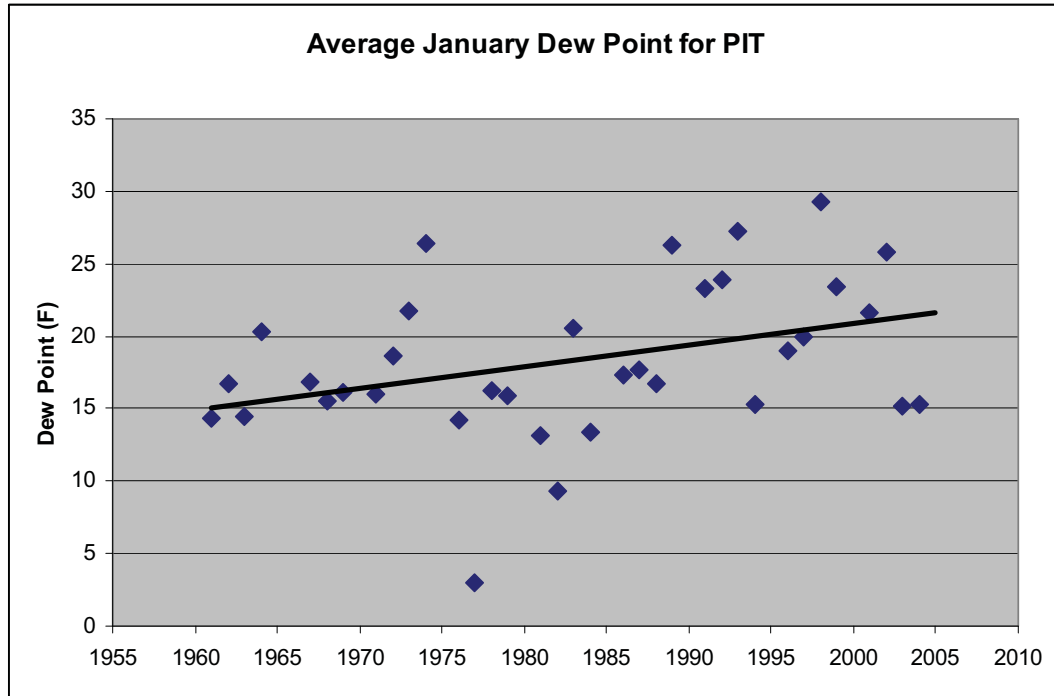


Figure 2

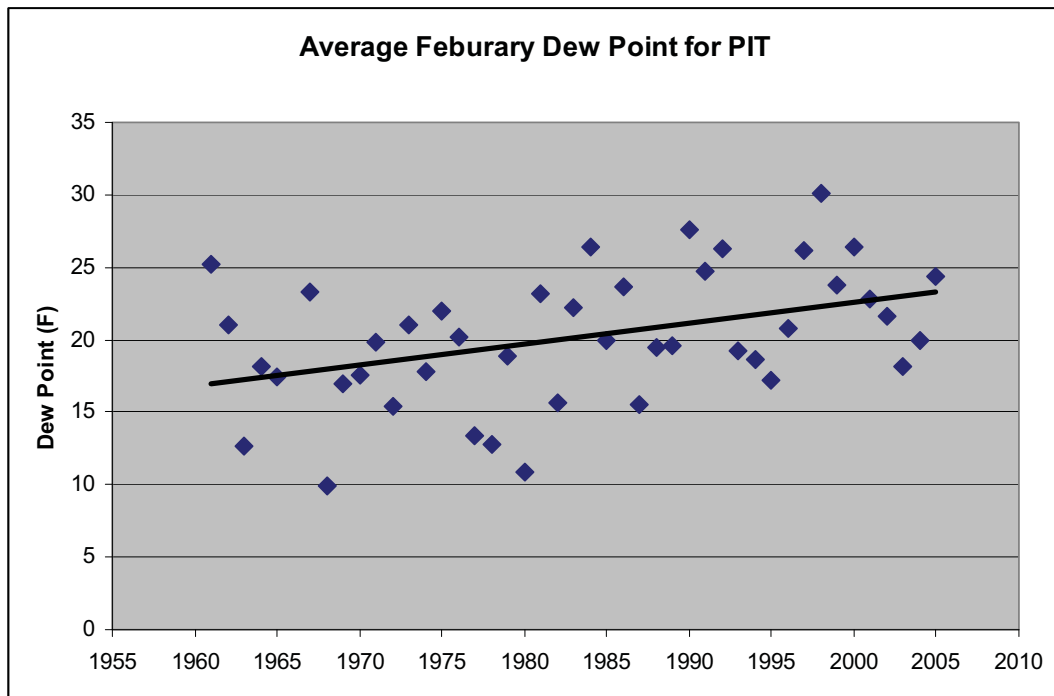


Figure 3

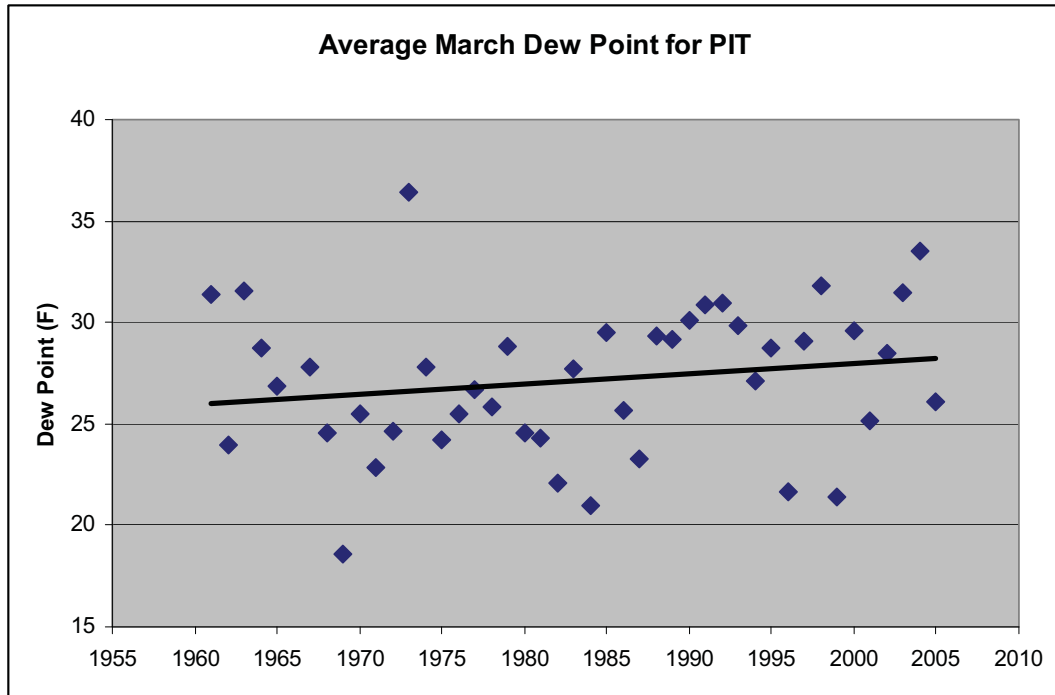
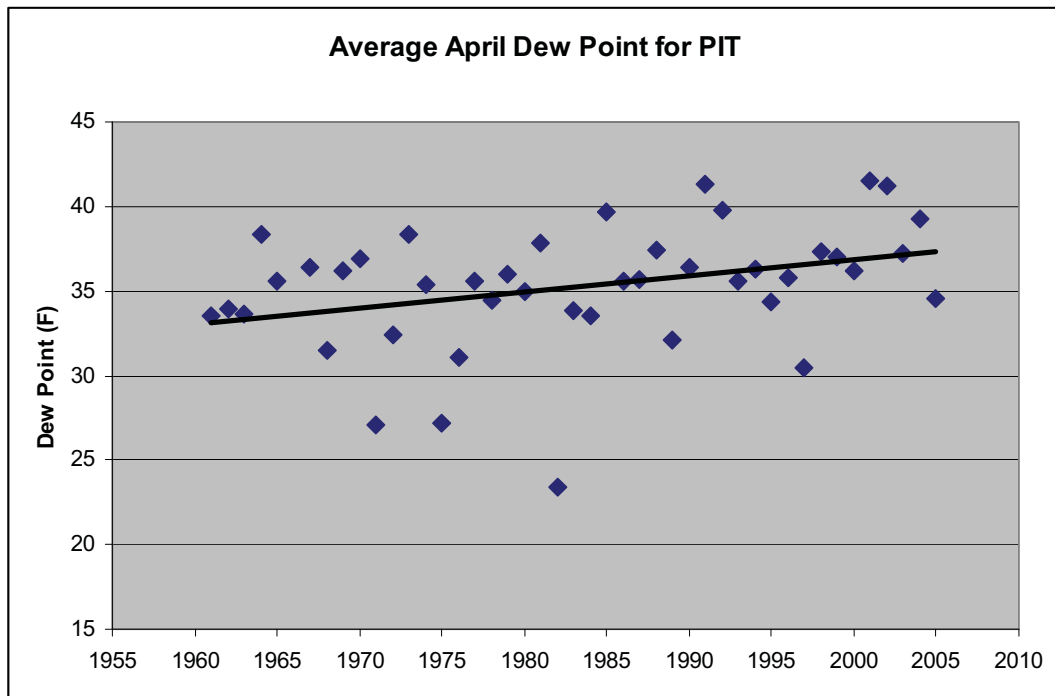


Figure 4



Figures 1-4: The trend shows an increase in the average dew point in Pittsburgh over the past five decades from January to April.

Figure 5

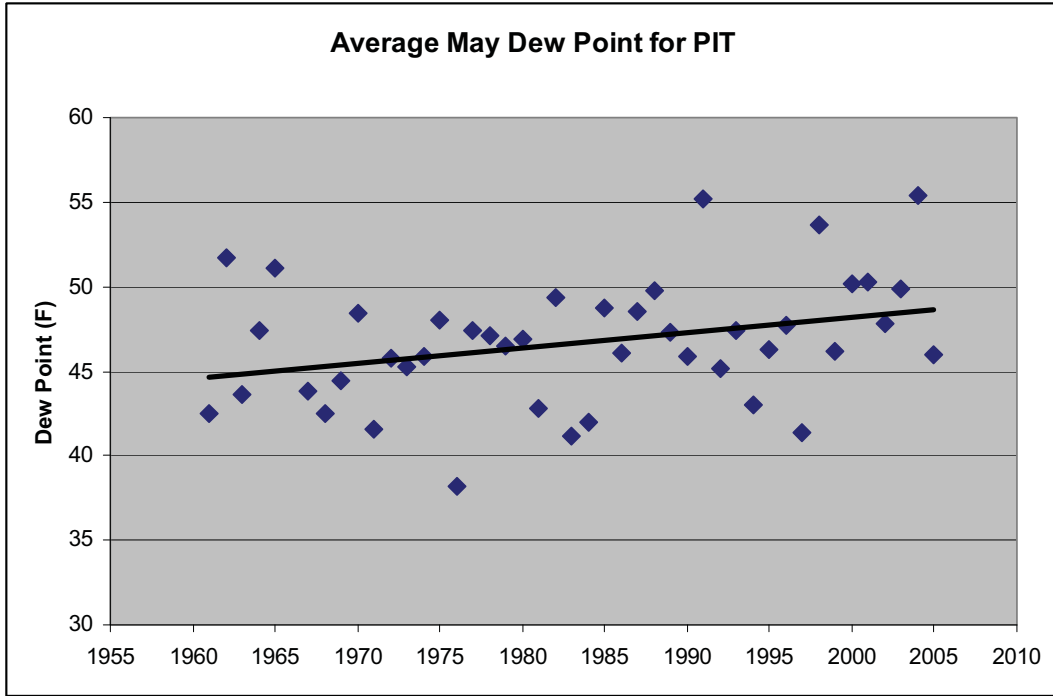


Figure 6

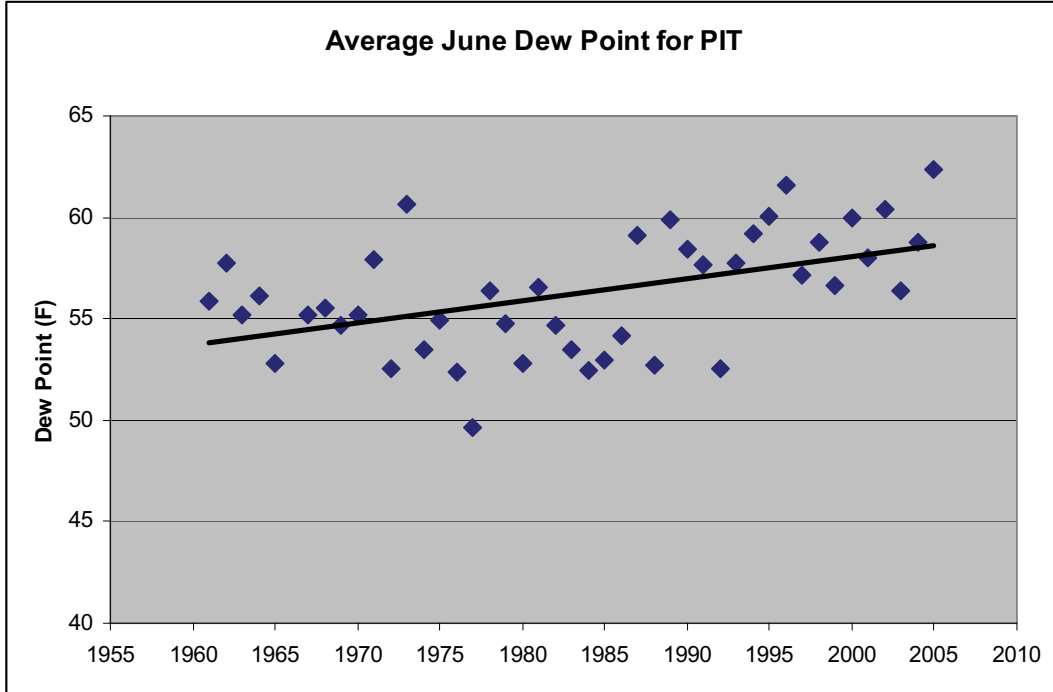


Figure 7

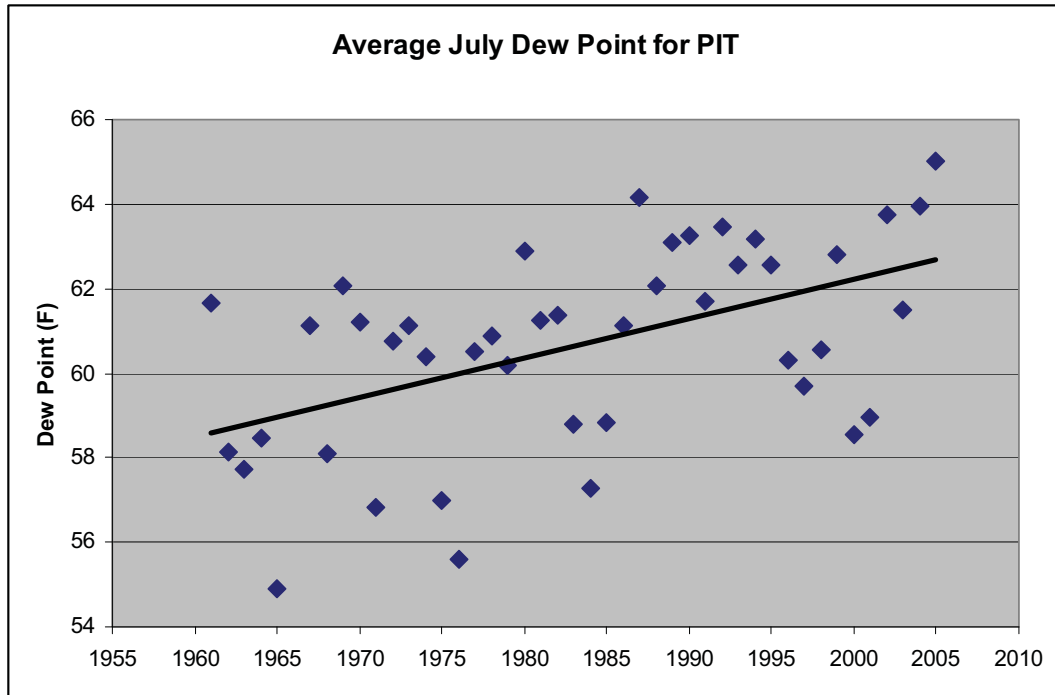
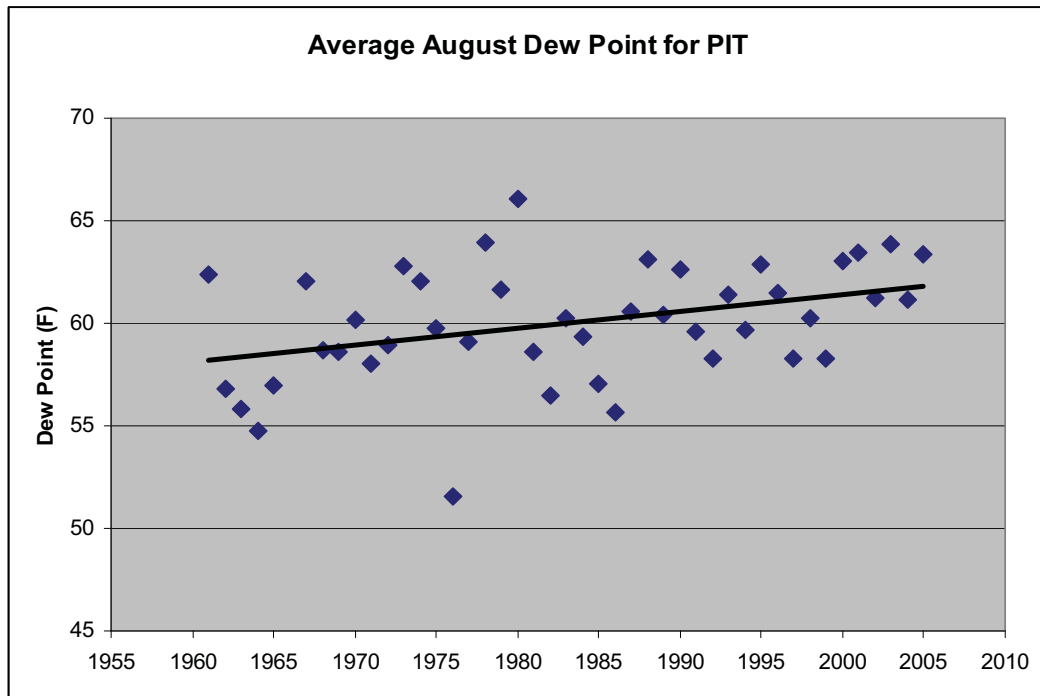


Figure 8



Figures 5-8: The trend shows an increase in the average dew point in Pittsburgh over the past five decades from May to August.

Figure 9

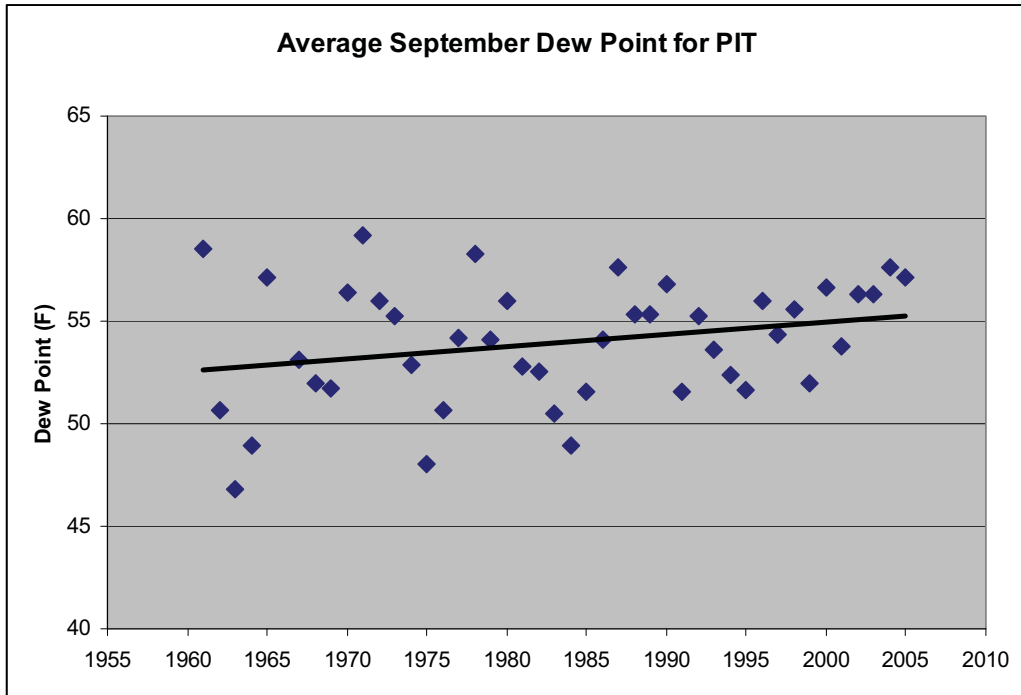


Figure 10

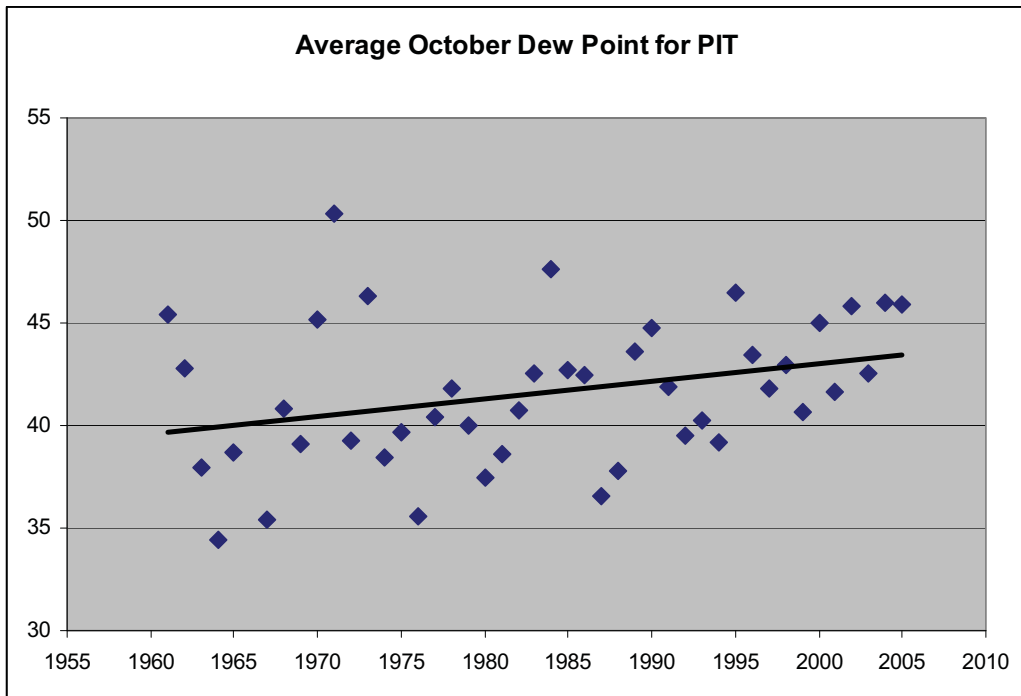


Figure 11

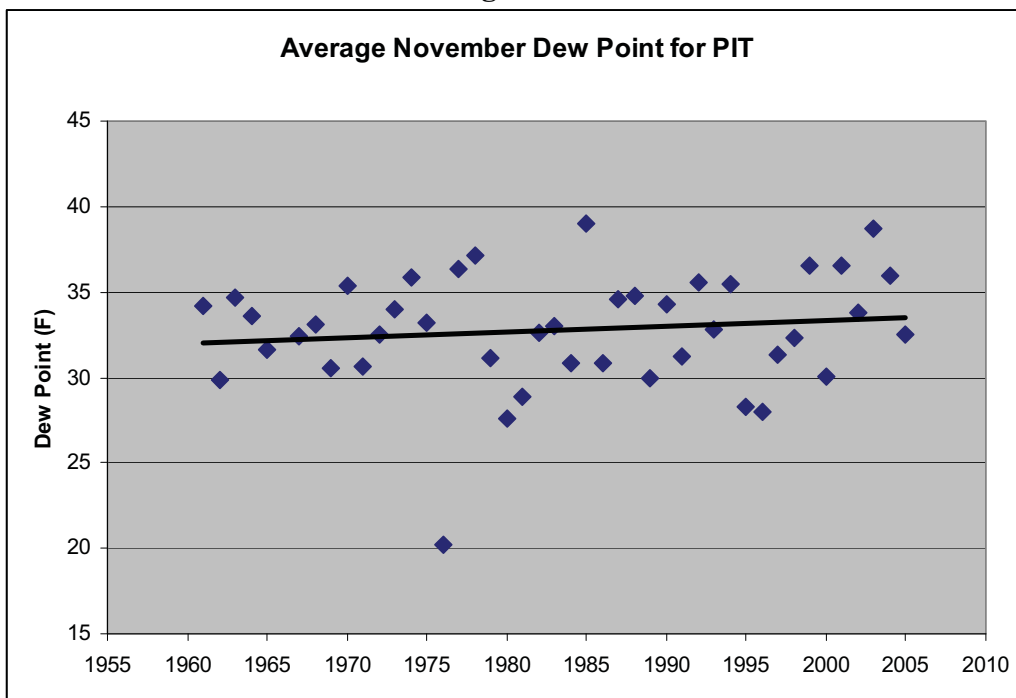
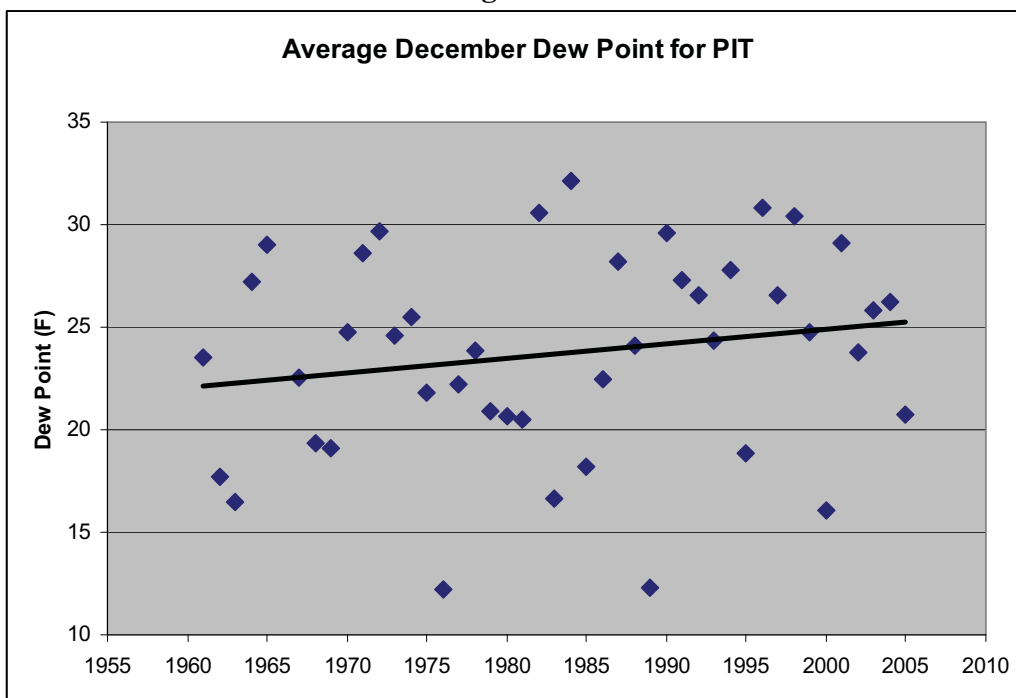


Figure 12



Figures 9-12: The trend shows an increase in the average dew point in Pittsburgh over the past five decades from September to December.

Pittsburgh

Pittsburgh dew point trends over the past four decades using NARR (North American Regional Reanalysis) data. Each Graph is the monthly average for each respective month for each year from 1961 through 2005. The corresponding trend line is shown as well.

Figure 13

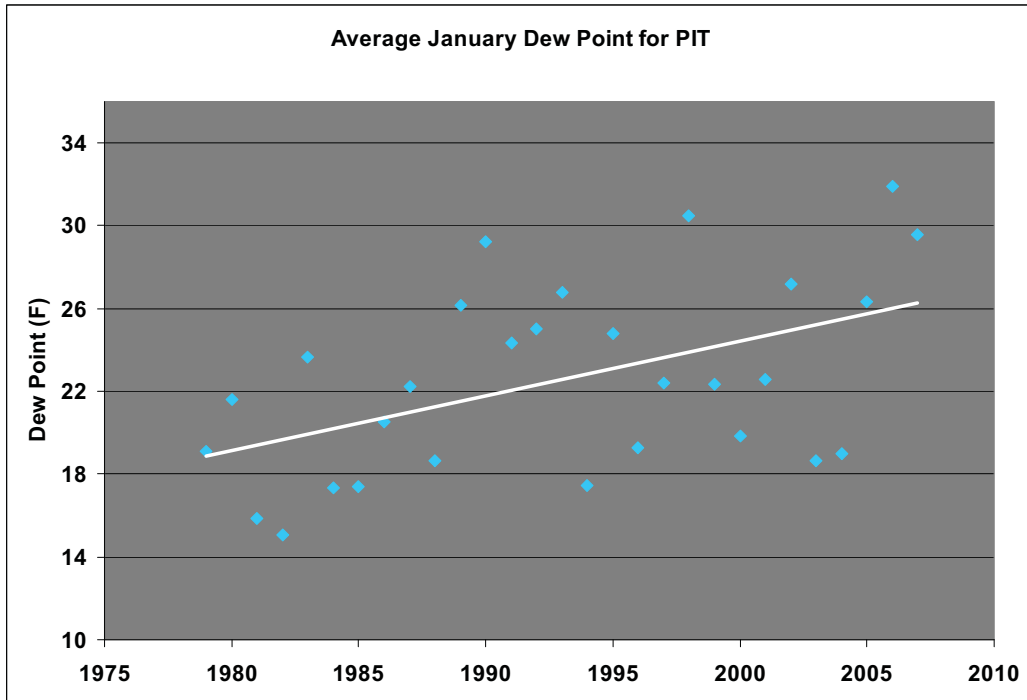


Figure 14

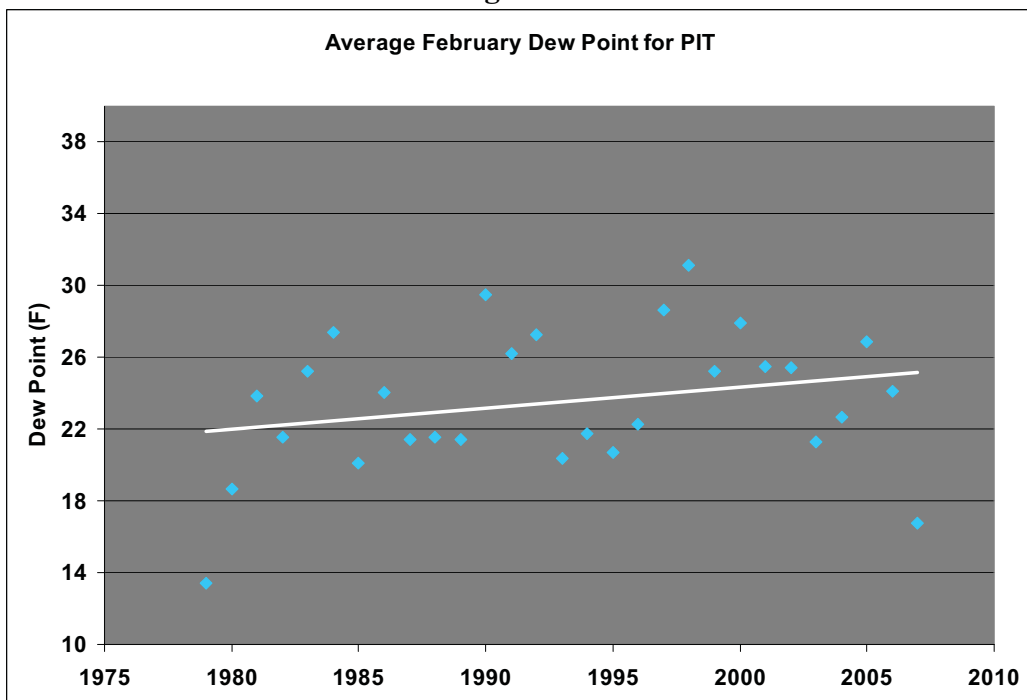


Figure 15

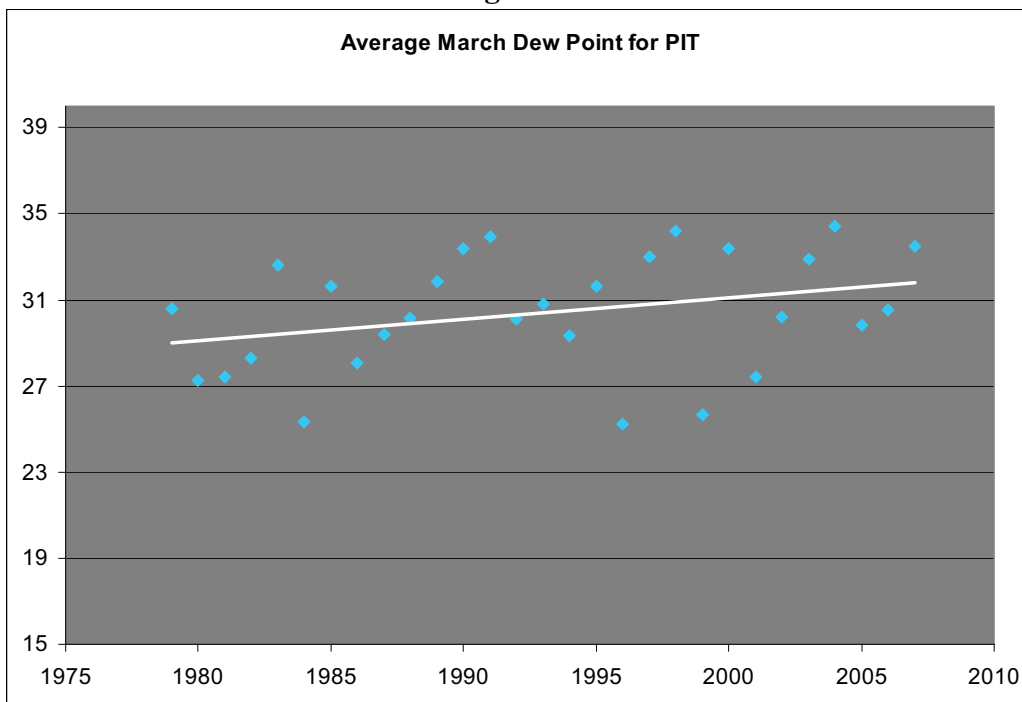
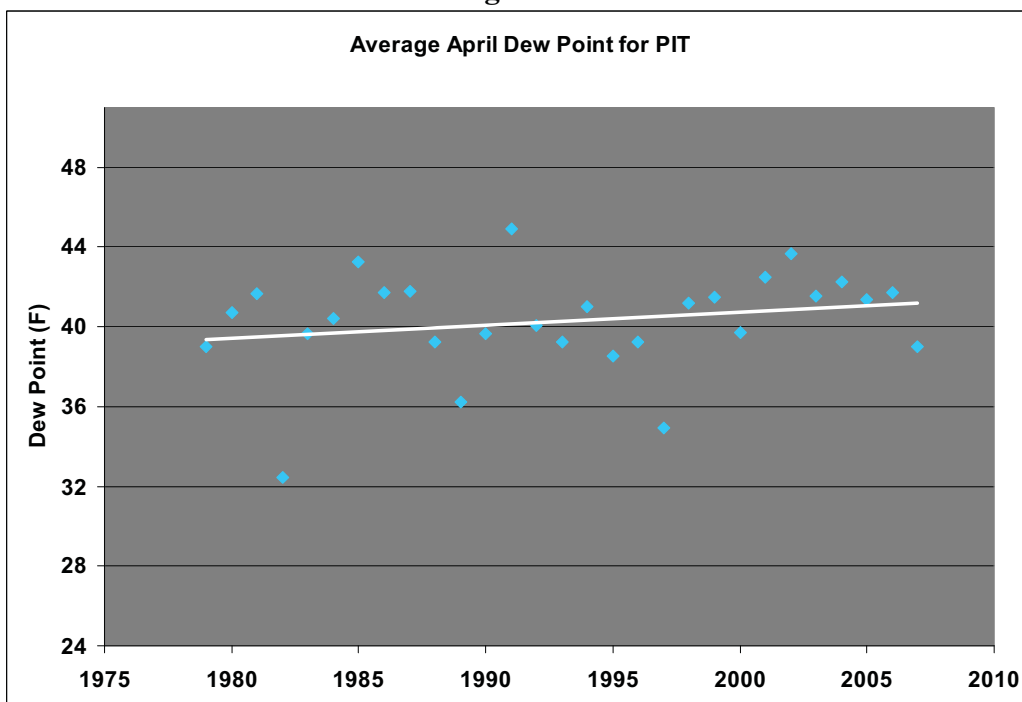


Figure 16



Figures 13-16: The trend shows an increase in the average dew point in Pittsburgh over the past three decades from January to April.

Figure 17

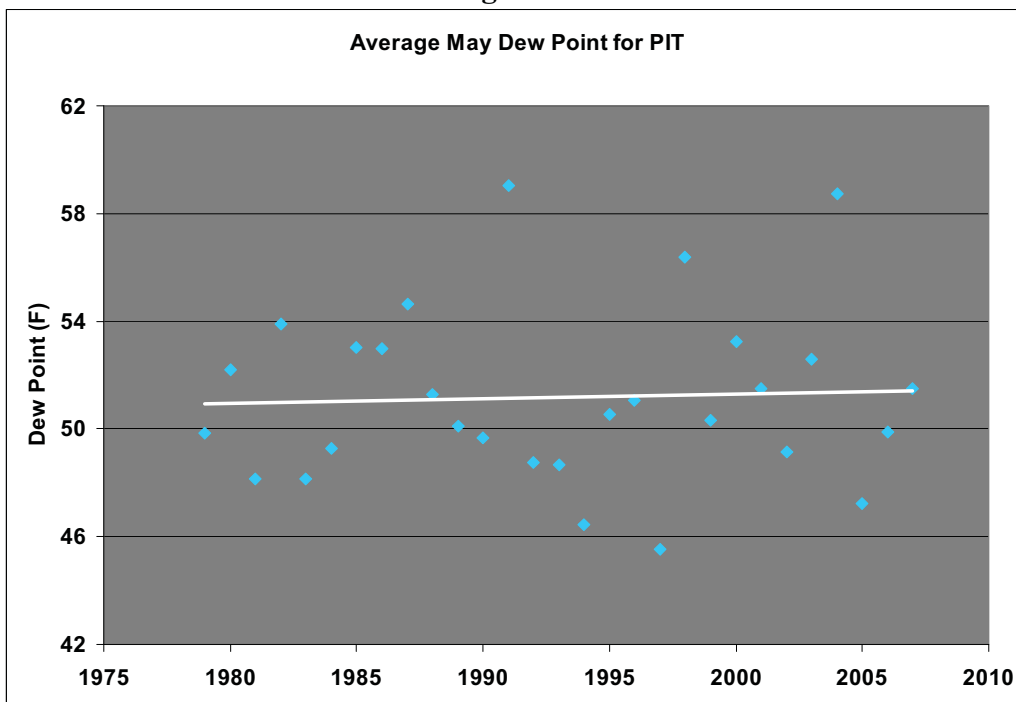


Figure 18

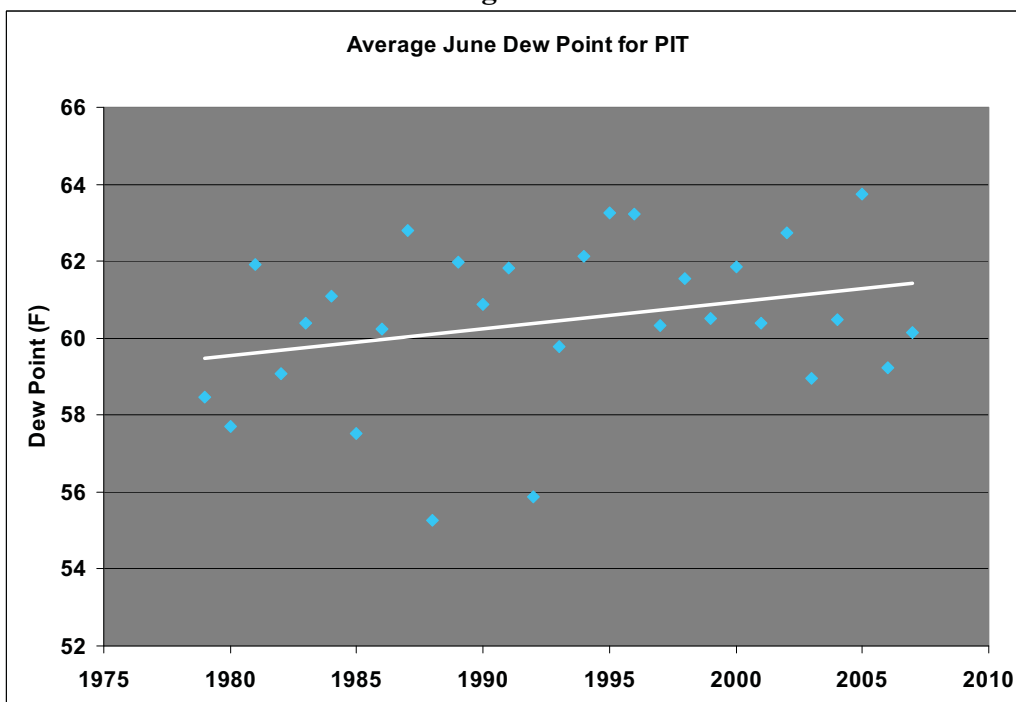


Figure 19

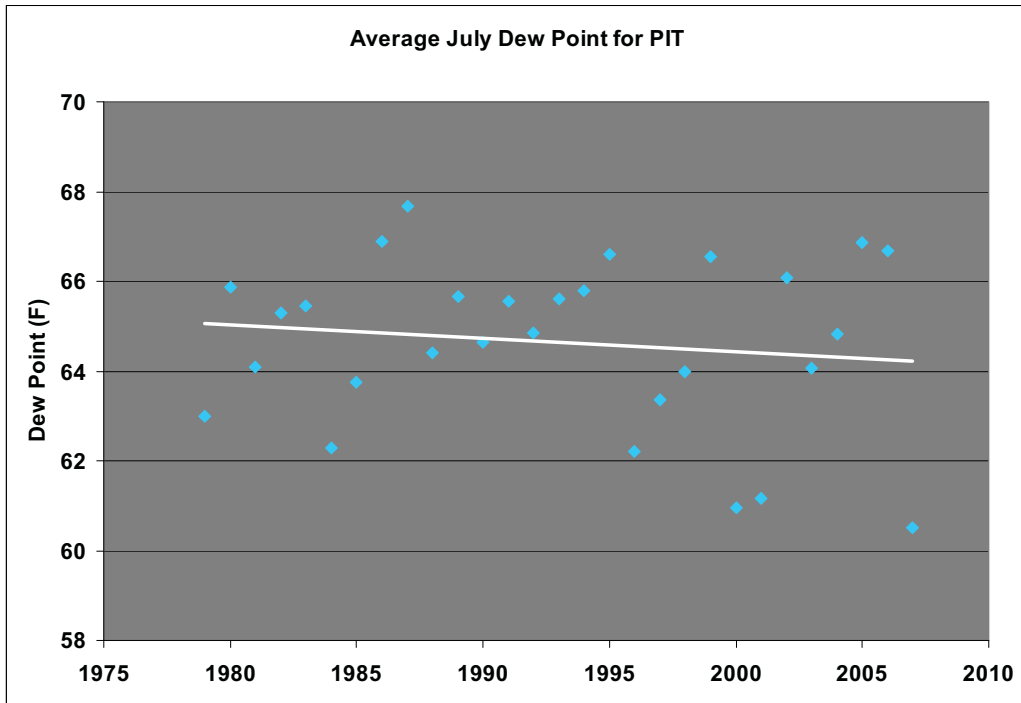
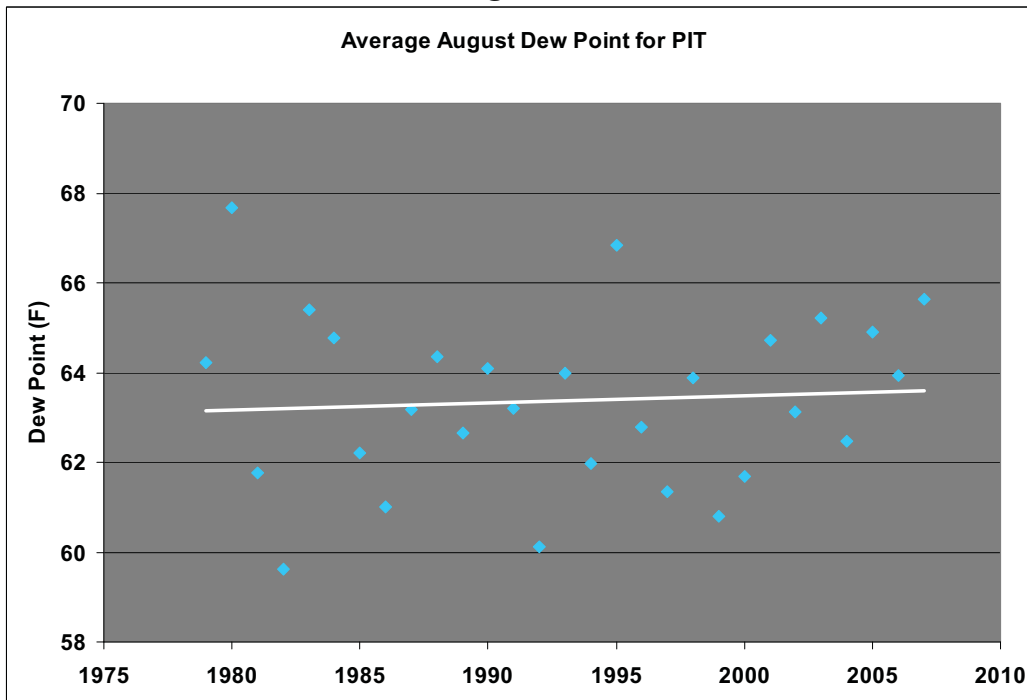


Figure 20



Figures 17-20: The trend shows an increase in the average dew point in Pittsburgh over the past three decades in May, June, and August, but a decrease in July.

Figure 21

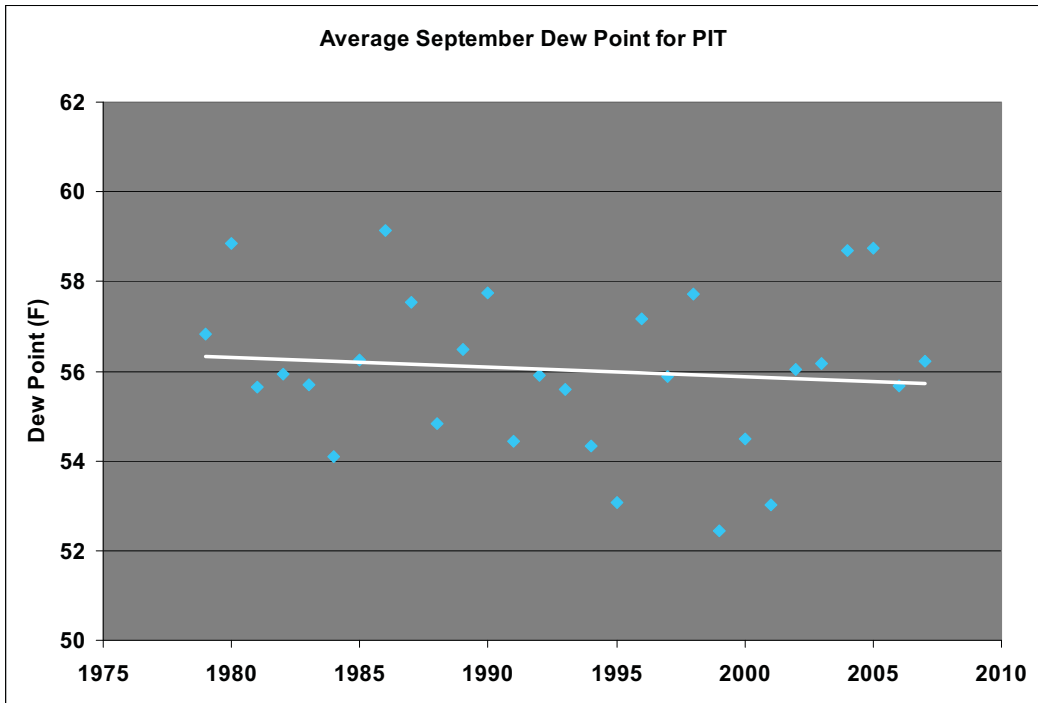


Figure 22

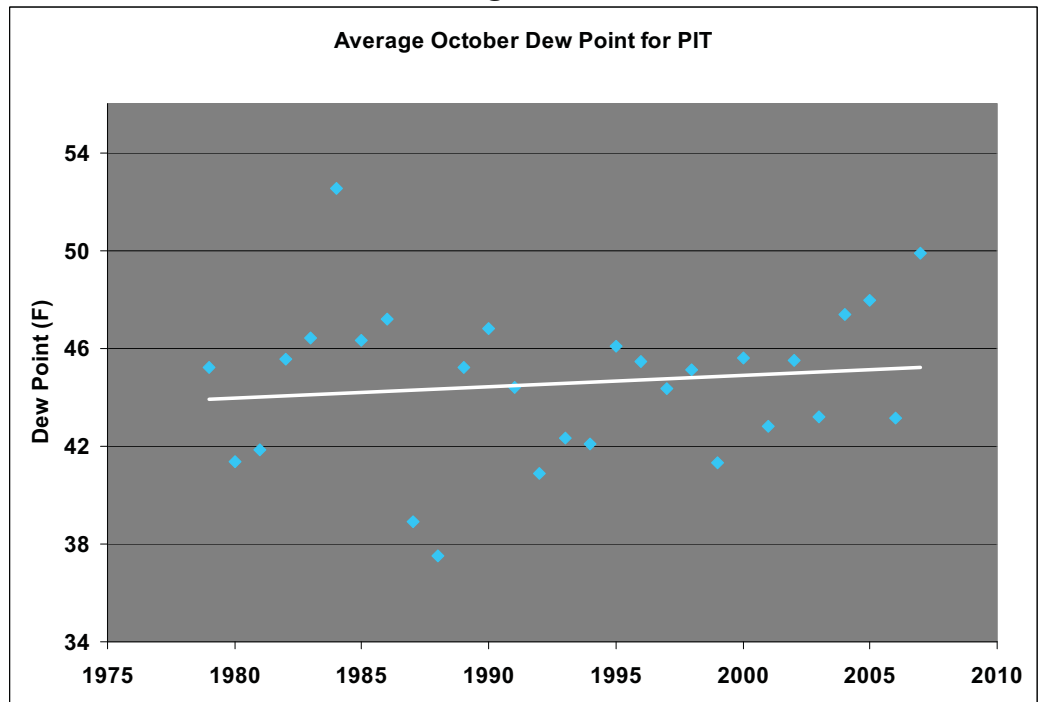


Figure 23

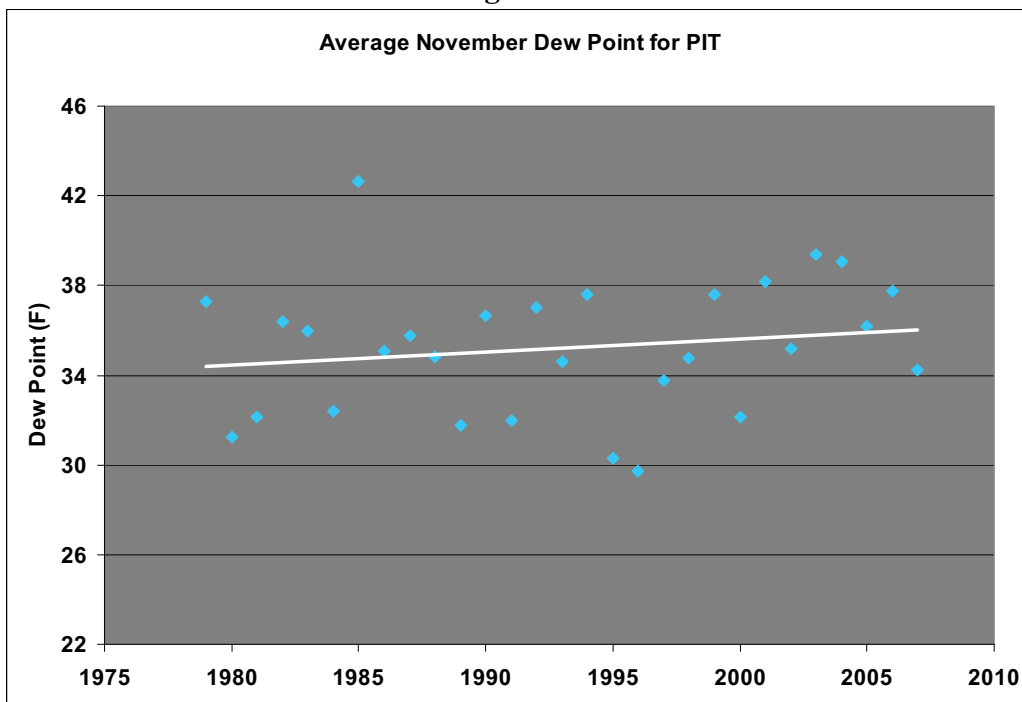
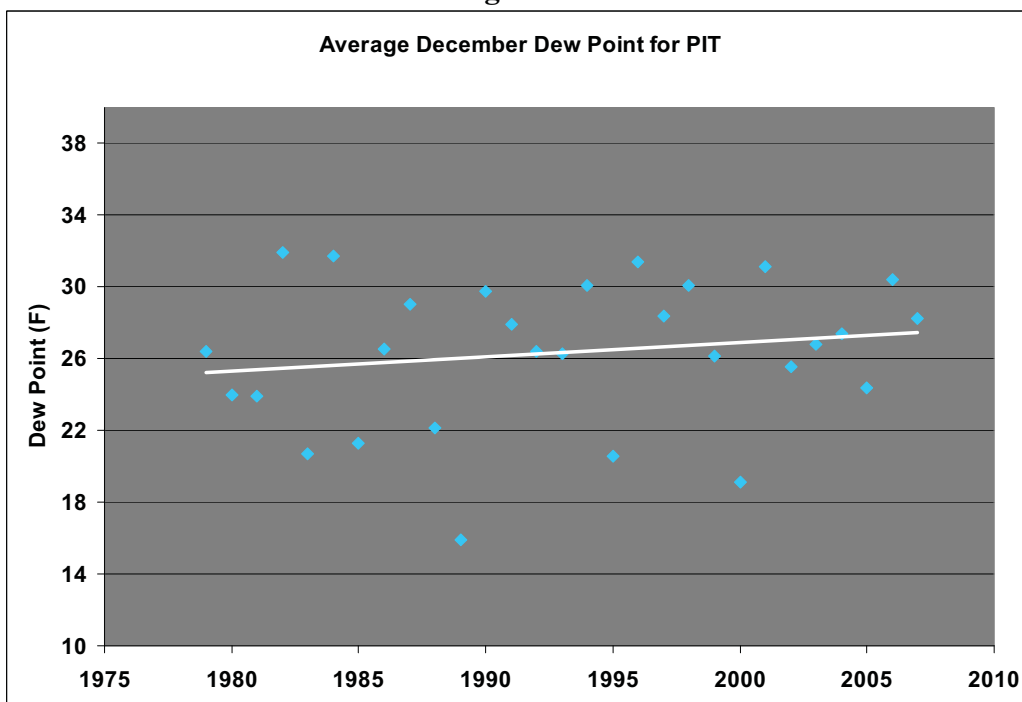


Figure 24



Figures 21-24: The trend shows an increase in the average dew point in Pittsburgh over the past three decades in October, November, and December, but a decrease in September.

Philadelphia using COOP/FAA Data

Philadelphia dew point trends over the past four decades using COOP (National Weather Service Cooperative Observer Program) and FAA (Federal Aviation Administration) data.

Each Graph is the monthly average for each respective month for each year from 1961 through 2005. The corresponding trend line is shown as well.

Figure 25

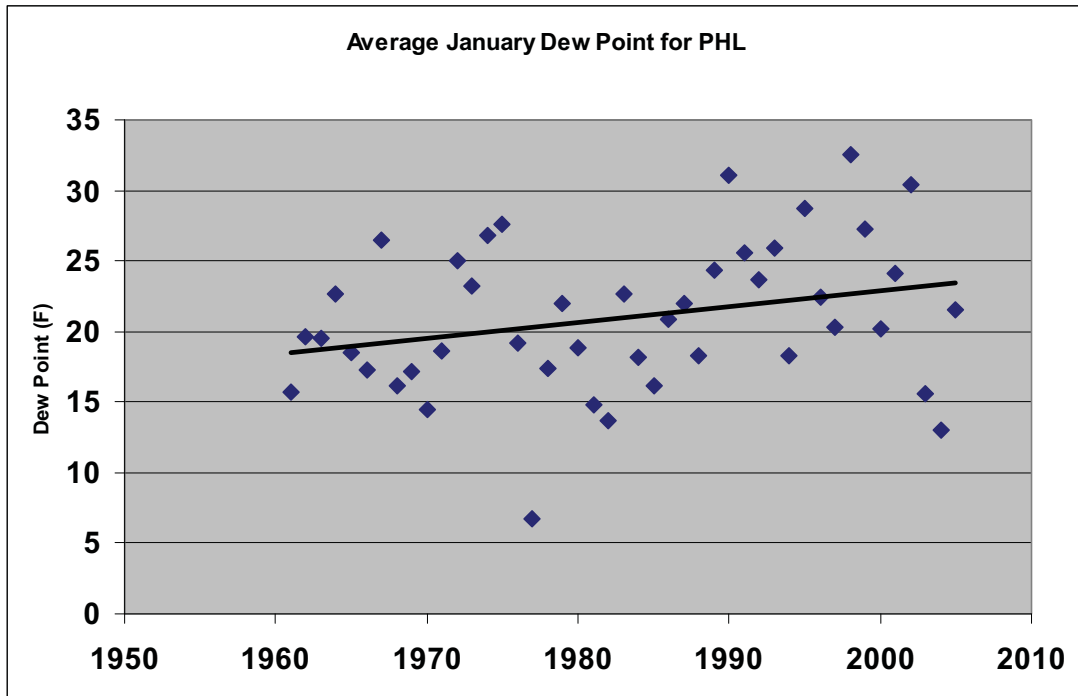


Figure 26

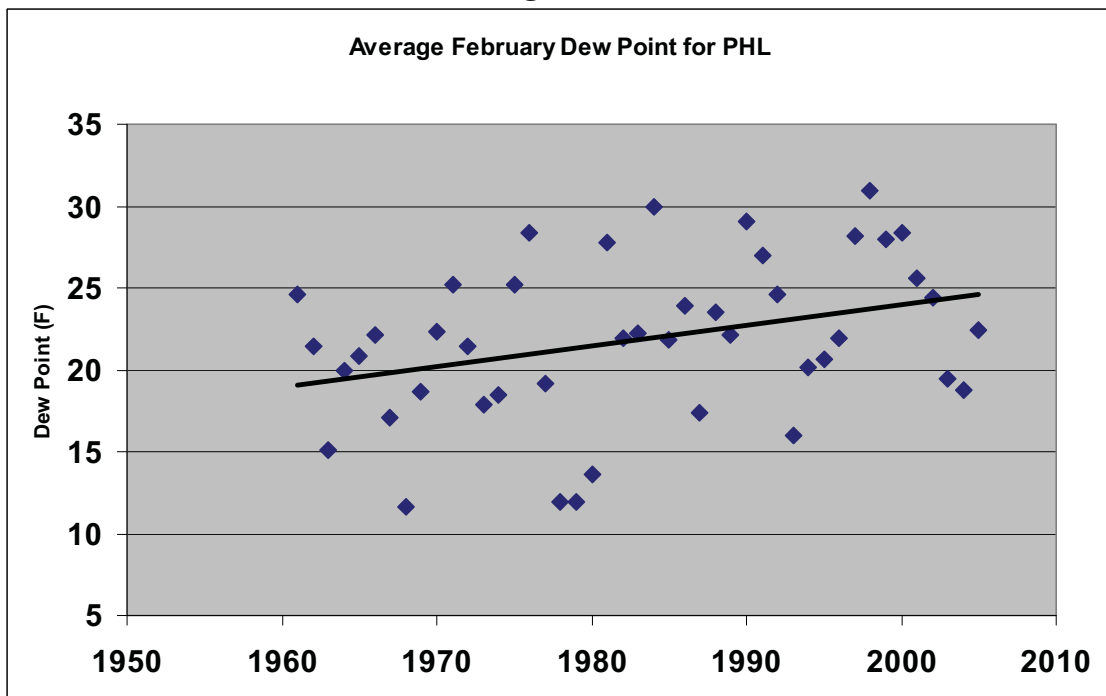


Figure 27

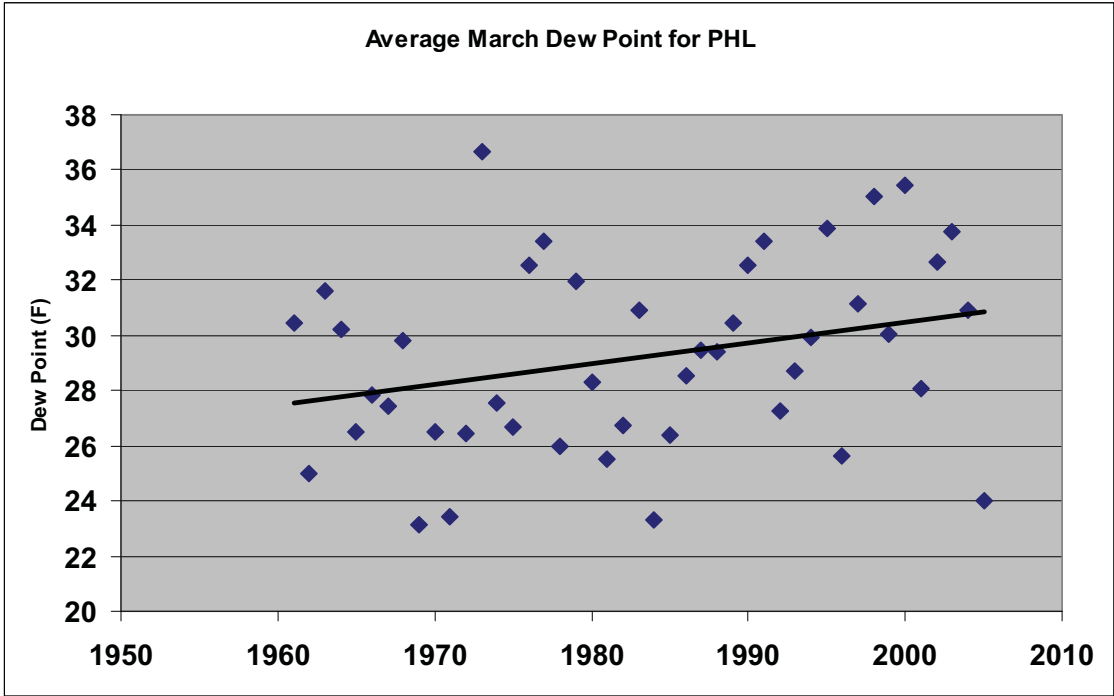
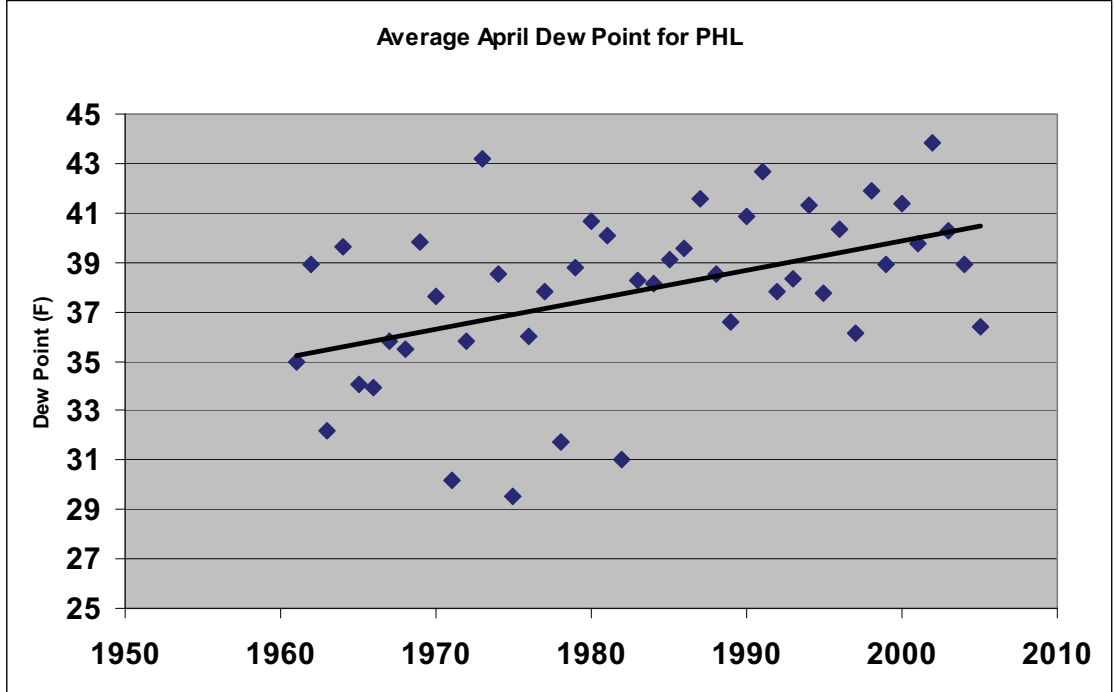


Figure 28



Figures 25-28: The trend shows an increase in the average dew point in Philadelphia over the past five decades from January to April.

Figure 29

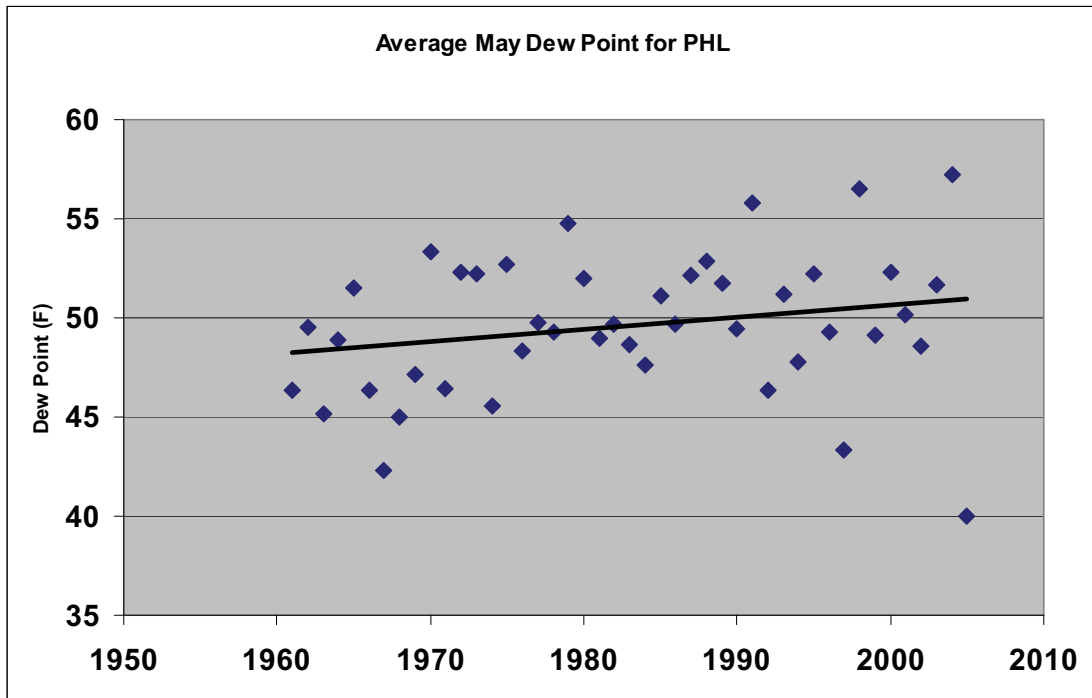


Figure 30

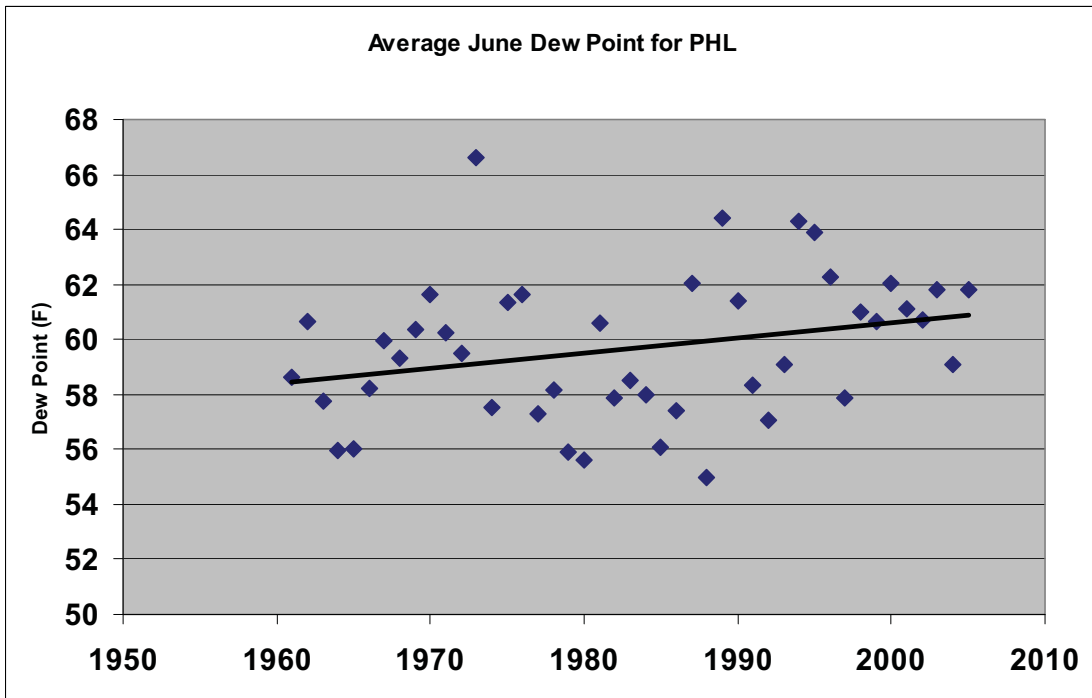


Figure 31

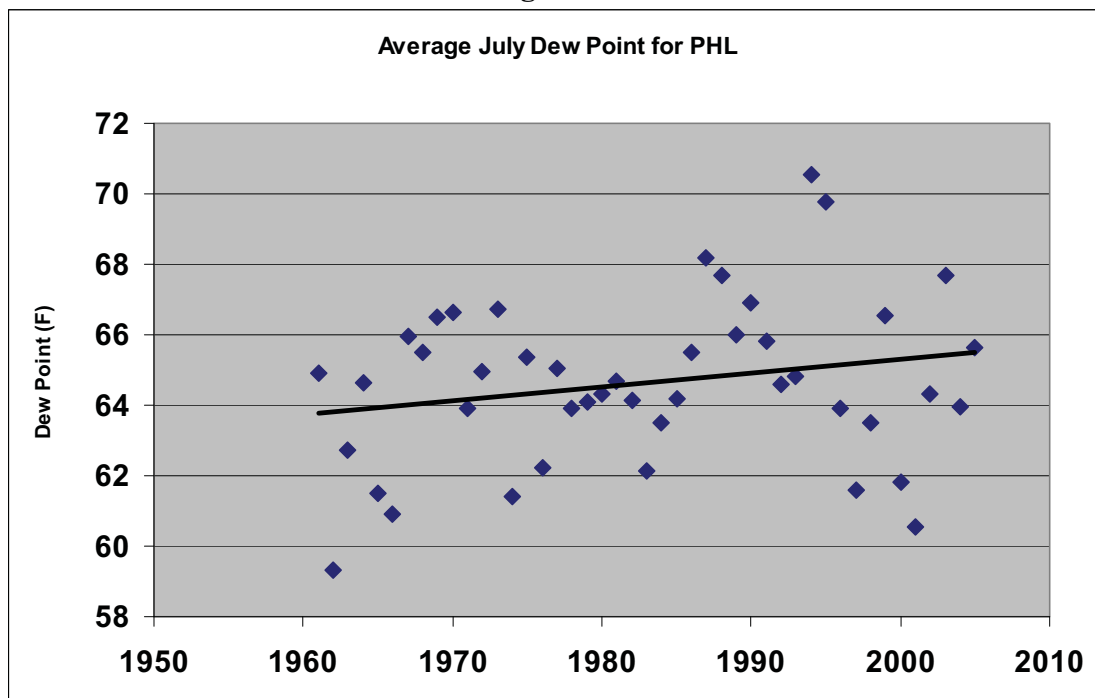
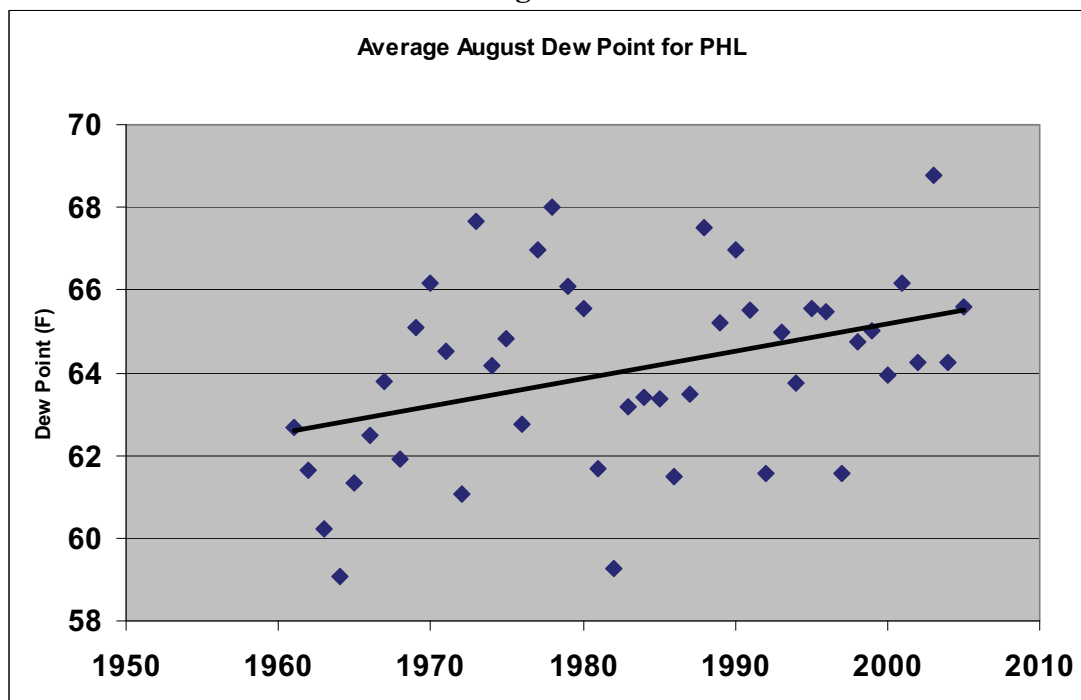


Figure 32



Figures 29-32: The trend shows an increase in the average dew point in Philadelphia over the past five decades from May to August.

Figure 33

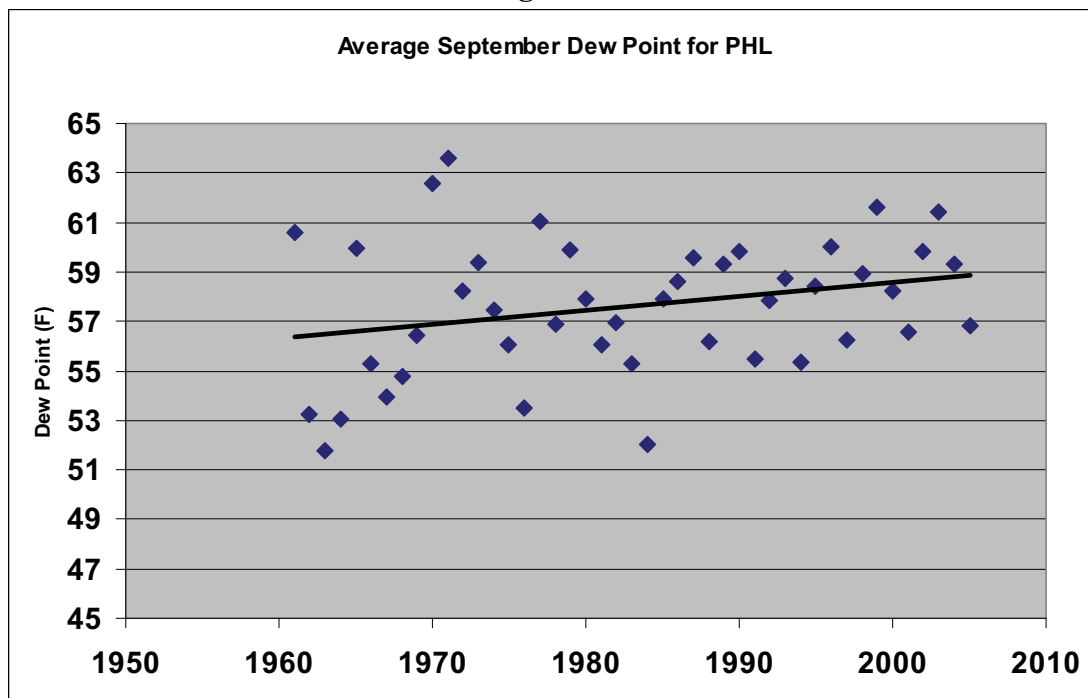


Figure 34

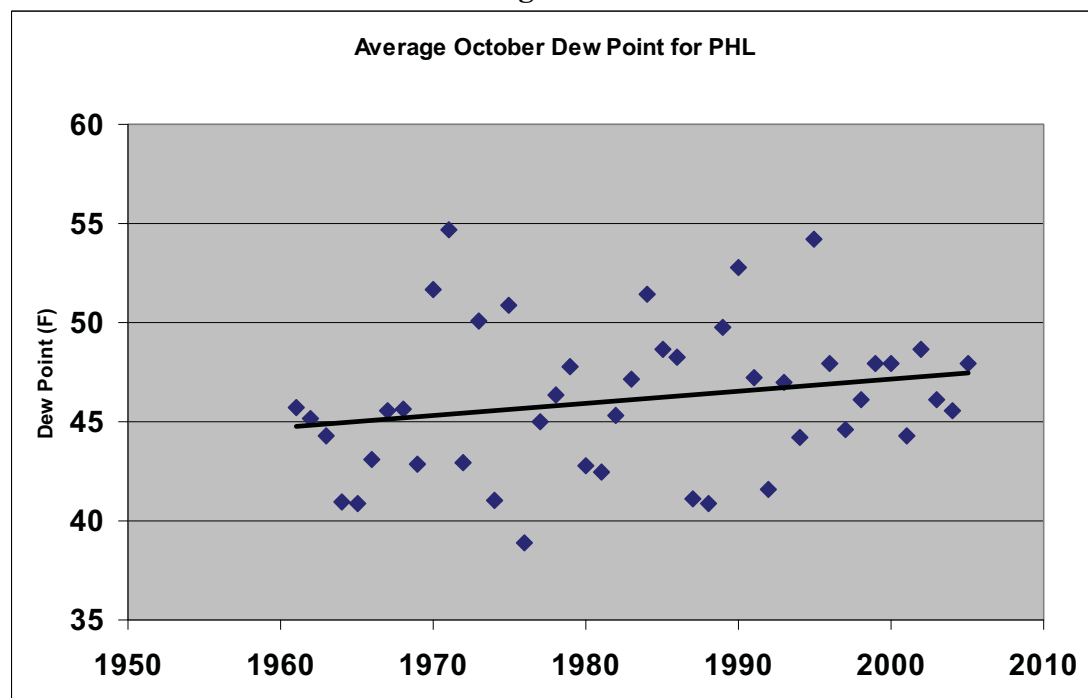


Figure 35

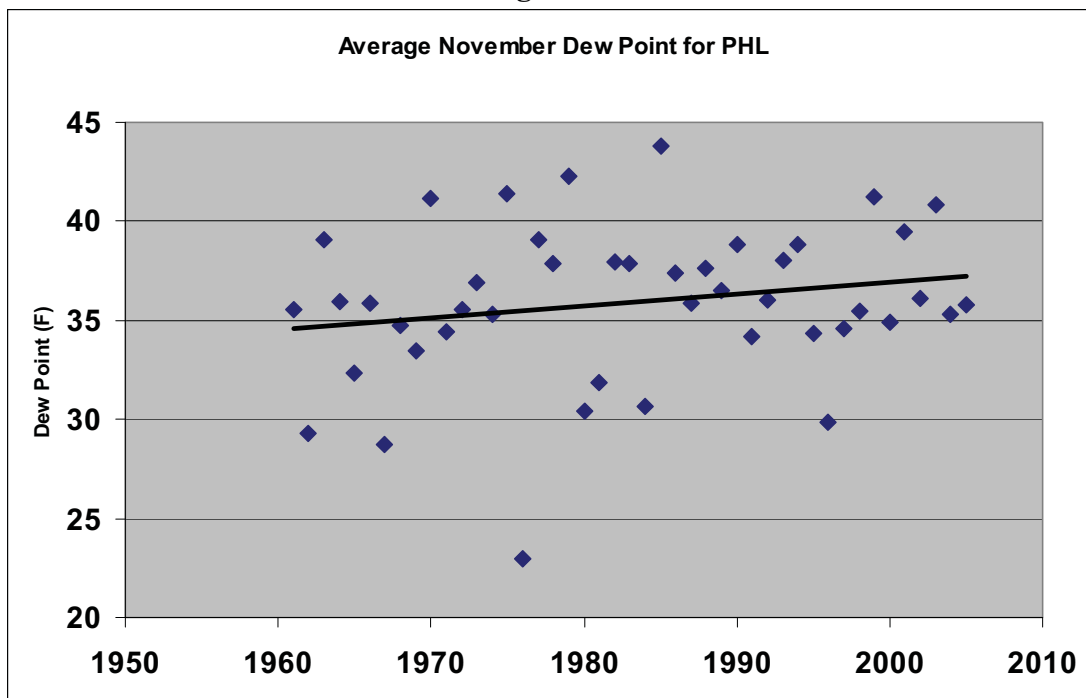
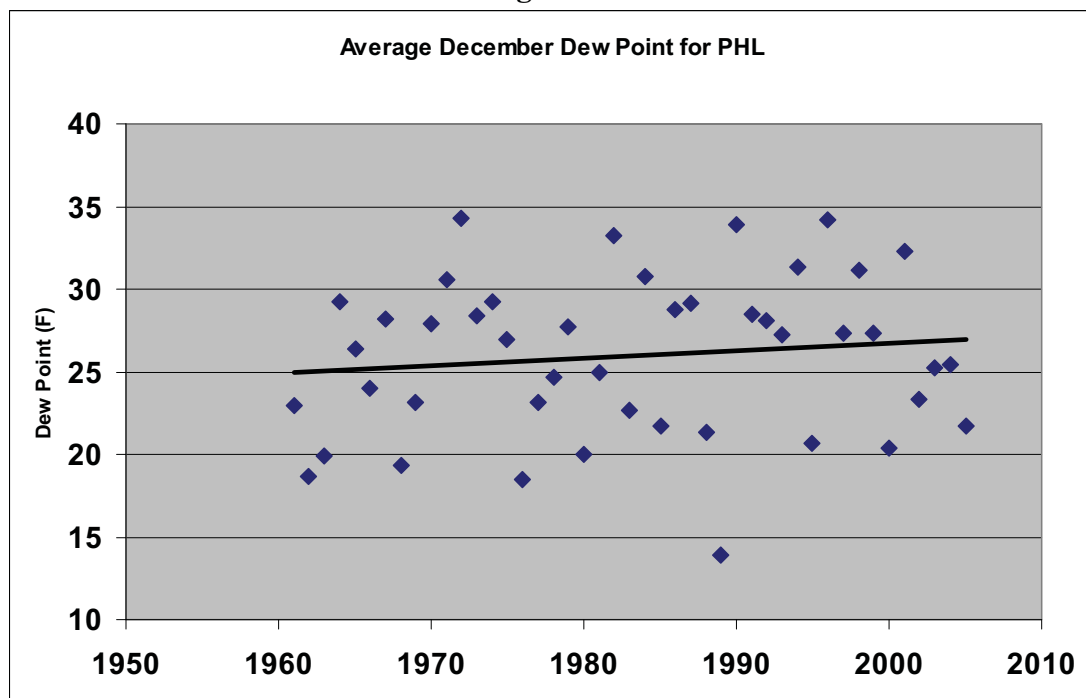


Figure 36



Figures 33-36: The trend shows an increase in the average dew point in Philadelphia over the past five decades from September to December.

Philadelphia

Philadelphia dew point trends over the past four decades using NARR (North American Regional Reanalysis) data.

Each Graph is the monthly average for each respective month for each year from 1961 through 2005. The corresponding trend line is shown as well.

Figure 37

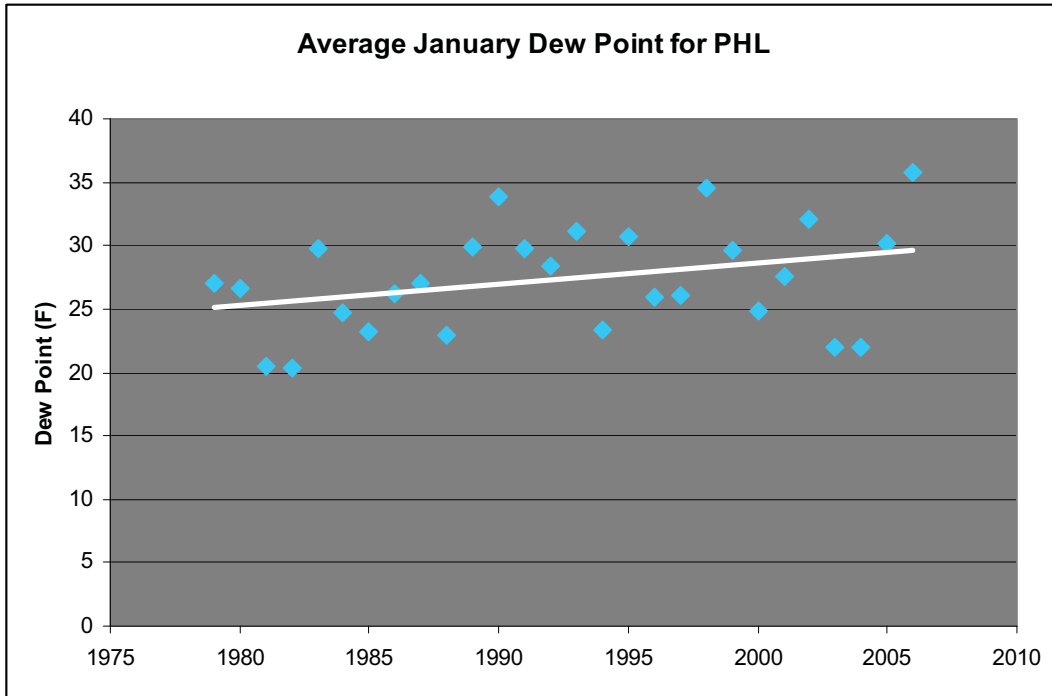


Figure 38

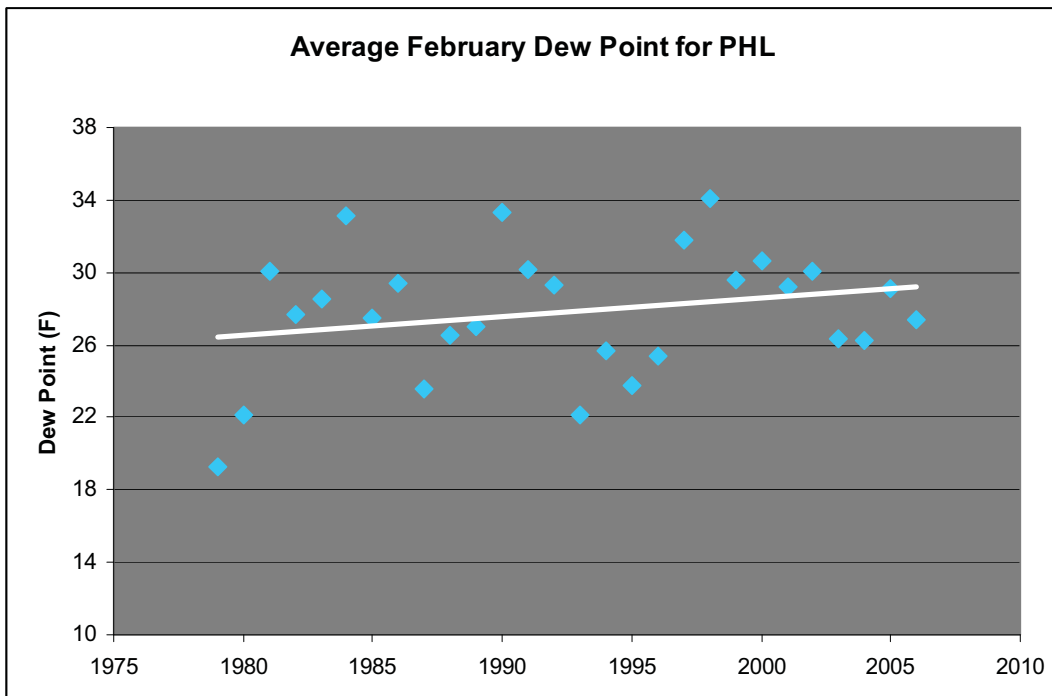


Figure 39

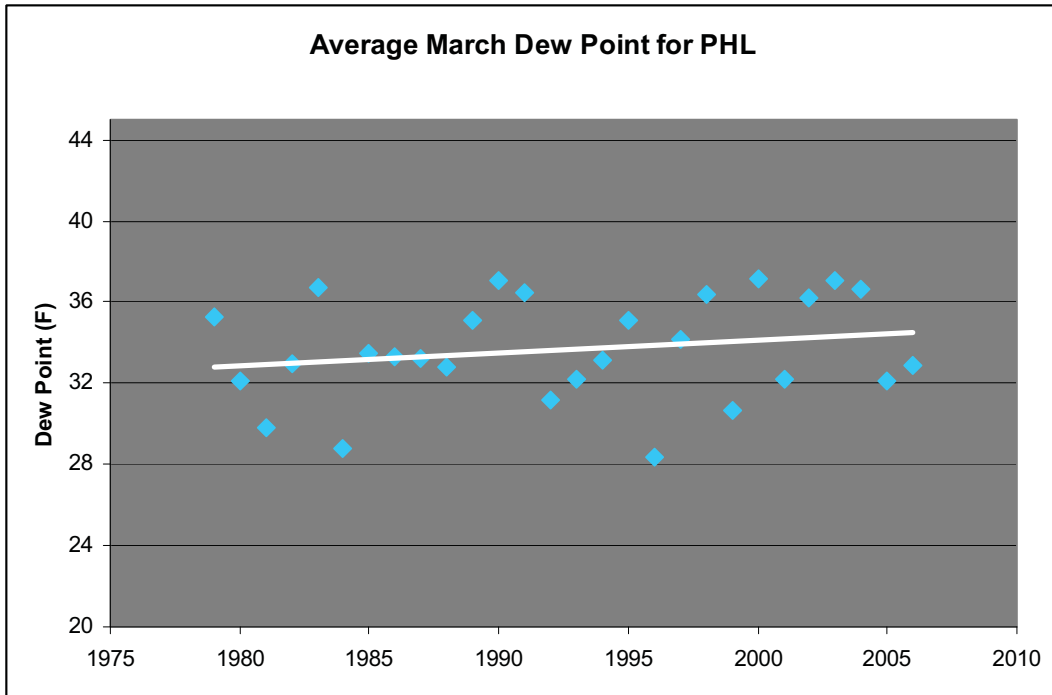
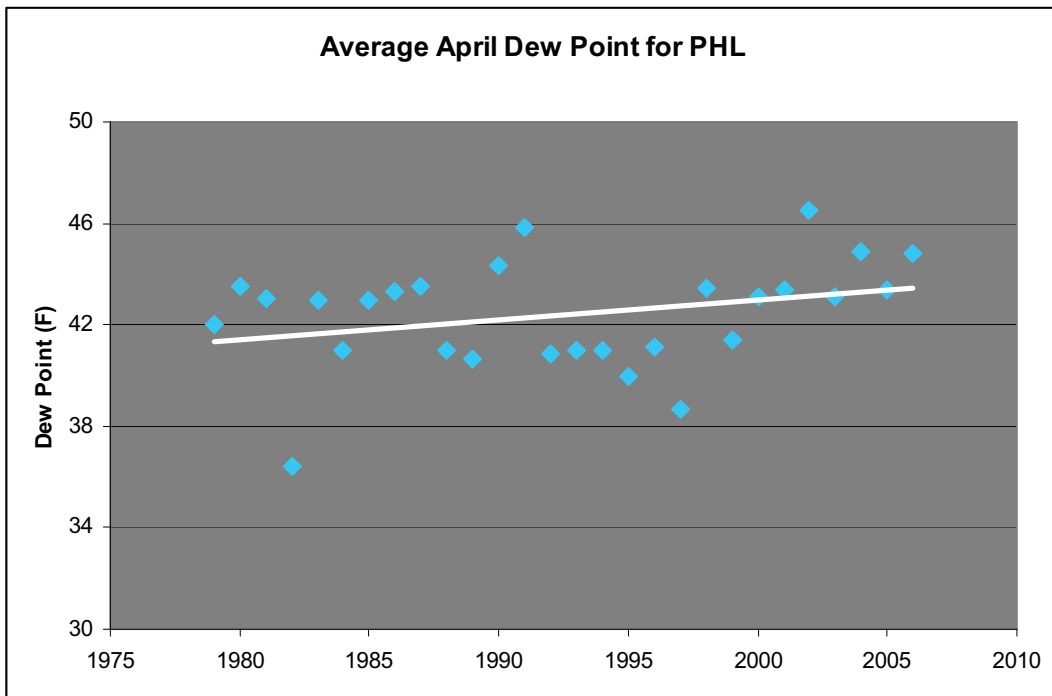


Figure 40



Figures 37-40: The trend shows an increase in the average dew point in Philadelphia over the past three decades from January to April.

Figure 41

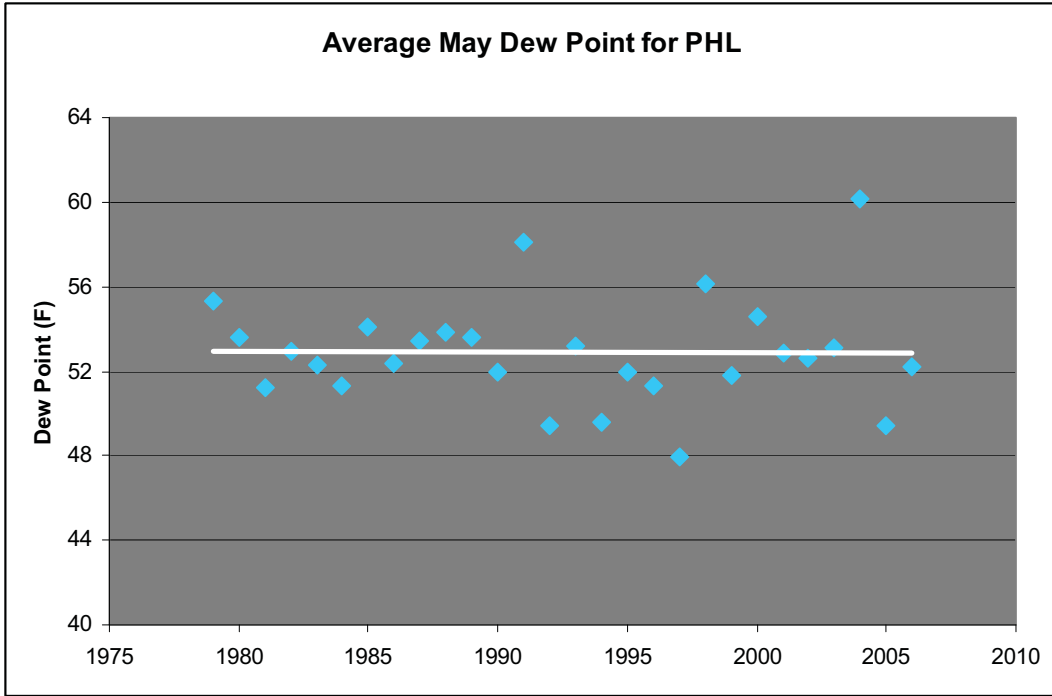


Figure 42

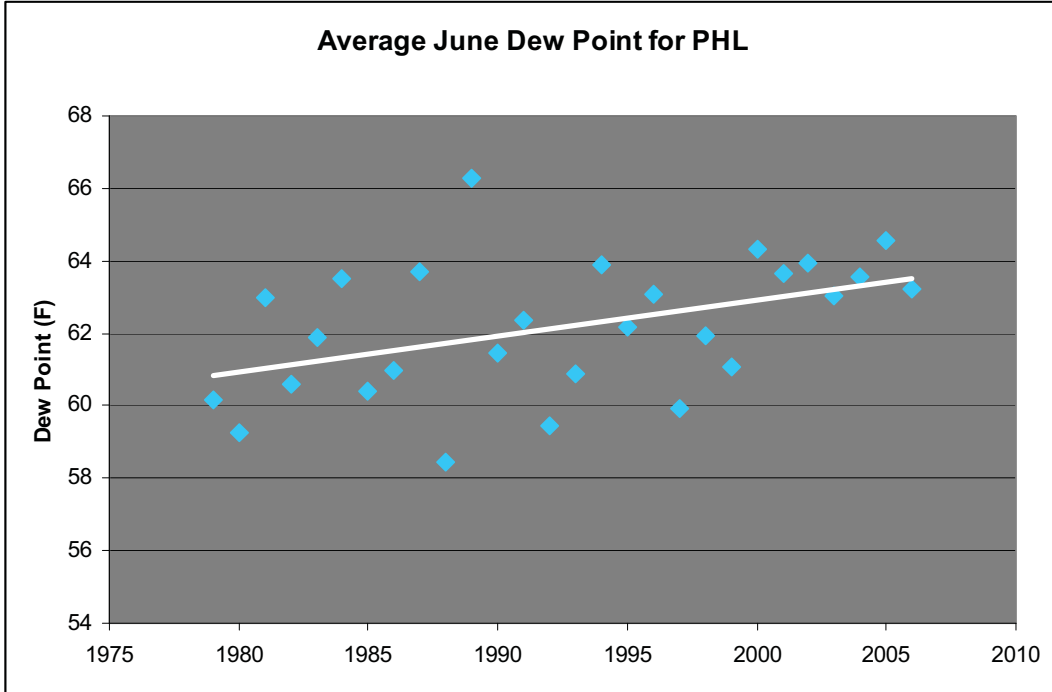


Figure 43

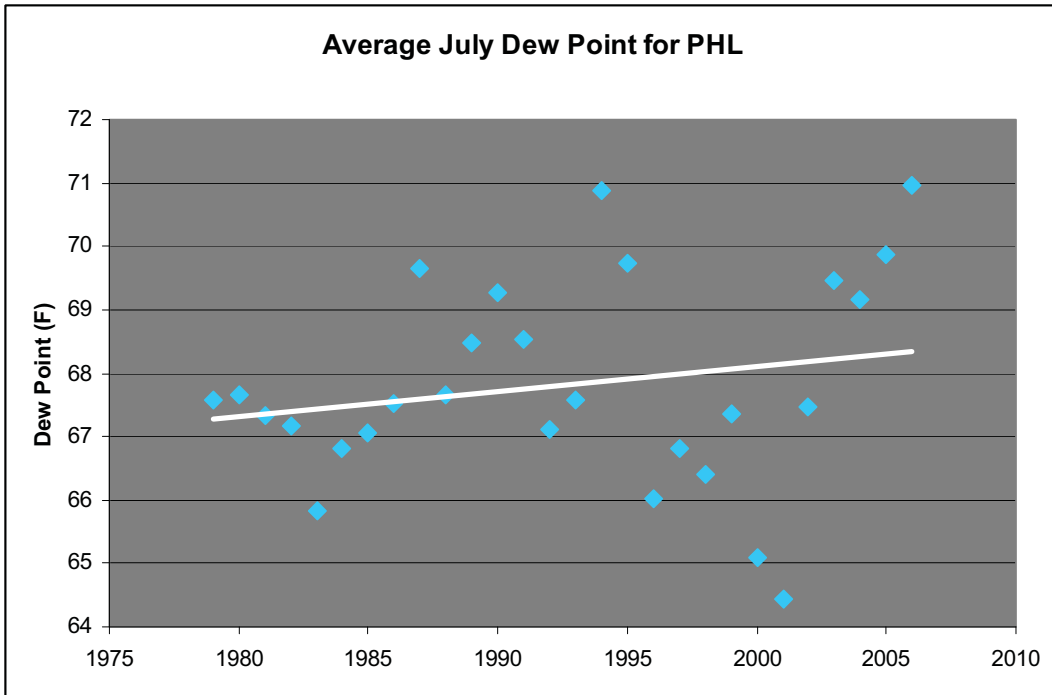
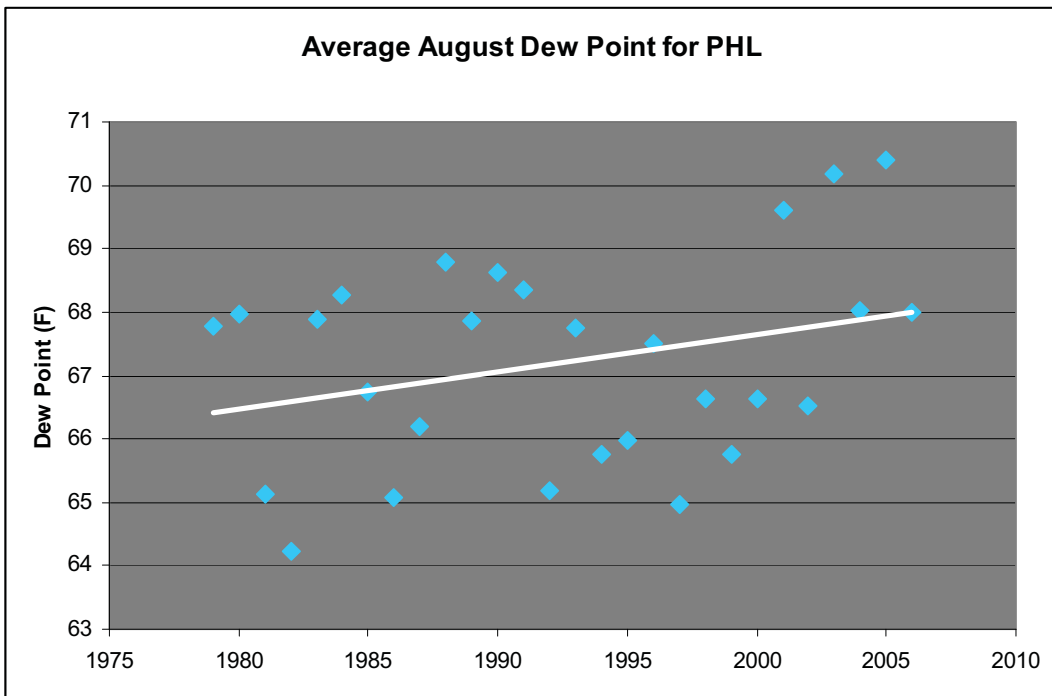


Figure 44



Figures 41-44: Only the average May dew point shows a decrease in the trend from 1979-2007.

Figure 45

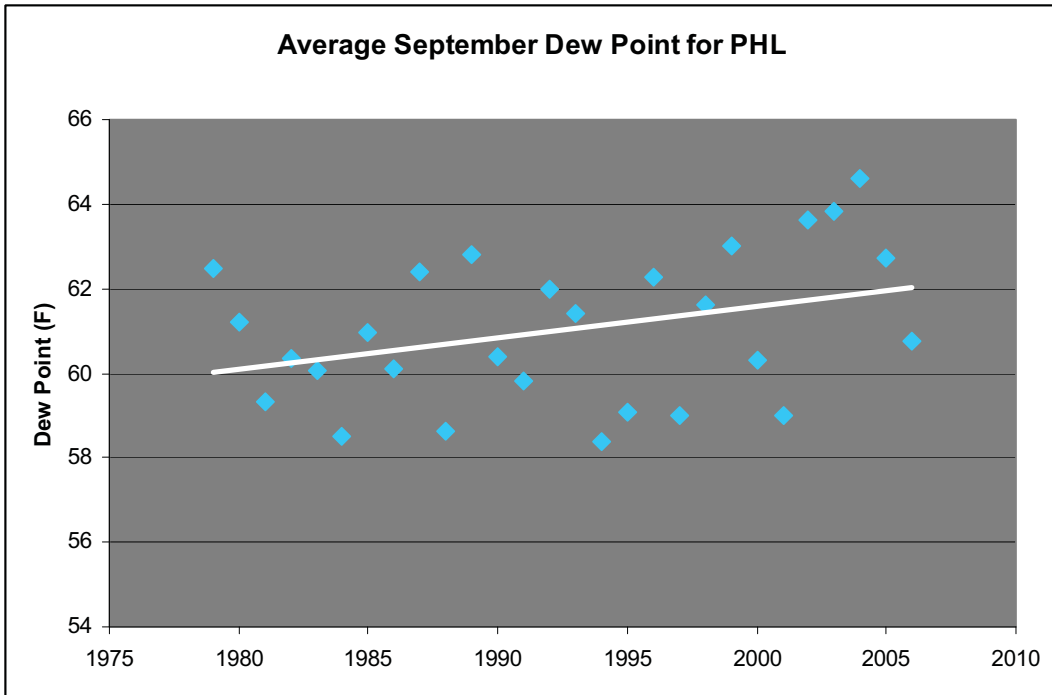


Figure 46

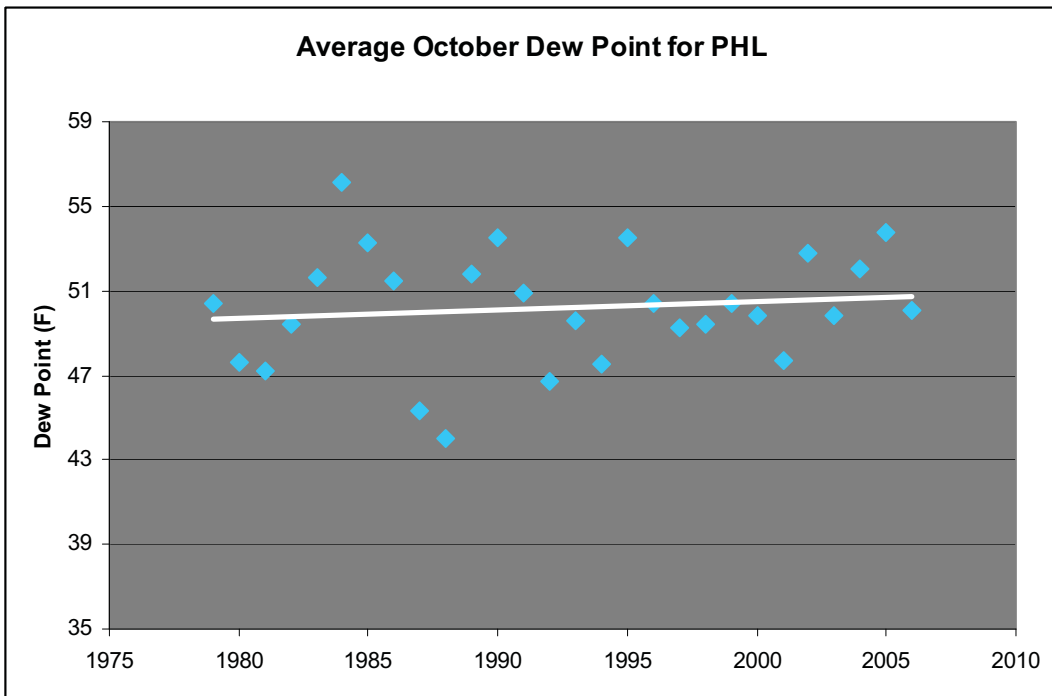


Figure 47

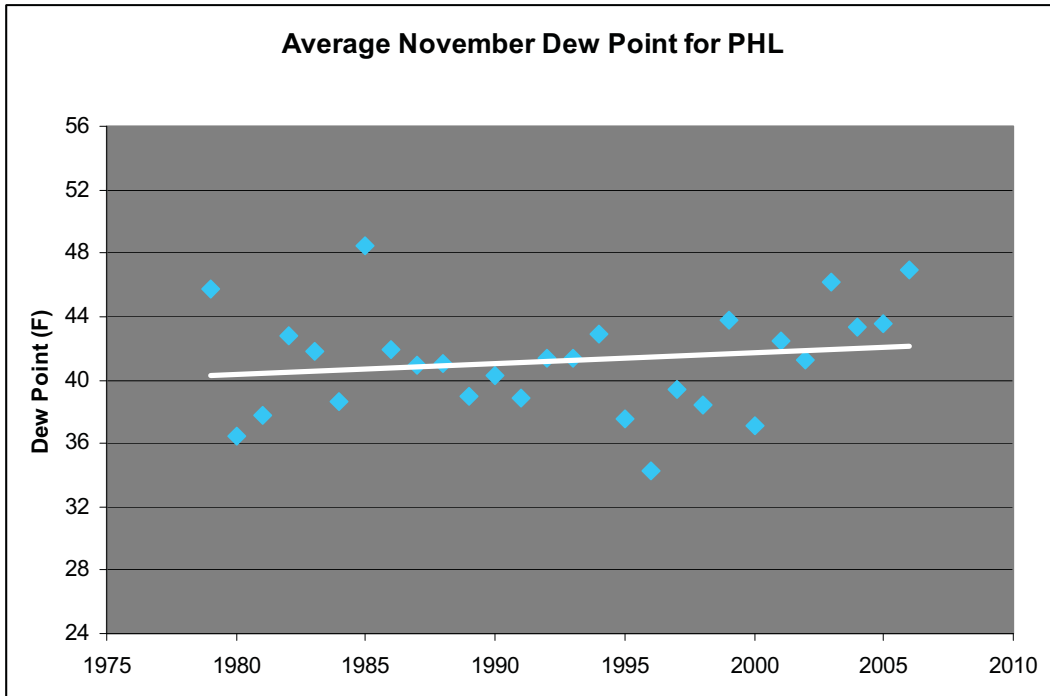
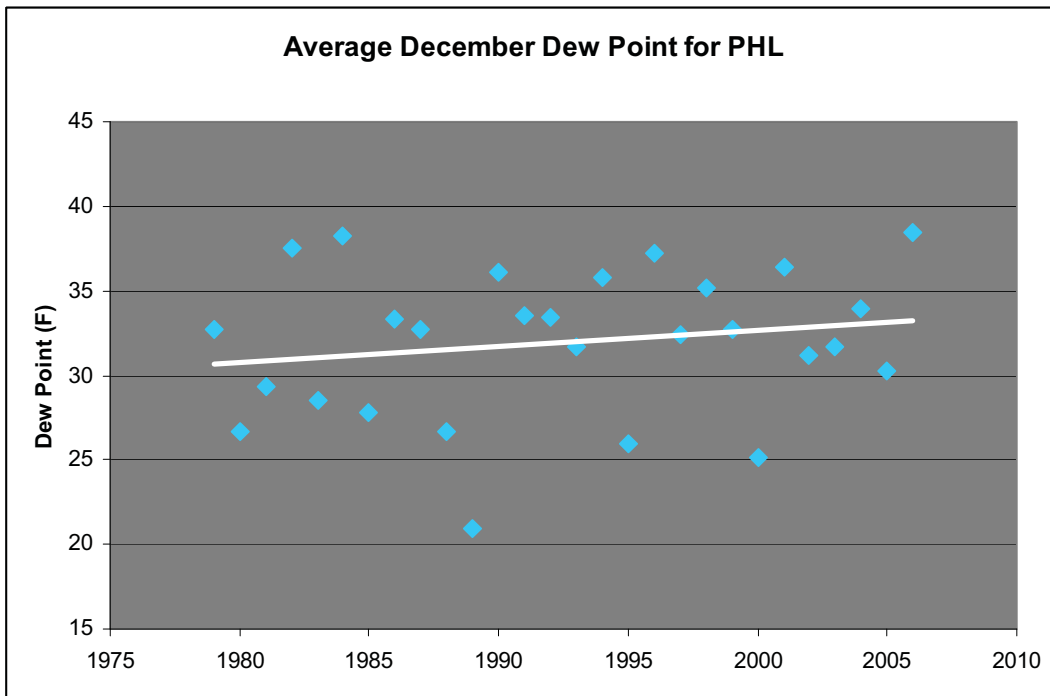


Figure 48



Figures 45-48: The trend shows an increase in the average dew point in Philadelphia over the past three decades from September to December.