

Future Modeling Platform Base Year Determination

APPENDIX I 2007-12 SEASONAL METEOROLOGICAL ANALYSES MAPS

October 9, 2013 FINAL

Analyses of surface temperature, 850mb temperature and surface precipitation anomalies (1981-2010 base) for the 2007-12 peak ozone season months of June, July and August were completed using the following National Oceanic and Atmospheric Administration (NOAA) Earth System Research Laboratory (ESRL) Physical Science Division - Monthly/Seasonal Climate Composites website: <http://www.esrl.noaa.gov/psd/cgi-bin/data/composites/printpage.pl>. Maps of the resulting anomalies are in the following Figures in this Appendix:

- Figures I-1 to I-6 - Peak Ozone season surface temperature anomalies
- Figures I-7 to I-12 – Peak Ozone season 850 mb temperature anomalies
- Figures I-13 to I-18 – Peak Ozone season surface precipitation anomalies

Analyses of annual and seasonal surface temperature anomalies, precipitation anomalies and short term drought anomalies (Palmer Z-Index) for regions of the country east of the Rocky Mountains were completed using the following NOAA National Data Climatic Data Center Climate at a Glance website: <http://www.ncdc.noaa.gov/cag/>. The base year period for anomalies was chosen to be 1981-2010. Plots of the resulting anomalies are in the following Figures in this Appendix:

- Figures I-19 to I-24 - Annual (January - December) surface temperature, precipitation and short term drought (Palmer Z-Index) anomalies by region
- Figures I-25 to I-30 - Winter (January, February and December) surface temperature, precipitation and short term drought (Palmer Z-Index) anomalies by region
- Figures I-31 to I-36 – Spring (March - May) surface temperature, precipitation and short term drought (Palmer Z-Index) anomalies by region
- Figures I-37 to I-42- Summer (June - August) surface temperature, precipitation and short term drought (Palmer Z-Index) anomalies by region
- Figures I-43 to I-48 – Fall/Autumn (September - November) surface temperature, precipitation and short term drought (Palmer Z-Index) anomalies by region
- Figures I-49 to I-53 - Surface temperature anomalies - annual and by season
- Figures I-54 to I-58 – Precipitation anomalies - annual and by season
- Figures I-59 to I-63 - Short term drought (Palmer Z-Index) anomalies – annual and by season

FIGURE I-1: 2007 JJA SFC TEMP

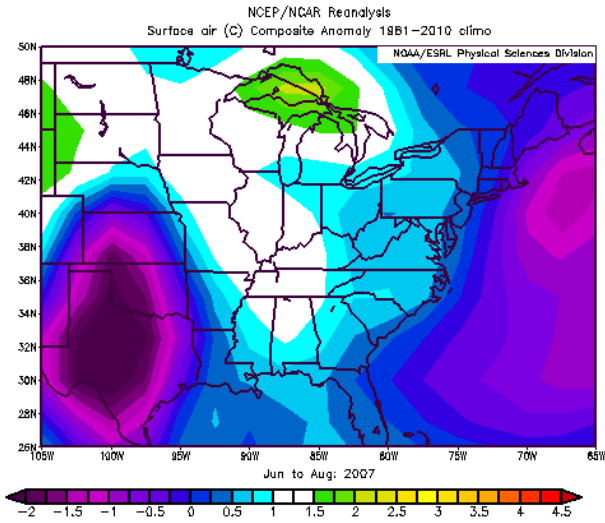


FIGURE I-2: 2008 JJA SFC TEMP

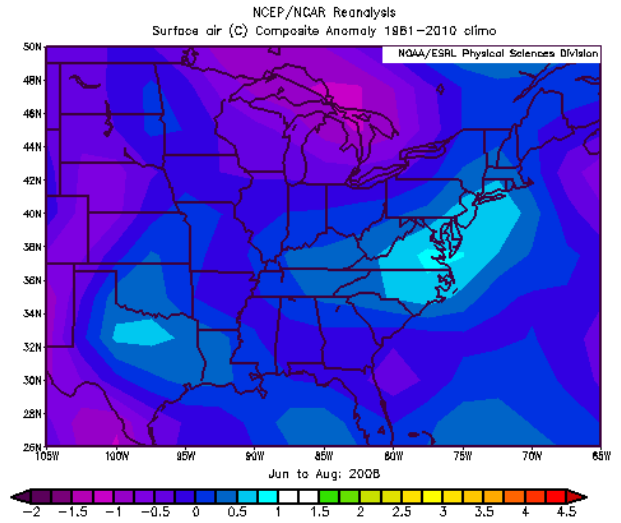


FIGURE I-3: 2009 JJA SFC TEMP

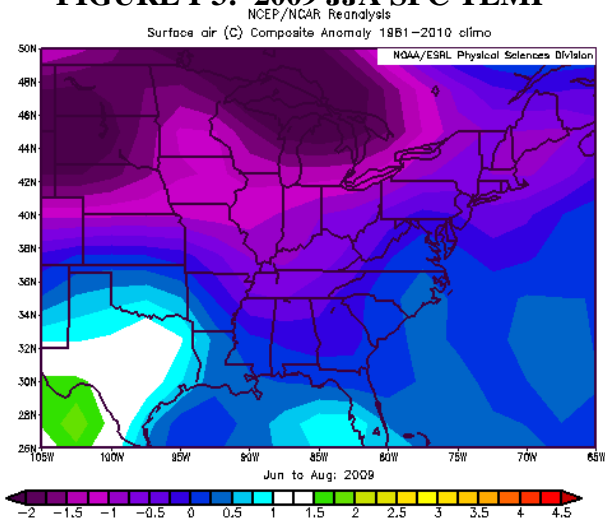


FIGURE I-4: 2010 JJA SFC TEMP

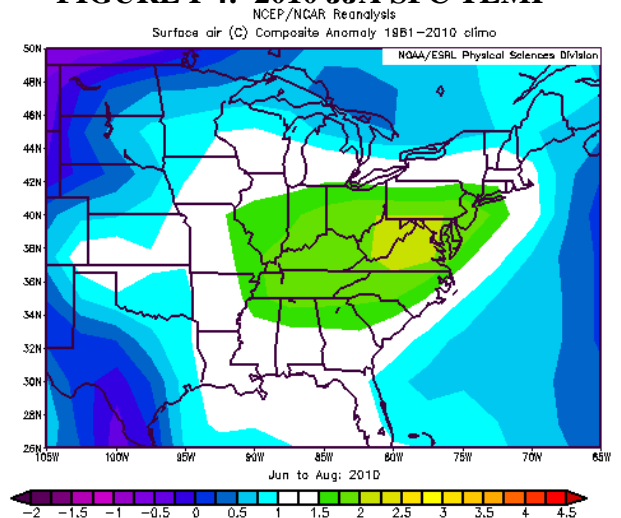


FIGURE I-5: 2011 JJA SFC TEMP

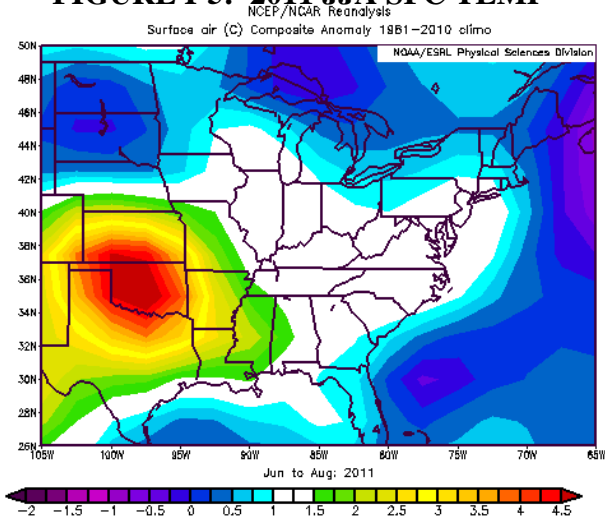


FIGURE I-6: 2012 JJA SFC TEMP

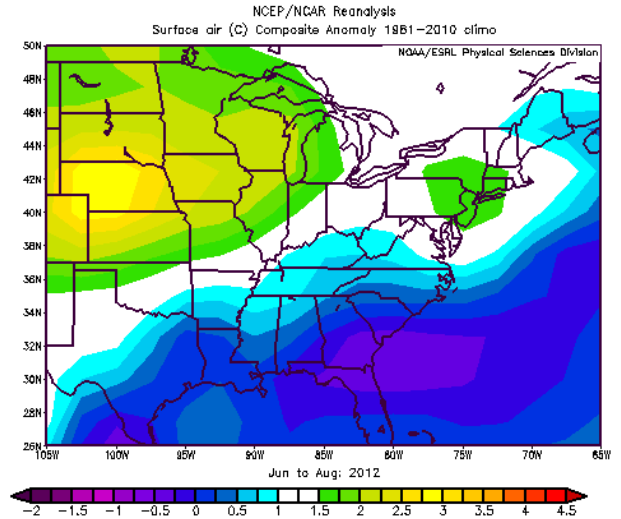


FIGURE I-7: 2007 JJA 850MB TEMP

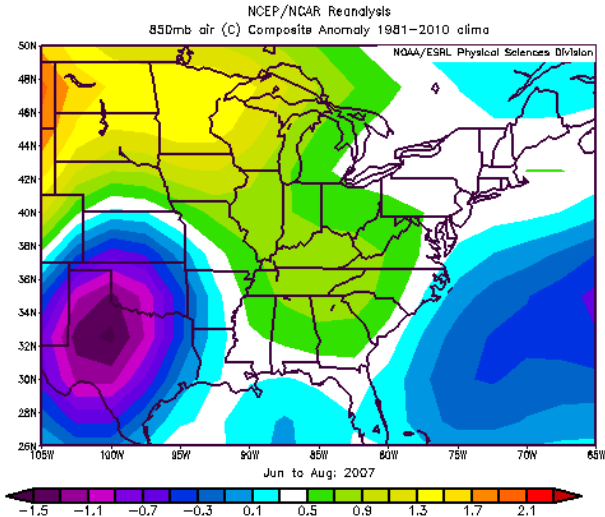


FIGURE I-8: 2008 JJA 850MB TEMP

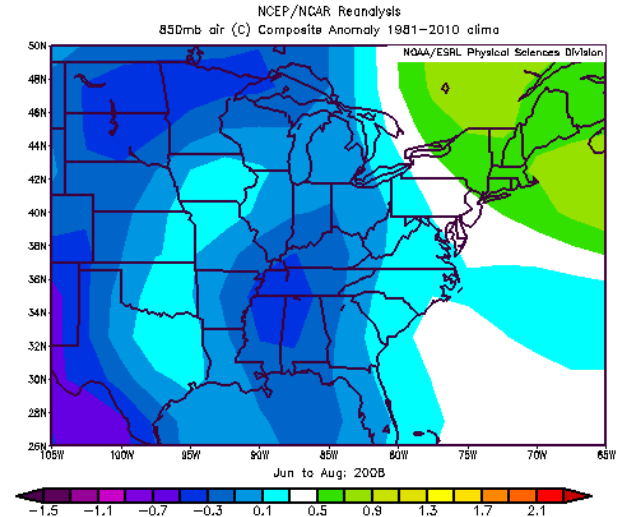


FIGURE I-9: 2009 JJA 850MB TEMP

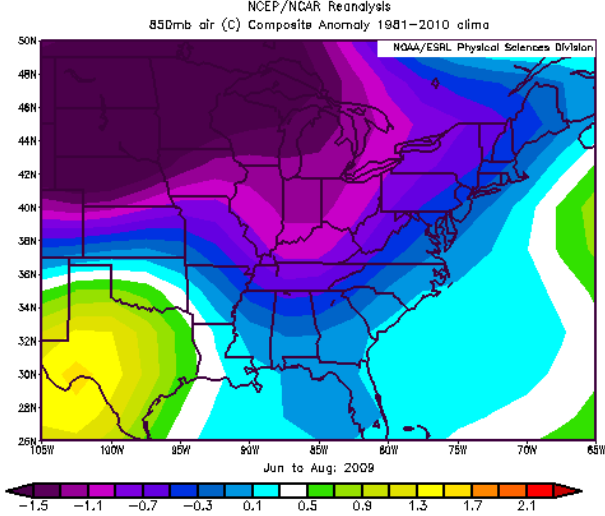


FIGURE I-10: 2010 JJA 850MB TEMP

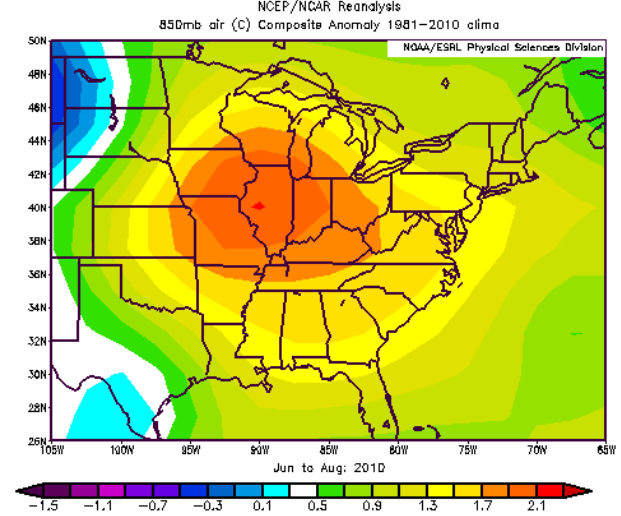


FIGURE I-11: 2011 JJA 850MB TEMP

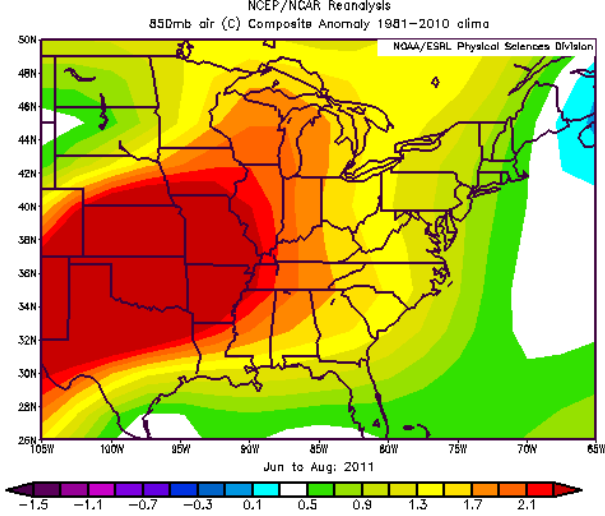


FIGURE I-12: 2012 JJA 850MB TEMP

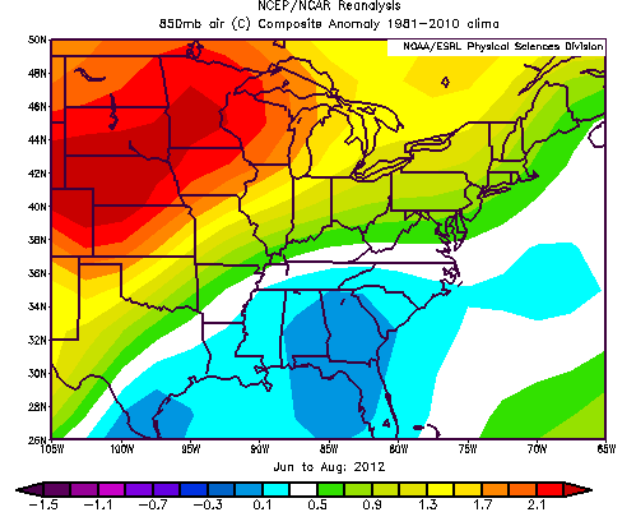


FIGURE I-13: 2007 JJA SFC PRECIP

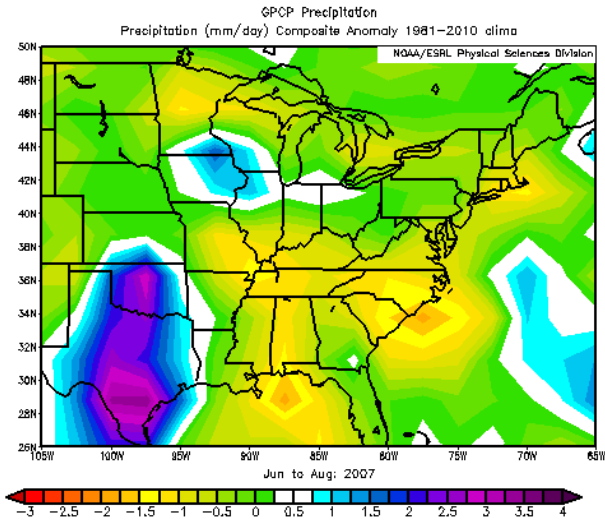


FIGURE I-14: 2008 JJA SFC PRECIP

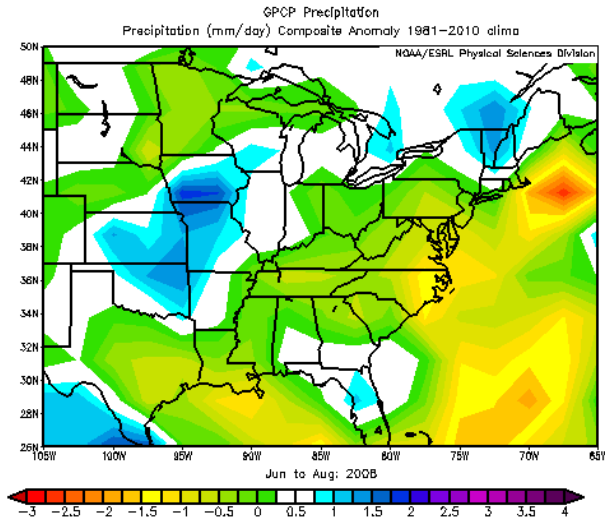


FIGURE I-15: 2009 JJA SFC PRECIP

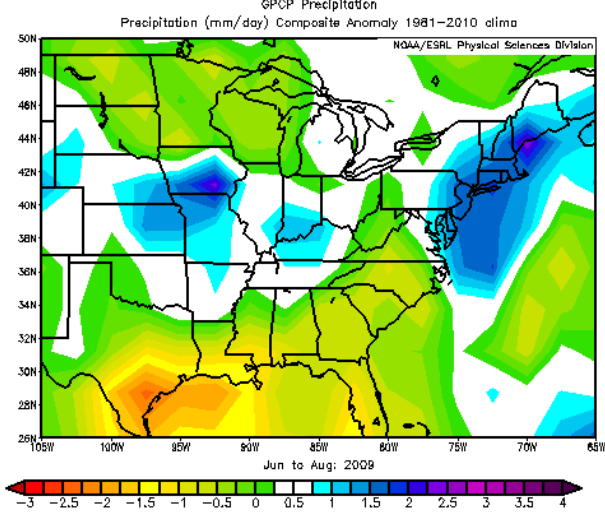


FIGURE I-16: 2010 JJA SFC PRECIP

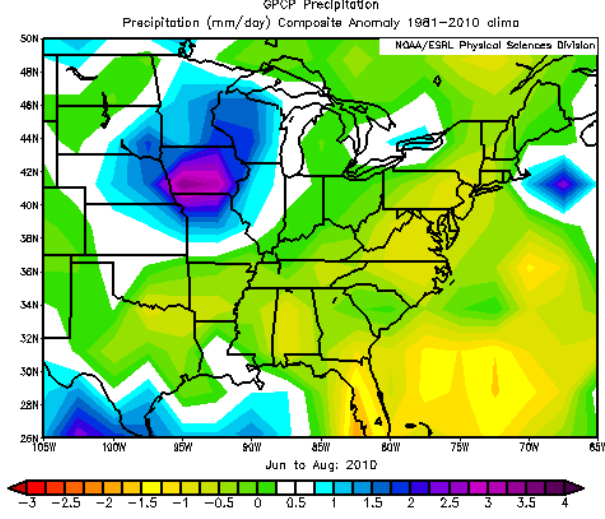


FIGURE I-17: 2011 JJA SFC PRECIP

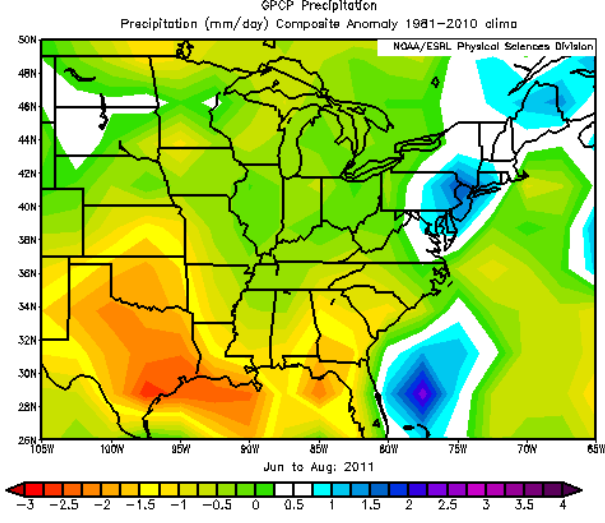


FIGURE I-18: 2012 JJA SFC PRECIP

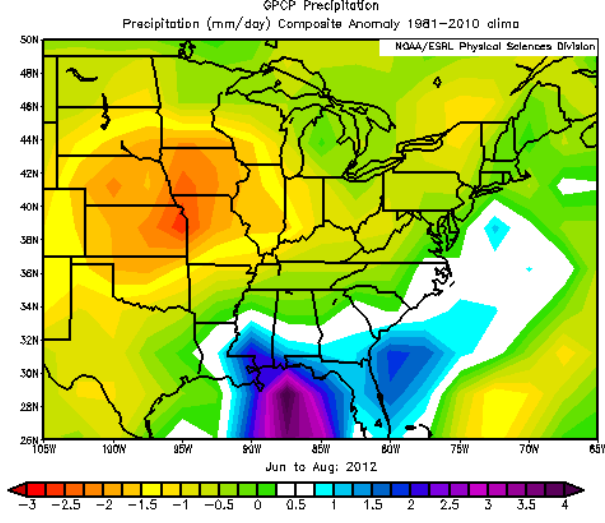


Figure I-19: OTR 2007-12 Annual Temperature Precipitation and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

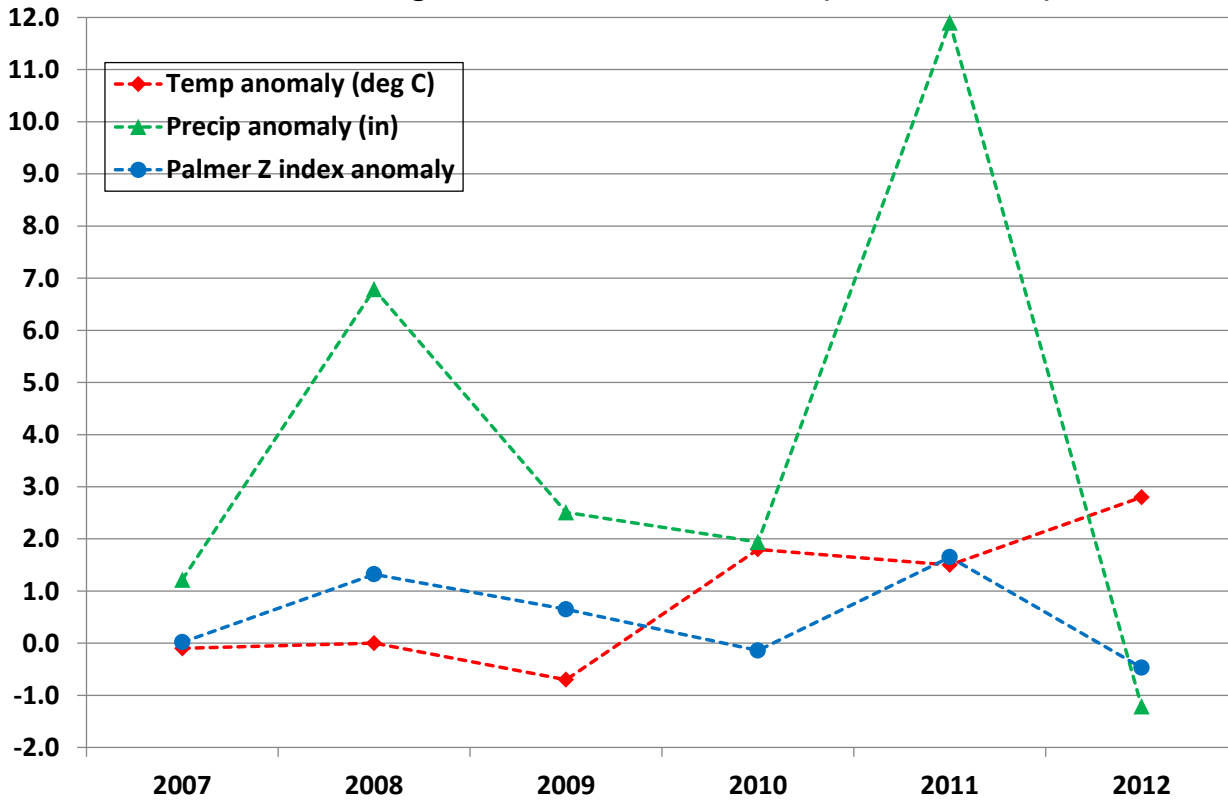


Figure I-20: OHIO VALLEY 2007-12 Annual Temp, Precipitation and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

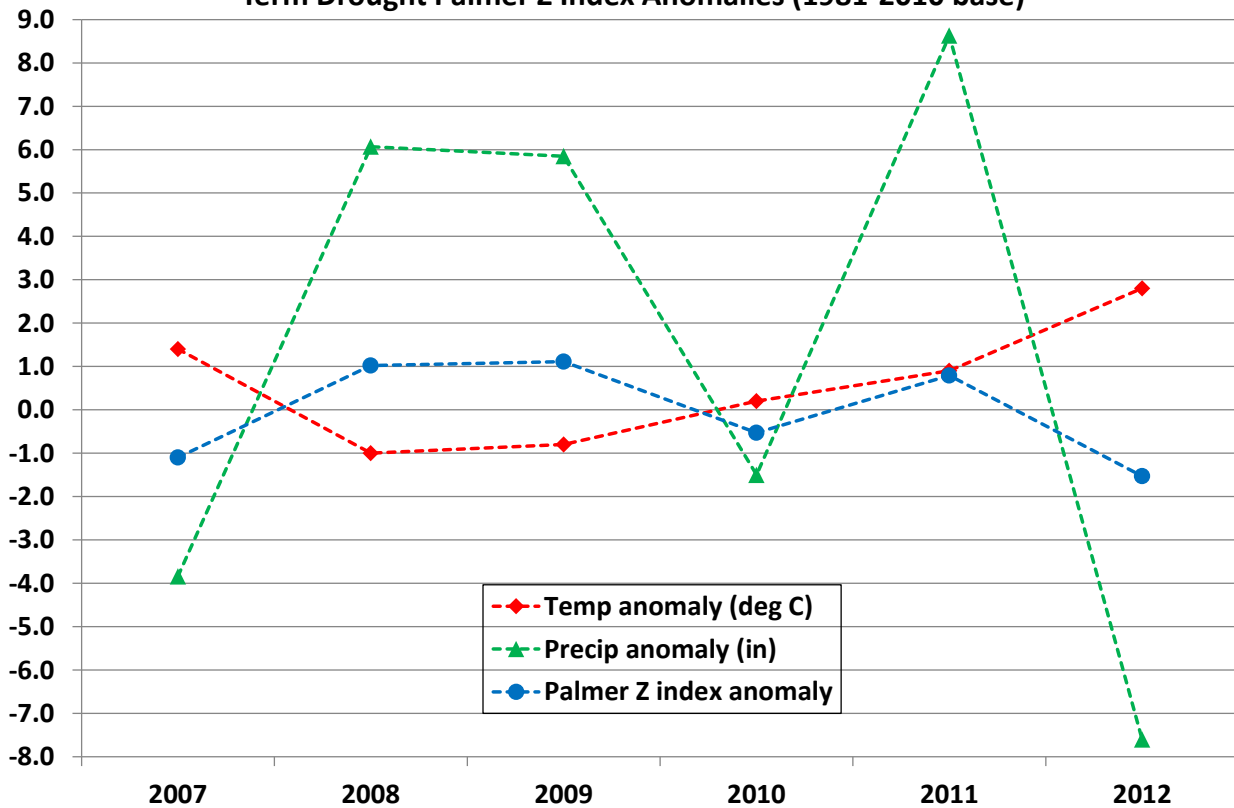


Figure I-21: UPPER MIDWEST 2007-12 Annual Temp, Precip and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

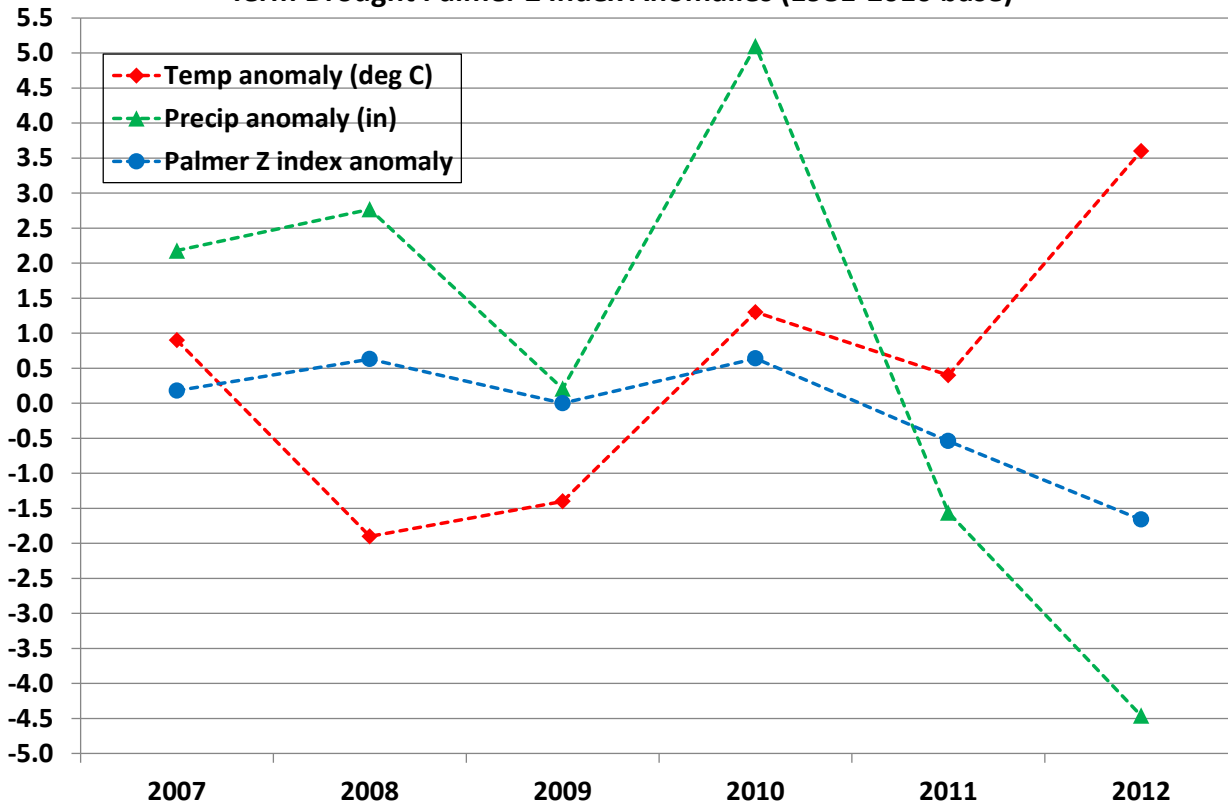


Figure I-22: SOUTHEAST 2007-12 Annual Temp, Precipitation and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

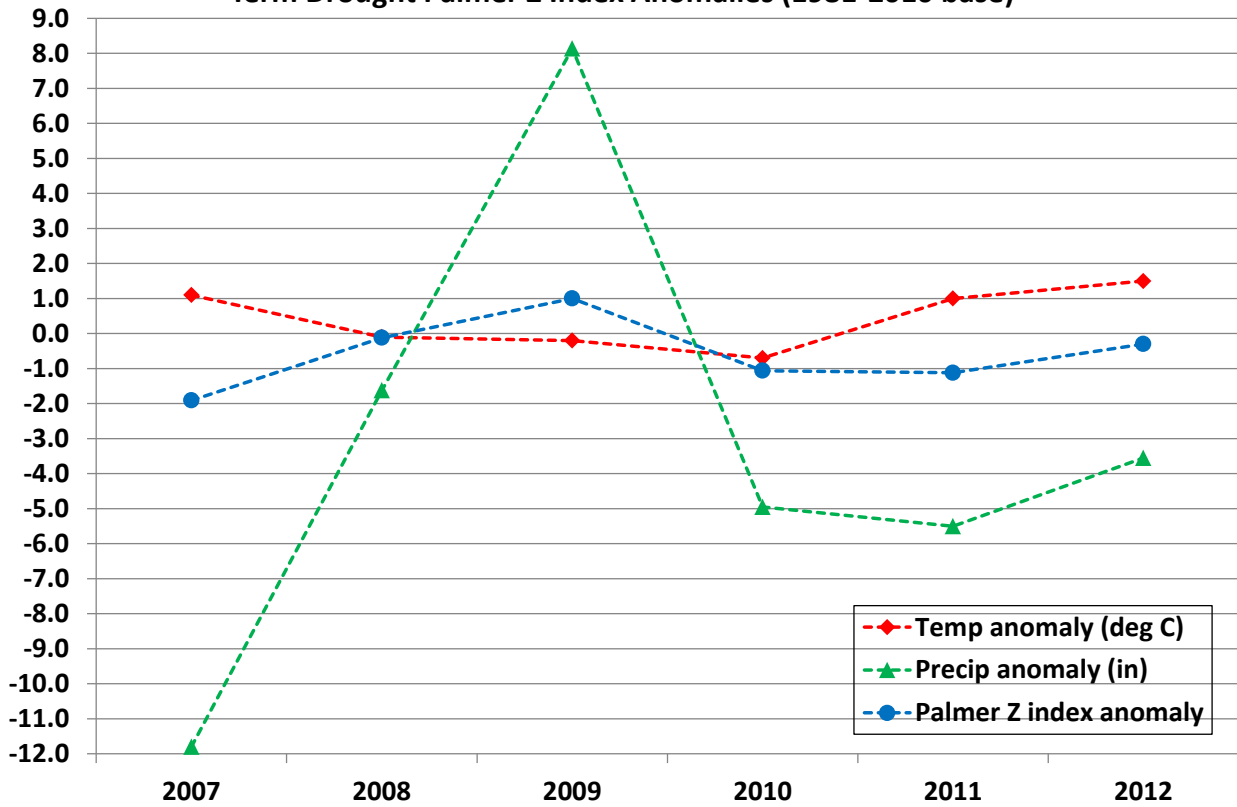


Figure I-23: SOUTH 2007-12 Annual Temperature Precipitation and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

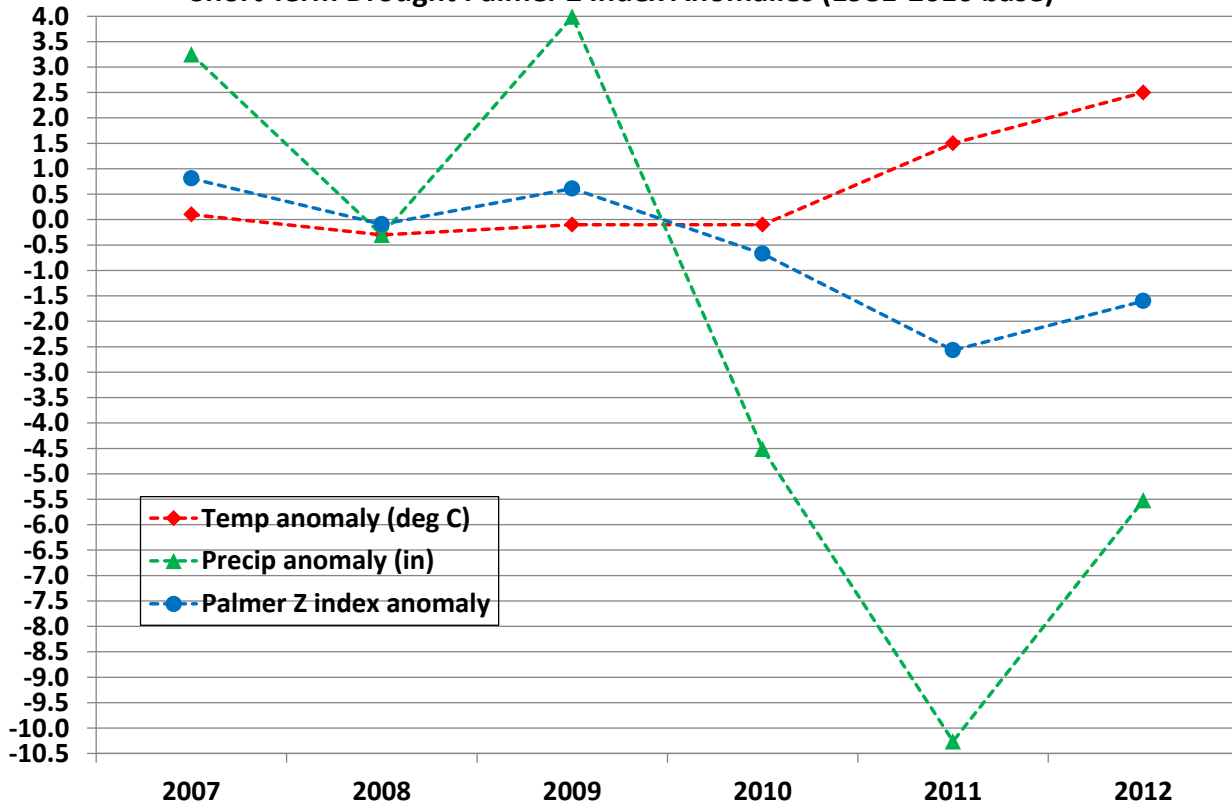


Figure I-24: NORTHERN PLAINS 2007-12 Annual Temperature and Precipitation Anomalies (1981-2010 base)

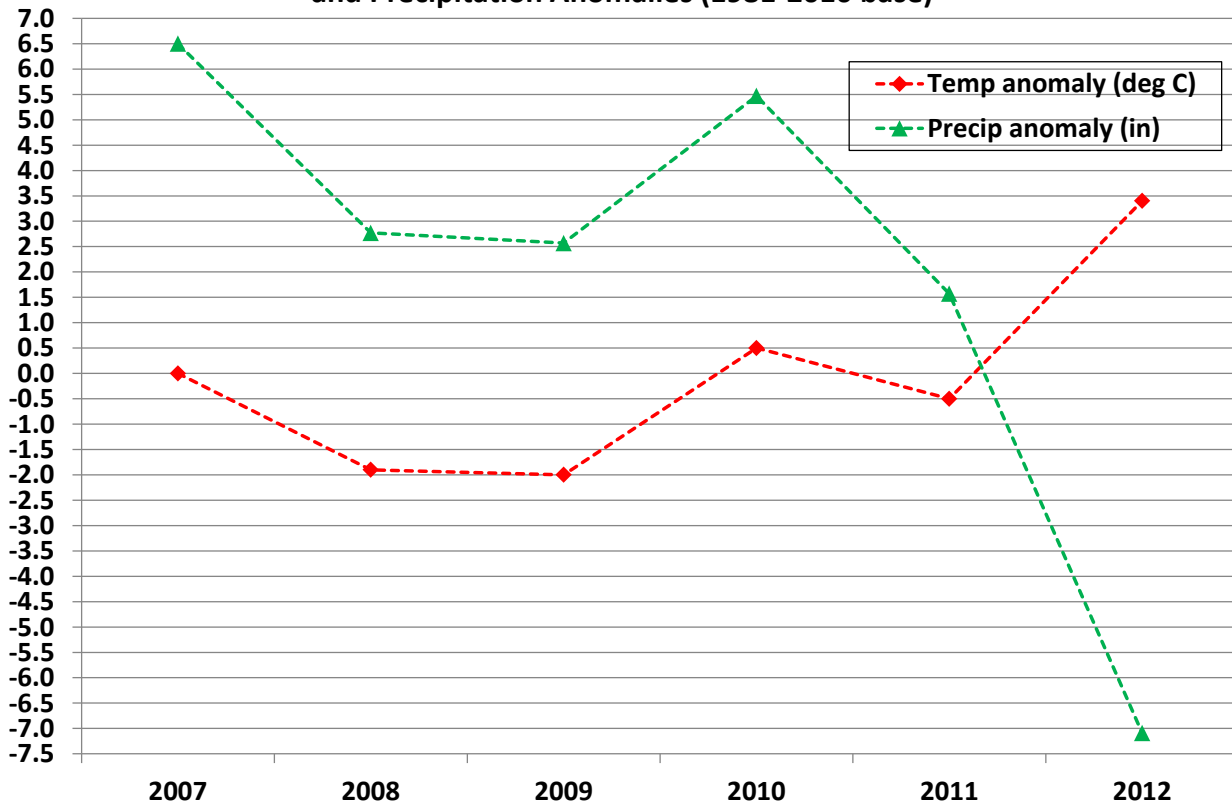


Figure I-25: OTR 2007-12 Winter (Jan, Feb and Dec) Temp, Precip and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

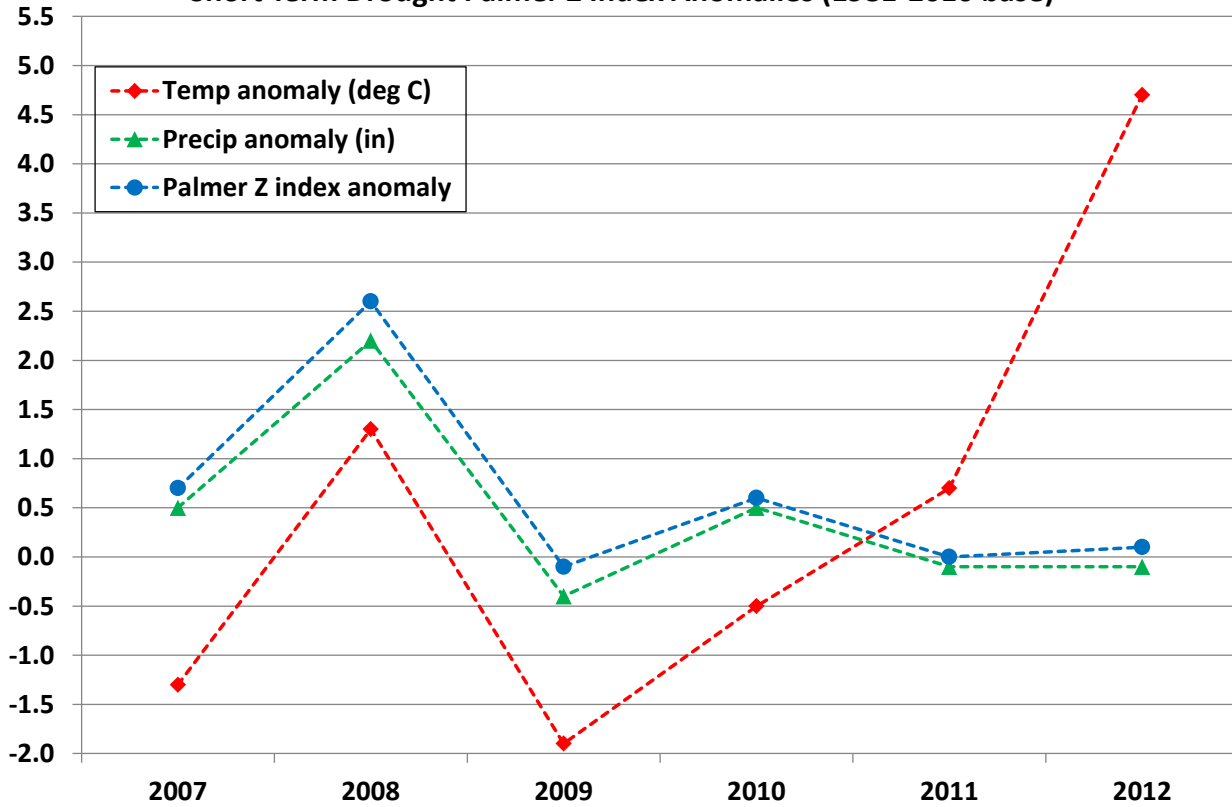
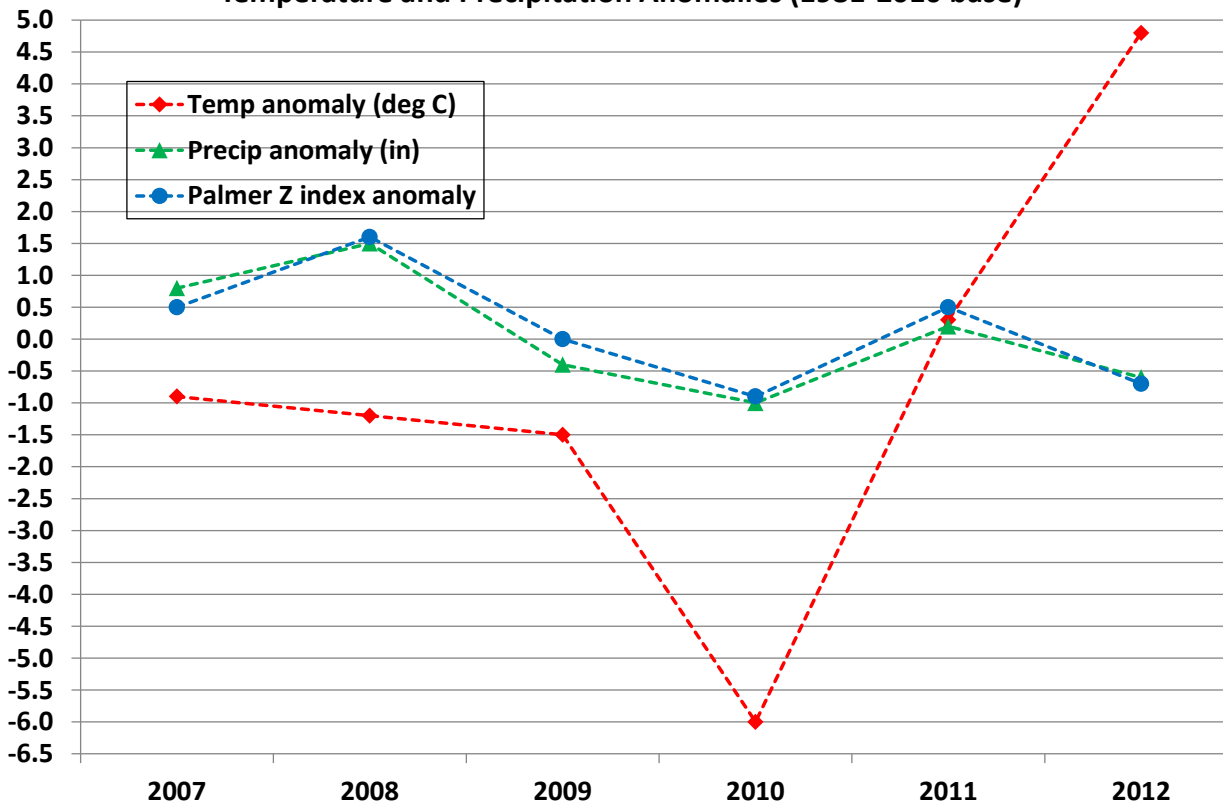
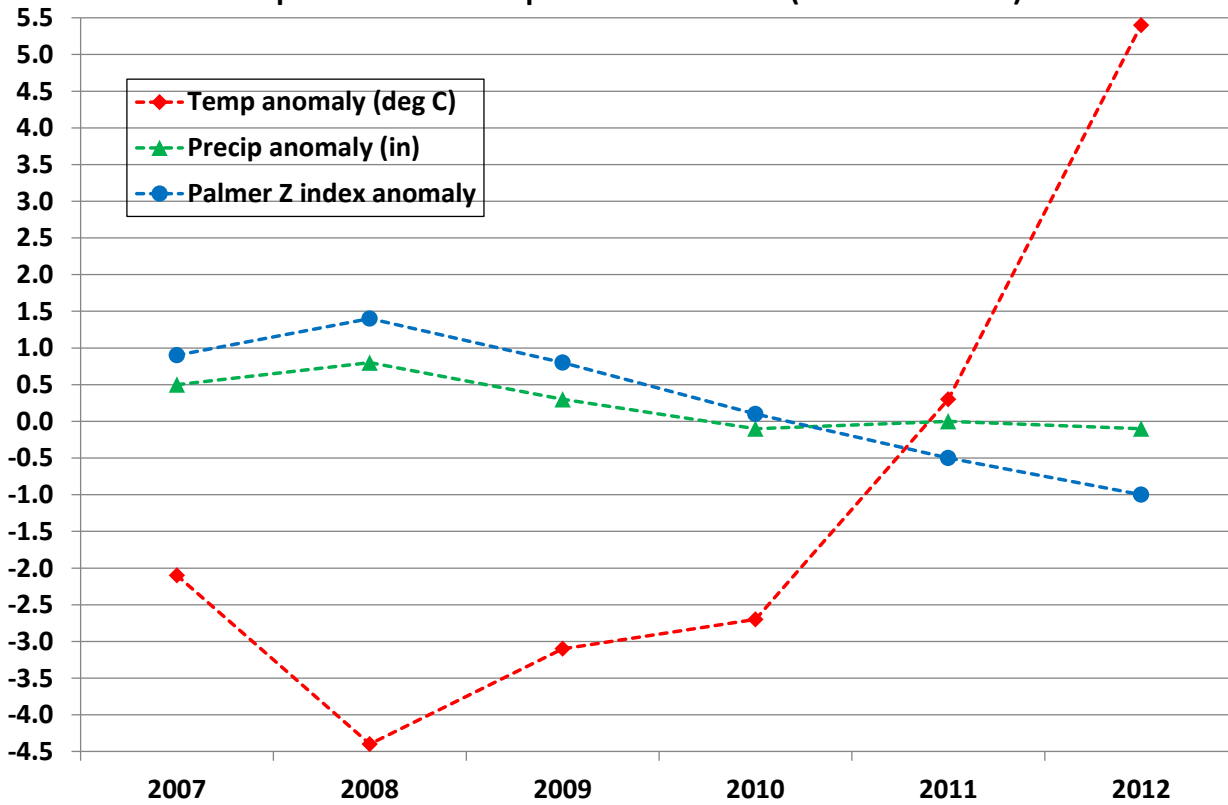


Figure I-26: OHIO VALLEY 2007-12 Winter (Jan, Feb and Dec) Temperature and Precipitation Anomalies (1981-2010 base)



**Figure I-27: UPPER MIDWEST 2007-12 Winter (Jan, Feb and Dec)
Temperature and Precipitation Anomalies (1981-2010 base)**



**Figure I-28: SOUTHEAST 2007-12 Winter (Jan, Feb and Dec)
Temperature and Precipitation Anomalies (1981-2010 base)**

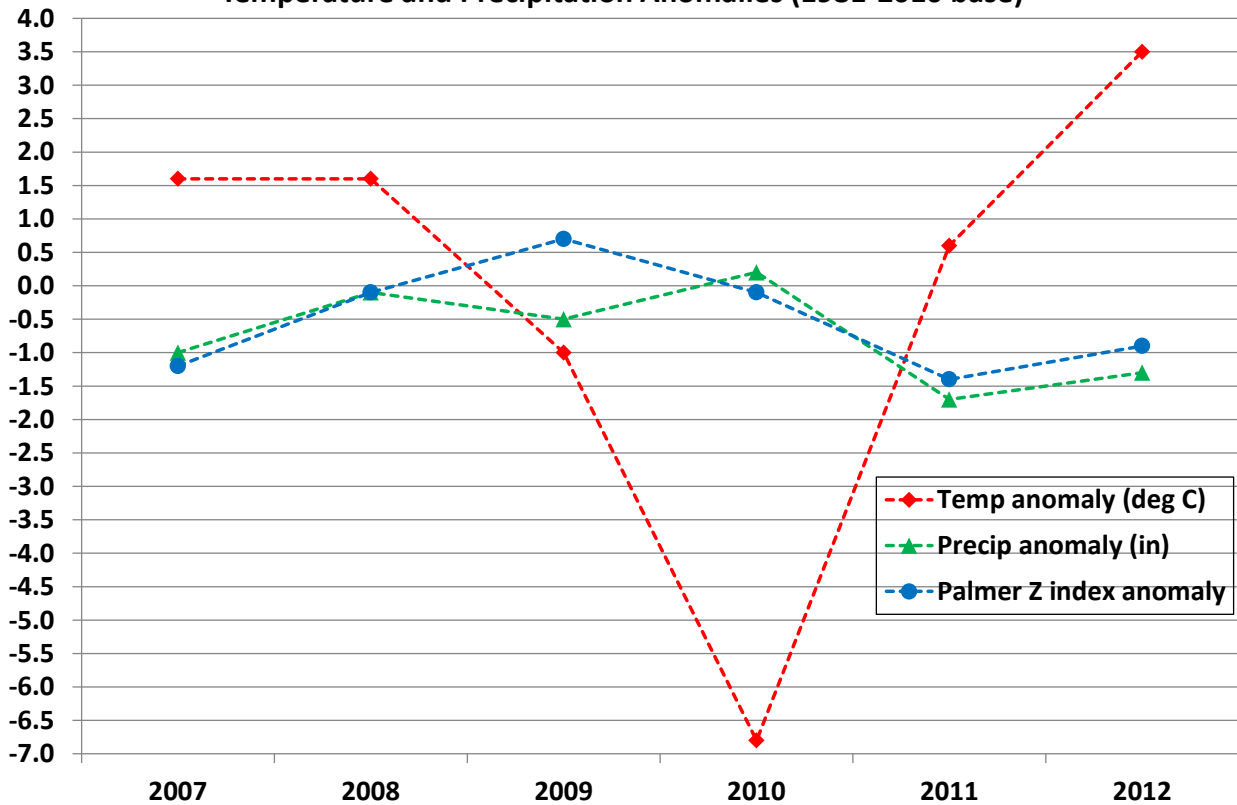


Figure I-29: SOUTH 2007-12 Winter (Jan, Feb and Dec) Temperature and Precipitation Anomalies (1981-2010 base)

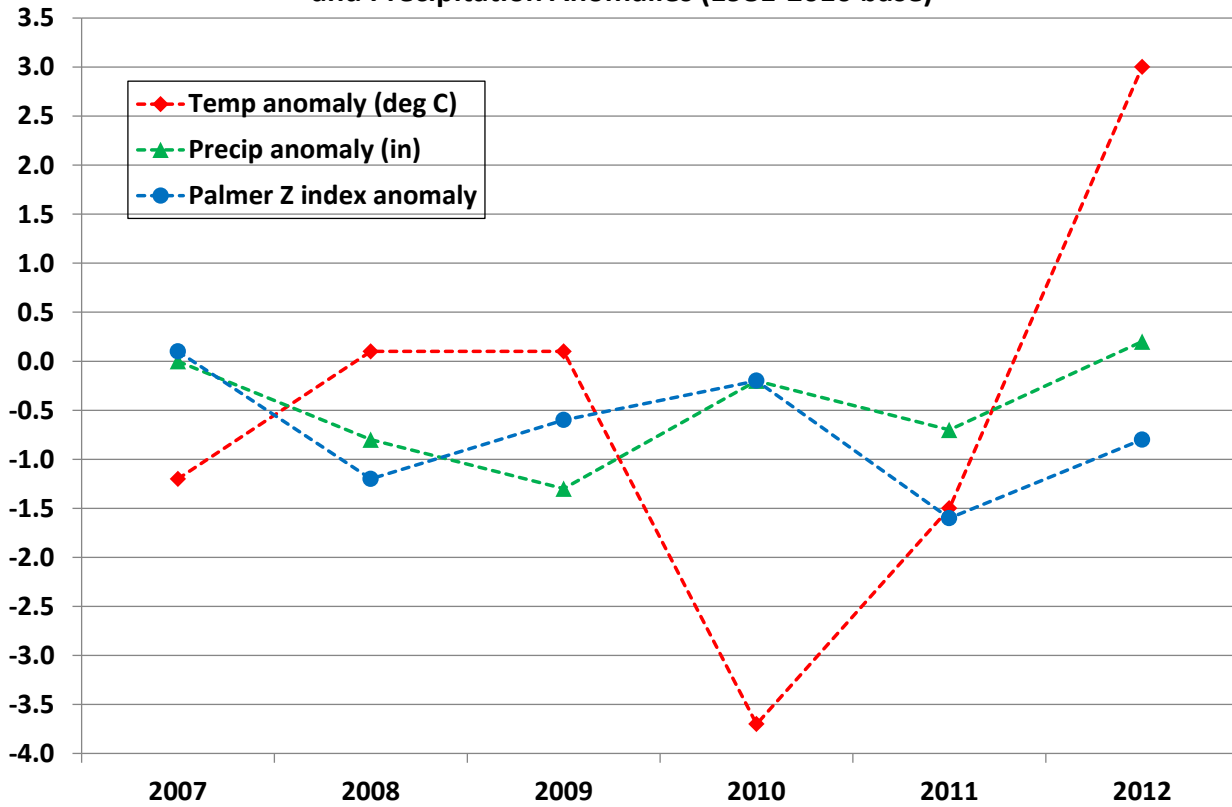


Figure I-30: NORTHERN PLAINS 2007-12 Winter (Jan, Feb and Dec) Temperature and Precipitation Anomalies (1981-2010 base)

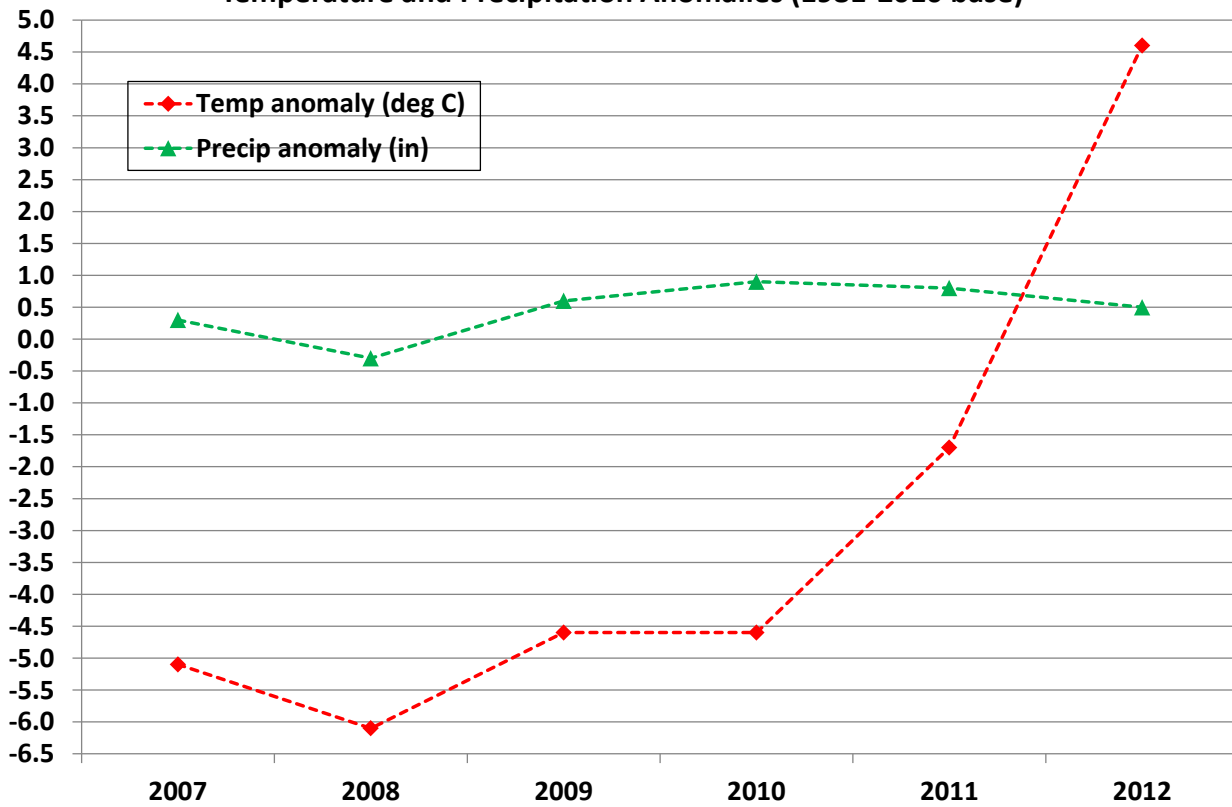


Figure I-31: OTR 2007-12 Spring (March - May) Temp, Precipitation and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

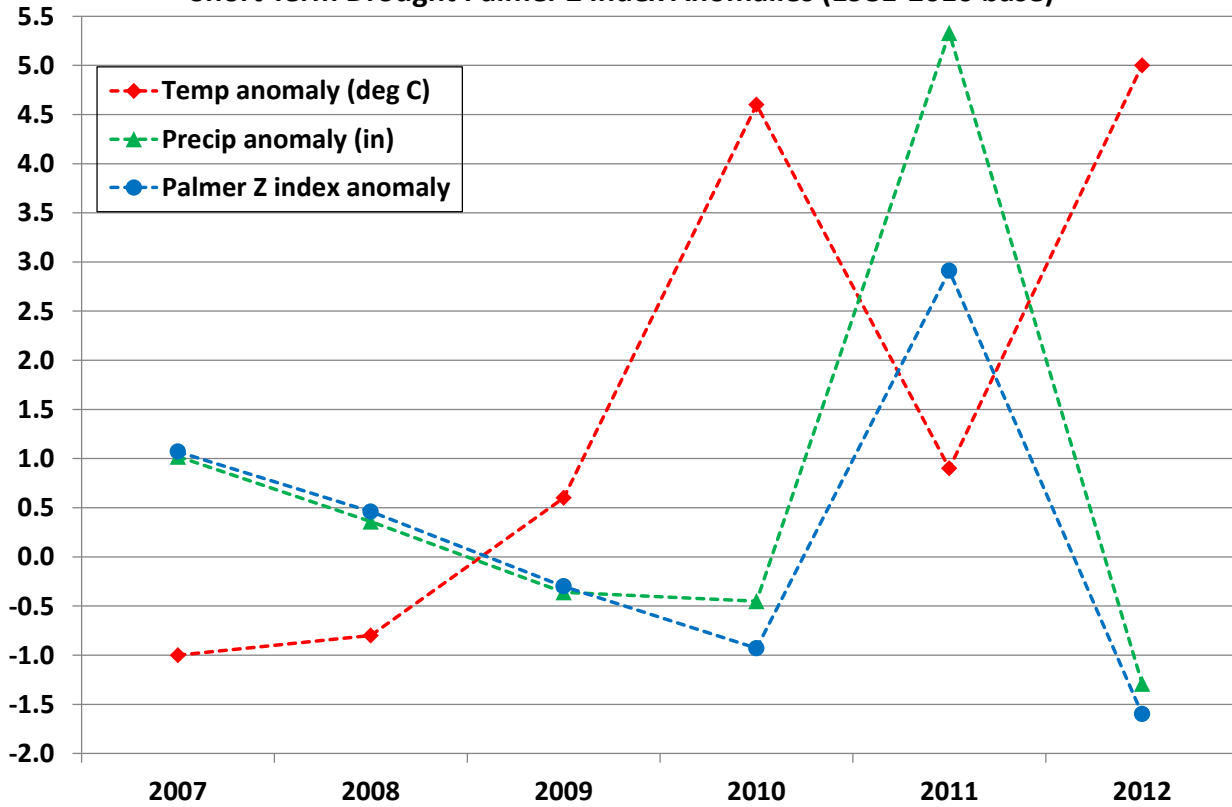


Figure I-32: OHIO VALLEY 2007-12 Spring (March - May) Temperature and Precipitation Anomalies (1981-2010 base)

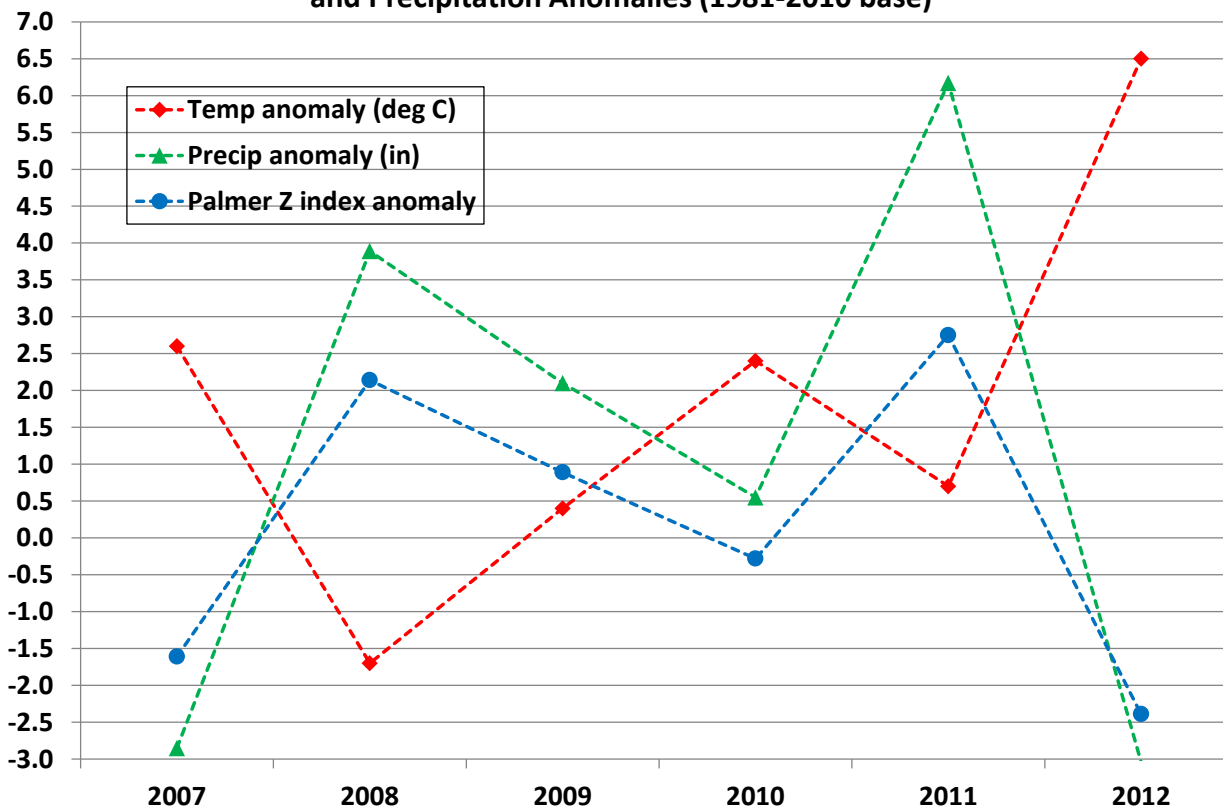


Figure I-33: UPPER MIDWEST 2007-12 Spring (March - May)
Temperature and Precipitation Anomalies (1981-2010 base)

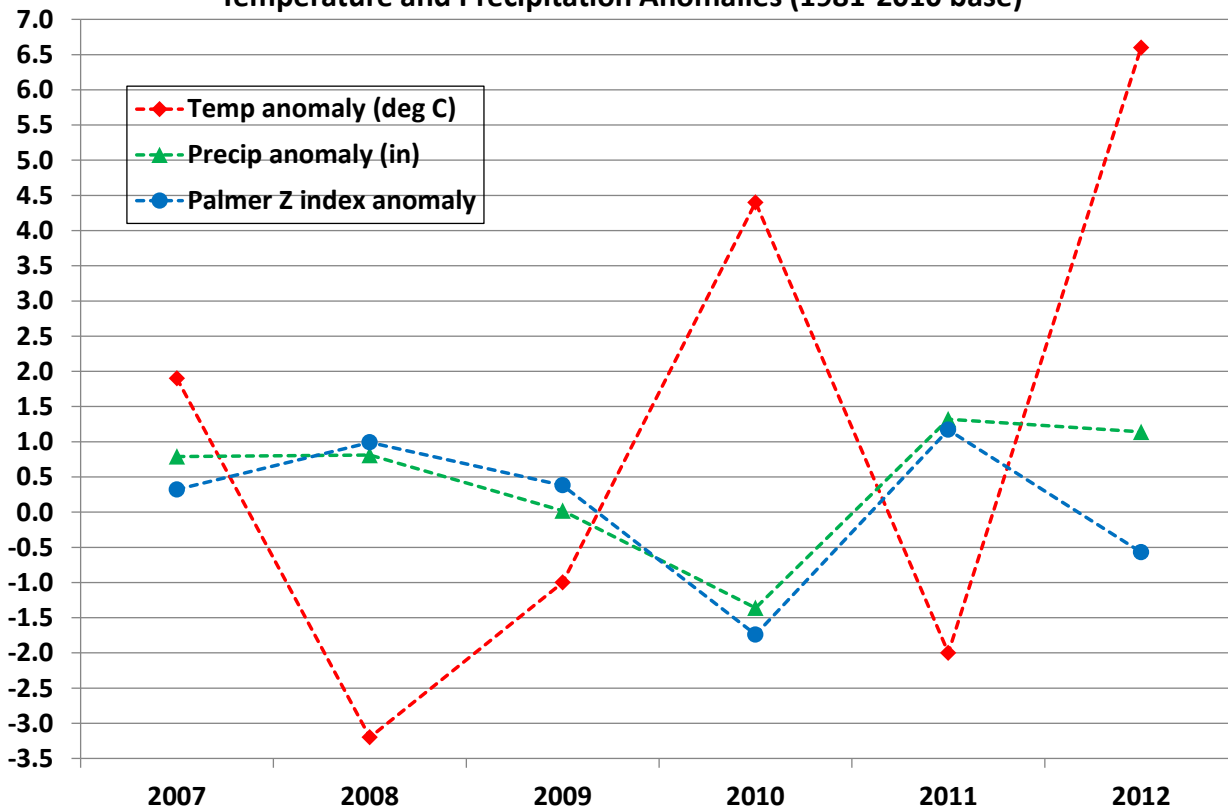


Figure I-34: SOUTHEAST 2007-12 Spring (March - May) Temperature
and Precipitation Anomalies (1981-2010 base)

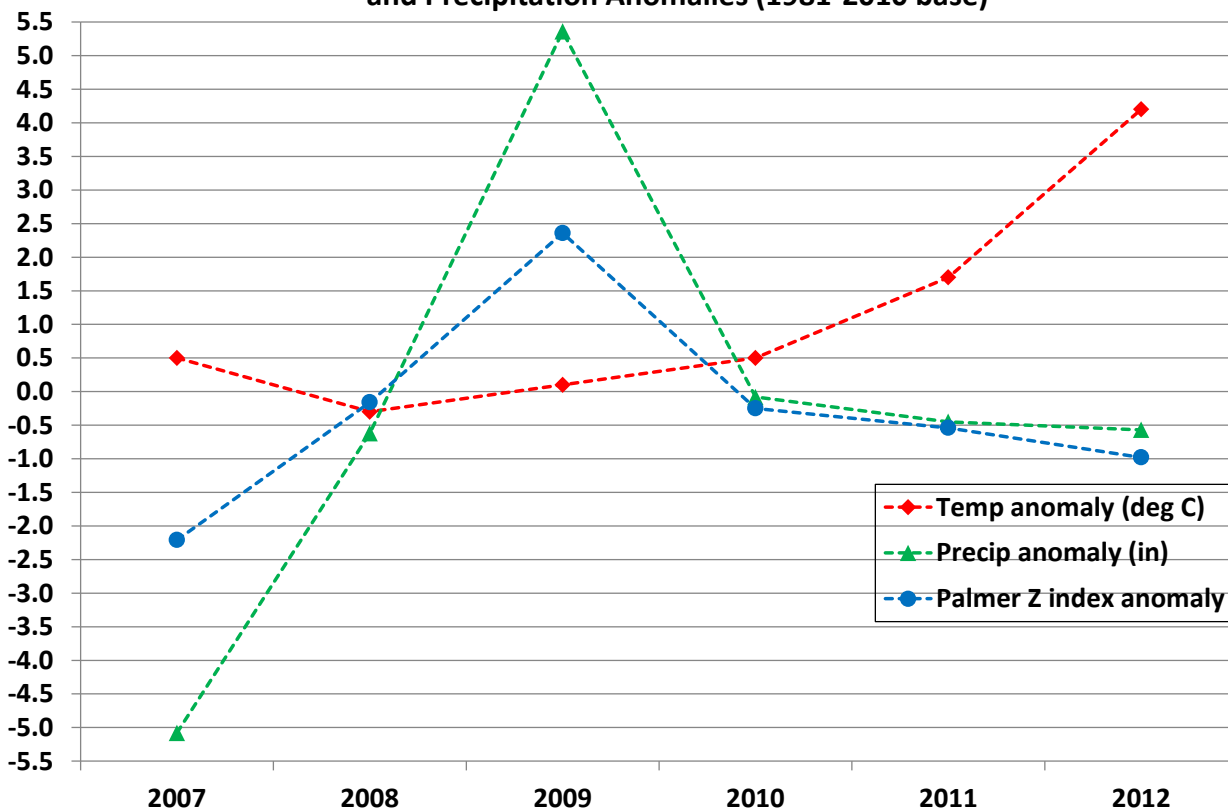


Figure I-35: SOUTH 2007-12 Spring (March - May) Temperature and Precipitation Anomalies (1981-2010 base)

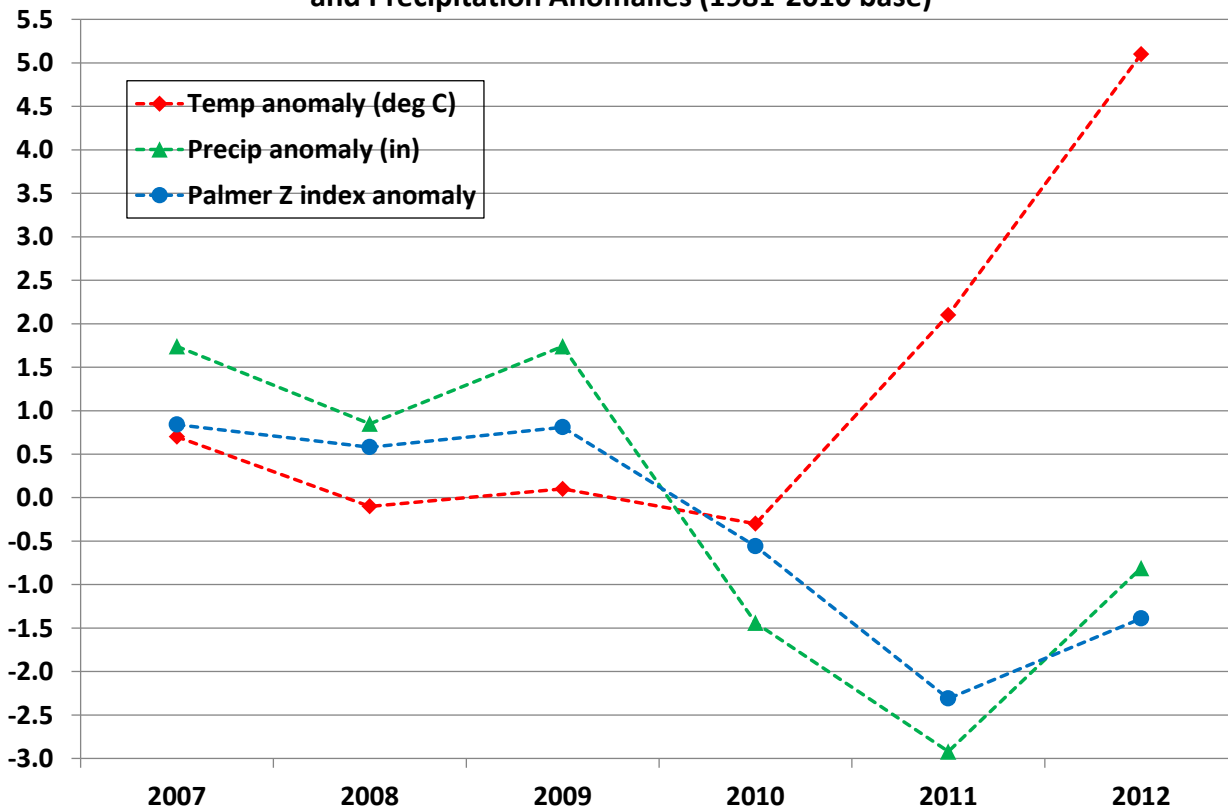


Figure I-36: NORTHERN PLAINS 2007-12 Spring (March - May) Temperature and Precipitation Anomalies (1981-2010 base)

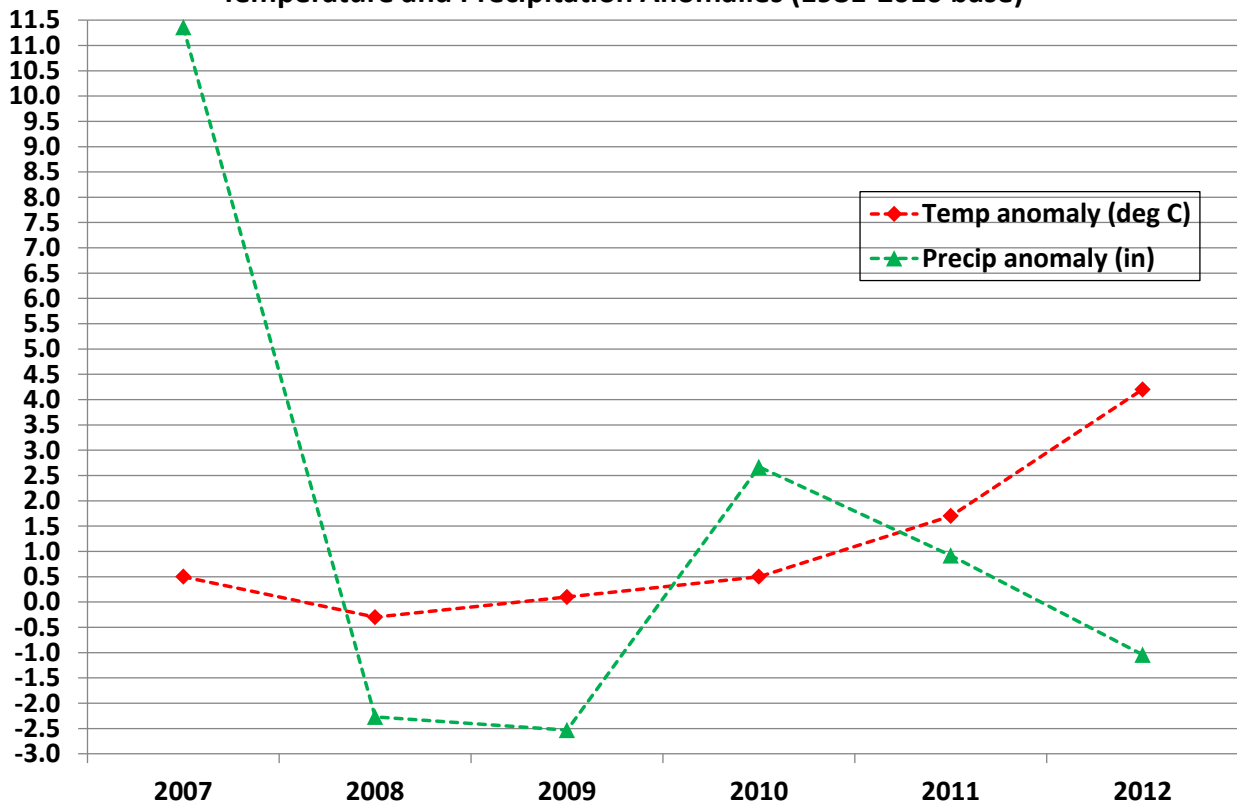


Figure I-37: OTR 2007-12 Summer (June-August) Temp, Precipitation and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

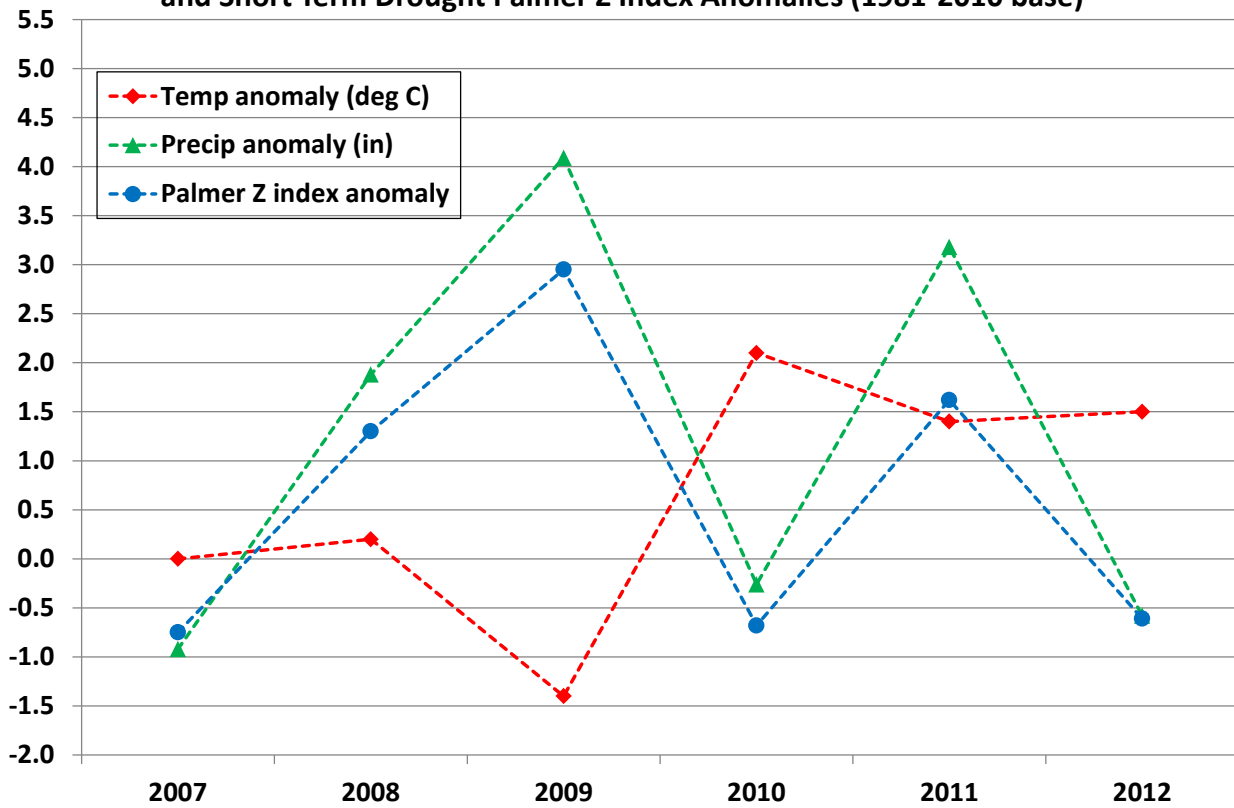


Figure I-38: OHIO VALLEY 2007-12 Summer (June - August) Temperature and Precipitation Anomalies (1981-2010 base)

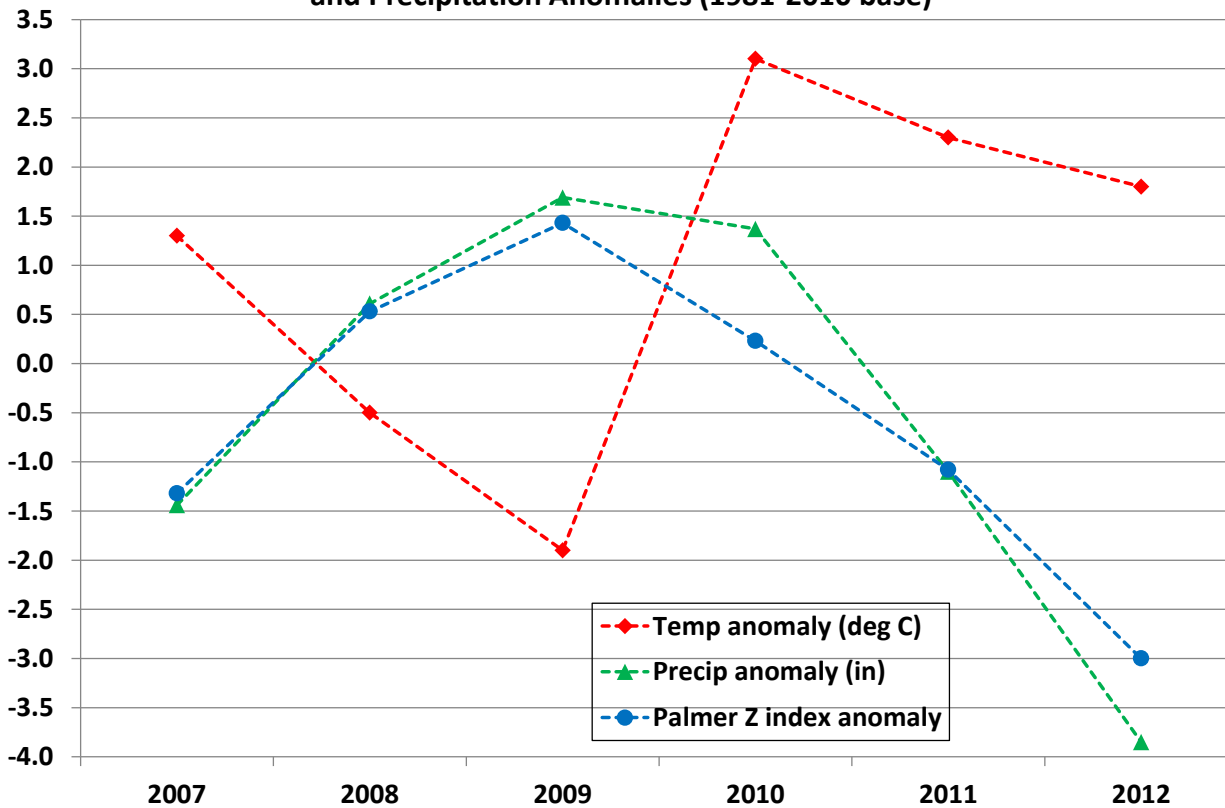


Figure I-39: UPPER MIDWEST 2007-12 Summer (June - August)
Temperature and Precipitation Anomalies (1981-2010 base)

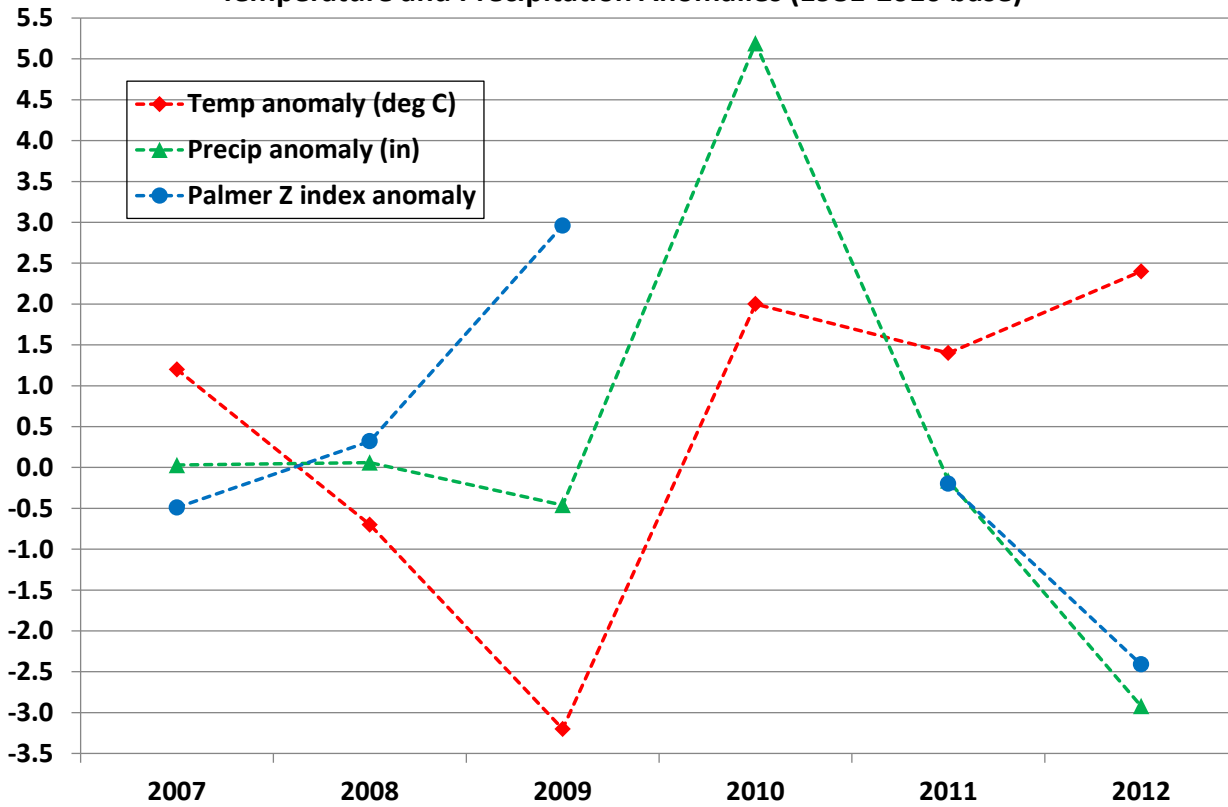


Figure I-40: SOUTHEAST 2007-12 Summer (June - August) Temperature
and Precipitation Anomalies (1981-2010 base)

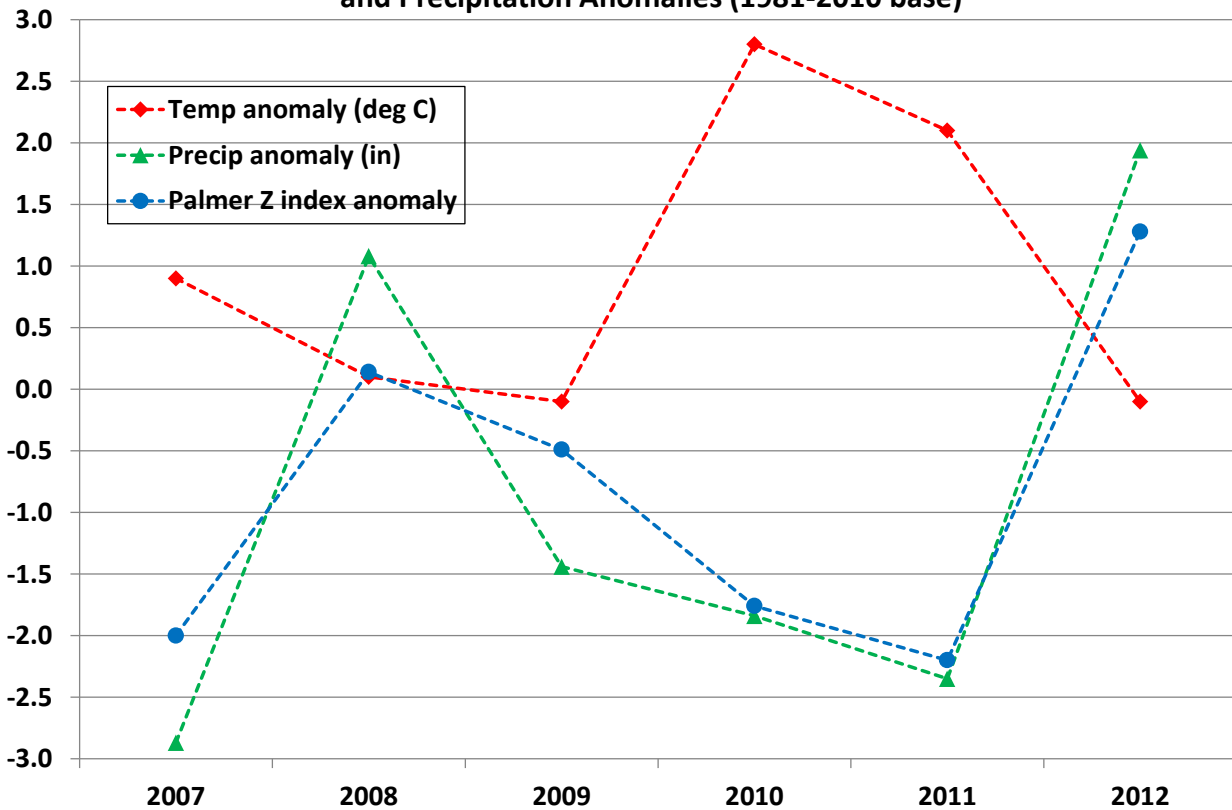


Figure I-41: SOUTH 2007-12 Summer (June - August) Temperature and Precipitation Anomalies (1981-2010 base)

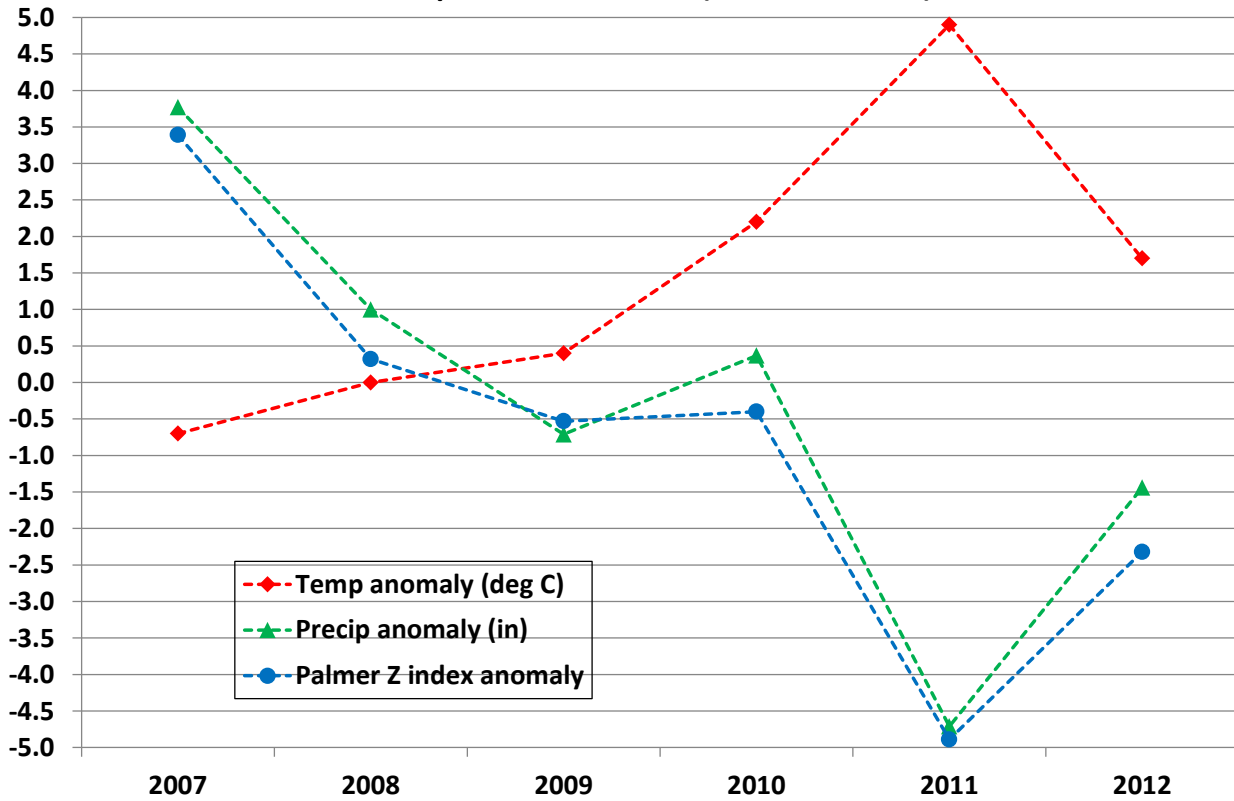


Figure I-42: NORTHERN PLAINS 2007-12 Summer (June - August) Temperature and Precipitation Anomalies (1981-2010 base)

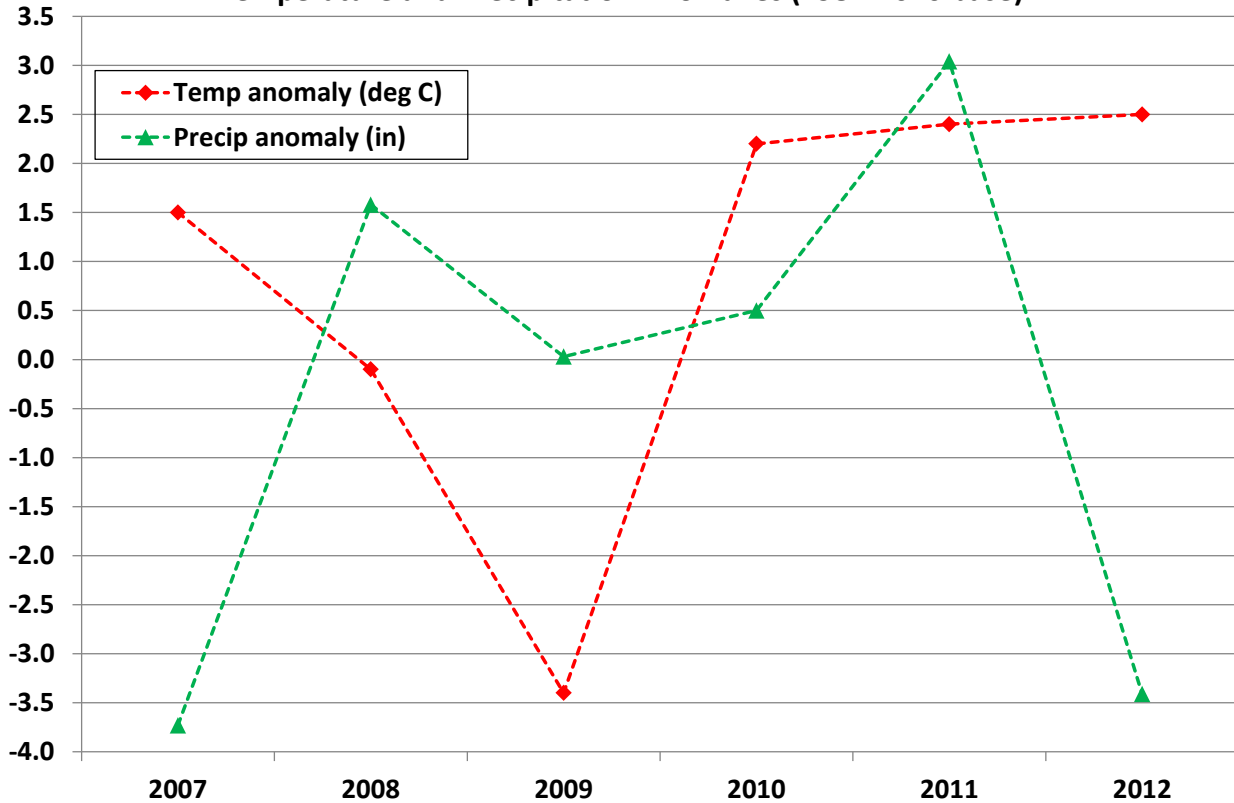


Figure I-43: OTR 2007-12 Autumn (Sept - Nov) Temp, Precipitation and Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

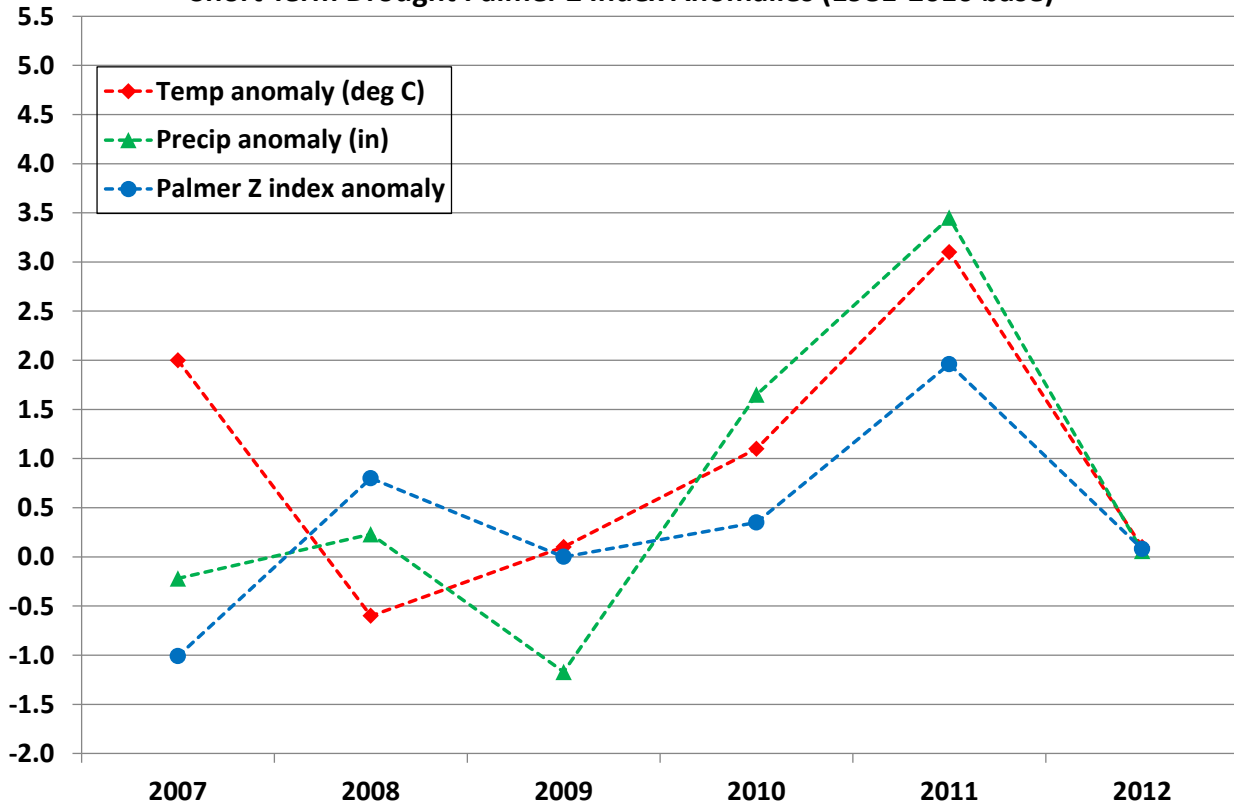
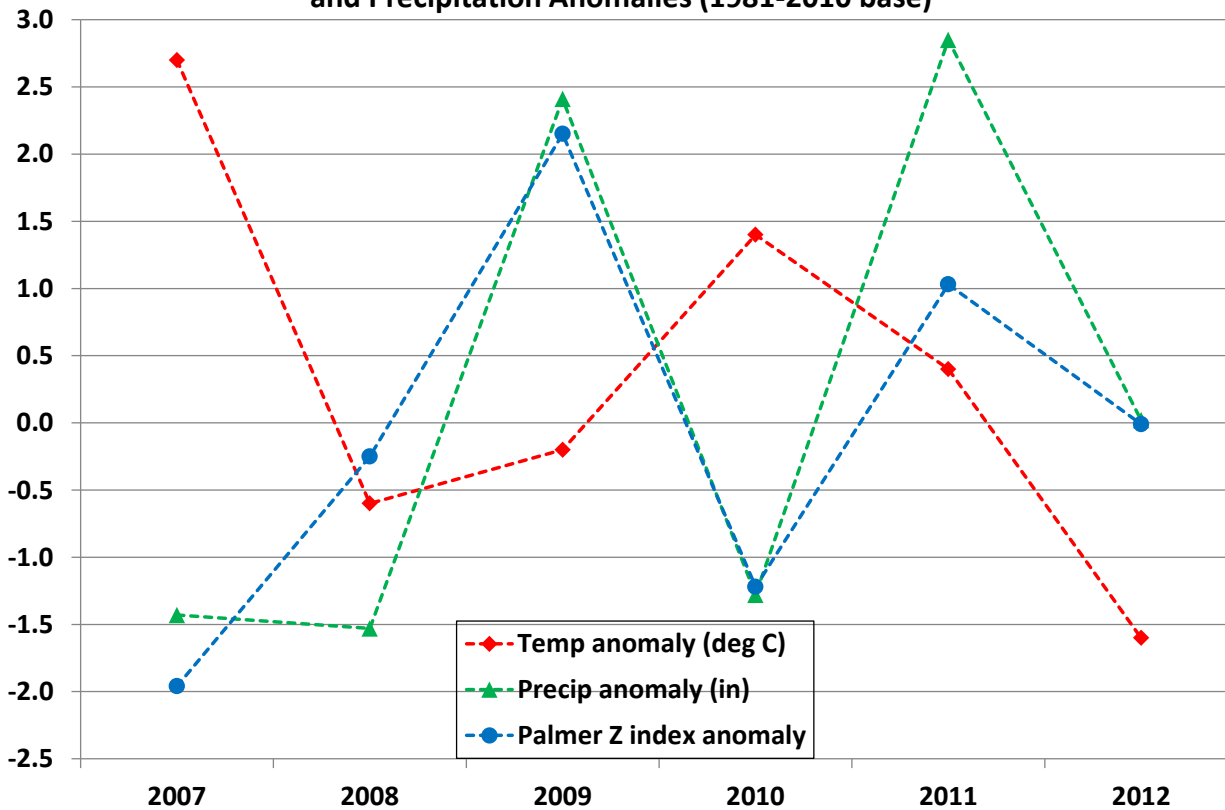
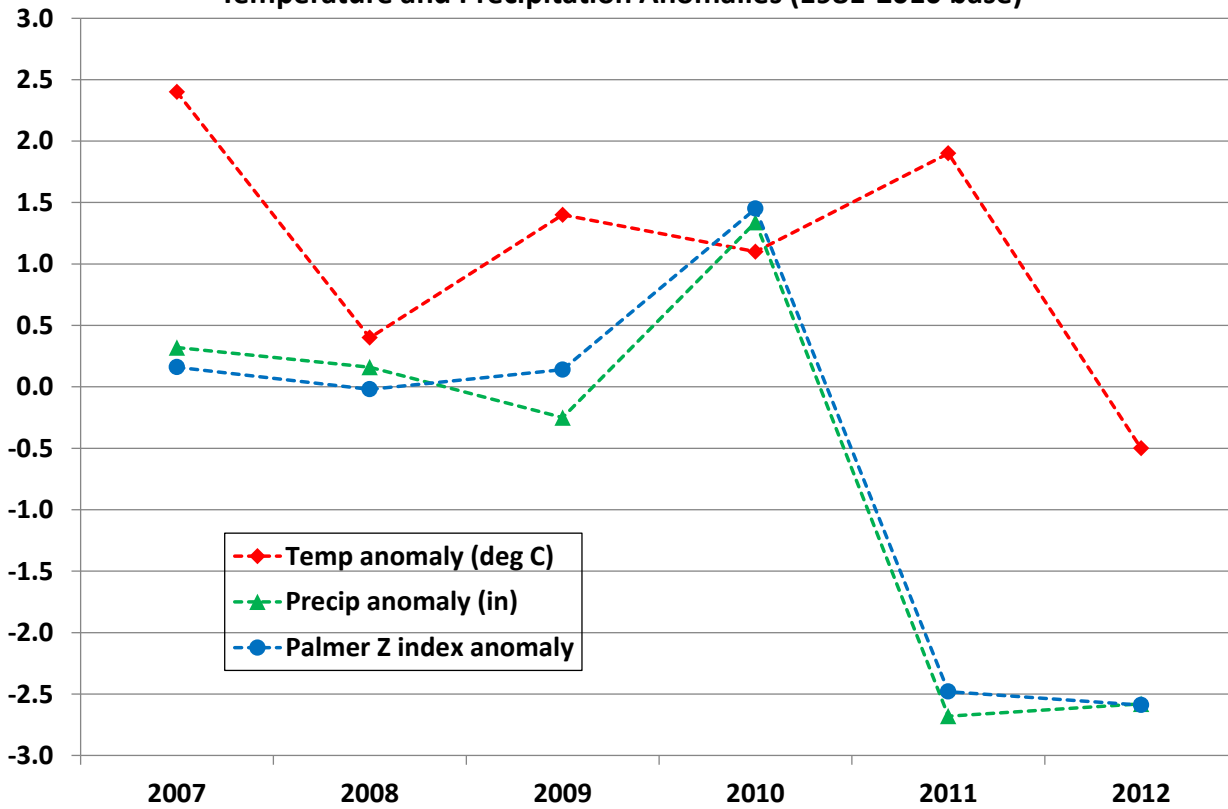


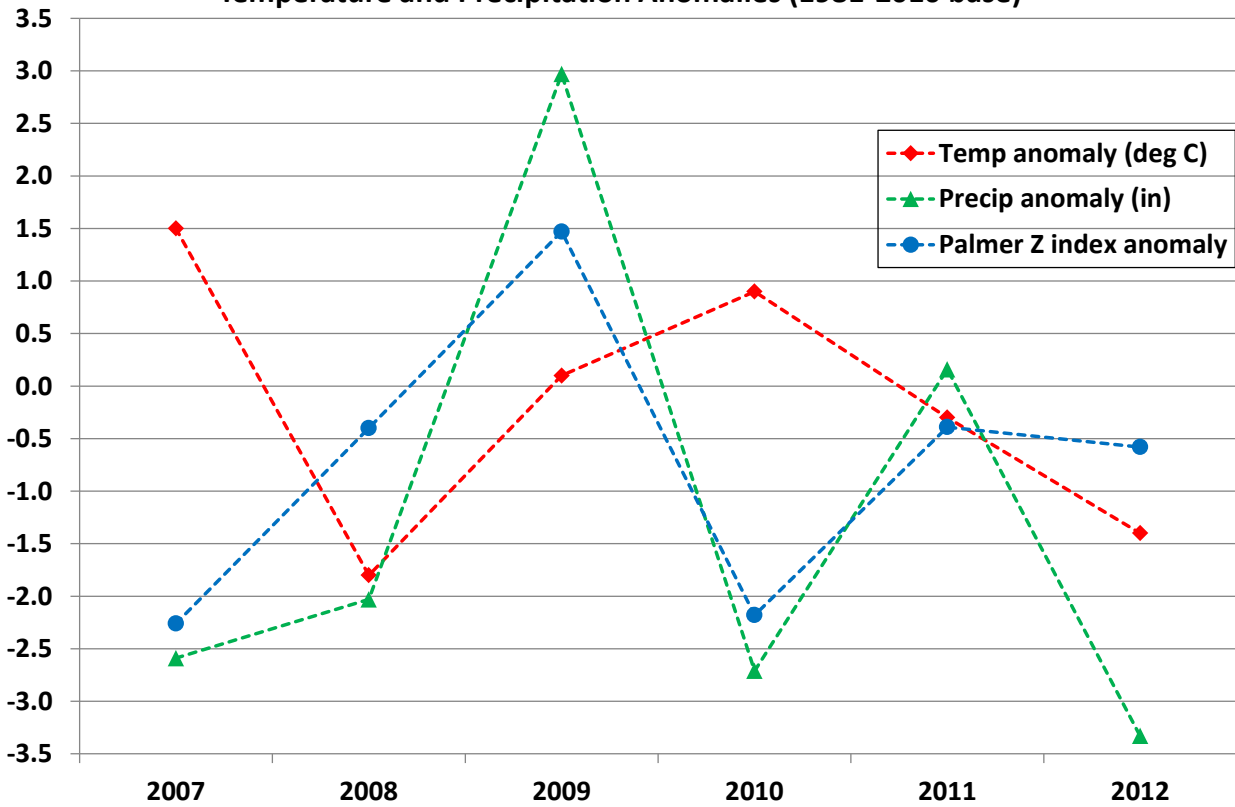
Figure I-44: OHIO VALLEY 2007-12 Autumn (Sept - Nov) Temperature and Precipitation Anomalies (1981-2010 base)



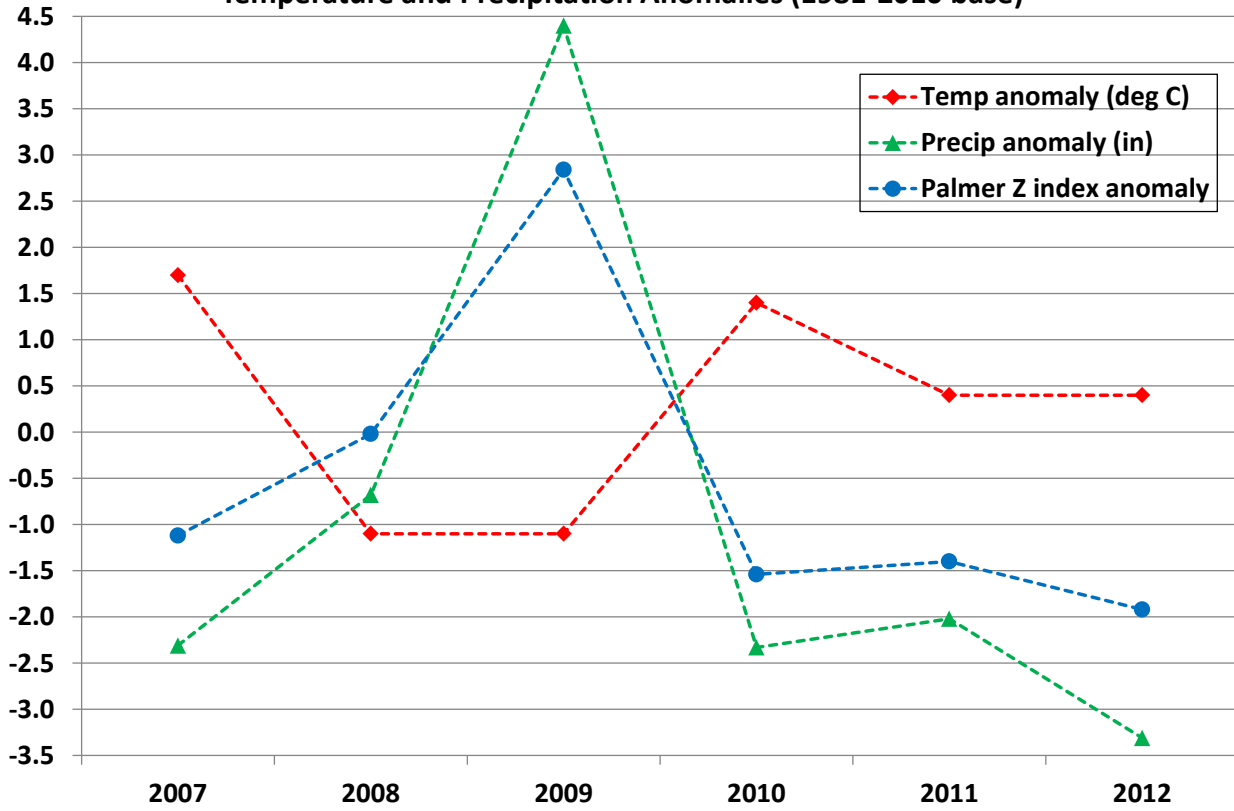
**Figure I-45: UPPER MIDWEST 2007-12 Autumn (Sept - Nov)
Temperature and Precipitation Anomalies (1981-2010 base)**



**Figure I-46: SOUTHEAST 2007-12 Autumn (September - November)
Temperature and Precipitation Anomalies (1981-2010 base)**



**Figure I-47: SOUTH 2007-12 Autumn (September - November)
Temperature and Precipitation Anomalies (1981-2010 base)**



**Figure I-48: NORTHERN PLAINS 2007-12 Autumn (Sept - Nov)
Temperature and Precipitation Anomalies (1981-2010 base)**

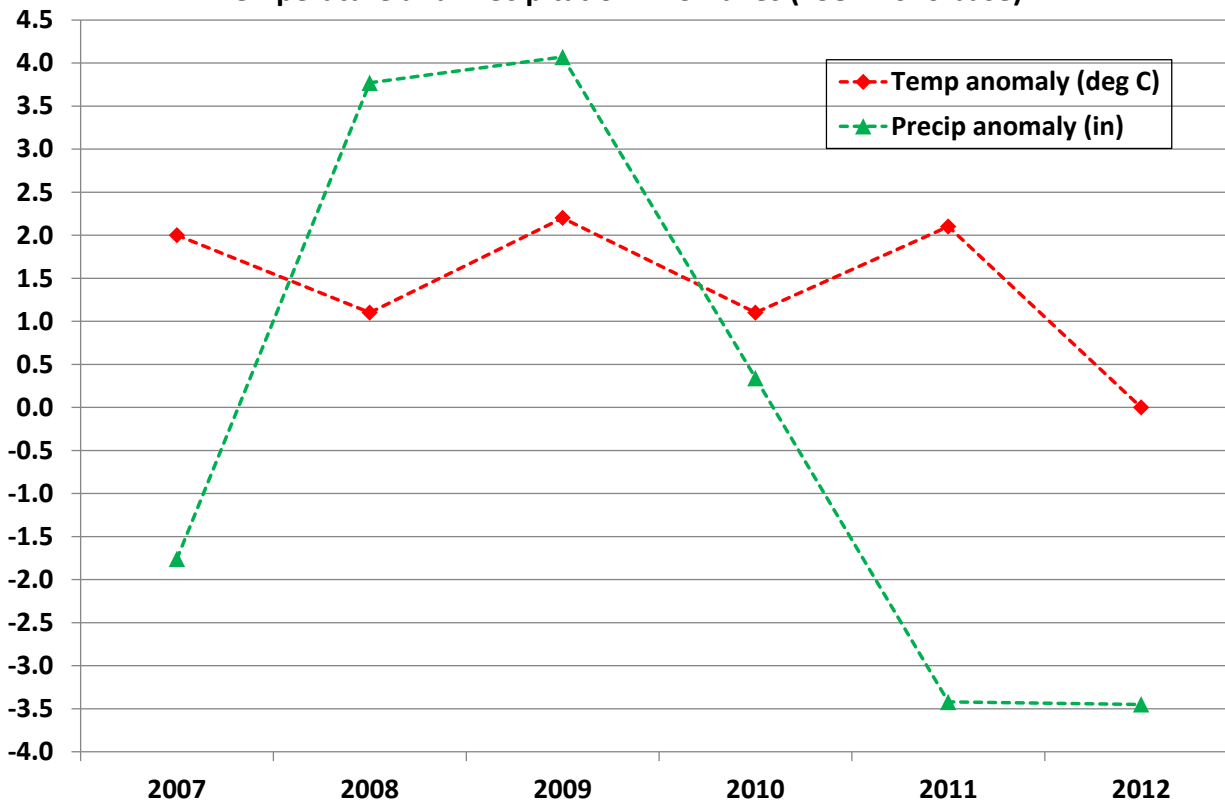


Figure I-49: 2007-12 Annual Temperature Anomalies (1981-2010 base)

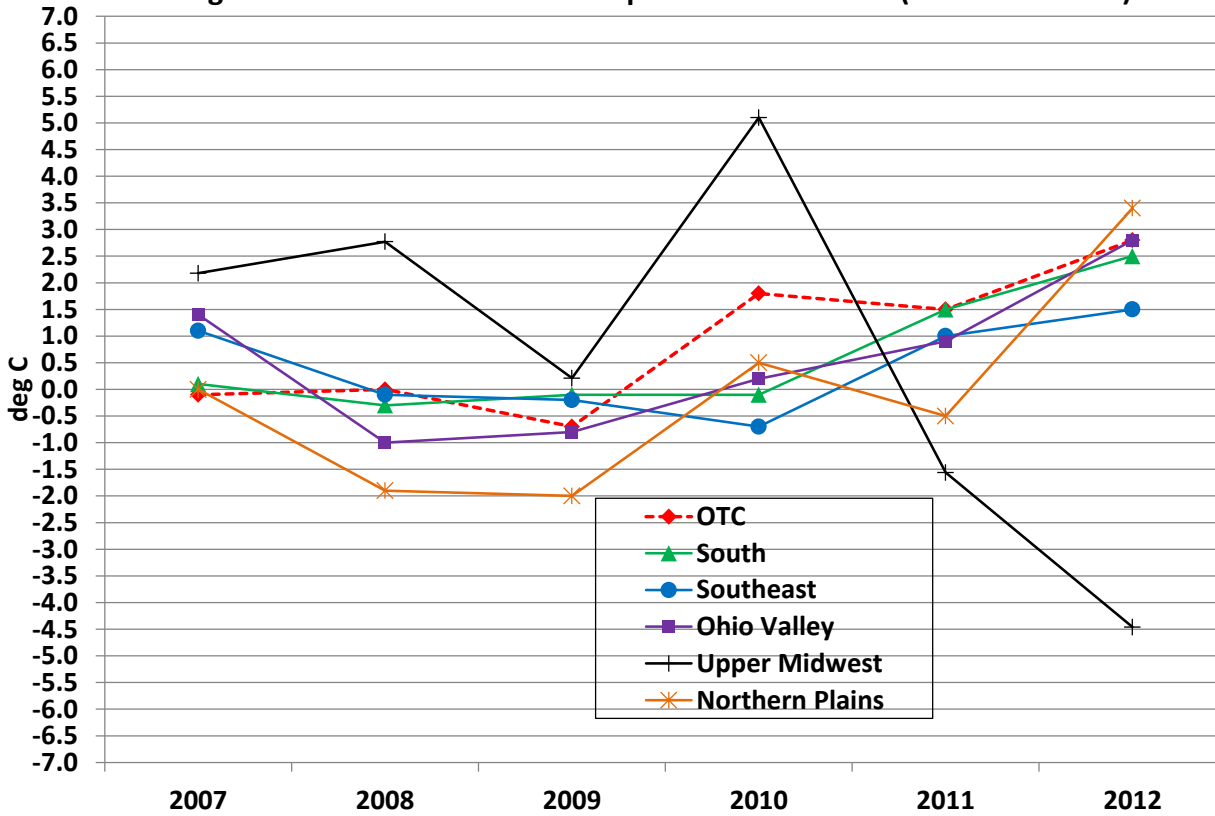


Figure I-50: 2007-12 Winter (January, February and December) Temperature Anomalies (1981-2010 base)

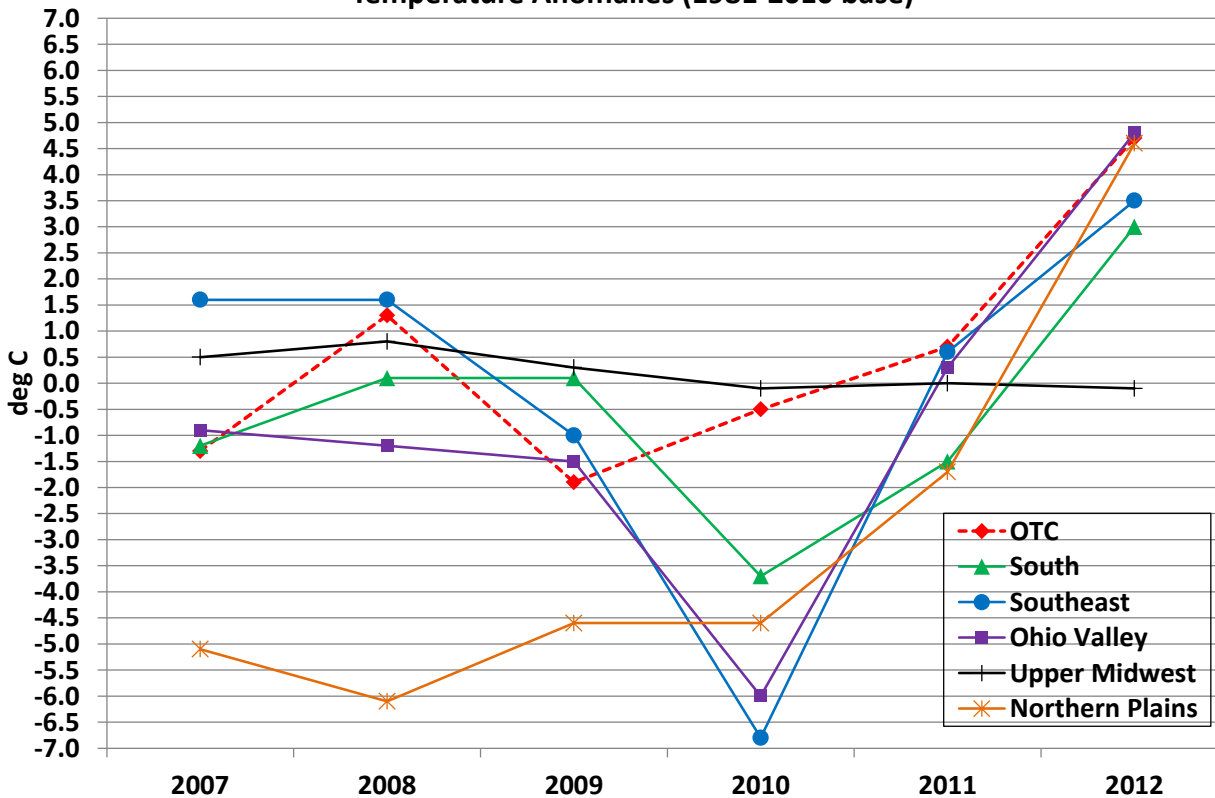


Figure I-51: 2007-12 Spring (March - May)
Temperature Anomalies (1981-2010 base)

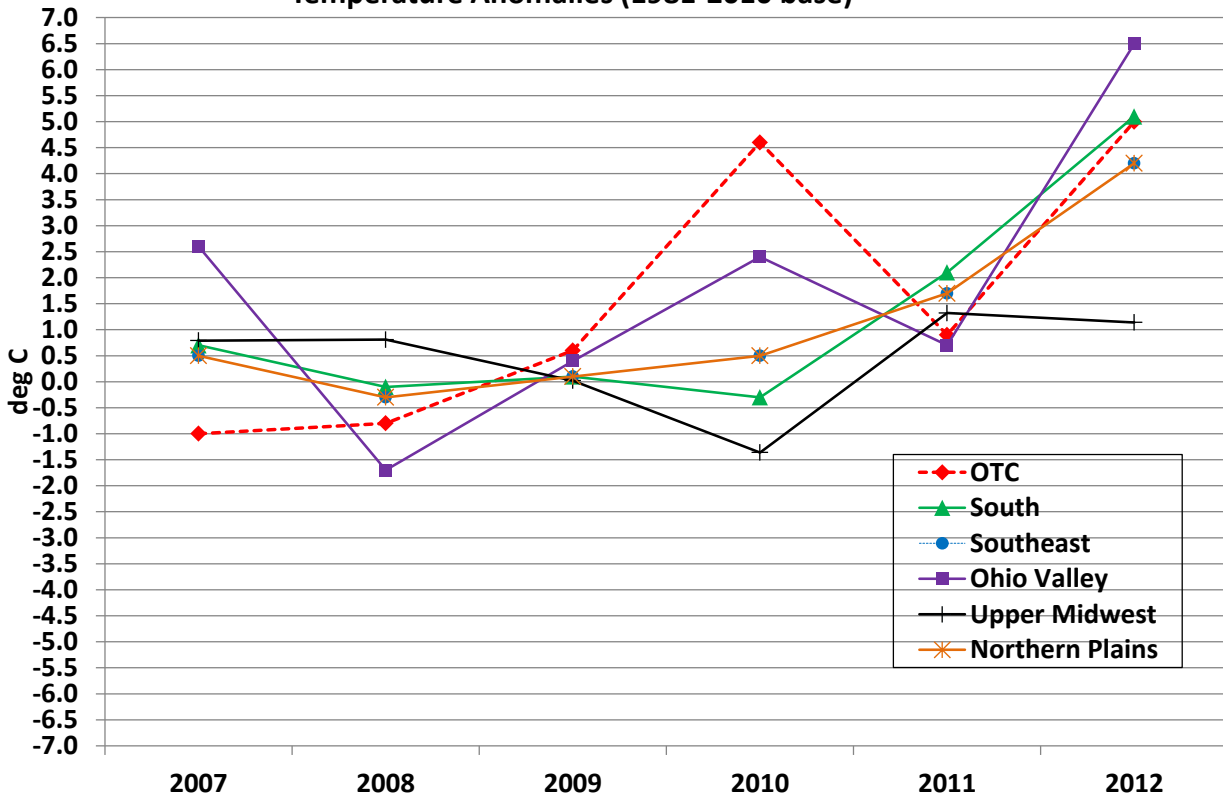
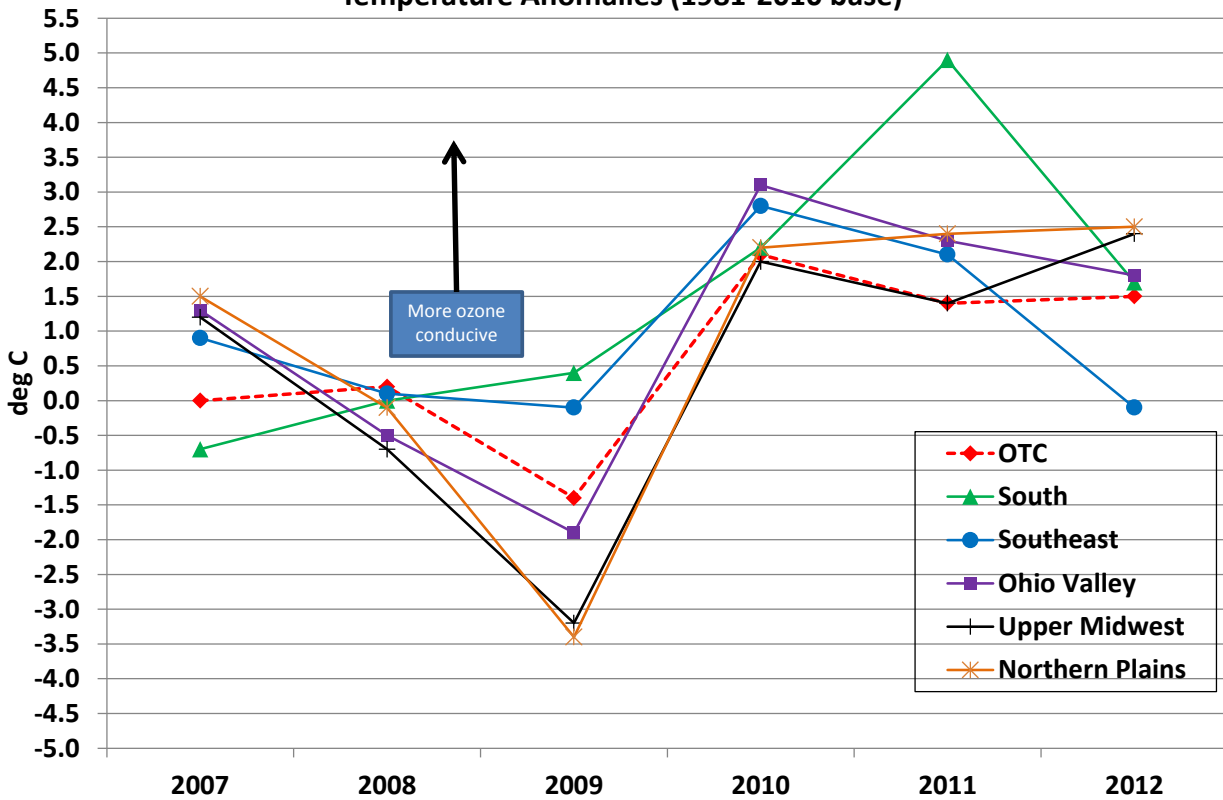


Figure I-52: 2007-12 Summer (June-August)
Temperature Anomalies (1981-2010 base)



**Figure I-53: 2007-12 Autumn (September - November)
Temperature Anomalies (1981-2010 base)**

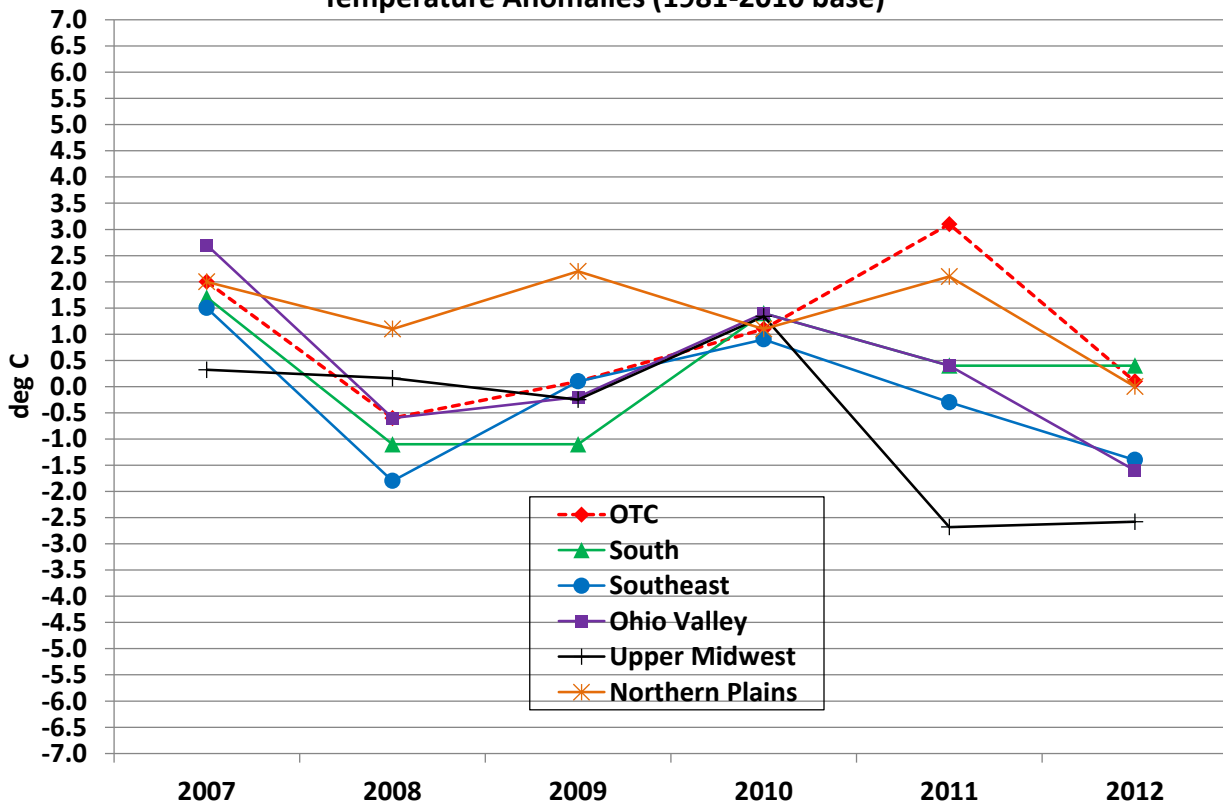
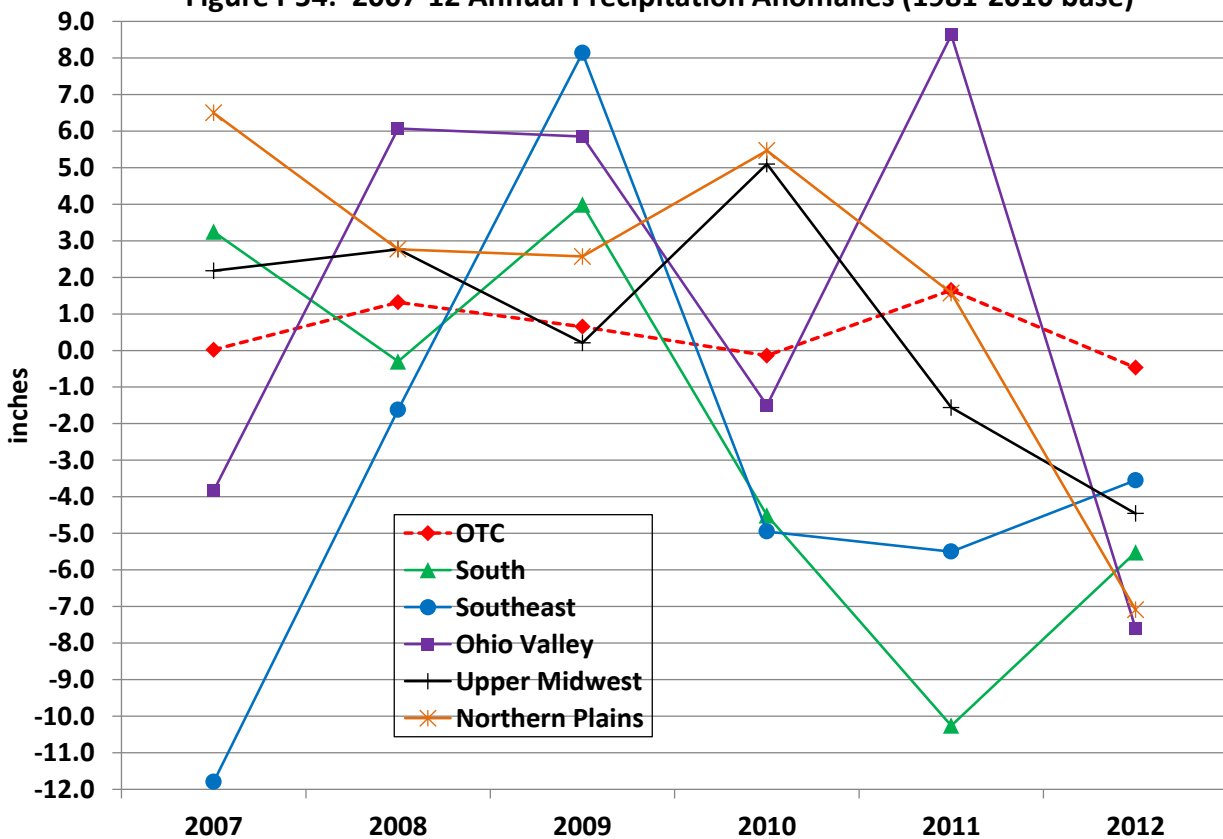
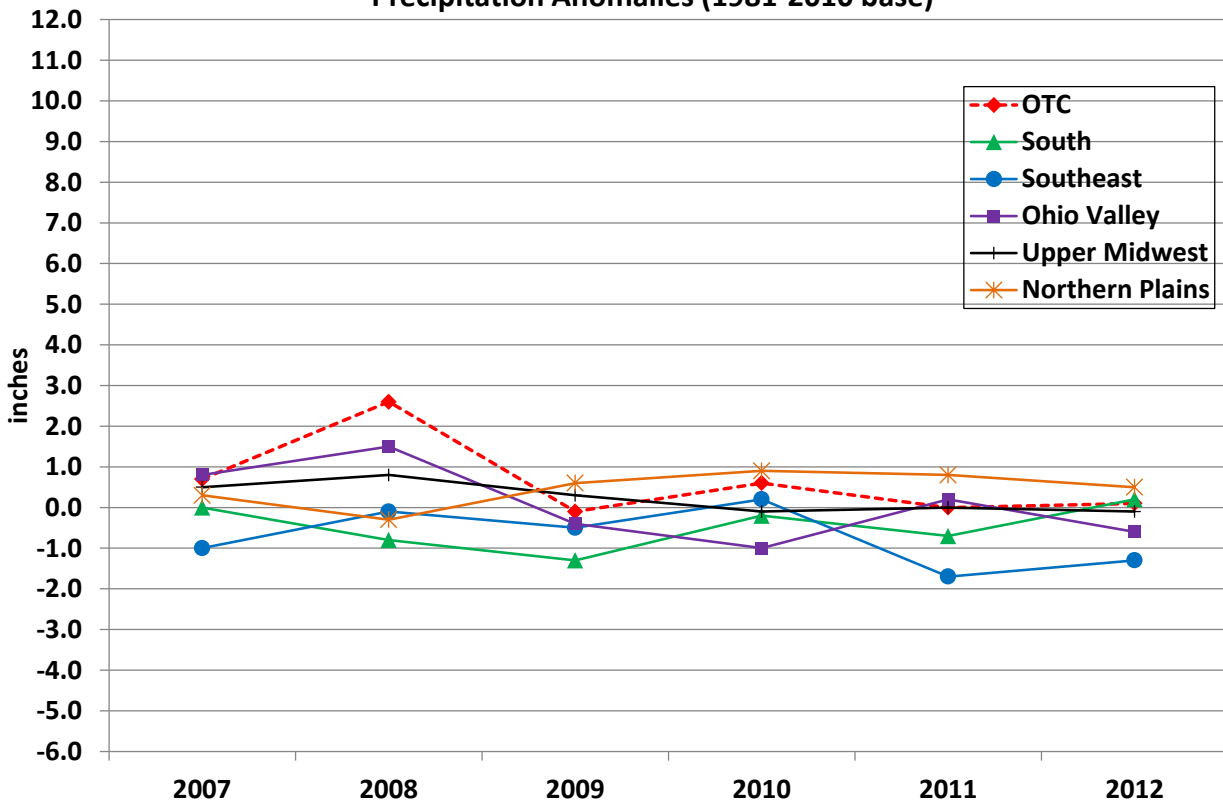


Figure I-54: 2007-12 Annual Precipitation Anomalies (1981-2010 base)



**Figure I-55: 2007-12 Winter (January, February and December)
Precipitation Anomalies (1981-2010 base)**



**Figure I-56: 2007-12 Spring (March - May)
Precipitation Anomalies (1981-2010 base)**

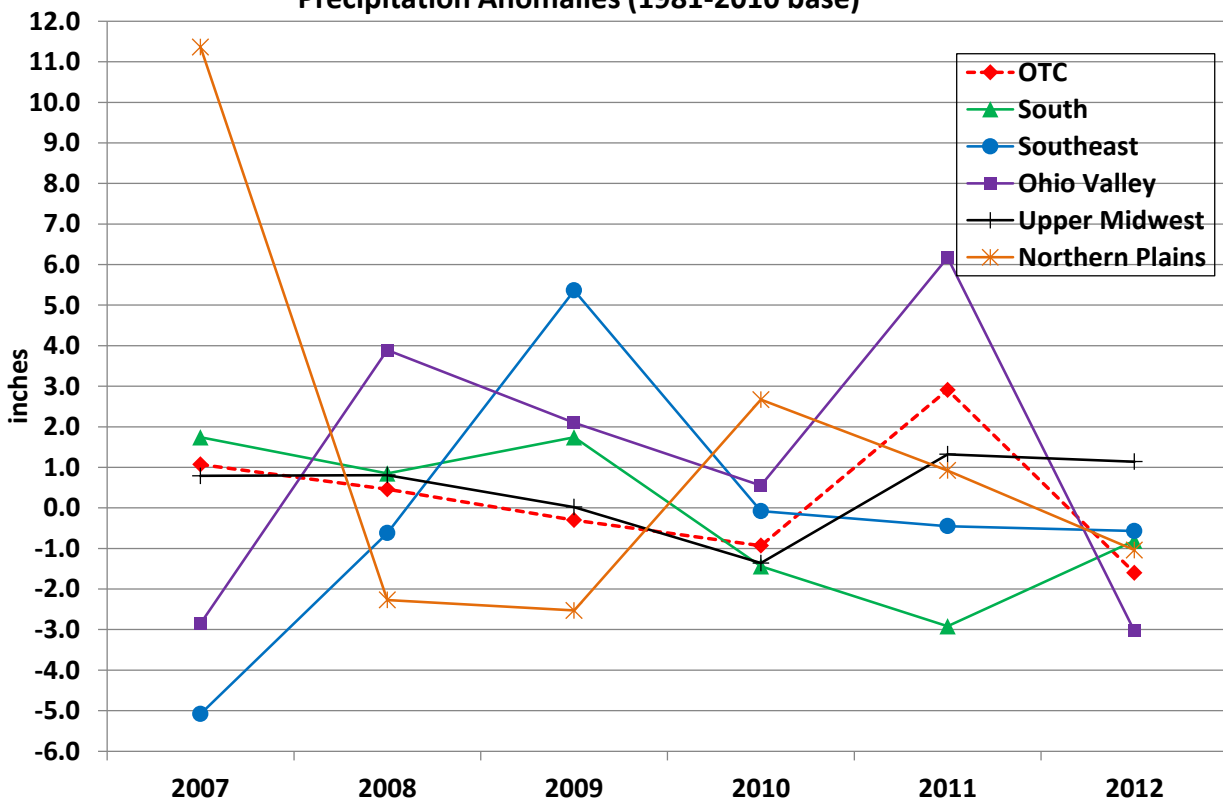


Figure I-57: 2007-12 Summer (June-August)
Precipitation Anomalies (1981-2010 base)

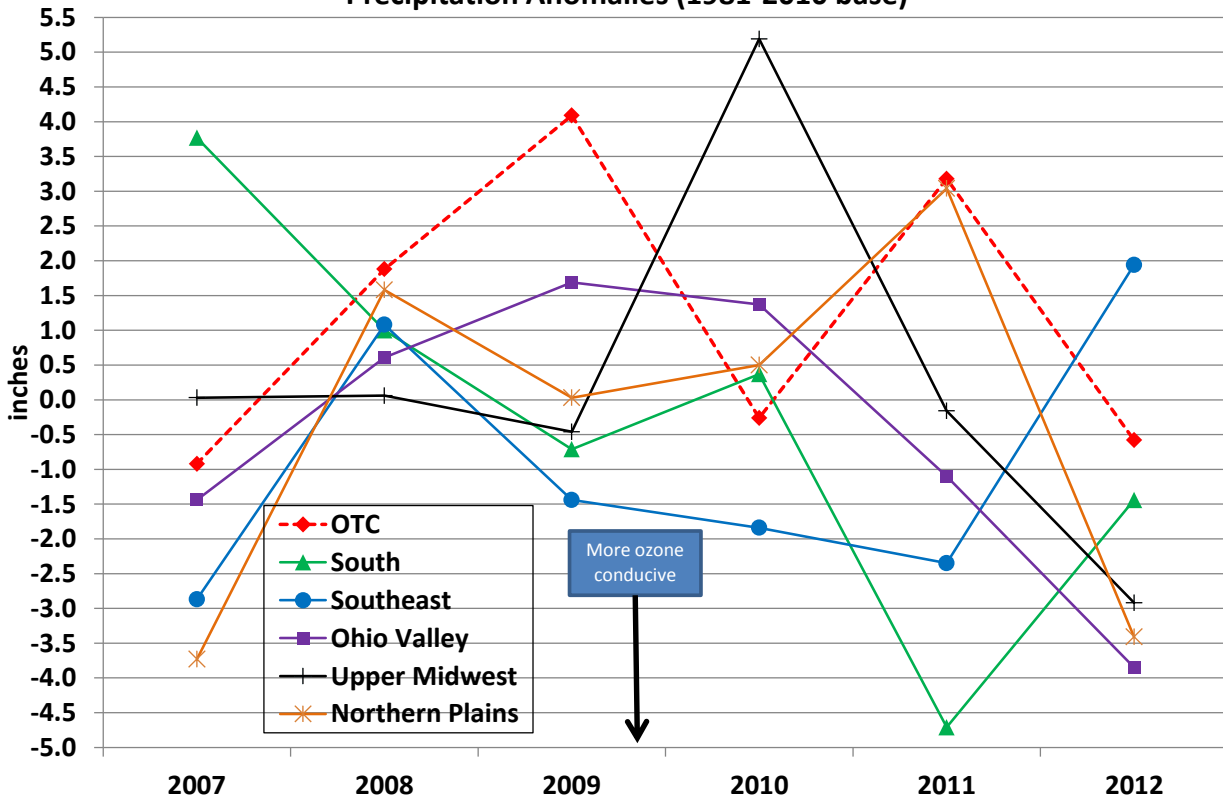


Figure I-58: 2007-12 Autumn (September - November)
Precipitation Anomalies (1981-2010 base)

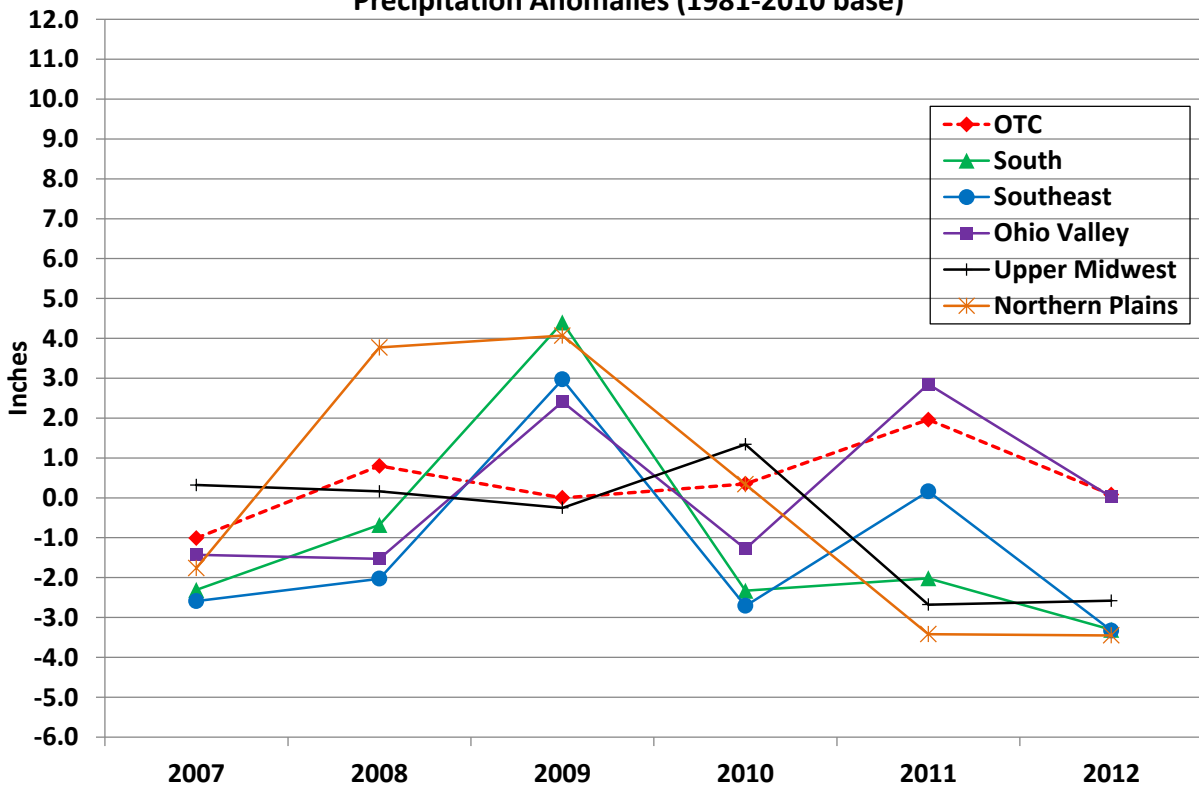


Figure I-59: 2007-12 Annual Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

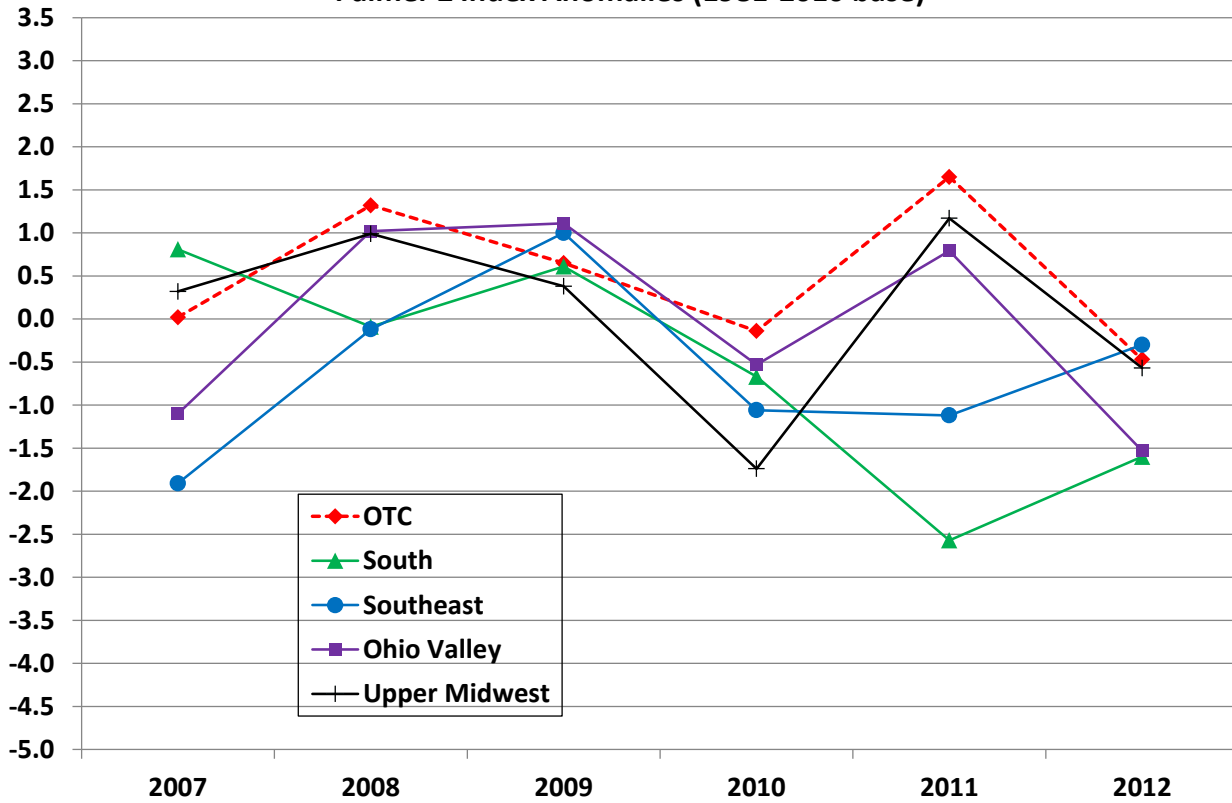


Figure I-60: 2007-12 Winter (January, February and December) Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

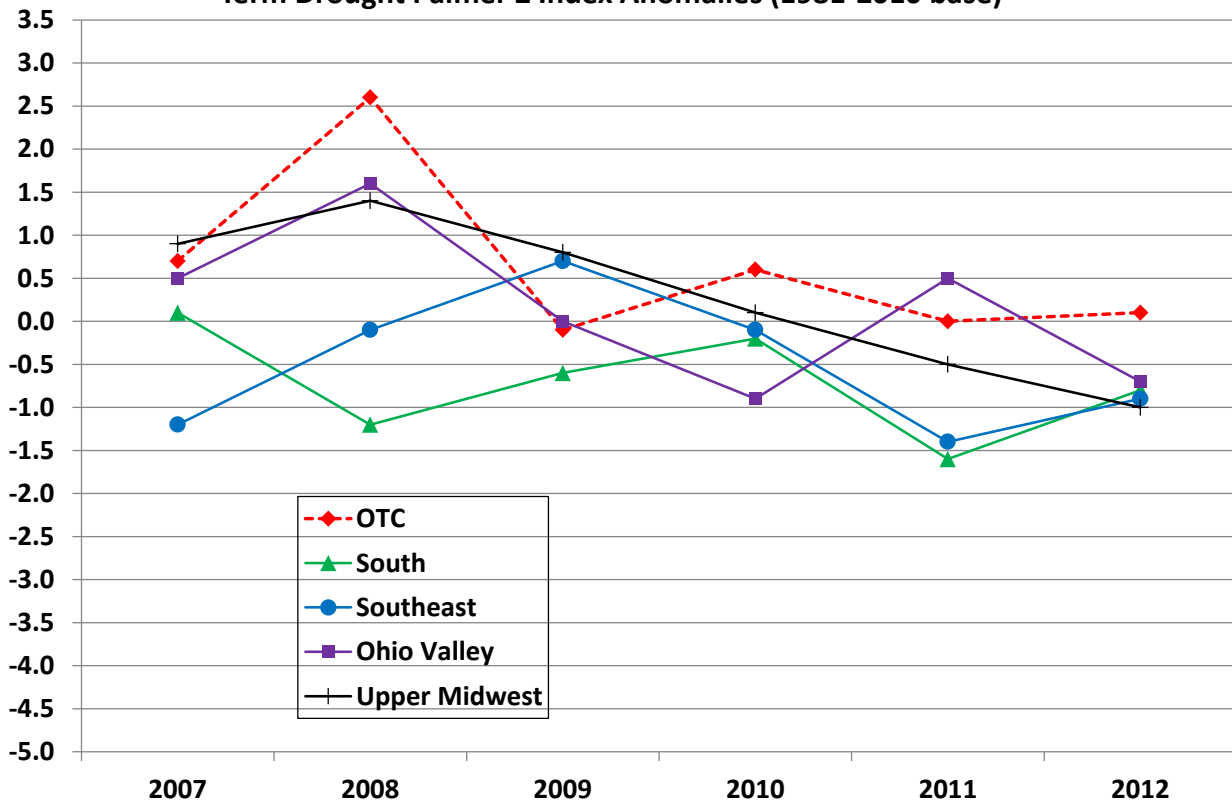


Figure I-61: 2007-12 Spring (March - May) Short Term Drought
Palmer Z Index Anomalies (1981-2010 base)

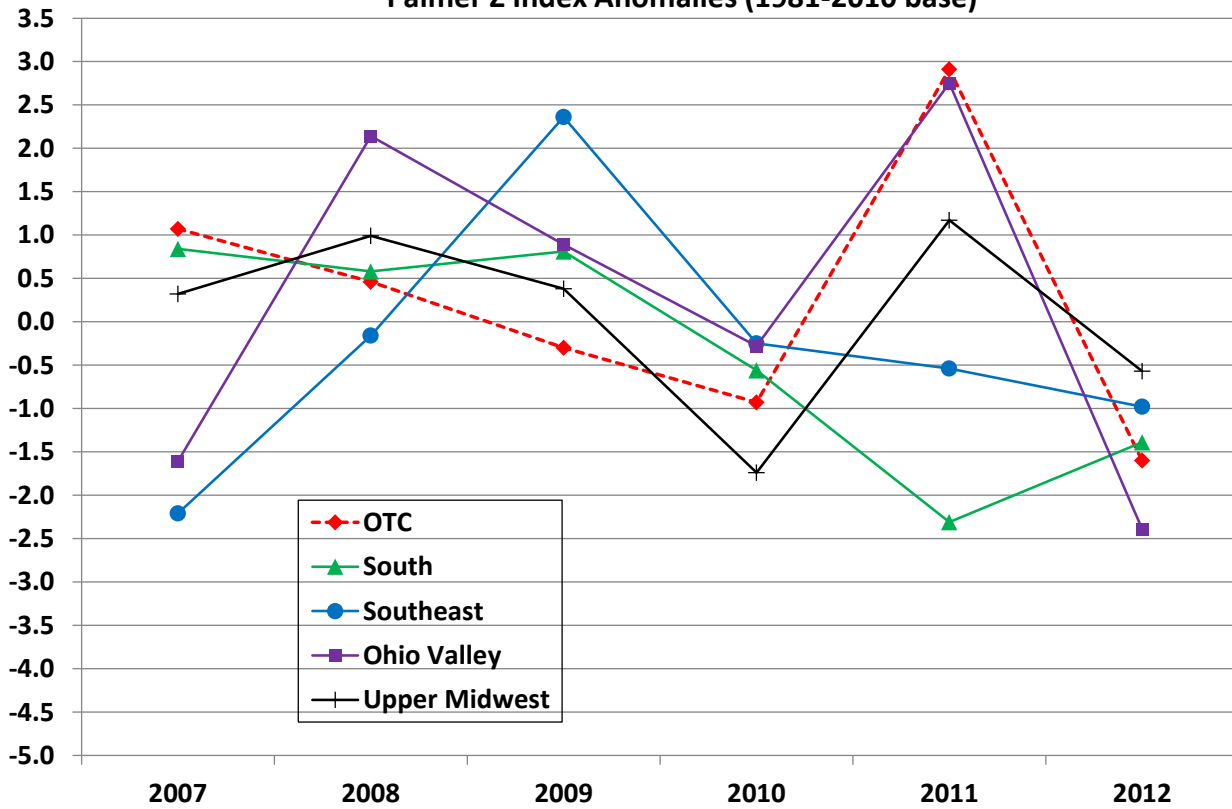


Figure I-62: 2007-12 Summer (June-August) Short Term Drought
Palmer Z Index Anomalies (1981-2010 base)

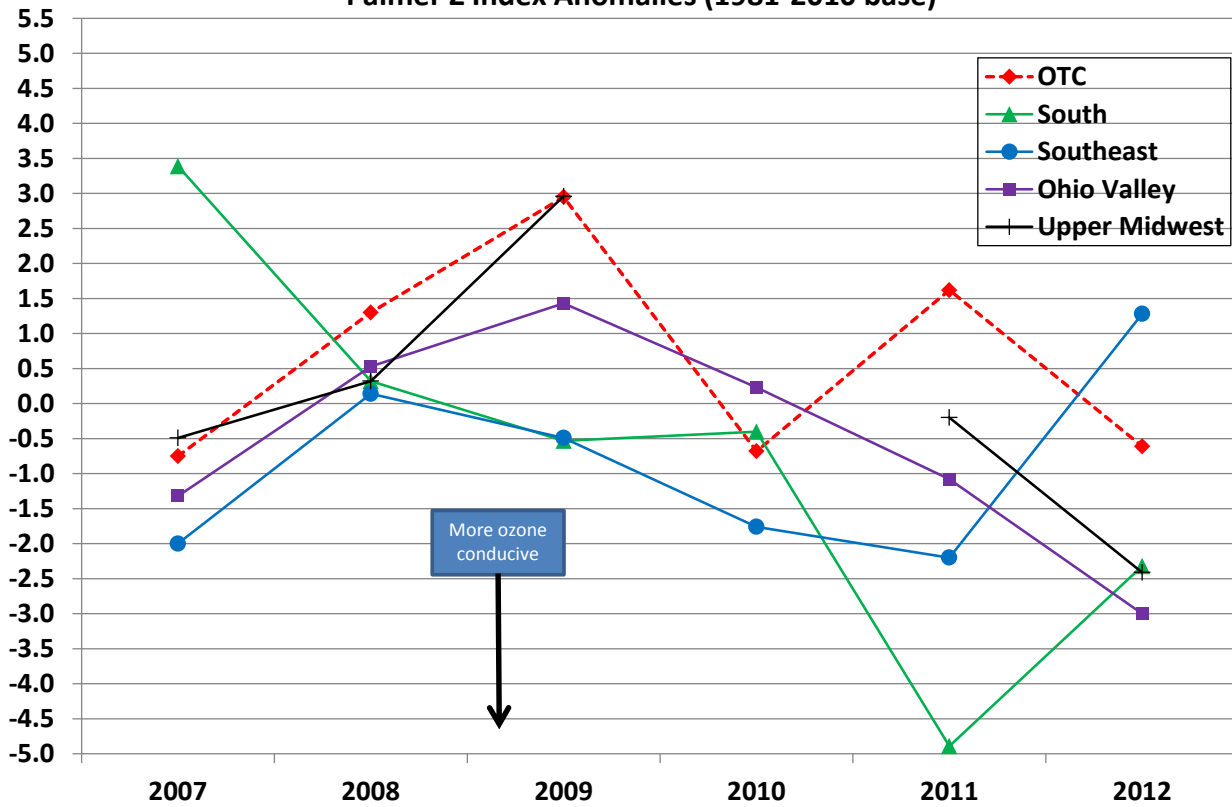


Figure I-63: 2007-12 Autumn (September - November) Short Term Drought Palmer Z Index Anomalies (1981-2010 base)

