

WINTER ANALOGS 2012-2013

.CLIMATE...

ITS THAT WONDERFUL TIME OF THE YEAR TO SPECULATE ON HOW THE UPCOMING WINTER WILL BE. ITS JUST ABOUT A SLAM DUNK TO SAY WELL ITS GOING TO BE SNOWIER AND COLDER THAN LAST WINTER AS LAST WINTER WAS ONE OF THE WARMEST AND LEAST SNOWIEST ONES ON RECORD FOR PHILADELPHIA.

ITS NOW A HAT TRICK OF WINTERS ON HOW THE NORTH ATLANTIC OSCILLATION (NAO) CAN THOROUGHLY TRUMP THE PACIFIC ENSO STATE. THE TWO PREVIOUS WINTERS WERE BOTH MODERATE LA NINAS AND WERE NEARLY POLAR OPPOSITES IN OUR AREA. UNFORTUNATELY THE NAO IS NOT AS WELL OUTLOOKED AS IS THE TROPICAL PACIFIC.

STARTING WITH THE TROPICAL PACIFIC, THE EL NINO PROJECTIONS (AND OBSERVED CONDITIONS TO BOOT) BY BOTH THE DYNAMICAL AND STATISTICAL MODELS HAVE FADED IN THE LAST COUPLE OF MONTHS. THE MODEL CONSENSUS FOR THIS UPCOMING WINTER IS FOR ENSO NEUTRAL POSITIVE. CLIMATOLOGICALLY SPEAKING SINCE THE WINTER OF 1949-50, ENSO NEUTRAL WINTERS IN PHILADELPHIA HAVE HAD AN AVERAGE TEMPERATURE OF 35.0F (NORMAL 35.2F) AND 19.7 INCHES OF SNOW (NORMAL 22.4 INCHES). THE ONE FACTOR THAT WE FIND INTERESTING IN ENSO NEUTRAL POSITIVE WINTERS IS THE LACK OF LARGER SNOW EVENTS IN PHILADELPHIA. THERE HAS BEEN ONLY TWO 6 INCH OR GREATER EVENTS (OUT OF SIX ENSO NEUTRAL POSITIVE WINTERS) SINCE 1950. COMPARE THIS TO A WEAK EL NINO THAT HAS HAD EIGHT (OUT OF TEN WINTERS) AND ENSO NEUTRAL NEGATIVE THAT HAS HAD THIRTEEN (OUT OF FOURTEEN WINTERS). OF COURSE OF LATE THE SNOW STORMS THAT HAVE AFFECTED OUR AREA HAVE BEEN MORE WHOPPERS THAN DUDS. OF THE TWENTY-ONE TEN INCH OR GREATER EVENTS IN PHILADELPHIA SINCE 1950, TWELVE OF THEM HAVE OCCURRED SINCE THE WINTER OF 1995-96 AND FIVE OF THE LAST SIX SNOWFALL EVENTS THAT HAVE CROSSED THE SIX INCH THRESHOLD WERE TEN INCHES OR MORE.

AS FOR TRYING TO OUTLOOK THE NORTH ATLANTIC OSCILLATION WE HAVE LOOKED AT APPROXIMATELY FIVE DIFFERENT METHODS THAT HAVE HAD SOME DEGREE OF SUCCESS IN THE PAST. THE SCOREBOARD FOR THIS WINTER IS THREE FOR NAO POSITIVE, ONE FOR NAO NEUTRAL AND ONE FOR NAO NEGATIVE. BUT THAT LAST ONE HAS BEEN THE HOT OUTLOOK OF LATE AND ONE COULD SAY HAS HAD STAYING POWER. THIS IS THE EXTENT OF EURASIAN AND MORE SPECIFICALLY, IF WE COULD HAVE SEEN THE NUMBERS, THE SIBERIAN SNOW EXTENT DURING THE MONTH OF OCTOBER. IT HAS BEEN CORRECT THE LAST THREE WINTERS (GREATER THAN NORMAL SNOW COVER, OVERALL NEGATIVE NAO). LOCALLY WE HAVE FOUND ITS A BETTER INDICATOR OF SNOW THAN TEMPERATURES. SEASONAL SNOWFALL STATISTICALLY SPEAKING IS NOT A NORMAL DISTRIBUTION, BUT A GAMMA DISTRIBUTION. THE SNOWY WINTERS SKEW THE AVERAGE HIGHER. THE MOST LIKELY OUTCOME FOR ANY GIVEN WINTER IS BELOW AVERAGE SNOWFALL. SINCE SNOW COVER CAN BE MAPPED, THERE IS A 33 PERCENT CHANCE OF ANY GIVEN WINTER BEING ABOVE THE CURRENT NORMAL. BUT WHEN EURASIAN SNOW COVER IS GREATER THAN NORMAL IN OCTOBER, THE PAST PERCENTAGE HAS INCREASED TO 50 PERCENT. IF IT WAS BELOW NORMAL, LIKE LAST WINTER, ITS BEEN ONLY 18 PERCENT.

MY COLLEAGUE FROM ACROSS THE AISLE HAS TOLD US THAT FROM A STATISTICAL POINT, THE EURASIAN OCTOBER SNOW COVER DOES NOT ADD

MUCH CONFIDENCE BEYOND USING WHAT WE HAVE ALREADY BEEN DOING FOR SEVERAL YEARS: LOOKING AT THE LOCAL OCTOBER AND NOVEMBER TEMPERATURES. IN A CIRCUITOUS ROUTE (ARRIVING WITH THE SAME OUTCOME?), THE SNOW COVER INFLUENCES THE PATTERNS WHICH IN TURN INFLUENCES THE TEMPERATURES. WE HAD A WARM OCTOBER AND FOR THE FIRST TIME SINCE 1996 WE BELIEVE WILL HAVE A COLD (LOWEST THIRD) NOVEMBER. THIS TOP THIRD, BOTTOM THIRD COMBO IS NOT COMMON AT ALL IN ANY ENSO REGIME. SO MUCH SO, FOR OUR ANALOG SERIES TO GET SIX PAST SEASONS, WE HAD TO INCLUDE A COUPLE OF WEAK EL NINO WINTERS AND ONE ENSO NEUTRAL NEGATIVE WINTER. ALL HAD WARM OCTOBERS AND COLDER THAN CURRENT NORMAL NOVEMBERS TO FIT THE TEMPERATURE SEQUENCE. ONLY 1959-60 HAD A LOWEST THIRD (COLD) NOVEMBER. AFTER ALL OF THE EURASIAN SNOW COVER DISCUSSION IT IS IRONIC THAT ALL OF THESE ANALOGS OCCURRED PRIOR TO SATELLITE DATA BEING AVAILABLE TO GATHER THESE STATISTICS. SO HERE ARE OUR CHEAPER BY THE HALF DOZEN ANALOGS FOR THIS UPCOMING WINTER FOR PHILADELPHIA. THEIR MILEAGE MAY VARY:

SEASON	DEC AVG	JAN AVG	FEB AVG	WINTER AVG	SEASONAL SNOWFALL*	WINTER PCPN
1914-5	33.3	36.6	38.8	36.2	32.3	19.64
1919-0	32.5	26.8	31.4	30.2	23.2	9.71
1932-3	40.4	42.6	36.7	39.9	22.0	8.98
1941-2	38.3	30.5	30.8	33.2	10.3	9.24
1953-4*	39.4	31.7	41.2	37.4	22.6*	7.58
1959-0	38.2	34.2	35.4	35.9	21.8	10.17
AVG	37.0	33.7	35.7	35.5	22.0	10.89
1981-2010 NML	37.5	33.0	35.7	35.4	22.4	9.24

* THIS INCLUDES THE NOVEMBER SNOW THAT SEASON. THE OFFICIAL CPC OUTLOOK FOR THE WINTER IS FOR EQUAL CHANCES OF IT IT BEING EITHER WARMER OR COLDER THAN NORMAL AND EITHER WETTER OR DRIER THAN NORMAL.

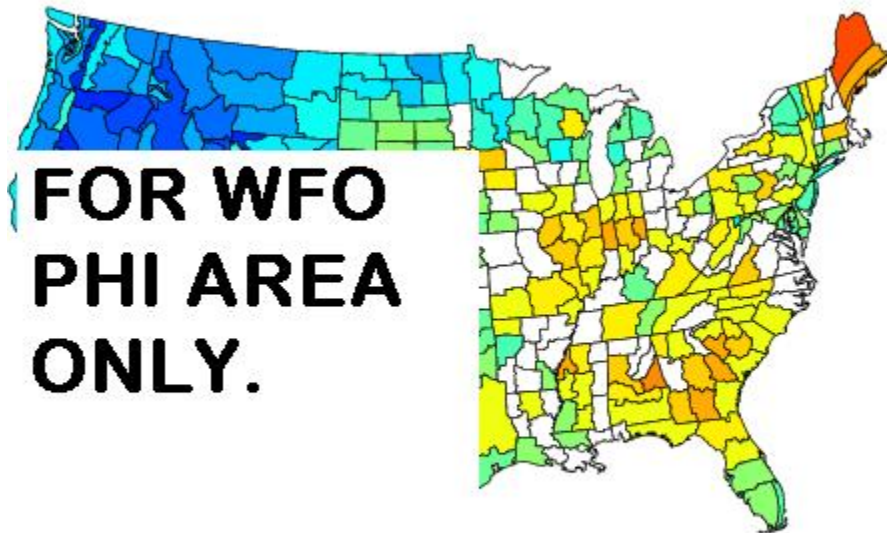
WE WANT TO WISH EVERYONE A VERY HAPPY AND HEALTHY WINTER SEASON AND PLEASE USE YOUR SNOW THROWERS AS MUCH OR AS LITTLE AS YOU DESIRE.

PLEASE SEE DIAGRAMS BELOW

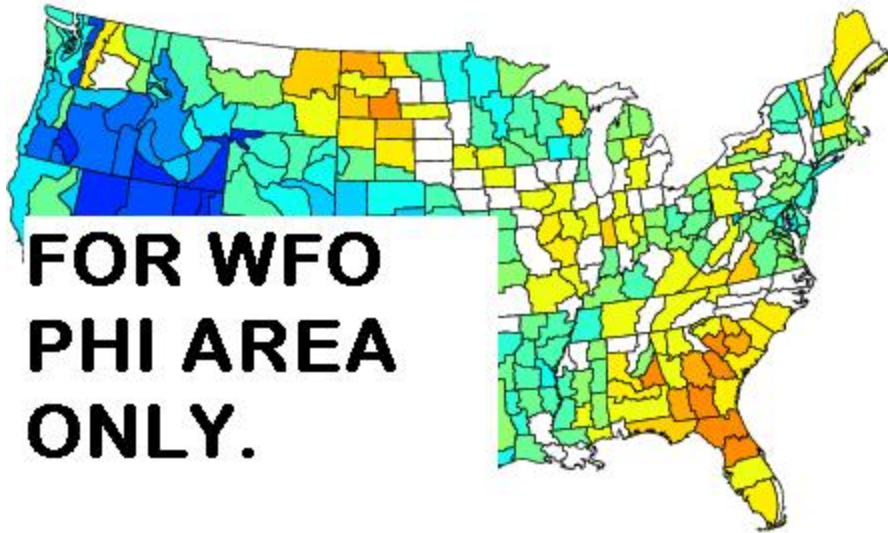
Composite Precipitation Anomalies (inches)
Dec to Feb 1914-15, 1919-20, 1932-33, 1941-42, 1953-54, 1959-60
Versus 1981-2010 Longterm Average



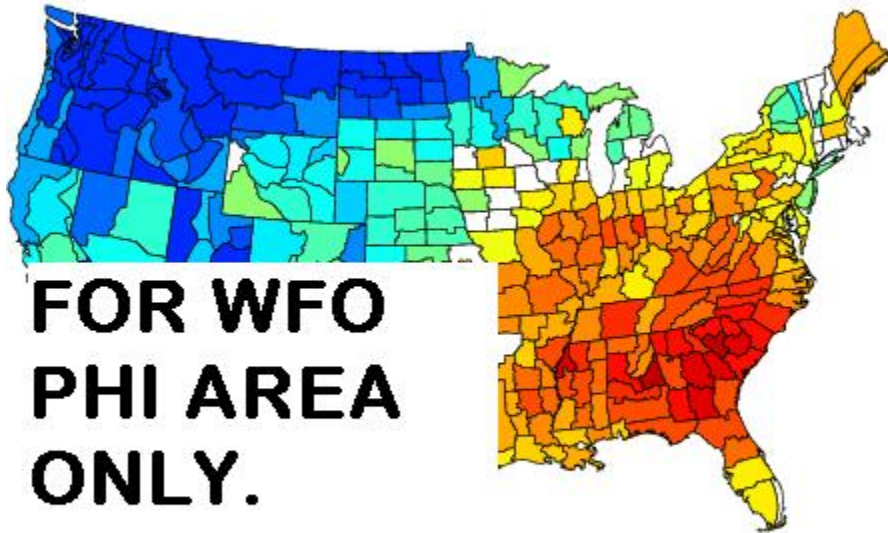
Composite Temperature Anomalies (F)
Dec to Feb 1914-15, 1919-20, 1932-33, 1941-42, 1953-54, 1959-60
Versus 1981-2010 Longterm Average



Composite Temperature Anomalies (F)
Dec 1914,1919,1932,1941,1953,1959
Versus 1981–2010 Longterm Average



Composite Temperature Anomalies (F)
Jan 1915,1920,1933,1942,1954,1960
Versus 1981–2010 Longterm Average



Composite Temperature Anomalies (F)
Feb 1915,1920,1933,1942,1954,1960
Versus 1981–2010 Longterm Average

