

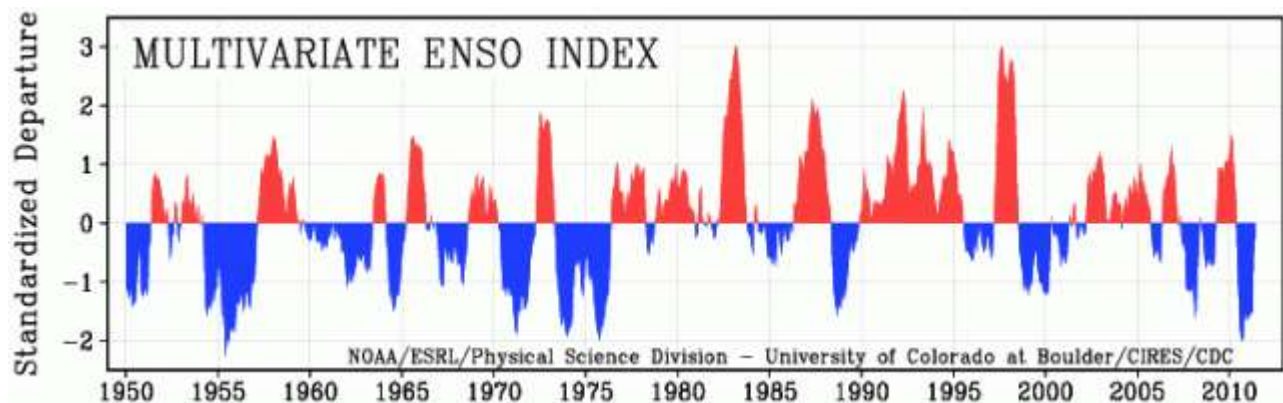
LA NINA OF 2010/11 SECOND STRONGEST? STRONGEST SOI SINCE 1917/18!

July 10 11:41 AM
by Joe D'Aleo

JB mentioned that the MEI was tracking close to the best analog for this year 2008. 2008 had La Nina weaken in the boreal NH summer before returning the following winter.

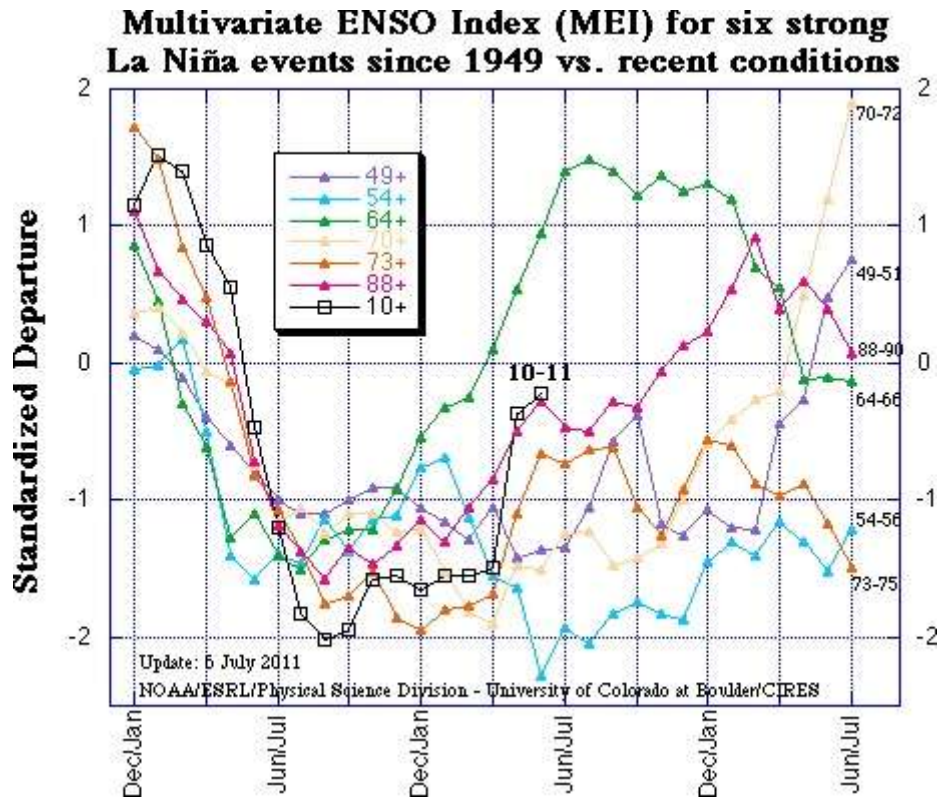
Klaus Wolter who developed the MEI noted:

"The recent La Niña event had been classified as strong (top 6 rankings since 1950) for nine months, or from July-August 2010 through March-April, tied with 1975-76 for 2nd place in terms of continuously strong duration, with only 1955-56 lasting longer in that category (15 months)."



"In the context of the rapid transition from El Niño into La Niña last year, this section features a comparison figure with strong La Niña events that all reached at least minus one standard deviations by June-July, and a peak of at least -1.4 sigma over the course of an event. It turns out that this selection covers exactly the same strong La Niña events that were introduced earlier (1949-51, 1954-56, 1964-65, 1970-72, 1973-76, and 1988-89), in addition to monitoring the currently unfolding event. The most recent moderate La Niña events of 1998-2001 and 2007-09 did not qualify, since they either did not reach the required peak anomaly (the first one) or became strong too late in the calendar year (both)."

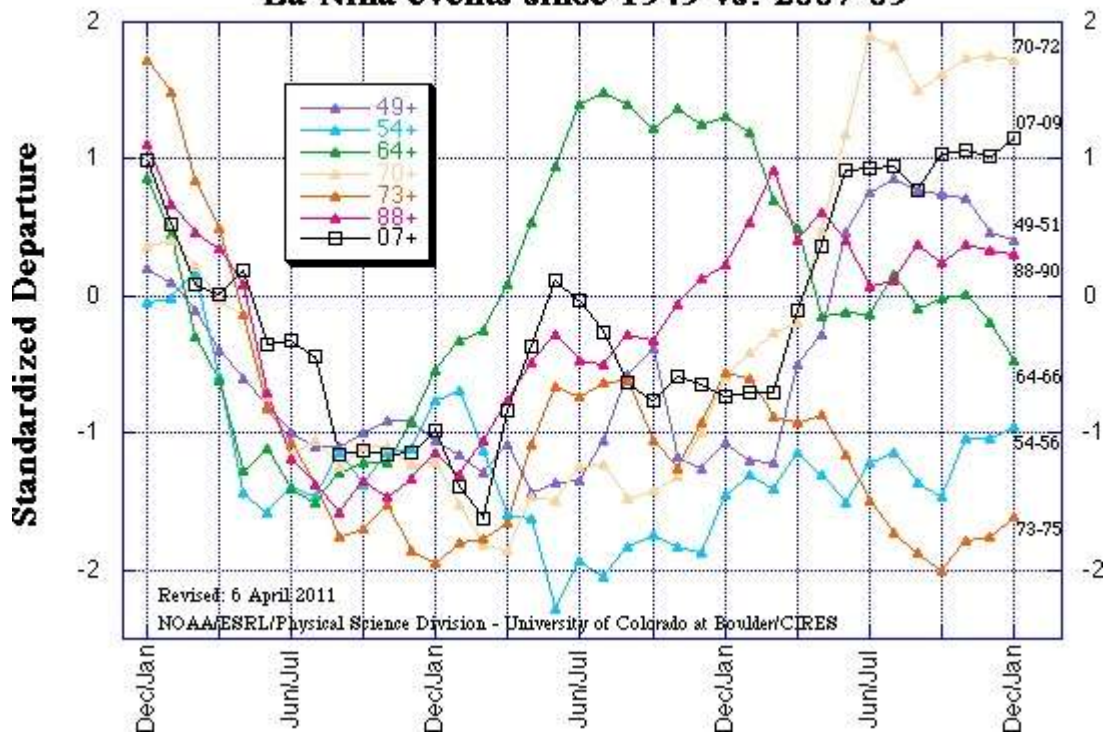
Here is his MEI plot of those years.



The 2010 developing La Niña bottoms out at the second lowest level in August/September just below (stronger than) 1973/74 (which peaked in December/January). The 1955 La Niña reached an even stronger two month mean negative MEI but in May/June.

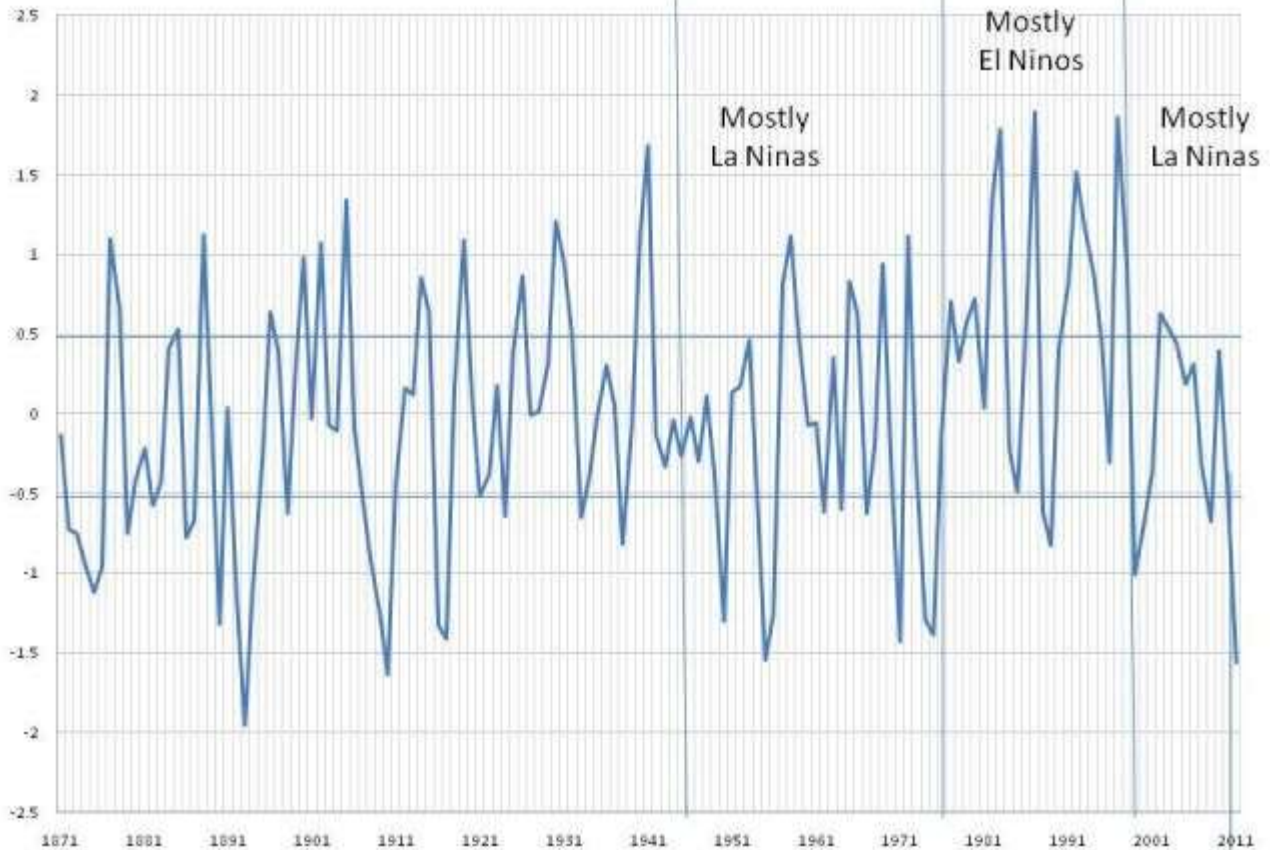
When you add the 2007-2009 La Niña, you can see the similar rise in the summer of 2008 to 2011 before returning to weak to moderate levels the following cold season.

Multivariate ENSO Index (MEI) for the six strongest La Niña events since 1949 vs. 2007-09



Wolter recently added MEI data back to the 1870s. In addition to comparisons on annual average to the early to mid 1950s, early to mid 1970s, this was similar to 1917, 1909 and 1873.

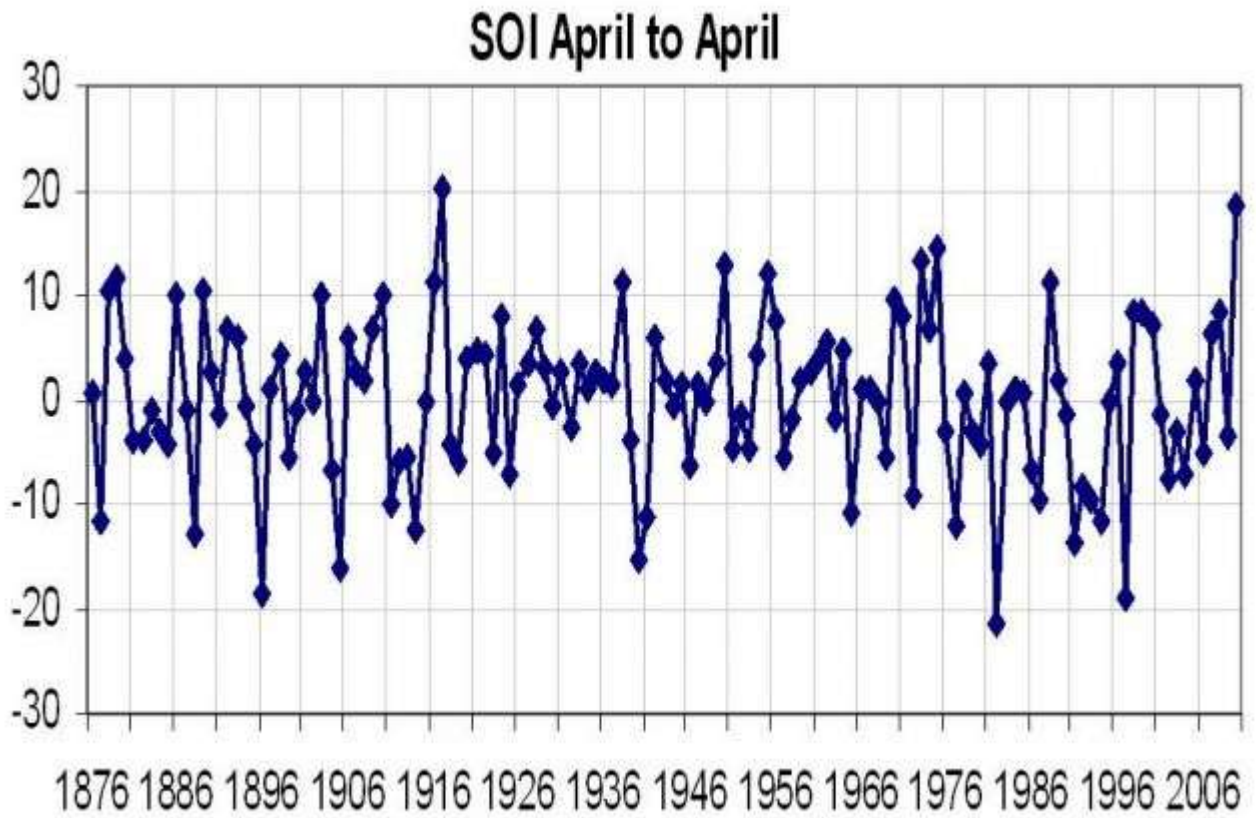
Annual MEI



Wolter also mentions the atmospheric ENSO measure, the SOI indicated a very strong event, second strongest ever!

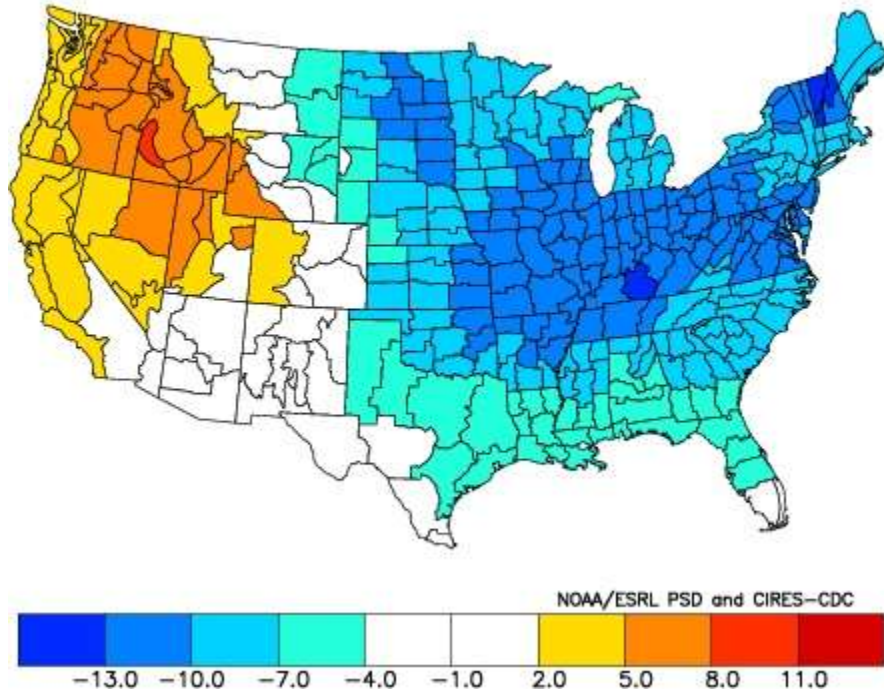
"For extended Tahiti-Darwin SOI data back to 1876, and timely monthly updates, check the [Australian Bureau of Meteorology website](#). This index has often been out of sync with other ENSO indices in the last decade, including a jump to +10 (+1 sigma) in April 2010 that was ahead of any other ENSO index in announcing La Niña conditions. After a drop to +2 in June 2010, July rebounded to +20.5, followed by nine monthly values between +16 (November) and +27 (December), including +22 in April 2011. The last (and only) time that this index showed higher values for the average of any ten months running was during 1917(!), so any SOI-based classification would classify this event as the second-strongest event of the last century."

I took the SOI and did an April to April average of all years. It was the second strongest in the record indeed just behind the super La Nina of 1917/18.



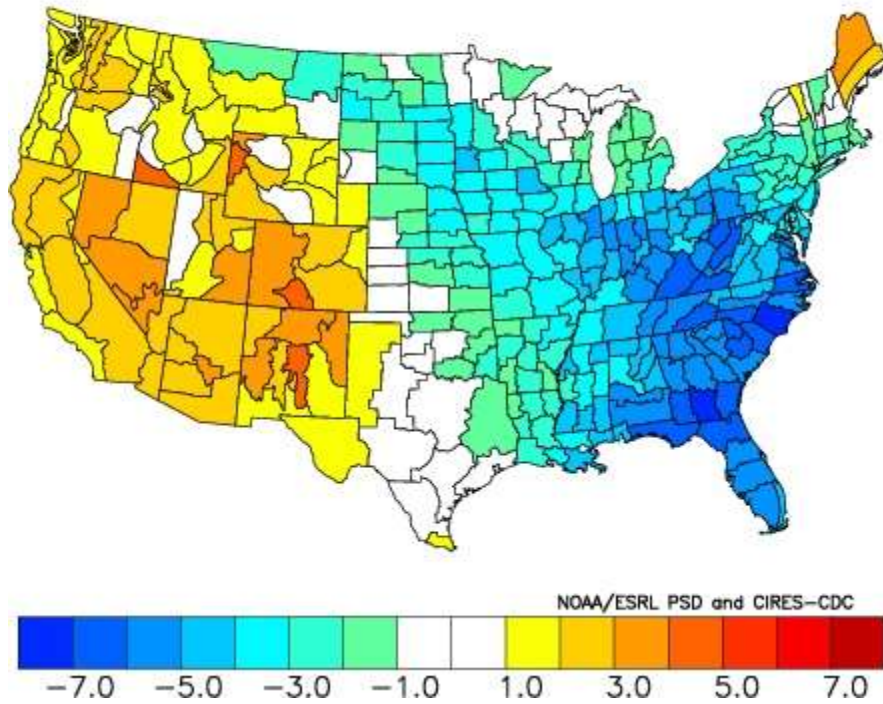
The 1917/18 was the coldest La Nina on record.

Temperature Anomalies (F)
Dec to Jan 1917-18
Versus 1950-1995 Longterm Average



Last winter was a winter with the cold even further south, very rare for La Ninas. You will recall that February and March were more typical with southeast warmth.

Temperature Anomalies (F)
Dec to Jan 2010-11
Versus 1950-1995 Longterm Average



Katmai's strong eruption of 1912 and the long solar minimum of 1911-1913 were similar to the high latitude activity and long solar minimum in recent years. These may have been a factor in making the winters colder in La Nina and El Nino in recent years. See the decadal trends. When all regions are cooling, there are external factors at play as the US usually is cold warm or warm cold west to east.

NCDC Decadal Change in Winter Temperatures 2001/02-2010/11

