With the Stage Nearly Set, the Dinner Table is Now Being Set!!

Strong or weak La Nina, it doesn't really matter for years following a strong El Nino like last year. Years that follow seem to have a lot of energy to release, as mentioned in last post. Keep in mind, the key Pacific months to watch that correlate with our winter snowfall and spring/summer streamflow are July-November, and we have only seen the data thus far through September for this year.

Here's a few examples to watch as winter moves in to set the Dinner Table. Nothing can be guaranteed but with wild weather around us, there is no reason not to expect the extreme and wild weather to continue. We are not living in the calm and quiet doldrum years like the early 2000s.

1. NOAA's mid-September Prediction shows the likelihood of a weak or mild La Nina and one outlier favoring the strong.

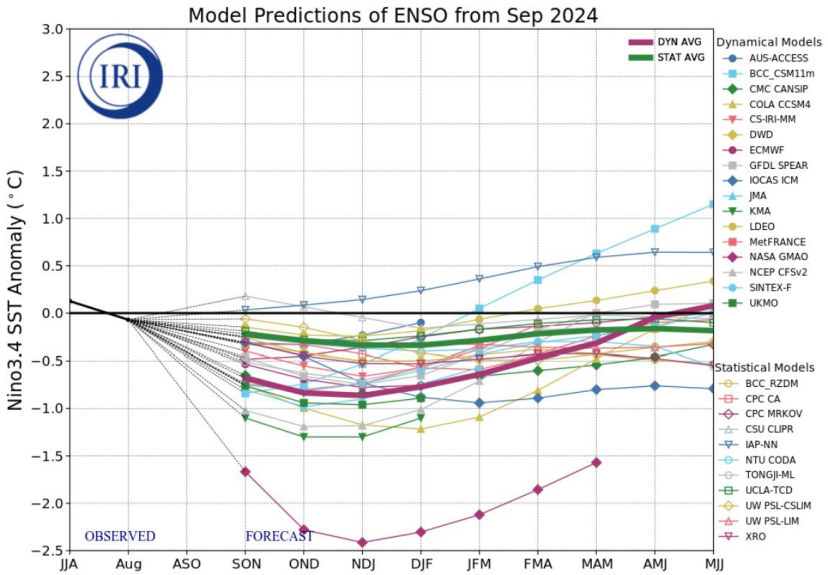


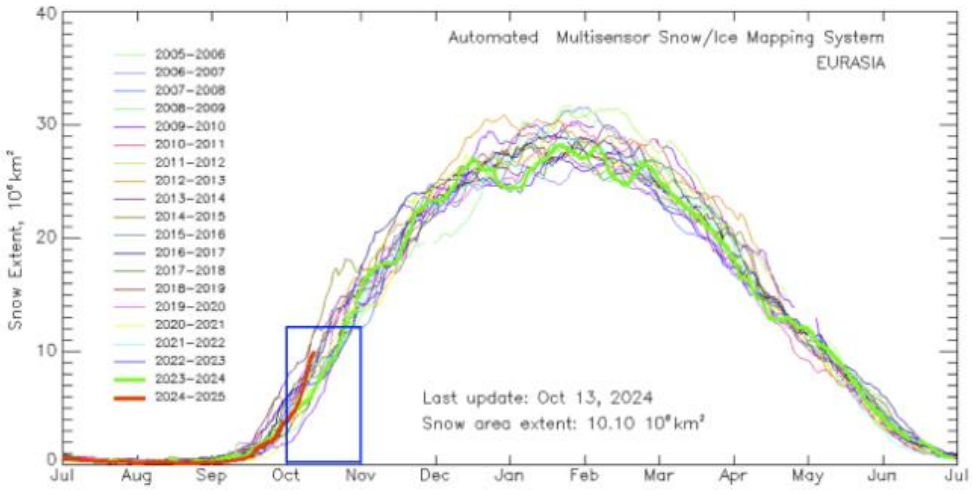
Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 19 September 2024 by the International Research Institute (IRI) for Climate and Society.

2. Usually, we don't start looking or talking about the **Siberian snow cover** until November, but it's off to a great start! If you like details and want to learn more about the Siberian snow cover influence on North American's winter, check out Judah's post. He's been talking about the Siberian snow cover relationship and its influence on the jet stream his whole life, and he's younger than I and likes Ultimate Frisbee. Must be a cool dude!
http://www.judahcohen.org/

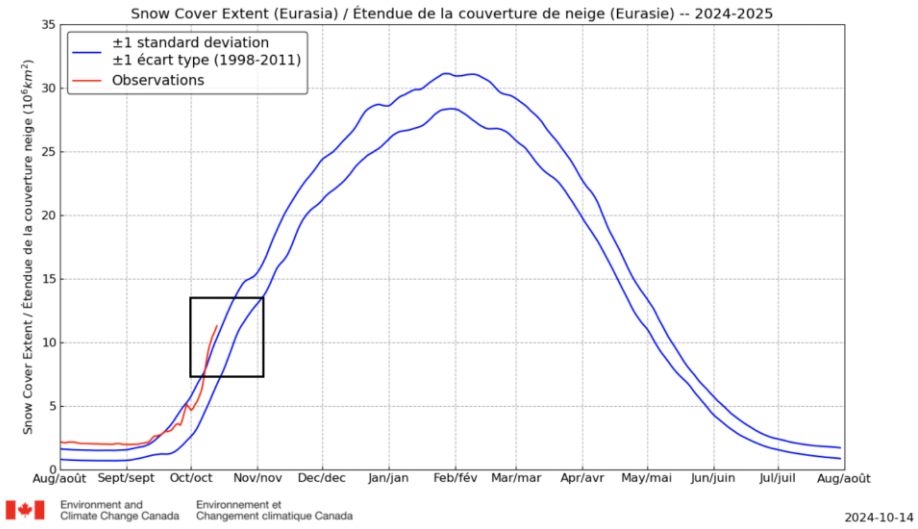
3. Another source to explain the Siberian Snow Cover realtionship is from Severe Weather Europe, if you can read between the ads.

Polar Vortex is affected by October Snow extent in an unexpected way, with a large snow advance now being Forecast
Posted onPublished: 14/10/2024
https://www.severe-weather.eu/global-weather/polar-vortex-winter-weather-pattern-forecast-snow-cover-anomaly-influence-united-states-canada-europe-fa/

Currently, we are already seeing more snowfall than usual over Siberia. The graph below shows that the extent of snow cover over Eurasia is just over 10 million square kilometers, running above average for this time of year, and is the third highest in the past 20 years.



The next image is from the Canadian Cryosphere Agency and the Eurasian snow extent area anomaly. The latest data point shows a continued fast uptrend and above-normal snow area for this time of year.



4. Now let's look at Pete Parson Oct 17, 2024, analog years update for this season. https://content.govdelivery.com/accounts/ORODA/bulletins/3bd03f2
   More ENSO info from September allowed a better measure to see how this year is shaping up in the Pacific's ocean and atmosphere. Pete picks the best past years he sees that compare to current conditions based on SOI, ONI and PDO. These analog years may still change depending upon what we learn from the Oct & Nov data, but once set for winter they usually stay the same unless there's a reason to change them.

Forecast Highlights

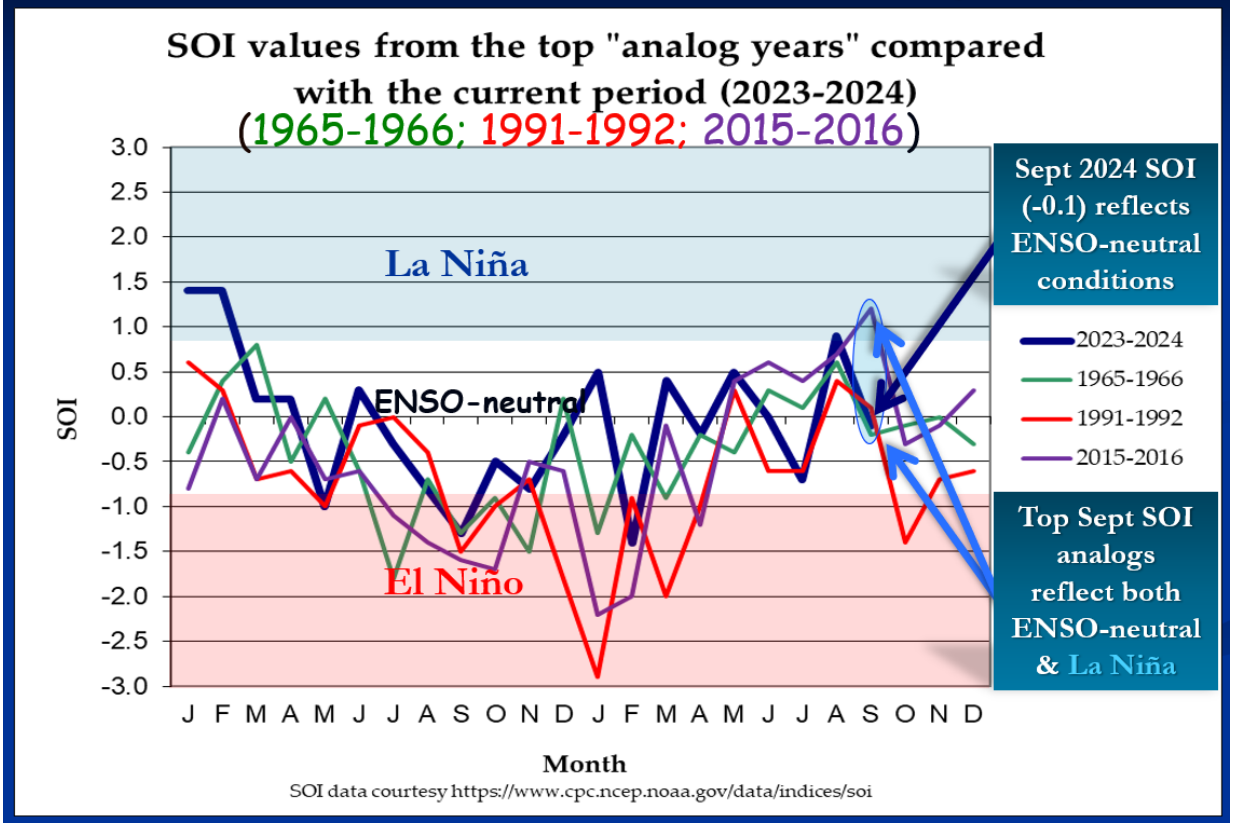
- This forecast is based on weather that occurred during the (1966-67; 1992-93; 2016-17) analog years (2016-17 replaced 1958-59 this month).
- Expect the 2024-25 winter to behave markedly different from last winter, which was influenced by a strong El Niño. Cold ENSO-neutral conditions are present and may transition to weak La Niña during this forecast period. 1966-67 and 1992-93 remained in cold ENSO-neutral. 2016-17 transitioned into weak La Niña.
- A mild and progressively wet November should be followed by either very stormy or cold/snowy weather in December and January with above-average mountain snow. Tropical Pacific Ocean SSTs favor high-wind events and/or lowland snow/ice events in December/January.

Looking forward to the winters of Pete's current analog years produce these:

Current Analog Years	Winter of	Water Year
1965-66 =>	1966-67	**1967**
1991-92 =>	1992-93	**1993**
2015-16 =>	2016-17	**2017**

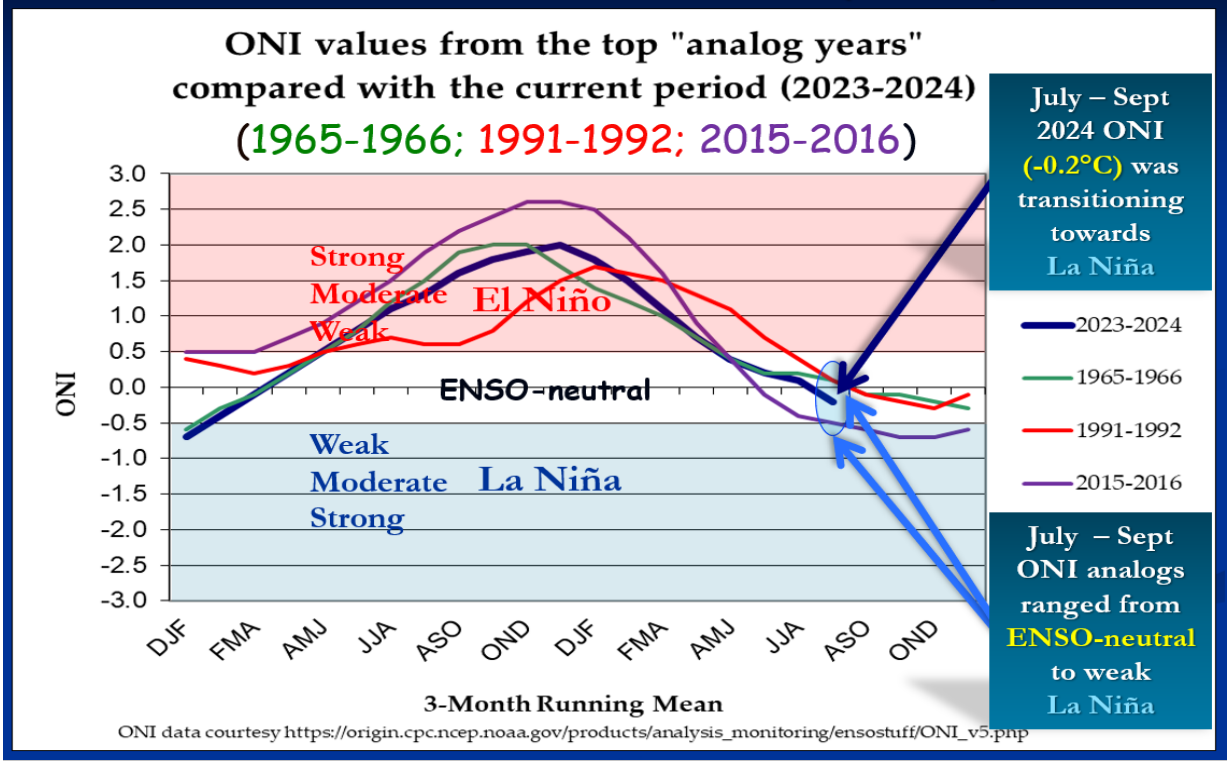
1967 - doesn't stand out as it was a near normal year in central Idaho.
1993 - a near normal year sandwiched between two drought years, 1992 & 1994, that was influenced by the 1991 Mt Pinatubo eruption.
2017 - a huge winter with 45 Atmospheric Rivers hitting the West coast.

Southern Oscillation Index (SOI)

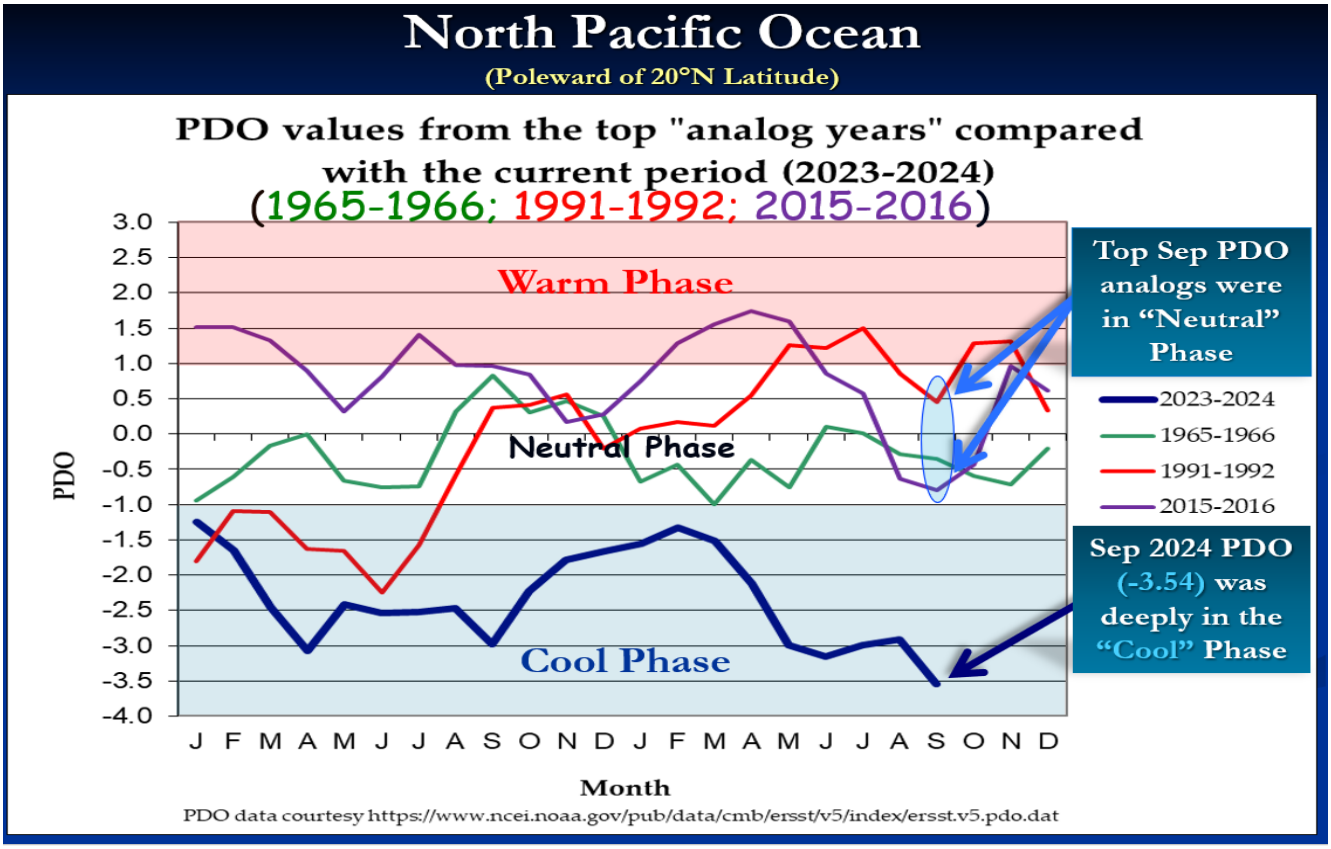


SOI data courtesy https://www.cpc.ncep.noaa.gov/data/indices/soi

Oceanic Niño Index (ONI)



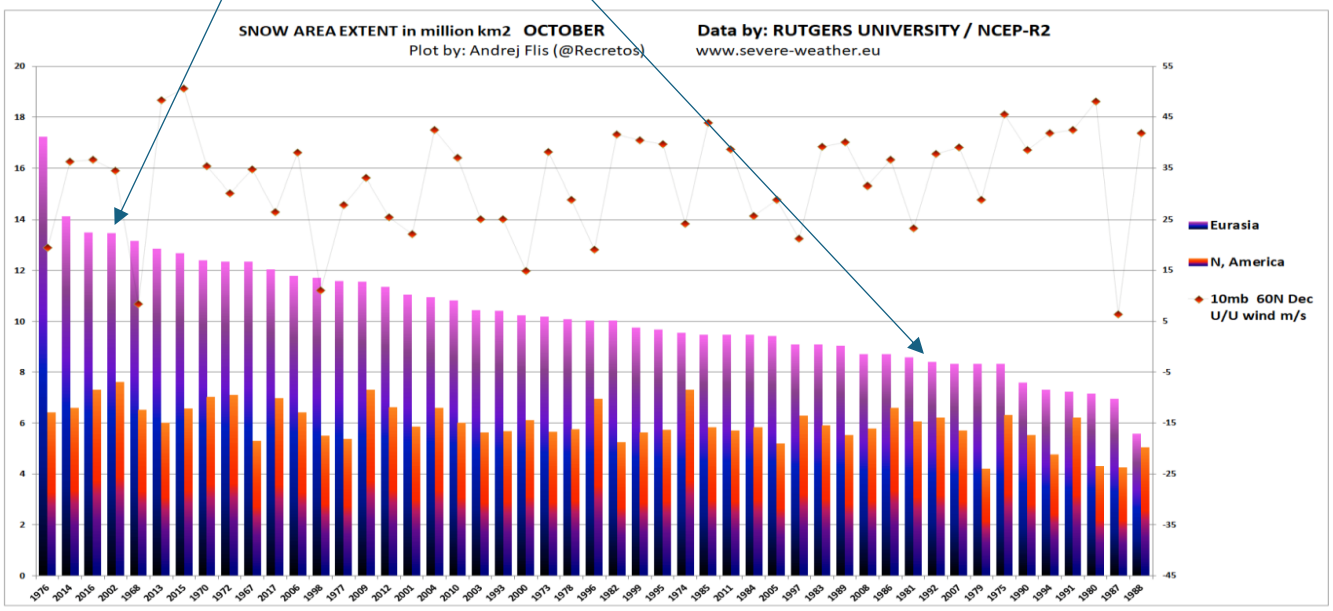
ONI data courtesy https://origin.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ONI_v5.php



Below is from SW Europe and looks at October snow cover extent and December Polar Vortex strength. There is a wide range between 2016 and 1992, but I'd lean towards 2016 as it better reflects today's current weather better.

What is interesting and going to be a wild card this winter is how cold the cool phase of the PDO is compared to other analog years in the **graph above**. Stay tuned as we learn more in the next few months and finish setting the Dinner Table with the arrival of Winter.

The next image below shows the snow cover extent for Eurasia and North America in October, compared to the stratospheric Polar Vortex strength in December, measured by the strength of the stratospheric polar jet. Years are in order by the highest Eurasian October snow cover on the left and lowest on the right.



If we look at our table of years that follow strong El Ninos for any overlap with the selected analog years, we see 1967 and 2017 are in both summaries. More on these individual years and what happened next time. Enjoy the rest of Fall as Fall ends with the arrival of Winter.

Analysis of Streamflow for a year like 2017 that follows a Strong El Nino Year like 2016

				sorted					
				Streamflow as % of 1981-2010 Average					
	ENSO		ENSO	Feb-Sep	Apr-Sep	Apr-Sep	Apr-Sep	Apr-Sep	Apr-Sep
Year	SE Strong El Nino	Year Following a Strong El Nino		Owyhee River blw Dam	Salmon Falls Creek	Boise River nr Boise	Big Wood River blw Magic Dam	Snake River nr Heise	Spokane River nr Post Falls
1978	SE	1979	N	97	116	63	34	90	105
1941	SE	1942	SE	122	173	91	117	86	77
1988	SE	1989	SL	145	100	97	75	102	116
1966	SE	1967	N	69	88	105	151	109	113
1947	SE	1948	LN	58	86	105	66	97	176
1952	SE	1953	N	56	76	124	92	92	108
1998	SE	1999	SL	100	108	135	158	131	129
1994	SE	1995	SE	124	135	138	195	118	70
1995	SE	1996	N	124	115	152	132	148	116
1983	SE	1984	N	363	369	158	206	133	112
1973	SE	1974	SL	120	111	181	184	147	193
1942	SE	1943	N	137	150	209	259	144	150
2016	SE	2017	LN	155	161	180	266	163	112
12 years									

Color coded streamflow as % of average

<60
60-90
90-110
~111-130
>130

1998/1999 Mt Baker set word snowfall with 95 feet of snowfall