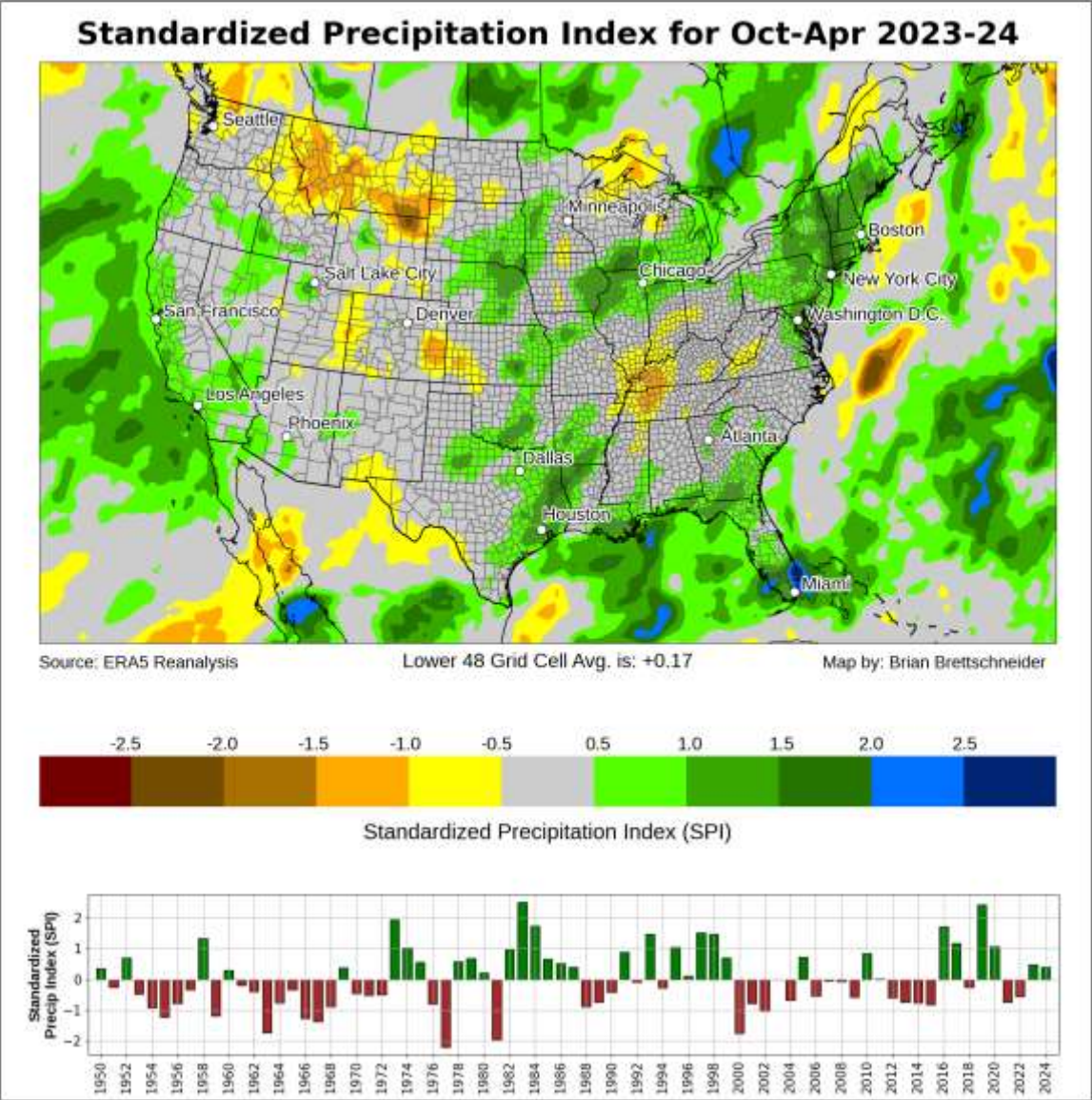# **Standardized Precipitation Index (SPI)**

Note: SPI is a statistic computed from precipitation. A gamma distribution is fit to the precipitation values that compose the time series. By convention, this begins in 1950. If the user selects Jun-Aug 2024, all Jun-Aug precipitation values for each grid cell are fit to a gamma distribution and effectively assigned a Z-score. New runs are very slow (6-10 minutes). The time series at the bottom is always a bar chart. Importantly, the time series sums all the precipitation for the entire geography for each year and computes a time series from that sum. This essentially gives wetter areas more weight. Right below the map is a grid cell average. This is different than the value in the time series. If a specific SPI analysis has not been run before, it can take 6-10 minutes to run.

Contiguous U.S. Oct-Apr 2023-24 SPI

When the Map Type of SPI is selected, the Map Theme and Start Year
  are automatically chosen
The time series is a combined average, this is different than the grid cell average

Standardized Precipitation Index for Oct-Apr 2023-24

Source: ERA5 Reanalysis   Lower 48 Grid Cell Avg. is: +0.17   Map by: Brian Brettschneider

Standardized Precipitation Index (SPI)

Select Map Area (1-10): 3

1 = Global (time: 0:30 to 1:20)
2 = U.S./Canada (time: 0:30 to 1:40)
3 = Contiguous U.S. (time: 0:30 to 1:50)
4 = Alaska (time: 0:30 to 1:30)   ☐ Indigenous names
5 = Alaska and NW Canada (time: 0:30 to 1:15)
6 = Polar (time: 0:30 to 1:30) (60 to 90) North ☑
7 = Europe (time: 0:30 to 1:20)
8 = Pacific Northwest (time: 0:30 to 1:35)
9 = U.S. Pacific Islands (time: 0:30 to 1:25)
10 = Country, State, Province, or Box (all Plate Carree)
  Country India
  Countries (e.g., Country New Zealand)
  States (e.g., State New York)
  Canada provinces/territories (e.g., Canada Manitoba)
  Box, N. Lat, S. Lat, W. Lon, E. Lon (Example: Box,45,25,-120,-50)

Select Map Type (1-9): 8

1 = Ranks (since 1940)
2 = Departure From Normal (not clouds/wind)
3 = Below, Near, Above Normal (slower)
4 = Target Year Values (not wind)
5 = Normal Values (not wind)
6 = 50 or 75-Year trend (8-10 mins for new run)
7 = 50-Year ENSO Season Correlation (6-10 mins for new run)
8 = SPI (precip auto selected; 8-mins for new run)
9 = Composite ENSO or List of Years (6-mins for new run)

Ranks / trend start year 1940

Note: For periods that wrap around New Year,
the start year should by the year at the start
of the period. For 1974-75 to 2023-24, (50 years),
enter 1974 here (end year should be most current year).

Choose Map Theme (1-8): 2

Available themes: 1 = t2m, 2 = precip, 3 = snow, 4 = sst ,
5 = dewpt, 6 = clouds, 7 = wind, 8 = seaice

Map Elements (Check top row for most N. American maps)
Lower 48 States ☑ U.S. Counties ☑ Canada Provinces ☑
Major Rivers ☐ U.S. Interstates ☐ Gridlines ☐
NWS WFOs ☐ NPS Units ☐ Climate Divs ☐
Major World Cities ☐ World Roads (adds 1:00) ☐

Last month to start evaluation (e.g., 2 for Feb): 4

Number of months (up to 12) to evaluate (e.g., 3 for Dec-Feb): 7

Year of last month for assessment: 2024

Note 1: Do not select a date in the future!
Note 2: Make sure that your period is not 1939-40. There is no 1939 data.
Note 3: Even when generating normals, make sure not to pick a date in the future.

Values or Departure strip (1=Values, 2=Departure): 1
Show Values or Departure strip (1=Yes, 2=No): 1

Begin Climo 1991   End Climo 2020

Central Longitude (Arctic Only) 0
(Used for Map Type options 2 and 3 above)

ENSO Section Only ONI Min -5.0 ONI Max 5.0 [Use to select from a range of average ONI val; or enter list of years manually below.]

OR   List of years
Map Subtitle (used when a list of years is entered) 20 chars or less
Above/Below (1=Above/2=Below): 1 100.0 From Climo. Use Detrended Climatology (ONI or list of years) ☑

[Note 1: Only Used if Map Type is 9. Takes 6 mins for new query. Min of 4+ years and separated by commas has priority. For DJF use end year.]
[Note 2: For the count of years above the trendline, units are % avg for snow and precip and clouds. Specify units below for temp, dew pt, and wind.]

Units -> Metric or Imperial (1 = Metric, 2 = Imperial): 1

Temp/Wind Departure/Temp Trend Interval 1.0   (Makes 11 categories of Map Interval size.)

Dark Mode : ☐

Raw data obtained from Copernicus ECMWF Server. Analysis may not be accurate. Use at your own risk!

Generate   (to reset form, select map area 0 and press button)