Why did this year’s North American Monsoon (NAM) show up, again? La Niña held strong in summer, allowing the polar jet stream to remain stronger than average. Why does something so far away matter? A strong enough jet stream well north of New Mexico and the Southwest U.S. helps force the monsoon high east and northwest of New Mexico at times, allowing low-level moisture to move in from the south, southeast or northeast.
A stronger than average polar jet stream this monsoon season, shown here (left) in the warmer colors for June and July 2022, is strong enough during a La Niña event to force the monsoon high east, north or northwest of New Mexico at times during the warm season, allowing low level moisture to move into the state from a multitude of directions. In the past, climate scientists looked for clues from the Indian monsoon, at things like below average snowpack and soil moisture as an indicator with regard to strength of the upcoming monsoon season. We’ve since learned that Southern/Central Rocky Mountain snowpack and soil moisture along with surface thermal features are not what drive the monsoon high location. It’s position is related to key synoptic scale features (i.e., polar jet stream position and strength) which include its teleconnections (Prein et al., 2022).
Latest Sea Surface Temperatures (SSTs) & Oscillation Index Values for Pacific

2022 Fall Outlook

SST Anomalies in the Equatorial Pacific Ocean in late August/early September 2022 showing cooler than average conditions in the equatorial Pacific. It looks highly likely that the long-predicted third consecutive or "triple-dip" La Niña winter will occur, with a 91% chance of La Niña through September–November and an 80% chance through the early winter (December & January).

➢ Pacific Decadal Oscillation (PDO) for AUG 2022: -1.92
➢ Multivariate ENSO Index (MEI) for JUL-AUG 2022: -1.8
➢ Oceanic Niño Index (ONI) (uses Niño 3.4 region - inner rectangle) for JJA 2022: -0.8
Sub-surface temperature anomalies at the equator. Sub-surface temperatures often precede surface temperatures by several months. An increasing amount of cooler than average water under the surface provides some additional confidence that in the fact climate models are on track forecasting a triple-dip La Niña in fall 2022.
Air pressure in the lower atmosphere compared to the 1981-2010 average during February 2016 (top left), when the PNA was positive, and in February 2019 (bottom left), when it was negative. The location of highs and lows and the flow of the jet stream around them often produce a sharp warm-cold split in temperatures in the western and eastern halves of the United States. NOAA Climate.gov, based on data from the Physical Science Lab. Ensemble Global Forecast System (GEFS) forecasts (right image) keep the PNA index negative through early October.
The vast majority of both dynamical (thick red line) models indicate La Niña conditions in fall 2022 and early winter, warming to a neutral state by late winter. We’ve seen this before if you recall last year’s forecasts. There appears to be a possible climate model bias of trying to warm the eastern Pacific up too fast.
European Center for Medium-Range Weather Forecasts (ECMWF) weekly precipitation anomaly or difference from average forecasts for October 2022. The forecast is near to slightly below average with regard to precipitation in October.
ECMWF weekly temperature anomaly forecasts for October 2022. The forecast is near to slightly above average temperatures through October into the first week of November.
ECMWF seasonal forecast for October, November and December 2022. This particular ensemble climate model is forecasting near average precipitation for NM and slightly above average to above average temperature.
CPC’s forecast calls for above average chances for above average temperature and below average precipitation for Oct-Nov-Dec 2022.
Average or normal precipitation (1991-2020) in October and November.
While chances for precipitation in early October will be near average, chances for strong winds at Balloon Fiesta Park are forecast to be above average given that current forecast models are indicative of the potential for at least isolated afternoon and evening showers and thunderstorms during the first week in October.
Forecasts from the most highly-skilled weather and climate models indicate that precipitation in central and northern New Mexico during **October 2022** will most likely be near 1991-2020 climatological averages while model precipitation forecasts favor near to slightly below average in **November 2022**.

Climate model forecasts along with temperature trends since 2000 indicate that temperatures in central and northern New Mexico during October 2022 will most likely range from near to slightly above average while November is forecast to be slightly above to above average.
Outlook provided by National Weather Service Forecast Office Albuquerque, NM.

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