Fall Equinox

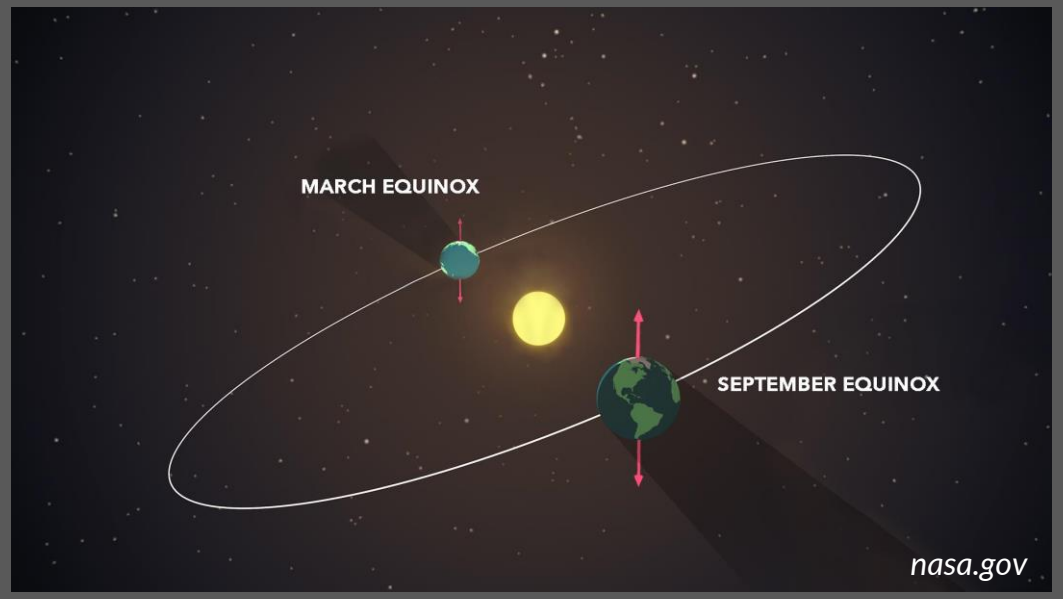
2023

Weather Forecast Office
Albuquerque, NM
Updated: September 20, 2024 9:56 AM MDT

September 22, 2024
6:43 AM MDT

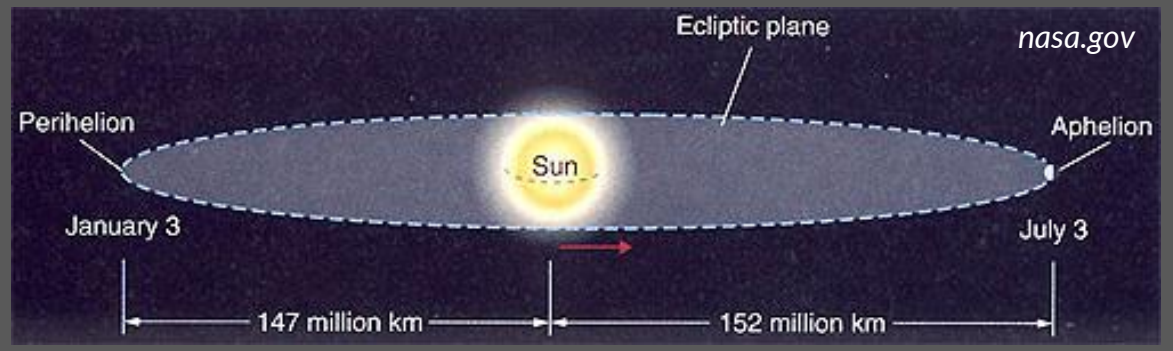
There are only two times of the year when the Earth's axis is tilted neither toward nor away from the sun, resulting in a "nearly" equal amount of daylight and darkness at all latitudes. These events are referred to as Equinoxes. The Vernal equinox (the first day of spring) occurred on **March 19th at 9:06 pm MDT** and the Autumnal Equinox (the first day of fall) will occur on **September 22nd at 6:43 am MDT**.

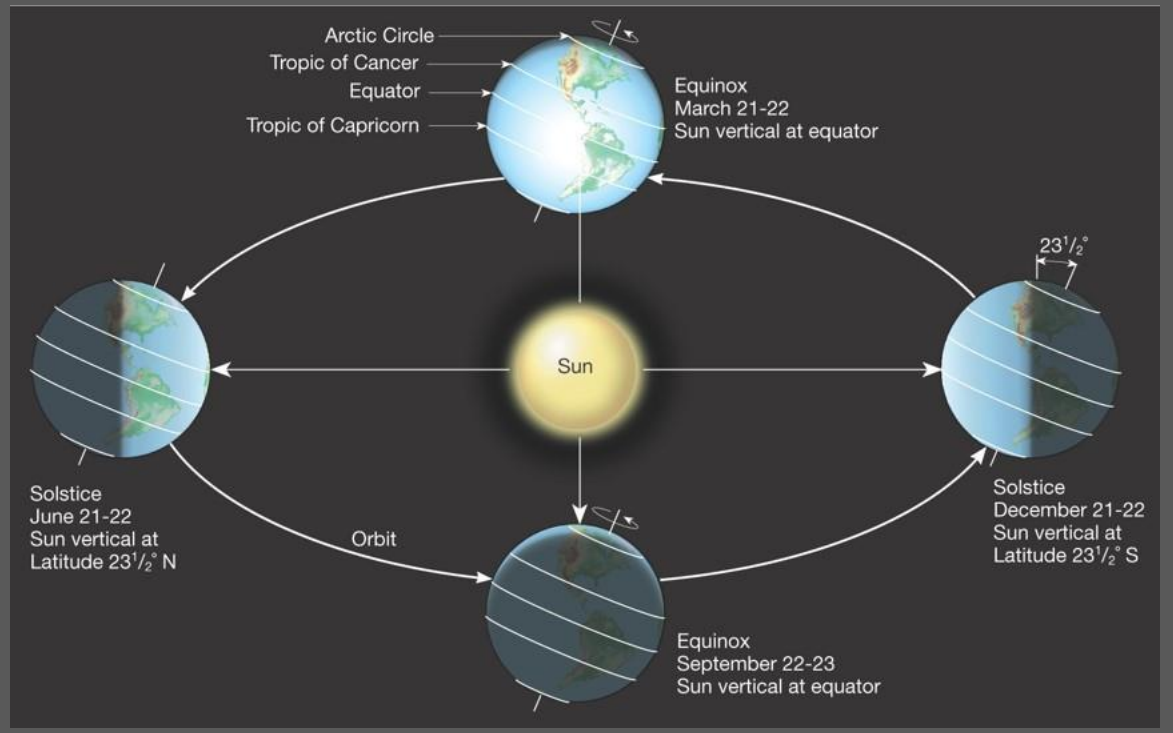
The word equinox is derived from two Latin words - *aequus* (equal) and *nox* (night). At the equator, the sun is directly overhead at noon on these two equinoxes. The "nearly" equal hours of day and night is due to refraction of sunlight, or a bending of the light's rays that causes the sun to appear above the horizon when the actual position of the sun is below the horizon. Additionally, the days become a little longer at the higher latitudes (those at a distance from the equator) because it takes the sun longer to rise and set. Therefore, on the equinox and for several days before and after the equinox, the length of day will range from about 12 hours and six and one-half minutes at the equator, to 12 hours and 8 minutes at 30° latitude, to 12 hours and 16 minutes at 60° latitude.



The Seasons

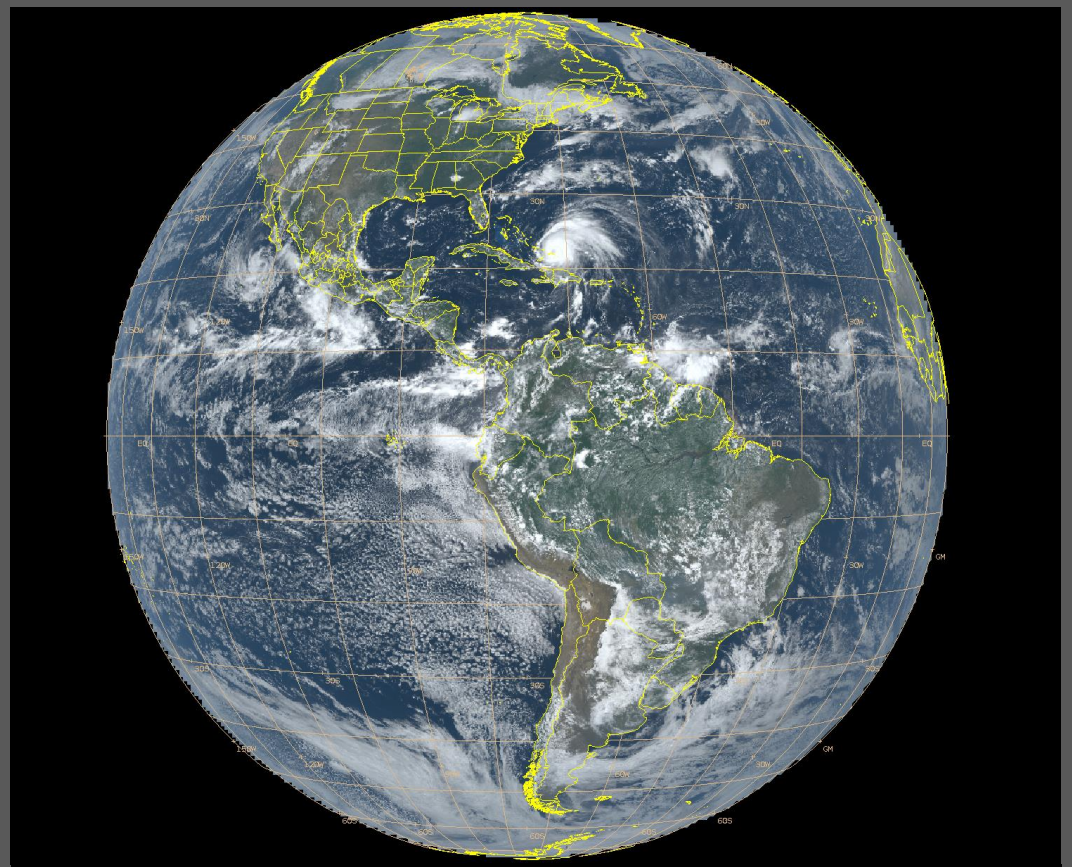
We all know that the Earth makes a complete revolution around the sun once every 365 days, following an orbit that is elliptical in shape. This means that the distance between the Earth and Sun, which is 93 million miles on average, varies throughout the year. The top of figure on the right illustrates that during the first week in January, the Earth is about 1.6 million miles closer to the sun. This is referred to as the perihelion. The aphelion, or the point at which the Earth is about 1.6 million miles farther away from the sun, occurs during the first week in July. This fact may sound counter to what we know about seasons in the Northern Hemisphere, but actually the difference is not significant in terms of climate and is NOT the reason why we have seasons. **Seasons are caused by the fact that the Earth is tilted on its axis by 23.5°.** The tilt's orientation with respect to space does not change during the year; thus, the Northern Hemisphere is tilted toward the sun in June and away from the sun in December, as illustrated in the bottom graphic on the right. The combination of the earth's elliptical orbit and it's axial tilt contribute to the uneven changes in the times of sunrise and sunset throughout the year.



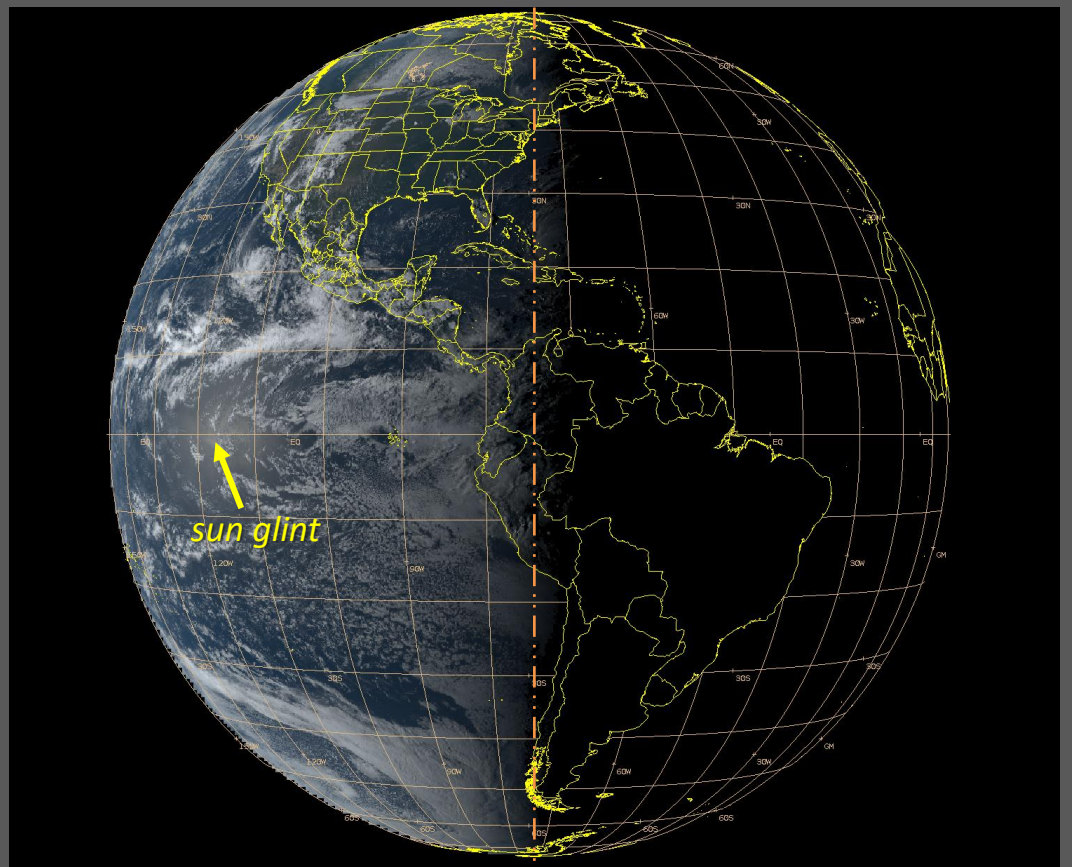


Satellite View

The GOES-16 full disk images from September 20, 2022 show the near equal distribution of day and night along a common longitude. The location of maximum sun glint can be seen over the equator where sunlight is reflected back to the satellite on the fall equinox. Earth will orbit the sun for the upcoming fall equinox on September 22, 2024 at 6:43 AM MDT.



GOES-16 Full Disk CIMSS Natural Color Image
11:00 AM MDT September 20, 2022



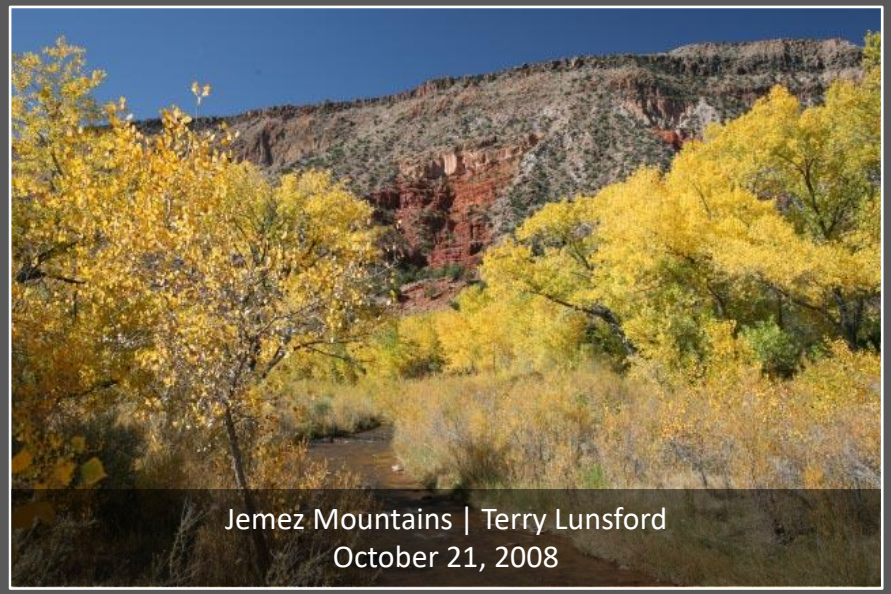
GOES-16 Full Disk CIMSS Natural Color Image
4:30 PM MDT September 20, 2022

Fall Weather

New Mexico is no stranger to active fall weather. The transition from summer to winter brings delightful relief to the blistering heatwaves of summer. The fall transition is also associated with a wide variety of weather as the jet stream starts visiting the region from the north. Cold blasts, damaging wind storms, severe thunderstorms, heavy snow, and flash flooding can all occur during the fall months, sometimes all on the same day! Fall also brings a glorious display of changing foliage to many areas of the state.

Angel Fire, NM | Bob Freese
September 30, 2006

Tennis Ball Hail| Taiban, NM
October 21, 2015 Ryan Drake



Jemez Mountains | Terry Lunsford
October 21, 2008

Rio Penasco | Dunken, NM
October 5, 2017 Wendell Malone

Angel Fire, NM | Vanessa Valdivia
November 12, 2018

Fall Equinox Statistics

The table below highlights the range of weather conditions at select locations near the autumnal equinox (September 21-24) using the long-term records. Note the dramatic variations that are possible at this time of year across our region.

Station*	Period of Record	Average High	Average Low	Daily Record High	Daily Record Low	Daily Max Rainfall	Daily Max Snowfall
Albuquerque Sunport	1892-2024	83.1°	56.5°	91° / 1979	26° / 1912	1.92” / 1955	0.0”
Gallup Airport	1973-2024	80.1°	45.5°	87° / 1998	24° / 1983	1.25” / 2010	N/A
Farmington ASC	1978-2024	81.9°	52.3°	90° / 2014	30° / 1983	1.19” / 1978	0.0”
Clayton Airport	1896-2024	80.9°	53.1°	94° / 1898	29° / 1983	3.74” / 1941	0.0”
Clovis 13N COOP	1949-2024	84.2°	54.8°	94° / 1951	28° / 1983	2.89” / 2017	0.0”
Eagle Nest COOP	1929-2024	71.7°	34.3°	81° / 1944	15° / 1955	1.12” / 1938	1.0” / 1970
Glenwood COOP	1941-2024	86.1°	52.8°	97° / 1966	35° / 2017	1.74” / 1937	0.0”
Los Alamos COOP	1902-2024	73.5°	48.9°	83° / 2016	25° / 1983	2.21” / 1929	0.2” / 1970
Mountainair	1902-2024	80.3°	48.4°	90° / 1947	21° / 1983	1.76” / 1997	0.0”
Roswell Airport	1894-2024	86.5°	59.0°	101° / 2023	39° / 1895	2.26” / 1941	0.0”
Santa Fe 2 COOP	1972-2024	78.5°	48.5°	91° / 1984	29° / 2009	1.09” / 2010	0.0”
Tucumcari 4 NE COOP	1904-2024	86.3°	57.6°	98° / 1982	35° / 1995	1.86” / 2004	0.0”

*Station records may contain partially incomplete periods or varying lengths depending on the weather element