

Summer view rotates polar constellations

Circumpolar Region of Summer

As Earth rotates on its axis, the North Star is always straight up from Earth's North Pole, hence the star's formal name, Polaris. And as Earth rotates, Polaris always appears in the same location while all the other stars rotate around it in a counterclockwise direction every 24 hours. Technically, Polaris is almost exactly straight up, being less than 1 degree off. And the stars make one complete rotation every 23 hours and 56 minutes – a star (sidereal) day rather than a solar day. But those are topics for another time.

Two characteristics of Polaris' location led to its designation, many years ago, as "the most practically useful star in the heavens." First, owing to its being straight up from Earth's North Pole, it is, as every Boy and Girl Scout knows, always seen in the north from any place in the Northern Hemisphere. It is of no help in the Southern Hemisphere as it is never visible from below the equator; and since there is no naked-eye star straight up from Earth's South Pole, there is no convenient South Star.

The second characteristic is less well-known but equally important. From any location in the northern hemisphere, Polaris' altitude above the horizon equals the latitude of that location. For example, from my home in Waco at latitude 31 degrees north, Polaris is always seen 31 degrees above our horizon. By measuring Polaris' altitude in degrees, explorers could determine their latitude.

The part of the night sky that rotates around Polaris and never goes below the horizon is called the Circumpolar Region. This region contains six constellations, at least part of which are always above the horizon: Ursa Major and Minor, Cassiopeia, Cepheus, Draco and Camelopardalis.

Ursa Major and Minor, the large and small bears, are better known by the unofficial patterns within each, the Big and Little Dippers. The Big Dipper is composed of relatively bright stars and is one of the best-known patterns in the Northern Celestial Hemisphere, although not all cultures see it as a dipper. Among the many visualizations are a plow, wagon and bear being chased by three Indian braves.

The Little Dipper is composed of mostly fainter stars and more difficult to make out, but its claim to fame is the star at the end of its handle – Polaris. This time of year during the evenings, the dippers are above Polaris, unlike the fall when they are below and near the northern horizon. From our more southerly latitudes, most of the Big Dipper even sinks just below the horizon for a time in the fall.

Cassiopeia and Cepheus, the queen and king of the constellations, are on the other side of Polaris from the Big Dipper. They are lower and nearer the horizon during spring and summer evenings, but are prominent during the evenings of fall and winter.

The long and winding Draco the dragon looks more like a cosmic snake. Even though most of his stars are not very bright, its fun to trace his pattern as he starts between the dippers, winds around the Little Dipper and then turns his head back up toward the bright star Vega.

The final Circumpolar Region constellation is Camelopardalis the giraffe. Although quite large, it is composed of such faint stars that it appears to be a virtually empty area of the sky – so don't waste your time trying to make out the constellation.

Night Sky Events

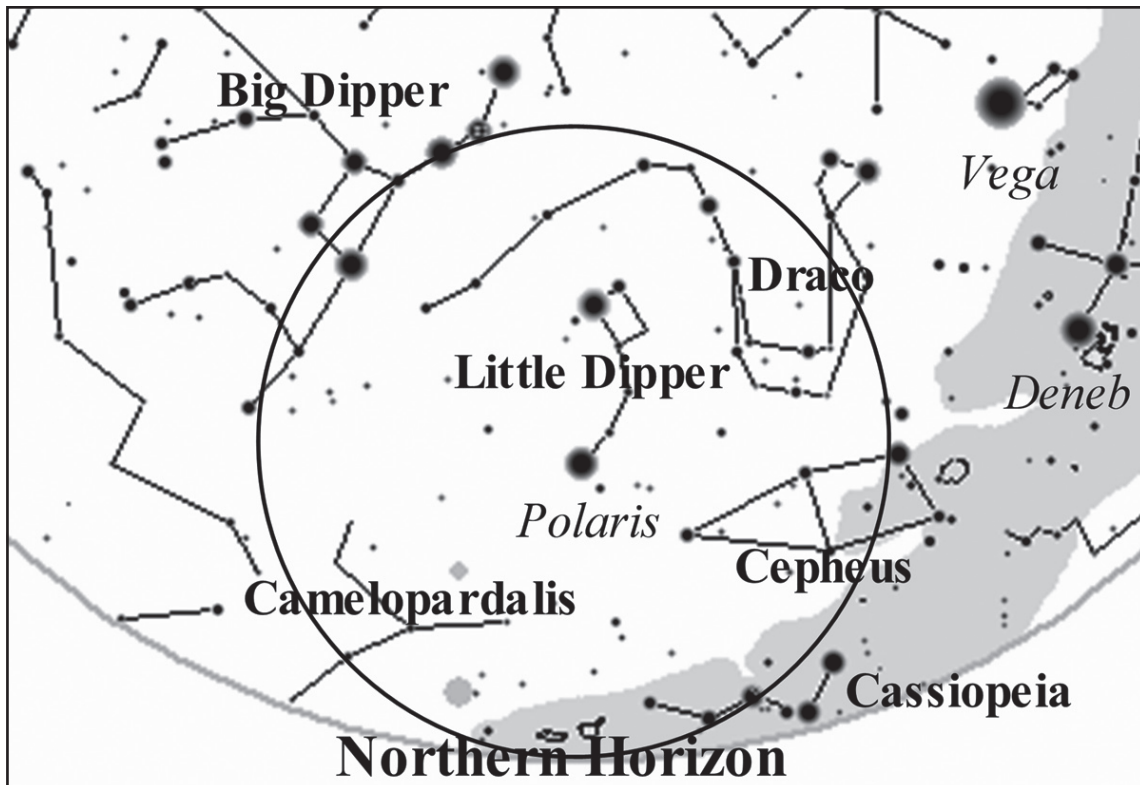
Held at arm's length, the width of your fist is 10° and the width of your index finger is 1°. The width of a full Moon is 1/2°.

4 Monday: The full Moon, called the Flower Moon, Rose Moon, Strawberry Moon and Honey Moon, aligns to create a morning partial eclipse of the Moon that favors the far southwestern U.S.

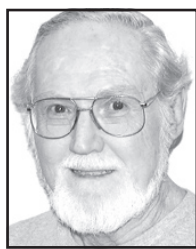
5 Tuesday: Transit of Venus, when Venus, at inferior conjunction between the Sun and Earth, passes across the face of the Sun as seen from Earth.

11 Monday: The Moon is at third quarter.

12 Tuesday morning: Jupiter passes 5 degrees to the lower right of the Pleiades star cluster near the eastern horizon 30 to 45 minutes before sunrise; bin-



The diagram shows the Circumpolar Region as it appears in the early evenings of summer. The circle indicates the stars and constellations which never dip below the horizon from about latitude 30 degrees north, about the latitude of Austin, Texas.



Paul Derrick
• Stargazer

oculars will help with the Pleiades.

17 Sunday morning: A thin crescent Moon has lots of company as it hovers low above the eastern horizon 30 to 45 minutes before sunrise; Venus is 6 degrees below the Moon near the horizon while Jupiter is 2 degrees to the Moon's upper right, and the Pleiades star cluster is 5 degrees to the upper left. Again, binoculars will help.

19 Tuesday: The Moon is new.

20 Wednesday morning: Venus is 3 degrees to the upper left of the reddish star Aldebaran low in the east 45 minutes before sunrise; Jupiter is 7 degrees above.

20 Wednesday: Summer solstice, the beginning of summer and longest day of the year in the northern hemisphere.

21 Thursday early evening: Four objects align low in the west an hour after sunset with the crescent Moon near the horizon; Mercury is 7 degrees to the upper right with Pollux is 5 degrees further to the upper right and Castor yet another 5 degrees. (Pollux and Castor are the Gemini Twins.)

22 Friday evening: For binoculars or telescopes: The darkened side of the crescent Moon passes within a hair of the star cluster M67 very low in the west at dark with the Beehive star cluster 8 degrees to their upper right.

23 Saturday evening: The Moon is 8 degrees below the star Regulus, and then 10 degrees to the star's left the next evening.

25 Monday evening: The Moon is 8 degrees below Mars and 10 degrees to its left the next evening.

26 Tuesday evening: The Moon is at first quarter.

27 Wednesday evening: The star Spica is 5 degrees to the upper left of the Moon with Saturn another 5 degrees to the star's upper right in the southwest; all three will nearly fit within the same field of view of most 7X binoculars.

30 Saturday evening: The Moon is 7 degrees to the upper right of the star Antares in the S.

30 Saturday evening: Mercury, at its best for viewing, is at greatest elongation 26 degrees east of

the setting Sunday.

Naked-eye Planets

The Sun, Moon and planets rise in the east and

set in the west due to Earth's west-to-east rotation on its axis.

Evenings: Mars, Saturn, Mercury (later in the month).

Morning: Jupiter, Venus (later in the month).

- Mercury starts the month in the Sun but quickly emerges low in the west; it spends the rest of the month in the evening sky, climbing highest from the setting Sun the last day of the month.

- Venus begins the month in the Sun but soon emerges low in the east to begin its stint as the "morning star."

- Mars, high in the southwest in the evening, sets in the wee hours of morning.

- Jupiter begins the month rising at dawn but by month's end is well up in the east before dawn.

- Saturn is high in the south in the evening and sets well before dawn.

Transit of Venus

June 5, from late afternoon until sunset, Venus passes directly across the face of the Sun – something that won't happen again until 2117 – but seeing this event requires the proper equipment to avoid permanent eye damage. Amateur astronomers in many areas will be setting up safe viewing sites so watch the media for locations. To read more about the transit, see my previous Stargazer column at www.stargazer-paul.com/sg-2012.htm.

Paul Derrick is an amateur astronomer who lives in Waco, Texas. His website (www.stargazer-paul.com) contains an archive of past Stargazer columns and other basic stargazing information. Contact him at paulderrickwaco@aol.com or (254) 723-6346 or write 918 N. 30th St., Waco, Texas, 76707.

CLOSED

Memorial Day

May 28, 2012

The Colby Free Press will be **CLOSED** Monday, May 28th to observe Memorial Day. (There will not be a Monday paper this week.) We will reopen for normal business hours Tuesday, May 29th.

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LOCAL TV Listings

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Tuesday Evening May 29, 2012										
	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
KAKE/ABC	Cougar Town	20/20					Local	Nightline	Jimmy Kimmel Live	
KBSL/CBS	NCIS		NCIS: Los Angeles	48 Hours Mystery			Local	Late Show Letterman	Ferguson	
KSNK/NBC	America's Got Talent	America's Got Talent	Grimm				Local	Tonight Show w/Leno	J. Fallon	
KSAS/FOX	New Girl	New Girl	New Girl	New Girl	Local					
Cable Channels										
A & E	Storage	Storage	Storage	Storage	Storage	Storage	Storage	Storage	Storage	Storage
AMC	Space Cowboys							Die Hard-Veng.		
ANIM	Wild Russia		Bears	Bears	Bears	Bears	Wild Russia		Bears	Bears
BRAVO	Orange County Social		Housewives/OC		Pregnant in Heels		Happens	Housewives/OC		Priogant
CMT	Bio-Dome						Whiskey Business			Bio-Dome
CNN	Anderson Cooper 360	Piers Morgan Tonight		Anderson Cooper 360		E. B. OutFront		Piers Morgan Tonight		
COMEDY	Work.	Tosh.0	Tosh.0	Tosh.0	Tosh.0	Work.	Daily	Colbert	Tosh.0	Work.
DISC	Deadliest Catch						The Devil's Ride	Deadliest Catch		
DISN	Austin	Radio Rebel					ANT Farm	Jessie	Phineas	Shake It
EI	EI Investigates		Eastwood	Eastwood			Kardashian	Chelsea	EI News	Chelsea
ESPN	MLB Baseball				Baseball Tonight		SportsCenter		SportsCenter	
ESPN2	NFL Live		Sup. Bowl	Sup. Bowl	NFL Live		SportsCenter Special		Baseball Tonight	
FAM	Aladdin		Freaky Friday				The 700 Club		Prince	Prince
FOOD	Cupcake Champions		Chopped		Chopped		Chopped		Chopped	
FX	S.W.A.T.					S.W.A.T.				
HGTV	Celebs	Million	Design Star		Hunters	Hunt Intl.	Design Star		Design Star	
HIST	Hatfields & McCoy's		Hatfields & McCoy's				Hatfields & McCoy's			
LIFE	Dance Moms		Dance Moms: Miami		Dance Moms: Miami		Dance Moms: Miami		Dance Moms	
MTV	16 and Pregnant		16 and Pregnant		16 and Pregnant		Catching Up		Savage U	Pregnant
NICK	Yes, Dear	Yes, Dear	70s Show	70s Show	George	George	Friends	Friends	Friends	Friends
SCI	Fact or Faked		Fact or Faked		Hollywood Treasure		Fact or Faked		Hollywood Treasure	
SPIKE	Alien vs. Predator		Doom				Ways Die	Ways Die	Ways Die	Ways Die
TBS	Big Bang	Big Bang	Big Bang	Big Bang	Big Bang	Big Bang	Conan		Office	Office
TCM	Carmen Jones				Bright Road		The Harlem Globetrotters			
TLC	What Not to Wear		What Not to Wear		Big Style	Big Style	What Not to Wear		What Not to Wear	
TNT	NBA Pregame		NBA Basketball				Inside the NBA		Falling	
TOON	Level Up	Adventure	King/Hill	King/Hill	Amer. Dad	Amer. Dad	Fam. Guy	Fam. Guy	Chicken	Squid
TRAV	Mysteries-Museum		Mysteries-Museum		Mysteries-Museum		Off Limits		Mysteries-Museum	
TV LAND	Home Imp.	Home Imp.	Raymond	Raymond	Raymond	Raymond	Raymond	Raymond	King	King
USA	Law & Order: SVU		Law & Order: SVU		Law & Order: SVU		CSI: Crime Scene		Necessary Roughness	
VH1	Mob Wives		Mob Wives		Tough Love		Basketball Wives		Single Ladies	
WGN	How I Met	How I Met	How I Met	How I Met	WGN News at Nine		30 Rock	Scrubs	Scrubs	Death
Premium Channels										
HBO	Harry Potter				24/7	Veep	Game of Thrones		Gervais	True
MAX	Beginners				Unstoppable		Femme Fatales		Lady	
SHOW	The King's Speech				Air Force One				The English Patient	

We Celebrate Hometown Life

Stories from hometowns just like yours. Look for us each week in this paper.

Wednesday Evening May 30, 2012										
	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
KAKE/ABC	Middle	Suburg.	Mod Fam	Happy	Apt. 23	Mod Fam	Local	Nightline	Jimmy Kimmel Live	
KBSL/CBS	Dogs in the City		Criminal Minds		CSI: Crime Scene		Local	Late Show Letterman	Ferguson	
KSNK/NBC	Stanley Cup						Local	Tonight Show w/Leno	J. Fallon	
KSAS/FOX	So You Think						Local			
Cable Channels										
A & E	Storage	Storage	Storage	Storage	Duck D.	Duck D.	Duck D.	Duck D.	Storage	Storage
AMC	Cinderella Man							League-Own		
ANIM	Wildman	Wildman	Wildman	Wildman	River Monsters		Wildman	Wildman	Wildman	Wildman
BRAVO	Housewives/OC		Around the World		Around the World		Happens	Around the World		OC
CMT	The Rookie									
CNN	Anderson Cooper 360	Piers Morgan Tonight		Anderson Cooper 360		E. B. OutFront		Piers Morgan Tonight		
COMEDY	Chappelle	Key	South Pk	South Pk	South Pk	South Pk	Daily	Colbert	South Pk	Futurama
DISC	Sons of Guns		Sons of Guns				Sons of Guns		Jesse James	
DISN	Shake It	16 Wishes			ANT Farm	Jessie	Phineas	Shake It	Wizards	Wizards
EI	Eastwood	Eastwood	Kardashian		The Soup	The Soup	Chelsea	EI News	Chelsea	Chelsea
ESPN	Lottery		NBA Basketball				SportsCenter		SportsCenter	
ESPN2	Soccer				MLB Baseball					
FAM	Melissa	Melissa	My Fake Fiancé				The 700 Club		Prince	Prince
FOOD	Restaurant: Im.		Restaurant: Im.		Restaurant: Im.		Food Network Star		Food Netw	
FX	27 Dresses						27 Dresses			
HGTV	Income	Kitchen	Property Brothers		Hunters	Hunt Intl	Property Brothers		Property Brothers	