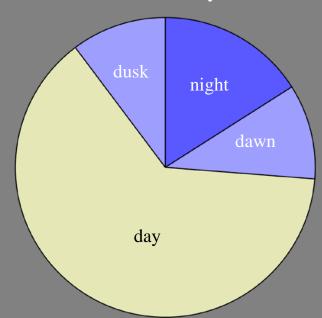


The Sun This Month

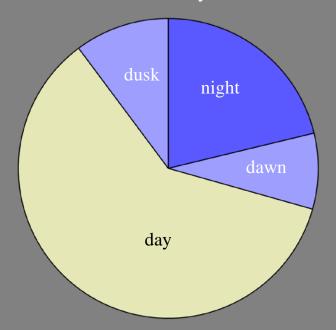
Today's Solar Activity

Date	Sunset	Dusk End	Darkness	Dawn Start	Sunrise	"Noon"	Sunlight	Max Altitude
July 1	9:03 p.m.	11:30 p.m.	3.9 h	3:05 a.m.	5:33 a.m.	1:18 p.m.	15.5 h	68.4°
July 31	8:40 p.m.	10:44 p.m.	5.2 h	3:55 a.m.	6:00 a.m.	1:20 p.m.	14.8 h	63.4°





Halifax July 31



YouTube: RASC Halifax

Noctilucent Clouds

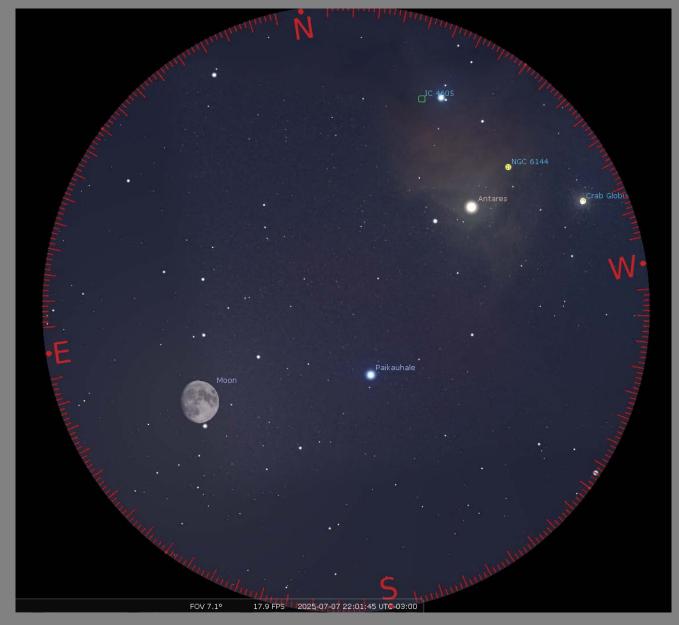
Sunlight below the horizon reflects off tiny ice crystals at 76-85 km



Visible in summer months during astronomical twilight (50-70° latitude)

The Moon This Month

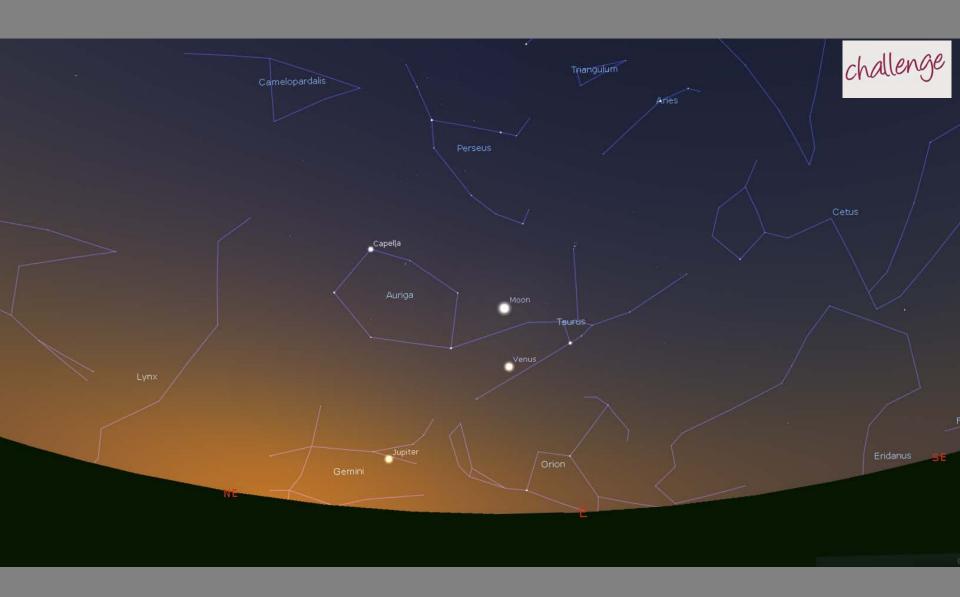
Date	Phase	English	Mi'kmaq
July 2	First Quarter	Birds Shedding Feathers	Peskewiku's
July 4	Moon at apogee (404,600 km)		
July 7	Moon near Antares		
July 10	Full Moon		
July 16	Moon near Saturn and Neptune		
July 18	Last Quarter		
July 20	Moon at perigee (368,000 km)		
July 21	Moon near Venus		
July 22	Moon near Venus and Jupiter		
July 23	Moon near Jupiter		
July 24	New Moon	Berry Ripening	Kisikewiku's
July 28	Moon near Mars		
July 30	Moon near Spica		



July 7 @ 10:00 p.m. F.O.V with 7×50 binoculars



July 16 @ 3:00 a.m. F.O.V with 7 × 50 binoculars

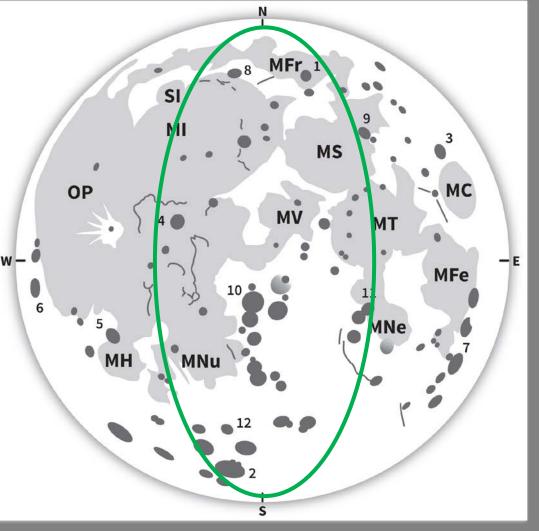


July 21 @ 5:00 a.m. Wide-field photo opportunity



July 28 @ 10:00 p.m.

F.O.V with 7×50 binoculars



CRATERS

- 1. Aristoteles
- 2. Clavius
- 3. Cleomedes
- 4. Copernicus

- 5. Gassendi
- 6. Grimaldi
- 7. Petavius
- 8. Plato
- 9. Posidonius

- 10. Ptolomaeus
- 11. Theophilus
- 12. Tycho

challenge

MARE

MC: Mare Crisium

MFe: Mare Fecunditatis

MFr: Mare Frigoris

MH: Mare Humorum

SI: Sinus Iridum

MI: Mare Imbrium

MNe: Mare Nectaris

MNu: Mare Nubium

MS: Mare Serenitatis

MT: Mare Tranquillitatis

MV: Mare Vaporum

OP: Oceanus Procellarum

July 1-4, 22-26

The Moon in

Explore the Universe

observe 3 of each in 60

The Planets in July

Mercury-visible very low in the W (mag. 0.4) after sunset until mid-month

Venus -prominent and low in the E (mag. -4.0) before sunrise

-near the waning crescent Moon on July 21-22

Mars -visible low in the W (mag. 1.5) after sunset

-near waxing crescent Moon on July 28

Jupiter -visible very low in the E (mag. -1.9) before sunrise after mid-July

- near the waning crescent Moon on July 22-23

Saturn -rises in the E after midnight (mag. 1.1)

-near the waning gibbous Moon and Neptune on July 16

Uranus -ascends throughout July (mag. 5.8) in thepr e-dawn sky

Neptune-visible in the E (mag. 7.9) after midnight

-close to Saturn for all of July

-near the waning gibbous Moon on July 16

Capricon us/

Sagittarius Scorpius

Explore the Universe: Summer Constellations Twilight ends late: ~11:10 p.m.



Explore the Universe:

Summer Stars

Ranking:

#5 Vega (N)

#12 Altair (N)

#15 Antares (N)

#20 Deneb (N)

- Rasalgethi (A)
 - Algedi
 - Dabih
 - -Nunki (N)
 - Albireo



Explore the Universe: Summer Deep-Sky

The Hercules Cluster (Messier 13/NGC 6205)

145 LY in diameter and contains several hundred thousand stars (view in binoculars in dark sky)





Explore the Universe: Summer Double Stars

Albireo (B Cygni) Colorful double star Split with binoculars





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