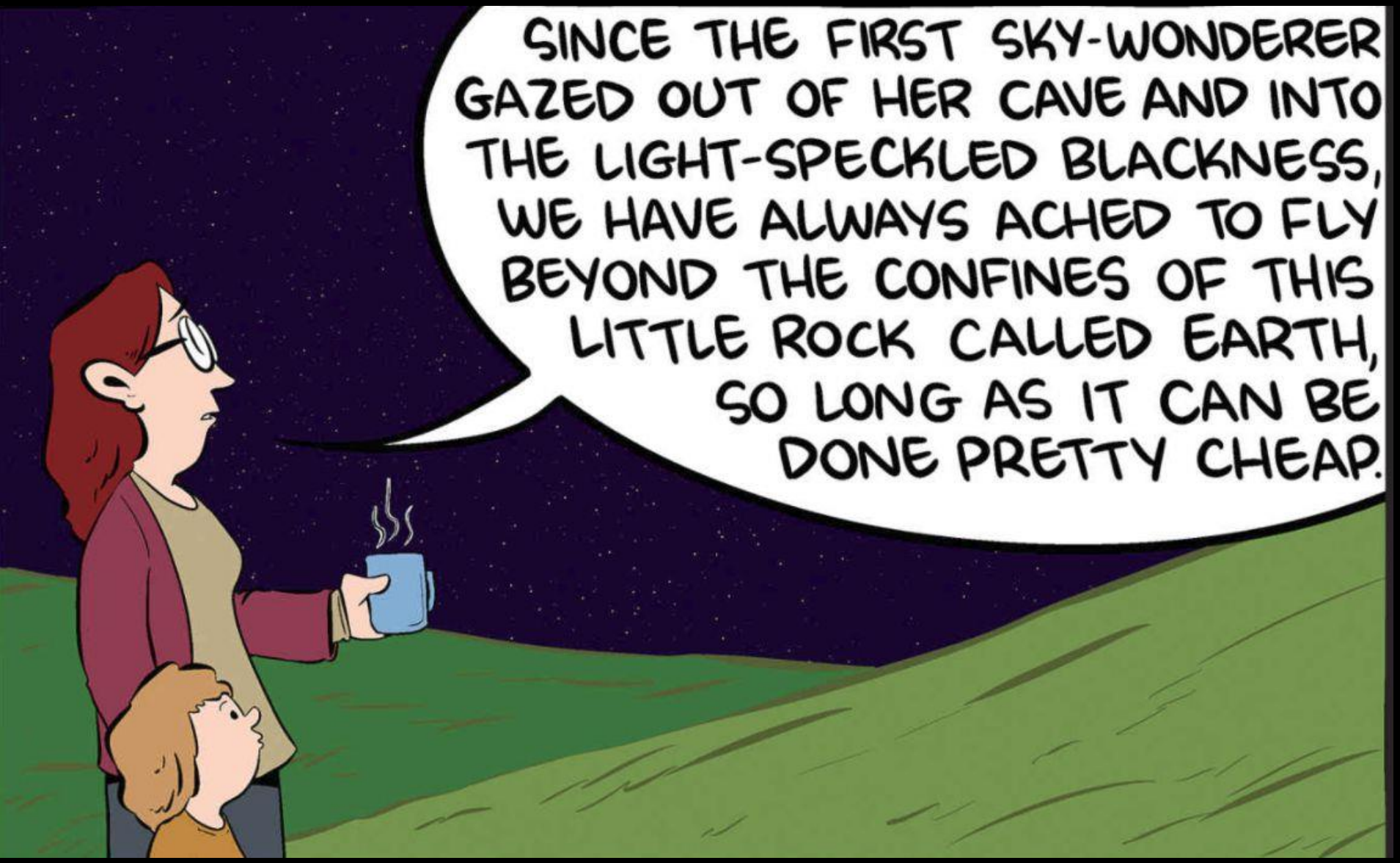
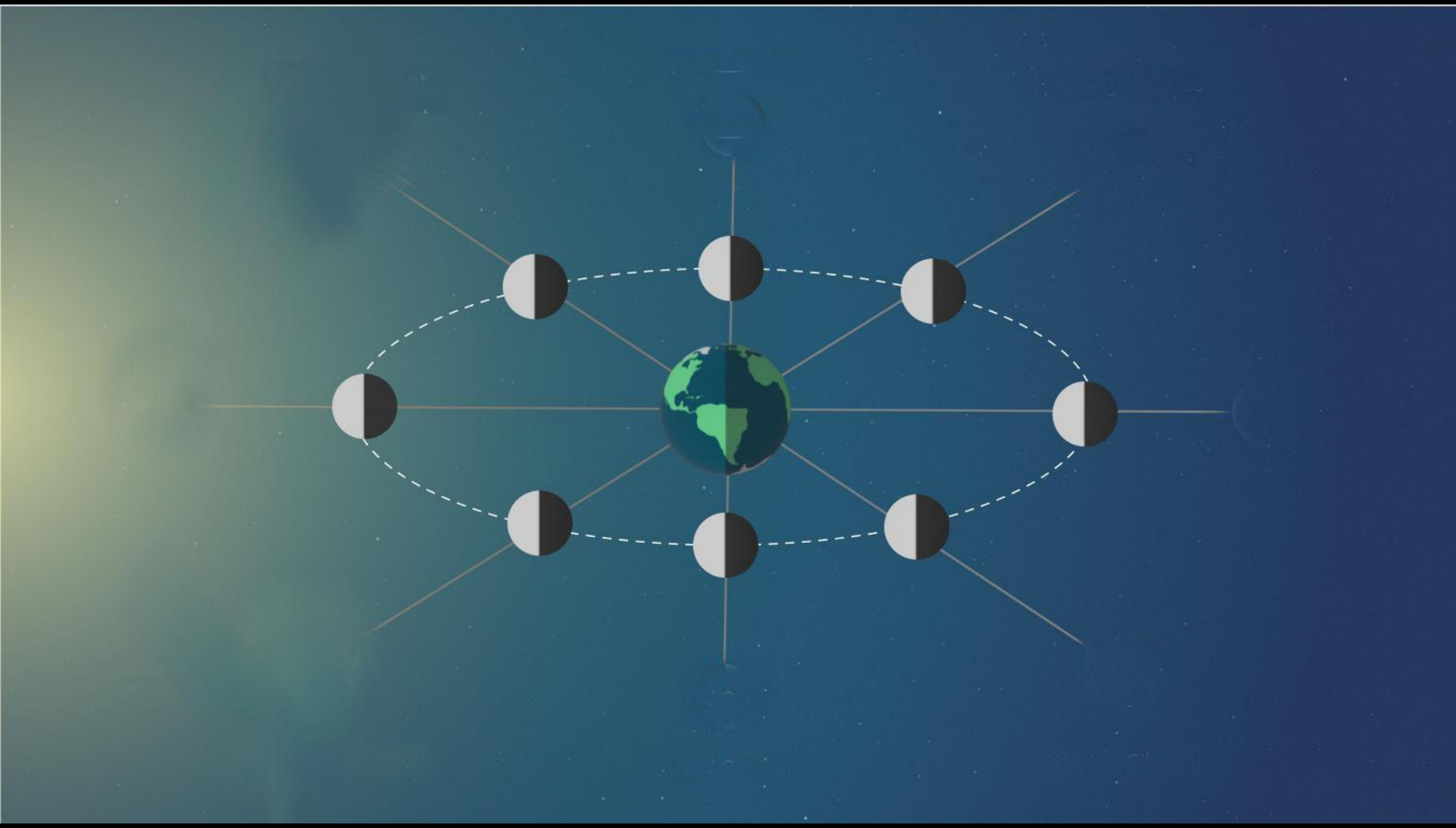

The Moon

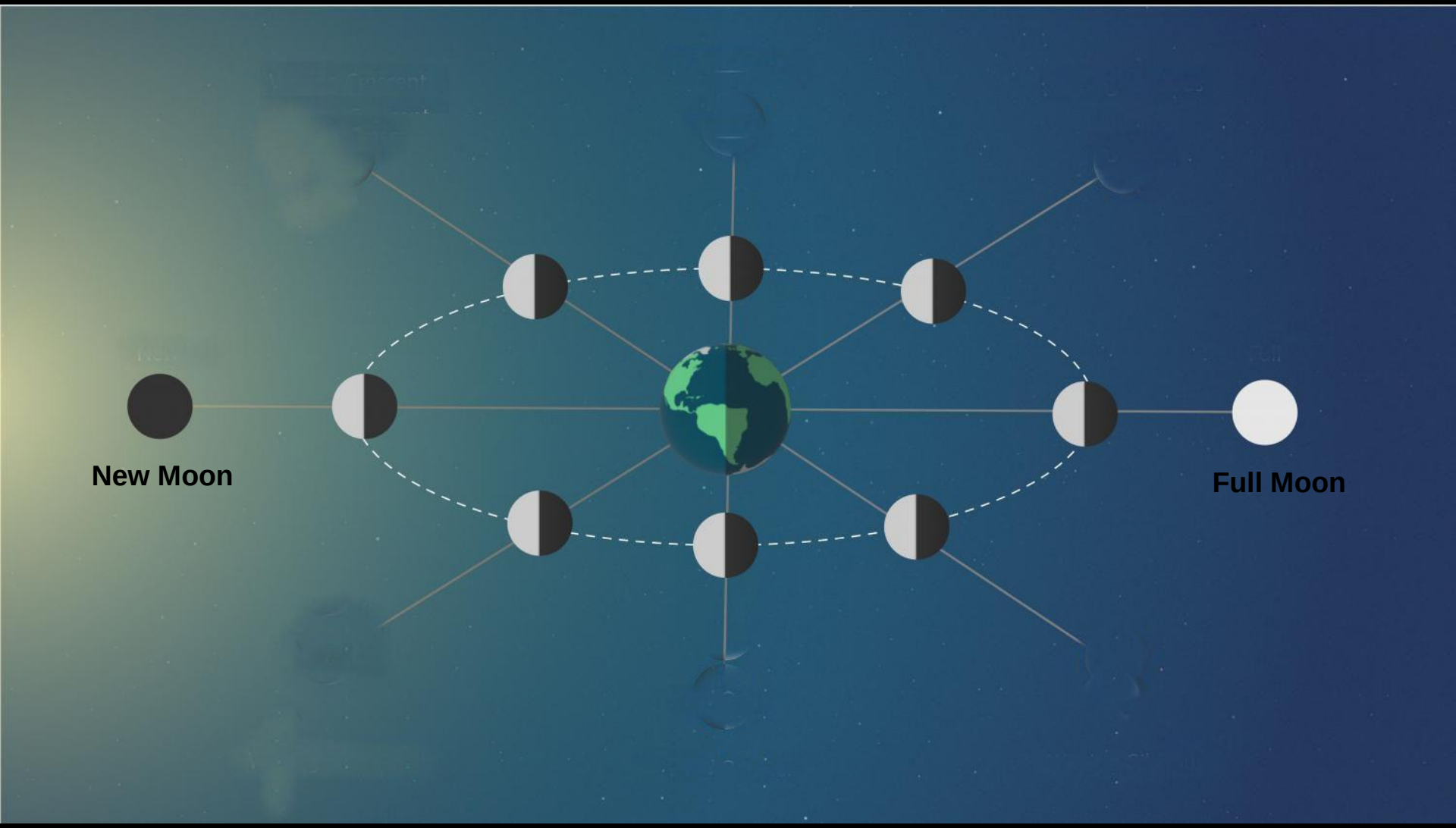
July 20, 1969

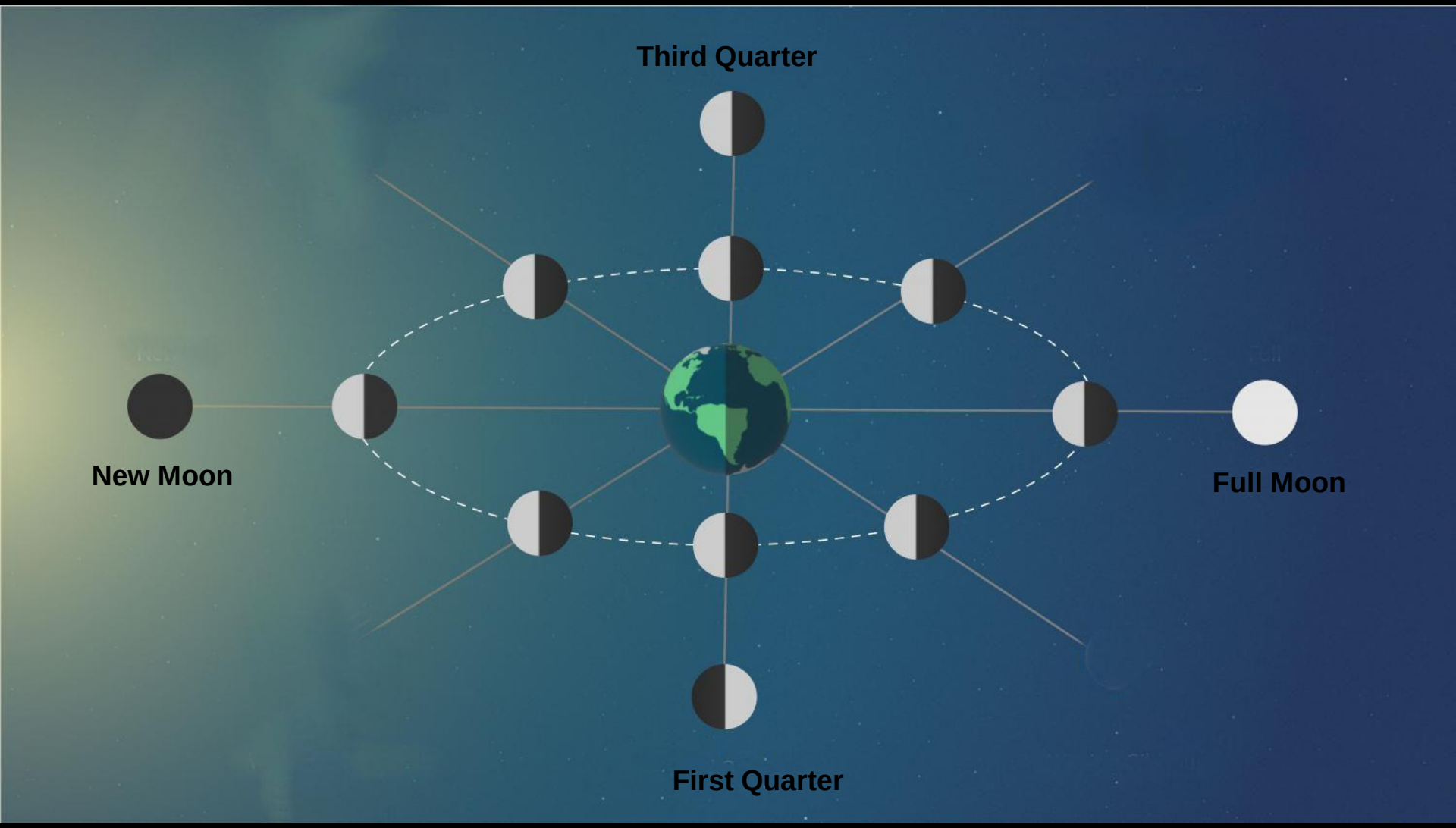
- On 10:56pm - July 20, 1969 Neil Armstrong stepped onto the Moon.
- On December 19, 1972 Eugene Cernan stepped off the Moon.
- Since then no human has gone to the Moon or even left low earth orbit.
- In the history of mankind, only 12 men ever walked on another world.


SINCE THE FIRST SKY-WONDERER GAZED OUT OF HER CAVE AND INTO THE LIGHT-SPECKLED BLACKNESS, WE HAVE ALWAYS ACHED TO FLY BEYOND THE CONFINES OF THIS LITTLE ROCK CALLED EARTH, SO LONG AS IT CAN BE DONE PRETTY CHEAP.


PHASES

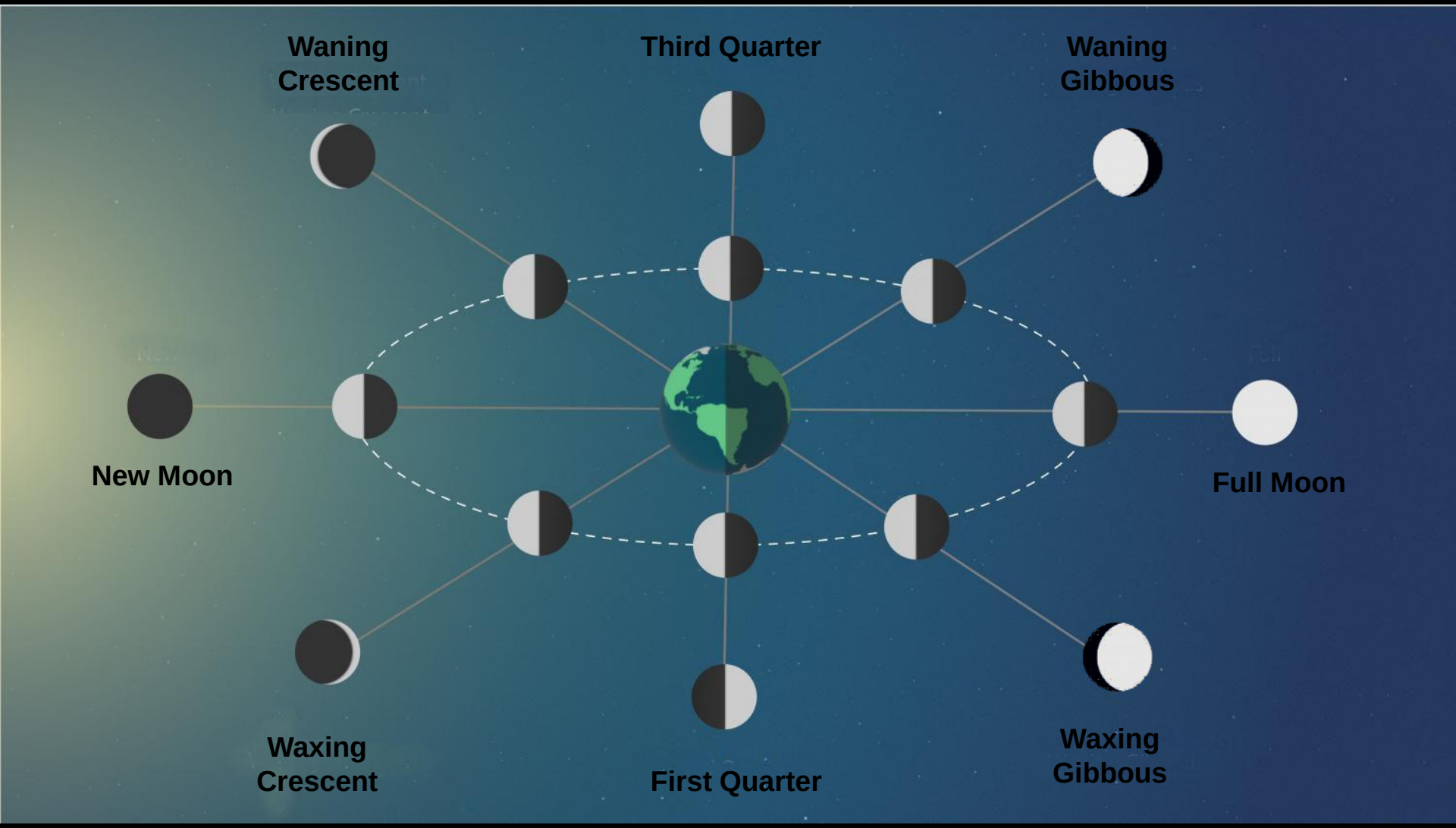



New Moon
Full Moon


Third Quarter
New Moon
Full Moon
First Quarter

Old English

- Crescent - less than half of a circle
- Gibbous - lopsided
- Waxing - growing
- Waning - shrinking


Waning Crescent
Third Quarter
Waning Gibbous
New Moon
Full Moon
Waxing Crescent
First Quarter
Waxing Gibbous

NEW


WAXING
CRESCENT


FIRST
QUARTER


WAXING
GIBBOUS


FULL

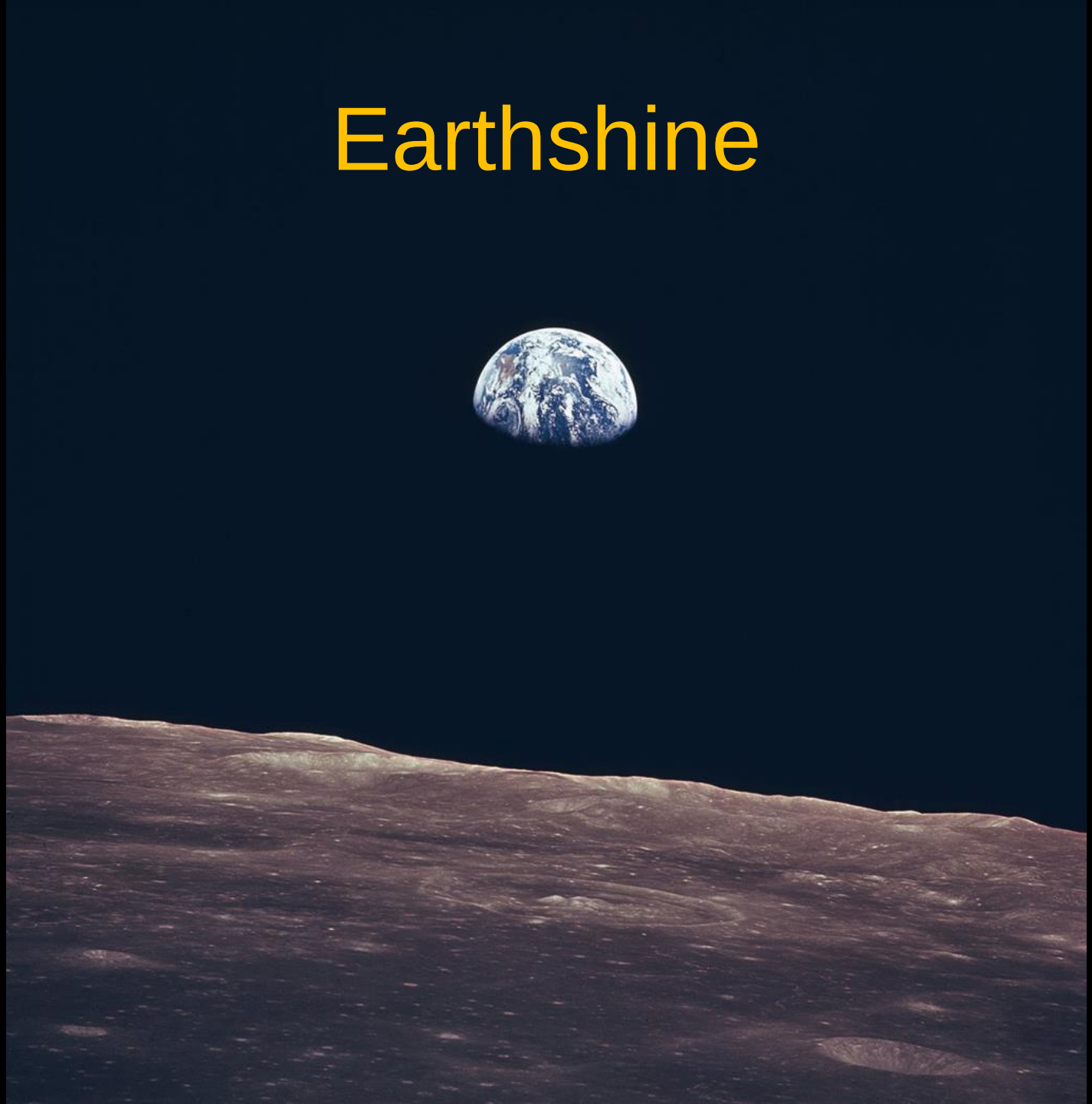

WANING
GIBBOUS


THIRD
QUARTER

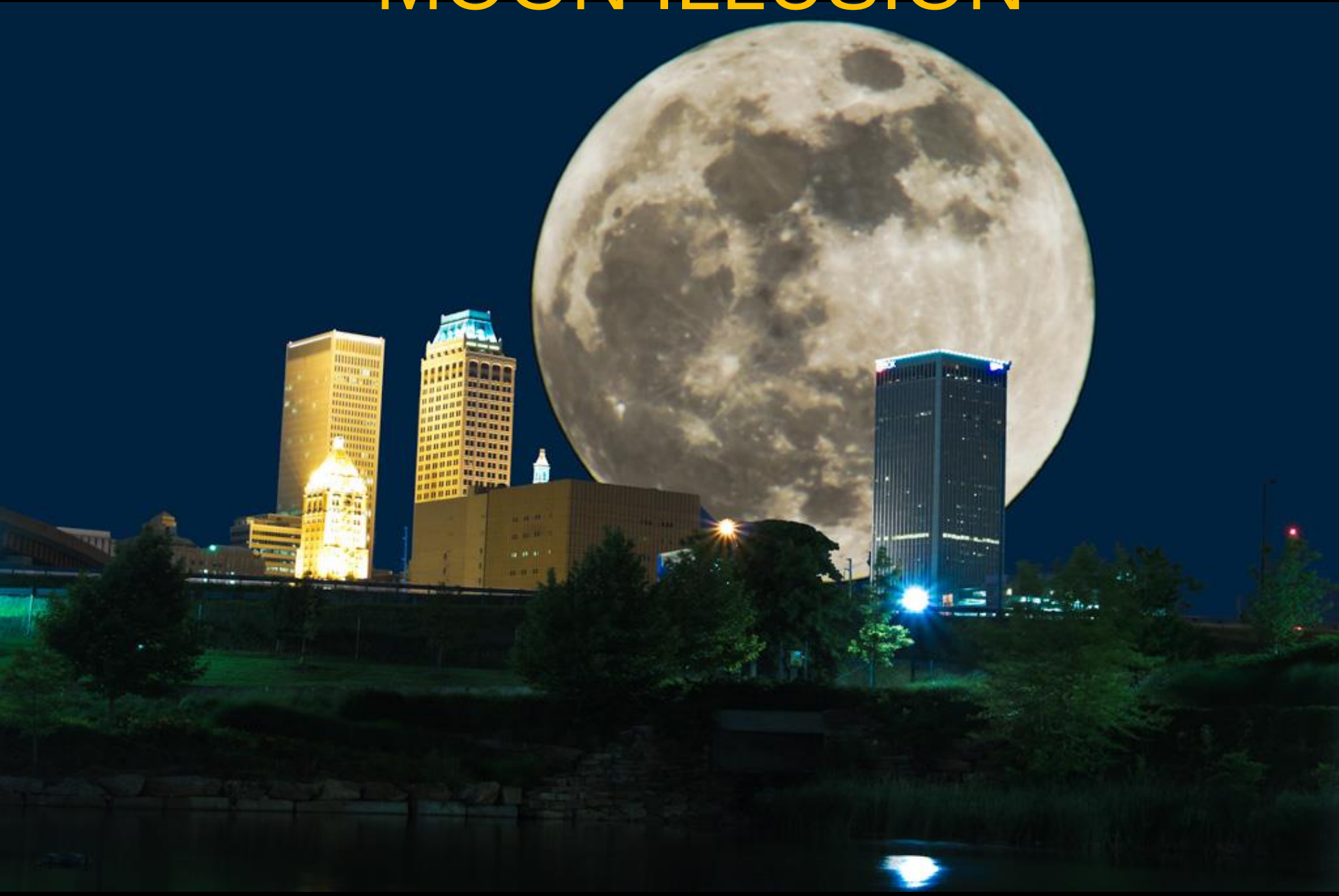

WANING
CRESCENT

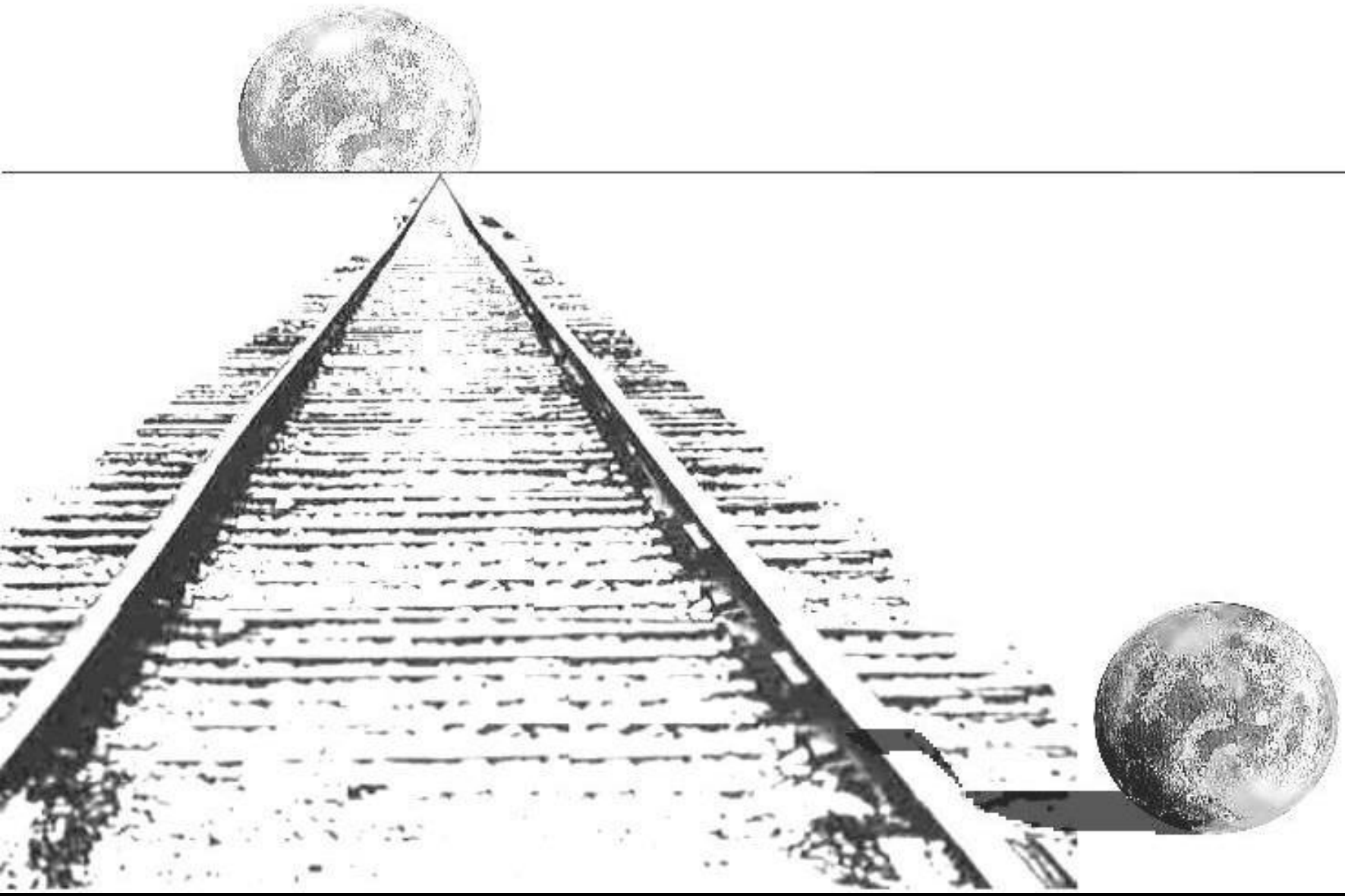
Earthshine

Earthshine



MOON ILLUSION





Moon Phase Timing

- The Moon orbits the Earth every 27.3 days.
- The full phase Cycle takes 29.5 days.

Full Moon Names

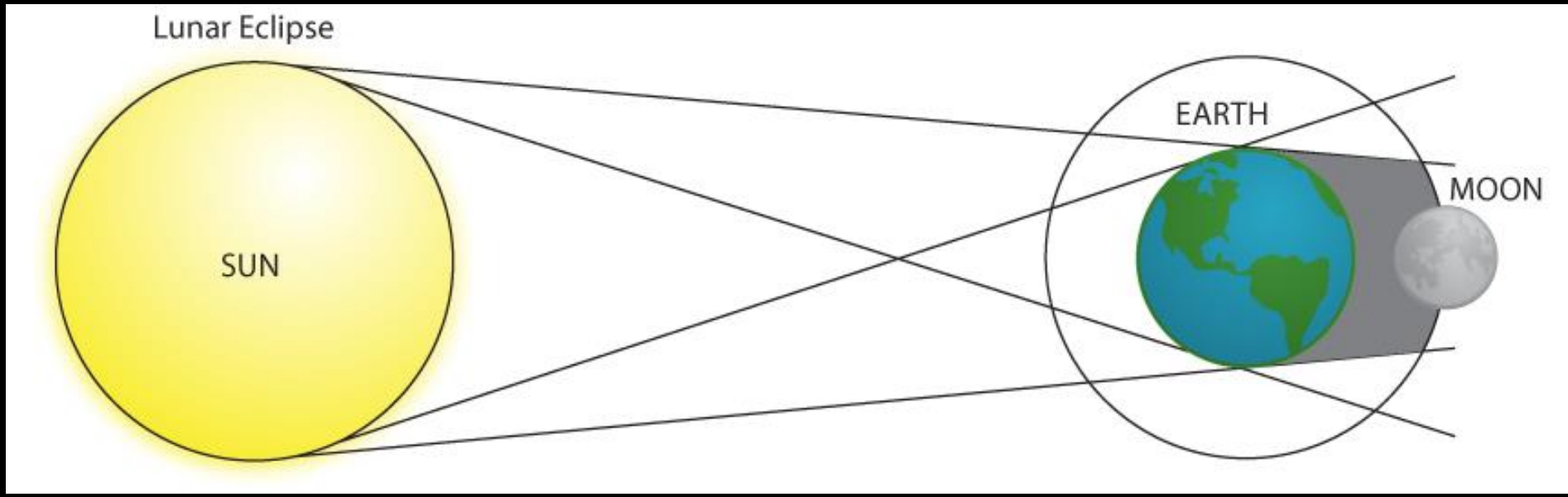
- January - Wolf Moon
- February – Snow Moon
- March - Worm Moon
- April - Pink Moon
- May - Flower Moon
- June - Strawberry Moon
- July - Buck Moon
- August - Sturgeon Moon
- September - Corn Moon
- October - Harvest Moon
- November - Beaver Moon
- December - Cold Moon

If there is a second Full Moon in a month it is called a Blue Moon

LUNAR ECLIPSE


A Super Wolf Blood Moon Eclipse!!

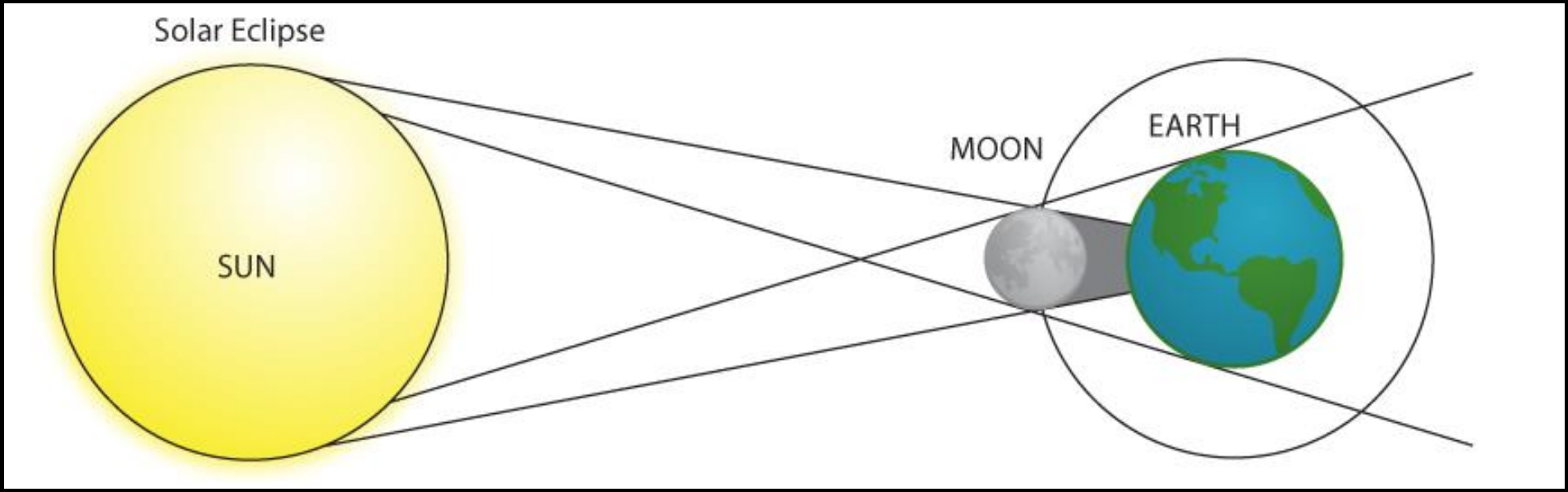
Lunar Eclipse




Total Lunar Eclipses
January 20, 2019 Evening (8:41 TO 9:43PM)
May 21, 2021 Early Morning (1:47am to 6:01am)

SOLAR ECLIPSE

Solar Eclipse

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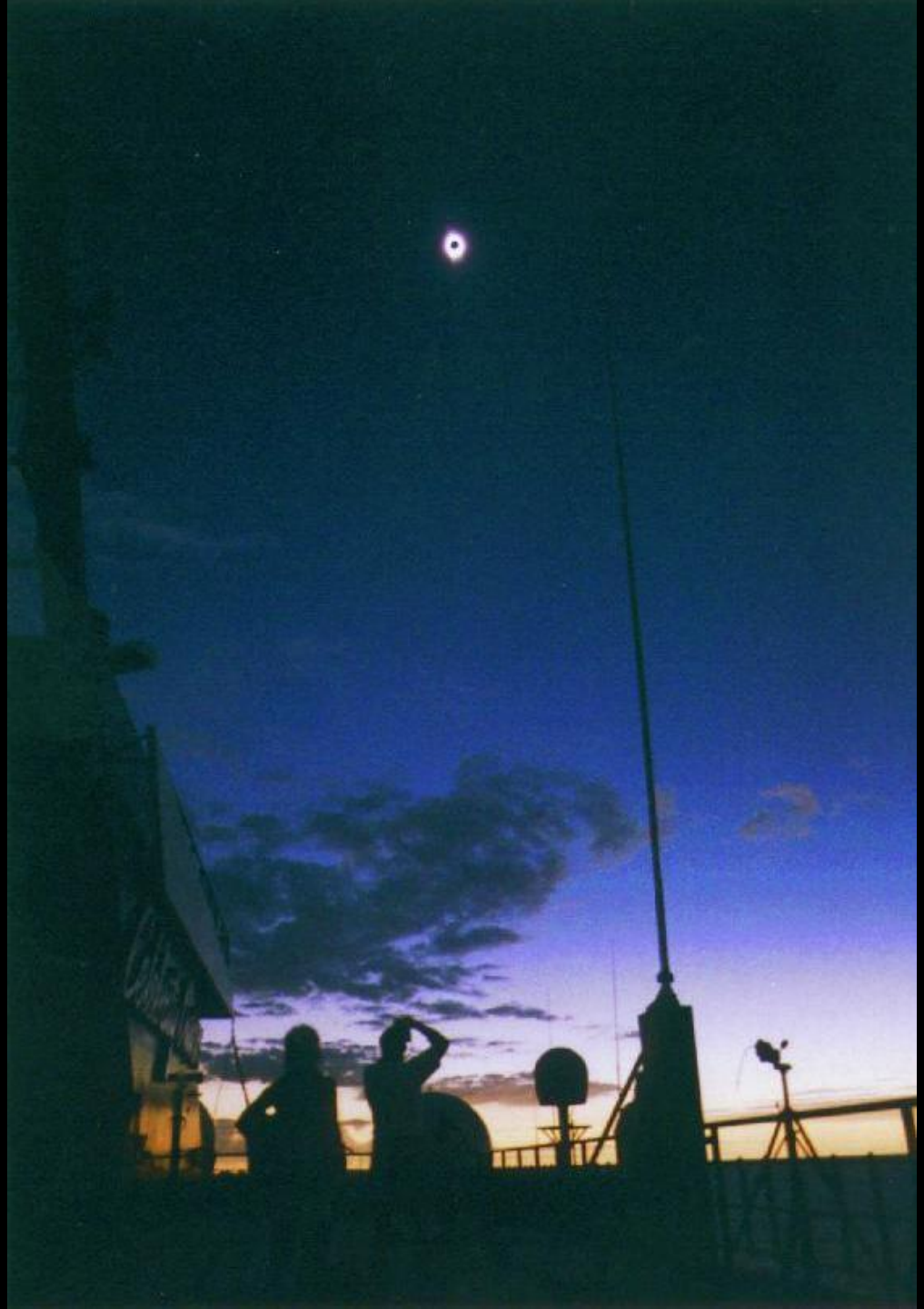
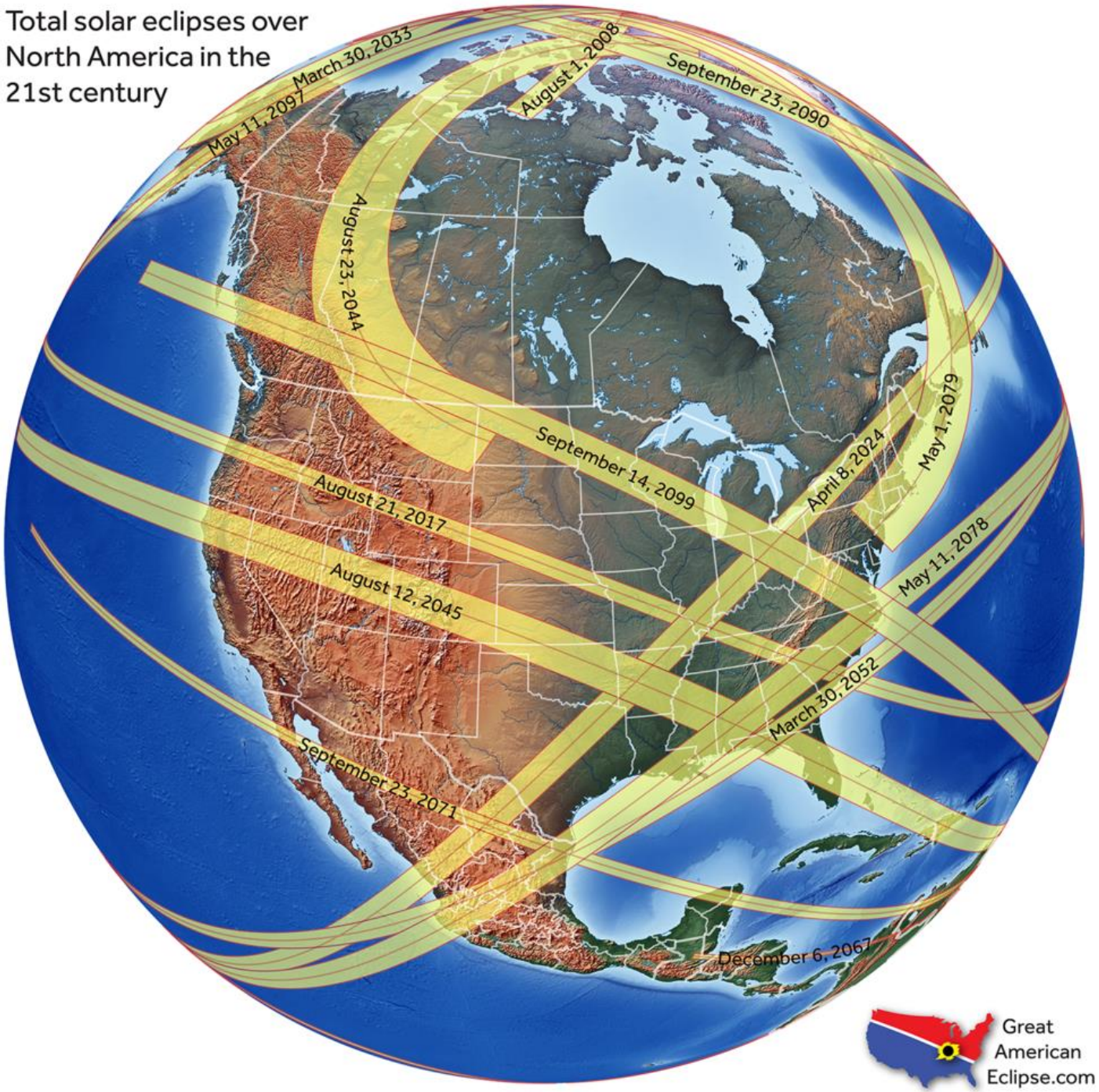
www.MrEclipse.com

Moon's shadow on Earth taken by French cosmonaut Jean-Pierre Haigneré aboard the Mir


©2001 F. Espenak, www.MrEclipse.com




Total solar eclipses over North America in the 21st century
March 30, 2033
May 11, 2097
August 1, 2008
September 23, 2090
August 23, 2044
September 14, 2099
August 21, 2017
August 12, 2045
April 8, 2024
May 1, 2079
May 11, 2078
March 30, 2052
September 23, 2071
December 6, 2067
Great American Eclipse.com

Why are Eclipses Rare?

THE END

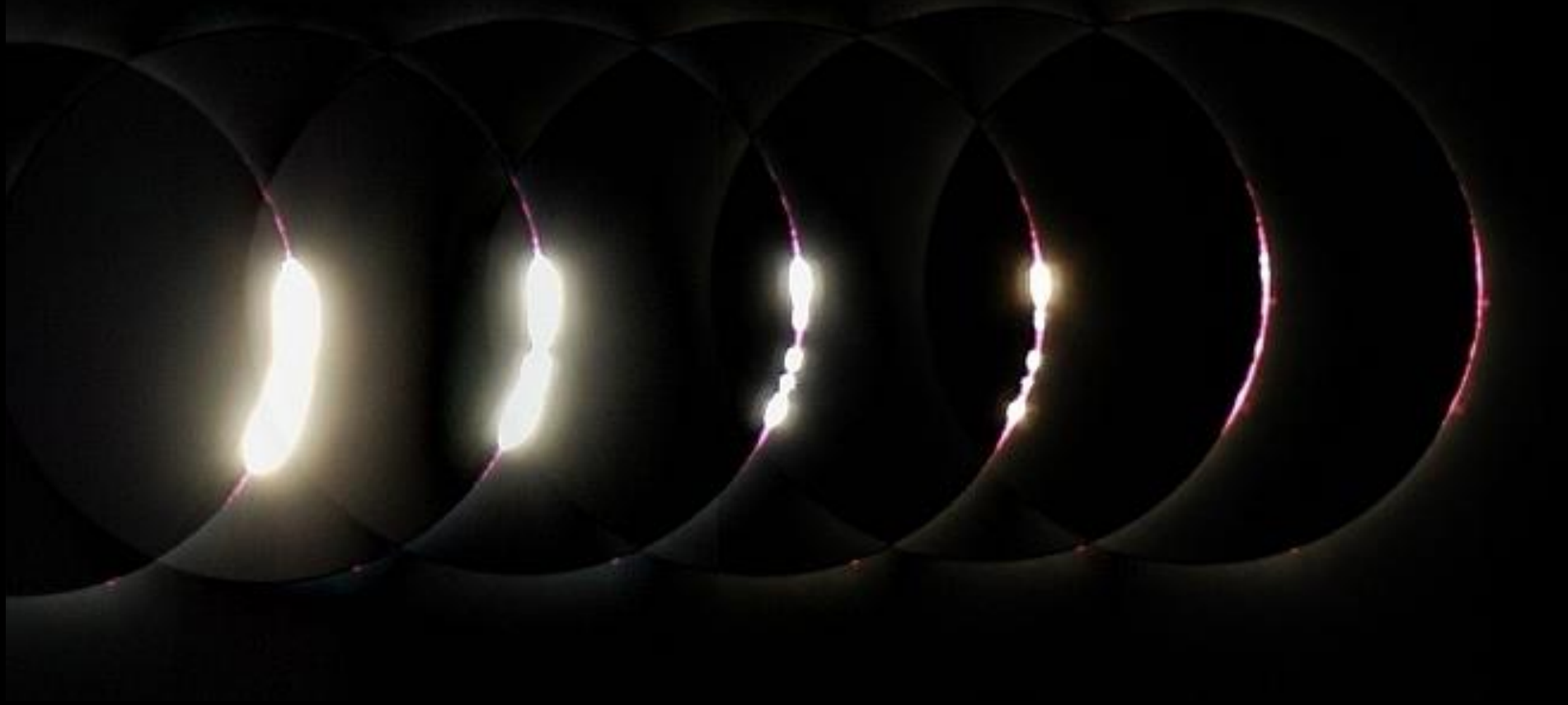
Total Solar Eclipse

A total solar eclipse will occur on the U.S. mainland on August 21, 2017. Its path will stretch across all of the country. The area of partial eclipse spreads much wider than the path of totality shown below.

What to Watch For in a Total Solar Eclipse

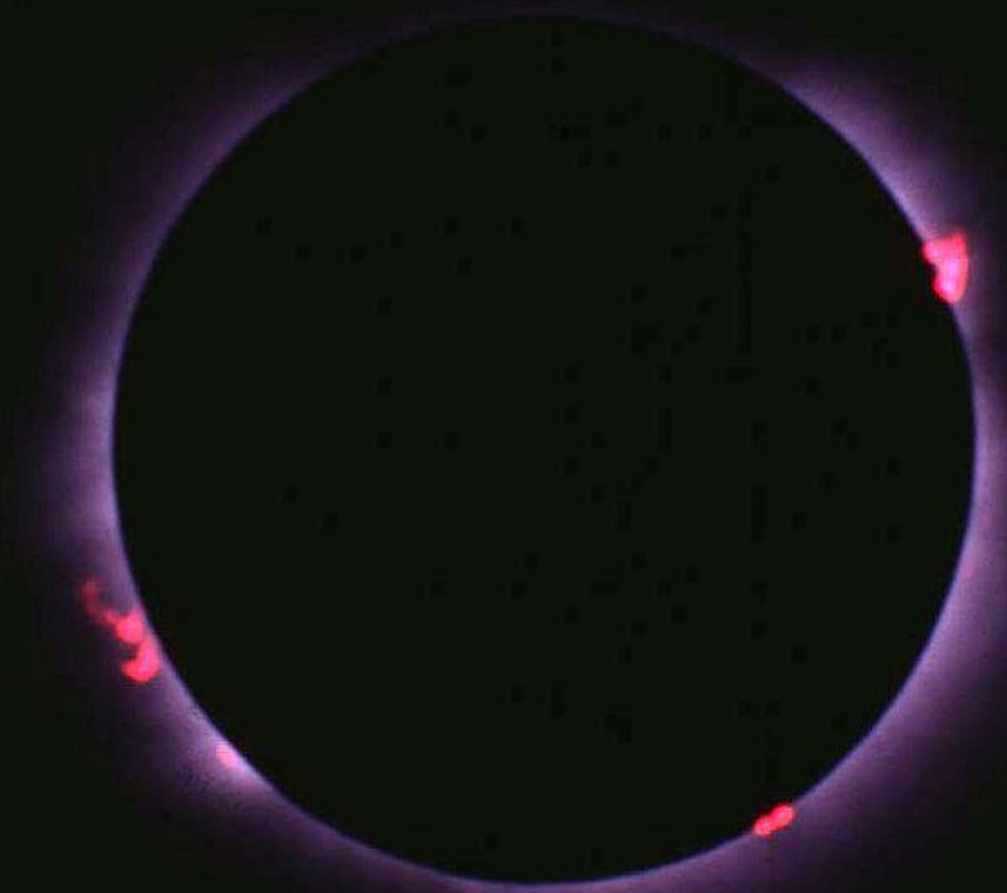
Moons Shadow

Baily's Beads

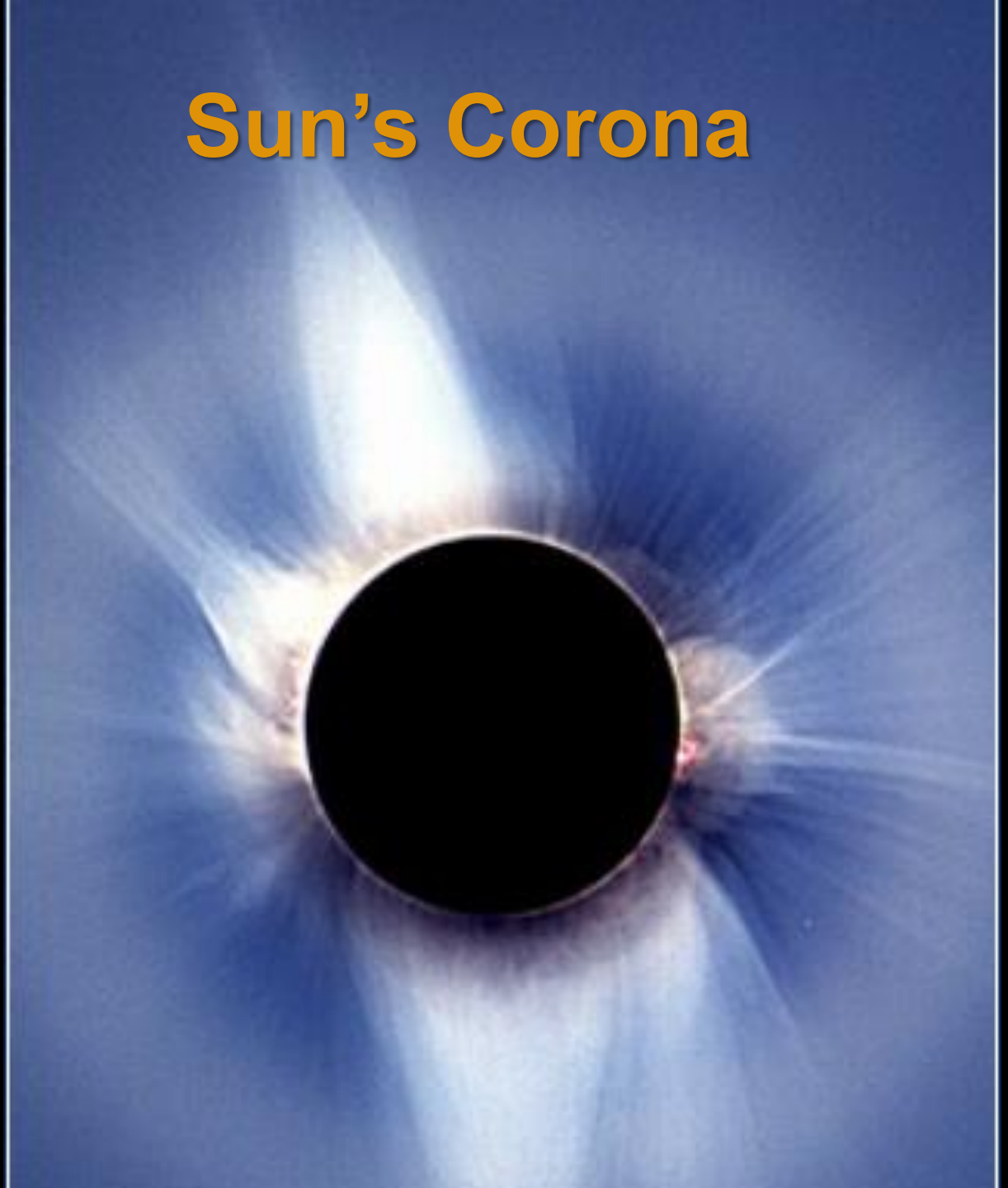


Diamond Ring

Solar Prominences



Sun's Corona



Shadow Bands

Terms

- **1st contact**: - Partial eclipse begins
- @
- **2nd contact:** - Totality and maximum eclipse.
- **3rd contact: -** Total eclipse ends and the Sun reappears.
- **4th contact:** - Partial eclipse ends


Total Solar Eclipse
29 March 2006
Jalu, Libya
David & Jean Kodama © 2006
http://www.eanet.com/kodama/astro/

Times
In San Mateo (75% Covered)

- **1st contact**: - Partial eclipse begins
  - 9:01 am
- **Maximum** - Maximum eclipse.
  - 10:15 am
- **4th contact:** - Partial eclipse ends
  - 11:37 am

Resources

- An interactive map showing times and dates for the 2017 eclipse:
- http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2017_GoogleMapFull.html
- A good write-up on the upcoming eclipse for teachers and students.
- http://static.nsta.org/extras/solarscience/SolarScienceInsert.pdf
- A general site with links and videos:
- https://www.greatamericaneclipse.com/
- Search Google or BING for Eclipse 2017


Total Solar Eclipse
29 March 2006
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http://www.eanet.com/kodama/astro/