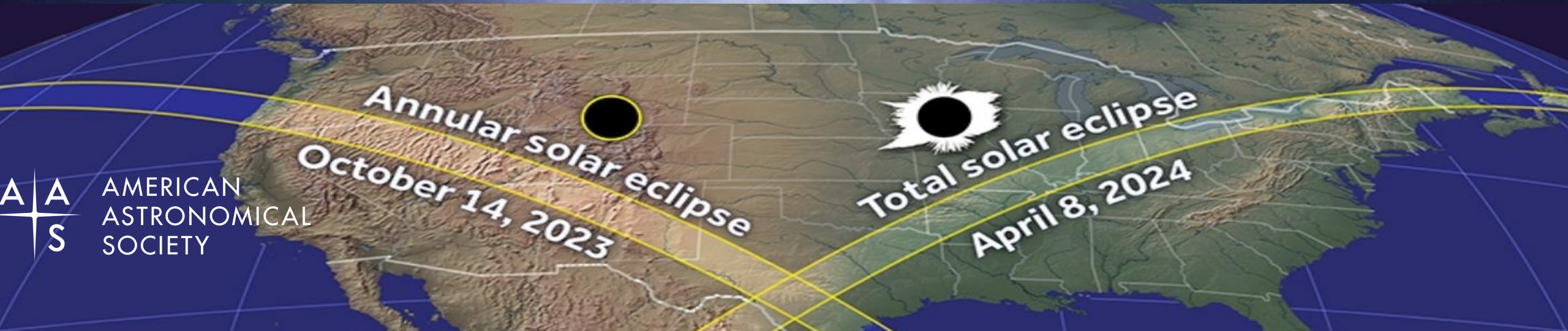


WHAT TO EXPECT IN 2023 & 2024

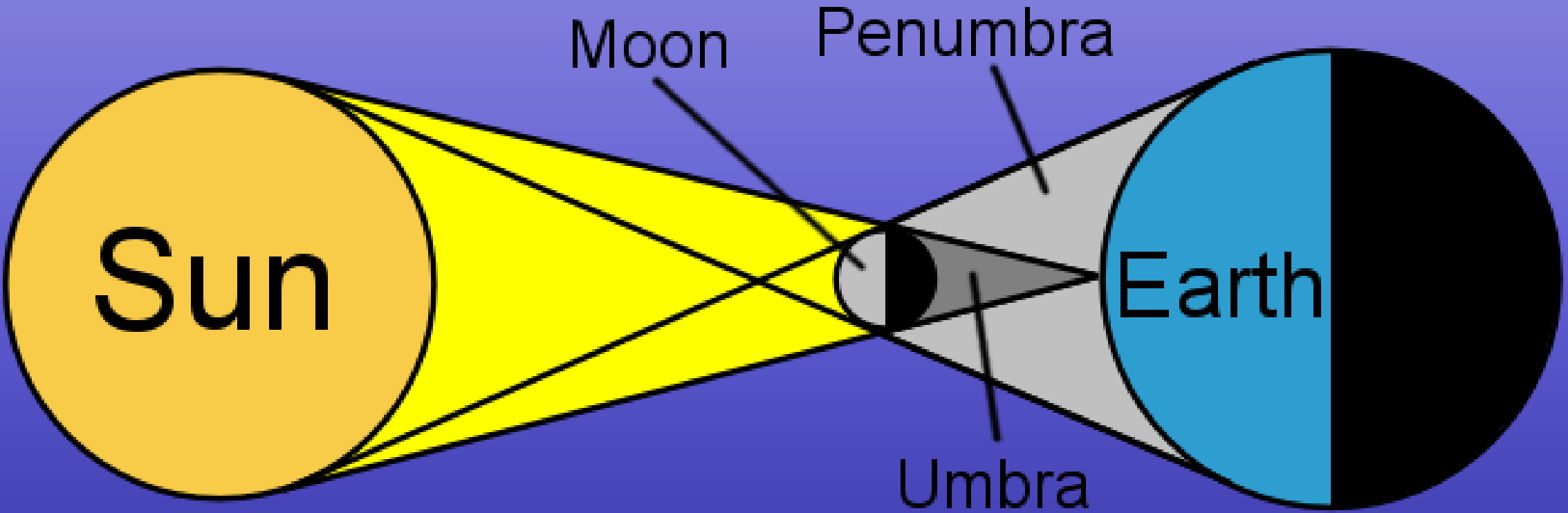




ANNULAR SOLAR ECLIPSE
OCTOBER 14, 2023

APRIL 8, 2024
TOTAL SOLAR ECLIPSE

Solar eclipses occur when the Moon gets between the Sun and the Earth



Lunar Phases



No Solar Eclipse

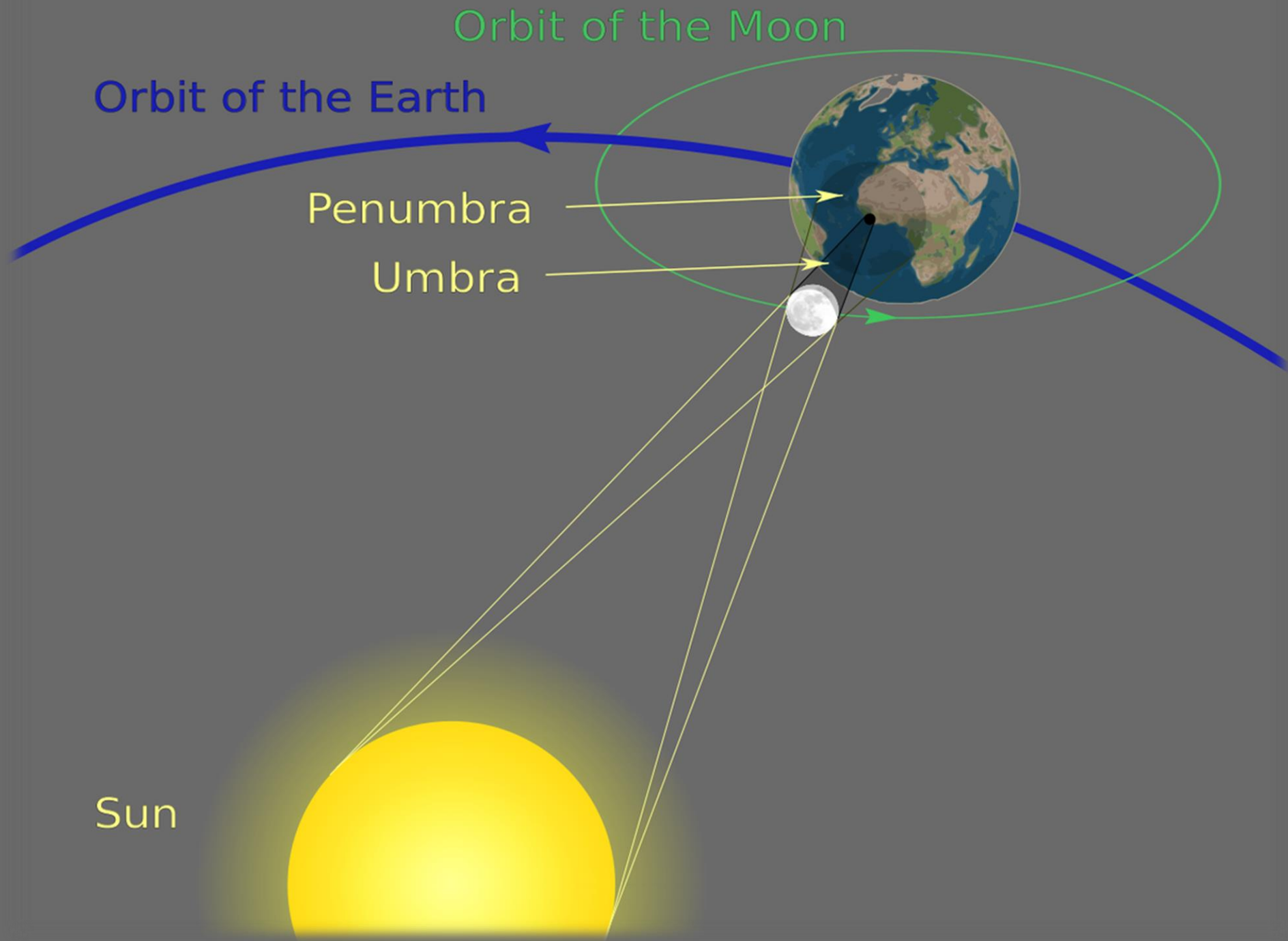
No Lunar Eclipse

Most Months

Solar Eclipse

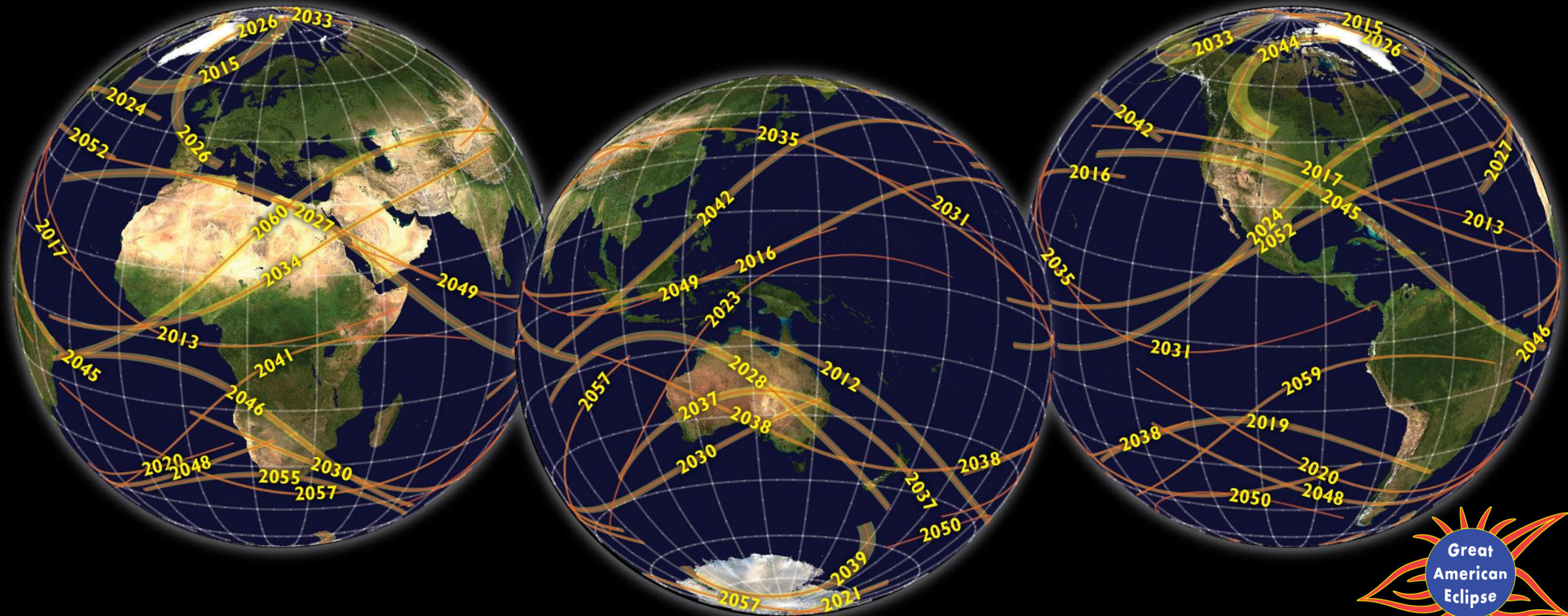
Lunar Eclipse





Every total eclipse on the planet in 50 years (2010-2060)

Each total eclipse is seen by one thousandth of the Earth's surface. Most of the planet does not see a total eclipse in 50 years.

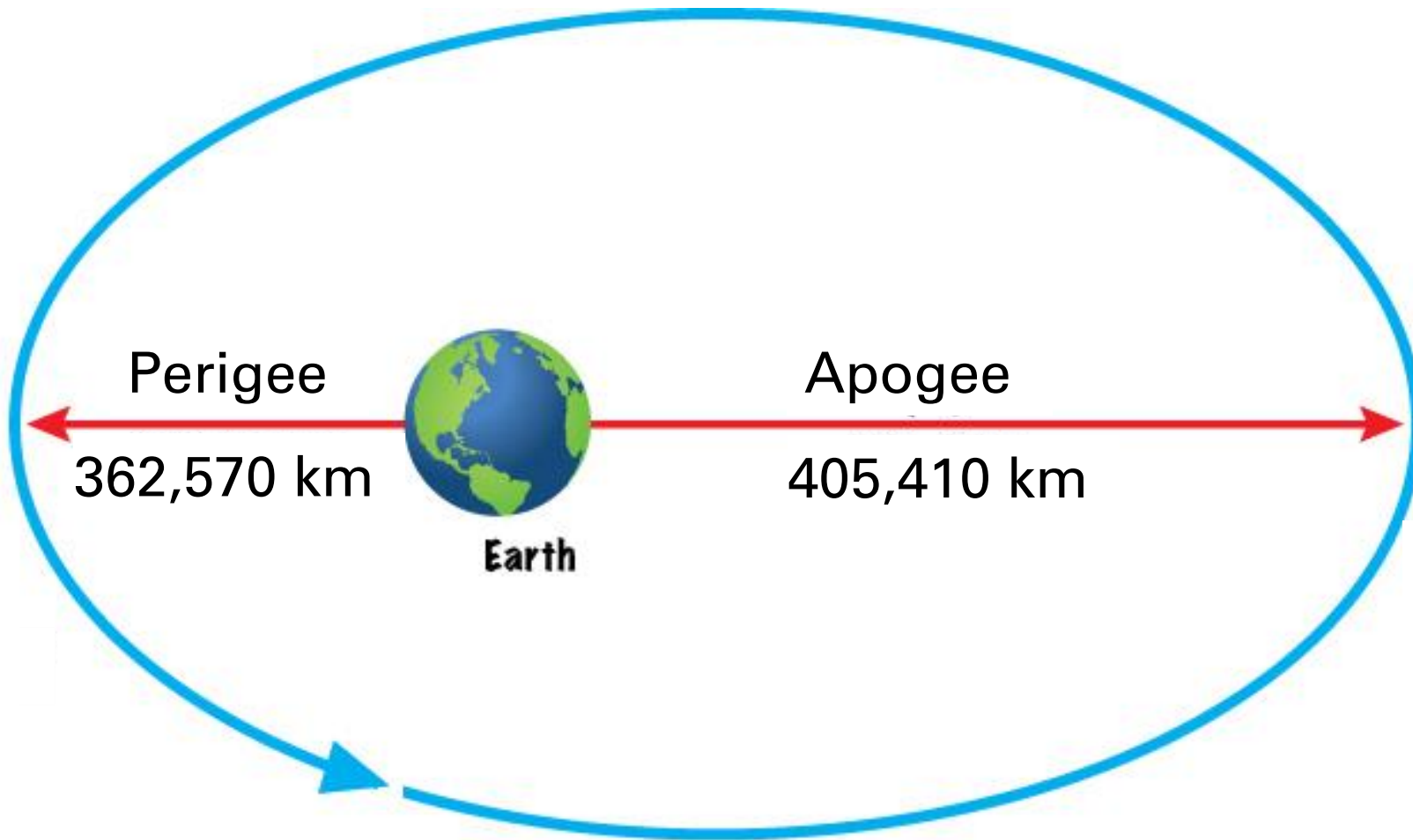


Annular eclipses





At perigee, the Moon is closer to the Earth and looks slightly larger



At apogee, the Moon is farther from the Earth and looks slightly smaller

Moon's Orbit is elliptical (greatly exaggerated here)

Aphelion
(Jul 4)

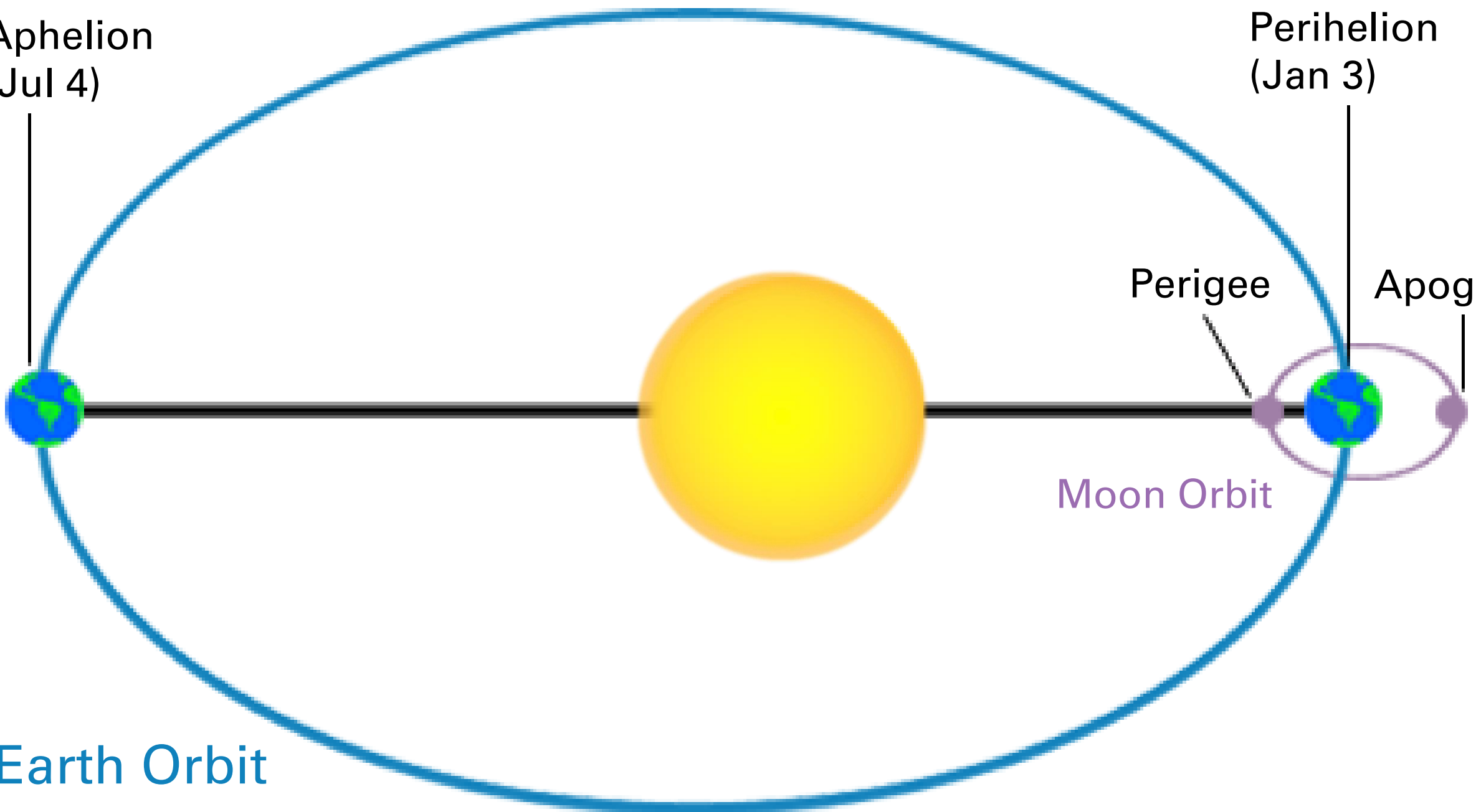
Perihelion
(Jan 3)

Perigee

Apogee

Moon Orbit

Earth Orbit

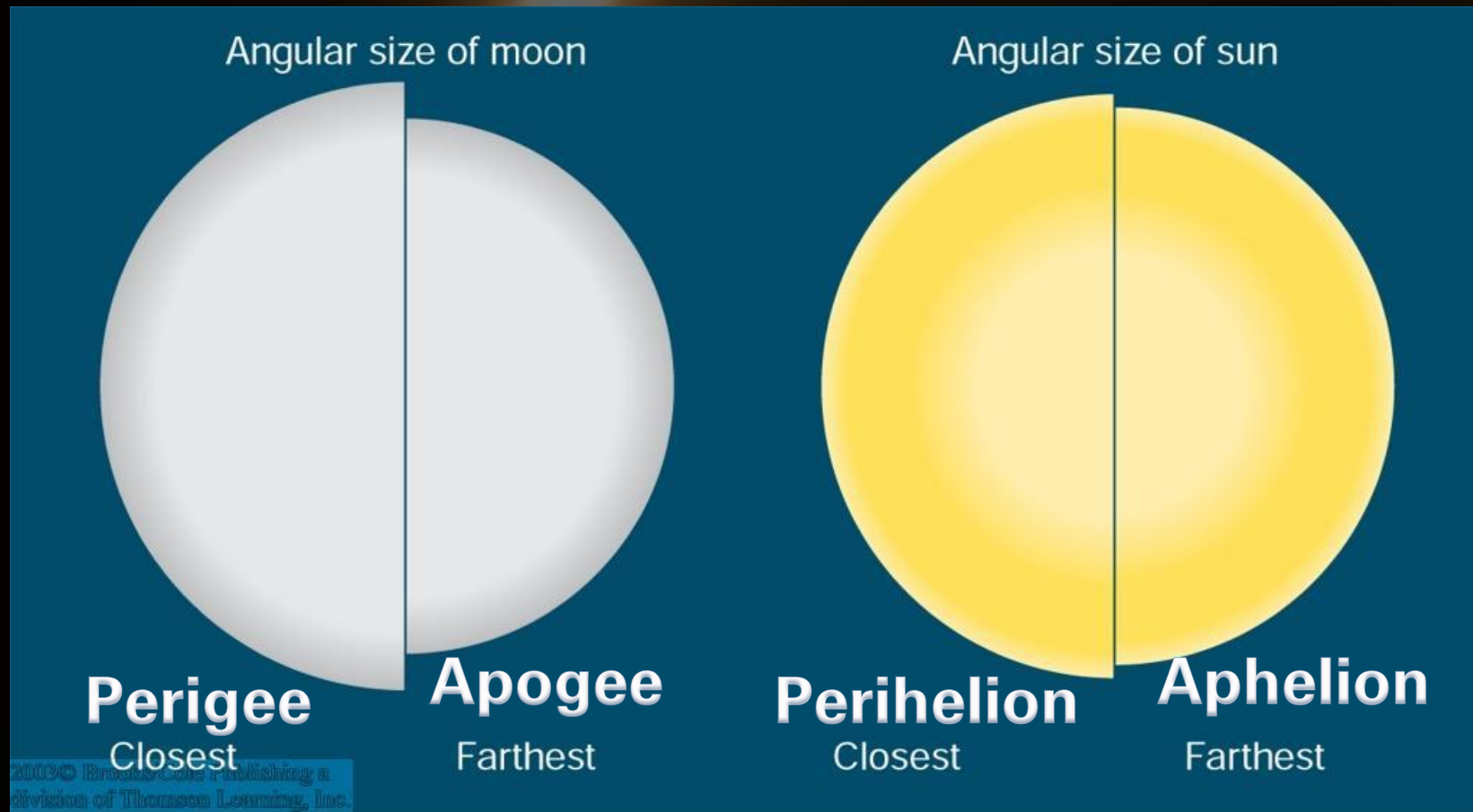


Annular Solar Eclipses

When Earth is near perihelion, and the moon is near apogee, we see an annular solar eclipse.

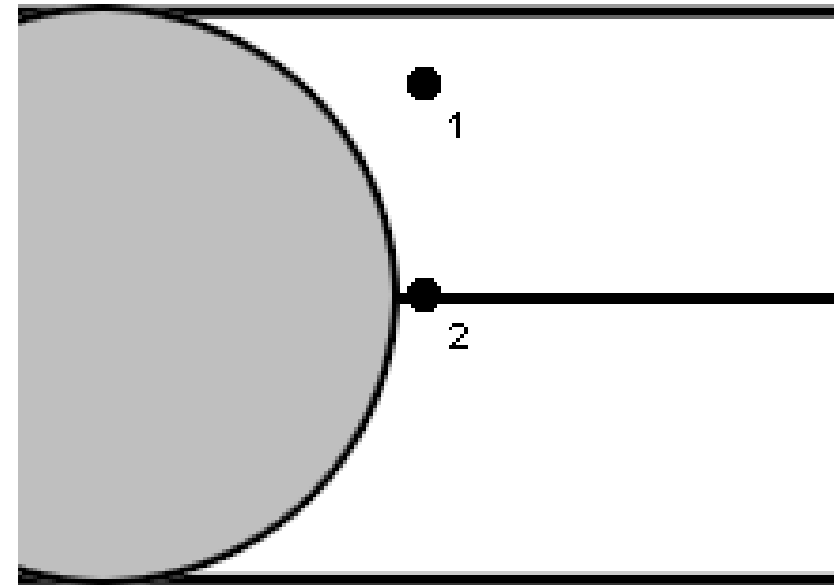
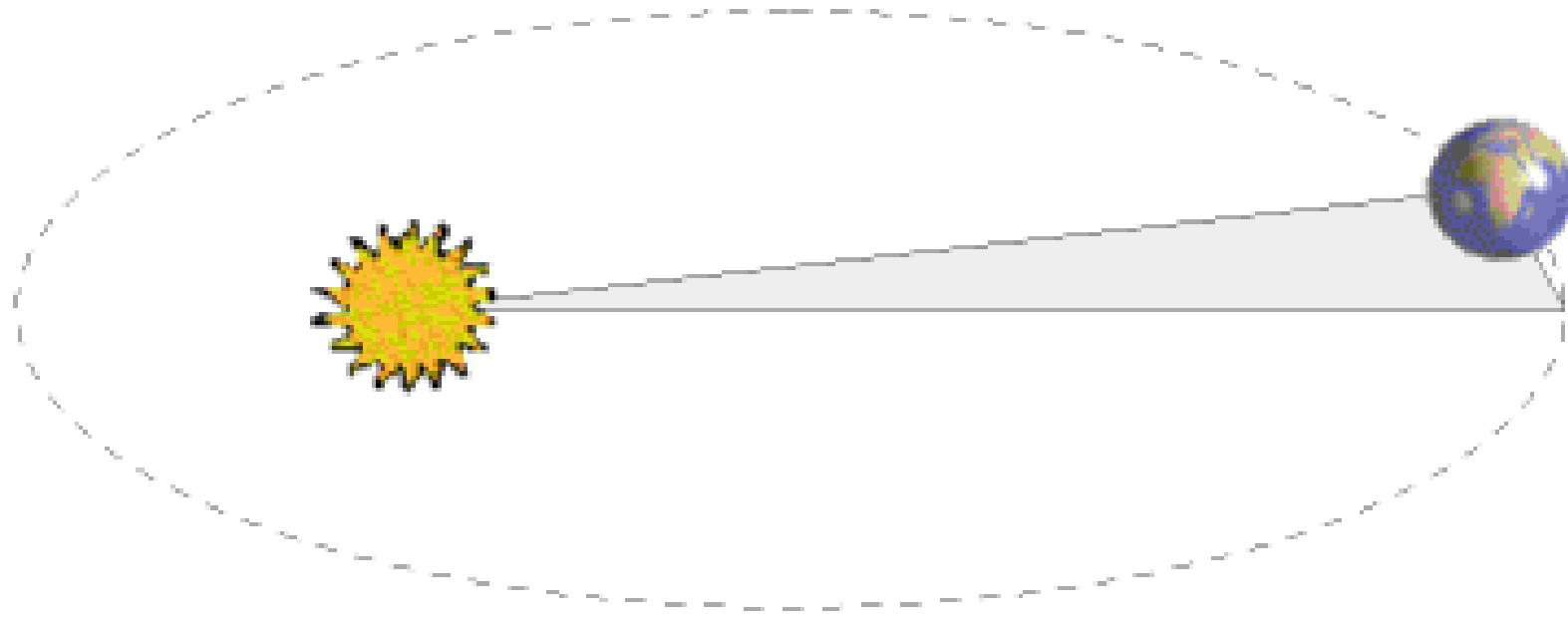


The angular sizes of the moon and the sun vary, depending on their distance from Earth.

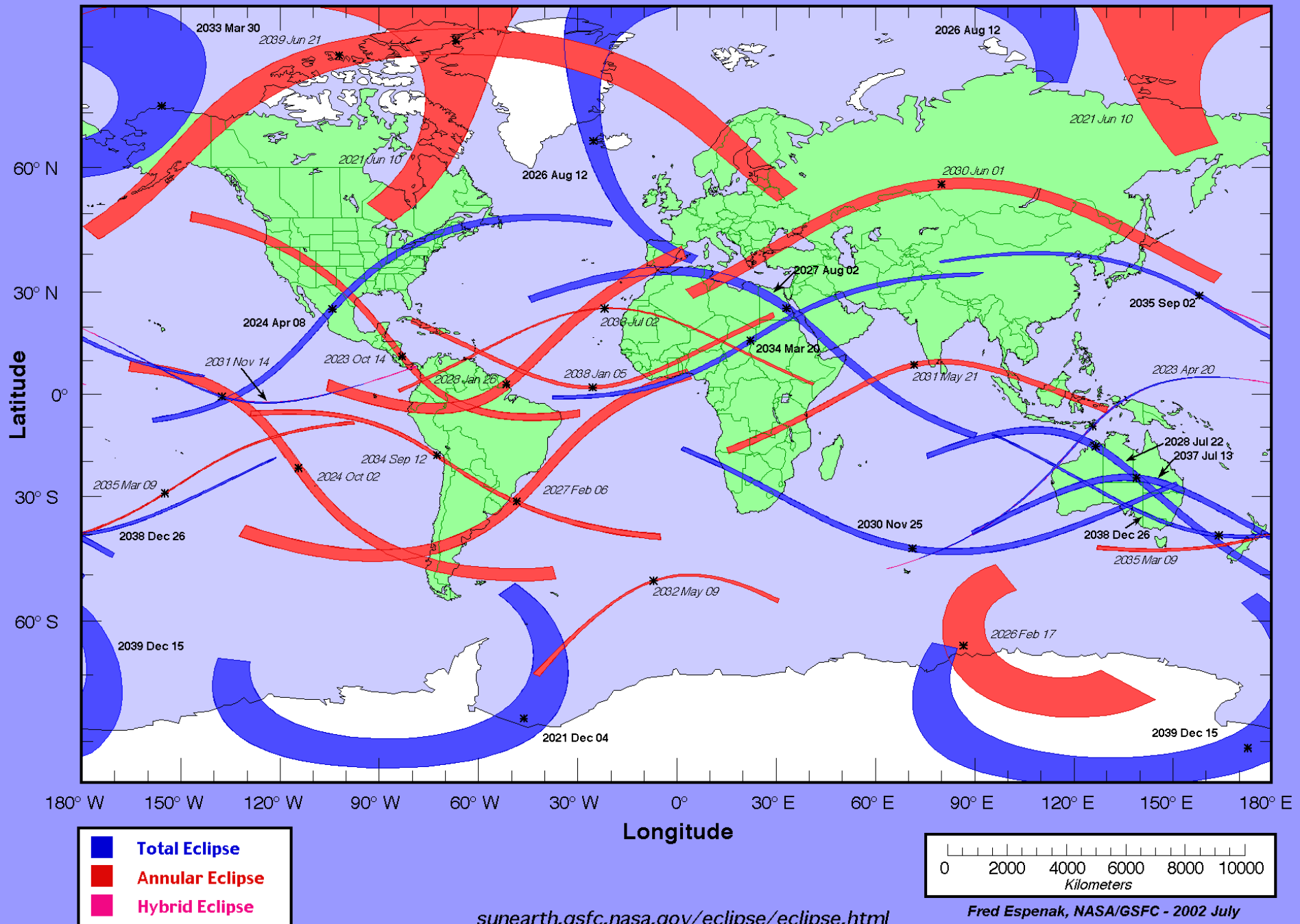


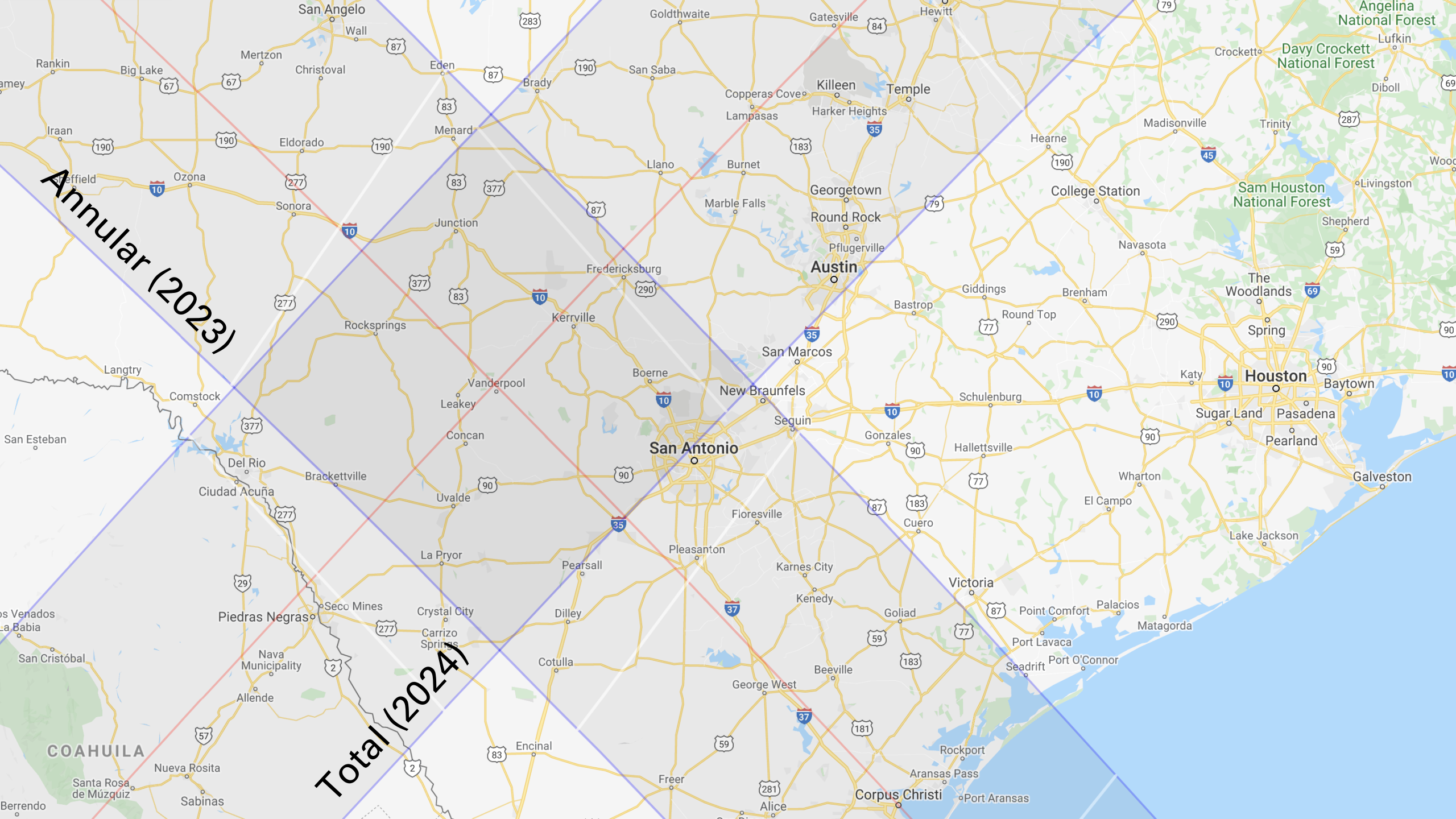


How long do eclipses last?



Total and Annular Solar Eclipse Paths: 2021 –2040





Annular (2023)

Total (2024)

COAHUILA

San Antonio

Austin

Houston

Corpus Christi

October
14th 2023





Great American Eclipse

Vancouver
Seattle

Minneapolis

Chicago

St. Louis

Washington, D.C.

Atlanta

Denver

Dallas

Houston

New Orleans

Tampa

Miami

Havana

Santo Domingo

San Francisco
80%

Los Angeles

Phoenix

San Diego

70%

60%

50%

40%

30%

20%

10%

Monterrey

Guadalajara

Mexico City

Puebla

Maracaibo

Caracas

Medellin

Bogota

Cali

Belem

Fortaleza

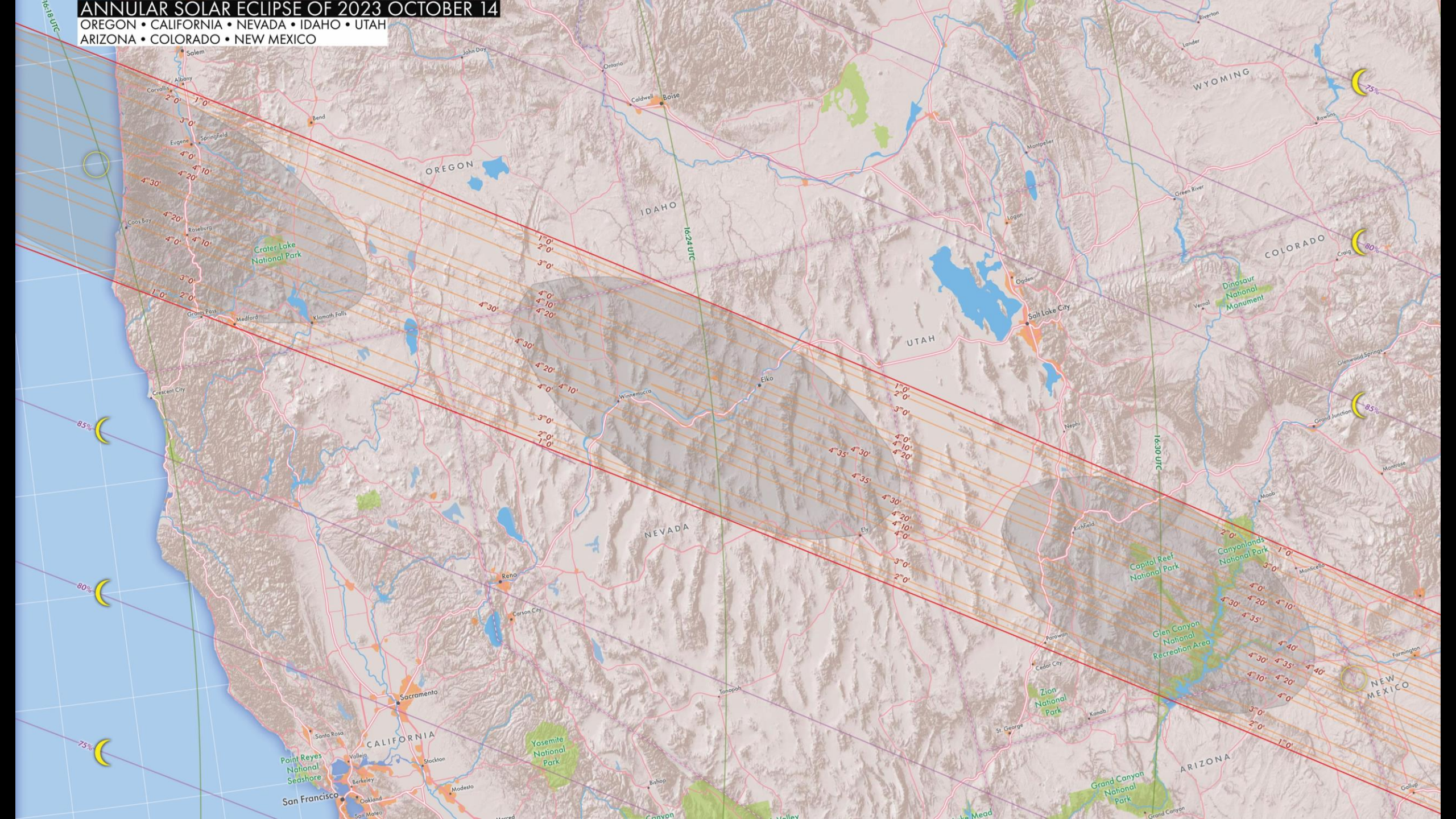
Recife

Salvador

Guayaquil

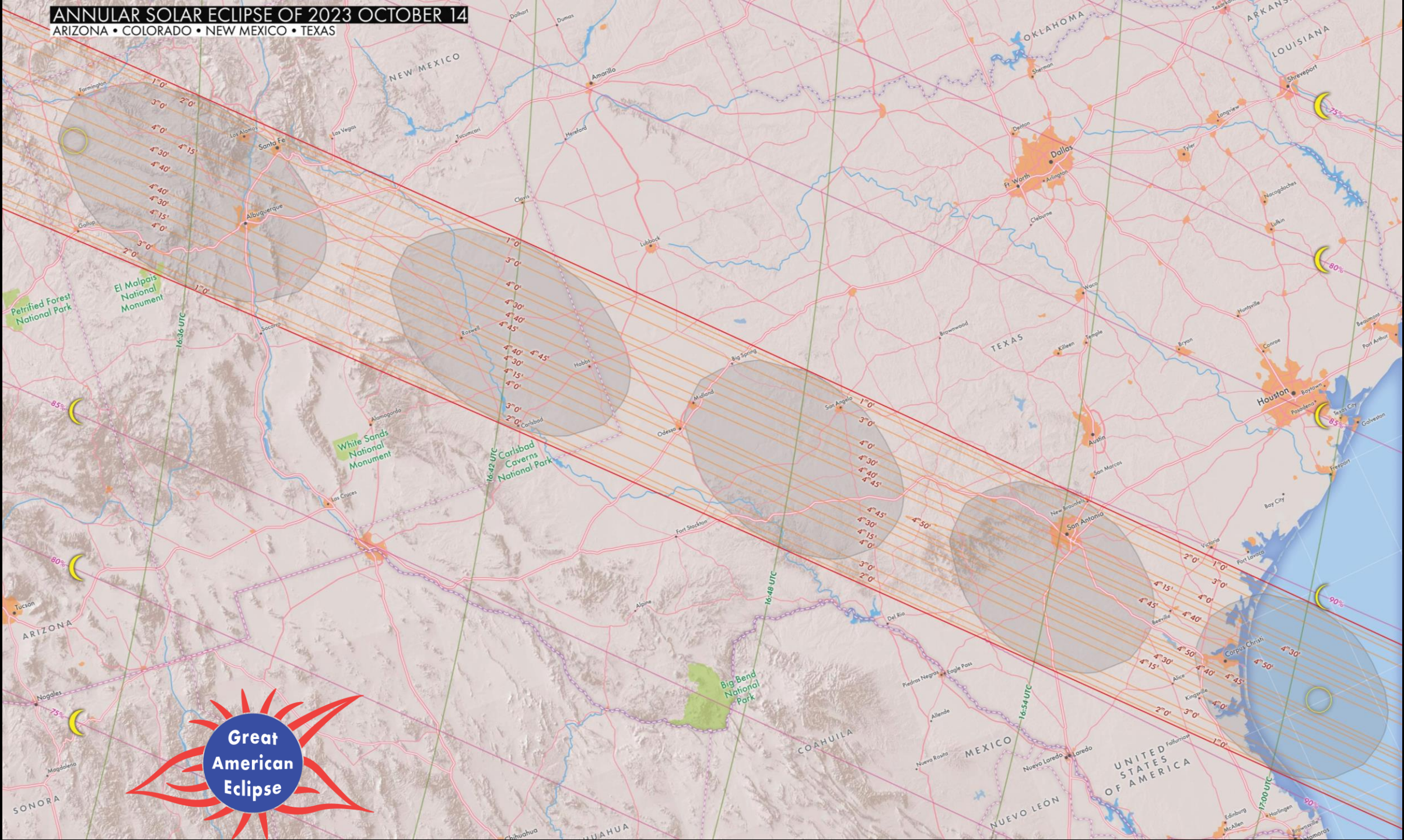
ANNULAR SOLAR ECLIPSE OF 2023 OCTOBER 14

OREGON • CALIFORNIA • NEVADA • IDAHO • UTAH
ARIZONA • COLORADO • NEW MEXICO

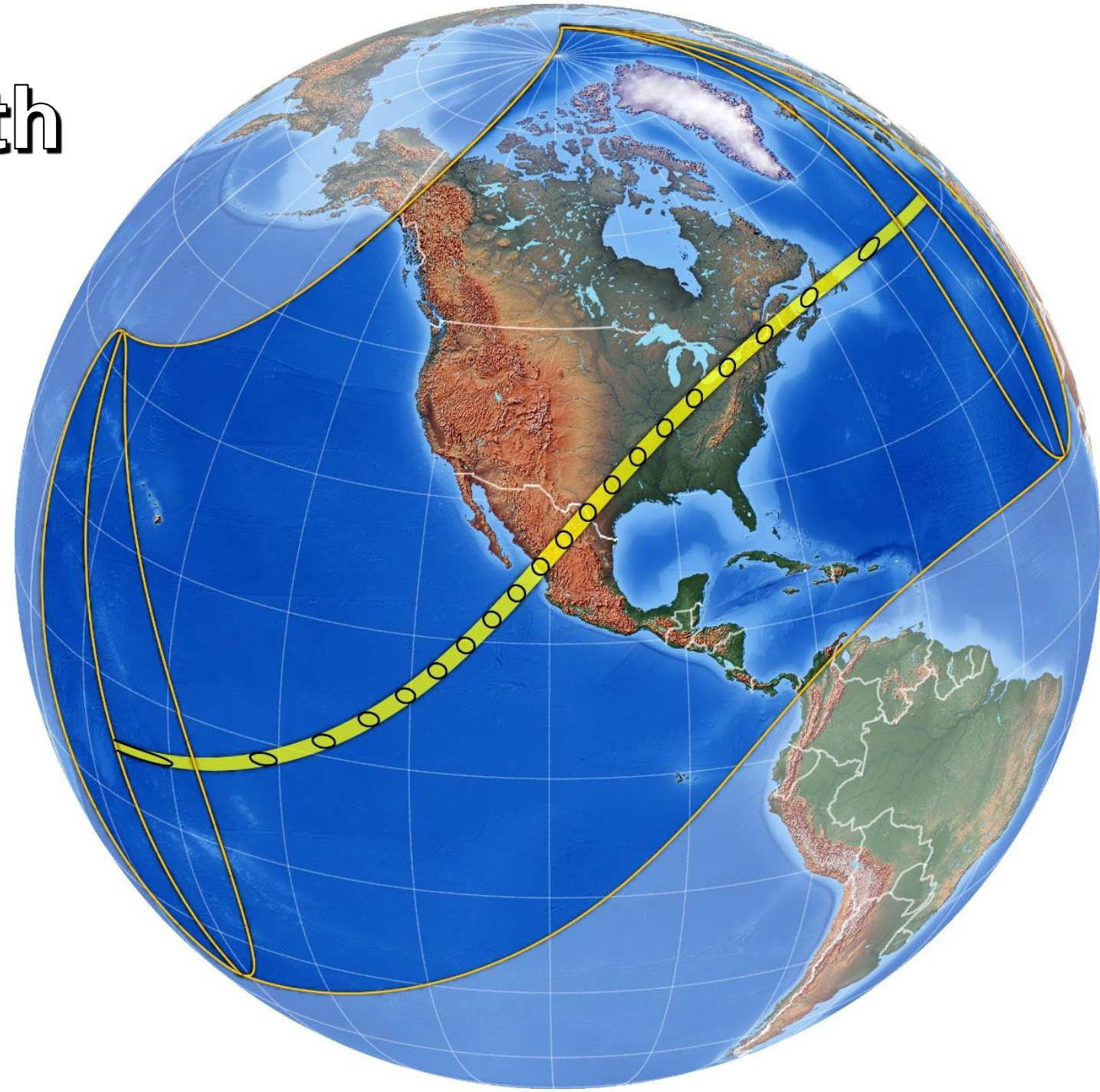


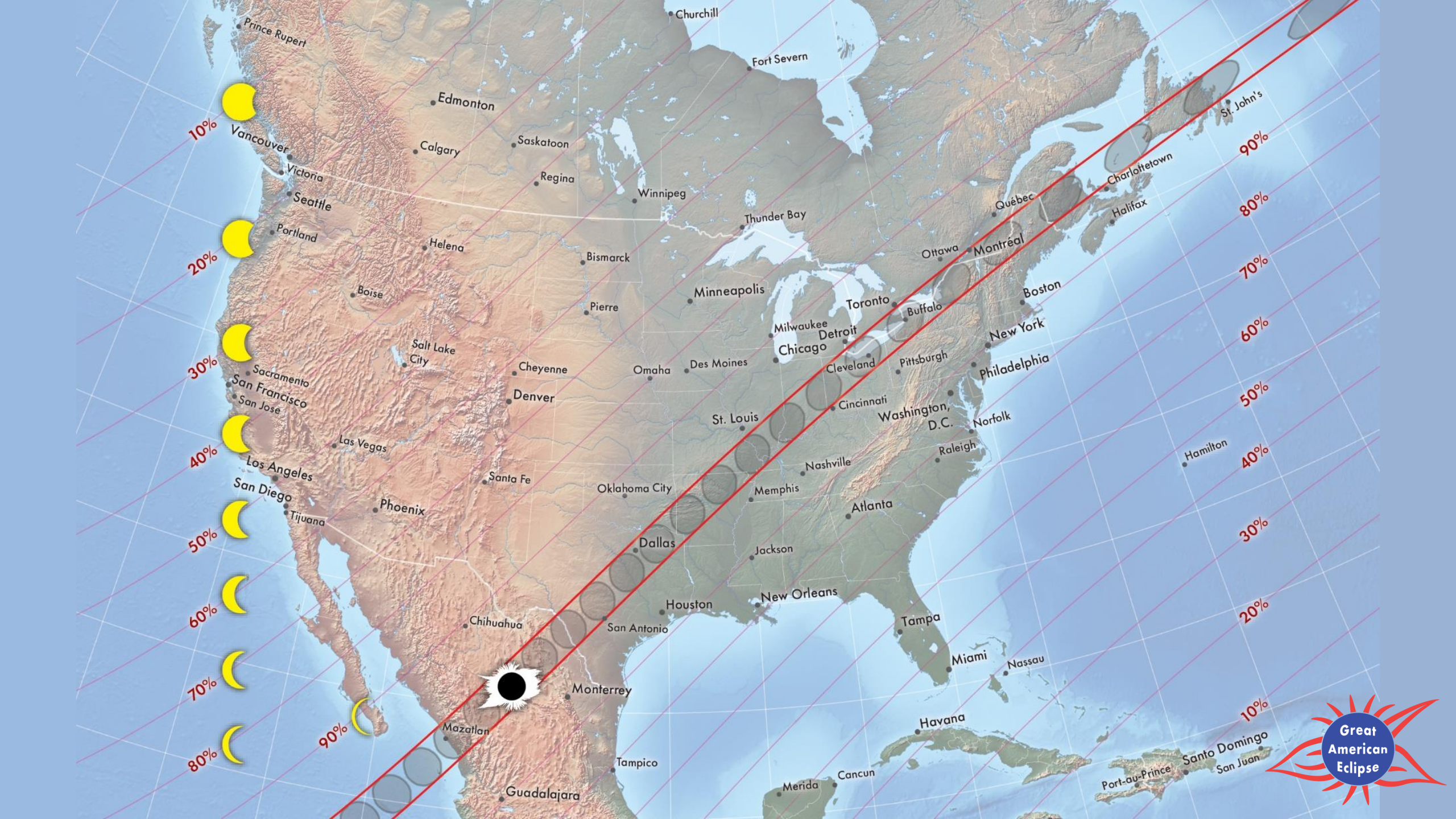
ANNUAL SOLAR ECLIPSE OF 2023 OCTOBER 14

ARIZONA • COLORADO • NEW MEXICO • TEXAS



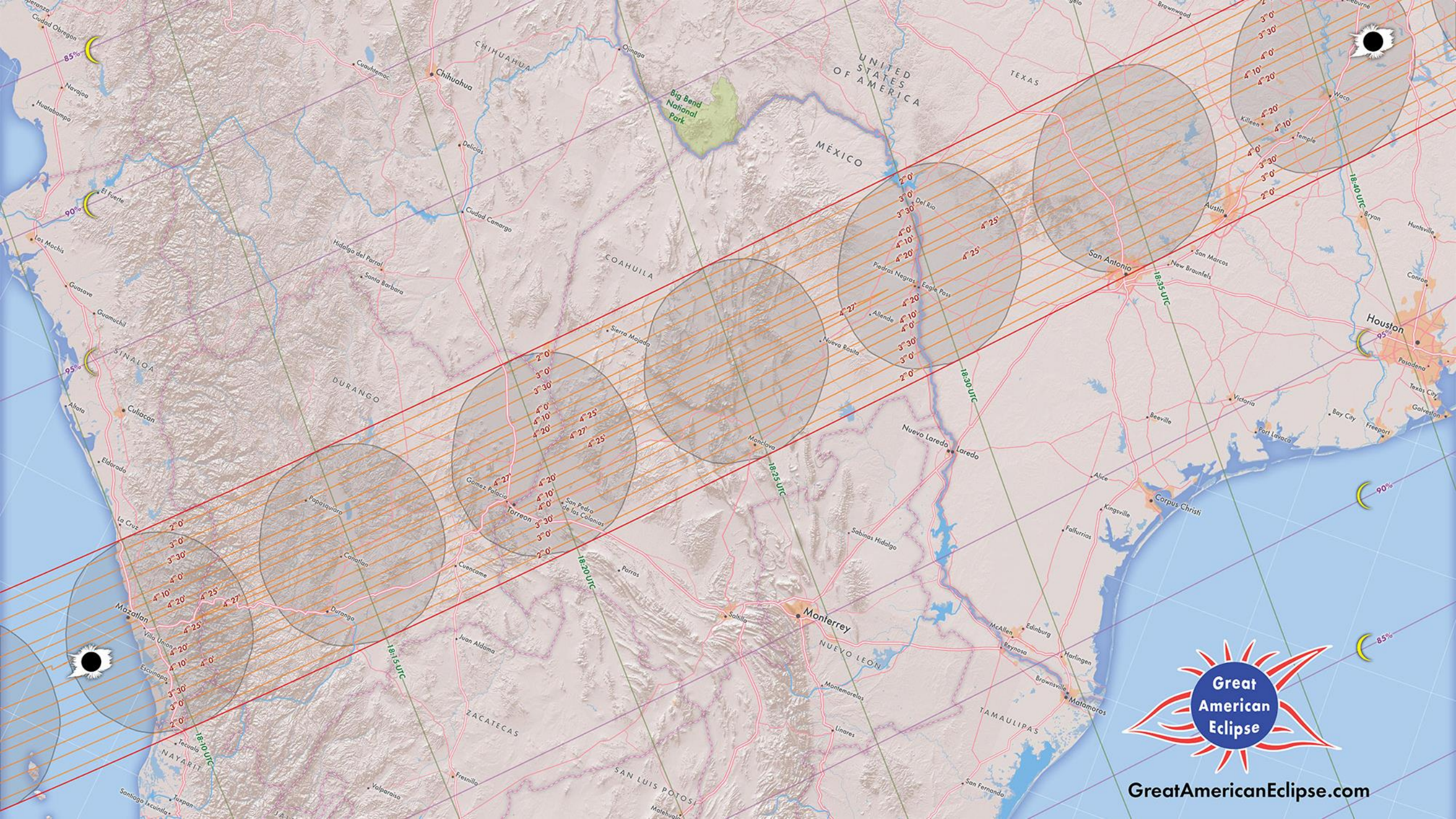
April 8th
2024



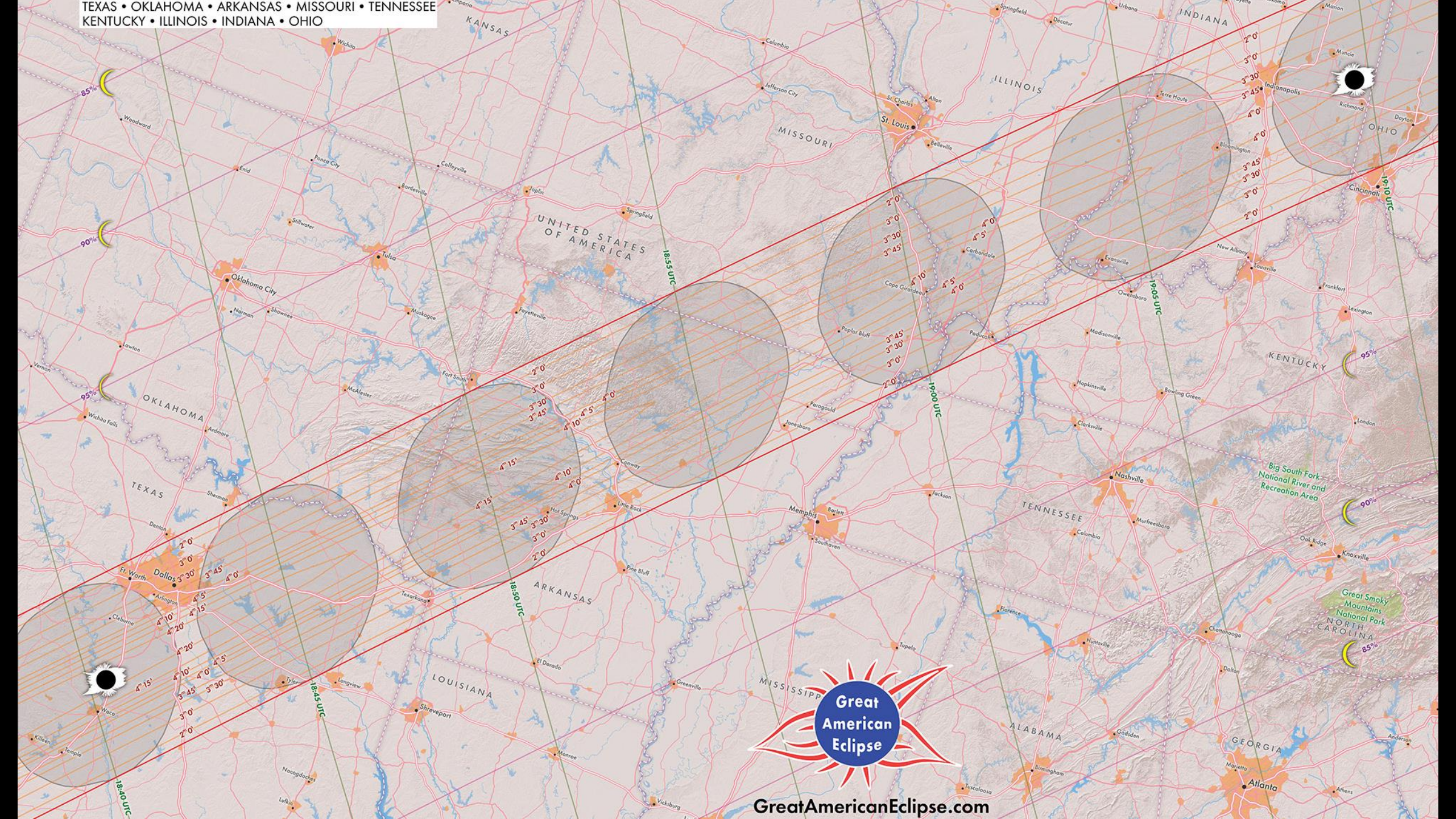


Cities inside the path of the Total Solar Eclipse of April 8, 2024



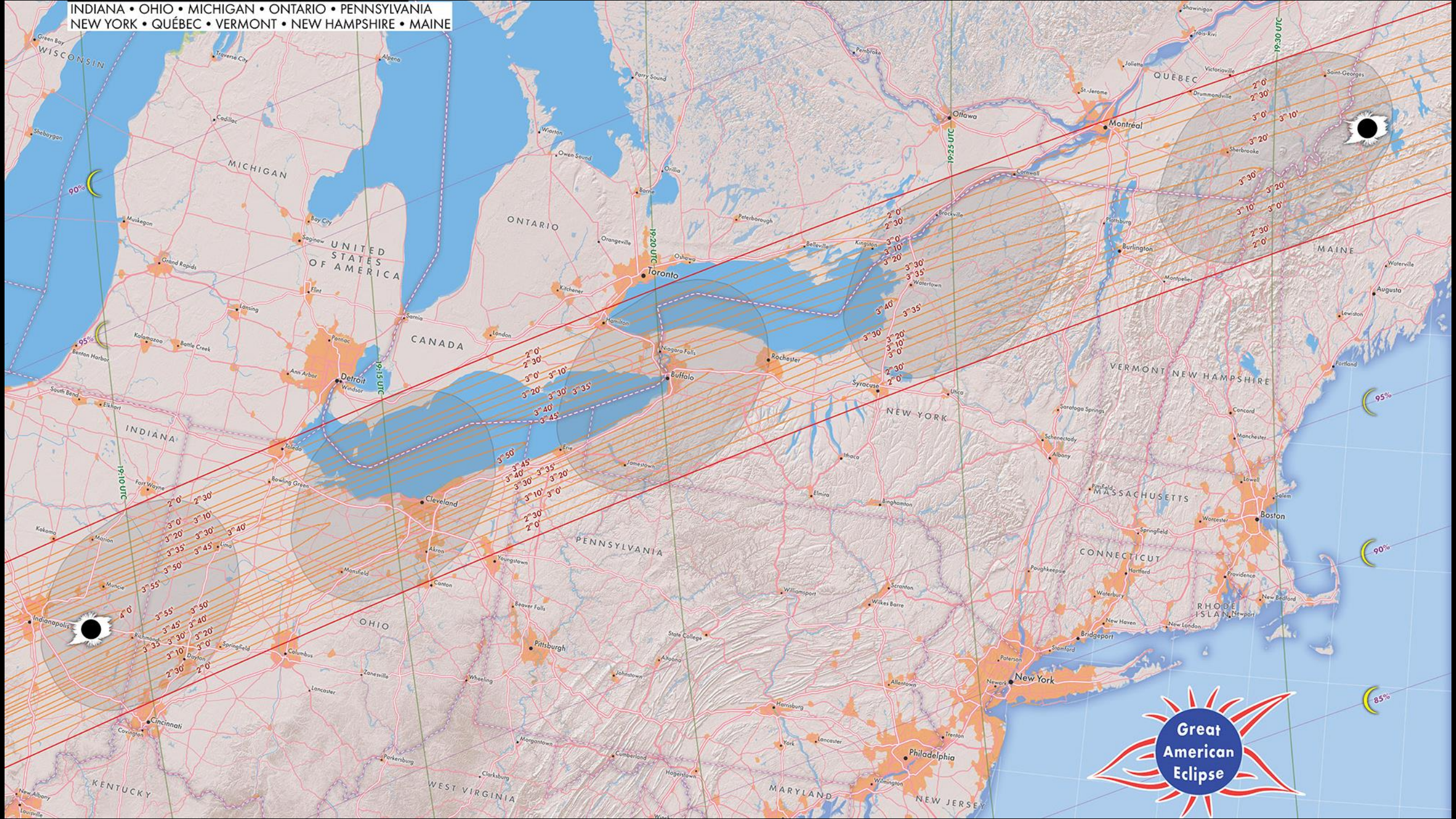


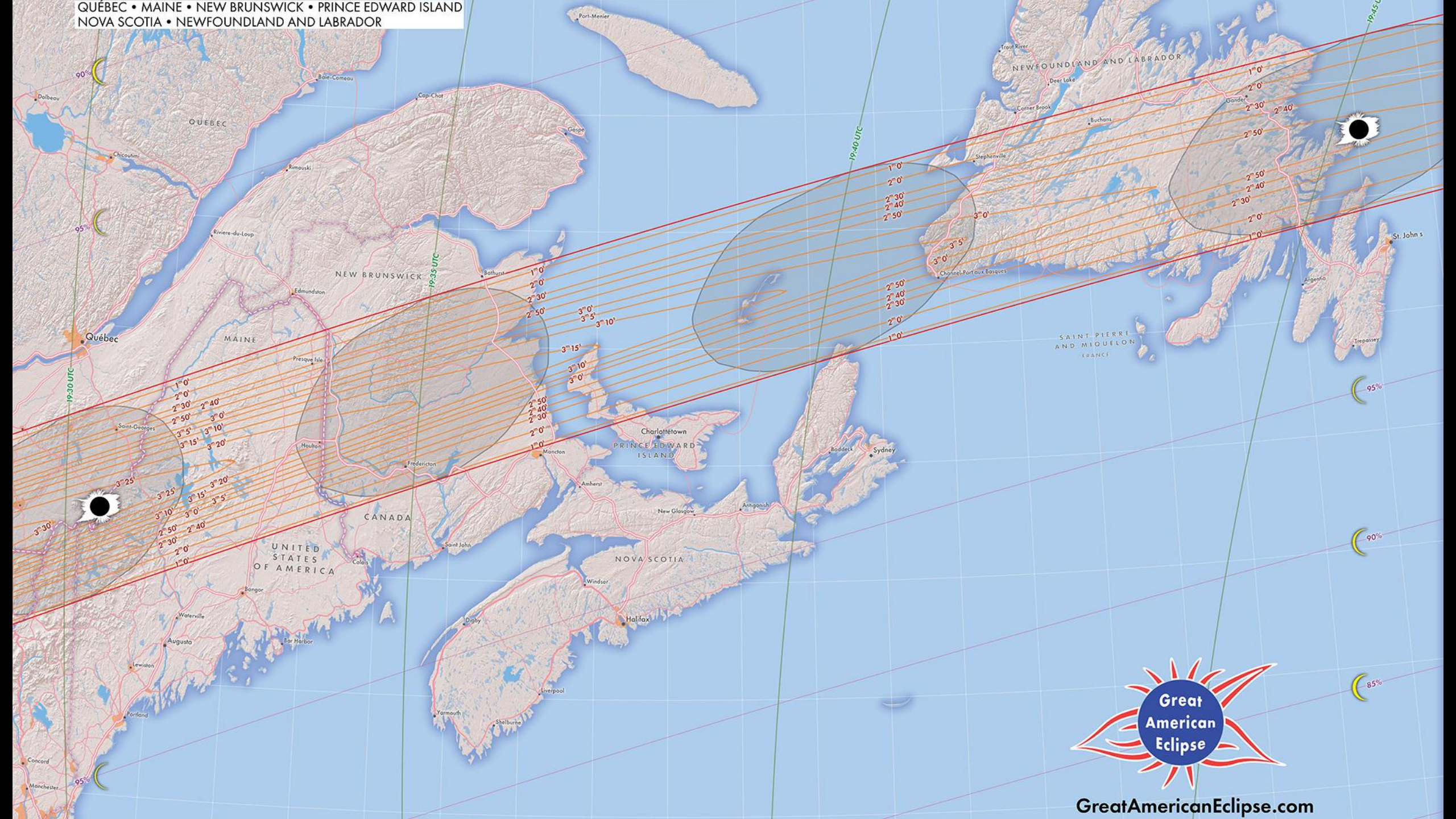
TEXAS • OKLAHOMA • ARKANSAS • MISSOURI • TENNESSEE
KENTUCKY • ILLINOIS • INDIANA • OHIO

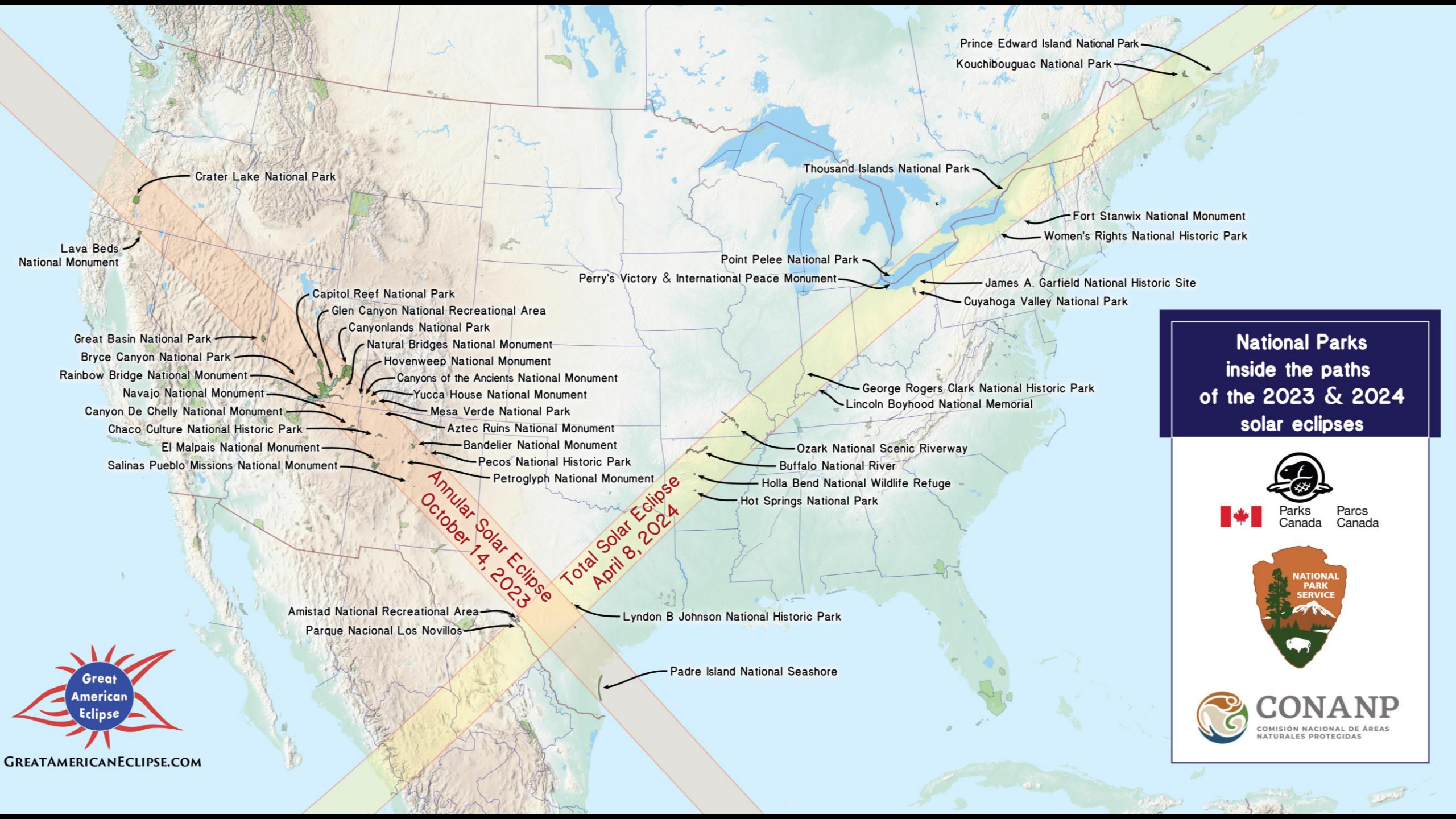


GreatAmericanEclipse.com

INDIANA • OHIO • MICHIGAN • ONTARIO • PENNSYLVANIA
NEW YORK • QUÉBEC • VERMONT • NEW HAMPSHIRE • MAINE







Crater Lake National Park
 Lava Beds National Monument
 Great Basin National Park
 Bryce Canyon National Park
 Rainbow Bridge National Monument
 Navajo National Monument
 Canyon De Chelly National Monument
 Chaco Culture National Historic Park
 El Malpais National Monument
 Salinas Pueblo Missions National Monument

Capitol Reef National Park
 Glen Canyon National Recreational Area
 Canyonlands National Park
 Natural Bridges National Monument
 Hovenweep National Monument
 Canyons of the Ancients National Monument
 Yucca House National Monument
 Mesa Verde National Park
 Aztec Ruins National Monument
 Bandelier National Monument
 Pecos National Historic Park
 Petroglyph National Monument

Perry's Victory & International Peace Monument
 Point Pelee National Park
 George Rogers Clark National Historic Park
 Lincoln Boyhood National Memorial
 Ozark National Scenic Riverway
 Buffalo National River
 Holla Bend National Wildlife Refuge
 Hot Springs National Park

Thousand Islands National Park
 Fort Stanwix National Monument
 Women's Rights National Historic Park
 James A. Garfield National Historic Site
 Cuyahoga Valley National Park

Amistad National Recreational Area
 Parque Nacional Los Novillos
 Lyndon B Johnson National Historic Park
 Padre Island National Seashore

Prince Edward Island National Park
 Kouchibouguac National Park

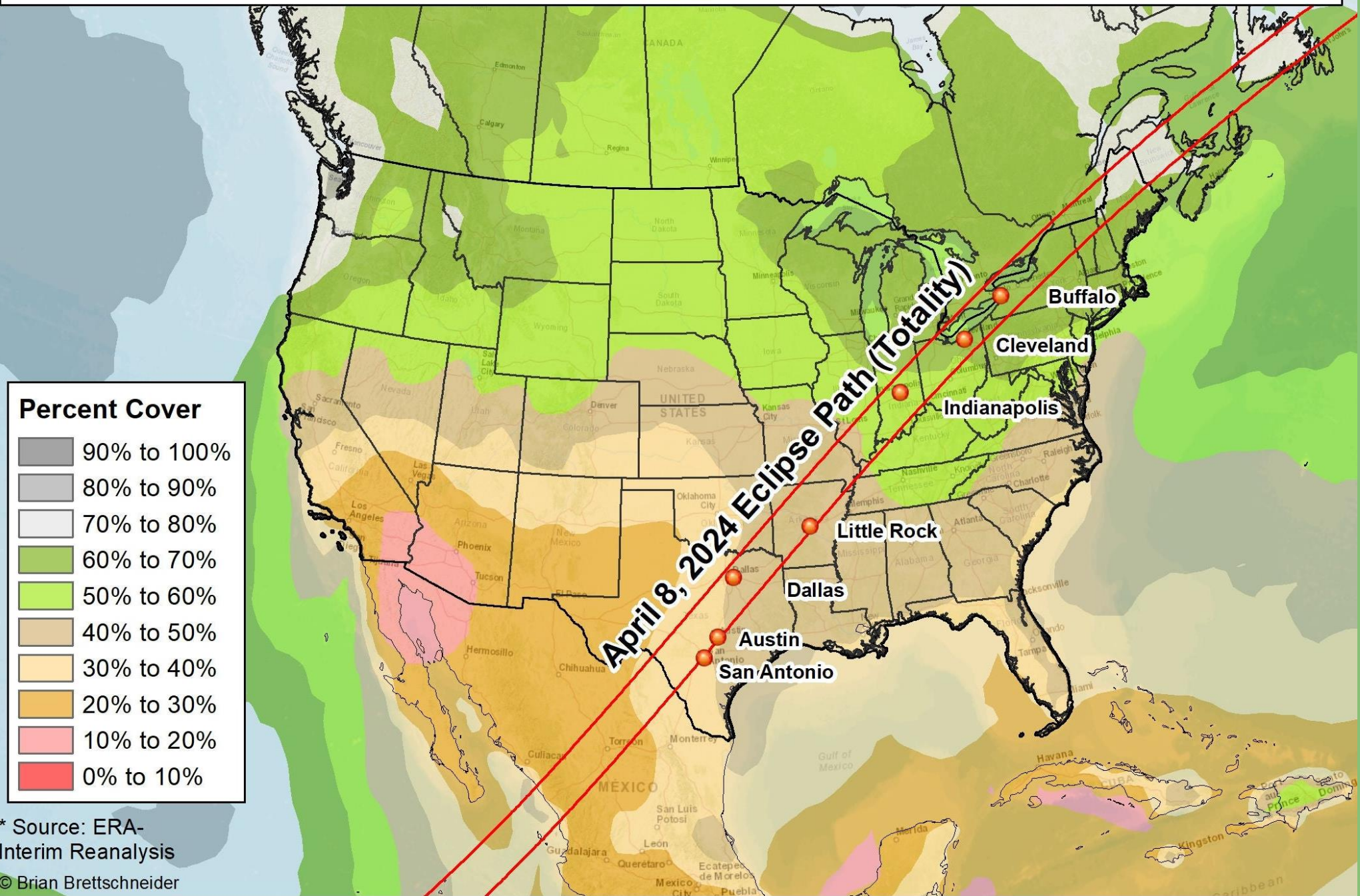
**Annular Solar Eclipse
 October 14, 2023**

**Total Solar Eclipse
 April 8, 2024**

**National Parks
 inside the paths
 of the 2023 & 2024
 solar eclipses**



Cloud Coverage Climatology at 18 UTC Between April 3 and Apr 13 (1979-2016)*



* Source: ERA-Interim Reanalysis

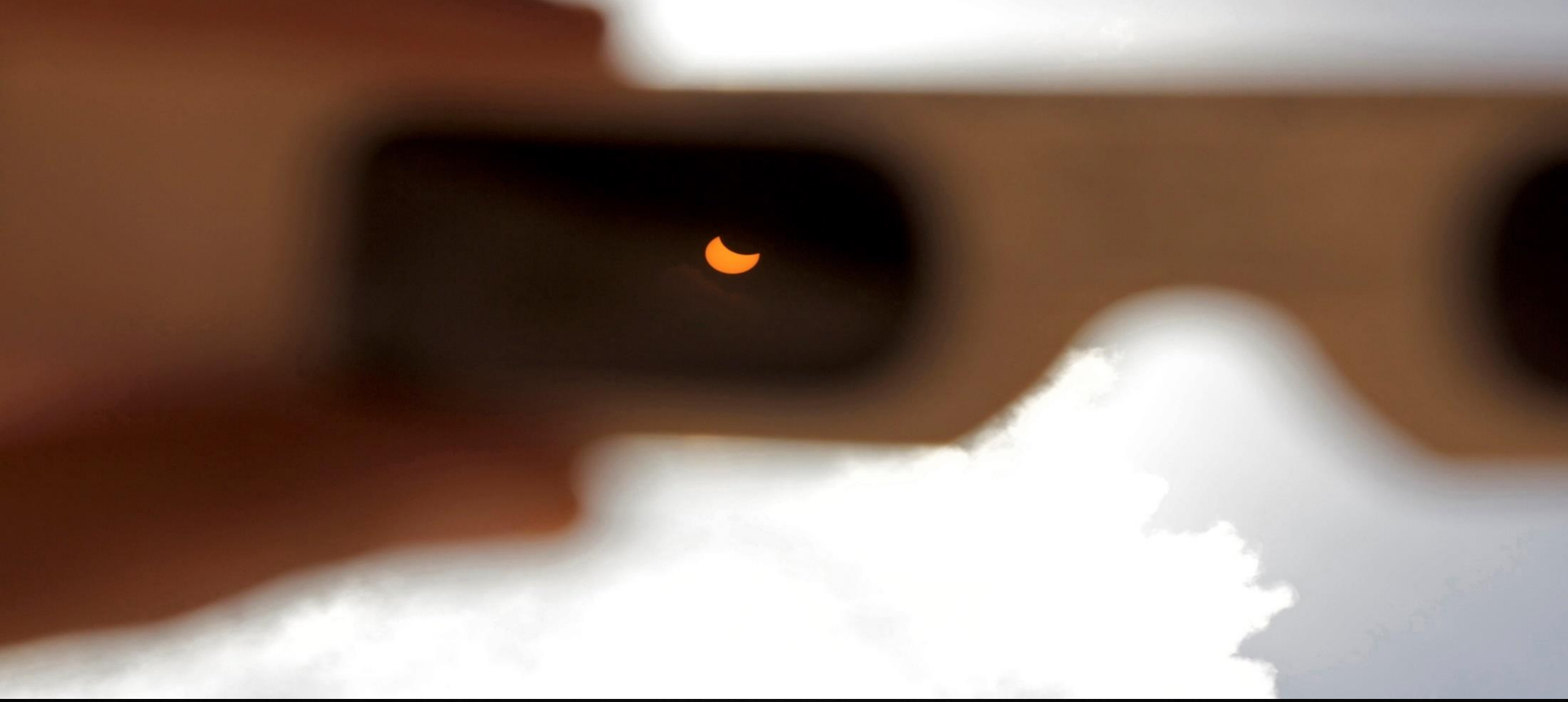
© Brian Brettschneider

Total Solar Eclipse as seen from Madras, OR, August 21st 2017.

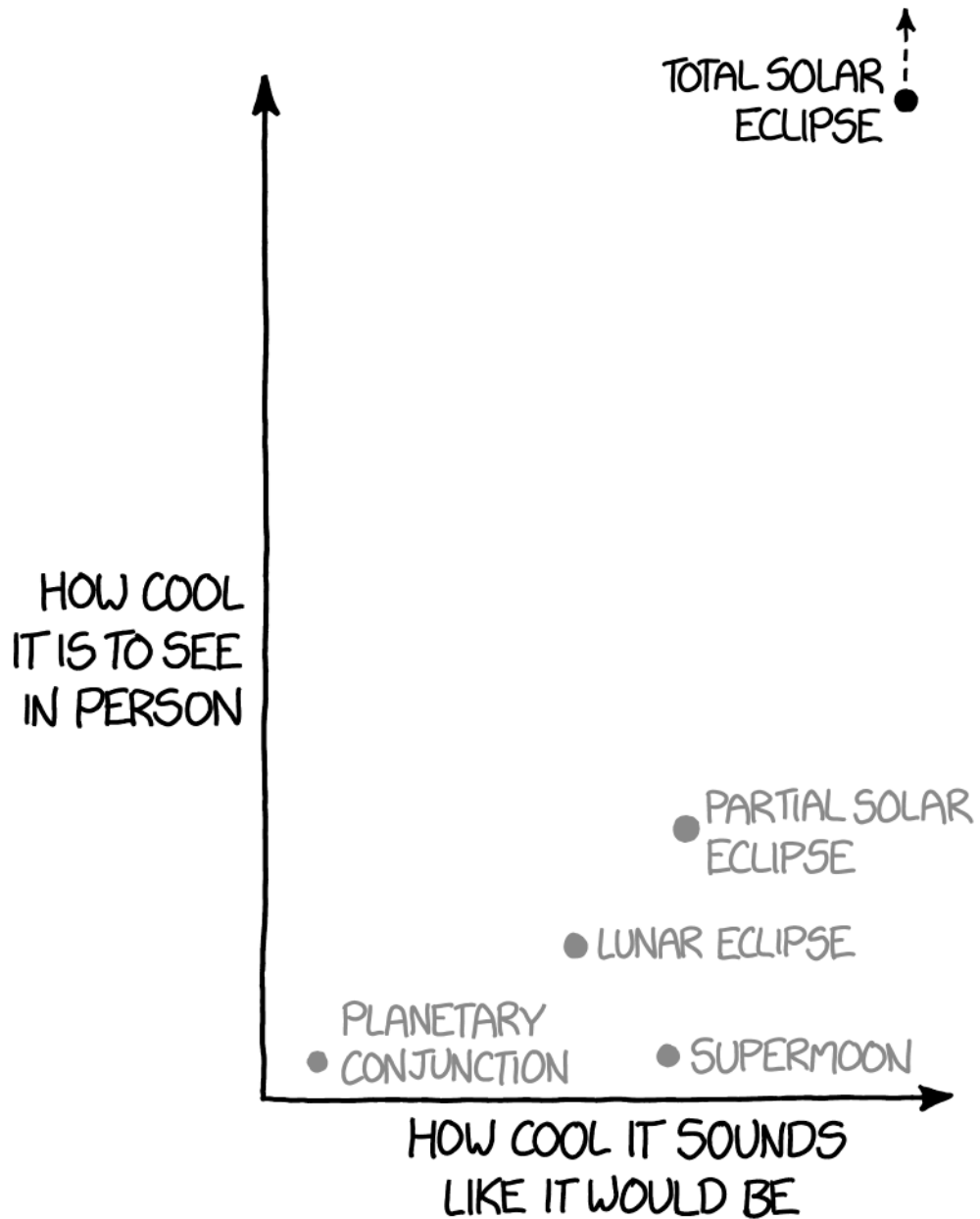


CREDIT: Rick Fienberg
(former AAS Press Officer)









<https://eclipse.aas.org/>

Annular Eclipse: 554 days

Total Eclipse: 731 days (2 years!)

AMERICAN SOLAR ECLIPSES

- TOTAL SOLAR ECLIPSE OF 2017 AUGUST 21
- ANNULAR SOLAR ECLIPSE OF 2021 JUNE 10
- ANNULAR SOLAR ECLIPSE OF 2023 OCTOBER 14
- TOTAL SOLAR ECLIPSE OF 2024 APRIL 8





KEEP YOUR PADDLE WET
LOGBOAT
BREWING CO.
BLACK ALE
ALL GRAIN
Brewed in our brewery, produced by
Logboat Brewing Co. on August 21, 2017

LOGBOAT
BREWING CO.
BLACK ALE

LOGBOAT
BREWING CO.
BLACK ALE

LOGBOAT BREWING CO.
MOON
SPECK
BLACK
ALE

LOGBOAT BREWING CO.
MOON
SPECK
BLACK
ALE

LOGBOAT BREWING CO.
MOON
SPECK
BLACK
ALE

