

EclipseWise.com

*Website of
Eclipse Predictions*

Fred Espenak

Scientist Emeritus

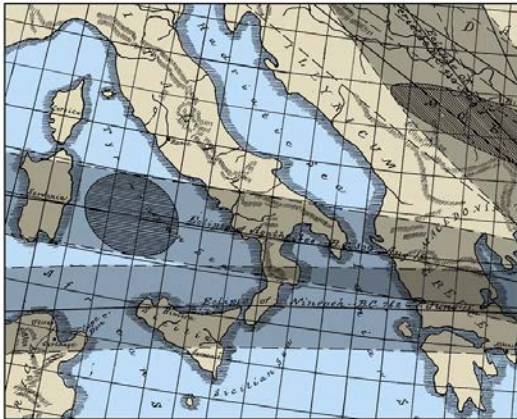
NASA's Goddard Space Flight Center



Canon of Eclipses

Five Millennium Canon of Solar Eclipses

-1999 to 3000

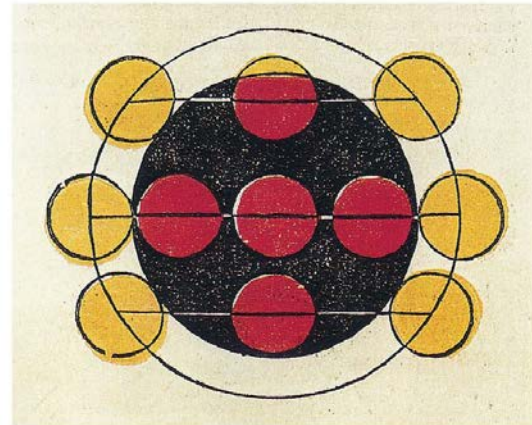


Fred Espenak and Jean Meeus

5,000 Years =
11,898
Solar Eclipses

Five Millennium Canon of Lunar Eclipses

-1999 to 3000



Fred Espenak and Jean Meeus

5,000 Years =
12,064
Lunar Eclipses

SOLAR ECLIPSES

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Introduction

Welcome to *EclipseWise's* main page for [Solar Eclipses](#). You can learn more about this website by visiting the [Introduction Page](#).

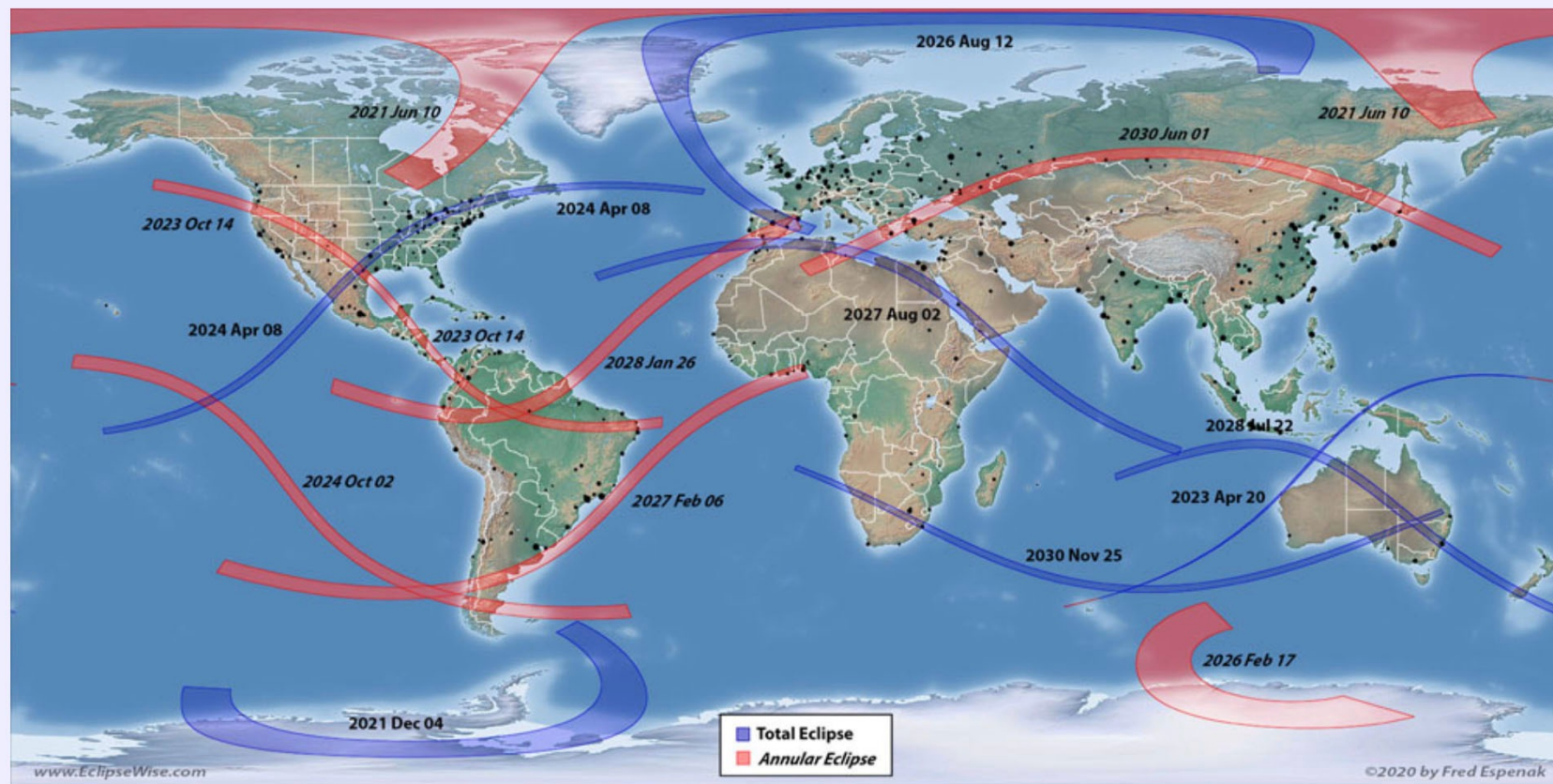
I welcome all comments, suggestions and corrections (via [Contact](#)) to make *EclipseWise.com* the very best resource on eclipses both past and future. Please help support this website by making a [donation](#).

Clear skies

EclipseWise.com/solar

Central Solar Eclipses: 2021 to 2030

The path of every central [solar eclipse \(total, annular, and hybrid\)](#) from 2021 to 2030 is plotted on the world map (equidistant cylindrical projection). The central paths of [total eclipses](#) are shaded blue, while [annular eclipses](#) are shaded red. For hybrid eclipses, part of the path is shaded blue (total), and part is shaded red (annular). Major cities are plotted as black dots, scaled by population size.



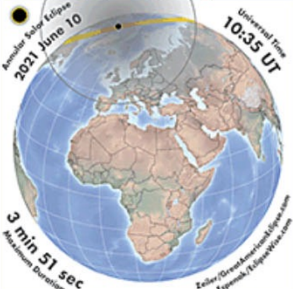
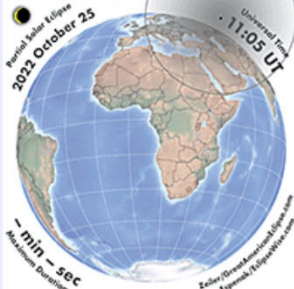
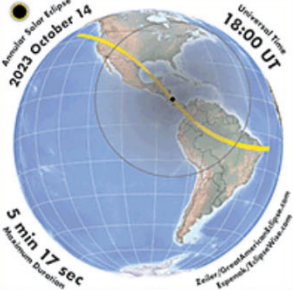
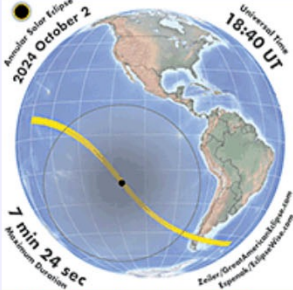
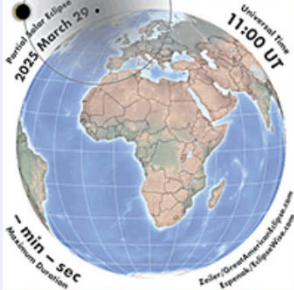
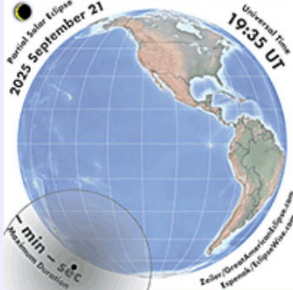
[Click HERE for a larger version of this map](#)

For more information about these eclipses, visit: [Decade of Solar Eclipses: 2021 to 2030](#)

For a World Map of other decades, visit: [21st Century World Atlas of Central Solar Eclipses](#)

Global Map Animations of Solar Eclipses: 2021 - 2025

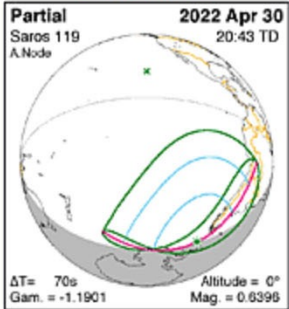
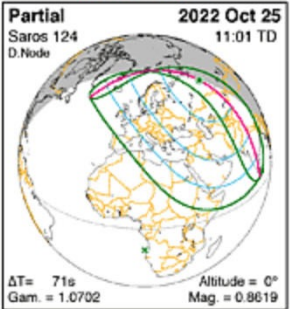
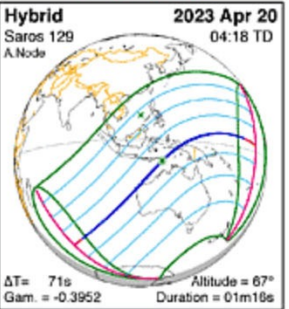
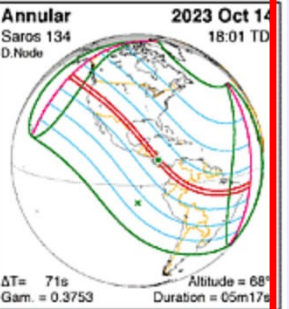
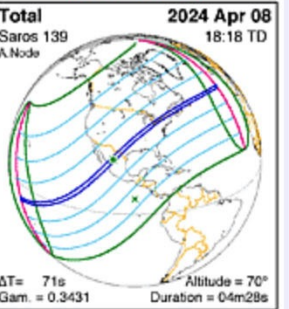
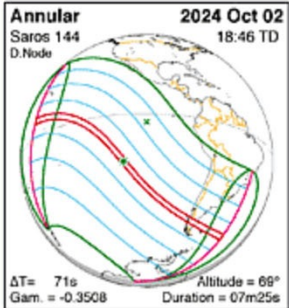
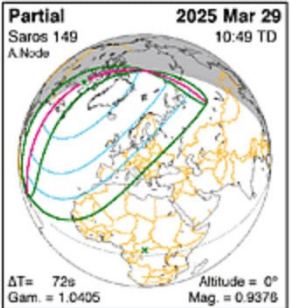
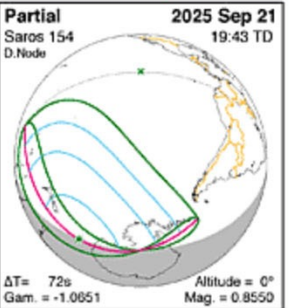
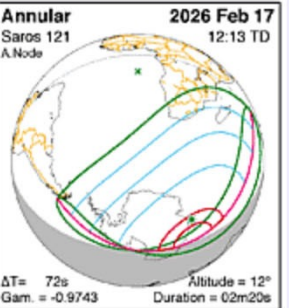
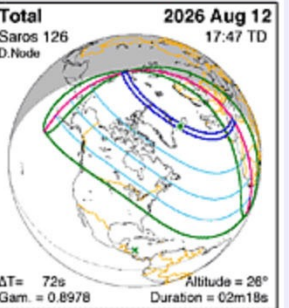
Global Map Animations of Solar Eclipses: 2021 - 2025

Prime Page for Annular Solar Eclipse 2021 Jun 10  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px	Prime Page for Total Solar Eclipse 2021 Dec 04  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px	Prime Page for Partial Solar Eclipse 2022 Apr 30  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px	Prime Page for Partial Solar Eclipse 2022 Oct 25  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px	Prime Page for Hybrid Solar Eclipse 2023 Apr 20  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px
Prime Page for Annular Solar Eclipse 2023 Oct 14  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px	Prime Page for Total Solar Eclipse 2024 Apr 08  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px	Prime Page for Annular Solar Eclipse 2024 Oct 02  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px	Prime Page for Partial Solar Eclipse 2025 Mar 29  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px	Prime Page for Partial Solar Eclipse 2025 Sep 21  Small Animation: 300 px Medium Animation: 400 px Large Animation: 800 px

- [Global Map Animations of Solar Eclipses: 2001 - 2100](#) - animated maps for every solar eclipse during the 21st Century

Solar Eclipse Preview: 2022 Through 2030

Solar Eclipse Preview: 2022 through 2030

Prime Page for Partial Solar Eclipse 2022 Apr 30 Partial Saros 119 A.Node 2022 Apr 30 20:43 TD  $\Delta T = 70s$ Altitude = 0° Gam. = -1.901 Mag. = 0.6396 Thousand Year Canon of Solar Eclipses ©2014 by Fred Espenak Link: Google Eclipse Map	Prime Page for Partial Solar Eclipse 2022 Oct 25 Partial Saros 124 D.Node 2022 Oct 25 11:01 TD  $\Delta T = 71s$ Altitude = 0° Gam. = 1.0702 Mag. = 0.8619 Thousand Year Canon of Solar Eclipses ©2014 by Fred Espenak Link: Google Eclipse Map	Prime Page for Hybrid Solar Eclipse 2023 Apr 20 Hybrid Saros 129 A.Node 2023 Apr 20 04:18 TD  $\Delta T = 71s$ Altitude = 67° Gam. = -0.3952 Duration = 01m18s Thousand Year Canon of Solar Eclipses ©2014 by Fred Espenak Link: Google Eclipse Map	Prime Page for Annular Solar Eclipse 2023 Oct 14 Annular Saros 134 D.Node 2023 Oct 14 18:01 TD  $\Delta T = 71s$ Altitude = 68° Gam. = 0.3753 Duration = 05m17s Thousand Year Canon of Solar Eclipses ©2014 by Fred Espenak Link: Google Eclipse Map	Prime Page for Total Solar Eclipse 2024 Apr 08 Total Saros 139 A.Node 2024 Apr 08 18:18 TD  $\Delta T = 71s$ Altitude = 70° Gam. = 0.3431 Duration = 04m28s Thousand Year Canon of Solar Eclipses ©2014 by Fred Espenak Link: Google Eclipse Map
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SOLAR ECLIPSE PRIME PAGE

TOTAL SOLAR ECLIPSE OF 2024 APR 08

Introduction

The **Total Solar Eclipse of 2024 Apr 08** is visible from the following geographic regions:

- **Partial Eclipse:** North America, Central America
- **Total Eclipse:** Mexico, central U.S., east Canada

The map to the right depicts the geographic regions of eclipse visibility. Click on the map to enlarge it. For an explanation of the features appearing in the map, see [Key to Solar Eclipse Maps](#).

The instant of *greatest eclipse* takes place on 2024 Apr 08 at 18:18:29 TD (18:17:18 UT1). This is 1.0 days after the Moon reaches perigee. During the eclipse, the Sun is in the constellation *Aries*. The *synodic month* in which the eclipse takes place has a *Brown Lunation Number* of 1253.

The eclipse belongs to *Saros 139* and is number 30 of 71 eclipses in the series. All eclipses in this series occur at the Moon's *ascending node*. The Moon moves southward with respect to the node with each succeeding eclipse in the series and *gamma* decreases.

The solar eclipse of 2024 Apr 08 is a relatively long *total* eclipse with a duration at *greatest eclipse* of 04m28s. It has an *eclipse magnitude* of 1.0566.

The total solar eclipse of 2024 Apr 08 is preceded two weeks earlier by a penumbral lunar eclipse on *2024 Mar 25*.

These eclipses all take place during a single *eclipse season*.

- [Orthographic Map: Total Solar Eclipse of 2024 Apr 08](#) - detailed global map of eclipse visibility ([Key to Figure](#))
- [Google Map: Total Solar Eclipse of 2024 Apr 08](#) - interactive map of the eclipse path
- [Path Table: Total Solar Eclipse of 2024 Apr 08](#) - coordinates of the central line and path limits
- [Circumstances Table: Total Solar Eclipse of 2024 Apr 08](#) - eclipse times for hundreds of cities
- [Saros 139 Table](#) - data for all eclipses in the Saros series

www.EclipseWise.com/eclipse.html

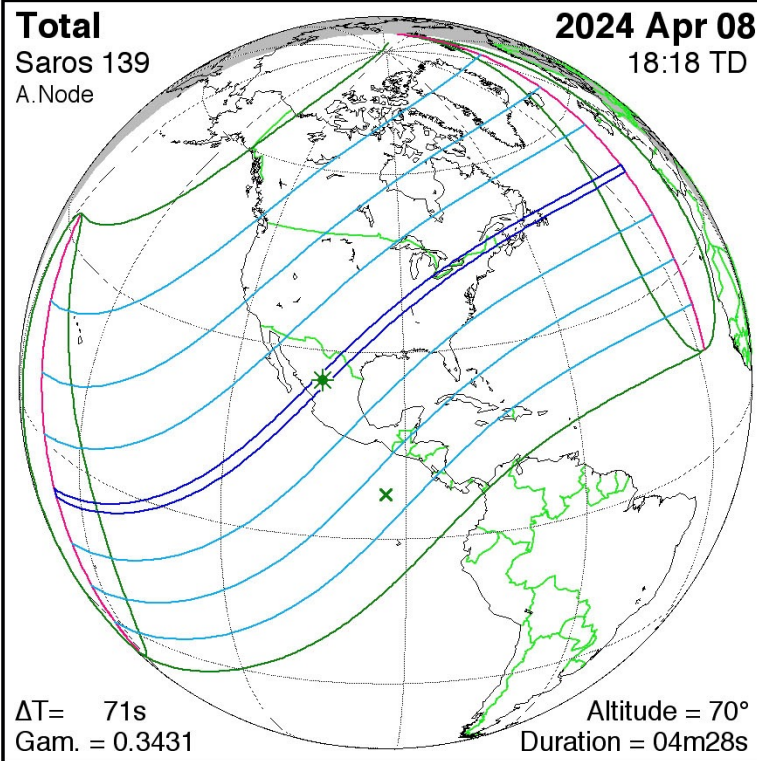
Total

Saros 139

A.Node

2024 Apr 08

18:18 TD



$\Delta T = 71s$

$\text{Gam.} = 0.3431$

Altitude = 70°

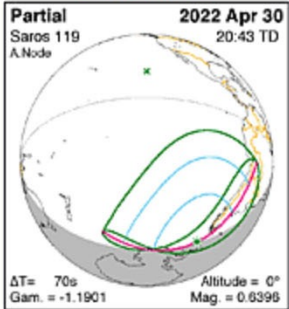
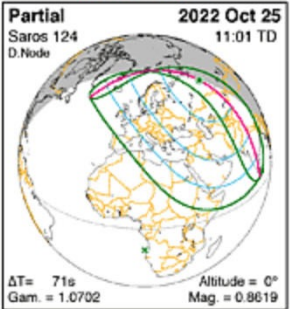
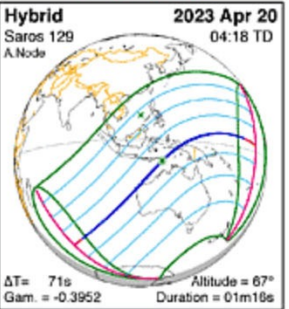
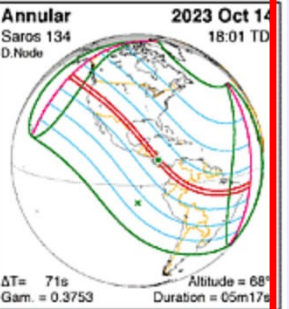
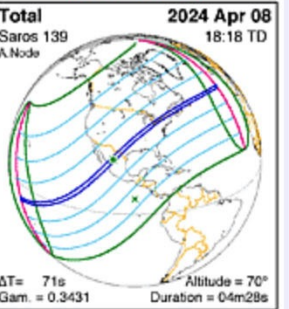
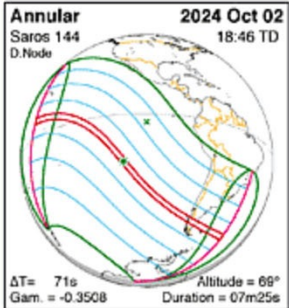
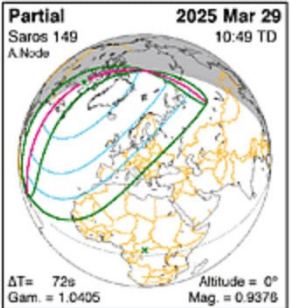
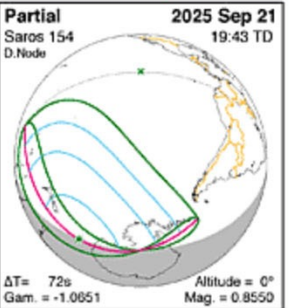
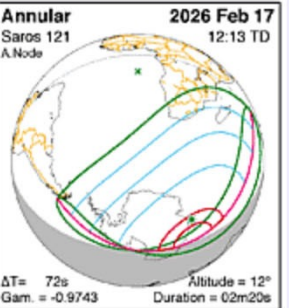
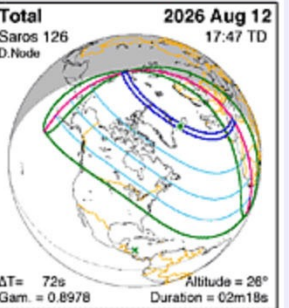
Duration = 04m28s

Thousand Year Canon of Solar Eclipses

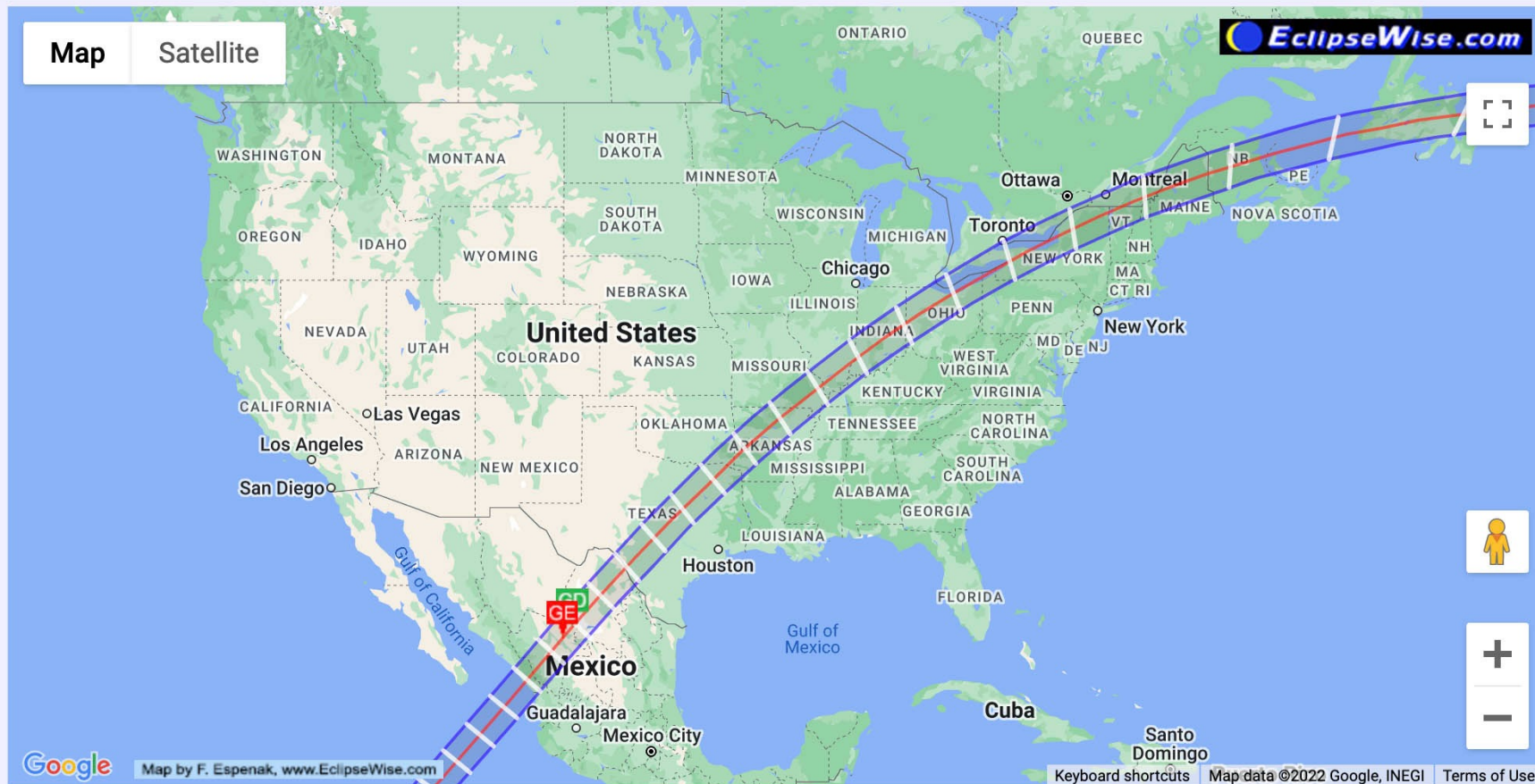
©2014 by Fred Espenak

Solar Eclipse Preview: 2022 Through 2030

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Prime Page for	Prime Page for	Prime Page for	Prime Page for	Prime Page for

GOOGLE ECLIPSE MAP PAGE TOTAL SOLAR ECLIPSE OF 2024 APR 08



Map centered on (latitude, longitude): (36.9193° N, 92.1011° W)
Cursor position (latitude, longitude): (20.295° N, 132.355° W)
Distance from last marker: 4301.73 km (2672.97 miles)

Time Zone: UT1 GMT/London

☒ Show marker on click

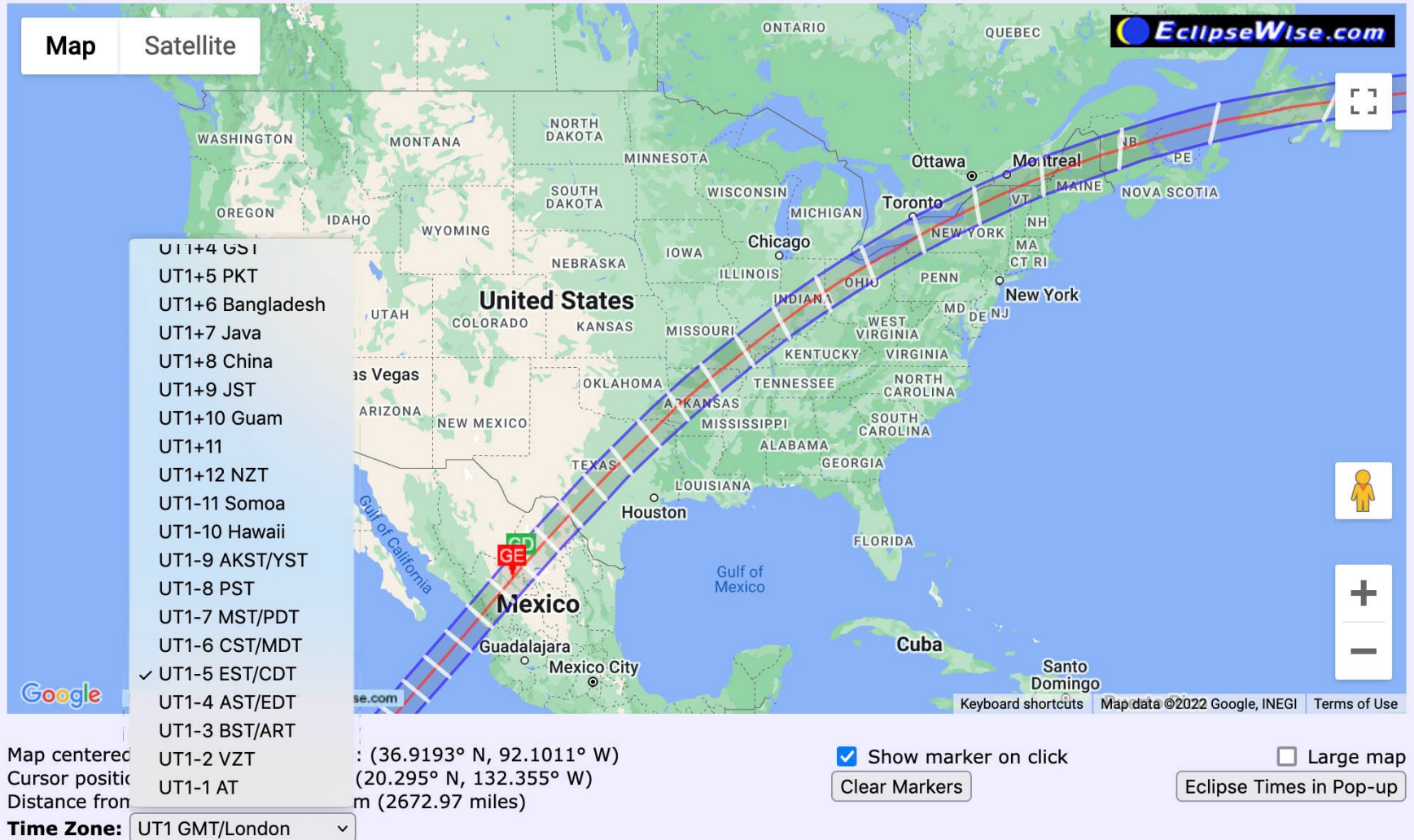
[Clear Markers](#)

☐ Large map

[Eclipse Times in Pop-up](#)

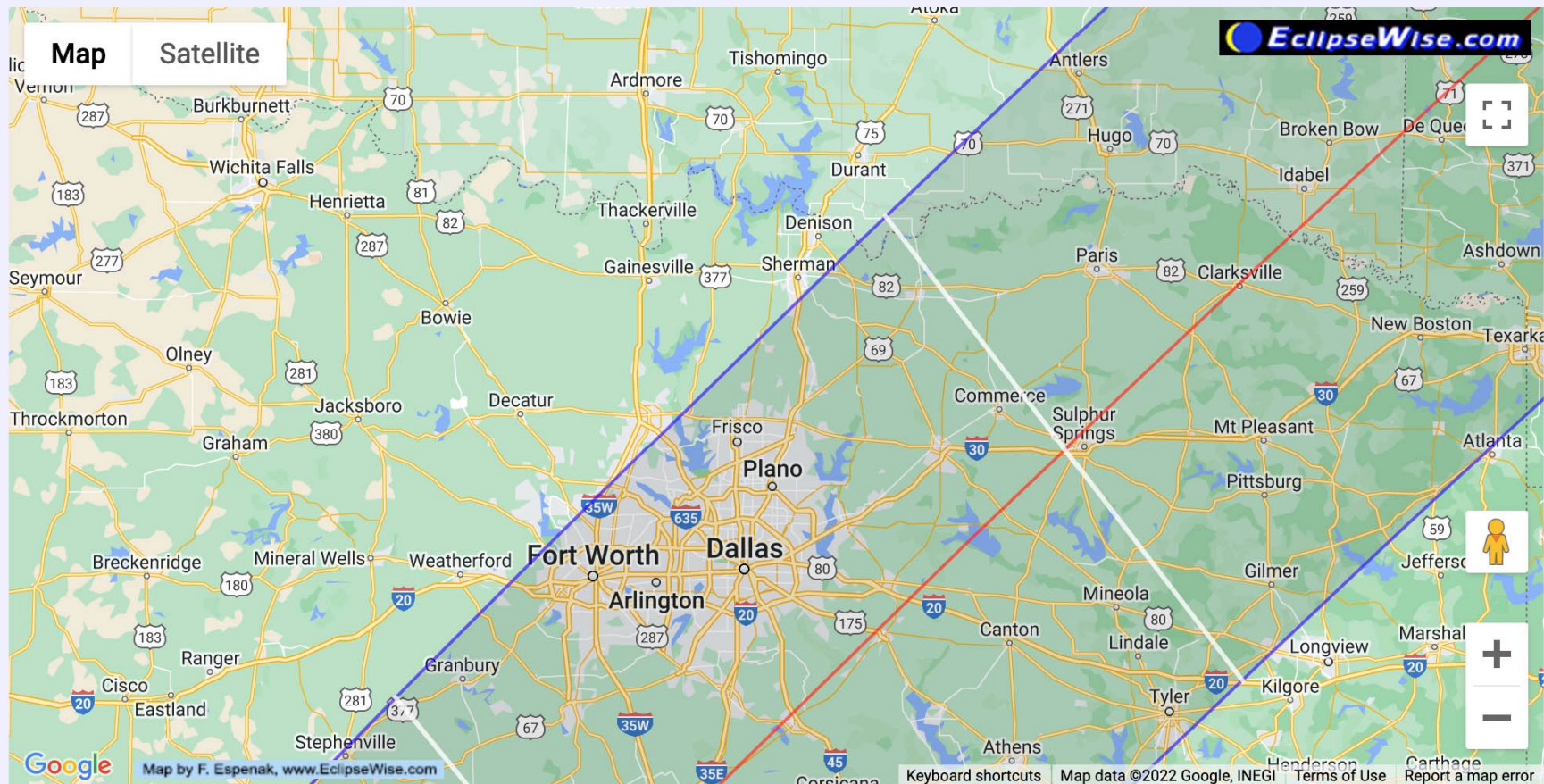
GOOGLE ECLIPSE MAP PAGE

TOTAL SOLAR ECLIPSE OF 2024 APR 08



GOOGLE ECLIPSE MAP PAGE

TOTAL SOLAR ECLIPSE OF 2024 APR 08



Map centered on (latitude, longitude): (33.2867° N, 96.684° W)
Cursor position (latitude, longitude): (32.2211° N, 96.2335° W)
Distance from last marker: 81.17km (50.44 miles)

Time Zone: UT-6 CST/MDT

☒ Show marker on click

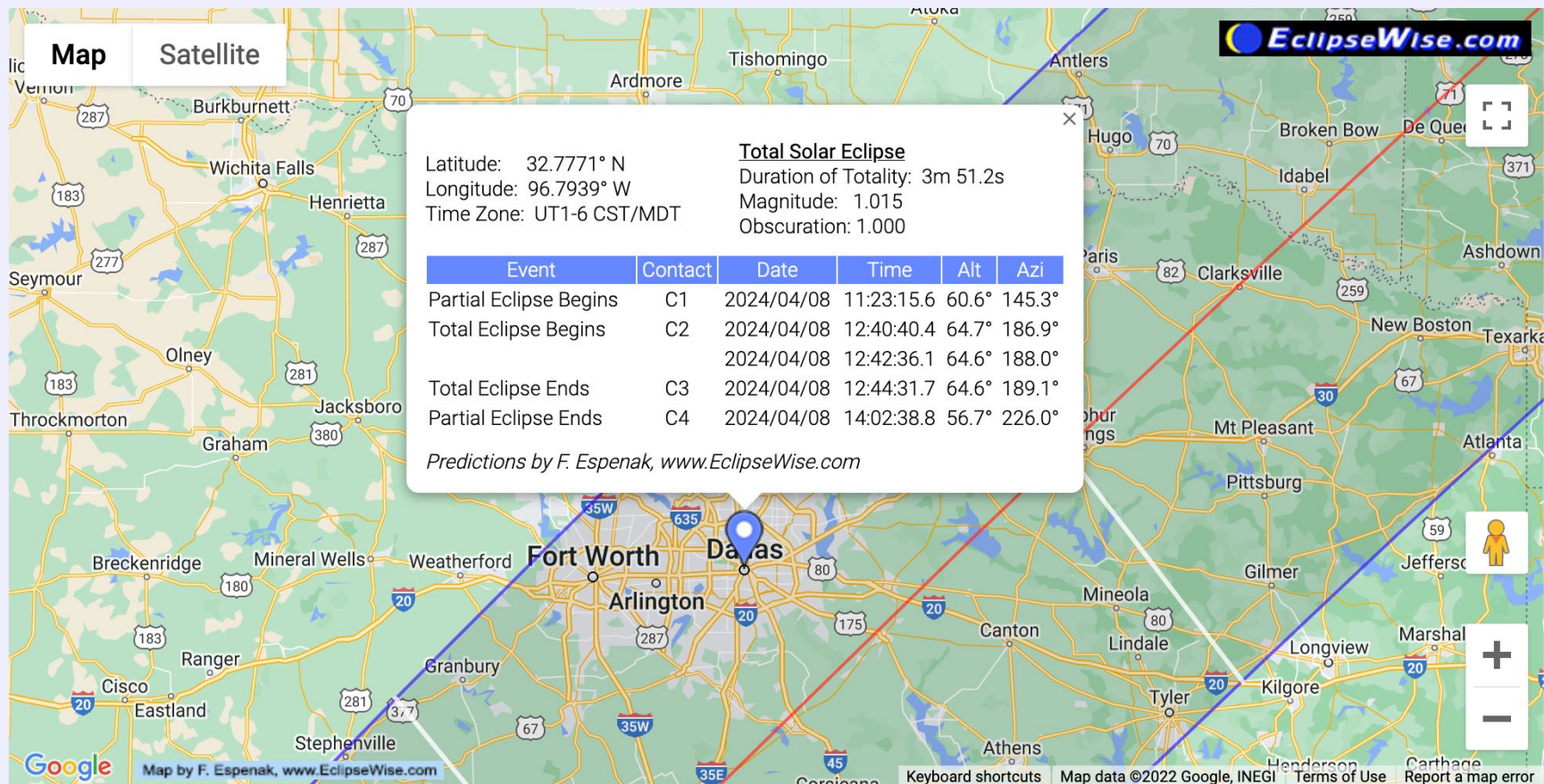
Clear Markers

☐ Large map

Eclipse Times in Pop-up

GOOGLE ECLIPSE MAP PAGE

TOTAL SOLAR ECLIPSE OF 2024 APR 08



Map centered on (latitude, longitude): (33.2867° N, 96.684° W)
Cursor position (latitude, longitude): (32.2304° N, 94.4757° W)
Distance from last marker: 225.97km (140.41 miles)

Time Zone: UT1-6 CST/MDT

☒ Show marker on click

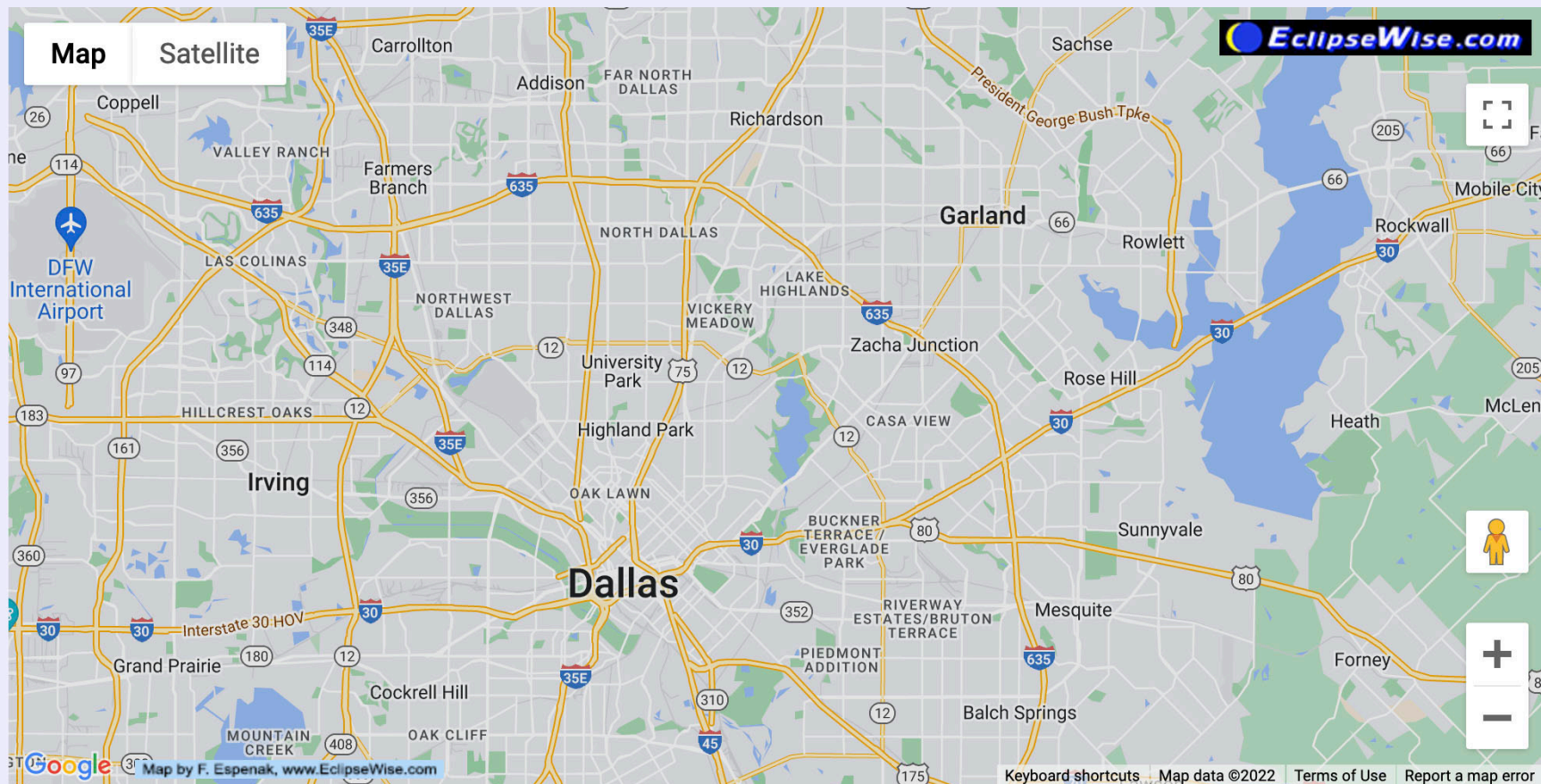
Clear Markers

☐ Large map

Eclipse Times in Pop-up

GOOGLE ECLIPSE MAP PAGE

TOTAL SOLAR ECLIPSE OF 2024 APR 08



Map centered on (latitude, longitude): (32.8456° N, 96.7298° W)

Cursor position (latitude, longitude): (32.7107° N, 96.5135° W)

Distance from last marker: 11.66km (7.24 miles)

Time Zone: UT1-6 CST/MDT

☒ Show marker on click

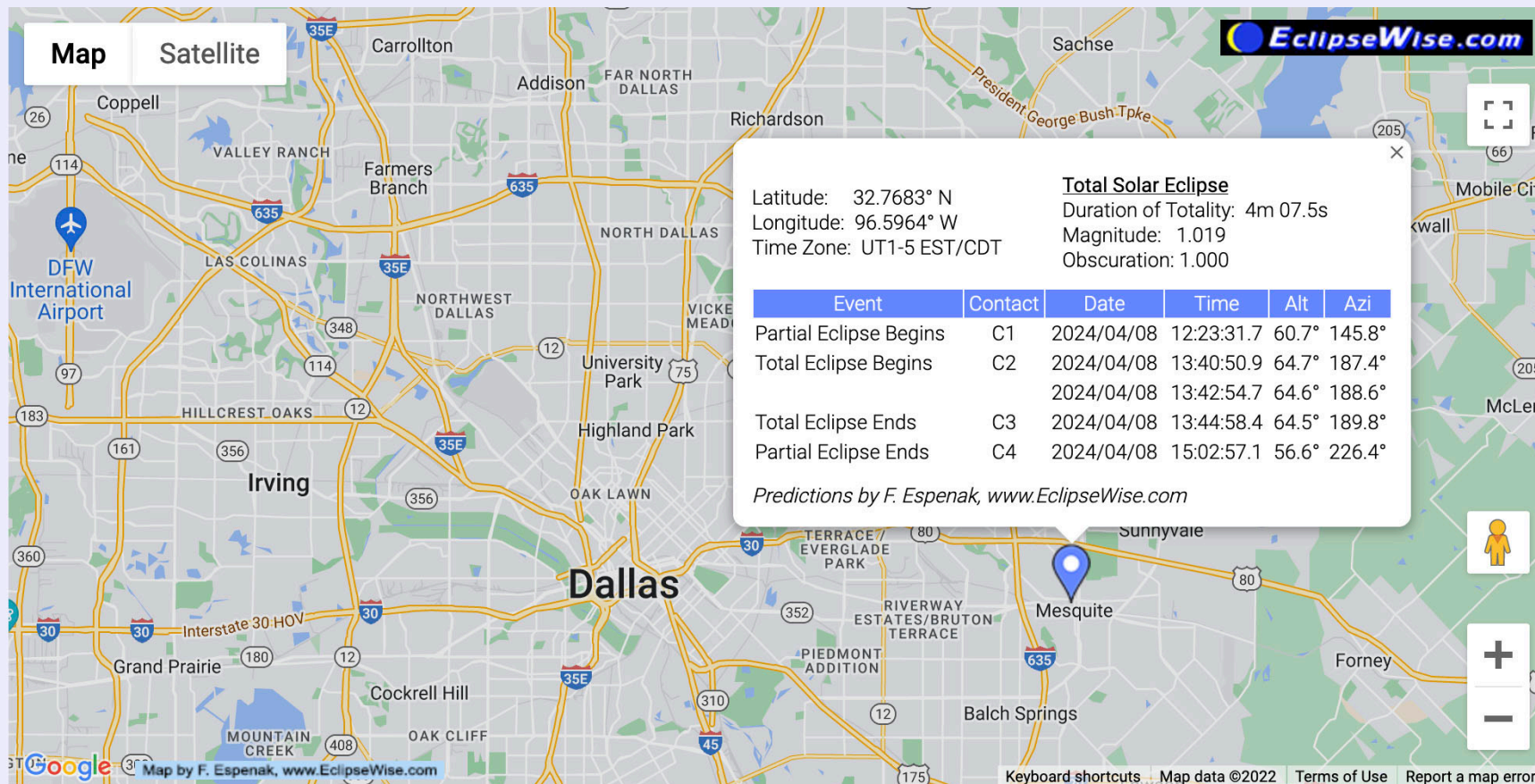
Clear Markers

☐ Large map

Eclipse Times in Pop-up

GOOGLE ECLIPSE MAP PAGE

TOTAL SOLAR ECLIPSE OF 2024 APR 08



Map centered on (latitude, longitude): (32.8456° N, 96.7298° W)

Cursor position (latitude, longitude): (32.976° N, 96.8541° W)

Distance from last marker: 33.05km (20.54 miles)

Time Zone: UT1-6 CST/MDT

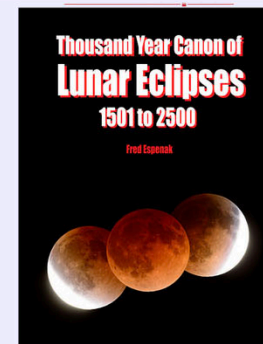
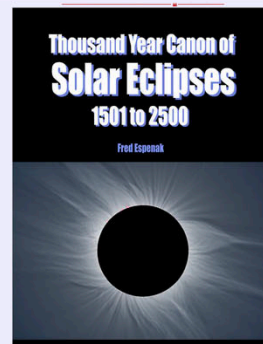
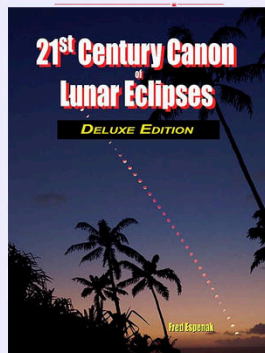
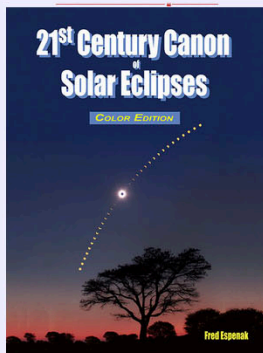
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Clear Markers

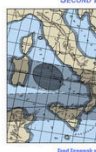
☐ Large map

Eclipse Times in Pop-up

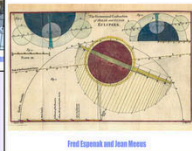
Eclipse Publications



Five Millennium Canon of
Solar Eclipses
Volume 1: -1999 to 0



Five Millennium Canon of
Solar Eclipses
Volume 2: 1 to 3000
Second Edition



Five Millennium Catalog of
Solar Eclipses
-1999 to +3000
Second Edition



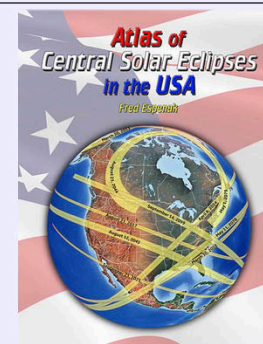
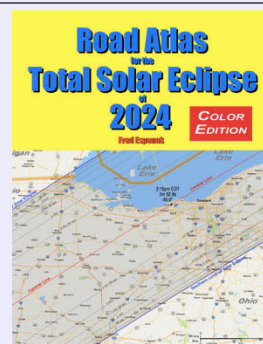
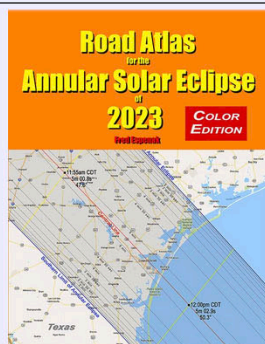
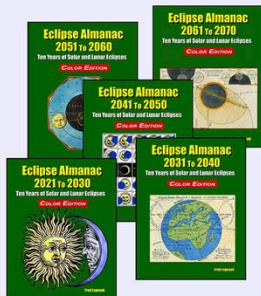
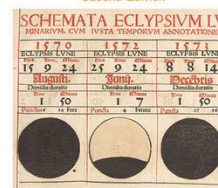
Five Millennium Canon of
Lunar Eclipses
Volume 1: -1999 to 0



Five Millennium Canon of
Lunar Eclipses
Volume 2: 1 to 3000
Second Edition

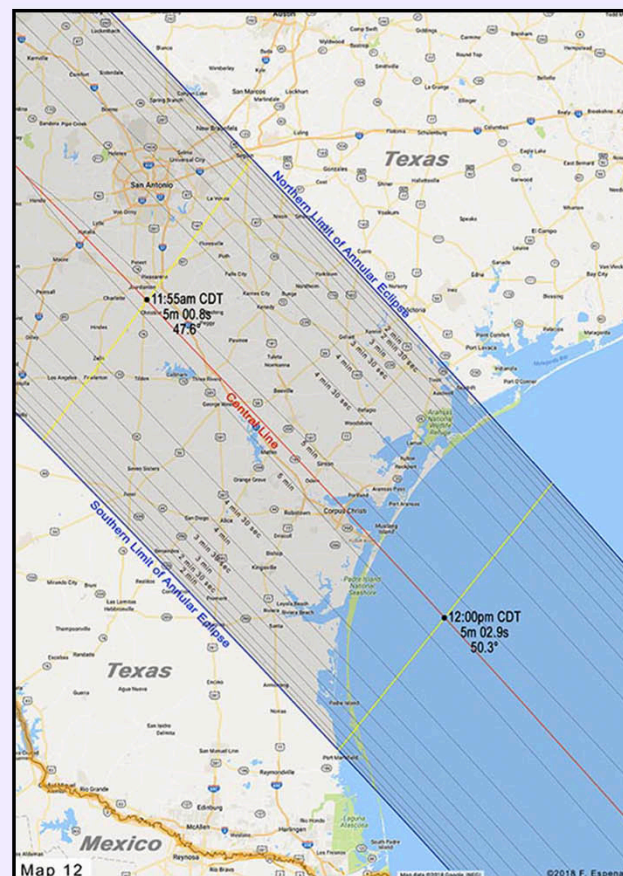
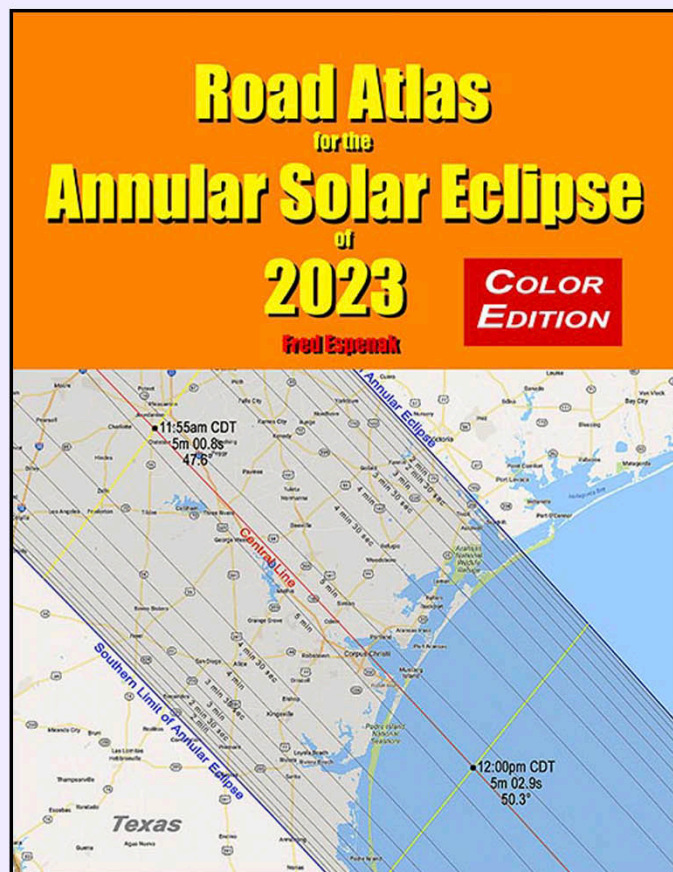


Five Millennium Catalog of
Lunar Eclipses
-1999 to +3000
Second Edition



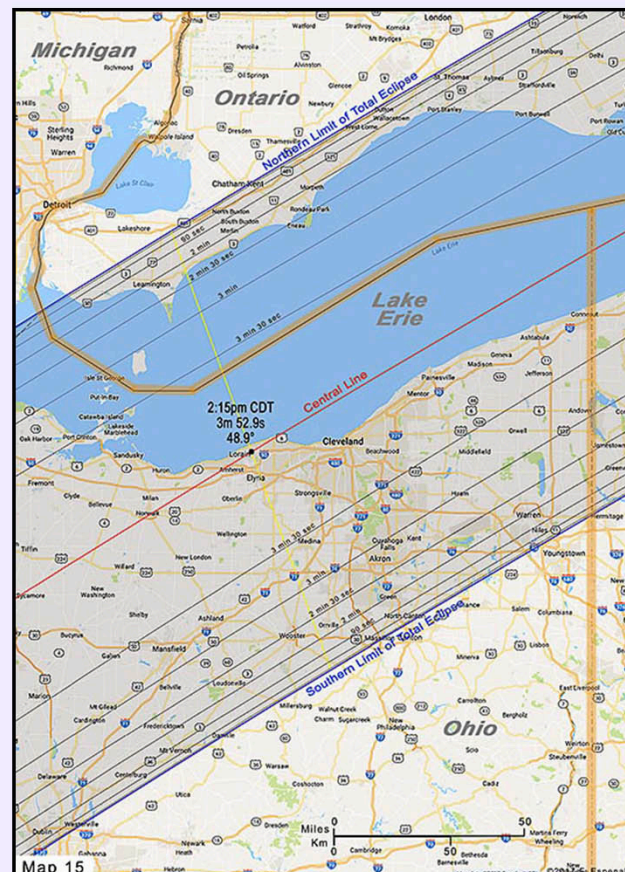
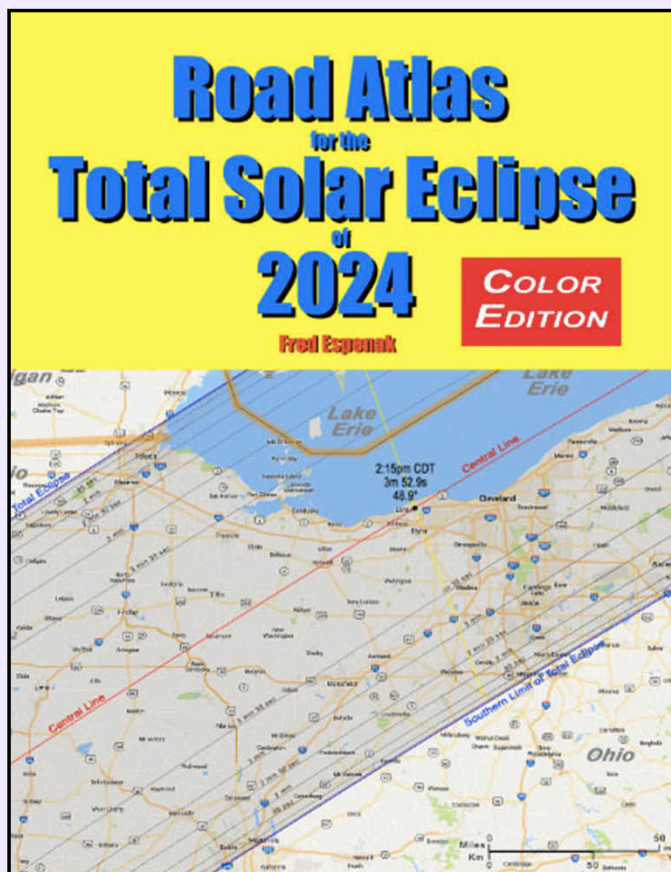
ROAD ATLAS FOR THE ANNULAR SOLAR ECLIPSE OF 2023

BY FRED ESPENAK



ROAD ATLAS FOR THE TOTAL SOLAR ECLIPSE OF 2024

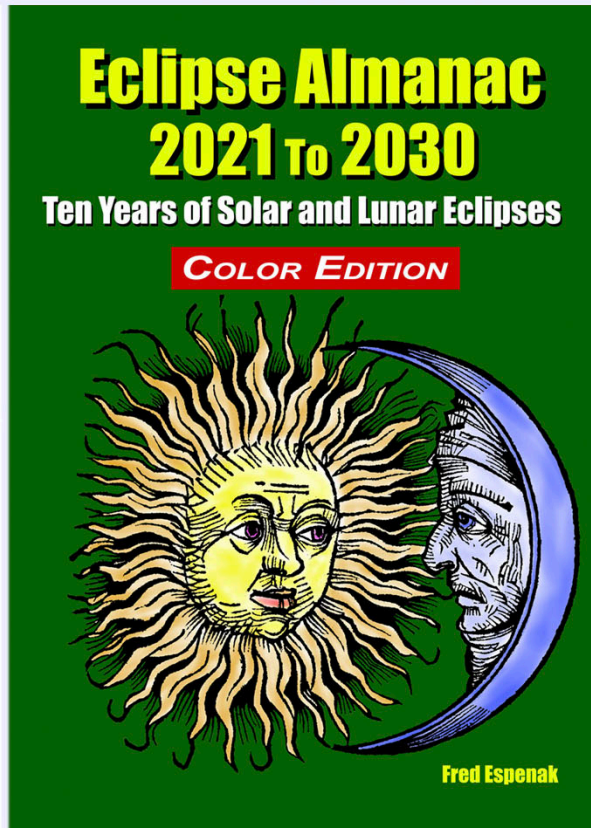
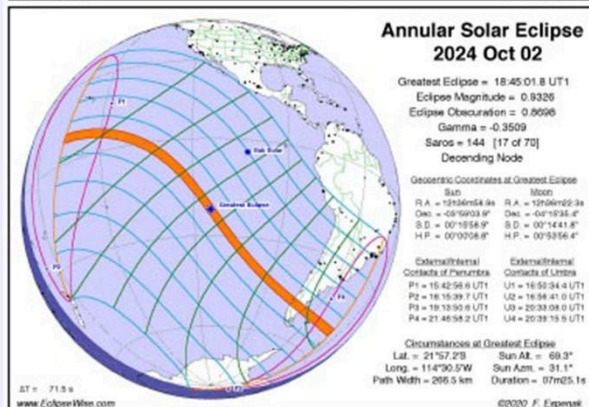
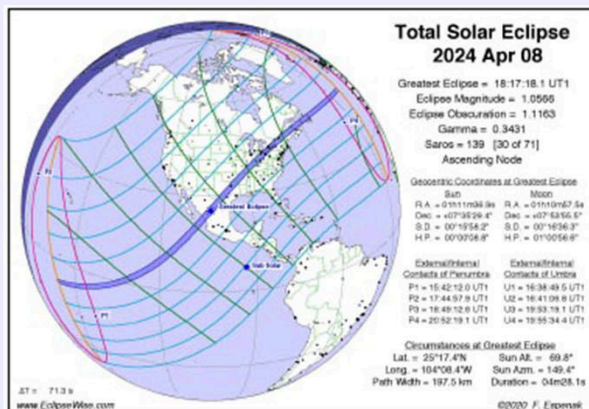
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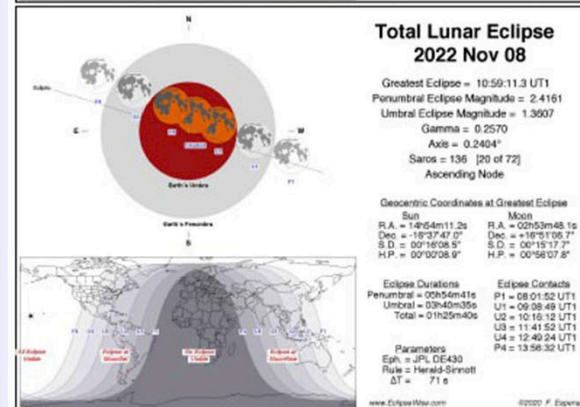
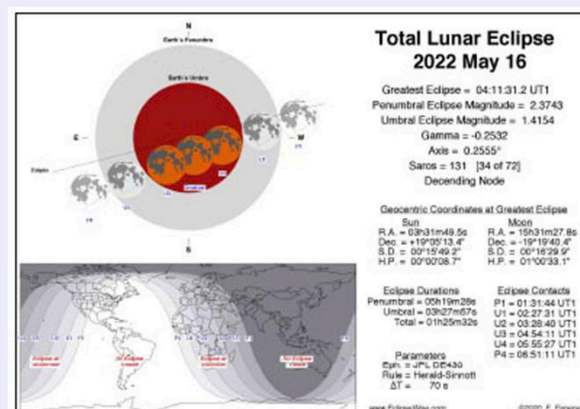
ECLIPSE ALMANAC

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Ten Years of Solar Eclipses

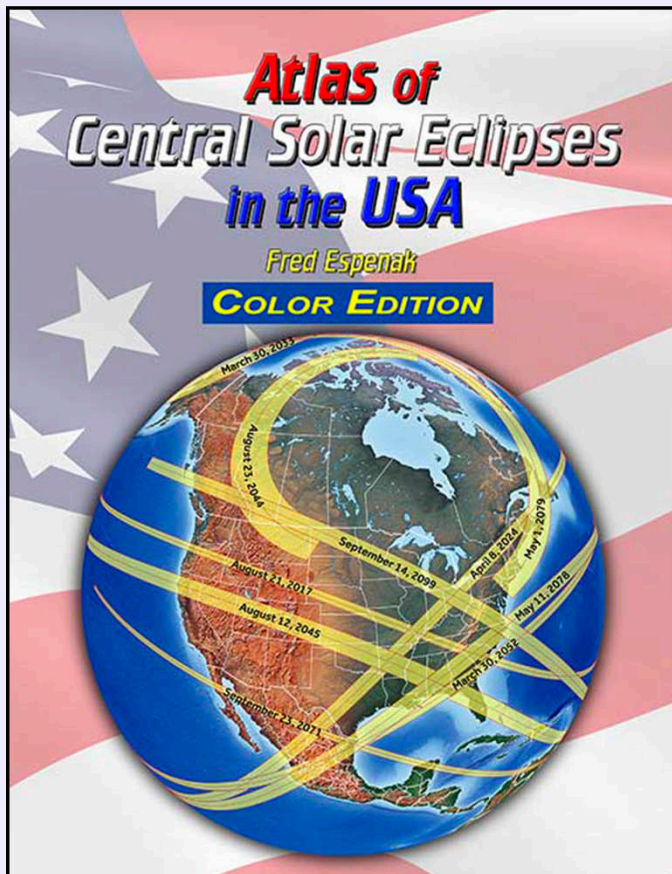


Ten Years of Lunar Eclipses

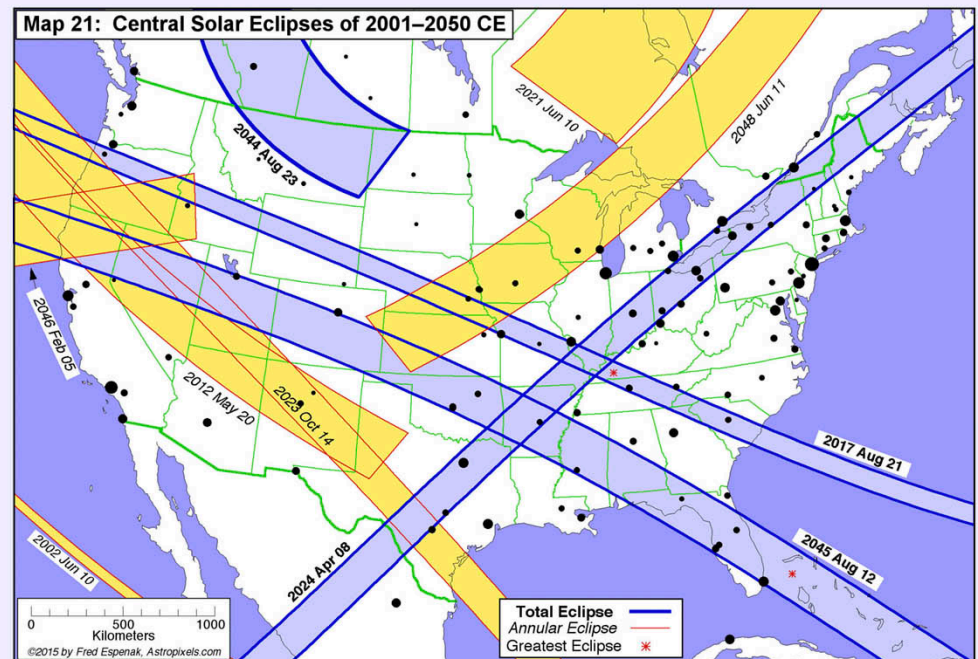


ATLAS OF CENTRAL SOLAR ECLIPSES IN THE USA

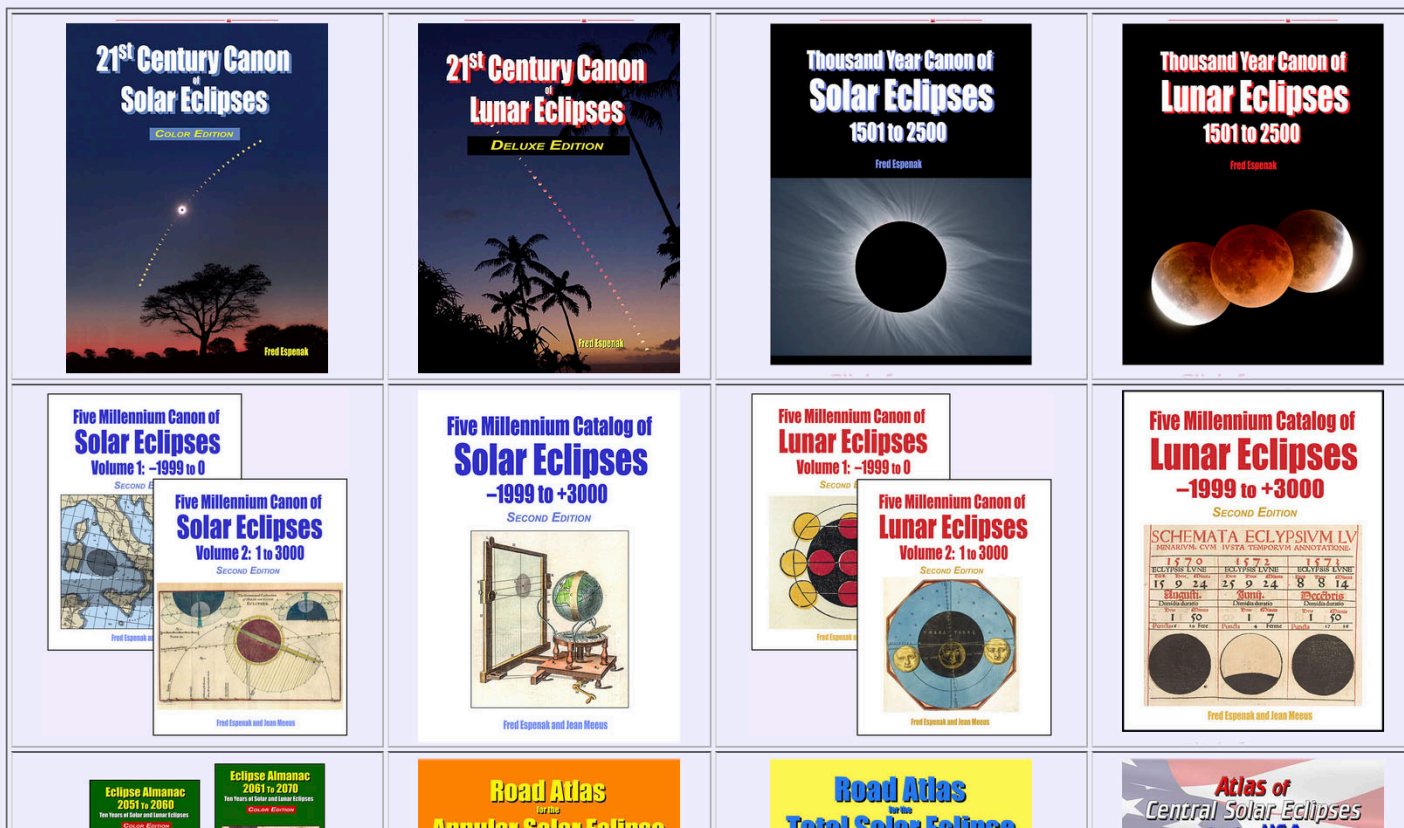
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USA maps for the years 1001 through 3000



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