MOON SHADOW

The Great Transcontinental Solar Eclipse
of Monday, August 21, 2017

Initial Lunar Umbral Contact: Lincoln City Beach, Oregon @ 10:15:17am PDT >>>

>>>   Final Lunar Umbral Contact: McClellanville, South Carolina @ 2:49:00pm EDT

= 1 hour, 33 minutes, 43 seconds of eclipse totality through the U.S.

Maximum Duration of totality centered at 1:21:50CDT near Carbondale, Illinois = 2 minutes, 40.2/41.6 seconds

Lunar axis passes closest to Earth's center, defined as "Greatest Eclipse" at 1:25:31CDT
near Hopkinsville, Kentucky, maximum duration of totality = 2 minutes, 40.1/41.4 seconds

(Use CTRL + Mouse-click to follow links below)

The Big NASA Eclipse Website, with many links to many things: https://eclipse2017.nasa.gov
Another informative website: http://www.eclipse2017.org
…And another: https://www.greatamericaneclipse.com/

>Eclipse totality projection across North America, straight path:
https://svs.gsfc.nasa.gov/vis/a000000/a004500/a004518/usa_eclipse_map_v2_print.jpg
>> Eclipse totality projection across North America, "curved" path:
   https://eclipse.gsfc.nasa.gov/SEmono/TSE2017/TSE2017fig/TSE2017-usa.jpg

>Animation from NASA SVS (Scientific Visualization Studio) showing earth-orbit view of eclipse shadow progress:
 https://svs.gsfc.nasa.gov/vis/a000000/a004300/a004314/eclipse2017usa_1080p30.mp4
>> Animation from NASA SVS showing deep space view of eclipse shadow progress, ending with realistic view of Earth-Moon
   sizes and distance: https://svs.gsfc.nasa.gov/vis/a000000/a004500/a004579/eclipse_flyaround_1080p30.mp4
>>> Animation from NASA SVS showing moon's 5-degree planar tilt usually keeps its shadow from touching the earth:
   https://svs.gsfc.nasa.gov/vis/a000000/a004300/a004324/eclipse_orbit_1080p30.mp4
>>>> Similar NASA animation showing moon's planar tilt with explanatory text…and music:
   https://svs.gsfc.nasa.gov/vis/a010000/a012500/a012534/EclipsePlane_V6_twitter_720.mp4

A sampling of worldwide eclipse paths, 2001-2020: https://eclipse.gsfc.nasa.gov/SEatlas/SEatlas3/SEatlas2001.GIF

Xavier M. Jubier interactive Google map. Single map click gives you times and sun position parameters for partial eclipse or
full umbral data for totality locales. Map view gets all the way down to street level:
http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2017_GoogleMapFull.html

Long strip map of totality path showing times of totality when offset from totality centerline:
http://eclipse-maps.com/Eclipse-Maps/Welcome_files/2017_LongMap_125dpi.jpg

Paramount concern outside of totality: Eye protection!
>AAS and safety check for eclipse viewing: https://eclipse.aas.org/eye-safety/iso-certification
>> The actual ISO 12312-2 specification; you have to BUY it from the ISO: https://www.iso.org/standard/59289.html
   (Just look for the specification when shopping for protection!)
>>> Do-it-yourself solar filters for camera, binoculars, etc., starting at 2:45 elapsed time. Voice audio is weak, turn up the
   volume: https://youtu.be/zTJu2ZsLdY8
>>>> Safety info and FREE eclipse glasses, if you live in specific South Carolina counties:
   https://www.tidelandshealth.org/see-it-safely/how-to-view-the-eclipse-safely/

A few apps/programs outside of Apple/Android
>American Astronomical Society page: https://eclipse.aas.org/resources/apps-software
>> www.eclipse2017.org page: http://www.eclipse2017.org/2017/app.htm

Solar Eclipse Timer app
>Useful discussion by Gordon Telepun of Foxwood Astronomy and author of Solar Eclipse Timer app, about solar filters and
  photography considerations using SET app during eclipse: https://youtu.be/9CJHQxZPW-c
>> The Solar Eclipse Timer website - App and useful information: http://www.solareclipsetimer.com
>>> Solar Eclipse Timer demo using March 29, 2006 eclipse video on a cruise ship in the Mediterranean:
    https://youtu.be/M8eoVzpmM6o

The US Postal Service Forever eclipse stamp
>USPS release information: https://about.usps.com/news/national-releases/2017/pr17_020.htm
>> Fred Espenak ("Mr. Eclipse") tells his story about the selection of his HDR photo for the eclipse stamp:
    http://earthsky.org/astronomy-essentials/total-eclipse-of-the-sun-forever-stamp-espenaks-story

The Future
>Partial lunar eclipse, Aug07, 2017-not visible in USA: https://eclipse.gsfc.nasa.gov/LEplot/LEplot2001/LE2017Aug07P.pdf
>> Solar eclipse, Apr08, 2024: https://eclipse.gsfc.nasa.gov/SEgoogle/SEgoogle2001/SE2024Apr08Tgoogle.html
>>> Annular solar eclipse, Oct02, 2024: https://eclipse.gsfc.nasa.gov/SEgoogle/SEgoogle2001/SE2024Oct02Agoogle.html

Miscellaneous accumulations
NASA website: "Planning Your Eclipse Party" is actually a presentation of suggestions for student and family learning,
following and participating in eclipse-related events: https://eclipse2017.nasa.gov/planning-your-eclipse-party

Retired Goddard astrophysicist Fred Espenak ("Mr. Eclipse") presentation at NEAF Conference in April, 2016; lots of
anecdotes, info and pix: https://youtu.be/K4KnxE6yAuI

Fred Espenak's websites, with a lot of links-n-things: http://www.mreclipse.com and http://eclipsewise.com

NASA recommendation: "An excellent source for weather prospects for upcoming eclipses" by meteorologist Jay Anderson.
Also recommended by Fred Espenak: http://eclipsophile.com

Goddard solar physicist C. Alex Young presentation at Library of Congress on June 15, 2017. Slow paced in some respects but a
wealth of diverse information: https://youtu.be/0HqmpziA4QY

BW possible viewing site info
>The Glendo, Wyoming (pop. 205) website: https://www.glendoeclipse.com/
>> FAA information for the Thomas Memorial Airport at Glendo, WY: http://www.airport-data.com/airport/76V/