

The Great American Solar Eclipse of 2017

by Jim Reichman

The Great American Solar Eclipse will occur on 21 August later this year. This is being billed as a “great” eclipse because the ground level area, where this total eclipse will be visible, extends completely across the US continent. The last solar eclipse event to cross the US like this occurred 99 years ago back in 1918.

Even better for philatelists is the fact that the US Postal Service (USPS) will be issuing an extraordinary stamp to commemorate this special solar eclipse event. Interestingly, the back side of this stamp’s pane includes a graphic (Figure 1) showing where the total-eclipse path crosses the US and the major cities that lie along that path.

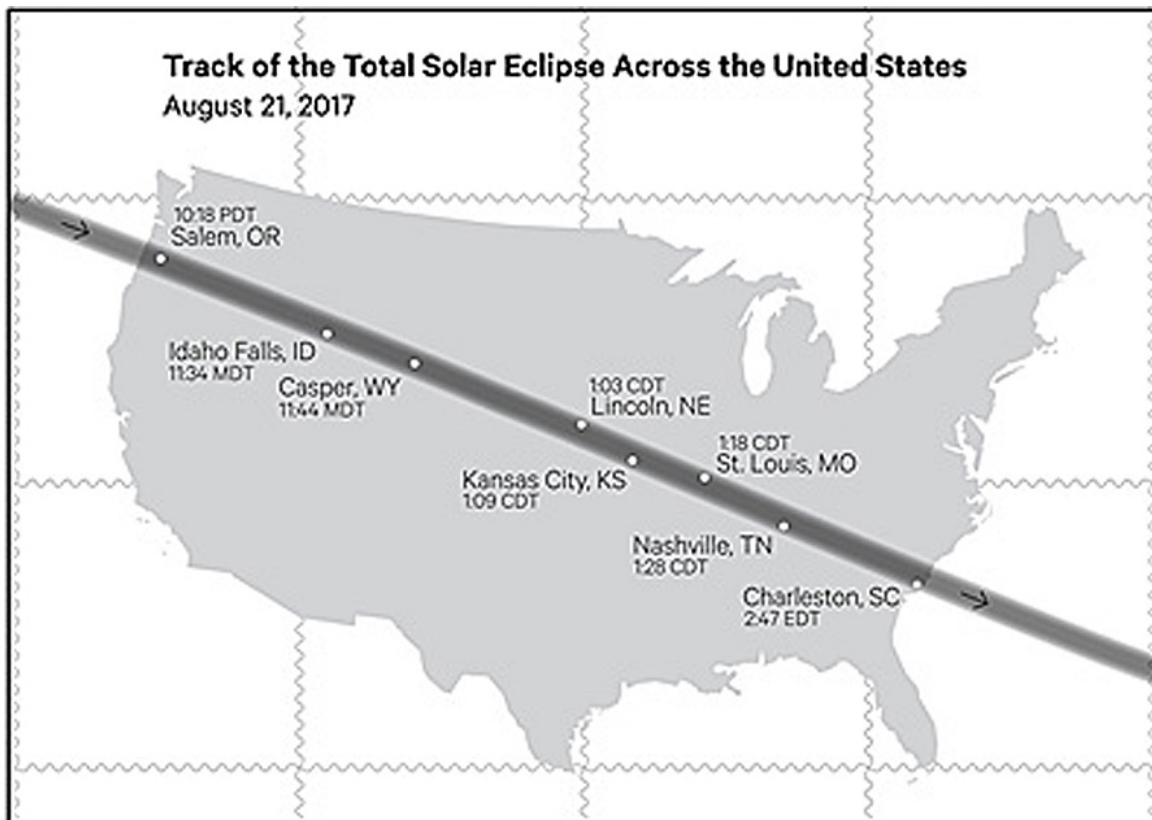


Figure 1 – Path of Total Solar Eclipse Across the US

A more detailed view of this path can be found at this web site:

http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2017_GoogleMapFull.html

You can zoom in on the map to see exactly where the total solar eclipse can be seen (the areas bounded by two pink lines) and where the line of maximum total solar eclipse time will be experienced (indicated by a blue line). By clicking on any point on this map display, you get a small window with eclipse details about what that specific geographic point will experience. This data will, for example, identify the percentage of the total eclipse seen at that site, when maximum eclipse will start and stop at that location, and what the elevation and azimuth angles are from the point selected for each eclipse event. Clicking outside of the pink lines will show the user what percentage (ranging from 0 to 99%) of a total solar eclipse that location will see.

One of the most exciting aspects of the new US eclipse stamp is that it is thermochromatic. This is a fancy term for the fact that the image on the stamp will change when it is warmed a little, for example, by placing your finger on the face of the stamp.

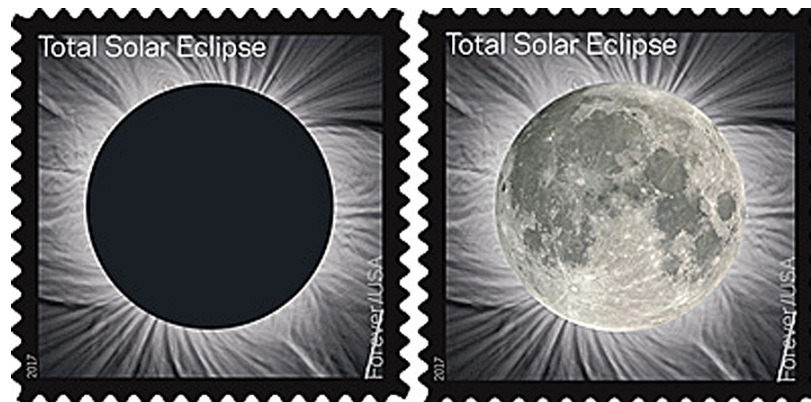
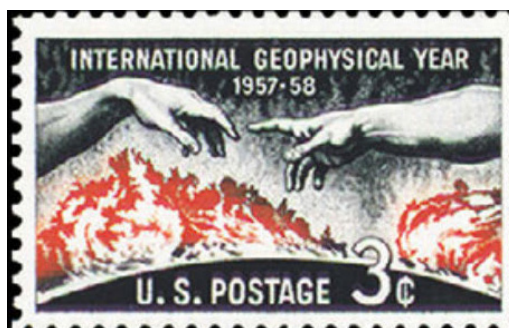


Figure 2 – US Solar Eclipse Stamp when cool (on the left) and when warmed (on the right)

Scans of this image-changing phenomena are shown in Figure 2. As can be seen, the Moon is dark (i.e., as it will appear during total solar eclipse) when the stamp is cool, then shows a full-Moon type of image when the stamp is warmed.

USPS Art Director Antonio Alcaja designed the eclipse stamp but the images it shows (a total solar eclipse and a full Moon) were both adapted from photographs taken by NASA astrophysicist Fred Espenak. Fred is also known by many as ‘Mr. Eclipse’ partly because he has personally witnessed 34 solar eclipse events and published many books about them. His photo of a total eclipse shown on the stamp was taken from the total solar eclipse he viewed from Jalu, Libya on 29 March 2006.¹

Production of a thermochromatic stamp will be a first for the USPS, however, it will not be the first US stamp to show a total solar eclipse or the Sun’s corona. The solar corona (i.e., the aura of plasma that surrounds the Sun) can only be seen with the naked eye during a total solar eclipse or when using equipment that simulates such a total eclipse. This corona can be quite spectacular as illustrated in the first US stamp (Figure 3) to show it and a newer, pentagon-shaped US stamp shown in Figure 4. The earlier, 3-cent stamp (Scott#1107) was issued on 31 May 1958 while the later, \$1 stamp (Scott# 3410a) was issued on 11 July 2000.



¹ White, Kaila, “Arizona man is behind new image of eclipse”, The Arizona Republic (newspaper), 3 May 2017, pp. 1 and 6A.

Figure 3 - First US Stamp Showing the Solar Corona **Figure 4 – First US Stamp Showing a Total Solar Eclipse**

The configuration of and printing on the new US solar eclipse stamps' postal pane is not yet completely known other than the fact that the backside contains the eclipse-path drawing shown in Figure 1. What is known for sure is that this will be a first-class, "forever" stamp (currently at \$0.49 face value) and it will be issued on 20 June 2017 at the Art Museum of the University of Wyoming in the city of Laramie, Wyoming. This site was chosen because of its annual celebration of the summer solstice on that date in June. Because of the way the museum building was constructed, sometime shortly after 11:30 am that day, a beam of solar light will enter the museum and shine onto a silver dollar coin embedded in the museum floor to officially mark the solstice date in that city.

Final stamp and pane production details will be coming out in early June. Those wanting to pre-order these stamps may start to do so in early June according to the USPS announcement² shown on their web site identified in footnote 2. These orders will be mailed to collectors after the first day ceremonies on 20 June. Based on the uniqueness of these thermochromatic stamps and the demand that might be generated by collectors who want to use those stamps to create commemorative covers on the 21 August eclipse date, these stamps may be hard to find in the weeks after their issue. Those interested in getting copies for their own use may want to place orders on the USPS web site as soon as that option becomes available.

Another thing that is already hard to find are motel rooms in or near any US city that is within the total solar eclipse path. I tried to find rooms in and around a few places I wanted to go to see the eclipse in Wyoming and Idaho but they were all booked up. I ended up deciding to stay with relatives near but outside the total-eclipse path with the intention of getting up early the morning of 21 August and driving far enough into Idaho to find an open spot to see the eclipse. Good luck to any others who would like to go and see the eclipse themselves but have not yet made motel or camping arrangements.

Total solar eclipses are one of the most spectacular events in all of Nature and are typically a once in a lifetime experience for those who are fortunate enough to personally see one. The eerie feeling you'll get as the area around you is darkened in the middle of the day and the fact that you can personally see the outer waves of the Sun's atmosphere are two of the experiences that you will never forget. As always, even during the solar eclipse, never look directly at any part of the sun's bright disk without special, protective eclipse glasses (not sunglasses!). You can safely raise your eclipse glasses during the totality (when the Sun's disk is completely covered by the Moon) in order to enjoy the rare spectacle of the ethereal corona.

Getting your own copies of the new US eclipse stamp as well as buying or creating your own covers commemorating the eclipse using that stamp will help extend this experience. Hopefully these items will find honored places in your own space collection to help commemorate the Great American Solar Eclipse of 2017.

² http://about.usps.com/news/national-releases/2017/pr17_020.htm .