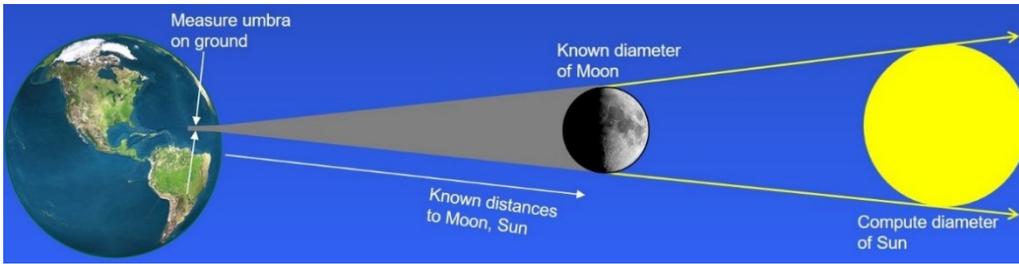
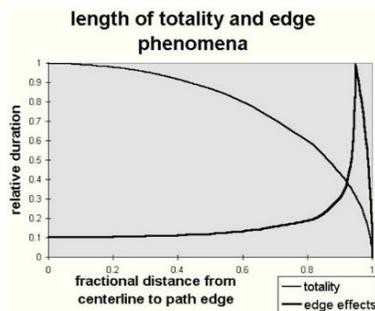


IOTA's Eclipse Edge Determination Experiment



The International Occultation Timing Association (IOTA) is organizing citizen science efforts to determine the location of the edge of totality along the path as it traverses the country. A group will be observing near Minden, Nebraska, and we are working to organize similar group efforts from Kansas City and St. Louis. Individuals willing to observe near the limits can also participate from other locations crossed by the predicted southern or northern limit. The web site <http://www.eclipssetours.com/eclipse-edge-2017/> gives observing details for Minden that we want to use in St. Louis and other edge locations. Past “eclipse edge” efforts, all visual, are noted. Besides lines of observers with cell phones bracketing the “graze zone” at the limits, we want observations made with the various past-used techniques, to determine their consistency. The goals are to help determine the accuracy to which the edge of the path of totality can be defined, and to contribute to a long-term study to measure changes in the size of the Sun, and the accuracy to which that can be done.



With many dozens of Baily’s beads visible over a period of a few minutes, an eclipse observed near the path edges is the ultimate lunar “grazing occultation”. As shown in the diagram, edge phenomena of interest for this experiment, the Baily’s beads and chromosphere, are enhanced by a factor of about 10 for locations a short distance inside the path edges while the duration of totality is still a quarter to a third of that at the center. Since there are now very accurate lunar profile data from the LRO mission, well-timed recordings near the central line are also now useful for solar radius determination.



(~1000 feet) outside the predicted limit to 700 meters (~2000 feet) inside the limit, as shown across St. Louis



being careful to observe only during the two minutes centered on the central time for the location. From St. Louis Downtown Airport, for example, that will be 1:18:32PM, so observers there should be concentrating on 1:17:30 to 1:19:30. Across the map, the central time is 1:17:19 n. of Cottleville, 1:18:02 at I-170, and 1:18:42 at the lower right edge in Illinois. See Mreclipse.com for computing times for other sites.

IOTA wants to work with local schools, astronomical societies, and other organizations to position observers at 50-meter (~175-foot) intervals across the eclipse graze zone, from 300 meters (~1000 feet) outside the predicted limit to 700 meters (~2000 feet) inside the limit, as shown across St. Louis between the 2 gray lines in the map (ignore the blue line). The observers should work in pairs, one operating a smart phone (taking a video) and the other observing naked-eye,

Use safe observing techniques, with eclipse glasses or other safe techniques before and after totality!

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