# Total solar eclipse
2019 July 2 Tuesday

- 8+ minutes of totality on Boeing 787-9 airborne intercept flight from Santiago, Chile to eclipse nonstop to Los Angeles.

- West-to-east travel of aircraft on the eclipse path will lengthen totality from otherwise maximum of 4m33.0s for a stationary observer on ocean below.

- Eclipse observers on board will purchase about one-third of the passenger section with 10 occupying left-side window and aisle seats of the five business class rows, and 30 occupying the usable left-side window seats in economy class, omitting only windowless rows 30 and 41 – holding the 59 adjacent middle seats and aisle seats vacant to provide ample space as well as to enable the left aisle to serve as a natural, comfortable "zone between" the eclipse passengers and the regular passengers, who will occupy the remaining 214 of 313 seats.

- Anticipated duration of flight will be approx. 13h30m, same as Madrid-to-Santiago nonstop flights and only about 20% longer than the 11h15m of regular Santiago-to-Los Angeles nonstop flights.
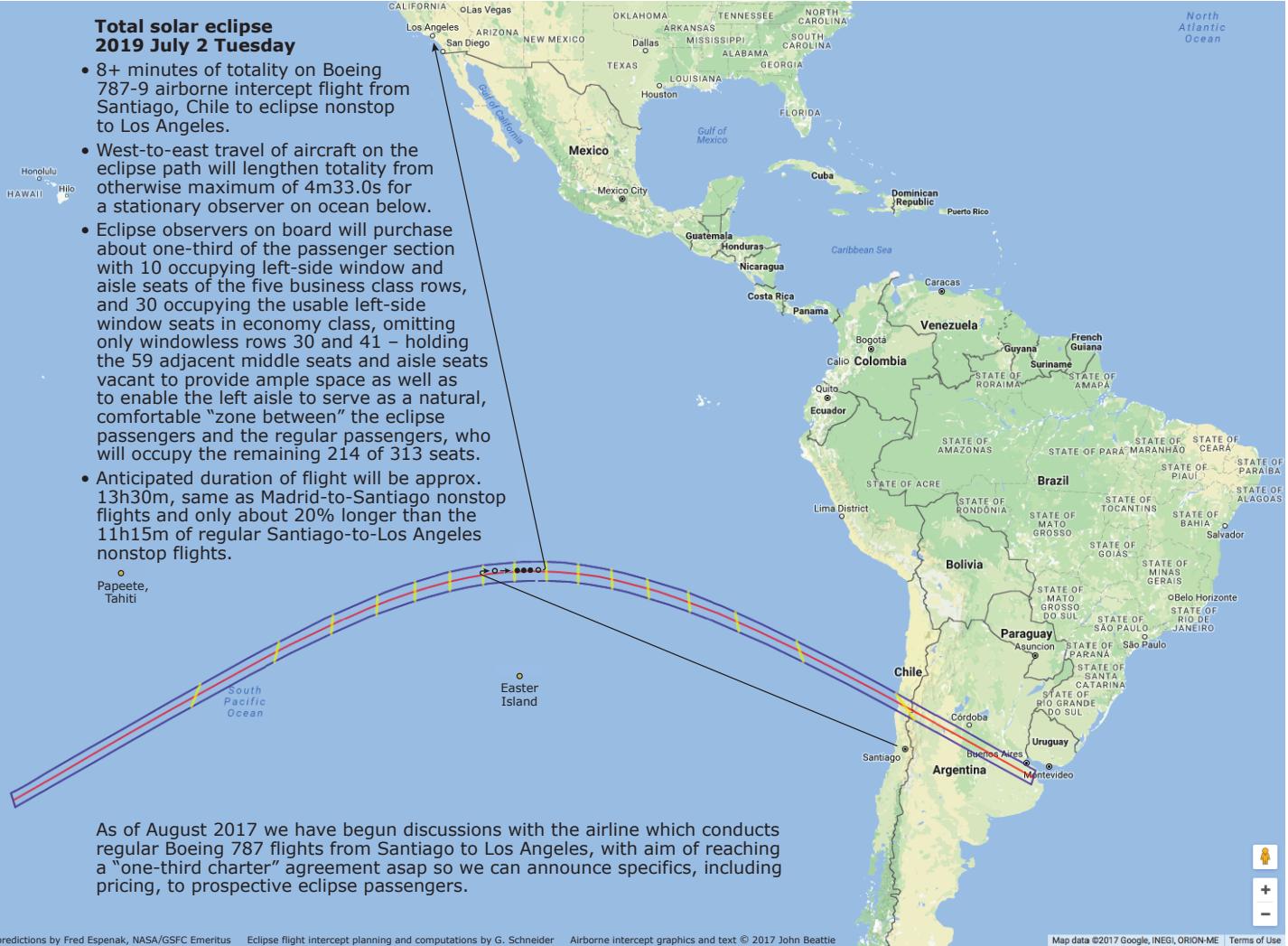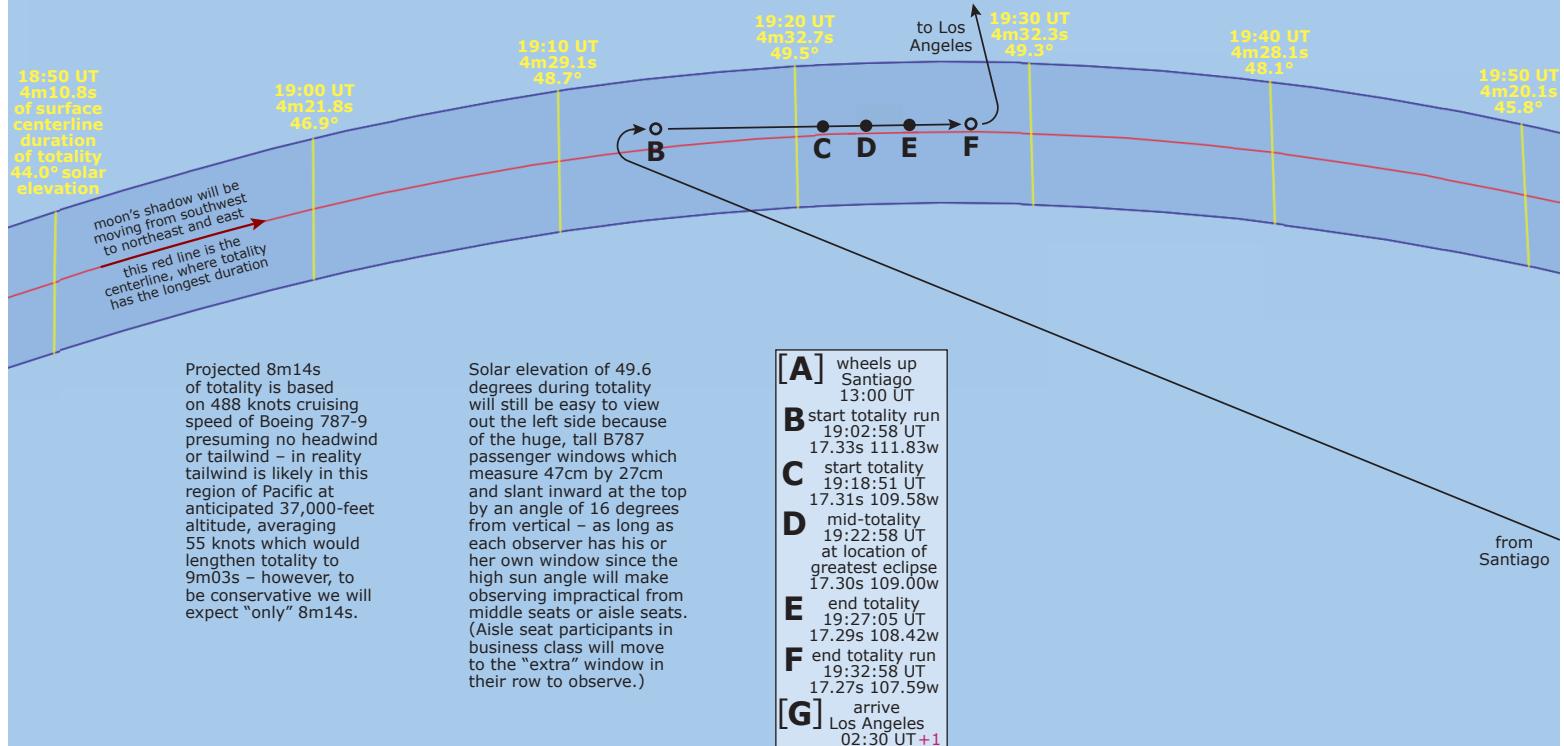
As of August 2017 we have begun discussions with the airline which conducts regular Boeing 787 flights from Santiago to Los Angeles, with aim of reaching a "one-third charter" agreement asap so we can announce specifics, including pricing, to prospective eclipse passengers.

Eclipse predictions by Fred Espenak, NASA/GSFC Emeritus   Eclipse flight intercept planning and computations by G. Schneider   Airborne intercept graphics and text © 2017 John Beattie

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Blue path of totality shown here is for sea level. Points B C D E F, the "totality run", show aircraft's intercept along eclipse path at 37,000-feet altitude, displaced 5.2 nm north from the sea-level path centerline (red) because sun is almost exactly due north at 49.6 degrees elevation. Our mid-intercept at point D is at location of maximum duration along the eclipse path.

18:50 UT
4m10.8s
of surface
centerline
duration
of totality
44.0° solar
elevation

19:00 UT
4m21.8s
46.9°

19:10 UT
4m29.1s
48.7°

19:20 UT
4m32.7s
49.5°

19:30 UT
4m32.3s
49.3°

to Los Angeles

19:40 UT
4m28.1s
48.1°

19:50 UT
4m20.1s
45.8°

B   C D E   F

moon's shadow will be moving from southwest to northeast and east

this red line is the centerline, where totality has the longest duration

Projected 8m14s of totality is based on 488 knots cruising speed of Boeing 787-9 presuming no headwind or tailwind – in reality tailwind is likely in this region of Pacific at anticipated 37,000-feet altitude, averaging 55 knots which would lengthen totality to 9m03s – however, to be conservative we will expect "only" 8m14s.

Solar elevation of 49.6 degrees during totality will still be easy to view out the left side because of the huge, tall B787 passenger windows which measure 47cm by 27cm and slant inward at the top by an angle of 16 degrees from vertical – as long as each observer has his or her own window since the high sun angle will make observing impractical from middle seats or aisle seats. (Aisle seat participants in business class will move to the "extra" window in their row to observe.)

[A] wheels up
Santiago
13:00 UT

B start totality run
19:02:58 UT
17.33s 111.83w

C start totality
19:18:51 UT
17.31s 109.58w

D mid-totality
19:22:58 UT
at location of
greatest eclipse
17.30s 109.00w

E end totality
19:27:05 UT
17.29s 108.42w

F end totality run
19:32:58 UT
17.27s 107.59w

[G] arrive
Los Angeles
02:30 UT +1

from Santiago

100 nm

Easter Island

last update 2017 August 31