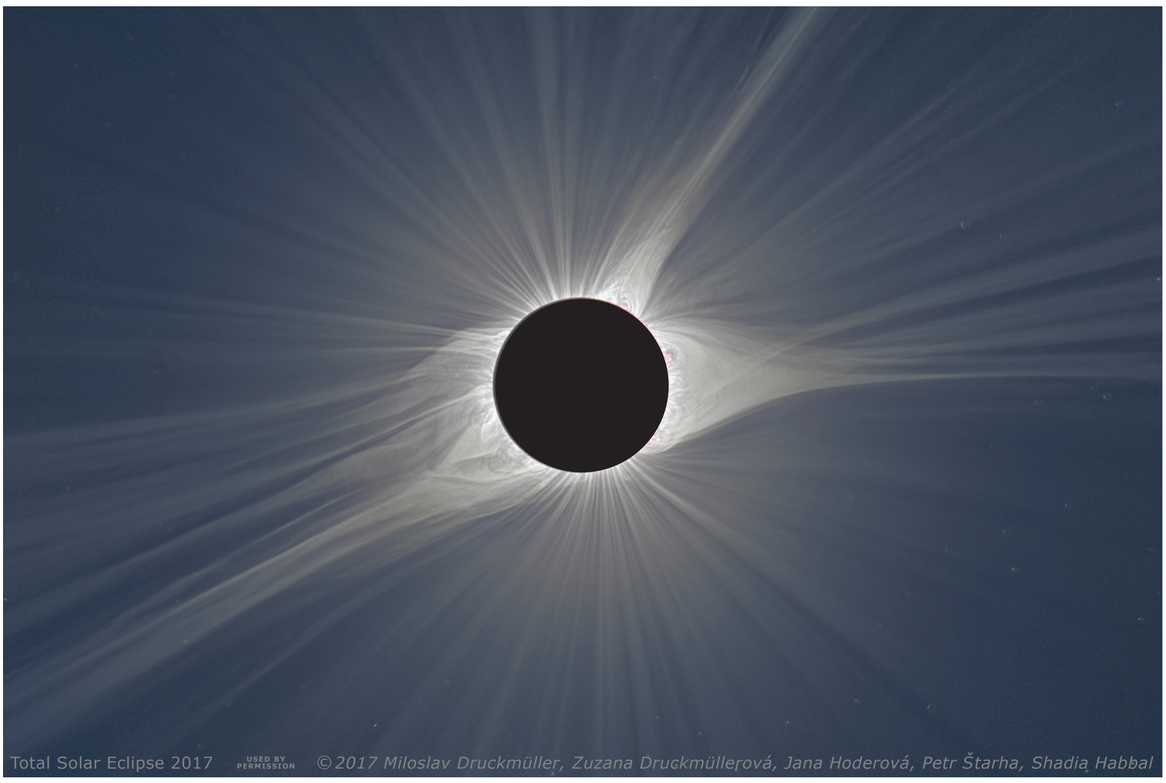


Still a few places available on solar eclipse airborne-intercept flight July 2, 2019 out of Easter Island aboard LATAM B787-9 Dreamliner . . . 8+ minutes in the moon's shadow

Closest we can come to space travel

...without, ourselves, having to qualify as astronauts...or as billionaires by JOHN R. BEATTIE

AS THE 50TH ANNIVERSARY APPROACHES, this coming July 20, of humanity's first moon landing – by U.S.A.'s Apollo 11 astronauts Neil Armstrong and Buzz Aldrin – many of us wax nostalgic...oh, if only there were some way we, too, could become spacefarers!

We know that within the next few years, private space travelers may be able to fly such as with SpaceX or Virgin Galactic – but the waiting list is sure to be long and the price tag will be, literally as it were, astronomical...six, seven, or eight figures...thereby ruling out those of us who are "not yet working on our second billion".

But...what if we saw the dramatic solar eclipse in United States August 21, 2017, with up to 2 minutes 40 seconds of mid-day "nighttime", and decided that was actually pretty cool... a scale of interplanetary grandeur we were able to experience first-hand, ourselves, right here on earth.

What if we could see another total solar eclipse already this year in 2019.

And what if we could see the eclipse from a jetliner above more than 80% of earth's atmosphere i.e. in effect, more than 4/5 of the way to outer space, enjoying a cosmic perspective at 41,000 feet altitude with curvature of the earth visible as the moon's shadow transits across it. Now wouldn't that be extra cool...almost astronautically cool?

And what if, as a transcendent bonus, the eclipse were to be more than three times longer than the 2017 eclipse due to jetliner's speed of 488 knots in same direction as motion of the shadow, thereby slowing the shadow and giving us lots more time to observe and take in the eerie, other-worldly phenomenon.

By now you might have a hunch where this discussion is headed...and your hunch would be correct!

Because indeed a total solar eclipse will be taking place, this coming July 2 – almost seemingly as a run-up to the Apollo 11 anniversary which transpires only 18 days later! It will happen over the southeastern Pacific Ocean passing north of Easter Island at local noon and ending around sunset in Chile and Argentina with duration of up to 2 minutes 33 seconds for land-based observers in those two countries. But a chartered Boeing 787-9 Dreamliner from LATAM will be making a special eclipse airborne-intercept flight taking off from, and after-the-eclipse returning to, Easter Island – anticipating more than 8 minutes of daytime darkness visible out the left-side passenger windows!

And those Dreamliner windows are famously extra large and tall – the most expansive of any current passenger jet.

The charter organizer is California-based **TEI Tours & Travel** (*tei@teiglobal.com; from US$6750 which can be shared among one, two, or three persons; plus international airfare to Chile and Easter Island*).

Envision this if you can: here we are in our Dreamliner north of Easter Island, leveled off flying west-to-east, and here comes the moon's shadow over the western horizon behind us, 10-15 minutes before it reaches us. The sky at this cruising altitude is deep blue-violet all the time anyway, and as light from the sun decreases, becomes even inkier-darker and more outer-spacelike, and crystalline clarity of the thin atmosphere so high up is razor sharp. Now the shadow is only 5 minutes behind us, glowering upon us, devouring cloud decks over the ocean below...now

a "2019 space odyssey" exclusively our own for more than 8 minutes

3 minutes, now 2 minutes, now 1 minute...as the sun dwindles to a narrow blazing arc and planets Mercury and Venus flash into view...now...now...totality! The sun, completely covered by the moon, has become a black, charcoal-like ball with radiant halo of white streamers of ethereal solar atmosphere known as the "corona" extending way out; see also pink-orange glowing flamelike bits known as "prominences" curving around the dark limb. Note everything is progressing at a leisurely pace, much slower than what we saw in August 2017, so this time we aren't nearly as rushed and can take our time checking out all the amazing aspects of this alignment of sun, moon, and earth... a "2019 space odyssey" exclusively our own for more than 8 minutes, since we're the only earthlings seeing the event at this point in time, midway along its oceanic path, during its mid-day phase well before its late afternoon arrival on the coast of Chile and into Argentina.

The lunar umbra glides over us leaving golden light at its fringes in all directions changing, variegating, minute by minute.

Look that way – darkened cumulus clouds silhouette themselves against the horizon which glows beyond them. Look the other way – phantasmic coronal light reflects off the ocean's surface visible among gaps in the clouds below us. Ah now, cross to the unoccupied right side of the aircraft cabin and see the shadow on the side away from the sun, its curved edge ponderously progressing as it inexorably outraces our winged observation post...now back to the left side and take in everything some more because we have so much abundant time to enjoy all this!

When at last our 8+ minutes expire and the shadow passes us and the brilliant sun begins to come back into view, we will rejoice in knowing that, although we have not been able to visit the moon as Neil and Buzz did half a century ago, we have done the next best thing...we have rendezvoused with the moon's shadow!

* * * *

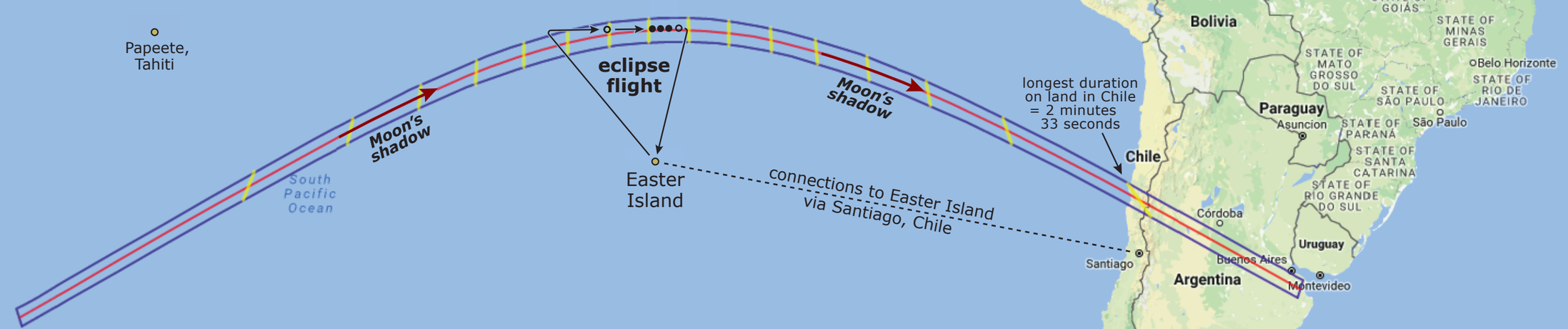
A good friend of ours met Neil on board the S.S. Canberra eclipse cruise off the coast of western Africa, just after everyone on board observed the 5 minutes 45 seconds totality of June 30, 1973.

She asked, "Neil, how did seeing the total eclipse compare with standing on the moon?"

She reports that, as he sipped his brew, one arm around a pole in the lounge, he carefully took a few moments to ponder his answer, until replying: "Mary...it was right up there!"

Total solar eclipse flight 2019 July 2 Tuesday

- 8+ minutes of totality on LATAM Boeing 787-9 airborne-intercept charter flight from Easter Island back to Easter Island.
- West-to-east travel of aircraft on the eclipse path will lengthen totality from otherwise maximum of 4m33.0s for a stationary observer on surface of the ocean below.
- We will use the Sun-facing left-side windows for eclipse viewing: 14 windows assigned to left-side seat rows 1-5 in business class, and 29 left-side window seats in economy rows 12-28, 31-40 and 42-43. Compared to a "normal" complement of 304 passengers, the EFLIGHT 2019-MAX cabin will be largely empty and uncrowded with plenty of room for eclipse viewers.
- Anticipated duration of flight will be 4h15m.
- Transportation to and from Easter Island will be via Santiago, Chile on any regularly scheduled daily commercial flights of participants' choosing on LATAM, the Chilean airline – allowing Easter Island touring before and/or after our moonshadow rendezvous.

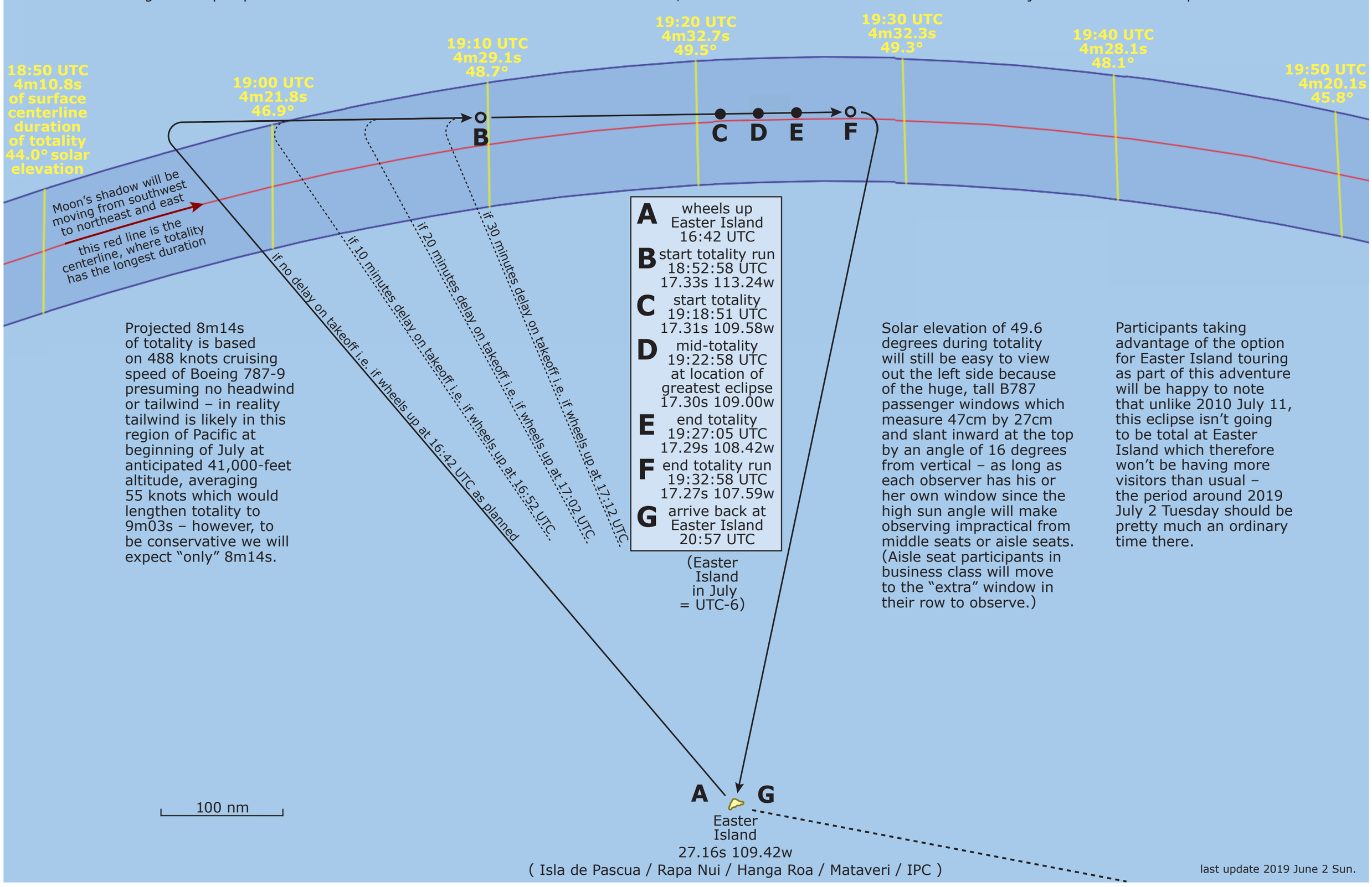


Contact TEI Tours & Travel, tei@teiglobal.com, +1 925-825-6104

For additional details see: www.tinyurl.com/EFLIGHT2019A
www.tinyurl.com/EFLIGHT2019B
www.tinyurl.com/EFLIGHT2019C

Eclipse predictions by Fred Espenak, NASA/GSFC Emeritus Eclipse flight intercept planning and computations by G. Schneider Airborne intercept graphics and text © 2019 John Beattie

Blue path of totality shown here is for sea level. Points B C D E F, the "totality run", show Dreamliner's intercept along eclipse path at 41,000-feet altitude, displaced 5.7 nm north from the sea-level path centerline (red) because Sun is almost exactly due north at 49.6 degrees elevation. Aircraft's mid-intercept at point D is at location of maximum duration along the eclipse path: 4 minutes 33 seconds on surface of the ocean below, but more than 8 minutes aloft because of the jetliner's eastbound speed = 488 knots.



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 beginning of July at anticipated 41,000-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.)

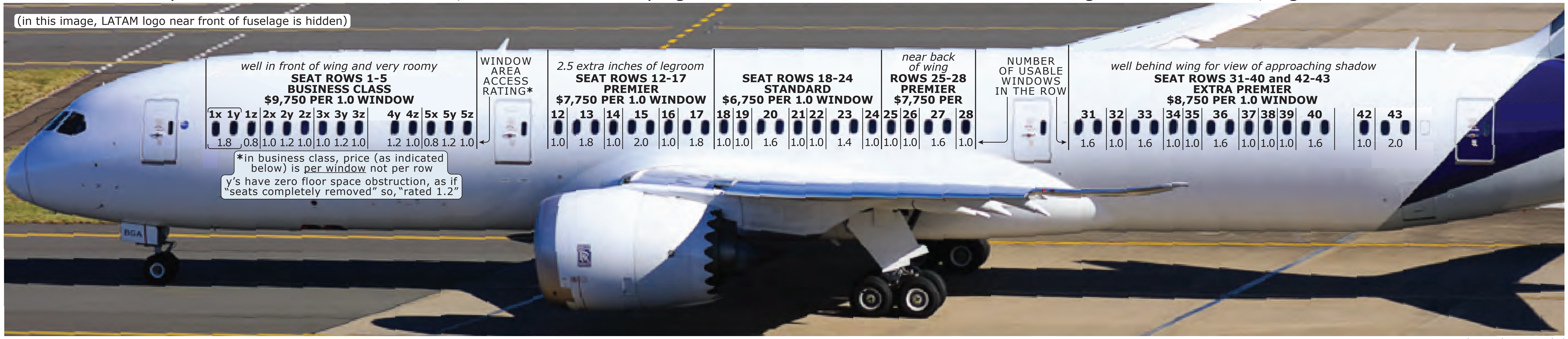
Participants taking advantage of the option for Easter Island touring as part of this adventure will be happy to note that unlike 2010 July 11, this eclipse isn't going to be total at Easter Island which therefore won't be having more visitors than usual – the period around 2019 July 2 Tuesday should be pretty much an ordinary time there.

last update 2019 June 2 Sun.

ZOOM (ENLARGE) FOR EASIER READABILITY

Total solar eclipse 2019 July 2 Tuesday — <u>EFLIGHT 2019-MAX</u> airborne intercept

via LATAM Chilean Airlines Boeing 787-9 Dreamliner departing from Easter Island to location of maximum duration over ocean for 8+ minutes of totality in the Moon's shadow at 41,000 feet altitude flying west-to-east at 488 knots then returning to Easter Island, flight duration 4h15m



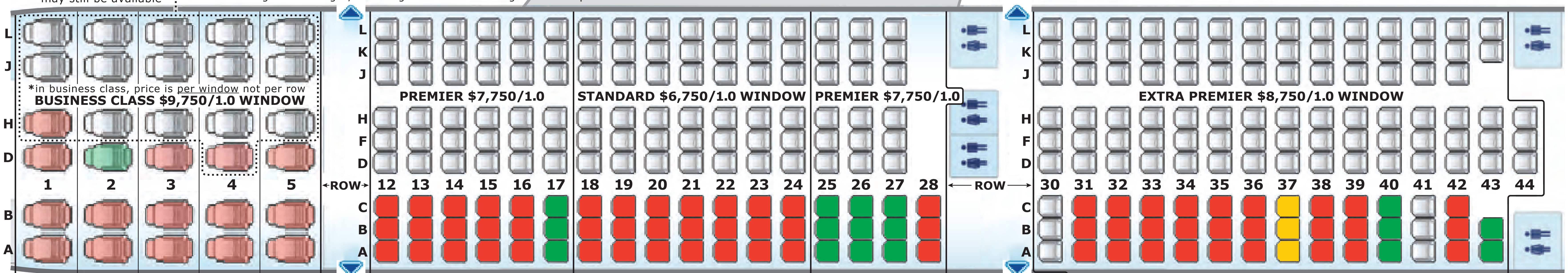
www.airliners.net/photo/3856249/L/

As of 2019 June 2 Sun.:
available — sold — on temporary hold, may still be available

Anyone who will be in one of seat rows 12-43 for the eclipse observation may also purchase for additional $250 any one of these "extra" business class seats to sit in at any time they wish throughout the flight, including takeoff and landing.

Status of green/available, red/sold, and yellow/hold rows shown below may take 12+ hours to update after each transaction.

for full description of <u>EFLIGHT 2019-MAX</u> see **http://tinyurl.com/EFLIGHT2019A**
or just for this seating page see **http://tinyurl.com/EFLIGHT2019B**



Window	1x 1y	1z	2x	2y	2z	3x	3y	3z	4y	4z	5x	5y	5z
WINDOW AREA ACCESS RATING*	1.8	0.8	1.0	1.2	1.0	1.0	1.2	1.0	1.2	1.0	0.8	1.2	1.0
WINDOW PRICE	$17550	$7800	$9750	$11700	$9750	$9750	$11700	$9750	$11700	$9750	$7800	$11700	$9750

Window y's have zero floor space obstruction, as if "seats completely removed" so, "rated 1.2".

ROW	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
ACTUAL WINDOWS	1.0	1.8	1.0	2.0	1.0	1.8	1.0	1.0	1.6	1.0	1.0	1.4	1.0	1.0	1.0	1.6	1.0
IF >1.0, PRICED AS		1.4		1.5		1.4			1.3			1.2				1.3	
ROW PRICE	$7750	$10850	$7750	$11625	$7750	$10850	$6750	$6750	$8775	$6750	$6750	$8100	$6750	$7750	$7750	$10075	$7750

ROW	31	32	33	34	35	36	37	38	39	40	42	43
ACTUAL WINDOWS	1.6	1.0	1.6	1.0	1.0	1.6	1.0	1.0	1.0	1.6	1.0	2.0
IF >1.0, PRICED AS	1.3		1.3			1.3				1.3		1.5
ROW PRICE	$11375	$8750	$11375	$8750	$8750	$11375	$8750	$8750	$8750	$11375	$8750	$13125

location of front and back of wing as depicted here is only approximate

PRICE SHOWN IN U.S.$ for each seat row 12-43 is for one person occupying. Add $250 admin. charge for a second person occupying, and another $250 for a third person occupying. Price shown for each window in business class is for one person utilizing during the eclipse observation. Add $500 for an additional person utilizing; maximum one additional person per business window booking. In each business row, participant purchasing window z will sit in seat A of the row, participant purchasing window y will sit in seat B of the row, and participant purchasing window x will sit in seat D of the row. Any additional person observing at a window in the business row may sit in one of the remaining business class seats.

In section 12-43 some seat rows have just 1.0 window whereas others have 1.0 window plus part of an additional window. For example, row 33 has 1.0 full window, but also a second window which is blocked by a seatback which can be leaned back but only far enough to unblock 0.6 of that second window. In such rows with > 1.0 window you only pay half the price of the additional fractional window, thus improving the economics. So for instance, whoever takes row 33 with its 1.6 windows will only pay for 1.3 windows.

Standard $6,750 per 1.0 window for each seat row
seat rows 18-24
Premier $7,750 per 1.0 window for each seat row
seat rows 12-17 – *2.5 extra inches of legroom*
seat rows 25-28 – *near back of wing*
Extra Premier $8,750 per 1.0 window for each seat row
seat rows 31-40 and 42-43 – *well behind wing for view of approaching shadow*
Business Class $9,750 per 1.0 window for <u>each window</u>
in seat rows 1-5 – *<u>well in front of wing and very roomy</u>*
– business class prices are <u>per window</u> not per row

IF PRINTING OUT THIS PAGE AS HARD COPY, TABLOID 11x17 IF AVAILABLE CAN IMPROVE READABILITY OF THE SMALL TYPE

Prices are in U.S. dollars. Prices do not include getting to Easter Island.

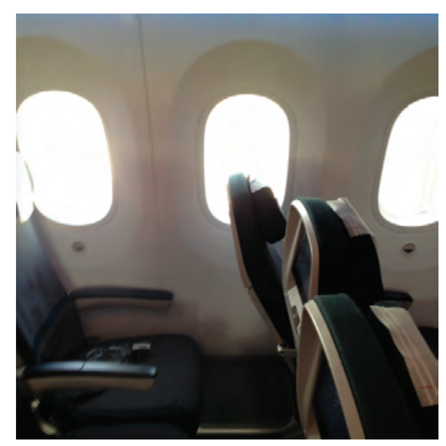
Before our eclipse flight ex-Easter Island on July 2 the EFLIGHT 2019-MAX plane will fly from Santiago, Chile to Easter Island with non-eclipse passengers and also with any eclipse participants who choose to fly to Easter Island at that time. We recommend you fly with us on this conventional scheduled flight to Easter Island that morning. We will have specially priced block space available on this flight.

To sign up and/or for more information, contact **Tim Todd at TEI Tours, tei@teiglobal.com, http://www.teiglobal.com, tel: USA (925) 825-6104.**

For each seat row we're specifying in advance whether its left-side window seatback, such as 12A in seat row 12, is permitted to lean back during the eclipse observation period and if so by how much. This predesignated leanback amount figures in the price calculation for each row and for the row behind it.

for example: seat 12A upright

whereas: seat 12A leaned back



In this example, seat 12A cannot lean back far enough to substantially benefit row 12 so, it will be best to direct that it not lean back at all during totality. Therefore row 12 will be specified as having 1.0 window for pricing purposes and row 13 will be specified as having 1.8 windows => 1.4 for pricing purposes.

Copyright © 2019 John Beattie and TEI Tours – last update 2019 June 2 Sun.