

Jay and Naomi Pasachoff
Total Solar Eclipse Expedition: December 4, 2021

time zone: Eastern Standard Time (Williamstown/New York/Boston) + 2 hours

http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/TSE2021/TSE2021WEB/EFLIGHT2021.html

Saturday, November 27

1:30 pm Bob Baker car from Williamstown to JFK

Hilton Hotel JFK 144-02 135th Ave, Jamaica NY 11436, 718-659-0200

coupon confirmation: **3214131863**

Sunday, November 28

Peter Knowlton '21.5 and Anna Tosolini '23 meet us at JFK; David Sliski and Nicole Massetti meet us also; Muzhou Lu '13 meets us at JFK

American Airlines TNPUFI (mevacuno in hand from Chile, held by David)

AA933 lv JFK 8:45 pm; arr SCL (Santiago) 9:09 am 9DH

[the return overnight Mon Dec 6: AA948 SCL-JFK 11:00pm-7:24am Tues Dec 7]

Shelby Walden is our liaison at Williams for health insurance: slacosse@williams.edu

see JMP article about the June 10 annular eclipse:

<https://astronomy.com/magazine/news/2021/11/flying-into-junes-ring-of-fire-eclipse>

limo arranged by Tim Todd, TEI travel, (925) 825 6104, tei@teiglobal.com

for just Naomi and me to hotel; others in a van

The hotel in Santiago is the "Hotel Cumbres Lastarria" in the central downtown area. Mark Sood told me it is the same one our group stayed at on your 2019 tour.

rooms: 1/ Jay & Naomi; 2/ David & Nicole; 3/ Aris & Muzhou; 4/ Anna; 5/ Peter

J&N won't tour; others are considering:

<https://docs.google.com/document/d/1EqZHxF9PHDi4Kerd07dDYqpIClz2JWx6Q6qIr-5oxXg/edit>

<https://www.maipovalleywinetours.com/en/full-day-wine-tours-santiago-de-chile/horseback-wine-tour-and-a-chilean-country-grill-in-maipo-valley>

Tim Todd / T.E.I. TOURS & TRAVEL E-Mail:tei@teiglobal.com TEL:(925) 825-6104

John Beattie / Project Specialist E-Mail:jrbt@eclipse.net Mobile:(646)675-4660

Dr. Glenn Schneider / EFLIGHT Technical Planner, gschneider@as.arizona.edu (520) 621-5865

Steward Observatory and the Department of Astronomy, The University of Arizona

joint Pasachoff/Schneider 2003 flight-over-Antarctica account:

http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_03/QF2901_IMAGING/TSE2003_REPORT.html

Also tour assistance from Mark Sood: mark@aclassictour.com

Aris Voulgaris arrives from Greece bearing spectrographs:

A37111 29NOV THESSALONIKI - ATHENS 11:25 - 12:15 [Aegean Airlines]

IB3151 29NOV ATHENS - MADRID 15:50 - 18:45 [Iberian Airlines]

IB6833 29NOV MADRID - SANTIAGO 23:55 - 09:50

IB6830 11DEC SANTIAGO - MADRID 12:50 - 06:05
IB3150 12DEC MADRID - ATHENS 10:40 - 15:15
A37126 12DEC ATHENS - THESSALONIKI 19:40 - 20:35

He stays in Punta Arenas until 7 December. His airticket from Punta Arenas to Santiago with a departure date of 7 December. He departs from Santiago to Athens/Greece on December 11. Tom Economou (U Chicago) asked him to join him in Santiago from 7 up to 11 December.

Thursday-Friday, December 3-4 charter flight package from Tim Todd, TEI travel
http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/TSE2021/TSE2021WEB/EFLIGHT2021.html
<https://tinyurl.com/EFLIGHT2021SEATROWPHOTOS>

Friday, December 3, [tentatively 6 pm] fly in a LATAM airlines charter from SCL (~3 hour flight; 2000 miles due south), to PUQ, and onward after midnight Dec 3/4 for the eclipse flight at sunrise, almost due east; 1 m 45 s of totality from 39,000 feet = ~1200 meters ("blue plane"; a second plane in our group will be 200 feet lower) returning to Punta Arenas by about 8 am

After we get off the plane in Punta Arenas from Santiago en route south, we will assemble in the Gate Area and we will meet up with the EFLIGHT Participants who opted to join the flight in Punta Arenas. Then we will have a short 'Pre-Flight' briefing. After the briefing, boarding of the two planes will begin with the aim of an on-time or early take off for the Eclipse Intercept. If we leave early we will burn off excess time prior to starting the Totality Run per Glenn's computations.

http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/TSE2021/TSE2021WEB/EFLIGHT2021.html

Saturday, December 4 early morning, eclipse flight roundtrip PUQ-eclipse-PUQ
rest of day in the hotel: Hotel Cabo de Hornos in Punta Arenas, with early check-in (5 rooms)
rooms: 1/ Jay & Naomi; 2/ David & Nicole; 3/ Aris & Muzhou; 4/ Anna; 5/ Peter

Sunday, December 5, Punta Arenas

Monday, December 6, [2:05-5:15 pm] LATAM airlines LA1160, Punta Arenas (PUQ) to SCL,
Everyone is confirmed under Booking Record "BEIQJG"
1 evening room at Holiday Inn at SCL airport (walking from terminal), 25654202

[the return overnight Mon Dec 6: AA948 SCL-JFK 11:00pm-7:24am Tues Dec 7]
Tues, Dec 7: Being met by Aram Friedman and Mary at JFK to be driven to Williamstown, (609) 468-1560; perhaps at ~9 am; arrive in Williamstown the afternoon of Tuesday, December 7

We are in liaison with two groups landing on Union Glacier, Antarctica
· Prof. Patricio Rojo, Dept of Astronomy, U. Chile, Santiago, as part of the official Chilean expedition to Antarctica for a variety of research topics

· Janet Boris, Theo Boris, Peter Boris, with Christian Lockwood, on a chartered ALE (Antarctic Logistics Expeditions) plane, carrying a spectrograph and oscillation experiment at two coronal wavelengths, in continued collaboration with Michael Person (MIT)

references:

IAU Working Group on Solar Eclipses: [http:// https://sites.williams.edu/iau-eclipses/](http://https://sites.williams.edu/iau-eclipses/)
[directed from <http://eclipses.info>]

Williams College Eclipse Expeditions: <http://totalsolareclipse.org>
(with archive at: <https://sites.williams.edu/eclipse/archive/>)

page for this 2021 total eclipse not yet available

Jay and Naomi's homepages: <http://solarcorona.com>

Xavier Jubier's Google map (clickable; zoomable):

http://xjubier.free.fr/en/site_pages/solar_eclipses/xSE_GoogleMap3.php?Ecl=+20211204&Acc=2&Umb=1&Lmt=1&Mag=1&Max=1&Map=ROADMAP

Fred Espenak's map at <http://EclipseWise.com>

<http://www.eclipsewise.com/oh/ec2021.html#SE2021Dec04T>

<http://www.eclipsewise.com/solar/SEdisk/2001-2100/SE2021Dec04T.gif>

Jay Anderson: weather/cloudiness info: <http://eclipsophile.com> (see our new book, Peterson Field Guide to Weather (2021), at pasachoff.com)

eclipse map of Pasachoff-viewed eclipses:

<https://sites.williams.edu/eclipse/files/2020/06/SEatlas-Pasachoff-2020.png>

Prior eclipses for Jay (74th coming up)

73 eclipses: 35 total; 19 annular; 19 partial.

+ 5 additional attempts

2021 (Antarctica or Southern Ocean, air, total, December 4)

Prior eclipses for Naomi (47th coming up)

46 eclipses: 21 total; 12 annular; 13 partial.

So 36th total solar eclipse for Jay and 22nd total solar eclipse for Naomi coming up

We are working with NASA's Goddard Space Flight Center (Lina Tran <lina.tran@nasa.gov>) and Predictive Science again, as we did for the 2020 total solar eclipse:

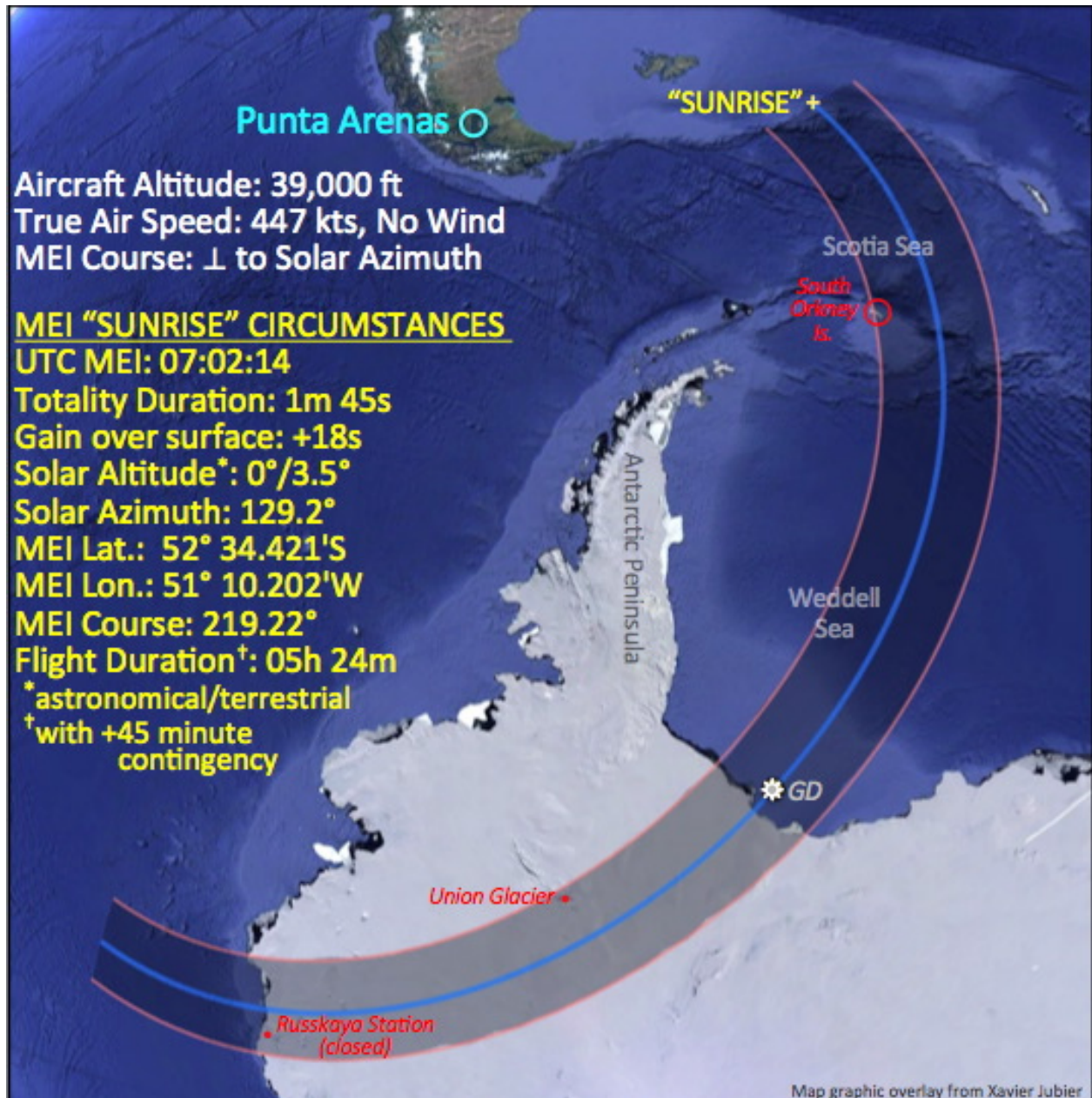
2020 Eclipse prediction -- <https://www.nasa.gov/feature/goddard/2020/scientists-use-nasa-data-predict-appearance-corona-dec-14-total-solar-eclipse>

2020 Eclipse comet -- <https://www.nasa.gov/feature/goddard/2020/recently-discovered-comet-seen-during-2020-total-solar-eclipse-SOHO>

For the 2021 prediction, see the posting from Nov 19:

Preliminary Prediction of the December 4, 2021 eclipse corona at www.predsci.com/eclipse2021

Scheduled for January: Pasachoff, Jay M., Christian A. Lockwood, David Sliski, Aristeidis Voulgaris, Glenn Schneider, Peter F. Knowlton, Anna S. Tosolini, Theo Boris, Muzhou Lu, Thanasis Economou, 2022, abstract 2240, 239th American Astronomical Society meeting, "First Report on the December 4, 2021, Solar Eclipse Antarctic Expeditions," Salt Lake City.



We give a first report on results gathered on three of our expeditions to the December 4, 2021, total solar eclipse whose totality passed over Antarctica and adjacent ocean. One of our groups was on a chartered LATAM A321-200 that flew eastward from Punta Arenas at 39,000 ft, near the southernmost part of Chile, the upper of two planes with paths plotted by Schneider to observe totality about 3.5° above the horizon out the lefthand windows from near the sunrise point. Our group carried cameras with telephotos and 3 spectrographs from Voulgaris. A separately chartered airplane was to take six people including Boris, Lockwood, and Lu, and equipment, to Union

Glacier, on the Antarctic continent, using the services of ALE (Antarctic Logistics & Expeditions), the standard airplane servicer that is also responsible for opening the runway, which was not used in the previous Antarctic summer and so may provide a difficulty. In addition to astronomical equipment to image totality at an altitude of about 14° above the horizon, they carried facilities to send back a livestream and possibly a magnetometer. Rojo, a professor of astronomy at the University of Chile, joined the official expedition carried by the Chilean Air Force to spend two weeks on Union Glacier, Antarctica, conducting that expedition's only astronomical observations. He carried Celestron and Nikon telephotos and Nikon cameras from Williams College, with filters by Questar and Thousand Oaks Optical, and a spectrograph from Voulgaris.

In addition, efforts by the AAS Eclipse Task Force's Formal Education working group are ongoing, in preparation for the annular 2023 and total 2024 solar eclipses. This working group aims to promote and coordinate networks and resources for meaningful student eclipse experiences and for building capacity in formal education (K-12 and Higher Ed) to address solar science and the eclipse.

JMP's current research about eclipses is sponsored by grant AGS-1903500 of the Solar Terrestrial Program, Atmospheric and Geospace Sciences Division of the NSF, succeeding AGS-1602461 from the period of the 2017 eclipse. We thank Williams College for additional student expeditionary support from the Freeman Foote endowment.