

SETalk

Longest Recorded TSE in History

From : "B.A.Tafreshi" <bt_afreshi@nojum.net> To : <SOLARECLIPSSES@AULA.COM> Date : Thu, 25 Apr 2002

I'm writing an article on Future eclipses for our astronomy magazine in Iran, I need to check if it is right that longest recorded total solar eclipse in history happened 744 B.C for 7m and 29s. if that's through any one know who where the ancient observers? Also I'm not sure for the longest totality in the third millennium (July 16th , 2186) ? the softwares and resources I'm using is not that trusted. Kindest Regards, Babak Tafreshi

From : FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov>

The NASA Eclipse Home Page has a web page devoted to the longest annular and total eclipses over the 7,000 year period 3000 BCE to 4000 CE. The URL of the index page is: <http://sunearth.gsfc.nasa.gov/eclipse/SEcatmax/SEcatmax.html>

The longest central solar eclipses of this period are:

Longest Total Solar Eclipse: 2186 Jul 16 Duration = 07m29s
Longest Annular Solar Eclipse: 0150 Dec 07 Duration = 12m24s

For the period 1000 BCE to 1 BCE:

Longest Total Solar Eclipse: -0743 Jun 15 Duration = 07m28s
Longest Annular Solar Eclipse: -0177 Dec 22 Duration = 12m08s

The years above are counted astronomically and include the year 0. To convert to BCE, you must take the absolute value of the year and add 1. Thus:

Longest Total Solar Eclipse: 0744 Jun 15 BCE Duration = 07m28s
Longest Annular Solar Eclipse: 0178 Dec 22 BCE Duration = 12m08s

- Fred Espenak

From : Jean Meeus <JMeeus@compuserve.com>

About the question posed by Babak Tafreshi : Yes, in the year -743 (that is 744 B.C. of the historians) there was a total solar eclipse of long duration. It took place on -743 June 15. My calculation gives a maximum duration of totality of 7 minutes 27 seconds. However, I did not check whether this was the longest total solar eclipse "in history".

The total solar eclipse of 2186 July 16, with a maximum duration of 7 minutes 29 seconds, will be the eclipse with longest duration of totality during the whole period from A.D. 1 to 4000. This has been published in my recent book "More Mathematical Astronomy Morsels", where the list is given of all total solar eclipses with a duration > 7 minutes between the years 1 and 4000.

It is unfortunate that the maximum duration of the eclipse of 2186 will take place in the Atlantic Ocean! Jean Meeus

From: <neptunes_clouds@gmx.de>

This eclipse belongs to Saros Number 139 - the same Saros Number of the next European eclipse in March 2006, which can be seen for example in Turkey. Andre

From : Egan Mark <castrophoto@yahoo.com>

Of course this means that cruise lines are already planning itineraries for this eclipse. Let the advertising begin! :-)

SETalk

and this is a perfect opportunity for a flight over the Atlantic in a supersonic (or hypersonic) jet:

Mr. Schneider, if you're reading this, perhaps you could help us plan this.... :-)

This does raise another question: what is the longest land-based duration of a TSE in that time period?

BTW, as you have probably seen, this is a very interesting saros, and includes the eclipses of:

1970 March 7 (many eclipse-chasers' first time) 2006 March 29 (which we're all looking forward to) 2024 April 8 (which I will see from my home state of Texas!!!!) c-u later! Mark!!!!

From : Shivapuja@aol.com

what a way to celebrate my 231st birthday!

From : "Dale Ireland" <direland@drdale.com>

>Of course this means that cruise lines are already planning itineraries for this eclipse. Let the advertising begin! :-)

You could go with Olivier to the Antarctic eclipse, then just stay there and have yourself thawed out in 2186. Dale

From : "Joel M. Moskowitz, M.D." <moskowi@attglobal.net>

> It is unfortunate that the maximum duration of the eclipse of 2186 will take place in the Atlantic Ocean! Jean Meeus

Of course, with global warming, by 2186, it will be the Atlantic Desert. And, then totality will be shorter, since the distance from the moon to the bottom of the Atlantic Ocean "Desert" will be a couple of miles greater, making the cone of umbra smaller.

From : "Crocker, Tony (FSA)" <Tony.Crocker@transamerica.com>

Under global warming sea level will be about 300 feet higher, not lower. Totality difference will be infinitesimal.

From : Alan Leighton <leighton@gmx.net>

With the warmer climate, there will be more water in the atmosphere, meaning the eclipse will probably be clouded out anyway at sea level. So Glenn, our great-great-...-great grandchildren are depending on your great-great-...-great grandchildren to plan that hypersonic airplane observation flight. Alan Leighton

From : Fraser Farrell <fraser@trilobies.com.au>

> Glenn, our great-great-...-great grandchildren are depending on your great-great-...-great grandchildren to plan that hypersonic airplane observation flight.

Hmmm.... ;-)

THE HAGUE, UNITED STATES OF EUROPE 5 January 2186 (CNN/Time/Newscorp/IndyMedia Inc) : A consortium of cruise ship companies today began a World Court action to restrict all aircraft that fly into the "Eclipse Of The Millennium" later this year.

In a press conference outside the Court today, a spokesman for the cruise ship companies declared "We don't want the eclipse to be spoiled for our passengers by the contrails and sonic booms from swarms of aircraft. We want the airlines to stay well away from the zone of maximum eclipse in the mid-Atlantic."

Over 27,000 aircraft are expected to fly into the eclipse track; ranging in size from decommissioned military fighters up to the billion-ton prototype "Stratosphere City", the world's first 100,000 passenger hypersonic airliner. The airlines report that all tickets for flights into the eclipse were sold out at least 20 years ago; and that the only passenger changes being permitted now are from the heirs of deceased ticket holders.

One eclipse aircraft ticket was reportedly sold recently through Ebay-Sotheby's for over \$38 million.

The Concorde Society also announced today that refurbishment of the very first supersonic airliner to observe an eclipse - back in 1973 - is nearly complete; and that they expect to fly this historic aircraft into this year's eclipse. Greenpeace immediately countered by reviving their century-old grounding order against the Society; claiming that the aircraft's engine exhaust will damage the recently-restored ozone layer, as well as contravening a 2105 UN Resolution that prohibits the use of fossil fuels for transport.

Despite their apparent unity in the World Court, the cruise ship companies are also at odds with each other over their own eclipse plans. Global MegaShips Corporation has officially described Cunard Hydrofoil's plan to sail their new 500-knot supercruiser along the centreline at full speed as "reckless", because of the 80,000+ ships and boats expected to be stationed along the eclipse track. Cunard have countered by describing as "selfish" the MegaShips' plan to station all twenty of their 10km-

(Continued on page 43)

SETalk

diameter ships at the point of maximum eclipse.

In related news, the World Meteorological Organization predicts an average cloud cover of 30.954 +/- 0.113 percent along the eclipse track on the day. A WMO spokesman apologised for the large error in this prediction; caused in part by employees usurping most of the WMO's supercomputer capacity to run the SETI@Home Client version 487....

Of course CNN/Time/NewsCorp/IndyMedia Inc will be broadcasting the Eclipse Of The Millennium live with the aid of our satellites and robo-cams; and our expert correspondents located on ships, aircraft, low earth orbit and on the Moon. Stay tuned! cheers, Fraser Farrell

From : "Wil Carton" <wil_carton@hotmail.com>

Babak, That solar eclipse of 744 BC passed through Africa from Angola in the southwest to Kenya in the East. Prof F.R. Stephenson does not mention observational records for this eclipse in his book "Historical Eclipses and Earth Rotation". For that century he only mentions observational records of the solar eclipses of BC 763 June 15 (Babylon), 709 July 17 (China). Wil Carton, Castricum, Netherlands.

From : "Joel M. Moskowitz, M.D." <moskowi@attglobal.net>

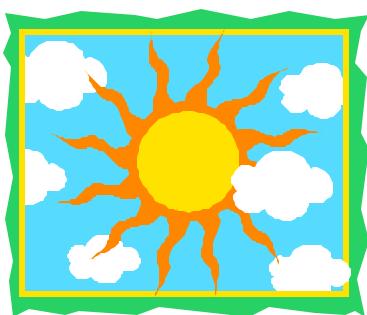
> Under global warming sea level will be about 300 feet higher, not lower. Totality difference will be infinitesimal.

That's in the next 20 years, as the polar caps melt. I'm talking after that, when the oceans evaporate :)

I think I'm getting a little off topic here.

From : "Mick Wolf" <mickwolf@picknowl.com.au>

Very good - I did not realise we have new Nostradamus in our Society (ASSA) Mick Wolf.



News article

From : "Olivier \"Klippsi\" Staiger" <klippsi@bluewin.ch>
To : <SOLARECLIPSES@AULA.COM> Date : Fri, 26 Apr 2002 22:36:10 +0200

dear friends, after a long wait, it finally is here. enjoy !
<http://www2.swissinfo.org/sen/Swissinfo.html?siteSect=511&sid=1074083> Olivier "Klippsi" Staiger

"Klippsi pursues the dark"

From : Kidinvs@aol.com

Olivier...that interview was wonderful..... just what the novice or eclipse virgin needs to hear to perhaps convince him that perhaps there is more to an eclipse than they thought. You mention your dream of a tornado and totality in the same frame of a photo. In Feb 1998, we viewed the eclipse from Antigua.... with Montserrat spewing molten lava in the background!!! Now... that's nature! Eric Brown

From : Evan Zucker <ez@AbacusTotality.com>

At 02:59 PM 4/26/02, you wrote: You mention your dream of a tornado and totality in the same frame of a photo. In Feb 1998, we viewed the eclipse from Antigua.... with Montserrat spewing molten lava in the background!!! Now... that's nature!

That reminds me of an excellent photo from Iceland of an active lava flow with an aurora in the background:

<http://antwrp.gsfc.nasa.gov/apod/ap020121.html>
<http://www.iww.is/art/shs/pages/thumbs.html>

National Geographic includes this photo as one of the 100 best photos it ever published and offers it as a desktop wallpaper image at <http://www.nationalgeographic.com/ngm/100best/wallpaper09.html>.

Other beautiful Iceland aurora photos: <http://www.iww.is/art/shs/pages/thumbs.html>

And, yes, there is an eclipse connection: I was stationed in Iceland for 13 months with the U.S. Air Force from November 1984 through December 1985. I knew about the then-forthcoming total eclipse just 10 months later in October 1986, which would be visible only from the ocean just off-shore from Iceland.

I was hoping to arrange a chance to get back to Iceland to try to observe it. Alas, the Air Force was unable to ac-

(Continued on page 44)

SETalk

commodate me, and even the partial phase was not visible at my new duty station in Germany. As many of you know, Glenn Schneider and his team were probably the only people in the world to observe it. http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_86/ECLIPSE_86.html - EVAN

From : KCStarguy@aol.com

Aboard the Galaxy in 1998 we went by the Monsterrat volcano and island before settling down to observe the eclipse nearby. I have video of lava spewing into the ocean.

While we did not see the eclipse above the island, it was quite a memorable sight.

Meanwhile , has an aurora or fireball ever been sighted during a total eclipse?

From : Evan Zucker <ez@AbacusTotality.com>

At 08:10 PM 4/26/02, you wrote: Meanwhile , has an aurora or fireball ever been sighted during a total eclipse?

I haven't heard of any. The sky has to be pretty dark to see an aurora, which is why I won't see any in Alaska this August. The sky might be just dark enough during a dark total eclipse, but you'd have to be observing somewhere pretty far north unless there just happened to be a big solar storm that day.

I saw the aurora many times in Iceland. Although it was often cloudy, when I did night flights I'd often see them above the clouds. They can be very disorienting to a pilot. -- EVAN

From : "Olivier \"Klipsi\" Staiger" <klipsi@bluewin.ch>

Hi Eric, thanks for the note. as you certainly saw, the article has a few mistakes. e.g. the 2012 eclipse in the Texas panhandle is annular, not total. no big deal... Olivier

From : "Richard Monk" <richard.i.monk@ntlworld.com>

Who could forget the spectacle of the TSE in 1994 as observed from the Altiplano in northern Chile with a volcano puffing away in the background!

From : Egan Mark <astrophoto@yahoo.com>

Hey Folks-- Aurora during a TSE: hmmmm, haven't I seen this topic before? Was it here? Or maybe it was somewhere else. Good to see it again.

I guess there's a slight chance in Antarctica 2003, but solar max will be winding down by then. The sun won't be real active for the 2008 eclipse in the far north, either.

And since eclipses near the poles are not usually very long, I would guess that "polar" totalities are not all that dark (although I know that length of totality isn't the only factor that determines darkness)

Fireball: I know of no reports of any-- but I'm sure, that somewhere in the history of the world, that one has been seen during totality. We may never know about it....

but looking to the future, it seems like our best chances are the following:

December 14, 2020: eclipse near the peak of the Geminid Meteor Shower. But totality is only about 2 minutes, and the radiant point of the meteor shower is well below the horizon, because the eclipse is in the Southern Hemisphere.

August 12, 2045: possibly our best chance to see a meteor during totality for quite a while, because it's around the peak of the Perseid meteor shower. Totality on or near the centerline will last anywhere from about 3 1/2 to 6 minutes-- and the radiant point is either above or not too far below the horizon.

I'll mark my calendar.

But who's going to bother scanning the skies for meteors during that (or any other) totality? Perhaps low-light video cameras would help?

Speaking of natural events, has anyone seen or know of atmospheric events during eclipses (rainbows, ice-crystal halos) (solar or lunar). I know of Glenn Schneider's report of a rainbow at the 1977 eclipse; are there any others?

Of course Antarctica has had some of the best ice-crystal halo displays ever recorded; this would be one more thing for observers going there in 2003 to look for. later! Mark Egan

From : Egan Mark <astrophoto@yahoo.com>

> Hi Eric, thanks for the note. as you certainly saw, the article has a few mistakes. e.g. the 2012 eclipse in the Texas panhandle is annular, not total. no big deal...

The 2012 eclipse: hmm, that's gonna be a tough choice!: do I view it from: the coast of California, Lassen Volcanic National Park, Lake Tahoe, Zion National Park, Bryce Canyon National Park, Monument Valley, The Grand Canyon, Canyon de Chelly National Monument,

(Continued on page 45)

SETalk

Northern New Mexico

All of these very scenic places lie within the path of this eclipse

or.... view it from the panhandle of Texas and try for a tornado during annularity ... decisions, decisions!

(and since it's "only" (wink, wink) an annular, weather isn't quite as much of a factor...

great article, btw.... congrats..... see you in Houston in a few weeks.

From : Vic & Jen Winter <webmaster@icstars.com>

During the TSE of Aug 11, 1999, a friend of ours, Curtis Hruska imaged a "something" very near the limb of the Sun moments after third contact within the frame of his video that he speculated to be a Perseid Bolide. There was some speculation at that time about the possibility that a Perseid would be visible after 3rd contact, or if the sky would already have been too bright. It seems that I remember a website which focused on meteors / bolides during totality that referenced other examples that fall or in the spring of 2000. Perhaps a group member can remember or clarify this reference.

From : Evan Zucker<ez@AbacusTotality.com>

That incredible! Nearly all of those parks and sites are relatively small. I never would have imagined they all would be within the path of annularity. I've been to every one of the except Canyon de Chelly -- I've never been very interested in archaeological sites -- and my initial reaction is that Monument Valley might yield the most impressive photos, especially since the sun will be so low in the sky. Of course, it's pretty tough to get landscape properly exposed in the same image as a partially eclipsed sun, but that may not hold true for an eclipse so close to sunset.

From : FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov>

> During the TSE of Aug 11, 1999, a friend of ours, Curtis Hruska imaged a "something" very near the limb of the Sun moments after third contact within the frame of his video that he speculated to be a Perseid Bolide. There was some speculation at that time about the possibility that a Perseid would be visible after 3rd contact, or if the sky would already have been too bright.

I was the expedition leader of this eclipse trip and I reviewed Curtis' video in Turkey. Alas, the so-called meteors are actually pesky little flies just buzzing a foot or two above our heads. The flies are out of focus because they were so close to us. None were seen during totality - they only appear before

totality begins and after totality ends (i.e. - during the diamond ring effect), when the flies are strongly rim-lit by the crescent Sun. I also caught these mystery "meteors" on my own video several meters away from Curtis. Although we were videotaping the same part of the sky simultaneously, we captured different meteors at different instances because they were just inches above our heads instead of 60-70 miles high!

By the way, I caught more of these "meteors" on my 2001 eclipse video from Africa. None during totality, but quite a few during the diamond rings when I had no solar filter on the camcorder.

I know of no documented observations of meteors or fireballs during totality. Such an observation is certainly possible, but very unlikely. - Fred Espenak

From : Rybrks1@cs.com

Mar 1997 TSE near Cita, Siberia

Our group saw the Hale-Bopp comet mideclipse near the zenith.

We were roughly midway between the northern limit than the centerline.

Went from about minus 5 F down to minus 19F. Ray Brooks

From : "Patrick Poitevin" <patrick_poitevin@hotmail.com>

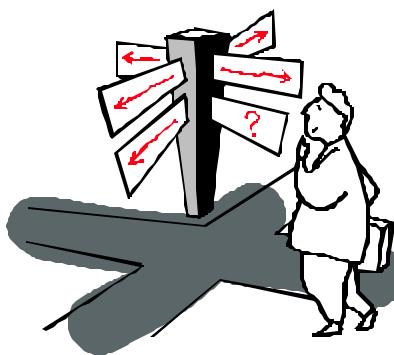
> Meanwhile , has an aurora or fireball ever been sighted during a total eclipse?

In following issues of the Solar Eclipse Newsletter where contributions on Aurora during total solar eclipses.

Please have a look:

Vol Issue Year/
Mth Page

3	8	1998	08
Aurora	Borealis		
during eclipse 3			
4	6	1999	06
Aurora			
during eclipse 26			



SETalk

Joseph Cali, Biography Australia



Joseph Cali, works as a mass spectrometrist in an environmental science research unit at the Australian National University in Canberra, Australia. The group conducts research into global climate change, oceanography and the history of vegetation change on Earth over the Quaternary period, the past million years.

Joseph is a very keen photographer. He began taking photographs more than twenty years ago whilst growing up as a teenager in Brisbane in the late 1970s. He moved to Canberra in

1985 and at the same time became interested in adventure activities such as sailing, bushwalking, cross-country skiing and mountaineering that complemented his photographic interests in nature and landscape photography. Whilst inspired by wilderness, he is interested in all forms and genres of photomedia art. He teaches photography workshops at PhotoAccess Inc, a community photographic art centre based in Canberra.

Over the past decade, he has travelled extensively in Australia and overseas. He has exhibited prints in local galleries and nationally in competitions where he has had some success. Joseph's interest in solar eclipses began when he was eleven years old and saw his first partial solar eclipse. His interest in astronomy grew and during the late seventies and

*About Joseph Cali
Contact
Illustrative
Travel
Workshops
Articles
Eclipses
Nature
People
Momo*



he built his first telescope a 6" f7 Newtonian reflector. The first time he saw a partial eclipse with that telescope was in 1983. It is interesting to note that the eclipse on June 11, 1983 was part of the same Saros series as the Kapini eclipse 18 years later. Thus the Kapini eclipse marked his first saros repeat, ie the first saros cycle where he has seen more than one eclipse in the cycle. He always wanted to see a total eclipse of the Sun but had to wait until 11 years later he saw his first total eclipse in 1994 at Seravuyo, Bolivia. Earlier that year, he observed his first central eclipse, an annular eclipse through cloud/fog that formed at maximum eclipse over Niagara falls near Buffalo City, New York State.

Once again he waited awhile for another chance to meet the lunar shadow. Working on a short term contract in North America in February 1998 he was unable to take leave to watch the total eclipse in Venezuela. In 1999, he again doubled up watching the annular eclipse from Geraldton Australia in February and then saw the total eclipse in August from Bucharest Romania through a small gap in the clouds. Most observers in Bucharest missed out due to thick cloud.

The eclipse at Kapini was his fifth central eclipse and third total. The magic of total eclipses has not worn off yet. He is planning to travel and observe future eclipses around the world and is especially looking forward to seeing seven total eclipses at home in Australia over the next few decades.

See as well picture in SENL:

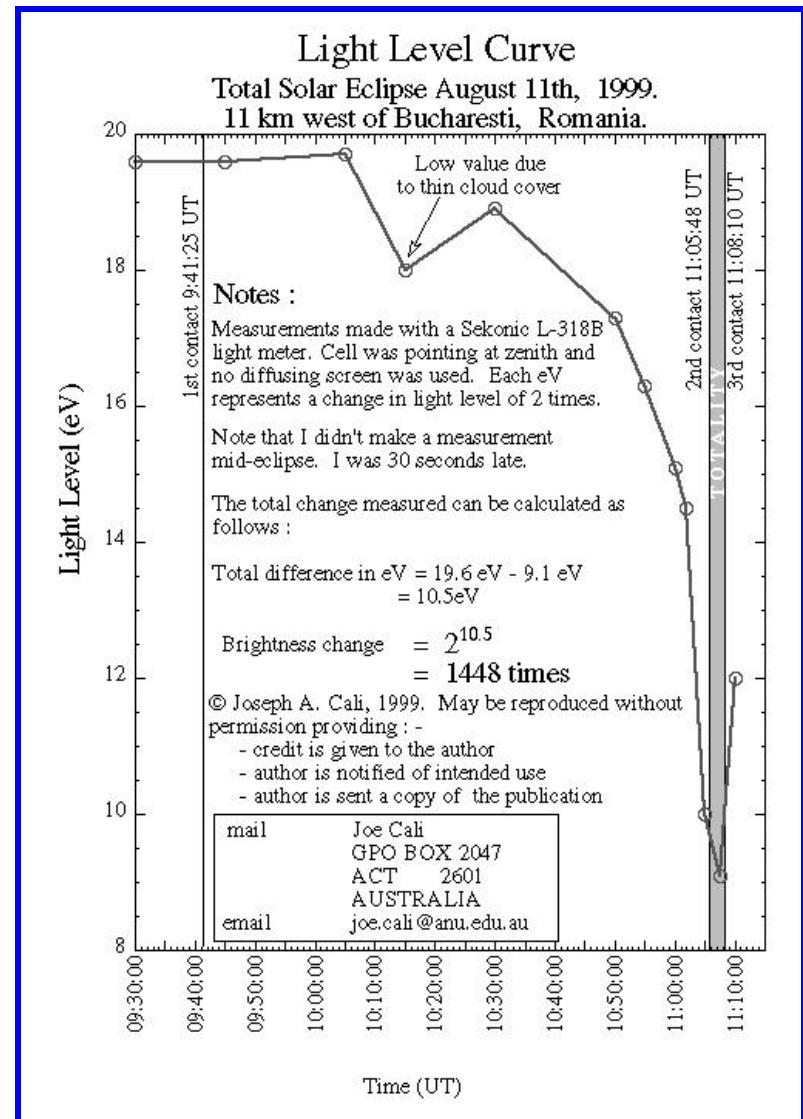
6 7 2001 07 Sa Picture Australia,
France and Sweden in Lusaka 20 h t t p : / /
sunearth.gsfc.nasa.gov/eclipse/SENL/SENL200107A.pdf

WebPages Joe Cali: <http://joecali.members.easyspace.com>

SETalk



by Joe Cali



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Web Site for 2002 Annular Eclipse

From : FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov> To : SOLAR ECLIPSES @ A U L A . C O M , eclipse@hydra.carleton.ca Date : Thu, 4 Apr 2002 13:56:38 -0400

Greetings Eclipse Enthusiasts - On June 10th, an eclipse of the Sun will be visible from eastern Asia, the Pacific Ocean and much of North America. From some locations, more than 99% of the Sun's disk will be hidden by the Moon. The eclipse will be partial for most observers throughout this region including the United States (except the East Coast), Canada, and Mexico.

I have just launched a new web page dedicated to the June 10 eclipse. It includes new maps of eclipse visibility in the USA as well as the world. There are four lists giving local circumstances for the eclipse from approximately 500 cit-

ies. Each city is a link which will display a GIF showing the appearance of the eclipse at maximum from that location.

The URL of the 2002 Annular Eclipse web page is: <http://sunearth.gsfc.nasa.gov/ASE2002/ASE2002.html>

Please send all comments, corrections or bad links to me at: espenak@gsfc.nasa.gov. Clear skies! Fred Espenak

From : FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov>

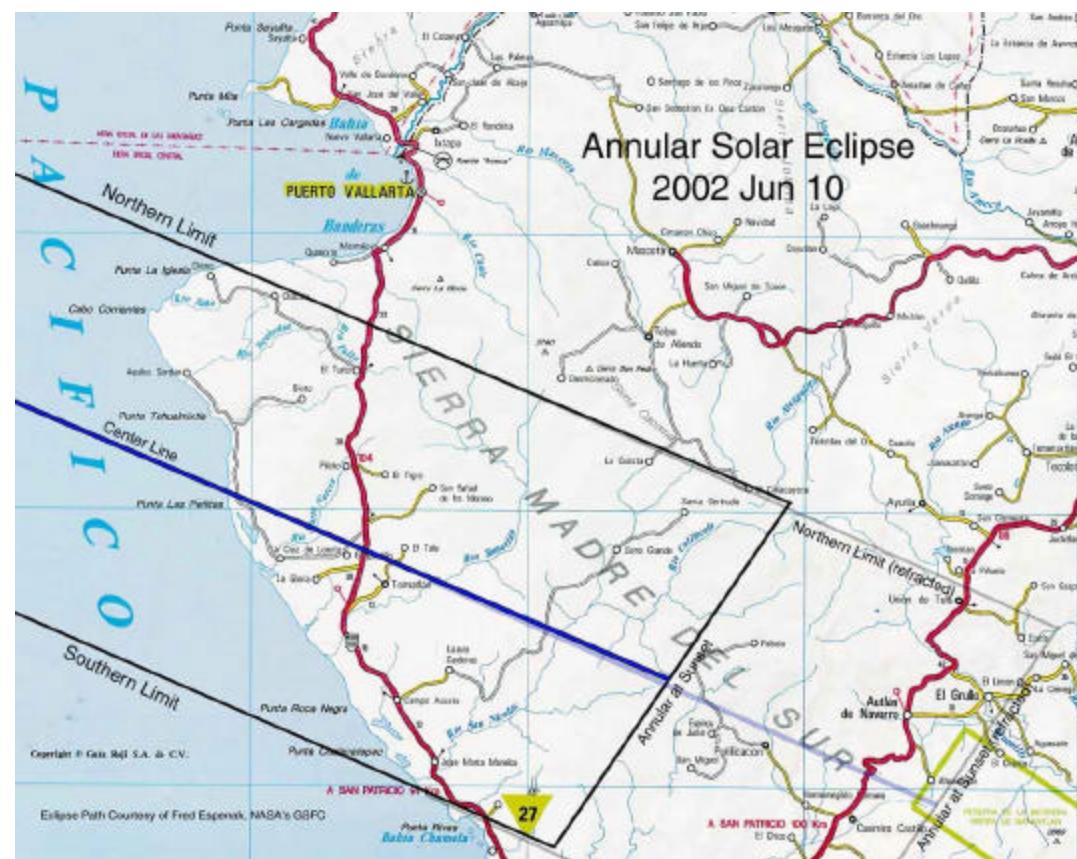
I thank Donald Watrous, Michael Gill, and Jay Pasachoff for pointing out the typo in the 2002 Annular Eclipse web site.

I must have tested all the links except for the one leading to the site!

The correct address is: <http://sunearth.gsfc.nasa.gov/eclipse/ASE2002/ASE2002.html> Thanks, Fred Espenak

From : Donald Watrous <watrous@cs.rutgers.edu>

That would be <http://sunearth.gsfc.nasa.gov/eclipse/ASE2002/ASE2002.html> Don



A
S
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2**Hotelito Desconocido, Puerto Vallarta**

From : Jay.M.Pasachoff@williams.edu To : solareclipses@aula.com Date : Mon, 29 Apr 2002 15:09:26 -0400

I gather that it may be difficult to get back from the band of annularity after sunset on June 10 to Puerto Vallarta, and that the Hotelito Desconocido is within annularity. But it is very, very expensive. \$538 per night for a double room. Is anybody planning to go there or does anybody want to consider sharing a room with me there for one or two nights?

The single rate is even more prohibitive, at \$430 per night for one person. Meals are included.

Does anybody know how useful it would be to be there instead of just in PV itself, where the hotel room is closer to \$100 per night? Jay Pasachoff

From : Pierre Arpin <parpin@videotron.ca>

This hotel is certainly for millionaire and I'm not one of them yet.

I will be in PV on june 8th at the Los Pelicanos hotel and I rent a car to get on center line. You will notice my presence by my native Quebec flag I carry to every eclipse. See you there.

From : Scott Bowers <hdemann@yahoo.com>

I was in this area last December. Let me give you a "site review"

First of all, the map of the eclipse site on the NASA page is very nice, but the roads are not very well mapped. I cannot say much for the roads in this part of Mexico except that they are very bumpy once you get off the main road. I was entirely unable to find an accurate map, and I had to ask several times for directions to the very nice beach. The roads are only a step or two above the ones in Zambia.

There are some small hotels on the main route South from Vallarta. The first one (about an hour south of PV) is in El Tuito. I stayed there, and it can be compared to a typical \$15 hotel room in Mexico (except that it costs \$30.) It is clean and not a bad place to stay, but is very lacking in any frills. Other than that, there are some resorts scattered along starting about an hour south of El Tuito. These are more expensive and presumably "nicer." Expect "local style" restaurants if any at all.

There is another town that has a paved road (and possibly a hotel or two) just south of El Tuito. It is La Gloria. Very sleepy farm town.

If you are considering the Hotel Descondio, beware, it is very much off the beaten path. I had to drive through two rivers to get near it. It is a very nice area though. Just don't expect to move very quickly once you get off the main road. I was there in the dry season, so I cannot vouch for the road in the rainy season. I made the loop from El Tuito to La Gloria in about three hours in a VW bug, but if you are concerned about getting stuck, you may want to bring a 4WD. I think that the Hotel Descondio will pick you up from the Aeropuerto Vallarta if you are staying, though.

I think that there are a couple of small hotels near the center line as well. Unfortunately, I could not begin to give directions or a review. If you are up to trying it, be sure that someone can speak a little Spanish. The area west of the main road is a-1 booger country. No phones. No running water.

None of this is to knock the area. It is very beautiful in the Cabo Corrientes. The people are very friendly and helpful. But, it is a world away from the tourist infrastructure that you will find in Puerto Vallarta.

I plan on bringing a tent myself. From, Scott

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Eclipse doom

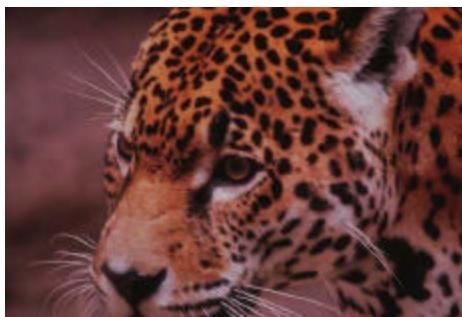
From : "Olivier \"Klipsi\" Staiger" <klipsi@bluewin.ch> To : <SOLARECLIPSES@AULA.COM> Date : Sat, 6 Apr 2002 06:37:57 +0200

>No wonder people associated eclipses with impending doom.

however , right now, look at Angola: we had the 2001 TSE and will have the 2002 TSE both in Angola. And what happens in Angola? civil war ends, peace comes back ! of course, the eclipses meant doom for the rebels' leader who was killed a few weeks ago . Klipsi

From : " 7 6 6 3 0 , 2 2 0 6 " <76630.2206@compuserve.com>

Actually, the rebel leader was the good guy. We can cite Mugabe's reelection in Zimbabwe. Also, South Africa has become a crime wave, although we who make it there in December ought to be left alone so long as we remain vigilant of our surroundings and ourselves. --Robert B Slobins



SOUTH AUSTRALIA ECLIPSE RAIL TOUR 2002

From : "Odille Esmonde-Morgan & Warwick Lawson" <analog6@ozemail.com.au> To : <SOLARECLIPSES@AULA.COM> Date : Mon, 8 Apr 2002 00:02:37 +1000

Dear All, More on the proposed Eclipse Tour with our Rail Society which I have talked of before here. (It takes forever to get a committee to agree to anything, especially when they are all volunteers !!)

The proposal is now much more definite and we have costings. It would be a five day trip from Canberra and return. We would be picking up in Sydney, then travelling the inland route via Broken Hill. (Unfortunately this means my fondly envisaged side trips to Barossa or Clare Valley wineries are NOT going to happen. Drat!) The train would terminate at Pimba at about 9 am the morning of the eclipse and coached would take you to the eclipse viewing site as close to the centreline as we can get. We are working on some sort of shadehouse (4 poles and a light cloth roof) to give some protection during the heat of the day. People who wanted to view from the edge of the path can be dropped off and picked up on the way back, but you'll have to bring a big hat and your own sunshade.

A packed lunch would be provided and some snacks to tide you over for the long hot day. As the totality is not until 19.47 local time, with sunset at 20.17, we would not get back to the train until late. Supper would be provided and nibbles and drinks for those who want to stay up for eclipse post-mortems and memories as we begin our journey back east.

So, we would depart Canberra on the afternoon of 2 December 2002, picking up in Sydney later that evening, travel until early Eclipse morning 4/12/2002, then immediately after the eclipse travel back east. The reason for it being only the five days necessary for travel and eclipse viewing is due to other commitments for our rolling stock, and the difficulty of getting paths on the National Rail Lines. There is only a single line crossing from SA to WA, and it is hard to get permission to run a tourist train on it. Freight and the regular (thrice weekly) Sydney to Perth Indian Pacific get absolute priority. We are lucky to get permission to use the line at ll.

Cost will be \$2500 Australian. This includes all your meals on board and the coach transfers to see the eclipse. Our meals are prepared on board by our executive chef and are restaurant standard. Some examples of recent menu choices from our Railroad Restaurant: Entrées - Warm Peperette Kangaroo Salad, or Fettuccine with Prawns (in a Garlic, Chilli & cream sauce). Mains - (all served with Scudalia potatoes and vegetables in season) Chicken Fantasia (oven roasted chicken breast stuffed with smoked salmon, cream cheese and caramelised onions); or Beef Forestierre (sirloin of prime beef roasted whole then thick sliced and topped with a mushroom, bacon and tomato jus). Desserts - Freshly baked Apple Strudel (served with Ice Cream); or Fruit Surprise (Cointreau marinated cherries, berries and frozen yoghurt).

As well as your air conditioned sleeper accommodation, there will be sitting cars and a lounge or open car with chairs for discussions, talks about eclipses and other subjects of interest etc.

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Out Tours Committee is very reluctant to place any reliance on getting overseas people to commit to our tours, they like to rely on local patronage (we have been 'burnt' in the past). However, this is the firm proposal going before Tours Committee Tuesday night (2 days away) and then on to Council for approval. Anyone who can email me a FIRM expression of interest should do so to give this tour the maximum chance of happening.

For overseas visitors, there are a few points to remember - for ALL people travelling in any manner to the area..

1. It is going to be fearsomely HOT, and it may be windy (which means dust).
2. There will very likely be snakes. This means long pants and boots - no sandals or shorts. All Australian snakes in the area we are travelling to are poisonous!
3. You will need cotton, loose fitting and all covering clothes. You must cover your head, preferably with a wide brimmed hat or other head covering suitable for extreme heat. Covering for your equipment would be wise.
4. You will need to carry some personal supply of water on your person AT ALL TIMES. The Outback really can kill you.
5. Sunscreen and insect repellent will be necessary.

Regards to all and happy eclipsing, Odille Esmonde-Morgan Canberra, Australia analog6@ozemail.com.au analog6.members.easyspace.com

From : "Odille Esmonde-Morgan & Warwick Lawson" <analog6@ozemail.com.au>

Sorry, all - in my recent message somehow I typed \$2500 Australian - should be \$2200. Also, I have finally been able to gain access to update my web page (I have had trouble since before Christmas - could not log on) so there is a second update page with more info and some extra maps). Odille Esmonde-Morgan Canberra, Australia

Just how crowded will it be?

From : Geoff <gsims@iprimus.com.au> To : solareclipses@Aula.com Date : Fri, 19 Apr 2002 17:28:53 +1000

Hi everyone,I've never been to an eclipse before, but I'm heading to Sth Australia in December for the TSE.

Now I know they'll be thousands of people (I saw an estimate for 25,000), but what will this actually be like, in say, Ceduna? What I mean is, will there literally just be people EVERYWHERE?

I'm interested in finding out just how early people get to non-booked publicly accessibly viewing sites? Such as carparks, beaches, etc. Obviously you don't get there 5 mins before the eclipse, but how early do people get there? 1 hr? 1 day? More than 1 day??

I really just want to get a good feel for what it will be like, so I know what to expect and how early to get my spot, etc. Thanks, Geoff.

From : Fraser Farrell <fraser@trilobites.com.au>

Geoff, Quick visual picture for you. Ceduna's normal population is about 3500.

Now think of an AFL Grand Final between (say) Essendon and the Swans. Or Adelaide Oval during the deciding game for the Ashes. Or the Sydney foreshore for the new year's eve fireworks. Or your local shopping mall just before christmas.

Starting to get the idea? Last I heard, there were plans to set up tent cities on the Ceduna racecourse and other open spaces there. Possibly with help from the Army. Because the eclipse occurs after most of the wheat has been harvested, I would also not be surprised to see enterprising farmers "renting" their paddocks as viewing/camping areas. There will also be a lot of extra boats in the waters off Ceduna.

Where totality crosses the Outback highways I'm expecting there will be scenes reminiscent of seabird colonies.

The SA Tourism Commission is rumoured to be planning for 250,000 visitors from interstate & overseas. SA itself has a popula-

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tion of about 1.4 million people and between them they have about 650,000 vehicles. A substantial percentage of SA people willingly drive hundreds of kilometresto an "interesting" event.

Consequently, nobody can predict the actual numbers for anywhere for the day. But it's definitely going to be huge. So BYO _everything_ cheers, Fraser Farrell

From : Assoc Prof J R Huddle <huddle@usna.edu>

Geoff asked, in part, how early he should get to his eclipse observing site.

The answer depends on what you plan to do. If you're going to do photography, etc., you should practice setting your toys up. Run through the set-up procedure several times, and once you get good at it, time how long it takes you, and make reasonably detailed written notes. (Some eclipse veterans record their notes on audiotape. Do whatever works best FOR YOU.) Leave yourself plenty of time in case something goes wrong; the SEML archive is full of notes about "eclipse bloopers." Schedule some time for hanging around talking to people you meet. If they don't look too busy, ask if you can sneak a peek through their telescopes; most helioeccentrics are happy to share their stuff. (But if a guy looks really intense about his work, and second contact is minutes away, please don't interrupt him.)

If you're not taking any equipment except a pair of binox (don't forget your solar filters), I'd say plan on getting to your desired location at least an hour before first contact. You might want to have something to eat and drink while you are experiencing the crowd's reactions leading up to the beginning of the eclipse.

If this is your first eclipse, I hope you will not bring a lot of equipment. Bring eclipse glasses or other safe solar filters, and binoculars with filters if you have them. But totality will not be long in Ceduna, so forget the cameras and just enjoy the experience. Don't forget, this is supposed to be FUN, and the most fun is experiencing the event with your own human senses. If you do bring cameras, etc, be prepared to quit them instantly if something goes wrong. Please learn from the mistakes that so many of us have made, especially for this short eclipse. LOOK AT THE ECLIPSE WITH JUST YOUR TWO HUMAN EYES! Jim Huddle

From : "Dale Ireland" <direland@drdale.com>

Hi, I have never been to an eclipse where I was forced to stand shoulder to shoulder in a crowd. The small area covered by the eclipse path is still immense when compared to the area covered by even a million people. You can choose spots where you can stand shoulder to shoulder in a crowd, sometimes it is a lot of fun, but it is always easy to find plenty of room. The eclipse across Europe was a good example. The problem in SA will be airports and last minute transportation as it is with most eclipses. Dale

From : Mike Simmons <msimm@ucla.edu>

I agree. I've been in groups, in public locations and in a spot 30 or 40 miles from the next closest person (outside of our small group). People tend to crowd together for some reason. I've moved from such areas a little and been all alone. There's plenty of room off the beaten path. You still have to go through the same airports and travel some of the same roads as the other people, though. Mike Simmons

From : Pierre Arpin <parpin@videotron.ca>

> I agree. I've been in groups, in public locations and in a spot 30 or 40 miles from the next closest person (outside of our small group). People tend to crowd together for some reason. I've moved from such areas a little and been all alone. There's plenty of room off the beaten path. You still have to go through the same airports and travel some of the same roads as the other people, though.

We were 5000 amateur astronomers in Noyon, France to observe the 1999 eclipse. Unfortunately we were clouded out. :- (Eclipses chasers like to be in group maybe for the same reason you go to a rock festival.

A total solar eclipse is almost like a scientific Woodstock.

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It's much more enjoyable when you hear a crowd cheering at the begining of totality and have a recorded sound-track of that moment.

From : "76630,2206" <76630.2206@compuserve.com>

In 1991, the Mexicans expected that southern Baja California would be packed. It turned out that even last-minute accommodations were available. Also, traffic was normal on eclipse day. Indeed, many natives were going about their business as if 11 July 1991 were like any other day.

Except for trips into challenging areas in Africa and South America with tour groups, there is plenty of room inside of eclipse tracks. --Robert B Slobins

From : Michael Gill <eclipsechaser@yahoo.com>

Geoff, Regarding the time you arrive at the eclipse site: I won't duplicate Jim Huddle's post, I'll just say that I agree with him.

Regarding the crowding at eclipse sites: I am sending you this e-mail from a city with a population that exceeds that of South Australia - a city that could fit entirely inside the eclipse trackwith room to spare.

Despite that, as I write this there is no human being within 20 metres from me. If there were an eclipse happening here, I could seek out a spot that gave me solitude with very little effort and not have someone bump my tripod at the critical moment.

In June 2001, I observed the TSE in the Lower Zambezi National Park. The park's area (~4,800sq. km) meant that all the eclipse-chasers who went to Zambia (+20,000) could have had several hectares apiece. Of course, the infrastructure would have been considerably stressed, but the point I'm making is that if it is solitude you want, you can get it.

As ever, a total eclipse means that flights, lodging, car hire etc. are heavily booked before and after the TSE. Also, you should allow contingencies for traffic bottlenecks in your travel schedule. But, even if hordes of people travel to this eclipse you do need to watch totality with others breathing down your neck if you do not want to.

Crowds do assemble for TSEs at 'prime spots' like parks, beaches, city squares etc. and the reaction of others can be interesting to observe. However, watching television footage of the 1999 TSE, I was struck by the number of camera flashes that went off during totality at a number of places. If you are watching with a large crowd (thousands) then I feel its inevitable that there will be some there whosebehaviour will detract from the event.

For this reason, I prefer to observe TSEs within a small group of like-minded people. That way I get toenjoy social interaction with fellow eclipse-chasers and I know they will not do anything to spoil the spectacle. Michael Gill

From : "Joseph Cali" <joe_cali@hotmail.com>

Mike, Ceduna may only have a population of 3500 but the town is based on a irregular grid of roads, has tens of km's of beach and plenty of inland roads and a highway. You may have difficulty finding a parking spot in some locations but pack your lunch and drink in a backpack with a shade tent or beach umbrella and walk 100 metres off the road I I'm sure you'll be 100 metres from the nearest people. Remember that you'll only lose a second or two of totality from being five km off the centreline.

For example : Merghiny on the highway before Ceduna is about 8km off the centreline but only loses about 2 seconds of totality. There is about 20 km of highway between Merghiny and Ceduna and many tens of km's of roads either side. While all the plebs are sitting in traffic waiting to get into Ceduna itself, you can have your car packed with food, drink and enough spare fuel to get you back the 450km to Port Augusta (Can you imagine the queues at the half dozen gas stations in Ceduna that day) and save yourself sitting in traffic for hours just to stand in the crowd.

The same totality duration applies to Cape Vivionne and southern Bosquanet bay - a loss of a few seconds. But just keep this between us and don't tell anyone else :-) Good observing, Joe Cali

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From : Fraser Farrell <fraser@trilobytes.com.au>

Your city must be densely populated, if it can fit over 1.4 million people into a 36 km wide circle. The only Australian cities of comparable dimensions are Darwin and Canberra; and their combined population is about 0.5 million. Admittedly we do spread ourselves out more than most countries....

The comparison between city crowding and highway crowding is not valid in this case, for several reasons:

- Geographically speaking, a city is a 2-dimensional object, whereas a road is a 1-dimensional object. Therefore an X km diameter city area can hold vastly more of anything than an X km long piece of road.
- Certainly people can move off the actual highways but I am confident most will not go far. In many places a conventional vehicle will get bogged in sand or dust if it leaves the highway. Or get a rock through its engine. Or get trapped by metre-high saltbushes. Or get blocked by some selfish twit who has simply stopped his car on the one available track.
- If it has rained during the days preceding the eclipse, then any driving off bitumen roads is likely to result in you getting bogged. This time in mud...
- You could walk away from the highways to get a little solitude. But how far are you prepared to walk in 30 to 40 C (shade) heat, tormented by millions of flies, worrying about encountering venomous snakes, and carrying all your observing equipment and water and shade...?
- In addition the fences of the Woomera Prohibited Area inhibit movement to the west of the Woomera-Roxby Downs road, and to the north of the Woomera-Glendambo road. The fences are not high; but do mind the barbed wire as you climb over. Also do not complain if you are arrested and detained for trespassing on a military facility. They are trying to protect you. The Area is sometimes used for exercises with live ammunition, bombs, mines, missiles etc. Although no shooting should be happening during eclipse week there may be unexploded stuff lying around.
- The Weekend Rambo types will drive their plastic four-wheel-drives well away from the highway, which will thin the main crowds down a bit. But do you want people like that spoiling your eclipse solitude with their loutish behaviour and dust? And they do attract misfortune; I've rescued many of them from the consequences of their own stupidity. Or in two instances, helped recover the bodies...

Given all of the foregoing I expect 99+ percent of the Outback crowds to stay within fifty metres of the bitumen. cheers,
Fraser Farrell

From : "Nives Schabot" <nives@iafrica.com>

For all of you worried about the crowds, I can offer you a game ranch, north-west of the Kruger National Park for your exclusive use during the eclipse. It may be a good opportunity to visit this country and experience the eclipse at the same time. We are a world class facility in the African Bush, directly on the path of totality. We arrange for all your requirements including transportation, meals, drinks, fully guided bush safari in open vehicles, prime viewing of the eclipse and any additional requests you may have. For anyone interested, please mail me at gordon@capescout.com Gordon Turner

From : Michael Gill <eclipsechaser@yahoo.com>

Hi Fraser, I note your points about heat and flies. I found in July 1991 in Baja how tiring it can be spending long hours in the hot Sun waiting for an eclipse and on February 16th 1999 I found out first hand how numerous and aggressive the flies can be in Australia.

However, in all of the eclipses that I have travelled to (December 4th will be my sixteenth central, eleventh total) although there have been crowds at airports, heavy traffic, fully booked hotels, difficulties with car hire, restaurant reservations etc. etc. I have never had any problem with crowds at the eclipse site. Not even at the most hyped eclipse or on the narrowest eclipse track have I come close to having my tripod sent crashing at the crucial moment.

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Geoff's question is quite common amongst people who are heading to their first eclipse. Prior to the 1999 TSE I was asked on a few occasions how crowded it might be at that eclipse. I think people look at small-scale eclipse maps, note how thin the track of totality looks, hear reports on the numbers intending to travel, perhaps see archive media footage of crowded city squares at previous TSEs and then worry if there will be room to swing a cat.

Well, there is. In fact you could swing a very big cat.

If you look at aerial photographs of some very big non-eclipse gatherings like Woodstock (from within which eclipse photography would be very challenging), you can see that less crowded areas are a short walk away.

As an example, take a look at a picture of Washington D.C. during the 'Million Man March' (it was estimated by Boston University using photographs taken by the National Park Service that 837,000 people were in attendance - about half the population of South Australia): <http://www.bu.edu/remotesensing/Research/MMM/NationalMall.jpg>

Anybody over at RFK Stadium (in the background) wouldn't be able to tell it was happening.

I can hardly believe that Ceduna on a Wednesday will attract such a number, but even if it does, eclipse-chasers with a crowd aversion can travel a short distance, be comfortably inside the track of totality and find more room for themselves.

So, to any 'newbies' heading to Australia I would say don't worry about the density of the crowd. Fraser pointed out plenty of things you should worry about. Treat the Outback with the respect it deserves and don't become a statistic. If you need space for long focal length photography or some complicated programme you can find it. Just exercise some common sense and use a little foresight. When selecting your site, in addition to the obvious points about where will the Sun be at totality, where will the umbra be coming from/heading to etc. try and assess the limitations (presence of street lights, likelihood of boisterous gatherings) and decide according to your own priorities. Just get there early. Michael Gill

From : Mike Simmons <msimm@ucla.edu>

I agree with Michael's comments about crowds. I'm one that prefers to avoid crowds in almost all circumstances, eclipse-related and otherwise.

The streets were jammed in the eclipse path during our first total eclipse in 1979. This was the first in the USA in 70 years and the last for a long time so there was a lot of interest. As you can see in the picture at the top of the page at <http://webpages.charter.net/msimm/Washington/Report.html>, a short drive down a rural road -- parallel to the eclipse path -- put us in an area with no one around. We heard shouts from one carload of spectators down the road a bit but otherwise didn't see anyone. A nearby observatory was packed and the small town nearby was jammed.

In 1999 we were in Iran where there was also tremendous interest and lots of visitors though I doubt the human density was anything like in Europe. But on the morning of the eclipse we were on a hill in the middle of a large valley with an unbelievable view of the shadow's path through the surrounding Zagros Mountains. This was also a famous historical site with structures from two different eras going back 3000 years. We were the only people there, as you can see in the picture overlooking the parking area at http://webpages.charter.net/msimm/Iran/Eclipse99/Eclipse_pictures/Eclipse5.htm with nothing but our minibus. We went on to a planned location where we met others so I can't say for sure that there weren't any eclipse viewers there a few hours later but the valley seemed deserted and the site wasn't near a town that would have locals making last-minute trips to the hill. It was within a few hours drive of several towns, though, and readily accessible for those driving into the eclipse path. The town we went to had a communications center on a hill where we observed with a lot of people. Though the road up the hill was crowded and parking sparse, the hilltop gave us all plenty of room to spread out. The sports complex in the town below where most people went was a different story. I'm sure the surrounding areas outside the town were empty. The eclipse was total in Esfahan, Iran's second largest city, and that's where most people and the media went. And most of them were crowded along the river and into the main square. It was wall-to-wall people there but outside the city was probably almost empty except those spots that were again chosen by crowds who apparently wanted facilities at hand.

My experience indicates that if you're looking for a crowd you have to go to specific places. Finding a lonely spot just means not

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going to those places. I've even just walked a few hundred meters from a crowd of telescopes and been all alone.

And for those that really want to get away from crowds, here's our observing site for the 1994 eclipse: <http://webpages.charter.net/msimm/Bolivia/Bolivia7.htm>. Actually there were several sites as the idea was to get to the top of the 6500 meter (21,500 feet) mountain but our group had people ranging from just above base camp to the top for various reason more interesting to mountaineers than eclipse chasers. My wife was many miles away in the crowded area where tourists had been bussed into and could see our mountain. As Fraser pointed out, you might need to be more prepared for those times that you venture off the beaten track.<g> Mike Simmons

From : Evan Zucker <ez@AbacusTotality.com>

> The streets were jammed in the eclipse path during our first total eclipse in 1979. This was the first in the USA in 70 years and the last for a long time so there was a lot of interest.

I believe it was the first in 9 years. There were many other total eclipses in the continental U.S. since 1909, including 1918, 1923, 1925, 1945, 1954, 1959, 1963, and 1970.

From : Mike Simmons <msimm@ucla.edu>

Man, what was I thinking? Of course, there were many others in that time period. It was the first in that area (Washington state) in 60 years (not 70) so I guess I crossed some mental circuits (I think I've lost a few through the years as well). I was thinking of the 1918 eclipse that had crossed the same area. It was the last in the continental US for another -- correct me if I'm wrong, Evan<g> -- 36 years and it got a lot of interest because of that. Mike Simmons

From : Kidinv@aol.com

I have escorted groups of 50 or more people to a total of 7 total eclipses. With the exception of Antigua, where we were at a resort with other people, the only ones present at our viewing site was us. Let me say that we were also with a group in a tented village in Zambia last year, where there were a total of maybe 200 people on acres and acres of land, and there would have been room for thousands if they came. I would not ever worry about not

From : FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov>

You can see maps of all total and annular eclipses in North America from 1851 through 2100 on the NASA Eclipse Home Page. The index page for the maps is at:

<http://sunearth.gsfc.nasa.gov/eclipse/SEmap/SENorAm.html>

Someday when I find the time, I'll make similar maps for Europe. - Fred Espenak

From : Evan Zucker <ez@AbacusTotality.com>

Thanks for reminding me of those maps. They would have simplified my search for USA eclipses.

I note that New York City will have a sunrise total solar eclipse on 2079 May 1, 154 years since its last total eclipse in 1925 (also early morning, but not as early). A thin crescent will rise at 6:00 AM, and second contact occurs at 6:07 AM, with the sun 1.5 degrees above the horizon.

I know I won't be around to see it, but my sons will be 82 and 86-years-old, and so they might make it. I'll make sure they know about it. As for me, I'm holding out hope I'll live to be 90 so I can see the long 2045 eclipse, from the famous 1937-1955-1973-1991-2009-2027 saros.



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E**Antarctica eclipses**

From : "Olivier \"Klipsi\" Staiger" <klipsi@bluewin.ch> To : <SOLARECLIPSES@AULA.COM> Date : Tue, 23 Apr 2002 23:31:13 +0200

2003 tse.... I am really curious to learn if a total solar eclipse has been observed earlier from Antarctica, or if this is going to the first time ever in history ? the previous tse on antarctica was from same saros in 1985, only little landfall. has anybody observed that one ?

<http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot1951/SE1985Nov12T.gif>

has anybody among our veteran chasers been on antarctica for an eclipse, even annular or partial ?

does anybody know of images or reports of previous antarctic solar eclipses ?

2 years ago a partial eclipse was observed, I received via Dale Ireland a picture from a guy who was in McMurdo <http://eclipse.span.ch/5feb2kPSEmcMurdoMikeBilos.jpg>

and... among those who are going to Antarctica in 2003, is anybody going on a field inspection in november 2002 ? ;-)

From : Ferrerls@aol.com

Oliver, Just wanted to let you know, I'm booked on the 2003 Antartica Cruise. It'll be tight coming up with the money, but I plan to do it. I'm curious about the field inspection too. Let me know if you here anything. Leticia

From : "Patrick Poitevin" <patrick_poitevin@hotmail.com>

At the opposite side, I have observed the partial eclipse of 21 May 1993 from Nybyen, Svalbard. PP

From : David Makepeace <imoon@interlog.com>

I was discussing this last year with someone (can't remember who right now) and we seemed to think that if the 23 Nov 2003 observation is successful that it would be a first in history. Someone with more time than I could easily do the research. In fact, it is probably being done as I write this.

> and... among those who are going to Antarctica in 2003, is anybody going on a field inspection in november 2002 ?

The one land expedition I know of has already picked their site, and those of us going with Quark by sea will obviously not be going twice!

See y'al at the Hard Rock in PV on 09 June 2002. David Makepeace Toronto, Canada UmbraLog 1257

From : Jay.M.Pasachoff@williams.edu

I assume that Klipsi was joking. Weren't you? Jay

>> and... among those who are going to Antarctica in 2003, is anybody going on a field inspection in november 2002 ?

From : Assoc Prof J R Huddle <huddle@usna.edu>

Back when I still thought I might be able to wrangle a way to the Antarctic Ec lipse on an icebreaker, I asked the same question as Klipsi: Has anyone witnessed a total solar eclipse from Antarctica? If not, this would have been a selling point in my favor. I don't know the answer for certain, but I think not - at least not since 1950. Here's a recreation of my thinking at the time:

According to the tables at Fred Espenak's site the TSE of 12 Nov 1985 was the only total solar eclipse visible from the Antarctic continent. It was visible from the confluence of the Borchgrevink and Pennell Coasts, about 170 degrees West by 72 degrees South. I don't think anyone saw it from there, as outlined in the next paragraph, but I can't be sure.

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I'm looking at the National Geographic map of Antarctica, Copyright 1990 with Limited Revisions in 1994. Few research stations are shown in this area of Antarctica. The only one open year-round is the Russian Leningradskaya Station, but it looks to me like it is outside the zone of totality. (I have not plotted the zone in detail) It is hard to tell without plotting it whether the German Lille Marlene Hütte is in the zone or not. It is only open in the summer, according to this map - but I think the Antarctic summer includes November. There is a small station operated jointly by the US and New Zealand at Cape Hallet that is almost certainly in the zone. This station is marked "other;" apparently it is not open on a regular schedule. Then too, these camps may not have been there in 1985, and even if they were there and were populated, they could have been clouded out. Certainly, I would have plotted the path of the 1985 TSE if I'd gone forward with my icebreaker proposal, but that idea got shot down before it even left the ground. My dollar says nobody saw totality from the continent in 1985 - but I'm not willing to risk two. By the way, this is a fascinating map in many respects. You can buy it for US \$10.99, plus shipping, from the National Geographic online store, which is accessible from <http://www.nationalgeographic.com/>.

The TSE of 02 Nov 1967 (same saros as the 1985 and 2003 events, #152) was not quite total in Antarctica; neither was the TSE of 23 Oct 1957 (Saros 123). Apparently, the 1985 TSE has been the only total solar eclipse visible from Antarctica since at least 1950, which is when Fred's tables begin. Fred also lists 5 annular eclipses and several partials between 1950 and now that were visible from at least one point on the Antarctic continent, but I don't know whether or not anyone has seen them. Jim Huddle

From : Evan Zucker <ez@AbacusTotality.com>

Fred's 50-Year Solar Eclipse Canon of Solar Eclipses shows the 1957 totality path just making landfall on the Antarctic coast. The map at page 44 covers one-third of the globe, and so it doesn't provide a lot of detail, but it clearly shows the path crossing the coastline.

If any of you don't have Fred's 50 Year canons of solar and lunar eclipses, I highly recommend them. I consult mine frequently. You can find them at:

Solar: <http://www.amazon.com/exec/obidos/ASIN/093334645X/qid%3D1019675042/ref%3Dsr%5F11%5F0%5F1/103-7941522-2326245>

Lunar: http://www.amazon.com/exec/obidos/ASIN/0933346581/qid=1019676644/sr=1-3/ref=sr_1_3/103-7941522-2326245

Both: <http://skyandtelescope.com/shopatsky/category.asp?catalog%5Fname=SkyPub&category%5Fname=Books&SUBCATEGORY=Observers+Handbooks&Page=3>

Fred's Canon shows maps of total (and annular) eclipses back to 1901. The following total eclipses appear to have been visible from Antarctica:

1903 21 Sep
 1921 01 Oct -- this crossed the Antarctic Peninsula as well as the mainland
 1939 12 Oct

From : "Olivier \"Klripsi\" Staiger" <klripsi@bluewin.ch>

yes, Jay, you're right. It was a joke . It could happen, but it is quite unlikely. I know that you, and Fred , and Vic/Jen, and many other serious chasers, often go out on site inspection , if possible the same date the year before. I guess everybody is forgiven if for Antarctica we don't go ;-)

now, speaking of site inspection...

post-2003, there is the dull 2004. just 2 partials. What to do ? well of course we have the Venus transit (by the way, I just read in Lonely Planet Antarctica guide that the previous Venus transit was also observed from Kerguelen islands, and we will be visiting these islands in november 2003 !) and 2 total lunar eclipses in 2004 and.... October could be interesting: within two weeks you could get to Alaska in October for Northern Lights, see the deep partial solar eclipse, see the lunar eclipse from mainland U.S., and go chase some tornadoes (there are some in October, usually). and of course you could also choose to go on site inspection for 2005. Or

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on Easter island, site inspection for 2010. ;-) Or to Mecca on site inspection for 2027 just kidding ;-)

From : Alan Leighton <leighton@gmx.net>

If I am reading the tables correctly, the eclipse of 9 May 1910 was also total, and visible on the Antarctic coast south of Perth, Australia. Alan Leighton

From : <neptunes_clouds@gmx.de>

The computer program "Emapwin" confirms that total solar eclipses occurred in Antarctica at the following times in the 20th century:

1903, Sep 21
1910, May 5
1921, Oct 1
1939, Oct 12
1985, Nov 12

Andre

From : Peter Tiedt <Peter.Tiedt@npc-eagle.co.za>

One thing to consider is that for most of the southern winter (northern summer) - for this purpose read equinox to equinox - the Antarctic continent is in permanent "night" with the sun below the horizon for 24 hrs. Therefore no solar eclipse can occur.

From : Fraser Farrell <fraser@trilobytes.com.au>

The earliest reference I have found to any Antarctic eclipse is the lunar eclipse of 1916 July 15. This eclipse is mentioned in Lennard Bickel's book "Shackleton's Forgotten Argonauts"; which describes the appalling ordeals faced by the Ross Sea Party of the British Trans-Antarctic Expedition 1914-1917, led by Ernest Shackleton.

Shackleton's plan was to land himself and his main expedition on the Weddell Sea coast, proceed to the South Pole, and then continue across Antarctica to his old base at Cape Evans (on Ross Island). To support this ambitious plan, a second expedition - the Ross Sea Party - was tasked with laying a series of supply depots from Cape Evans towards the South Pole.

The main expedition never landed. Their ship was trapped in ice for months before being crushed; and their subsequent ordeals and eventual rescue rightly count as one of the greatest of survival stories. Meanwhile, on the other side of Antarctica, the Ross Sea Party had misfortunes of their own. Only part of their supplies had been landed before their ship was blown out to sea by a blizzard - forcing the men on shore to scrounge from the leftovers of previous Antarctic expeditions.

Despite this setback (and their subsequent losses of supplies, sled dogs and personnel) the Ross Sea Party did complete their mission; hauling their sledges over 3000 km to emplace tons of supplies across the Ross Ice Shelf and Beardmore Glacier. After completing this work, the last sledge party turned back to the main base at Cape Evans to sit out the oncoming winter.

They almost made it. The Cape Evans base was only a few hours away across McMurdo Sound, when winter closed in with a vengeance. For weeks the five surviving men of the last sledge party were trapped in a tiny camp at Hut Point. The weather eased briefly during the May full moon, and two of the men attempted the crossing of the Sound on newly formed ice. A couple of hours after they started walking, a blizzard came through and swept the new ice away. Their bodies were never found.

Two months later, the three survivors were in desperate straits from cold and malnutrition; and when the weather eased on July 15 to reveal a full moon they began their own crossing of the ice on McMurdo Sound. They were well on their way when the Moon began a deep partial eclipse....

The men had no almanac; so imagine their surprise and alarm as 4/5 of the Moon slowly vanishes! Making it even more difficult to see the lethal thin ice and cracks, the outlines of the land for their navigation, and any oncoming blizzard. The trio were greatly re-

(Continued on page 60)

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lied when this (almost 3 hours long) eclipse was over, and they completed their hazardous crossing to Cape Evans without further incident.

Months later, the survivors of the Ross Sea Party were rescued from Cape Evans. It was only then that they learned that their 2+ years of toil and suffering was in vain; because the main expedition had never reached Antarctica.

I have not yet found any specific reference to a -total- lunar eclipse in Antarctica, nor to any solar eclipse except the 2000 Feb 5 partial from McMurdo Sound. cheers, Fraser Farrell

From : Evan Zucker <ez@AbacusTotality.com>

> If I am reading the tables correctly, the eclipse of 9 May 1910 was also total, and visible on the Antarctic coast south of Perth, Australia.

You're quite correct -- I overlooked that one. Thanks.

That would have been a particularly interesting eclipse because Halley's Comet made its closest approach to Earth -- about 14-million miles -- the very next day, on May 10.

I haven't been able to find an exact star chart showing the comet's position for that day, and my planetarium program TheSky doesn't have coordinates for Halley's Comet, but I have seen a number of photographs of the comet from that week showing it close to the horizon during and just before twilight. I have also seen charts from a perspective above the solar system showing the relative position of the comet, the planets, and the sun.

From this data, it's not clear to me if the comet would have been visible during totality because the sun and moon were just 2 degrees above the horizon shortly before local noon at azimuth 350. My best extrapolation is that the comet's nucleus would have been about 10 degrees to the left (west) of the sun. Normally, that would mean that the tail would appear to be pointing away from the sun parallel to the horizon, but since the Earth was nearly within the tail that day, the tail would have appeared to be very foreshortened, and so I'm not sure what that effect would have had on its orientation and length. It's not as if many of us have any experience observing comets while the Earth is inside the comet's tail.

From points north, such as Perth, Australia, the comet should have been easily visible telescopically during the partial eclipse.

Since it's not likely that anybody observed totality ~~that day~~, I don't expect to find any observational reports of whether the comet was visible during totality. -- EVAN

From : KCStarguy@aol.com

After seeing Evans note, I decided to see what I could do with starry night pro. I have not read all the previous related reports on the listserve but thought I would give it a try. at 10:22 in the morning 5/9/1910 I am not sure if I have everything correct but at location Perth the moon seemed to have been partial, real close to the sun and Halley's is in the east just a few degrees above the horizon, real low in the constellation Hydra. So it was in the sky ever so low. The program says its magnitude was 2 at that time too. However the sun was higher in the sky. Like I said I might have some things wrong but it seems Halley's was in the sky. I produced a jpeg of it above the horizon . If anyone wants to see it, I can send it to you by private email. Do not post on this listserve. Why is it not people did not observe the eclipse?





Joanne & Patrick

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Antarctica Klipsi 5 February 2000 PSE McMurdo by Mike Bilos

